

# PHILIPPINE BIDDING DOCUMENTS

(As Harmonized with Development Partners)

## Supply, Delivery, Installation, Testing, Training and Maintenance of Department of Education Central Office Network Rehabilitation Project



Government of the Republic of the Philippines



Information and Communications Technology Service –  
Technology Infrastructure Division (ICTS-TID)

JULY 2021

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# ***Glossary of Acronyms, Terms, and Abbreviations***

**ABC** – Approved Budget for the Contract.

**BAC** – Bids and Awards Committee.

**Bid** – A signed offer or proposal to undertake a contract submitted by a bidder in response to and in consonance with the requirements of the bidding documents. Also referred to as *Proposal* and *Tender*. (2016 revised IRR, Section 5[c])

**Bidder** – Refers to a contractor, manufacturer, supplier, distributor and/or consultant who submits a bid in response to the requirements of the Bidding Documents. (2016 revised IRR, Section 5[d])

**Bidding Documents** – The documents issued by the Procuring Entity as the bases for bids, furnishing all information necessary for a prospective bidder to prepare a bid for the Goods, Infrastructure Projects, and/or Consulting Services required by the Procuring Entity. (2016 revised IRR, Section 5[e])

**BIR** – Bureau of Internal Revenue.

**BSP** – Bangko Sentral ng Pilipinas.

**Consulting Services** – Refer to services for Infrastructure Projects and other types of projects or activities of the GOP requiring adequate external technical and professional expertise that are beyond the capability and/or capacity of the GOP to undertake such as, but not limited to: (i) advisory and review services; (ii) pre-investment or feasibility studies; (iii) design; (iv) construction supervision; (v) management and related services; and (vi) other technical services or special studies. (2016 revised IRR, Section 5[i])

**CDA** - Cooperative Development Authority.

**Contract** – Refers to the agreement entered into between the Procuring Entity and the Supplier or Manufacturer or Distributor or Service Provider for procurement of Goods and Services; Contractor for Procurement of Infrastructure Projects; or Consultant or Consulting Firm for Procurement of Consulting Services; as the case may be, as recorded in the Contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

**CIF** – Cost Insurance and Freight.

**CIP** – Carriage and Insurance Paid.

**CPI** – Consumer Price Index.

**DDP** – Refers to the quoted price of the Goods, which means “delivered duty paid.”

**DTI** – Department of Trade and Industry.

**EXW** – Ex works.

**FCA** – “Free Carrier” shipping point.

**FOB** – “Free on Board” shipping point.

**Foreign-funded Procurement or Foreign-Assisted Project**– Refers to procurement whose funding source is from a foreign government, foreign or international financing institution as specified in the Treaty or International or Executive Agreement. (2016 revised IRR, Section 5[b]).

**Framework Agreement** – Refers to a written agreement between a procuring entity and a supplier or service provider that identifies the terms and conditions, under which specific purchases, otherwise known as “Call-Offs,” are made for the duration of the agreement. It is in the nature of an option contract between the procuring entity and the bidder(s) granting the procuring entity the option to either place an order for any of the goods or services identified in the Framework Agreement List or not buy at all, within a minimum period of one (1) year to a maximum period of three (3) years. (GPPB Resolution No. 27-2019)

**GFI** – Government Financial Institution.

**GOCC** – Government-owned and/or –controlled corporation.

**Goods** – Refer to all items, supplies, materials and general support services, except Consulting Services and Infrastructure Projects, which may be needed in the transaction of public businesses or in the pursuit of any government undertaking, project or activity, whether in the nature of equipment, furniture, stationery, materials for construction, or personal property of any kind, including non-personal or contractual services such as the repair and maintenance of equipment and furniture, as well as trucking, hauling, janitorial, security, and related or analogous services, as well as procurement of materials and supplies provided by the Procuring Entity for such services. The term “related” or “analogous services” shall include, but is not limited to, lease or purchase of office space, media advertisements, health maintenance services, and other services essential to the operation of the Procuring Entity. (2016 revised IRR, Section 5[r])

**GOP** – Government of the Philippines.

**GPPB** – Government Procurement Policy Board.

**INCOTERMS** – International Commercial Terms.

**Infrastructure Projects** – Include the construction, improvement, rehabilitation, demolition, repair, restoration or maintenance of roads and bridges, railways, airports, seaports, communication facilities, civil works components of information technology projects, irrigation, flood control and drainage, water supply, sanitation, sewerage and solid waste management systems, shore protection, energy/power and electrification facilities, national buildings, school buildings, hospital buildings, and other related construction projects of the government. Also referred to as *civil works or works*. (2016 revised IRR, Section 5[u])

**LGUs** – Local Government Units.

**NFCC** – Net Financial Contracting Capacity.

**NGA** – National Government Agency.

**PhilGEPS** - Philippine Government Electronic Procurement System.

**Procurement Project** – refers to a specific or identified procurement covering goods, infrastructure project or consulting services. A Procurement Project shall be described, detailed, and scheduled in the Project Procurement Management Plan prepared by the agency which shall be consolidated in the procuring entity's Annual Procurement Plan. (GPPB Circular No. 06-2019 dated 17 July 2019)

**PSA** – Philippine Statistics Authority.

**SEC** – Securities and Exchange Commission.

**SLCC** – Single Largest Completed Contract.

**Supplier** – refers to a citizen, or any corporate body or commercial company duly organized and registered under the laws where it is established, habitually established in business and engaged in the manufacture or sale of the merchandise or performance of the general services covered by his bid. (Item 3.8 of GPPB Resolution No. 13-2019, dated 23 May 2019). Supplier as used in these Bidding Documents may likewise refer to a distributor, manufacturer, contractor, or consultant.

**UN** – United Nations.

# ***Section I. Invitation to Bid***





Bidding is restricted to Filipino citizens/sole proprietorships, partnerships, or organizations with at least sixty percent (60%) interest or outstanding capital stock belonging to citizens of the Philippines, and to citizens or organizations of a country the laws or regulations of which grant similar rights or privileges to Filipino citizens, pursuant to RA No. 5183.

4. Prospective Bidders may obtain further information from **DepEd Procurement Management Service** at **Telephone Nos. 8636-6542 or 8633-9343** and inspect the Bidding Documents at the address given below from **Monday to Friday from 8:00am to 5:00pm.**
5. For those who are interested to purchase the Bidding Documents, two (2) options are made available, to wit:
  - a. A complete set of Bidding Documents may be acquired by interested Bidders from the **DepEd Procurement Management Service, Room M-511, 5th Floor, Mabini Building, DepEd Central Office Complex, Meralco Avenue, Pasig City**, upon accomplishing a bidder's information sheet, **presenting a "freshly-released" negative result (i.e., released within the past 24 to 72 hours) of similar tests (RT/PCR, antigen, or rapid test)**, and payment of a non-refundable fee for the Bidding Documents to the **DepEd Cashier**.

Payment in checks should be made payable to **DECS OSEC Trust**.

- b. Interested Bidders may signify their intent to purchase the Bidding Documents through email at [depedcentral.bacsecretariat@deped.gov.ph](mailto:depedcentral.bacsecretariat@deped.gov.ph) by accomplishing a bidder's information sheet (**Annex A**). Upon receipt of the bidder's information sheet, the BAC Secretariat Division will send through email the details of the DECS OSEC Trust Fund Account for payment. Upon payment, bidders may send through email the proof of payment before the deadline for submission of bids. Upon receipt of proof of payment, the BAC Secretariat will send the electronic copy of the Bidding Documents.

Amount of Bidding Documents shall be **Philippine Pesos Fifty Thousand and 00/100 (PhP 50,000.00)**

6. Considering the current situation due to the pandemic (COVID-19) and the mandate to observe social distancing, **DepEd** will hold a pre-bid conference for this Project on **August 9, 2021, 10:00 A.M. through videoconferencing using the MS Teams**, which shall be open to prospective bidders.

Prospective Bidders who intend to participate are required to communicate with the BAC Secretariat through email at [depedcentral.bacsecretariat@deped.gov.ph](mailto:depedcentral.bacsecretariat@deped.gov.ph) their confirmation and accomplish the Online Pre-bid Conference Form provided (**Annex B**) on or before **August 8, 2021, 12:00 NN**. Upon receipt of this form, the BAC Secretariat Division will send the link of the meeting.



7. Bids must be duly received by the BAC Secretariat on or before **10:00 A.M. of August 23, 2021 at Bulwagan ng Karunungan, Ground Floor, Rizal Building, DepEd Complex, Meralco Ave., Pasig City.**

**Late bids shall not be accepted.**

8. All Bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in **ITB** Clause 14.

9. Bid opening shall be on **August 23, 2021, 10:00 A.M. at Bulwagan ng Karunungan, Ground Floor, Rizal Building, DepEd Complex, Meralco Ave., Pasig City.** Bids will be opened in the presence of the bidders' representatives who choose to attend the activity.

In adherence to health protocols and to ensure the safety of everybody, all participants to the submission and opening of bids for the above project are required to present a latest negative result of rapid test/ swab test/ antigen test, before entering the premises of the Department of Education.

Only one (1) representative per bidder will be allowed entry into the premises.

**For the purpose of constituting a quorum**, both the physical and virtual presence of the BAC and TWG members shall be considered pursuant to GPPB Resolution No. 09-2020.

10. The **DepEd** reserves the right to reject any and all bids, declare a failure of bidding, or not award the contract at any time prior to contract award in accordance with Sections 35.6 and 41 of the 2016 revised IRR of RA No. 9184, without thereby incurring any liability to the affected bidder or bidders.

11. For further information, please refer to:

**Lady Love S. Arenas**

Senior Technical Assistant II  
Procurement Management Service - BAC Secretariat Division  
Rm. M-511, 5th Floor, Mabini Bldg.  
DepEd Central Office Complex Meralco Avenue, Pasig City  
Telephone Nos. 8636-6542 or 8633-9343  
Email address: [depedcentral.bacsecretariat@deped.gov.ph](mailto:depedcentral.bacsecretariat@deped.gov.ph)

12. You may visit the following websites:

For downloading of Bidding Documents:

<https://notices.philgeps.gov.ph/>

<https://www.deped.gov.ph/>

(SGD.)  
**Atty. REVSEE A. ESCOBEDO**  
**Undersecretary and Chairperson**



## ***Section II. Instructions to Bidders***

## 1. Scope of Bid

The Procuring Entity, **Department of Education (DepEd)**, through its **Information and Communications Technology Service – Technology Infrastructure Division (ICTS-TID)** wishes to receive Bids for the **Supply, Delivery, Installation, Testing, Training and Maintenance of Department of Education Central Office Network Rehabilitation Project**, with project identification number **2021-ICTS3(002)-BII-CB-017**.

The Procurement Project (referred to herein as “Project”) is composed of **one (1) Lot**, as described in **Section VI (Schedule of Requirements)**, and **Section VII (Technical Specifications)**.

## 2. Funding Information

2.1. The GOP, through the source of funding as indicated below, in the amount **Philippine Pesos One Hundred Fifteen Million and 00/100 (PhP 115,000,000.00)**.

2.2. The source of funding is General Appropriations Act of Fiscal Year 2021 under **DCP 2021 Capital Outlay**.

## 3. Bidding Requirements

The Bidding for the Project shall be governed by all the provisions of RA No. 9184 and its 2016 revised IRR, including its Generic Procurement Manuals and associated policies, rules and regulations as the primary source thereof, while the herein clauses shall serve as the secondary source thereof.

Any amendments made to the IRR and other GPPB issuances shall be applicable only to the ongoing posting, advertisement, or **IB** by the BAC through the issuance of a supplemental or bid bulletin.

The Bidder, by the act of submitting its Bid, shall be deemed to have verified and accepted the general requirements of this Project, including other factors that may affect the cost, duration and execution or implementation of the contract, project, or work and examine all instructions, forms, terms, and project requirements in the Bidding Documents.

## 4. Corrupt, Fraudulent, Collusive, and Coercive Practices

The Procuring Entity, as well as the Bidders and Suppliers, shall observe the highest standard of ethics during the procurement and execution of the contract. They or through an agent shall not engage in corrupt, fraudulent, collusive, coercive, and obstructive practices defined under Annex “I” of the 2016 revised IRR of RA No. 9184 or other integrity violations in competing for the Project.

## 5. Eligible Bidders

5.1. Only Bids of Bidders found to be legally, technically, and financially capable will be evaluated.

5.2. Foreign ownership exceeding those allowed under the rules may participate pursuant to:

- i. When a Treaty or International or Executive Agreement as provided in Section 4 of the RA No. 9184 and its 2016 revised IRR allow foreign bidders to participate;
- ii. Citizens, corporations, or associations of a country, included in the list issued by the GPPB, the laws or regulations of which grant reciprocal rights or privileges to citizens, corporations, or associations of the Philippines;
- iii. When the Goods sought to be procured are not available from local suppliers; or
- iv. When there is a need to prevent situations that defeat competition or restrain trade.

5.3. Pursuant to Section 23.4.1.3 of the 2016 revised IRR of RA No.9184, the Prospective bidder should have completed, within a period of five (5) years immediately preceding the deadline for submission of bids, Single Largest Completed Contract (SLCC) similar to the contract to be bid and the value of which, adjusted, if necessary, by the Bidder to current prices using the Philippine Statistics Authority (PSA) consumer price index, must be at least fifty percent (50%) of the ABC of the lot bid for; OR have completed, within a period of five (5) years immediately preceding the deadline for submission of bids, at least two (2) similar contracts and the total of the aggregated contract amount should be equivalent to at least fifty percent (50%) of the ABC of the lot/s bid for; and the largest of these similar contracts must be equivalent to at least twenty-five percent (25%) of the ABC of the lot/s to be bid.

5.4. The Bidders shall comply with the eligibility criteria under Section 23.4.1 of the 2016 IRR of RA No. 9184.

## 6. Origin of Goods

There is no restriction on the origin of goods other than those prohibited by a decision of the UN Security Council taken under Chapter VII of the Charter of the UN, subject to Domestic Preference requirements under **ITB** Clause 18.

## 7. Subcontracts

The Bidder may NOT subcontract portions of the Project.

## 8. Pre-Bid Conference

The Procuring Entity will hold a pre-bid conference for this Project on the specified date and time and either **through videoconferencing/webcasting** as indicated in paragraph 6 of the **IB**.

## 9. Clarification and Amendment of Bidding Documents

Prospective bidders may request for clarification on and/or interpretation of any part of the Bidding Documents. Such requests must be in writing and received by the Procuring Entity, either at its given address or through electronic mail indicated in the **IB**, at least ten (10) calendar days before the deadline set for the submission and receipt of Bids.

## 10. Documents comprising the Bid: Eligibility and Technical Components

- 10.1. The first envelope shall contain the eligibility and technical documents of the Bid as specified in **Section VIII (Checklist of Technical and Financial Documents)**.
- 10.2. The Bidder's SLCC as indicated in **ITB** Clause 5.3 should have been completed within a period of five (5) years prior to the deadline for the submission and receipt of bids.
- 10.3. If the eligibility requirements or statements, the bids, and all other documents for submission to the BAC are in foreign language other than English, it must be accompanied by a translation in English, which shall be authenticated by the appropriate Philippine foreign service establishment, post, or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines. Similar to the required authentication above, for Contracting Parties to the Apostille Convention, only the translated documents shall be authenticated through an apostille pursuant to GPPB Resolution No. 13-2019 dated 23 May 2019. The English translation shall govern, for purposes of interpretation of the bid.

## 11. Documents comprising the Bid: Financial Component

- 11.1. The second bid envelope shall contain the financial documents for the Bid as specified in **Section VIII (Checklist of Technical and Financial Documents)**.
- 11.2. If the Bidder claims preference as a Domestic Bidder or Domestic Entity, a certification issued by DTI shall be provided by the Bidder in accordance with Section 43.1.3 of the 2016 revised IRR of RA No. 9184.
- 11.3. Any bid exceeding the ABC indicated in paragraph 1 of the **IB** shall not be accepted.
- 11.4. For Foreign-funded Procurement, a ceiling may be applied to bid prices provided the conditions are met under Section 31.2 of the 2016 revised IRR of RA No. 9184.

## 12. Bid Prices

- 12.1. Prices indicated on the Price Schedule shall be entered separately in the following manner:

- a. For Goods offered from within the Procuring Entity's country:
  - i. The price of the Goods quoted EXW (ex-works, ex-factory, ex-warehouse, ex-showroom, or off-the-shelf, as applicable);
  - ii. The cost of all customs duties and sales and other taxes already paid or payable;
  - iii. The cost of transportation, insurance, and other costs incidental to delivery of the Goods to their final destination; and
  - iv. The price of other (incidental) services, if any, listed in **Section VII (Technical Specification)**.
- b. For Goods offered from abroad:
  - i. Unless otherwise stated in the **BDS**, the price of the Goods shall be quoted delivered duty paid (DDP) with the place of destination in the Philippines as specified in the **BDS**. In quoting the price, the Bidder shall be free to use transportation through carriers registered in any eligible country. Similarly, the Bidder may obtain insurance services from any eligible source country.
  - ii. The price of other (incidental) services, if any, as listed in **Section VII (Technical Specifications)**.

### **13. Bid and Payment Currencies**

13.1. For Goods that the Bidder will supply from outside the Philippines, the bid prices may be quoted in the local currency or tradeable currency accepted by the BSP at the discretion of the Bidder. However, for purposes of bid evaluation, Bids denominated in foreign currencies, shall be converted to Philippine currency based on the exchange rate as published in the BSP reference rate bulletin on the day of the bid opening.

13.2. Payment of the contract price shall be made in **Philippine Pesos**.

### **14. Bid Security**

14.1. The Bidder shall submit a Bid Securing Declaration or any form of Bid Security in the amount indicated in the **BDS**, which shall be not less than the percentage of the ABC in accordance with the schedule in the **BDS**.

14.2. The Bid and bid security shall be valid for **120 calendar days** reckoned from the date of the opening of bids. Any bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.



## **15. Sealing and Marking of Bids**

Each Bidder shall submit one copy of the first and second components of its Bid.

The Procuring Entity may request additional hard copies and/or electronic copies of the Bid. However, failure of the Bidders to comply with the said request shall not be a ground for disqualification.

## **16. Deadline for Submission of Bids**

16.1. The Bidders shall submit on the specified date and time at the physical address indicated in paragraph 7 of the **IB**.

## **17. Opening and Preliminary Examination of Bids**

17.1. The BAC shall open the Bids in public at the time, on the date, and at the place specified in paragraph 9 of the **IB**. The Bidders' representatives who are present shall sign a register evidencing their attendance. In case videoconferencing, webcasting or other similar technologies will be used, attendance of participants shall likewise be recorded by the BAC Secretariat.

In case the Bids cannot be opened as scheduled due to justifiable reasons, the rescheduling requirements under Section 29 of the 2016 revised IRR of RA No. 9184 shall prevail.

17.2. The preliminary examination of bids shall be governed by Section 30 of the 2016 revised IRR of RA No. 9184.

## **18. Domestic Preference**

18.1. The Procuring Entity will grant a margin of preference for the purpose of comparison of Bids in accordance with Section 43.1.2 of the 2016 revised IRR of RA No. 9184.

## **19. Detailed Evaluation and Comparison of Bids**

19.1. The Procuring BAC shall immediately conduct a detailed evaluation of all Bids rated "*passed*," using non-discretionary pass/fail criteria. The BAC shall consider the conditions in the evaluation of Bids under Section 32.2 of the 2016 revised IRR of RA No. 9184.

19.2. The Project does not allow partial bids. Bidders shall submit a proposal on the entirety of the project, and evaluation will be undertaken on the basis of the completeness of the bid.

19.3. The descriptions of the project, and all its inclusions, shall be included in **Section VII (Technical Specifications)**. The NFCC must be sufficient for the ABC of the project.

19.4. The Project shall be awarded as one (1) contract for one (1) lot.

- 19.5. Except for bidders submitting a committed Line of Credit from a Universal or Commercial Bank in lieu of its NFCC computation, all Bids must include the NFCC computation pursuant to Section 23.4.1.4 of the 2016 revised IRR of RA No. 9184, must be sufficient for the ABC of the project. For bidders submitting the committed Line of Credit, it must be at least equal to ten percent (10%) of the ABCs for all the lots or items participated in by the prospective Bidder.

## **20. Post-Qualification**

- 20.1. Within a non-extendible period of five (5) calendar days from receipt by the Bidder of the notice from the BAC that it submitted the Lowest Calculated Bid the Bidder shall submit its latest income and business tax returns filed and paid through the BIR Electronic Filing and Payment System (eFPS) and other appropriate licenses and permits required by law and stated in the BDS.

## **21. Signing of the Contract**

- 21.1. The documents required in Section 37.2 of the 2016 revised IRR of RA No. 9184 shall form part of the Contract. Additional Contract documents are indicated in the **BDS**.

## ***Section III. Bid Data Sheet***

# Bid Data Sheet

ITB Clause													
5.3	<p>For the purpose of the track-record requirement, contracts similar to the Project shall refer to the <b>“Supply, Delivery, Installation and Commissioning of Network Infrastructure that includes Structured Cabling and Network Active Components”</b></p> <p>For this purpose, the similar contract/s should have been completed within a period of <b>five (5) years</b> immediately preceding the deadline for the submission and receipt of bids.</p>												
7.1 (b)	<p><b>Subcontract</b></p> <p>Subcontracting is not allowed.</p>												
9	<p>Request for clarifications for an interpretation must be in writing and submitted at least ten (10) calendar days before the deadline set for the submission and receipt of bids.</p> <p>The Procuring Entity’s address is:</p> <p style="margin-left: 40px;"><b>The Chairperson</b>  <i>Bids and Awards Committee (BAC) II</i>  <i>c/o Procurement Management Service-BAC Secretariat Division</i>  <i>Rm. M-511, 5th Floor, Mabini Bldg.</i>  <i>DepEd Central Office Complex Meralco Avenue, Pasig City</i>  <i>Telephone Nos. 8636-6542 or 8633-9343</i>  <i>Email address: depedcentral.bacsecretariat@deped.gov.ph</i></p> <p>Consistent with Section 22.5.3 of the revised IRR of RA 9184, posting on the PhilGEPS and the procuring entity’s website of any supplemental/ bid bulletin shall be considered sufficient notice to all bidders or parties concerned.</p>												
12	The price of the Goods shall be quoted <b>Delivered Duties Paid (DDP)</b> .												
14.1	<p>The bid security shall be in the form of a Bid Securing Declaration, or any of the following forms and amounts:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th rowspan="2" style="width: 10%;">Lot</th> <th rowspan="2" style="width: 20%;">Description</th> <th rowspan="2" style="width: 20%;">Cost Breakdown of the Approved Budget for the Contract (ABC) Php</th> <th colspan="2" style="width: 50%;">Bid Security Form &amp; Amount (if other than Bid Securing Declaration)</th> </tr> <tr> <th style="width: 25%;">2% of ABC (if bid security is in cash, cashier’s/ manager’s check, bank draft/ guarantee or irrevocable letter of credit)</th> <th style="width: 25%;">5% of ABC (if bid security is in Surety Bond)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Supply, Delivery, Installation, Testing, Training and Maintenance of Department of Education Central Office Network</td> <td style="text-align: right;">115,000,000.00</td> <td style="text-align: right;">2,300,000.00</td> <td style="text-align: right;">5,750,000.00</td> </tr> </tbody> </table>	Lot	Description	Cost Breakdown of the Approved Budget for the Contract (ABC) Php	Bid Security Form & Amount (if other than Bid Securing Declaration)		2% of ABC (if bid security is in cash, cashier’s/ manager’s check, bank draft/ guarantee or irrevocable letter of credit)	5% of ABC (if bid security is in Surety Bond)	1	Supply, Delivery, Installation, Testing, Training and Maintenance of Department of Education Central Office Network	115,000,000.00	2,300,000.00	5,750,000.00
Lot	Description				Cost Breakdown of the Approved Budget for the Contract (ABC) Php	Bid Security Form & Amount (if other than Bid Securing Declaration)							
		2% of ABC (if bid security is in cash, cashier’s/ manager’s check, bank draft/ guarantee or irrevocable letter of credit)	5% of ABC (if bid security is in Surety Bond)										
1	Supply, Delivery, Installation, Testing, Training and Maintenance of Department of Education Central Office Network	115,000,000.00	2,300,000.00	5,750,000.00									



	Rehabilitation Project			
14.2	<p>Bid Securities, other than a Bid Securing Declaration, shall be turned-over to the DepEd Cash Division for custody. The Bid Securing Declaration shall be for the custody of the BAC Secretariat.</p> <p>The Bid Security shall not contain any deletion, crossing-out, expunction, or any form of correction. Otherwise, DepEd may reject such security if any such intercalation or alteration affects any material information or feature of the document.</p>			
15	<p>Bidders shall enclose their original eligibility and technical documents in one sealed envelope marked “ORIGINAL – TECHNICAL COMPONENT”, and the original of their financial component in another sealed envelope marked “ORIGINAL – FINANCIAL COMPONENT.” In addition, the Bidders shall submit a copy of each of the Technical Component and the Financial Component (<b>hard and soft copies</b>) of their bids in separate envelopes, respectively. Then, the bidders shall seal and mark the original and the copies of their bids.</p> <p>In the event of any discrepancy between the original and the copy, the original shall prevail.</p> <p>Original copies of the Class “A” Eligibility Legal Documents, such as the SEC, DTI, or the CDA registration certificate and the Mayor’s Permit, may not be submitted on the date and the time of the bid submission. However, the bidder must be able to present such original copies during post-qualification on demand by the BAC or its authorized representative(s).</p> <p>To facilitate the receipt and classification of bid envelopes, <b>outer envelopes shall be color RED, inner envelope containing Technical Proposal shall be color Blue and inner envelope containing Financial Proposal shall be color Green.</b></p> <p>Post qualification documents may be submitted during the bidding but this does not disqualify bidders who will not submit post qualification documents during bid submission.</p> <p><b>Note: Each Bidder shall submit three (3) paper copies of its bid.</b></p> <p>Unsealed or unmarked bid envelopes, shall be rejected. However, bid envelopes that are not properly sealed and marked as required in the Bidding Documents, shall be accepted, provided that the bidder or its duly authorized representative shall acknowledge such condition of the bid as submitted. The BAC shall assume no responsibility for the misplacement of the contents of the improperly sealed or marked bid, or for its premature opening.</p> <p><b>Online submission of bids is not allowed.</b></p>			
19.5	<p>The computation of a prospective bidder’s NFCC must be at least equal to the ABC to be bid, calculated as follows:</p>			



*NFCC – [(Current assets minus current liabilities) (15)] minus the value of all outstanding or uncompleted portions of the projects under ongoing contracts, including awarded contracts yet to be started*

The values of the domestic bidder's current assets and current liabilities shall be based on the latest Audited Financial Statements submitted to the BIR.

For purposes of computing the foreign bidders' NFCC, the value of the current assets and current liabilities shall be based on their Audited Financial Statements prepared in accordance with international financial reporting standards. (23.5.1.4a).

If the prospective bidder submits a committed Line of Credit, it must be at least equal to ten (10%) of the ABC of the lot or lots bid for: Provided, that if the same is issued by a foreign Universal or Commercial Bank, it shall be confirmed or authenticated by a local Universal or Commercial Bank.

In case of a joint venture, the NFCC shall be computed based on the Audited Financial Statements of the lead partner who must be of Filipino Nationality, unless it is shown by clear proof that the other partners to the joint venture have infused capital investment to support the operation of the local lead partner to ensure compliance with the obligations under the contracts in this project, in which case the NFCC of the foreign joint venture or the minority partner of the joint venture shall be computed.

For this purpose, the local lead partner shall be that person/organization/ company identified in the Joint Venture Agreement or in the Letters of Intent (for potential JV partners) shown to have the controlling stakes in the JV.

For easier reference, participating JVs or prospective JV partners must indicate in their JVAs or Letters of Intent the local lead partner appointed by them.

20.2

Within a non-extendible period of **five (5) calendar days** from receipt by the bidder of the notice from the BAC that it submitted the LCB, the Bidder shall submit the following requirements:

- a. Latest income and business tax returns: Printed copies of the Electronically filed Income Tax and Business Tax Returns with copies of their respective Payment Confirmation Forms for the immediately preceding calendar/tax year from the authorized agent bank;

Only tax returns filed and taxes paid through the BIR Electronic Filing and Payment System (EFPS) shall be accepted.

*NOTE: The latest income and business tax returns are those within the last six months preceding the date of bid submission.*

- b. Certificate of PhilGEPS Registration (Platinum Membership); and
- c. Other appropriate licenses and permits required by law and stated in this **BDS**.

During post-qualification, upon demand by the BAC or its representative(s), a bidder with the lowest calculated bid shall be able to present:

- a. Documents to verify or support its Statement of On-going and/or Statement identifying its Completed Contracts which may consist of the following: appropriate and clear duly signed contracts, purchase orders, agreements, notices of award, job orders, or notices to proceed, with the corresponding duly signed certificate of completion, delivery receipts, inspection and acceptance reports, certificates of final acceptance or official receipts.
- b. Original copy of the submitted eligibility, technical and financial documents during bid opening.

In case of foreign bidders, a Certificate of Authentication from the Department of Foreign Affairs shall be required for each document submitted, i.e. the Class "A" documents or its equivalent that are written in foreign language, translated to English, and duly authenticated by the appropriate Philippine foreign service establishment/post or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines.

In addition to the documentary requirements to be submitted during post-qualification the bidder having the Lowest Calculated Bid shall submit:

- a. Certification of After Sales Support for the Network equipment indicating the Support, should include on-line, telephone support, on-call, on-site and replacement if the hardware is defective under warranty.
- b. Brochures or Technical Data Sheet or equivalent document for the following items/equipment showing compliance with the required Technical Specifications:
  - i. Active Networking Devices
  - ii. Fiber Optic Cable
  - iii. Category 6 UTP
  - iv. IP Telephone System and Hand sets
  - v. VHF/UHF Radio Communication Systems Devices
  - vi. IP Paging System Devices
- c. Proposed design, configuration and specifications of offered design systems and technology shall show compliance, compatibility and best fit to the desired systems subject for evaluation of the procuring entity.
- d. Proposed Work Plan and Detailed Implementation Schedule for the Project covering the whole period. Prospective Bidders are



required to conduct site inspection. This is to ensure the reliability, security and efficiency of the required services that the prospective bidder shall perform. Timeframe should be specified for each activity to be done and shall include Gantt Chart Summary.

- e. 25 Years Product Warranty Certificate from the Cabling Manufacturer of the Product Offered (for fiber optics and CAT 6 cable)
- f. Sample/demo units for each item based on the technical specifications as indicated in Section VII. Technical Specifications during Post-qualification. Bidder may provide better or superior quality samples.
  - i. Core Switch 1 Unit – 1 unit
  - ii. Power Over Ethernet (Poe) Switch – 1 unit
  - iii. Access Point (AP) – 1 unit
  - iv. IP Phone – 1 unit
  - v. CAT6 UTP Cable - 1 box

These samples shall be subjected to evaluation during post-qualification to determine compliance of the said bidder with DepEd Technical Specifications requirements.

Failure of the samples to meet DepEd specifications shall be a ground for disqualification of the bidder.

The following shall also be complied and submitted by the bidder based on the following requirements:

1. The Prospective Bidder must have at least seven (7) years' experience as System Integrator and provide documentation as proof of undertaking similar projects;
  - a. Copy, Certificate of Project Completion
  - b. Copy, Contract stating role as System Integrator
  - c. Summarize if more than three projects
2. The prospective bidder must have a PECE in-charge as Project Manager of the project management team. The nominated Project Manager must have been trained and certified as expert, must provide a signed statement to commit to work and finish the project;
  - a. Copy of Contract, nominated project manager;
  - b. Curriculum Vitae, nominated project manager;
  - c. copy of PECE certification
  - d. signed commitment letter
3. The prospective bidder must have a CDCE member of the project management team. The nominated expert must have been trained and certified as expert and must provide a signed statement to commit to work and finish the project;
  - a. Copy of Contract, nominated expert with CDCE;
  - b. Curriculum Vitae, nominated expert with CDCE;
  - c. copy of CDCE certification
  - d. signed commitment letter



	<p>4. The prospective bidder must have at least three (3) Engineers and Technicians certified to install cabling system. The nominated personnel must have been trained and certified and must provide a signed statement to commit to work and finish the project;</p> <ol style="list-style-type: none"> <li>a. Copy of Contract, per nominated engineers and technicians;</li> <li>b. Curriculum Vitae, per nominated engineers and technicians;</li> <li>c. copy of certifications per nominated engineers and technicians;</li> <li>d. signed commitment letter</li> </ol> <p>5. The Prospective bidder must have Certified Safety Officer trained and certified in the design and installation of cabling System and must provide a signed statement to commit to work and finish the project.</p> <ol style="list-style-type: none"> <li>a. Copy of Certification as Safety Officer</li> <li>b. Copy of training certificate in the design and Installation Cabling System</li> <li>c. Curriculum vitae, nominated officer</li> <li>d. signed commitment letter</li> </ol> <p>To facilitate post-qualification, the bidder at its option may submit in advance, i.e., on the deadline for submission and receipt of bids, above requirements and other documents required in Section II. ITB 20.2.</p> <p>The envelope shall be placed in a brown envelope and marked:  ITB 20.2 Documents  Name of Project: _____  Bid Opening Date: _____  Name of Bidder: _____</p> <p>Failure to submit above requirements within the required timeframe or a finding against the veracity of any such documents or other documents submitted for the project shall be a ground for disqualification of the bidder for the award and the enforcement of the bid securing declaration.</p>
21.1	No additional document

## ***Section IV. General Conditions of Contract***

## 1. Scope of Contract

This Contract shall include all such items, although not specifically mentioned, that can be reasonably inferred as being required for its completion as if such items were expressly mentioned herein. All the provisions of RA No. 9184 and its 2016 revised IRR, including the Generic Procurement Manual, and associated issuances, constitute the primary source for the terms and conditions of the Contract, and thus, applicable in contract implementation. Herein clauses shall serve as the secondary source for the terms and conditions of the Contract.

This is without prejudice to Sections 74.1 and 74.2 of the 2016 revised IRR of RA No. 9184 allowing the GPPB to amend the IRR, which shall be applied to all procurement activities, the advertisement, posting, or invitation of which were issued after the effectivity of the said amendment.

Additional requirements for the completion of this Contract shall be provided in the **Special Conditions of Contract (SCC)**.

## 2. Advance Payment and Terms of Payment

- 2.1. Advance payment of the contract amount is provided under Annex "D" of the revised 2016 IRR of RA No. 9184.
- 2.2. The Procuring Entity is allowed to determine the terms of payment on the partial or staggered delivery of the Goods procured, provided such partial payment shall correspond to the value of the goods delivered and accepted in accordance with prevailing accounting and auditing rules and regulations. The terms of payment are indicated in the **SCC**.

## 3. Performance Security

Within ten (10) calendar days from receipt of the Notice of Award by the Bidder from the Procuring Entity but in no case later than prior to the signing of the Contract by both parties, the successful Bidder shall furnish the performance security in any of the forms prescribed in Section 39 of the 2016 revised IRR of RA No. 9184.

## 4. Inspection and Tests

The Procuring Entity or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Project specifications at no extra cost to the Procuring Entity in accordance with the Generic Procurement Manual. In addition to tests in the **SCC, Section VII (Technical Specifications)** shall specify what inspections and/or tests the Procuring Entity requires, and where they are to be conducted. The Procuring Entity shall notify the Supplier in writing, in a timely manner, of the identity of any representatives retained for these purposes.

All reasonable facilities and assistance for the inspection and testing of Goods, including access to drawings and production data, shall be provided by the Supplier to the authorized inspectors at no charge to the Procuring Entity.



## **5. Warranty**

- 5.1 As may be applicable, in order to assure that manufacturing defects shall be corrected by the Supplier, a warranty shall be required from the Supplier as provided under Section 62.1 of the 2016 revised IRR of RA No. 9184.
- 5.2 The Procuring Entity shall promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall, repair or replace the defective Goods or parts thereof without cost to the Procuring Entity, pursuant to the Generic Procurement Manual.

## **6. Liability of the Supplier**

The Supplier's liability under this Contract shall be as provided by the laws of the Republic of the Philippines.

If the Supplier is a joint venture, all partners to the joint venture shall be jointly and severally liable to the Procuring Entity.

## ***Section V. Special Conditions of Contract***

## Special Conditions of Contract

GCC Clause	
1	<p><b>Delivery and Documents –</b></p> <p>The delivery terms applicable under this Contract shall be <b>DDP (Duties Delivered Paid)</b>. Risk and title to the Goods shall pass from the Supplier to the DepEd upon receipt and final acceptance of the Goods/Services at the designated delivery site (<b>DepEd Central Office</b>).</p> <p>The Goods and Services supplied to the delivery site shall conform to and comply with the Standards mentioned in Sec. VI Schedule of Requirements and Sec. VII Technical Specifications of the bidding documents.</p> <p>Upon delivery of the Goods to the Delivery Site, the Supplier shall notify DepEd thru ICTS and present the following documents:</p> <ol style="list-style-type: none"> <li>i. Original and four copies of the Supplier’s invoice showing Goods’ / services’ description, quantity, unit price, and total amount;</li> <li>ii. Original and four copies of the Manufacturer’s and/or Supplier’s Warranty Certificate, where applicable;</li> <li>iii. Original (white copy) and scanned copy stored in CD/DVD/Flash Drive of the pre-numbered Inspection and Acceptance Report (IAR) and Delivery Receipt (DR) detailing number and description of items received and duly signed and dated by the Authorized Receiving Personnel (ARP).</li> </ol> <p>For purposes of this Clause the DepEd’s Representative at the delivery site shall be the <b>Information and Communications Technology Service-Technology Infrastructure Division (ICTS-TID)</b> through <b>ENGR. OFELIA L. ALGO, for the End-User Unit, and MS. MARITESS ABLAY, for the Inspectorate Team.</b></p> <p>In case the Supplier encounters conditions impeding timely delivery of the Goods, it must promptly notify DepEd in writing of such conditions. As a rule, and on account of the emergency nature of this project, no work suspensions and/or contract period extension shall be permitted.</p>
2.2	<p><b>Schedule of Payment:</b></p> <p>Supplier may submit a request for payment based on the Progress Reports which shall be attached to the progress billing and include the following: (i) Cumulative value of the work delivered based on the schedule of deliveries and other relevant terms and conditions of the contract; and (ii) Inspection and Acceptance Reports, including certification by Supplier, as approved by the duly authorized DepEd representative, that the items have been delivered and/or properly installed and commissioned in accordance with the contract.</p>



[NOTE: The Supplier must furnish copy of the above-mentioned documents to DepEd Accounting and the End-user (*Information and Communications Technology Service – Technology Infrastructure Division (ICTS-TID)*) and the Contract Management Division of the Procurement Service, Central Office.

The method and conditions of payment to be made to the Supplier through the Government disbursement procedure within sixty (60) days after the date of acceptance of Goods at the delivery site and upon submission of documents under this contract shall be as follows:

**Advance Payment**

An advance payment of fifteen percent (15%) of the contract amount shall be allowed and paid within sixty (60) calendar days from signing of the contract. An irrevocable letter of credit or bank guarantee of an equivalent amount must be submitted, and shall remain valid until the goods are delivered, and accompanied by a claim for advance payment.

**Progress Payment**

Subject to the provision on advance payment and other deductions herein provided, progress payment shall be paid to the Supplier in accordance with the following schedule:

Milestone	Description	Percentage of the Contract Price
1	At least 40% work accomplishment  Complete installation and operation of works in: <ul style="list-style-type: none"> <li>• Mabini Building</li> <li>• Mabini Data Center</li> </ul>	40%
2	Additional 40% work accomplishment  Complete installation and operation of works in: <ul style="list-style-type: none"> <li>• Aguinaldo Building</li> <li>• Alonzo Building</li> <li>• Bonifacio Building</li> <li>• Rizal Building</li> </ul>	40%
3	Additional 20% work accomplishment and final acceptance  Complete installation and operation of the following: <ul style="list-style-type: none"> <li>• Employee and Guest Management System</li> </ul>	20%



	<ul style="list-style-type: none"> <li>• Network Monitoring System</li> <li>• Security Monitoring System</li> <li>• Unified IP Telephone System</li> </ul> <p>Delivery of:</p> <ul style="list-style-type: none"> <li>• Knowledge Transfers and Training Sessions</li> </ul>	
<p>The statement of work accomplished must be certified by DepEd's Representative/Project Engineer. Materials and equipment delivered on the site but not completely installed and in operation shall not be included for payment.</p> <p>DepEd shall deduct the following from the certified gross amounts to be paid to the Supplier as progress payment:</p> <ol style="list-style-type: none"> <li>a. Cumulative value of the work previously certified and paid for;</li> <li>b. Portion of the advance payment to be recouped for the month;</li> <li>c. Retention money in accordance with the condition of contract;</li> <li>d. Amount to cover third party liabilities; and</li> <li>e. Amount to cover uncorrected discovered defects in the works.</li> </ol> <p>Payment Certificates</p> <ol style="list-style-type: none"> <li>a. The Contractor shall submit to the Procuring Entity's Representative monthly statements of the estimated value of the work executed less the cumulative amount certified previously.</li> <li>b. The Procuring Entity's Representative shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor.</li> <li>c. The value of Work executed shall: <ol style="list-style-type: none"> <li>i. be determined by the Procuring Entity's Representative;</li> <li>ii. comprise the value of the quantities of the items in the Bill of Materials completed; and</li> <li>iii. include the valuation of approved variations.</li> </ol> </li> <li>d. The Procuring Entity's Representative may exclude any item certified in a previous certificate in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information."</li> </ol> <p>Payment shall be made within sixty (60) calendar days after the date of acceptance of goods at the Project Site and upon submission of the following documents:</p> <p>Milestones 1 and 2</p> <ol style="list-style-type: none"> <li>a. Request for payment for Work accomplished.</li> <li>b. Approved Engineering Design</li> <li>c. Billing / Invoice</li> <li>d. Signed Delivery Receipts</li> <li>e. Signed Inspection and Acceptance Report (IAR)</li> </ol>		



	<p><b>Final Payment</b></p> <p>The remaining twenty percent (20%) of the Contract Price shall be paid to the Supplier within sixty (60) days after the date of acceptance of goods at the Project site and upon submission of the following documents:</p> <ol style="list-style-type: none"> <li>a. Request for payment for Work accomplished</li> <li>b. Approved/Signed As built Plans</li> <li>c. Billing/Invoice</li> <li>d. Signed Delivery Receipts</li> <li>e. Signed Inspection and Acceptance Report (IAR)</li> <li>f. Certificate of Final Acceptance</li> <li>g. Warranty Certificates</li> <li>h. Operations &amp; Maintenance Manuals</li> <li>i. Signed Completion of training session</li> </ol> <p>Final payment shall constitute release of the retention money in case of expiry of the warranty period, or in case of use in part of the retention money by reason of a call upon the warranty, the final payment shall constitute the release of the balance amount.</p> <p>All progress payments shall first be charged against the advance payment until the latter have been fully recouped.</p>
3	<p><b>Performance Security</b></p> <p>The Performance Security shall be posted in favor of DepEd, and shall be forfeited in the event it is established that the Supplier is in default of any of its obligation under the contract. The Supplier shall be responsible for the extension of its performance security and/or renewal of its performance security whenever necessary and/ without need of prior notice or instruction from DepEd, to ensure that it is in force and effect for the whole duration of the contract delivery period and until a Certificate of Final Acceptance is duly issued.</p> <p>The Performance Security shall not contain any deletion, crossing-out, expunction, or any form of correction. Otherwise, DepEd may reject such security if any such intercalation or alteration affects any material information or feature of the document.</p>
4	<p><b>Inspection</b></p> <p>Where applicable for goods to be delivered, pre-delivery inspections and tests shall be conducted by DepEd thru the duly designated Inspectorate Team. The said inspections and tests shall be made upon notice to the DepEd of the readiness of the goods for inspection and testing.</p>
5	<p><b>Warranty</b></p>

Payments shall be subject to the Warranty provision in the form of either retention money in an amount equivalent to at least five percent (5%) of every progress payment, or a special bank guarantee in the amount equal to at least five percent (5%) of the Contract Price as provided under Section 62.1 of R.A. 9184 and its Revised IRR.

The **Special Bank Guarantee** shall not contain any deletion, crossing-out, expunction, or any form of correction. Otherwise, DepEd may reject such security if any such intercalation or alteration affects any materials information or feature of the document.

The bidder shall guarantee that the entire structured cabling and networks are free from all defective workmanship and materials, and will remain so for the period of:

- a. Three (3) year warranty for the following equipment:
  - i. Core switch
  - ii. Access Point
  - iii. Distribution Switch
  - iv. Power Over Ethernet Switch
  - v. Smart Data Cabinet
  - vi. IPBX Main System
  - vii. Operator Phone
  - viii. IP Phones
  - ix. UPS
  - x. Door Access System
  - xi. IP Based Paging System Hardware
  - xii. Stand Alone FDAS with Notification
  
- b. Three (3) year warranty on Workmanship

## ***Section VI. Schedule of Requirements***



**A. List/Description of Goods /Services**

A.1 The delivery schedule expressed below stipulates the date of delivery to the project site.

<b>Lot No.</b>	<b>Description</b>	<b>Item</b>	<b>Delivery / Contract Duration</b>
1	Supply, Delivery, Installation, Training and Maintenance of Department of Education Central Office Network Rehabilitation Project	Fiber and Copper Network Structured Cabling	Delivery is within one hundred twenty (120) calendar days from the date of receipt of the Notice to Proceed (NTP)
		Fiber and Copper Network Active Components, Employee and Guest Management System, Network Monitoring System, and Security Monitoring System	
		Data Center Upgrading	
		Unified IP Telephone System	
		IP-Based Unified Paging System	

**B. Delivery Schedule**

Complete delivery shall be made within one hundred twenty (120) calendar days from the date of receipt of the Notice to Proceed (NTP) in coordination with DepEd Information Communication and Technology Services (ICTS).

**C. Delivery Site**

Goods/Services shall be delivered to DepEd Central Office, Meralco Avenue, Pasig City.



## **TERMS OF REFERENCE**

### **RATIONALE**

The Department of Education Central Office has established the; (1) network infrastructure facilities that caters local network operations and internet connectivity, (2) Analog PABX for voice communication requirements. For several years, said facilities has continuously advanced the agency's information processing capability. However, DepEd Central office has experienced slow to intermittent local and internet connectivity. With the help of Philippine Association of Government Electronics Engineers (PAGE), TID-ICTS of DepEd Central office conducted an ICT Infrastructure Assessment and found out that there is a need to upgrade the existing infrastructure since it can no longer provide to the current data transmission requirements, network security, voice and data integration requirements and overall network operation of the agency to effectively and efficiently monitor DepEd's Computerization Program (DCP) implementation.

To respond to this, DEPED CENTRAL OFFICE has embarked on the acquisition of upgraded network infrastructure and communications facility. The project is categorized into five (5) different items.

1. FIBER AND COPPER NETWORK STRUCTURED CABLING
2. FIBER AND COPPER NETWORK ACTIVE COMPONENTS, EMPLOYEE AND GUEST MANAGEMENT SYSTEM, NETWORK MONITORING SYSTEM, AND SECURITY MONITORING SYSTEM
3. DATA CENTER UPGRADING
4. UNIFIED IP TELEPHONE SYSTEM
5. IP-BASED UNIFIED PAGING SYSTEM

### **OBJECTIVES**

The overall project objective is to upgrade network infrastructure, and communication facilities that can provide a better user experience in accessing local area network and internet connectivity, and utilizing communications facility. The following specific objectives are the results of the IT Assessment findings conducted. The specific objectives are:

1. Provide high-speed wide area network by implementing Fiber Optic Cable Network backbone from different buildings to Mabini Data Center and Category 6 copper horizontal distribution.
2. Provide appropriate active network devices to support new Fiber and horizontal cabling.
3. Provide efficient network management by using state of the art Network Management and Employee and Guest Management System.
4. Provide secured network infrastructure by using 24x7 Security Monitoring System.
5. Upgrade Mabini Data Center by providing state of the art SMART Data Center Cabinet Systems.
6. Facilitate efficient communication using IP based Telephone system with integration to UHF/VHF radio communication system, existing analog PABX and IP based Paging System.



7. Provide IP-based Paging System with integration to IP Telephone System and VHF/UHF Radio Communication System.
8. Provide capacity building to DepEd Central Office TID-ICTS technical personnel.

## **I. DUTIES AND RESPONSIBILITIES OF THE PROSPECTIVE BIDDERS**

1. The prospective bidder may conduct a Site Survey/ Inspection prior to submission of bids at their own expense. Addition to which, the following should be met:
  - 1.1. Contractor/Provider must provide the list of personnel that would be onsite to conduct the site survey
  - 1.2. Contractor/Provider's shall provide photocopies (2 copies) of Company Issued ID and a Government issued unexpired at the time of inspection attached to the Letter request for Site survey/inspection.
2. The prospective bidder shall furnish all equipment, labor, materials, tools and equipment, and perform all operations necessary to complete the supply, delivery, installation, testing and commissioning of Fiber Optic Backbone Cabling, Structured Cabling, Network Active components, Data Center Upgrading, IP Telephony, and IP-based Paging System of DEPED CENTRAL OFFICE.
3. The prospective bidder shall provide warranty service within the warranty period. Provision of upgrades and patches to be installed must be free of charge during the warranty period. The Prospective bidder shall be responsible for all the cost related to the warranty period for hardware products.
4. **General Requirements**
  - 4.1. Submission of Proposed Detailed Plan/Design and Specifications for Fiber Optic Backbone Cabling and Structured Cabling for Data, Telephone, and Paging System.
  - 4.2. Submission of Project Management Plan
  - 4.3. Provision of Technical documentation
  - 4.4. Supply of labor, delivery and installation of various fiber, cables and components.
  - 4.5. Conduct of site survey and provisions of appropriate site specifications for the supplied materials.
  - 4.6. Submission of the Bill of Materials for the project.
  - 4.7. Provision of the in-house wiring, including the Telco lines, from the cable entrance to the network rack where the active components are located.
  - 4.8. Supply delivery and pulling of Category 6A UTP cable and Fiber optic cable
  - 4.9. Supply, delivery and installation of metal support for Cable Gutter, PVC conduits and other consumables
  - 4.10. End to end Tagging and Labelling
  - 4.11. Conduct Testing and Commissioning
  - 4.12. Conduct Training

## **5. Scope of Work**

### **5.1. Fiber and Copper Network Structured Cabling**

- 5.1.1. Submission of Proposed Detailed Plan/Design and Specifications for Fiber Optic Backbone Cabling and Structured Cabling for Data, Telephone, and Paging System.
- 5.1.2. Submission of Project Management Plan
- 5.1.3. Provision of Technical documentation
- 5.1.4. Supply of labor, delivery and installation of various fiber, cables and components.



- 5.1.5. Conduct of site survey and provisions of appropriate site specifications for the supplied materials.
- 5.1.6. Submission of the Bill of Materials for the project.
- 5.1.7. Provision of the in-house wiring, including the Telco lines, from the cable entrance to the network rack where the active components are located.
- 5.1.8. Supply delivery and pulling of Category 6A UTP cable and Fiber optic cable
- 5.1.9. Supply, delivery and installation of metal support for Cable Gutter, PVC conduits and other consumables
- 5.1.10. Supply, delivery and installation of information outlet in all DepEd Central Offices.
- 5.1.11. End to end Tagging and Labelling
- 5.1.12. Conduct Testing and Commissioning
- 5.1.13. Conduct Training

**5.2. Fiber and Copper Network Active Components, Employee and Guest Management System, Network Monitoring, and Security Monitoring System**

- 5.2.1. Submission of Proposed Detailed Design, Configuration and Specifications of Employee and Guest Management System, Network Monitoring, and Security Monitoring System
- 5.2.2. Submission of Project Management Plan
- 5.2.3. Submission of the Bill of Materials for the project.
- 5.2.4. Provision of Technical documentation for equipment and Software.
- 5.2.5. Supply and delivery of active components employee and guest management system, network monitoring, and security monitoring system
- 5.2.6. Supply of labor, delivery and installation and configuration of equipment and software. Conduct of site survey and provisions of appropriate site specifications for the supplied materials.
- 5.2.7. Submission of the Bill of Materials for the project.
- 5.2.8. Conduct Testing and Commissioning
- 5.2.9. Conduct Training

**5.3. Data Center Upgrading**

- 5.3.1. Submission of Project Management Plan
- 5.3.2. Provision of Technical documentation
- 5.3.3. Submission of the Bill of Materials for the project.
- 5.3.4. Supply of labor, delivery and installation of SMART DATA CABINET SYSTEM.
- 5.3.5. Conduct of site survey and provisions of appropriate site specifications for the supplied materials.
  - a. Supply, delivery, installation, set-up and commissioning of the following equipment and materials: SMART Cabinet System
  - b. Required Cables tray and other materials/accessories
  - c. Fiber Switch
  - d. Electrical Circuit Components which include but not limited to the following:
    - i. Circuit Breakers
    - ii. Transfer Switch
    - iii. Power Outlets
    - iv. PVC conduits
    - v. Power Outlets for Server/ Computers, Air Conditioner, Emergency Lights and;



- vi. Other electrical components needed for the renovation
  - e. Split Type Air Conditioning Unit
  - f. Fire Alarm System and access management equipment, components and accessories
  - g. Rehabilitation of existing fire suppression system
- 5.3.6. Carpentry/Masonry works
- a. Replacement of glass jalousie window with aluminum frame glass windows
  - b. Replacement of glass windows with finish concrete
  - c. Replacement of glass door with Steel Door
  - d. Finishing and paint works
- 5.3.7. Conduct Testing and Commissioning
- 5.3.8. Conduct Training

#### **5.4. Unified IP Telephone System**

- 5.4.1. Submission of Project Management Plan
- 5.4.2. Provision of Technical documentation
- 5.4.3. Submission of the Bill of Materials for the project.
- 5.4.4. Supply, delivery, installation, set-up, integration of the following equipment and materials of IP Telephone System and Radio Communication System
- 5.4.5. Conduct of site survey and provisions of appropriate site specifications for the supplied materials.
- 5.4.6. Conduct Testing and Commissioning
- 5.4.7. Conduct Training

#### **5.5. IP-Based Unified Paging System**

- 5.5.1. Submission of Project Management Plan
- 5.5.2. Provision of Technical documentation
- 5.5.3. Submission of the Bill of Materials for the project.
- 5.5.4. Supply, delivery, installation, set-up, integration of the following equipment and materials of IP-based Paging System and IP Telephony.
- 5.5.5. Conduct of site survey and provisions of appropriate site specifications for the supplied materials.
- 5.5.6. Conduct Testing and Commissioning
- 5.5.7. Conduct Training

### **6. Specific Requirements**

#### **6.1. Pre-installation**

Submit Work Plan within five (5) working days upon receipt of Notice to Proceed

#### **6.2. Installation**

Supply, deliver and install the required components as specified in the Terms of Reference.



### **6.3. Post-Installation**

- 6.3.1. Restore damages to property caused by excavation, installation, maintenance and/or removal of cabling equipment and other procedures conducted by the prospective bidder to accomplish the project.
- 6.3.2. Conduct free training for IT personnel of DEPED CENTRAL OFFICE on the basic maintenance and operational requirements of structured cabling and the equipment.
- 6.3.3. Provide at least one (1) copy of the technical manual/documentation (English) in printed hard copy and electronic (soft copy) formats. The documents include Cabling and equipment installation, operation, configuration and testing.
- 6.3.4. Render support services to DEPED CENTRAL OFFICE within the warranty period.
- 6.3.5. Technical support will be provided through phone calls or email within regular working hours from Monday to Friday, 8:00AM to 5:00PM
- 6.3.6. If the supplied equipment is found defective and need to be pulled-out, the prospective bidder shall provide replacement with the same or higher specifications.
- 6.3.7. Rectify and or/replace any part that fail to pass any test/inspection or make alteration necessary to meet the specification.
- 6.3.8. Responsible and accountable for any damage caused solely by the Prospective bidder or its agent to the DEPED CENTRAL OFFICE Building as a direct result of the installation maintenance, and removal of any cabling components and devices.

## **II. DUTIES AND RESPONSIBILITIES OF DEPED CENTRAL OFFICE**

1. Assist prospective bidders during the conduct of site Survey
2. Review and approve the work plan submitted by Prospective bidder within five (5) working days.
3. Grant the Prospective bidder authorized representative access to its premises and facilities located therein to perform its obligations, provided that such representative shall be accompanied by the duly assigned DEPED CENTRAL OFFICE personnel.
4. Reject any unit or any part thereof that fail to pass any test and/or inspection or do not conform to specifications.
5. Pay the Prospective bidder in accordance with condition set in the Payment Scheme.
6. Issue a Certification of Inspection and Acceptance upon determination by the TID-ICTS Inspectorate Team that the delivered and installed equipment and components are usable and in good working condition.



### III. SUBMISSION OF SAMPLES/DEMO UNITS

The bidder with the lowest calculated bid shall submit the required units for each of the items bid;

1. The following Demo Units shall be submitted by the bidder to the BAC Secretariat for proper labeling and / or marking before the set deadline. refusal or unreasonable delay to submit the demo units within the prescribed period shall be a ground for the enforcement of the Bid Securing Declaration for the forfeiture of the Bid Security and disqualification of award;
  - 1.1 Core Switch 1 Unit – 1 unit
  - 1.2 Power Over Ethernet (Poe) Switch – 1 unit
  - 1.3 Access Point (AP) – 1 unit
  - 1.4 IP Phone – 1 unit
  - 1.5 CAT6 UTP Cable - 1 box
2. The Technical Working Group (TWG) shall conduct visual / physical evaluation.
4. The demo unit/s to be submitted shall have the same specifications (or better) as indicated in the Bidder's Actual Offer (Technical Specification Section)

#### **During setup:**

1. Maximum of Four (4) bidders' representatives per LCB shall be allowed to set up the items/demo units for visual / physical evaluation.
2. The supplier's representative shall assist the TWG in the conduct of visual / physical evaluation. of the Demo Units.

#### **During Testing:**

1. Maximum of Two (2) bidder's representative may witness the visual / physical evaluation of samples, subject to the guidelines that will be issued accordingly.
2. The BAC Secretariat and TWG shall be the only official photographer/videographer who will cover the whole procedures.

### V. TRAINING REQUIREMENTS

- Due to COVID 19 Restrictions; Winning Bidder shall produce a training Video that covers the following general subjects;
  - Overview of the Program / system
  - definition and scope
  - objective
  - target beneficiary
  - recommended use / how it works / components
  - restrictions
  - Installation (How it was installed/ review of proper installation)
  - Basic Troubleshooting (what are the allowed troubleshooting procedures and which one should merit a call for onsite support and or merchandise return / replace)
  - Role/ Task Assignments per Governance Level



- Monitoring
  - Report generation
  - Maintenance Cycle
- Training manuals in soft copies (in DVD) shall be provided per recipient school by the winning supplier/s.
  - Training checklist will be signed by the participants after completing the required hours of training.
  - The scope of training will be based on the training checklist template provided by the DepEd -ICTS-TID

#### **IV. DELIVERY AND INSPECTION**

1. The winning bidder shall complete the supply, delivery, installation, training and maintenance of Department of Education Central Office network rehabilitation project within **120 calendar days** from the date of acceptance of Notice to Proceed.
2. All goods and/or items shall deliver to DepEd Central Office and subject to physical checks by DepEd Inspectorate Team.
3. The technical specifications in the Contract and the approved sample will be used as reference during inspection. In case of deviations of the approved sample/s from the technical specifications, the approved sample/s will prevail.
4. Goods and/or items shall be rejected if not conformance to the technical specifications.
5. Any delays cause by the winning bidder shall be properly documented, communicated and escalated to the DepEd-TID for merit and consideration.

#### **V. INSTALLATION**

1. The contractor shall supply, deliver and install Department Of Education Central Office network rehabilitation project within or above the technical requirements as stated in the detailed technical specifications.
2. The contractor shall provide the required safety and security tools and the same in carrying the work such as safety shoes, safety hat, safety gaggles, safety harness and others.
3. The contractor shall communicate, coordinate and shall comply DepEd – ICTS - TID internal work permitting procedures and requirements prior to the commencement of the actual work.
4. The contractor shall communicate and coordinate DepEd – ICTS - TID any variation and/or deviation of the works from the original plans.

#### **VI. COMMISSIONING, TESTING AND ACCEPTANCE**

1. The contactor may request for approval of schedule for joint commissioning, testing and acceptance test from DepEd – ICTS -TID at least 7 days after all active components are power up and functional.
2. The DepEd – ICTS -TID, their consultant or any other person nominated, at its option, will conduct the joint acceptance test.
3. The joint testing scope will include the quality and functionality of the installation and/or equipment and the workmanship.



4. All functionalities shall subject to specific equipment's acceptance test form such as Fiber Splicing and Termination Acceptance Test, Cat6 Cabling Acceptance Test and Switch Stress and Functionality Test.
5. Any defect(s) observed on the commissioning and acceptance tests shall properly documented. All defect(s) shall be rectified by the contractor within 30 days and subject for another specific joint acceptance test provided that the activities are free of cost to DepEd.
6. The Contractor shall arrange for 25 years cabling certification from the manufacturer.
7. The contractor shall submit detailed duly signed as built drawings and technical specifications and related technical documents.
8. Nothing in this clause shall in any way relieve the Contractor from any warranty or other obligations under this Contract.

#### **VII. OTHER REQUIREMENTS**

1. DEPED CENTRAL OFFICE shall not be responsible for lack of materials and equipment to be supplied by the winning Bidder. It shall be the sole responsibility of the winning bidder to assess and re-assess on the Materials to be supplied to the Agency and shall be DEPED CENTRAL OFFICE's property.
2. Unused and excess equipment and materials shall be turned over to DepEd - TID - ICTS at the end of the installation and commissioning period.

#### **VIII. SUPPORT AND WARRANTY**

1. The winning bidder shall arrange for 25 years cabling certification from the manufacturer.
2. Engineering support response time should be:
  - 4.1 Thirty (30) minutes to one (1) hour from helpdesk's receipt of call;
  - 4.2 Two (2) to four (4) hours on-site within office hours; and
  - 4.3 Four (4) hours response time on-site after office hours;
3. Engineering support must be also available via the internet/ email.
4. Engineering support must be available locally for system components upon receipt of call.
5. Parts replacement must be provided for defective parts/equipment.
6. If a problem arises and cannot be resolved remotely nor on-site, a service or replacement unit must be provided by the Bidder with the same or equal specifications as DepEd's original unit while the defective unit is undergoing parts replacement.

#### **IX. ELECTRONICS PLAN**

Refer to Annex "E"

#### **X. DISTRIBUTION LIST**

Refer to Annex "F"



### Statement of Compliance

I/We have read and understood the requirements/scope of service/terms of reference and conditions stipulated herein and shall therefore comply to the conditions set forth in the Contract with respect to this **Section VI. Schedule of Requirements**, if our bid is considered for award.

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Name and Signature of Bidder's Authorized Representative



## ***Section VII. Technical Specifications***



# Technical Specifications

Item	Specification	Statement of Compliance
		<p><i>[Bidders must state here either “Comply” or “Not Comply” against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of “Comply” or “Not Comply” must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer’s un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidder's statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the applicable laws and issuances.]</i></p>



**Detailed Technical Specifications:**

<b>Supply, Delivery, Installation, Testing, Training and Maintenance of Department of Education Central Office Network Rehabilitation Project</b>			
<b>Item</b>	<b>Specifications</b>	<b>Statement of Compliance</b> (State Comply or Not Comply)	<b>BIDDER'S ACTUAL OFFER</b>
<b>1</b>	<b><i>FIBER OPTIC &amp; STRUCTURED CABLING MATERIALS (1 LOT)</i></b>		
	<p>The proposed Fiber Optic and Structured Cabling must include the following components:</p> <ul style="list-style-type: none"> <li>a. FOC Multimode mode 6 core FTTH Cable (3,000 Meters)</li> <li>b. FOC single mode 48 core outdoor armored cable (1,000 meters)</li> <li>c. Fiber Panel (ODF 24 Ports loaded w/ coupler and single mode LC pigtail (20 Pieces)</li> <li>d. Fiber Patch cord single mode (LC to LC duplex connector 3m) (100 Pieces)</li> <li>e. Fiber termination box (ODN FTTH loaded w/ 2 LC coupler and pigtail) (60 Pieces)</li> <li>f. 4-PAIR CAT 6 UT Cable 305m/roll (350 rolls)</li> <li>g. 24-Port Patch Panel loaded (50 Pieces)</li> <li>h. Information Outlet (250 Pieces)</li> <li>i. Faceplate Duplex (2-Gang) (80 Pieces)</li> <li>j. Cat 6 Patch cord 1m (200 Pieces)</li> <li>k. Cat 6 Patch cord 2m (200 Pieces)</li> <li>l. Cat 6 Patch cord 3m (200 Pieces)</li> <li>m. IDF Mounted Rack (23 Pieces)</li> <li>n. 72U DATA RACK (MDF) (1 Unit)</li> </ul>		
<b>2</b>	<b>NETWORK SWITCHES</b>		
2.1	<b><i>Core Switch (1 Unit)</i></b>		
	The switch must be rack-mountable (into standard 19" wide racks)		



	The switch must not be larger than a 3RU form factor		
	The switch must support 24 x 1/10 Gigabit SFP+ ports		
	The switch must support up to 8 expansion modules		
	The switch must support high-capacity up to 2.6 Terabit switching fabric and 1,905Mpps packet forwarding provide powerful data transfer capability		
	The switch must support Ethernet interfaces based on IEEE 802.2 Logical Link Control (LLC), IEEE 802.3 Ethernet, IEEE 802.3ab1000BASE-T, IEEE 802.3ae10 Gigabit Ethernet, IEEE 802.3an10GBASE-T, IEEE 802.3azEnergy Efficient Ethernet (EEE), IEEE 802.3ba40GBASE-X, IEEE 802.3bz2.5GBASE-T and 5GBASE-T, IEEE 802.3x Flow control - full-duplex operation, IEEE 802.3z 1000BASE-X		
	The switch must support the following transceivers: a. SFP b. SFP+ c. QSFP+ d. QSFP28		
	The switch SFP port must support any combination of 1000SX, 1000LX, 1000ZX, 10GSR, 10GLR and 10GER		
	The switch must comply to Restrictions on Hazardous Substances (RoHS)		
	The switch must comply to the following Safety Standards: UL60950-1, CAN/CSA-C22.2 No.60950-1-03, EN60950-1, EN60825-1, AS/NZS60950		
	The proposed switch must be managed by a single network monitoring system (Please Elaborate)		
	The proposed networking solution must be of the same brand for ease of management		
	<b>Performance:</b>		



	<ul style="list-style-type: none"> <li>a. The switch must have up to 2.6 Terabit of Switching Capacity and forwarding rate of up to 1,905Mpps.</li> <li>b. The switch must support at least 4GB DDR SDRAM with 4GB of Flash Memory</li> <li>c. The switch must support up to 96K of MAC address entries</li> <li>d. The switch must support up to 4K VLANs</li> </ul>		
	<p><b>Layer 2 Features:</b></p> <ul style="list-style-type: none"> <li>a. The switch must have VLAN support on all ports.</li> <li>b. The switch must support Voice VLAN</li> <li>c. The switch must support LLDP-MED based on ANSI/TIA-1057</li> <li>d. The switch must support 10KB Jumbo Frames</li> <li>e. The switch must support IEEE 802.1s Multiple Instance Spanning Tree</li> <li>f. The switch must support IEEE 802.1w Rapid Spanning Tree for fast failover in the event of link failure.</li> </ul>		
	<p><b>Layer 3 Features:</b></p> <ul style="list-style-type: none"> <li>a. The switch must support Address Resolution Protocol (ARP) based on RFC 826</li> <li>b. The switch must support Internet Control Message Protocol (ICMP) based on RFC 792</li> <li>c. The switch must support Bootstrap Protocol (BootP) based on RFC 951</li> <li>d. The switch must support Routing Information Protocol (RIP and RIPv2) based on RFC 1058 and RFC 2453</li> <li>e. The switch must support RIPng for IPv6 based on RFC 2080</li> <li>f. The switch must support Open Shortest Path First (OSPFv2 and OSPFv3 for IPv6) based on RFC 2328 and RFC 2740</li> <li>g. The switch must support Graceful OSPF Restart based on RFC 3623</li> </ul>		



	<ul style="list-style-type: none"> <li>h. The switch must support Border Gateway Protocol 4 (BGP-4) based on RFC 4271</li> <li>i. The switch must support BGP Graceful Restart based on RFC 4724</li> <li>j. The switch must support BGP Route Flap Damping based on RFC 2439</li> <li>k. The switch must support BGP Route Reflection based on RFC4456</li> <li>l. The switch must support Multiprotocol Extensions for BGP-4 based on RFC 2858</li> <li>m. The switch must support Equal Cost Multipath (ECMP) routing</li> <li>n. The switch must support IP Helper</li> </ul>		
	<p><b><i>Resiliency and High Availability Features</i></b></p> <ul style="list-style-type: none"> <li>a. The switch must support Dual Hot-swappable power Supplies</li> <li>b. The switch must support Virtualization Technology to allow multiple switches to be managed as a single virtual chassis. The virtualization technology shall simplifies network operation by eliminating the complexity of Spanning Tree or VRRP.</li> <li>c. The switch must support Long Distance Virtualization Technology to manage multiple switches in different locations as a single virtual chassis.</li> <li>d. The switch must support VRRPv3 (Virtual Router Redundancy Protocol Version 3) for IPv4 and IPv6 based on RFC 5798</li> <li>e. The switch must support link aggregation IEEE 802.1AX protocol for Static and Dynamic Link Aggregation</li> <li>f. The switch must support link aggregation IEEE 802.1AX protocol for Static and Dynamic Link Aggregation with stack</li> <li>g. The switch must be able to support ring topology with sub 50ms failover for high availability</li> <li>h. The switch must support SuperLoop Protection for network fault resiliency.</li> </ul>		



	<ul style="list-style-type: none"> <li>i. The Ring network must be always up in the event of the Ring Master Switch goes down. (Please elaborate)</li> <li>j. The Switch must support Multiple Ring Networks to be created.</li> <li>k. The Switch must support G.8032 Ethernet Ring Protection which provides standards-based high-speed ring protection, that can be deployed stand-alone or interoperate with other Ring technology.</li> <li>l. The Switch must support Automatic Link-Flap detection and shutdown</li> <li>m. The Switch must support loop protection and thrash limiting mechanism.</li> <li>n. The switch must support Control Plane Prioritization</li> <li>o. The switch must support up to Virtual Routing and Forwarding (VRFlite) Domains</li> </ul>		
	<p><b>Multicast</b></p> <ul style="list-style-type: none"> <li>a. The switch must support IGMP and MLD Snooping Switches based on RFC 4541</li> <li>b. The switch must support Internet Group Management Protocol v2 (IGMPv2) based on RFC 2236</li> <li>c. The switch must support IGMPv3 protocol based on RFC 3376</li> <li>d. The switch must support Multicast Listener Discovery (MLD and MLDv2) for IPv6 based on RFC 2710 and RFC 3810</li> <li>e. The switch must support PIM Dense Mode (PIM-DM) based on RFC 3973</li> <li>f. The switch must support PIM Sparse Mode (PIM-SM) based on RFC 4601</li> </ul>		
	<p><b>IPv6</b></p> <ul style="list-style-type: none"> <li>a. The switch must support full IPv6 in hardware based on RFC 2460</li> <li>b. The switch must support Internet Control Message Protocol (ICMPv6) based on RFC 4443</li> <li>c. The switch must support IPv6 Stateless Address Autoconfiguration based on RFC 4862</li> </ul>		



	<ul style="list-style-type: none"> <li>d. The switch must support IPv4 and IPv6 Dual Stack</li> <li>e. The switch must support DHCPv6 Relay</li> <li>f. The switch must support NTPv6</li> </ul>		
	<p><b>Quality of Service (QoS)</b></p> <ul style="list-style-type: none"> <li>a. The switch must support IEEE 802.1p Classification and priority tagging</li> <li>b. The switch must support DiffServ based on RFC 2475</li> <li>c. The switch must support DiffServ precedence for 8 queues per port based on RFC 2474</li> <li>d. The switch must support Single-Rate Three-Color Marker based on RFC 2697</li> <li>e. The switch must support Two-Rate Three-Color Marker based on RFC 2698</li> <li>f. The switch must support limiting bandwidth per port to 64Kbps</li> <li>g. The switch must support Strict Priority Scheduling and Weighted Round Robin.</li> <li>h. The switch must support policy based QoS</li> <li>i. The switch must support policy-based Storm Protection</li> </ul>		
	<p><b>Security</b></p> <ul style="list-style-type: none"> <li>a. The switch must support wirerate Access Control List based on L3/L4 criteria</li> <li>b. The switch must support DHCP Snooping, IP Source Guard and Dynamic ARP Inspection</li> <li>c. The switch must support RADIUS and RADIUS Accounting based on RFC 2865 and RFC 2866</li> <li>d. The switch must support IEEE802.1X Port Based Network Access Control</li> <li>e. The switch must support SSLv2 and SSLv3</li> <li>f. The switch must support SSHv2 based on RFC 4251</li> </ul>		



	<ul style="list-style-type: none"> <li>g. The switch must support Tri-Authentication based on MAC. Web and IEEE 802.1X</li> <li>h. The switch must support MAC address filtering and MAC address lockdown</li> <li>i. The switch must support Private VLANs</li> <li>j. The switch must support Dynamic VLAN Assignment</li> <li>k. The switch must support Network Access Control</li> <li>l. The switch must support Radius group selection per VLAN or port</li> <li>m. The switch must support DHCPv4 based on RFC 2131</li> <li>n. The switch must support DHCPv6 based on RFC 3315</li> <li>o. The switch must support DHCP Relay Agent Information Option based on RFC 3046.</li> <li>p. The switch must support Black Hole Routing</li> <li>q. The switch must support PBR and routes map</li> </ul>		
	<p><b>Management</b></p> <ul style="list-style-type: none"> <li>a. The switch must support Out-of-band 10/100/1000T Management port</li> <li>b. The switch must support USB port</li> <li>c. The switch must support Eco-friendly Mode</li> <li>d. The switch must support built in Management Framework to provide the network with backup, recovery and firmware upgrade management without the need of any additional hardware modules or software. (Please Elaborate and provide documentations)</li> <li>e. The switch GUI has a built-in network management system that includes a network map that displays details of centrally managed devices (wired and wireless) and other third-party devices.</li> <li>f. The switch must support Find Me feature to provide a visual way of identifying the switch for maintenance.</li> </ul>		



	<ul style="list-style-type: none"> <li>g. The Network must support the ability to centrally manage switches over the WAN network for device backup, zero touch network node recovery and Centralized firmware upgrades with rolling reboots feature</li> <li>h. The Switch must support Built in Text Editor</li> <li>i. The Switch must support Built-in Self-Test</li> <li>j. The Switch must support Event-based triggers and scripting</li> <li>k. The Switch must support ping polling for IPv4 and IPv6</li> <li>l. The switch must support Simple Network Time Protocol (SNTP) and Network Time Protocol (NTP) version 4 based on RFC 4330 and RFC 5905.</li> <li>m. The switch must support SNMPv1/2c/3.</li> <li>n. The switch must support sFlow based on RFC 3176</li> <li>o. The switch must support RMON (Groups 1, 2,3 and 9) based on RFC 2819</li> <li>p. The switch must support Industry Standard Command Line Interface (CLI) which is similar to Cisco IOS and must support Web-based Graphical User Interface (GUI)</li> <li>q. The switch must support the following management interface: Console, telnet and SSH.</li> <li>r. The switch must support Syslog based on RFC 3164</li> <li>s. The switch must support ICMP Router Discovery Protocol based on RFC 1256 and Energy Efficient Ethernet based on IEEE 802.3az</li> <li>t. The switch must support full environmental monitoring of PSUs, fans, temperature and internal voltages.</li> <li>u. The switch must have operational indicator light(s) for each port.</li> <li>v. The switch must be Software Defined Networking (SDN) ready and will support OpenFlow v1.3 or similar programmable network protocol</li> <li>w. The switch must support Upstream Forwarding Only (UFO) for secure multi-user deployment.</li> </ul>		
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	<ul style="list-style-type: none"> <li>x. The switch must support UDLD to prevent traffic from being sent across a bad link by blocking the ports at both ends of the link in the event that either the individual transmitter or receiver for that connection fails</li> <li>y. The switch must support configurable ACLs for management traffic</li> <li>z. The switch must support Active Fiber Monitoring that prevents eavesdropping on fiber communications by monitoring received optical power. If an intrusion is detected, the link can be automatically shut down, or an operator alert can be sent</li> </ul>		
<b>2.2</b>	<b>Power Over Ethernet (Poe) Switch (20 Units)</b>		
	The switch must be rack-mountable (into standard 19" wide racks)		
	The switch must not be larger than a 1RU form factor		
	The switch must support 24x 10/100/1000Base-T		
	The switch must support 2x 10 Gigabit SFP+ ports		
	The switch must support 2x 1 Gigabit SFP ports		
	The switch must support PoE on all ports based on IEEE 802.3af. The switch is able to provide up to 15.4 Watts of power per port to PoE devices		
	The Switch must support PoE+ based on IEEE 802.3at. The switch is able provide up to 30 Watts of power per port to PoE devices		
	The switch must support Ethernet interfaces based on IEEE 802.3, IEEE 802.3u, IEEE 802.3z, IEEE 802.3ab and IEEE 802.3ae		
	The switch must support the following transceivers:		

	- SFP+ SFP		
	The switch SFP port must support any combination of 1000SX, 1000LX, 1000ZX, 10G SR, 10G LR		
	The switch must comply to Restrictions on Hazardous Substances (RoHS)		
	The switch must comply to the following Safety Standards: UL60950-1, CAN/CSA-C22.2 , No. 60950-1-03, EN60950-1, EN60825-1, AS/NZS 60950.1		
	<p><b>Performance</b></p> <ul style="list-style-type: none"> <li>a. The switch must have up to 140 Gbps of Switching Capacity and forwarding rate of up to 104.16Mpps.</li> <li>b. The switch must support at least 512MB of memory with 64MB of Flash Memory</li> <li>c. The switch must support stacking bandwidth of 40Gbps between Switches (Virtual or Enhanced Stacking Not Accepted)</li> <li>d. The switch must support up to 16K of MAC address entries</li> <li>e. The switch must support up to 2K of IPv4 routes</li> <li>f. The switch must support up to 4K VLANs</li> </ul>		
	<p><b>Layer 2 Features</b></p> <ul style="list-style-type: none"> <li>a. The switch must support VLAN on all ports.</li> <li>b. The switch must support Voice VLAN</li> <li>c. The switch must support LLDP-MED based on ANSI/TIA-1057</li> <li>d. The switch must support 13KB Jumbo Frames</li> <li>e. The switch must support IEEE 802.1Q Multiple Instance Spanning Tree</li> <li>f. The switch must support IEEE 802.1D Rapid Spanning Tree for fast failover in the event of link failure.</li> </ul>		

	<p><b>Resiliency and High Availability Features</b></p> <ul style="list-style-type: none"> <li>a. The switch must support Virtualization Technology to allow multiple switches to be managed as a single virtual chassis. The virtualization technology shall simplify network operation by eliminating the complexity of Spanning Tree or VRRP. (Virtual and Enhanced Stacking Not Accepted)</li> <li>b. The switch must support link aggregation IEEE 802.1AX protocol for Static and Dynamic Link Aggregation</li> <li>c. The switch must support link aggregation across stack.</li> <li>d. The switch must be able to support ring topology with sub 50ms failover for high availability. (STP protocol Not Accepted)</li> <li>e. The Ring network must be always up in the event of the Ring Master Switch goes down. (Please elaborate)</li> <li>f. The Switch must support Multiple Ring Networks to be created.</li> <li>g. The Switch must support Automatic Link-Flap detection and shutdown</li> <li>h. The Switch must support loop protection mechanism</li> <li>i. The switch must support Control Plane Prioritization</li> <li>j. The switch must have PVST+ compatibility mode.</li> </ul>		
	<p><b>Multicast</b></p> <ul style="list-style-type: none"> <li>a. The switch must support IGMP and MLD Snooping</li> <li>b. The switch must support Internet Group Management Protocol v2 (IGMPv2) based on RFC 2236</li> <li>c. The switch must support IGMPv3 protocol based on RFC 3376</li> </ul>		
	<p><b>IPv6</b></p> <ul style="list-style-type: none"> <li>a. The switch must support full IPv6 in hardware based on RFC 2460</li> </ul>		



	<ul style="list-style-type: none"> <li>b. The switch must support Internet Control Message Protocol (ICMPv6) based on RFC 4443</li> <li>c. The switch must support IPv6 Stateless Address Autoconfiguration based on RFC 4862</li> <li>d. The switch must support IPv4 and IPv6 Dual Stack</li> <li>e. The switch must support DHCPv6 Relay</li> <li>f. The switch must support NTPv6</li> </ul>		
	<p><b>Quality of Service (QoS)</b></p> <ul style="list-style-type: none"> <li>a. The switch must support IEEE 802.1p Classification and priority tagging</li> <li>b. The switch must support DiffServ based on RFC 2475</li> <li>c. The switch must support DiffServ precedence for 8 queues per port based on RFC 2474</li> <li>d. The switch must support Single-Rate Three-Color Marker based on RFC 2697</li> <li>e. The switch must support Two-Rate Three-Color Marker based on RFC 2698</li> <li>f. The switch must support limiting bandwidth per port to 64Kbps</li> <li>g. The switch must support Strict Priority Scheduling and Weighted Round Robin.</li> <li>h. The switch must support policy based QoS</li> <li>i. The switch must support policy-based Storm Protection</li> </ul>		
	<p><b>Security</b></p> <ul style="list-style-type: none"> <li>a. The switch must support wirerate Access Control List based on L2/L3/L4 criteria</li> <li>b. The switch must support DHCP Snooping, IP Source Guard and Dynamic ARP Inspection</li> <li>c. The switch must support RADIUS and RADIUS Accounting based on RFC 2865 and RFC 2866</li> <li>d. The switch must support IEEE 802.1X Port Based Network Access Control</li> </ul>		



	<ul style="list-style-type: none"> <li>e. The switch must support SSLv2</li> <li>f. The switch must support SSHv2 based on RFC 4251</li> <li>g. The switch must support Tri-Authentication based on MAC, Web and IEEE 802.1X</li> <li>h. The switch must support TACACS+ Accounting and Authentication</li> <li>i. The switch must support Private VLANs</li> <li>j. The switch must support Dynamic VLAN Assignment</li> <li>k. The switch must support Network Access Control</li> <li>l. The switch must support DHCPv4 based on RFC 2131</li> <li>m. The switch must support DHCPv6 based on RFC 3315</li> <li>n. The switch must support DHCP Relay Agent Information Option based on RFC 3046.</li> </ul>		
	<p><b>Management</b></p> <ul style="list-style-type: none"> <li>a. The switch must support USB Slot</li> <li>b. The switch must support Eco-friendly Mode</li> <li>c. The switch must support built in Management Framework to provide the network with backup, recovery and firmware upgrade management without the need of any additional hardware modules or software. (Please Elaborate and provide documentations)</li> <li>d. The switch must support Optical DDM for real time monitoring of transceiver according to SFF-8472 specifications</li> <li>e. The Switch must support Built in Text Editor</li> <li>f. The Switch must support Event-based triggers and scripting</li> <li>g. The Switch must support ping polling for IPv4 and IPv6</li> <li>h. The switch must support Simple Network Time Protocol (SNTP) and Network Time Protocol (NTP) version 4 based on RFC 4330 and RFC 5905.</li> <li>i. The switch must support SNMPv1/2c/3.</li> </ul>		



	<ul style="list-style-type: none"> <li>j. The switch must support RMON (Groups 1, 2,3 and 9) based on RFC 2819</li> <li>k. The switch must support Industry Standard Command Line Interface (CLI) which is similar to Cisco IOS</li> <li>l. The switch must support Web-based Graphical User Interface (GUI)</li> <li>m. The switch must support the following management interface: Console, telnet and SSH.</li> <li>n. The switch must support Syslog based on RFC 3164</li> <li>o. The switch must support ICMP Router Discovery Protocol based on RFC 1256.</li> <li>p. The switch must support Energy Efficient Ethernet based on IEEE 802.3az</li> <li>q. The switch must support full environmental monitoring of PSUs, fans, temperature and internal voltages.</li> <li>r. The switch must have operational indicator light(s) for each port.</li> <li>s. The proposed switch must be managed by a single network monitoring system</li> <li>t. The proposed networking solution must be of the same brand for ease of management</li> </ul>		
2.3	<b>Distribution Switch (5 Units)</b>		
	The switch must be rack-mountable (into standard 19" wide racks)		
	The switch must not be larger than a 1RU form factor		
	The switch can support up to 24x Combo SFP port		
	The switch can support up to 4 ports SFP+		
	The Switch can support up to 2 port QSFP+		
	The switch must support Ethernet interfaces based on IEEE 802.3, IEEE 802.3u, IEEE 802.3z, IEEE 802.3ab and IEEE 802.3ae		



	<p>The switch must support the following transceivers:</p> <ul style="list-style-type: none"> <li>- XFP</li> <li>- SFP</li> <li>- SFP+</li> <li>- QSFP+</li> </ul>		
	<p>The switch SFP port must support any combination of 100FX, 100BX, 1000SX, 1000LX, 1000ZX, 10GSR, 10GLR and 10GER</p>		
	<p>The switch must comply to Restrictions on Hazardous Substances (RoHS)</p>		
	<p>The switch must comply to the following Safety Standards: UL60950-1, CAN/CSA-C22.2 , No. 60950-1-03, EN60950-1, EN60825-1, AS/NZS 60950.1</p>		
	<p>The proposed switch must be managed by a single network monitoring system (Please Elaborate)</p>		
	<p>The proposed networking solution must be of the same brand for ease of management</p>		
	<p><b>Performance</b></p> <ol style="list-style-type: none"> <li>a. The switch must have up to 288 Gbps of Switching Capacity and forwarding rate of up to 214Mpps.</li> <li>b. The switch must support at least 2GB of memory with 256MB of Flash Memory</li> <li>c. The switch must support stacking bandwidth of up to 160Gbps between Switches</li> <li>d. The switch must support up to 64K of MAC address entries</li> <li>e. The switch must support up to 4K VLANs</li> </ol>		
	<p><b>Layer 2 Features</b></p> <ol style="list-style-type: none"> <li>a. The switch must have VLAN support on all ports.</li> <li>b. The switch must support Voice VLAN</li> <li>c. The switch must support LLDP-MED based on ANSI/TIA-1057</li> <li>d. The switch must support 13KB Jumbo Frames</li> </ol>		



	<ul style="list-style-type: none"> <li>e. The switch must support IEEE 802.1s Multiple Instance Spanning Tree</li> <li>f. The switch must support IEEE 802.1w Rapid Spanning Tree for fast failover in the event of link failure.</li> </ul>		
	<p><b>Layer 3 Features</b></p> <ul style="list-style-type: none"> <li>a. The switch must support Address Resolution Protocol (ARP) based on RFC 826</li> <li>b. The switch must support Internet Control Message Protocol (ICMP) based on RFC 792</li> <li>c. The switch must support Bootstrap Protocol (BootP) based on RFC 951</li> <li>d. The switch must support Routing Information Protocol (RIP and RIPv2) based on RFC 1058 and RFC 2453</li> <li>e. The switch must support RIPng for IPv6 based on RFC 2080</li> <li>f. The switch must support Open Shortest Path First (OSPFv2 and OSPFv3 for IPv6) based on RFC 2328 and RFC 2740</li> <li>g. The switch must support Graceful OSPF Restart based on RFC 3623</li> <li>h. The switch must support Border Gateway Protocol 4 (BGP-4) based on RFC 4271</li> <li>i. The switch must support BGP Graceful Restart based on RFC 4724</li> <li>j. The switch must support BGP Route Flap Damping based on RFC 2439</li> <li>k. The switch must support BGP Route Reflection based on RFC4456</li> <li>l. The switch must support Multiprotocol Extensions for BGP-4 based on RFC 2858</li> <li>m. The switch must support Equal Cost Multipath (ECMP) routing</li> <li>n. The switch must support IP Helper</li> </ul>		
	<p><b>Resiliency and High Availability Features</b></p> <ul style="list-style-type: none"> <li>a. The switch must support Dual Hot-swappable power Supplies</li> <li>b. The switch must support Virtualization Technology to allow multiple switches to be managed as</li> </ul>		



	<p>a single virtual chassis. The virtualization technology shall simplify network operation by eliminating the complexity of Spanning Tree or VRRP.</p> <ul style="list-style-type: none"> <li>c. The switch must support VRRPv3 (Virtual Router Redundancy Protocol Version 3) for IPv4 and IPv6 based on RFC 5798</li> <li>d. The switch must support link aggregation IEEE 802.1AX protocol for Static and Dynamic Link Aggregation</li> <li>e. The switch must support link aggregation across stack.</li> <li>f. The switch must be able to support ring topology with sub 50ms failover for high availability</li> <li>g. The switch must support SuperLoop Protection for network fault resiliency.</li> <li>h. The Ring network must be always up in the event of the Ring Master Switch goes down. (Please elaborate)</li> <li>i. The Switch must support Multiple Ring Networks to be created.</li> <li>j. The Switch must support G.8032 Ethernet Ring Protection which provides standards-based high-speed ring protection, that can be deployed stand-alone or interoperate with other Ring technology.</li> <li>k. The Switch must support Automatic Link-Flap detection and shutdown</li> <li>l. The Switch must support loop protection mechanism</li> <li>m. The switch must support Control Plane Prioritization</li> <li><b>n.</b> The switch must support diagnostic for copper cables to be able to know the status or faults that might exists in either the connected cable or in its terminations</li> </ul>		
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	<p><b><i>Multicast</i></b></p> <ul style="list-style-type: none"> <li>a. The switch must support IGMP and MLD Snooping Switches based on RFC 4541</li> <li>b. The switch must support Internet Group Management Protocol v2 (IGMPv2) based on RFC 2236</li> <li>c. The switch must support IGMPv3 protocol based on RFC 3376</li> <li>d. The switch must support Multicast Listener Discovery (MLD and MLDv2) for IPv6 based on RFC 2710 and RFC 3810</li> <li>e. The switch must support PIM Dense Mode (PIM-DM) based on RFC 3973</li> <li>f. The switch must support PIM Sparse Mode (PIM-SM) based on RFC 4601</li> </ul>		
	<p><b><i>IPv6</i></b></p> <ul style="list-style-type: none"> <li>a. The switch must support full IPv6 in hardware based on RFC 2460</li> <li>b. The switch must support Internet Control Message Protocol (ICMPv6) based on RFC 4443</li> <li>c. The switch must support IPv6 Stateless Address Autoconfiguration based on RFC 4862</li> <li>d. The switch must support IPv4 and IPv6 Dual Stack</li> <li>e. The switch must support DHCPv6 Relay</li> <li>f. The switch must support NTPv6</li> </ul>		
	<p><b><i>Quality of Service (QoS)</i></b></p> <ul style="list-style-type: none"> <li>a. The switch must support IEEE 802.1p Classification and priority tagging</li> <li>b. The switch must support DiffServ based on RFC 2475</li> <li>c. The switch must support DiffServ precedence for 8 queues per port based on RFC 2474</li> <li>d. The switch must support Single-Rate Three-Color Marker based on RFC 2697</li> <li>e. The switch must support Two-Rate Three-Color Marker based on RFC 2698</li> </ul>		



	<ul style="list-style-type: none"> <li>f. The switch must support limiting bandwidth per port to 64Kbps</li> <li>g. The switch must support Strict Priority Scheduling and Weighted Round Robin.</li> <li>h. The switch must support policy based QoS</li> <li>i. The switch must support policy-based Storm Protection</li> </ul>		
	<p><b>Security</b></p> <ul style="list-style-type: none"> <li>a. The switch must support wire rate Access Control List based on L3/L4 criteria</li> <li>b. The switch must support DHCP Snooping, IP Source Guard and Dynamic ARP Inspection</li> <li>c. The switch must support RADIUS and RADIUS Accounting based on RFC 2865 and RFC 2866</li> <li>d. The switch must support IEEE802.1X Port Based Network Access Control</li> <li>e. The switch must support SSLv2 and SSLv3</li> <li>f. The switch must support SSHv2 based on RFC 4251</li> <li>g. The switch must support Tri-Authentication based on MAC, Web and IEEE 802.1X</li> <li>h. The switch must support MAC address filtering and MAC address lockdown</li> <li>i. The switch must support Private VLANs</li> <li>j. The switch must support Dynamic VLAN Assignment</li> <li>k. The switch must support Network Access Control</li> <li>l. The switch must support Local Radius Server</li> <li>m. The switch must support DHCPv4 based on RFC 2131</li> <li>n. The switch must support DHCPv6 based on RFC 3315</li> </ul>		



	<ul style="list-style-type: none"> <li>o. The switch must support DHCP Relay Agent Information Option based on RFC 3046.</li> <li>p. The switch must support Black Hole Routing</li> <li>q. The switch must support DoS attack blocking and virus throttling</li> </ul>		
	<p><b>Management</b></p> <ul style="list-style-type: none"> <li>a. The switch must support Out-of-band 10/100/1000T Management port</li> <li>b. The switch must support USB port</li> <li>c. The switch must support Eco-friendly Mode</li> <li>d. The switch must support built in Management Framework to provide the network with backup, recovery and firmware upgrade management without the need of any additional hardware modules or software. (Please Elaborate and provide documentations)</li> <li>e. The switch must support Find Me feature to provide a visual way of identifying the switch for maintenance.</li> <li>f. The Network must support the ability to centrally manage switches over the WAN network for device backup, zero touch network node recovery and Centralized firmware upgrades with rolling reboots feature</li> <li>g. The Switch must support Built in Text Editor and Built-in Self-Test</li> <li>h. The Switch must support Event-based triggers and scripting</li> <li>i. The Switch must support ping polling for IPv4 and IPv6</li> <li>j. The switch must support Simple Network Time Protocol (SNTP) and Network Time Protocol (NTP) version 4 based on RFC 4330 and RFC 5905.</li> <li>k. The switch must support SNMPv1/2c/3.</li> <li>l. The switch must support sFlow based on RFC 3176</li> <li>m. The switch must support RMON (Groups 1, 2,3 and 9) based on RFC 2819</li> </ul>		



	<ul style="list-style-type: none"> <li>n. The switch must support Industry Standard Command Line Interface (CLI) which is similar to Cisco IOS, and support Web-based Graphical User Interface (GUI)</li> <li>o. The switch must support the following management interface: Console, telnet and SSH.</li> <li>p. The switch must support Syslog based on RFC 3164, and ICMP Router Discovery Protocol based on RFC 1256.</li> <li>q. The switch must support Energy Efficient Ethernet based on IEEE 802.3az</li> <li>r. The switch must support full environmental monitoring of PSUs, fans, temperature and internal voltages.</li> <li>s. The switch must have operational indicator light(s) for each port.</li> <li>t. The switch must be Software Defined Networking (SDN) ready and will support OpenFlow v1.3 or similar programmable network protocol</li> <li>u. The switch must support Upstream Forwarding Only (UFO) for secure multi-user deployment</li> <li>v. The switch must support UDLD to prevent traffic from being sent across a bad link by blocking the ports at both ends of the link in the event that either the individual transmitter or receiver for that connection fails</li> <li>w. The switch must support configurable ACLs for management traffic</li> <li>x. The switch must support Active Fiber Monitoring that prevents eavesdropping on fiber communications by monitoring received optical power. If an intrusion is detected, the link can be automatically shut down, or an operator alert can be sent</li> </ul>		
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<b>3</b>	<b>ACCESS POINT (AP) AND EMPLOYEE AND GUEST MANAGEMENT SYSTEM</b>		
3.1	<b>Access Points (190 Units)</b>		
	The proposed solution must be performance Dual Radio 802.11ax AP with OFDMA and Multi-User MIMO (MU-MIMO).		
	The proposed solution must support all mandatory and several optional 802.11ax features, which include uplink and downlink OFDMA with up to 37 resource units, uplink and downlink multi-user MIMO (MU-MIMO).		
	The proposed solution must have a maximum data rates of 2.4 Gbps in the 5 GHz band and 1,150 Mbps in the 2.4 GHz band (for an aggregate peak data rate of 3.55 Gbps).		
	The proposed solution must be ideal for high density environments, such as schools, retail branches, hotels, and enterprise offices.		
	The proposed solution must include Bluetooth Low Energy (BLE) and Zigbee radios for location and IOT use cases.		
	The proposed solution must have a multi-user transmission with downlink and uplink OFDMA—OFDMA increases user data rates and also reduces latency, especially for large numbers of devices with short frames or low data-rate requirements, such as voice and IoT devices. The proposed solution must have a multi-user capabilities, a channel can be divided in the frequency domain, and multiple transmissions can be carried simultaneously. OFDMA is particularly effective in raising network efficiency and capacity where there are many devices, short frames, or low data-rate streams.		
	The proposed solution must have a multi user capability with uplink and downlink multi-user MIMO—MU MIMO is another multi-user capability, originally introduced in 802.11ac. This improves network		

	capacity by allowing multiple devices to transmit simultaneously.		
	The proposed solution must support an integrated Bluetooth Low-Energy (BLE) and Zigbee radio, as well as a USB port for maximum flexibility, providing secure and reliable connectivity for IOT devices and for implementing location services		
	Unified AP support—Flexibility to deploy in either controller-based (ArubaOS) or controller-less (InstantOS) networks.		
	The proposed solution must have a Dual Radio 802.11ax access point with OFDMA and Multi-User MIMO (MU-MIMO): <ul style="list-style-type: none"> <li>• Up to 37 OFDMA resource units and up to 1024 simultaneous clients per radio.</li> <li>• Antenna polarization diversity for optimized RF performance.</li> <li>• 802.11ax Target Wait Time (TWT) to support low power client devices.</li> </ul>		
	The proposed solution must have an uplink Ethernet port (E0): <ul style="list-style-type: none"> <li>• Supports up to 2.5/5 Gbps with NBase-T and IEEE 802.3bz Ethernet compatibility.</li> <li>• Backwards compatible with 100/1000Base-T.</li> </ul>		
	The proposed solution must have a built-in Bluetooth Low-Energy (BLE) and Zigbee radio—Enables a wide range of IOT use cases, such as asset tracking and mobile engagement.		
	The proposed solution must have a Quality of service for unified communications applications: <ul style="list-style-type: none"> <li>• Supports priority handling and policy enforcement for unified communication applications, including Skype for Business with encrypted videoconferencing, voice, chat, and desktop sharing.</li> </ul>		
	<ul style="list-style-type: none"> <li>• Support deep packet inspection to classify and block, prioritize, or limit bandwidth for thousands of applications in a range of categories</li> </ul>		

	<p>The proposed solution must be able to have the following Radio Frequency capabilities:</p> <ul style="list-style-type: none"> <li>• Manage the 2.4 GHz and 5 GHz radio bands and actively optimizes the RF environment, including channel width, channel selection, and transmit power.</li> <li>• Adaptive Radio Management (ARM) technology provides airtime fairness and helps ensure that APs stay clear of all sources of RF interference to deliver reliable, high performance WLANs.</li> </ul>		
	<p><b><i>Spectrum analysis:</i></b></p> <p>Must be capable of part-time or dedicated air monitoring, the spectrum analyzer remotely scans the 2.4 GHz and 5 GHz radio bands to identify sources of RF interference from 20 MHz through 160 MHz operation.</p>		
	<p><b><i>Device assurance:</i></b></p> <p>Must use of Trusted Platform Module (TPM) for secure storage of credentials and keys, as well as secure boot.</p>		
	<p>Must be capable of integrated wireless intrusion protection offers threat protection and mitigation and eliminates the need for separate RF sensors and security appliances.</p>		
	<p>Must be capable of IP reputation and security services identify, classify, and block malicious files, URLs and IPs, providing comprehensive protection against advanced online threats.</p>		
	<p>Must be able continuously monitor and report its actual power consumption and optionally make autonomous decisions to disable certain capabilities based on the amount of power available to the unit. Software-configurable to disable capabilities in specified order of priority. The feature applies when the unit is powered by an 802.3af POE source.</p>		
	<p>The proposed solution must support a custom deep-sleep mode to deliver significant power and cost savings</p>		



	<p>The proposed solution must have the following specifications:</p> <ul style="list-style-type: none"> <li>● AP type—Indoor, dual radio, 5 GHz 802.11ax 4x4 MIMO, and 2.4 GHz 802.11ax 4x4 MIMO</li> <li>● 5 GHz radio:</li> <li>● Four spatial stream Single User (SU) MIMO for up to 2.4 Gbps wireless data rate to individual 4SS HE80 or 2SS HE160 802.11ax client devices (maximum).</li> <li>● Four spatial stream Multi User (MU) MIMO for up to 2.4 Gbps wireless data rate to up to four 1SS or two 2SS HE80 802.11ax MU-MIMO capable client devices simultaneously (typical).</li> <li>● 2.4 GHz radio:</li> <li>● Four spatial stream Single User (SU) MIMO for up to 1.150 Gbps wireless data rate to individual 4SS HE40 or 2SS HE40 802.11ax MU-MIMO capable client devices simultaneously (typical).</li> <li>● Support for up to 1024 associated client devices per radio and up to 16 BSSIDs per radio</li> <li>● Supported frequency bands (country-specific restrictions apply): <ul style="list-style-type: none"> <li>● 2.400 to 2.4835 GHz</li> <li>● 5.150 to 5.250 GHz</li> <li>● 5.250 to 5.350 GHz</li> <li>● 5.470 to 5.725 GHz</li> <li>● 5.725 to 5.850 GHz</li> </ul> </li> <li>● Available channels—Dependent on configured regulatory domain.</li> <li>● Dynamic frequency selection (DFS) optimizes the use of available RF spectrum.</li> <li>● Supported radio technologies:</li> <li>● 802.11b: Direct-sequence spread-spectrum (DSSS)</li> </ul>		
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	<ul style="list-style-type: none"> <li>• 802.11a/g/n/ac: Orthogonal frequency-division multiplexing (OFDM)</li> <li>• 802.11ax: Orthogonal frequency-division multiple access (OFDMA) with up to 37 resource units (for an 80 MHz channel)</li> <li>• Supported modulation types: <ul style="list-style-type: none"> <li>• 802.11b: BPSK, QPSK, CCK</li> <li>• 802.11a/g/n: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM (proprietary extension)</li> <li>• 802.11ac: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM (proprietary extension)</li> <li>• 802.11ax: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM</li> </ul> </li> <li>• 802.11n high-throughput (HT) support: HT20/40</li> <li>• 802.11ac very high throughput (VHT) support: VHT20/40/80/160</li> <li>• 802.11ax high efficiency (HE) support: HE20/40/80/160</li> <li>• Supported data rates (Mbps): <ul style="list-style-type: none"> <li>• 802.11b: 1, 2, 5.5, 11</li> <li>• 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54</li> <li>• 802.11n (5 GHz): 6.5 to 600 (MCS0 to MVC31, HT20 to HT40)</li> <li>• 802.11ac: 6.5 to 3,467 (MCS0 to MCS9, NSS = 1 to 4, VHT20 to VHT160)</li> <li>• 802.11ax (2.4 GHz): 3.6 to 1,147 (MCS0 to MCS11, NSS = 1 to 2, HE20 to HE40)</li> <li>• 802.11ax (5 GHz): 3.6 to 2,402 (MCS0 to MCS11, NSS = 1 to 4, HE20 to HE160)</li> </ul> </li> <li>• 802.11n/ac packet aggregation: A-MPDU, A-MS</li> <li>• Transmit power—Configurable in increments of 0.5 dBm.</li> <li>• Maximum (aggregate, conducted total) transmit</li> </ul>		
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	<p>power (limited by local regulatory requirements):</p> <ul style="list-style-type: none"> <li>● 2.4 GHz band: +21 dBm (18 dBm per chain)</li> <li>● 5 GHz band: +24 dBm (18 dBm per chain)</li> <li>● Note that conducted transmit power levels exclude antenna gain. For total (EIRP) transmit power, add antenna gain.</li> <li>● Advanced Cellular Coexistence (ACC) minimizes the impact of interference from cellular networks; Maximum ratio combining (MRC) for improved receiver performance.</li> <li>● Cyclic delay/shift diversity (CDD/CSD) for improved downlink RF performance; Space-time block coding (STBC) for increased range and improved reception.</li> <li>● Low-density parity check (LDPC) for high-efficiency error correction and increased throughput.</li> <li>● Transmit beamforming (TxBF) for increased signal reliability and range.</li> <li>● 802.11ax Target Wait Time (TWT) to support low-power client devices.</li> <li>● Four integrated dual-band downtilt omni-directional antennas for 4x4 MIMO with peak antenna gain of 3.5 dBi in 2.4 GHz and 5.4 dBi in 5 GHz. Built-in antennas are optimized for horizontal ceiling mounted orientation of the AP. The downtilt angle for maximum gain is roughly 30 degrees. Combining the patterns of each of the antennas of the MIMO radios, the peak gain of the effective per-antenna pattern is 1.9</li> </ul>		
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	<p>dBi in 2.4 GHz and 3.5 dBi in 5 GHz</p> <ul style="list-style-type: none"> <li>• E0, E1—HPE SmartRate port (RJ-45, maximum negotiated speed 2.5 Gbps):</li> <li>• Auto-sensing link speed (100/1000/2500/5000BASE-T) and MDI/MDX</li> <li>• 2.5 and 5.0 Gbps speed complies with NBase-T and 802.3bz specifications</li> <li>• USB 2.0 host interface (Type A connector): Capable of sourcing up to 1A/5W to an attached device</li> <li>• Bluetooth Low Energy (BLE5.0) and Zigbee (802.15.4) radio: <ul style="list-style-type: none"> <li>• BLE—Up to 8 dBm transmit power (class 1) and -95 dBm receive sensitivity</li> <li>• Zigbee—Up to 8 dBm transmit power and -99 dBm receive sensitivity</li> </ul> </li> <li>• Visual indicators (two multi-color LEDs)—For System and Radio status</li> <li>• Reset button—Factory reset, LED mode control (normal/off)</li> <li>• Serial console interface (proprietary, micro-B USB physical jack)</li> <li>• Kensington security slot</li> <li>• Reliability</li> <li>• Mean Time Between Failure (MTBF)—995,000 hours (114 years) at +25 C operating temperature.</li> <li>• Regulatory Compliance</li> <li>• FCC/ISED</li> <li>• CE Marked</li> <li>• RED Directive 2014/53/EU</li> <li>• EMC Directive 2014/30/EU</li> <li>• Low Voltage Directive 2014/35/EU</li> <li>• UL/IEC/EN 60950</li> <li>• EN 60601-1-1, EN60601-1-2</li> </ul>		
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3.2	<b>Employee and Guests Management System (2 Units)</b>		
	The proposed solution must be a web-based, interface that includes several productivity tools such as a configuration wizard and preconfigured policy templates.		
	The proposed solution must support any vendor type of networking equipment (wired, wireless, VPN) and a variety of authentication methods (802.1X, MAC auth, Web auth).		
	The proposed solution must be able to take advantage of a phased implementation approach by starting with one element of access management (role based) and later incorporating added security measures (endpoint health).		
	Must incorporate a complete set of tools for reporting, analysis, and troubleshooting. Data from access transactions can be organized by customizable data elements and used to generate graphs, tables, and reports. Must correlate and organize user, authentication, and device information together.		
	The proposed solution must have fully integrated support for Microsoft NAP allowing health and posture checks on Windows endpoints without the need to install an agent.		
	The proposed solution must have all of its external facing interfaces programmable, which means APIs are available to extend the system to support different authentication protocols, identity stores, health evaluation engines and port and vulnerability scanning engines.		
	The solution must be an easy-to-deploy hardware or virtual appliance platform that utilizes identity based policies to secure network access and includes an integrated set of capabilities bundled under one policy platform: a. Full AAA server – RADIUS and TACACS+		

	<ul style="list-style-type: none"> <li>b. Automatic device profiling and the ability to use profiled information for access authorization</li> <li>c. Built-in guest management and device/user onboarding</li> <li>d. Web based management interface with Dashboard</li> <li>e. Reporting and analysis with custom data filters</li> <li>f. Data repository for user, device, transaction information</li> <li>g. Rich policies using identity, device, health, or conditional elements</li> <li>h. Deployment and implementation tools.</li> <li>i. Support SSO SAML for GUI and Guest portal integration.</li> <li>j. Integration with leading MDM provider such as MobileIron, AirWatch, Maas360, ZenPrise, SOTI to extract endpoint information</li> <li>k. Integration with Palo Alto Networks Firewall to provide context base information</li> </ul>		
	<p>Must support flexible license model based on either perpetual or subscription-based licensing on required functionality (i.e. Onboard, Posture, Guest Access).</p>		
	<p>The proposed solution must be able of correlation of user, device, and authentication information for easier troubleshooting, tracking etc.</p>		
	<p>AAA framework must allow for the complete separation of Authentication and Authorization sources. For example, authentication against Active Directory but authorize against an external SQL database.</p>		
	<p>Should support multiple methods for device identification and profiling such as:</p> <ul style="list-style-type: none"> <li>a. Integrated, network based, device profiler utilizing collection via SNMP, DHCP, HTTP, AD, ActiveSync, IF-MAP</li> <li>b. Endpoint audit via NISSUS or NMAP scanning</li> </ul>		
	<p>Policy creation tools:</p>		



	<ul style="list-style-type: none"> <li>a. Pre-configured templates</li> <li>b. Wizard based interface</li> <li>c. LDAP browser for quick look-up of AD attributes</li> <li>d. Policy simulation engine for testing policy integrity</li> <li>e. Policy model should support incorporation of several contextual elements including identity, endpoint health, device, authentication method &amp; types, and conditions such as location, time, day, etc.</li> </ul>		
	<p>Support the following enforcement methods:</p> <ul style="list-style-type: none"> <li>a. VLAN steering via RADIUS IETF attributes and VSAs</li> <li>b. VLAN steering and port bouncing via SNMP</li> <li>c. Access control lists – both statically defined filter-ID based enforcement, as well as dynamically downloaded ACLs.</li> <li>d. Roles or any other vendor-specific RADIUS attribute supported by the network device.</li> <li>e. Agent-based enforcement – bouncing a managed interface and sending custom messages.</li> </ul>		
	Must be able to join multiple Active Directory belonging to separate forest with no trust relation to facilitate any form of authentication or authorization request.		
	Must have the ability to create multiple CA Servers (either as a Root CA or Subordinate CA) within the appliance. Device provision by such CA must allow to roam across multiple network cluster if required		
	Must support complex PKI deployment where TLS authentication requires validating client certificate from multiple CA trust chain. Must also support AAA server certificate being signed by external CA whilst validating internal PKI signed client certificates.		
	Must support importing of 3rd party vendor Radius Dictionary		

	Must be able to join multiple Active Directory belonging to separate forest with no trust relation to facilitate any form of authentication or authorization request.		
	Support for Automatic Sign On (ASO), which captures the user's initial 802.1X, credentials and uses these to automatically sign the user into their SAML supported applications.		
	Support for SAML capabilities, which will allow the appliance to act as an identity provider (IDP) for the principal user.		
	Profiling capabilities included in base licensing to offer full visibility of the devices present on the network.		
	Support Restful API capability to interact with leading MDM vendors within the base license.		
	Must support multiple AD domains and AD forest queries seamlessly.		
	Support intuitive policy configuration templates and visibility troubleshooting tools.		
	Supports multiple authentication/authorization sources (AD, LDAP, SQL dB) within one service.		
	Self-service device onboarding with built-in certificate authority (CA) for BYOD		
	Support single sign-on (SSO) and Aruba Auto Sign-On support via SAML v2.0.		
	Supports NAC and EMM/MDM integration for mobile device assessments.		
	Comprehensive integration with third party systems such as SIEM, Internet security and EMM/MDM.		
	Support automatic cluster upgrade.		
	Support the following identity stores: <ul style="list-style-type: none"> <li>a. Microsoft Active Directory</li> <li>b. RADIUS</li> <li>c. Any LDAP compliant directory</li> <li>d. Any ODBC-compliant SQL server</li> <li>e. Token servers</li> <li>f. Built-in SQL store, static hosts list</li> </ul>		

	g. Kerberos		
	Support the following RFC standards: 2246, 2248, 2548, 2759, 2865, 2866, 2869, 2882, 3079, 3576, 3579, 3580, 3748, 4017, 4137, 4849, 4851, 5216, 528, 7030		
	Support information assurance validations FIPS 140-2 – Certificate #2577		
	Support the following profiling methods: DHCP, TCP, MAC OUI, ClearPass Onboard, SNMP, Cisco device sensor		
	Support the following frameworks and protocols: <ul style="list-style-type: none"> <li>a. RADIUS, RADIUS CoA, TACACS+, web authentication, SAML v2.0</li> <li>b. EAP-FAST (EAP-MSCHAPv2, EAP-GTC, EAP-TLS)</li> <li>c. PEAP (EAP-MSCHAPv2, EAP-GTC, EAP-TLS, EAP-PEAP-Public, EAP-PWD)</li> <li>d. TTLS (EAP-MSCHAPv2, EAP-GTC, EAP-TLS, EAP-MD5, PAP, CHAP)</li> <li>e. EAP-TLS</li> <li>f. PAP, CHAP, MSCHAPv1 and 2, EAP-MD5</li> <li>g. NAC, Microsoft NAP</li> <li>h. Windows machine authentication</li> <li>i. MAC auth</li> <li>j. Audit (rules based on port and vulnerability scans)</li> <li>k. Online Certificate Status Protocol (OCSP)</li> <li>l. SNMP generic MIB, SNMP private MIB</li> <li>m. Common Event Format (CEF), Log Event Extended Format (LEEF)</li> <li>n. TLS 1.2</li> </ul>		
	<b>Appliance</b> <ul style="list-style-type: none"> <li>a. Single platform approach that combines AAA, NAC, BYOD, MAM and Guest Access by incorporating identity, health, physical/device information, and conditional elements into one set of policies.</li> <li>b. Must have ability to scale to up to 5,000 devices per appliance or</li> </ul>		

	<p>virtual appliance (Both VMware and Hyper V).</p> <ul style="list-style-type: none"> <li>c. Solution must be Agnostic to existing wired, wireless and VPN network in place today.</li> <li>d. Appliance must be pre-built and ready to be imported (OVF) into VMware virtualization environment (building from ISO not acceptable).</li> <li>e. Shell protected by CLI providing configuration for base appliance settings.</li> <li>f. Appliance must provide disk or file encryption.</li> <li>g. Ability to mix and match virtual and hardware appliances in one deployment.</li> <li>h. Platform must be deployable in an out-of-band model and support for clustering with N+1 redundancy model.</li> <li>i. Flexibility to operate all features/functions on any appliance in the cluster.</li> <li>j. Hardware platform must be running on hardened operating system.</li> </ul>		
	<p><b><i>Reliability / Performance</i></b></p> <ul style="list-style-type: none"> <li>a. Appliances have ability to be clustered in any combination via local and remote network connections providing unlimited scale, redundancy, and access load balancing.</li> <li>b. Platform must be deployable in an out-of-band model and support for clustering with N+1 redundancy model.</li> <li>c. Failure of master node should not impact the ability for backup appliances to continue servicing authentication traffic.</li> <li>d. Must support several deployment modes including centralized, distributed, or mixed.</li> <li>e. Must support Virtual IP to allow seamless failover for Web-based services such as Guest portal without a need for external load balancer.</li> </ul>		



	<ul style="list-style-type: none"> <li>f. Core product should have been available in the market for at least 4 years.</li> <li>g. Ability to scale up to 1 million unique endpoint authentications.</li> </ul>		
	<p><b><i>Bring Your Own Devices (BYOD)</i></b></p> <ul style="list-style-type: none"> <li>a. Self-service workflow built on an industry leading platform. Supports popular smart devices as well as traditional computing platform</li> <li>b. Unique portal pages based on devices type – iOS, Android.</li> <li>c. Ability to support revocation of devices.</li> <li>d. Correlation of user, device, and authentication information for easier troubleshooting, tracking etc. – provides high level of visibility into what devices are on the network and associated with what users.</li> <li>e. Automated onboarding of devices to enable secure access via self-serve portal allowing for the configuration of 802.1x supplicants, device enrolment and provisioning.</li> <li>f. Ability to integrate with Active Directory so users that are approved for BYOD may be authenticated via identity and/or device attributes.</li> <li>g. OPTIONAL Cloud based, endpoint configuration tool for streamlining the configuration of 802.1X supplicants for laptops or handheld devices (smartphones, pads, etc.) and guiding the end-user onto the network for the first time.</li> <li>h. Support for Windows, Mac, iOS (iPhones, iPads, etc.) and Android devices.</li> </ul>		
	<p><b><i>Guest Access</i></b></p> <ul style="list-style-type: none"> <li>a. Solution must be capable of providing sponsored and self-provisioned Guest Access. It must also have an ability to provide free or billable Guest Access with built in</li> </ul>		



	<p>payment solution that can integrate with payment solution providers.</p> <ul style="list-style-type: none"> <li>b. Must be able to provide custom branding.</li> <li>c. Ability to send automated SMS or email credentials to the Guest User.</li> <li>d. Ability to set Account Details including Time Frame, Bandwidth Contract etc. Once account timeframe expires the User Account becomes inactive automatically.</li> <li>e. Solution must be capable of providing Advertising Services (Play Video before Access, offer current Promotions, Advise of Health Alerts)</li> <li>f. Guest solution should manage the individual guest credentials in a partitioned database and not pollute the user store with account credentials for guest users.</li> <li>g. Ability to perform caching of MAC address post guest authentication to avoid the need for guest to re-authenticate during the period of their visit (3G like user experience after first authentication via captive portal).</li> <li>h. Auto-login for self-registration workflow – no need for the guest to retrieve account credentials from email or SMS for initial login.</li> <li>i. Anonymous login support with per device policy still applied.</li> <li>j. Access token login support for single credential login to guest network – event management, scratch cards etc.</li> <li>k. Bulk import of guest accounts with ability to trigger notification of credentials via email.</li> <li>l. Bulk import of NAS devices for large scale deployments.</li> <li>m. Sponsored approval workflow for guest self-registration where open SSID registration can be protected by requiring internal staff to approve the creation of guest account.</li> </ul>		
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	<ul style="list-style-type: none"> <li>n. Prevent employees from accessing the guest network on the corporate laptop.</li> <li>o. Apple Captive Network Assistant bypass for managing end to end guest workflow. For example, post login welcome page display on iOS and Mac OS Lion and above devices</li> <li>p. Post login session statistics page displayed to users so they can monitor usage or quota assigned.</li> <li>q. Support URL persistence so users originally requested webpage can be displayed post login.</li> <li>r. Location based captive portal – display different landing page based on where guest is connecting to the network.</li> <li>s. Support guest access across multi-vendor access network</li> <li>t. Fully customizable self-registration or guest creation pages with user interface controls such as drop down, check list, radio button. It must also have authenticated self-registration for partner / joint venture account provisioning.</li> <li>u. Published API's to allow 3rd party system to manage guest accounts.</li> <li>v. NAC health checking should support agent and agentless methods and be available as a permanent or dissolvable health agent for Windows, Linux, and Macintosh endpoint platforms. In addition to authenticating the user, the solution must gather granular information about the endpoint device, perform advanced health checks on Windows platforms (services, processes, peer-to-peer apps, registry keys, USB device usage, Windows Hot fixes, patch management agents), and perform standard health checks on Linux and Mac platforms (Anti-virus, Anti-spyware, Firewall).</li> <li>w. Support persistent agent, dissolvable agent, Microsoft NAP agent.</li> </ul>		
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	<ul style="list-style-type: none"> <li>x. Support Windows, Apple, Linux Operating System.</li> <li>y. Gather granular information about the endpoint device</li> <li>z. Perform advanced health checks on Windows platforms (services, processes, peer-to-peer apps, registry keys, USB device usage, Windows Hot fixes, patch management agents), and perform standard health checks on Linux and Mac platforms (Anti-virus, Anti-spyware, Firewall).</li> </ul>		
<b>3.3</b>	<b>Controller (1 Unit)</b>		
	The proposed solution must have a centralized WLAN architecture with “thin” Access Point and centralized switch/controllers, and integrated network management		
	The proposed solution must have a Wi-Fi Alliance Certification for 802.11 a/b/g/n/ac		
	The proposed solution must be self-contained, integrated, overlay solution, not requiring upgrades or enhancements to existing routers and switches		
	The proposed solution must have a chassis and box N+1 redundancy with under 20 seconds failover time		
	The proposed solution must have a chassis and box 1+1 fast failover redundancy with sub-second failover time.		
	The proposed solution must support same software, configurations and product functionality across all platforms in the product family proposed		
	The proposed solution must have a newly installed controllers automatically synchronized with the already existing controller(s), without requiring a separate network management server		
	The proposed solution must support the following certifications:		

	<ul style="list-style-type: none"> <li>a. Wi-Fi Alliance certified (802.11a/b/g/n/d/h/ac, WPA™</li> <li>b. Personal, WPA™ Enterprise, WPA2™ Personal, WPA2™</li> <li>c. Enterprise, WMM™, WMM Power Save)</li> <li>d. FIPS 140-2 validated (when operated in FIPS mode)</li> <li>e. Common Criteria EAL-2</li> <li>f. RSA certified</li> <li>g. Polycom/Spectralink VIEW certified</li> <li>h. USGv6 firewall</li> </ul>		
	<p>The proposed solution must allow entire network can be upgraded to the latest operating system in real-time with zero downtime with no users affected</p>		
	<p>The proposed solution must support up to 12 controllers in one cluster, Controller Clustering enables a seamless experience across giant campuses, in the event of failure or significant crowd density</p>		
	<p>The proposed solution must allow IT organizations to have multiple separate secure networks while using the same AP in the same physical location</p>		
	<p>The proposed solution must support full set of northbound APIs that enable deep visibility into the network. The NB APIs provide RF health metrics, app utilization, device type and user data in an easy to integrate format. 3rd party applications can receive information from the controller and analyze all these metrics for better visibility and monitoring</p>		
	<p>The proposed solution must support ability to dynamically update individual service modules (AppRF, AirGroup, ARM, AirMatch, NB API, UCM, WebCC and IP classification) that are residing on the Mobility Master, without requiring an entire system reboot</p>		
	<p>The proposed solution must eliminate sticky clients and boosts Wi-Fi performance by ensuring that clients associate with the best access point. It also groups the MU-MIMO clients together for simultaneous transmission to multiple devices, improving the overall WLAN capacity.</p>		



	<p>The proposed solution must support Advanced Cryptography (ACR) module brings military-grade Suite B cryptography to Controllers, enabling user mobility and secure access to networks that handle sensitive, confidential and classified information. Approved by the U.S. National Security Agency (NSA), Suite B improves performance and eliminates unwieldy workflows and strict handling requirements.</p>		
	<p>The proposed solution must allow the Department to have visibility into non-RF metrics (RADIUS, DHCP and DNS server) which not only gives them end-to-end visibility into a wireless user experience, but also provides them with the ability to foresee connectivity issues before users are even impacted.</p> <p>In addition to looking at real traffic flowing through the network, Clarity also enables WLAN administrators to simulate traffic to identify service outages and performance issues before users experience them. This proactive workflow can either be on-demand or scheduled across thousands of locations</p>		
	<p><b><i>Authentication &amp; Encryption</i></b></p> <p>Support the following authentication types:</p> <ul style="list-style-type: none"> <li>a. IEEE 802.1X (EAP, LEAP, PEAP, EAP-TLS, EAP-TTLS, EAP-FAST, EAP-SIM, EAP-POTP,</li> <li>b. EAP-GTC, EAP-TLV, EAP-AKA, EAP-Experimental, EAP-MD5)</li> <li>c. RFC 2548 Microsoft vendor-specific RADIUS attributes</li> <li>d. RFC 2716 PPP EAP-TLS</li> <li>e. RFC 2865 RADIUS authentication</li> <li>f. RFC 3579 RADIUS support for EAP</li> <li>g. RFC 3580 IEEE 802.1X RADIUS guidelines</li> <li>h. RFC 3748 extensible authentication protocol</li> <li>i. MAC address authentication</li> <li>j. Web-based captive portal authentication</li> </ul>		
	<p><b><i>Support the following authentication servers:</i></b></p>		



	<ul style="list-style-type: none"> <li>a. Internal database</li> <li>b. LDAP/SSL secure LDAP</li> <li>c. RADIUS</li> <li>d. TACACS+</li> <li>e. Microsoft Active Directory (AD)</li> <li>f. Microsoft IAS and NPS RADIUS servers</li> <li>g. Cisco ACS, ISE servers</li> <li>h. Juniper Steel Belted RADIUS, Unified Access servers</li> <li>i. RSA ACE/Server</li> <li>j. Infoblox</li> <li>k. Interlink RADIUS Server</li> <li>l. FreeRADIUS</li> </ul>		
	<p><b><i>Support the following encryption protocols:</i></b></p> <ul style="list-style-type: none"> <li>a. CCMP/AES</li> <li>b. WEP 64- and 128-bit</li> <li>c. TKIP</li> <li>d. SSL and TLS: <ul style="list-style-type: none"> <li>i RC4 128-bit</li> <li>ii RSA 1024-bit</li> <li>iii RSA 2048-bit</li> </ul> </li> <li>e. L2TP/IPsec (RFC 3193)</li> <li>f. XAUTH/Ipsec</li> <li>g. PPTP (RFC 2637)</li> </ul>		
	<p><b><i>Web-Based Authentication (e.g. WebAuth/Captive Portal):</i></b></p> <ul style="list-style-type: none"> <li>a. Integrated into the controller/switch.</li> <li>b. User name and password authentication, as well as support for token based authentication.</li> <li>c. Option for simple logging of user name used for entry.</li> <li>d. Facilitate process for non-IT staff to create temporary guest IDs and passwords to automatically age out / expire.</li> <li>e. Ability to customize the pre-authentication network access rights beyond DHCP response (e.g. to allow PCs and MACs to finish network scripts and network boot ups), Airtime-based bandwidth contract for the guest SSID to preserve channel access for particular SSIDs. As an example,</li> </ul>		



	<p>granting a higher percentage of airtime to employee SSIDs as opposed to guest SSIDs.</p> <ul style="list-style-type: none"> <li>f. Packet rate based bandwidth contract for individual guest users for increased control of guest traffic usage.</li> <li>g. 802.1X based guest access using a local database on the switch/controller that can be used to authenticate users.</li> <li>h. Time-of-day / duration based access per guest user of increased control and security.</li> <li>i. Time-of-day availability of guest SSID for increased control and security</li> <li>j. Secure tunnelling via IPSec/GRE to a generic L3 switch/router for ease of deployment and reduced cost</li> </ul>		
	<p><b>Wireless LAN controller</b></p> <ul style="list-style-type: none"> <li>a. Support up to 256 APs.</li> <li>b. Support over 8192 number of concurrent connected wireless clients.</li> <li>c. Support up to 12 Gbps of stateful firewall throughput.</li> <li>d. Support over 128,000 million concurrent active firewall sessions</li> <li>e. Support solid state drives for maximum reliability and uptime.</li> <li>f. Support 2 x 10Gbase-X (SFP+) ports and 4 x 1G Combo (Copper and Fiber)</li> </ul>		
	<p><b>Support the following regulatory and safety compliance</b></p> <ul style="list-style-type: none"> <li>a. FCC part 15 class A CE</li> <li>b. Industry Canada Class A</li> <li>c. VCCI Class A (Japan)</li> <li>d. EN 55022 Class A (CISPR 22 Class A), EN 61000-3</li> <li>e. EN 61000-4-2, EN 61000-4-3, EN 61000-4-4</li> <li>f. EN 61000-4-5, EN 61000-4-6, EN 61000-4-8</li> <li>g. EN 61000-4-11, EN 55024, AS/NZS 3548</li> <li>h. UL 60950, EN60950</li> </ul>		



	<p>i. CAN/CSA 22.2 #60950  j. CE mark, cTUVus, CB, C-tick, Anatei, NOM, MIC</p>		
	<p><b><i>AP-to-Controller Communication</i></b></p> <ul style="list-style-type: none"> <li>a. Use of industry standards-based (IEEE or IETF) tunnelling protocols; specify standard that the tunnelling mechanism is based on.</li> <li>b. Option to encrypt control path between the AP and the controller via standards-based protocols; specify standard that the encryption mechanism is based on.</li> <li>c. Centralized Encryption/De-encryption on switch/controller in data center.</li> <li>d. Optionally support distributed Encryption/De-encryption (e.g. on AP's) without the need for specialized hardware with support mixed mode operations from a single switch/controller.</li> <li>e. Support secure connection (e.g. IPSEC/VPN) of APs to centralized switch over "untrusted" (e.g. public WAN) network transport, without requiring external hardware and without requiring dedicated switch/controller.</li> </ul>		
	<p><b><i>AP Management</i></b></p> <ul style="list-style-type: none"> <li>a. Automatic updates of firmware and software on all APs without user intervention.</li> <li>b. Support discovery protocol from APs to find and sync with switch/controller, that works over routed and switched subnets and that does not require reconfiguration or features on routers or switches.</li> <li>c. All AP configuration and service delivery information centrally managed and maintained via the switch/controller.</li> <li>d. Centralized switch/controller provides a mechanism to support different groups of APs that share the same configuration of SSIDs,</li> </ul>		



	<p>user VLANs, etc. – without requiring a separate management interface.</p> <p>e. AP management performed through the use of groups and profiles for ease of scalability and deployment.</p>		
	<p><b><i>RF Management</i></b></p> <p>a. Automatic adjustment of individual AP power and channel setting to maximize performance around other APs, limit the effects of interference (both 802.11 and non-802.11), and detect and correct any RF coverage holes.</p> <p>b. Voice-aware RF management that provides the capability to pause channel scanning if an active voice-call(s) is detected.</p> <p>c. Dynamic load balancing to automatically distribute clients to the least loaded channel and AP; load balancing must not require any client specific configurations or software.</p> <p>d. Load balancing across bands and steering of dual-band capable clients from 2.4GHz to 5GHz in order to improve network performance without the use of client specific configurations or software.</p> <p>e. Traffic shaping capabilities to offer air-time fairness across different type of clients running different operating systems in order to prevent starvation of client throughput in particular in a dense wireless user population without the use of client specific configurations or software.</p> <p>f. Co-channel interference management in order to prevent adverse effects of operating multiple APs in the same channel while in close proximity (for instance within 2.4GHz band where 3x 802.11 channels are available).</p> <p>g. WLAN infrastructure should employ radio management techniques to handle the high density of mobile devices. It should assign fair amount of airtime to all devices connected to</p>		



	<p>the same radio, load balance clients across 802.11 channels available and load balance clients across 2.4GHz and 5GHz frequency bands.</p> <ul style="list-style-type: none"> <li>h. Continuous steering client to the best AP, even after client is associated to AP. To ensure client is always connected to best AP.</li> <li>i. Steering client decision is based on the probes request from the client which takes the client's perspective of the network into account.</li> <li>j. Continuously steers clients to 5Ghz radio, even post association to move capable clients to a cleaner RF spectrum</li> <li>k. Continuously balances clients across the available number of APs and channels for increased system throughput</li> <li>l. Moving sticky clients to a better AP, factoring in AP load and client traffic, to optimize overall system throughput</li> <li>m. Displays interference source on a map without need for additional appliances other than NMS</li> </ul> <p><b>Access Control</b></p> <ul style="list-style-type: none"> <li>a. Security enforcement for wireless users through the use of a role-based, stateful firewall that can be directly integrated with the roles defined within existing authentication servers.</li> <li>b. Dynamic, stateful (as defined by ICSA) access rights into the network once authenticated based on source, destination, and/or ports.</li> <li>c. Rules for access rights based on any combination of time, location, user identity, device identity, and extended attributes from the authentication database.</li> <li>d. The firewall must be able to take action including to allow the traffic, deny the traffic, reject the traffic, route the traffic, destination or source NAT the traffic, modify the QoS level of the traffic, and blacklist</li> </ul>		
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	<p>(remove from the network) the client for policy matches.</p> <ul style="list-style-type: none"> <li>e. Offers bandwidth contract on a per application basis (voice, video and data)</li> <li>f. Offers bandwidth contract on a per AP-Group</li> <li>g. Acts as a VPN gateway to terminate traffic from remote home/office users with a VPN soft client</li> <li>h. Securely connects different networks using site to site VPN</li> <li>i. DoS attack identification and classification without an additional appliance</li> <li>j. Offers wireless containment using Tarpitting</li> <li>k. Offers wired containment with ARP poisoning</li> <li>l. Secures wired and wireless traffic with a layer 2 sec tunnel on top of dot1x</li> <li>m. Secures the controller-to-controller communication using a xSec point-to-point tunnel</li> <li>n. National Security Agency (NSA) approved</li> <li>o. Accurate method of classifying real Rogues (on network) versus interfering neighbor networks whether Rogues have encryption or not and without client software or upgrades to current network.</li> <li>p. Blacklisting of wireless devices after firewall / ACL access rule violations are detected within the centralized switch / controller</li> <li>q. Automatically recognize the type (eg. Apple iOS) and model (eg. iPhone, iPad) of the mobile device connecting to the network.</li> <li>r. Identify over 1500+ applications, including cloud and web-based mobile apps like Lync, SharePoint, Box, GotoMeeting and Salesforce.com.</li> <li>s. Able block, apply QoS and bandwidth control based on the application.</li> <li>t. Support web content policy and reputation in firewall policy with:</li> </ul>		
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	<ul style="list-style-type: none"> <li>● 460+ million domains scored and classified</li> <li>● 83+ categories</li> <li>● 45+ languages</li> <li>● 740+ million IP addresses analyzed</li> <li>● 12+ million dangerous IPs identified</li> </ul> <p>u. Directs/redirects traffic using GRE tunnels</p> <p>v. Support roles based include unique web content policies</p> <p>w. Support roles based include unique web reputation policies</p> <p>x. Offers bandwidth contract on a per application basis (voice, video and data)</p>		
	<p><b><i>Mobility</i></b></p> <p>a. The system must support L2 roaming capabilities across APs (terminated on the same and different controllers) with no special client-side software required.</p> <p>b. The system must support L3 roaming capabilities across APs (terminated on the same and different controllers) with no special client-side software required.</p> <p>c. The system must support Opportunistic Key Caching (OKC).</p> <p>d. The system must support Pairwise Master Key (PMK) caching.</p> <p>e. The system must support seamlessly connectivity with roaming handoff times of 2-3 milliseconds, delay-sensitive and persistent applications such as voice and video experience uninterrupted performance, included:</p> <p>f. Fast roaming: 2-3 msec intra-controller, 10-15 msec inter-controller</p> <p>g. Roaming across subnets and VLANs: session do not drop as clients roam on the network</p> <p>h. Proxy mobile IP: automatically establishes home agent/foreign agent relationship between Mobility Controllers</p>		



	<p>i. Proxy DHCP: prevent clients from changing IP address while roaming</p> <ul style="list-style-type: none"> <li>• VLAN Pooling: automatically load balances clients across multiple VLANs</li> </ul>		
	<p><b>Quality of Service (QoS)</b></p> <p>a. The system must be WMM-certified by the Wi-Fi alliance</p> <p>b. Upstream and downstream packet tagging between AP and controller/switch using standard tagging mechanisms; specify exact tagging support.</p> <p>c. Per user, per device, and per application/TCP-port prioritization.</p> <p>d. Advanced voice QoS services that prioritize voice streams over data for mixed mode devices (e.g. traffic-based instead of SSID-based prioritization) for any authentication method used</p> <p>e. Dynamic voice-aware load balancing (call admission control) that takes into effect which voice protocol is used by the voice handset. This load balancing should pre-emptively move voice clients across APs while they are out-of-call in order to improve network performance</p> <p>f. Automatic call recognition of Initiation Protocol (SIP), Skinny Client Control Protocol (SCCP), VOCERA, Spectralink Voice Protocol (SVP) VoWLAN protocols</p> <p>g. Battery-saving features such as proxy ARP for clients, multicast/broadcast filtering, large DTIM configurations, multicast/broadcast to unicast conversion integrated into the AP and controllers without requiring client side software components</p> <p>h. Apply different QoS and bandwidth policies to different users based on their role within the organization and the device type they currently use, even when these different</p>		



	<p>users/devices are connected to the same SSID.</p> <ul style="list-style-type: none"> <li>i. Display MOS scores for active voice sessions</li> <li>j. Support ALGs for common voice protocols (SIP, SCCP, H323, NOE, Vocera, Lync and Jabber)</li> <li>k. Offers real time call quality analysis</li> <li>l. Web content filtering and web reputation is built natively in the platform</li> <li>m. Can rate limit multiple applications at the same time (&gt;10 applications)</li> </ul>		
	<p><b>Network Services</b></p> <ul style="list-style-type: none"> <li>a. The system must support internal routing, bridging and spanning tree capabilities across its ports within the centralized switch/controller in order to enable ease of deployment and scalability.</li> <li>b. Source NAT and destination NAT must be available for private address use.</li> <li>c. Interfaces on the switch/controller must be able to be set for DHCP in order to operate where static IP addressing is not available.</li> <li>d. An internal DHCP server for ease of deployment and scalability must be available and must be able to redistribute dynamically learned information such as DNS, WINS, and local DNS suffix entries in the DHCP response.</li> <li>e. Support GRE and IPSEC tunnels between controllers and other GRE/IPSEC termination devices in order to enable secure site-to-site connections without requiring external hardware.</li> <li>f. WLAN infrastructure should support multiple VLAN assignments to a single SSID in an effort to ease the pain in VLAN subnet sizing management. WLAN infrastructure should automatically distribute mobile devices to different VLANs.</li> </ul>		



	<p>g. Support wireless devices that print and share media that leverage UpnP®, DLNA®, AirPrint and AirPlay® technology. Also provides QoS and policy enforcement to control resource sharing based on group, user, role, time and location, included:</p> <ul style="list-style-type: none"> <li>● Enables users to discover network services across IP subnet boundaries in wireless and wired networks.</li> <li>● Allow users to access conference room Apple TVs during presentations using group-based access privileges.</li> <li>● Identifies AirPrint-enabled printers and enables user access based on location.</li> <li>● Teachers can project to an Apple TV in a classroom using a laptop or iPad, while student access is prevented.</li> <li>● Students get exclusive access to Apple TVs in their dorm rooms based on personal access privileges, while access by other residents is not allowed.</li> </ul> <p>h. Support enterprise-grade adaptive WLANs to automatically manages all RF parameters to achieve maximum performance, included:</p> <ul style="list-style-type: none"> <li>● Support 802.11ac VHT20, VHT40 and VHT80 – manages spectrum for all 802.11ac networks.</li> <li>● Support 802.11n HT20 and HT40 – manages spectrum for all 802.11n networks.</li> <li>● Client band steering – keeps dual-band clients on optimal RF band.</li> <li>● Self-healing around failed Aps – automatically adjust power levels to compensate for failed Aps.</li> </ul>		
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	<ul style="list-style-type: none"> <li>● Airtime fairness – manages client access to the air resources. Can be configured to provide fair access or to deliver preferred access to clients that connect using the latest 802.11 standard.</li> <li>● RF spectrum load-balancing – evenly distributes clients across available channels.</li> <li>● Single-channel coordinated access – ensures optimal performance even with nearby Aps on the same channel.</li> <li>● RF planning – automatic pre-deployment modeling, planning and placement of Aps and RF monitors based on capacity, coverage and security requirements.</li> <li>● Coverage hole and interference detection – detects clients that cannot associate due to coverage gaps.</li> <li>● Timer-based AP access control – shuts off Aps outside of defined operating hours.</li> <li>● Remote wireless packet capture – remotely captures raw 802.11 frames and streams to protocol analyzer.</li> <li>● Plug-ins for third-party analysis tools – Wireshark, OmniPeek, AirMagnet.</li> <li>● Rogue AP detection and containment – Detects unauthorized Aps and automatically shuts them down.</li> <li>● Real-time location tracking and monitoring – enhanced with optional Aruba ALE solution.</li> <li>● Location tracking API for external integration –</li> </ul>		
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	<p>compatible with many retail analytics solution.</p> <p>i. Support controller high availability to minimize downtime in the unlikely event of a mobility controller failure, with the following deployment models and features:</p> <ul style="list-style-type: none"> <li>● Active/active (1:1) – each Mobility Controller typically serves 50% of its rated capacity. The first acts as a standby for Aps served by second controller and vice-versa. If a controller fails, its Aps failover to the other controller, ensuring high-availability to all Aps.</li> <li>● Active/standby (1+1) – one Mobility Controller terminates all the Aps, while the other controller acts as a standby if the primary controller goes down, Aps move to standby controller.</li> <li>● N+1 – multiple active Mobility Controllers are backed-up by a single standby controller.</li> <li>● AP establish simultaneous communication channel with both active and standby Mobility Controller – instantaneous failover to redundant Mobility Controller when the first controller fails.</li> <li>● During a failover, the Aps do not turn their radios off and on – SSID always available.</li> <li>● The solution works across layer 3 network – no special topology needed.</li> <li>● Client state sync – Credentials are cached, eliminating need to re-authenticate and overload RADIUS server.</li> <li>● N+1 oversubscription – simplifies configuration and</li> </ul>		
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	reduces number of Mobility Controller needed.		
	<p><b>Management</b></p> <ol style="list-style-type: none"> <li>a. Command line interface to control and manage all aspects of the system on the controller/switch.</li> <li>b. SNMP v3</li> <li>c. SSH must be supported and must be the default CLI access technology. Real-time configurable system changes, not requiring reboots or re-compilation to affect changes</li> <li>d. Browser-based system for total solution management including: site planning, configuration, monitoring, troubleshooting, live heat maps, location, and reporting.</li> <li>e. HTTPS must be supported and must be the default browser based interface access technology.</li> <li>f. Single, unified management view to multiple controllers/switches and access points.</li> <li>g. Single dashboard view of overall network, user, and security status</li> <li>h. Administrative rights partitioning - different admins have different rights. At a minimum should be: <ul style="list-style-type: none"> <li>● Full access – Full administrative privileges on the switch/controller.</li> <li>● Read-only – Read only access on the switch/controller with no ability to modify the device configuration.</li> <li>● Guest provisioning support – A limited interface that only allows for the provisioning of guest users</li> <li>● Configuration and policy changes applied globally to all systems and APs from a single-entry point.</li> </ul> </li> <li>i. APs can be updated to support wireless mesh capability without</li> </ol>		



	requiring a separate dedicated switch/controller.		
<b>4</b>	<b>NETWORK MONITORING SYSTEM (UNLIMITED NODES)</b>		
	<p><b>Network Performance Monitoring</b></p> <ul style="list-style-type: none"> <li>a. Network scanning, detection of devices using TCP/UDP Port, SMTP, POP3, IMAP, HTTP(S), SSH, FTP, DHCP, DNS, bandwidth and Port State.</li> <li>b. Simultaneous work of multiple administrators, management of admin authorizations, admin access log</li> <li>c. WMI counters: CPU load, memory usage, disk usage, network traffic, etc.</li> <li>d. Windows actions: service status uptime</li> <li>e. SNMP v1/2/3 counters: network traffic</li> </ul>		
	<p><b>Device and Equipment Inventory</b></p> <ul style="list-style-type: none"> <li>a. List of services on single workstation</li> <li>b. Overview and details of workstation hardware (OS, CPU, Memory, Disk drives)</li> <li>c. Hardware monitoring (Router, Switches, Firewall, Servers, Workstations, Printers and Environmental devices)</li> </ul>		
	<p><b>Web Monitoring</b></p> <ul style="list-style-type: none"> <li>a. Visited web pages (number of page visits, with headers, number and duration of visits)</li> <li>b. Web content and transactions.</li> <li>c. FQDNS/IP Match</li> <li>d. SSL Certificates</li> <li>e. Visited websites (duration and number of visits)</li> <li>f. Network traffic generated by the user</li> </ul>		
	<p><b>Help Desk</b></p> <ul style="list-style-type: none"> <li>a. Notification of critical issues on servers, workstations, switches,</li> </ul>		



	firewall, printers, and environmental devices b. Remote access to machines		
	<b>Data Guard</b> a. List of devices currently connected to the network b. Access rights created on the device and Active Directory level		
	a. <b>Management of Admin Authorization</b>  b. Simultaneous work of multiple administrators c. Varied access right to different account users d. An integrated web-based configuration interface lets admins hand out control of managing monitoring configuration, system settings, and more to other users and team members easily.		
	<b>License/Subscription and local support for one (1) year</b>		
5	<b>SECURITY MONITORING SYSTEM (12 MONTHS)</b>		
	<b>Manage Security Service</b>  The service provider must provide the following security services: a. 24 x 7 SOC monitoring, alerting and notification b. 100% 'Out of the Box' supported log sources c. SOC pre-defined standard correlation rules for event correlation and reports d. MSS Portal to access reports e. Real-time access to log data f. Custom reports or custom correlation rule to address non-standard use cases g. Perform in-scope vendor software upgrades, such as required security patches or version updates including vendor recommended critical/emergency patching as needed		

	<ul style="list-style-type: none"> <li>h. Notify Customer if any Log Sources require changes.</li> <li>i. Provide break-fix support, rebuild, and configure the implemented SmartConnector VM/Server solution located in DepEd's environment when infrastructure is available and online.</li> </ul>		
	<p><b>Support Services</b></p> <p>The bidder must provide the following support services:</p> <ul style="list-style-type: none"> <li>a. Provide 8x5 onsite support</li> <li>b. Receives customer's inquiries or requests for technical support either through email, ticket monitoring or phone base.</li> <li>c. Records all support requests and related activities using either CRM system or manual forms.</li> <li>d. Ensures all ticket information are accurate and updated</li> <li>e. Provide immediate solutions based on tested scenarios and within agreed Service Level Agreement</li> <li>f. Proceeds with onsite execution resolution with approval from DepEd</li> <li>g. Reports any fraudulent, suspicious acts or unlawful activities / transactions immediately to immediate head to preempt potential risks to DepEd.</li> <li>h. Provide solution documentation for maintenance agreement.</li> </ul>		
<b>6</b>	<b>CIVIL &amp; ELECTRICAL WORKS</b>		
6.1	<ul style="list-style-type: none"> <li>a. <b>Door Access System (Biometrics, Face and RFID Reader)</b></li> <li>b. Display 3-inch Touch Screen</li> </ul>		



	<ul style="list-style-type: none"> <li>c. Face Capacity 1,500 (1:N)</li> <li>d. Fingerprint Capacity 2,000</li> <li>e. ID Card Capacity(optional) 10,000</li> <li>f. Log Capacity 100,000</li> <li>g. Camera High Resolution Infrared Camera</li> <li>h. Communication TCP/IP, RS232/485, USB-host</li> <li>i. Access Control Interface for 3rd party electric lock, door sensor, exit button, alarm, wired doorbell</li> <li>j. Anti-pass back Function</li> <li>k. Wiegand Signal Input &amp; Output</li> <li>l. Standard Access Control Function: Time Zone, Group, Multi-identification Duress mode, Anti-pass back, Tamper alarm</li> <li>m. Optional Functions ID Card, Mifare Card</li> <li>n. Power Supply 12V DC</li> <li>o. Operating Temperature 0 - 45 °C</li> <li>p. Operating Humidity 20% -80%</li> <li>q. Dimension(L×H×D)mm 209.4×87.5×91.6</li> <li>r. Gross Weight 0.87kg</li> </ul>		
6.2	<p><b>Data Center Raised Flooring</b></p> <p><b>A.The Steel panel with cementitious in-fill Raised Floor, with High Pressure Laminate (HPL) finish with the following features and composition:</b></p> <ul style="list-style-type: none"> <li>a. Factory bonded, Anti-static tile, light gray color</li> <li>b. Epoxy painted finish</li> <li>c. Steel top sheet with precise flatness</li> <li>d. Fully welded structural assembly with light weight cementitious filling</li> <li>e. Interchangeable, with a precise squareness and size tolerance</li> <li>f. Formed steel structural bottom pan with dome design</li> <li>g. Non-combustible, Class A Flame spread rating</li> <li>h. Lightweight, easy to lift using a standard suction lifter</li> <li>i. Galvanized steel pedestal assembly head locking system</li> <li>j. Stringer of galvanized steel</li> </ul>		

	<p>k. Finish floor height of 300mm pedestal</p> <p><b>B. Specification</b></p> <p>a. Panel: Steel Cement Panel Suitable for Rolling Loads &amp; Static Loads</p> <p>b. Dimension: 610 x 610 x 35mm</p> <p>c. Panel Weight: 15 kg. each</p> <p>d. System Weight: 52.85 kg/sq.m.</p> <p>e. Finish Floor Height: 300mm standard pedestal base</p> <p>f. Stringer type: Bolt-on rigid stringer</p> <p>g. Ultimate Load: 13.35 KN</p> <p>h. Concentrated Load: 1,000 lbs/sq.in/ 4.45 KN, using 1 in.<sup>2</sup> indenter with max deflection of 2mm.</p> <p>i. Distributed Load: 23 KN/m<sup>2</sup></p> <p>j. Electrical Conductivity: 106&lt;math&gt;\Omega&lt;/math&gt;&lt;math&gt;\Omega&lt;/math&gt; 109</p>		
6.3	<p><b>DATA Center Upgrading (Stand Alone FDAS with Notification)</b></p> <p>a. Unique X-Profile detection chamber controlled by bespoke software.</p> <p>b. TSE-Technology (Thermal Stability Enhancement) provides stability across a range of environmental conditions, reducing nuisance alarms whilst enhancing detection.</p> <p>c. ALARM SILENCE BUTTON. Ideal in non-emergency situations (nuisance alarms).</p> <p>d. SILENCE LOW BATTERY WARNING chirp for up to 10 hours. Maintains continuous protection during sleeping hours</p> <p>e. TEST BUTTON. Extra large for ease of use.</p>		
6.4	<p><b>Airconditioning ( 1 Unit)</b></p> <p>a. Aircon Type: Split</p> <p>b. Cooling Capacity (HP): 2.5HP</p> <p>c. Inverter Technology</p> <p>d. Energy Efficiency Ratio Rating (ERR) : 14.93 – 10.83</p> <p>e. Input Power : Single 230V/60Hz</p>		
6.5	<p><b>Smart Data Cabinet</b></p>		

	<p><b>A. Cabinet Systems Colling with 4 Racks and Single UPS System</b></p> <ul style="list-style-type: none"> <li>a. SDC, 600mm IT rack for 42Ux600Wx1400D,120Pcs CAT6 cables entry, intelligent lock, RDU-THD</li> <li>b. Cable duct300mm width</li> <li>c. Cable duct600mm width, for 600mm width IT Rack &amp; PMC</li> <li>d. PMC Rack 600mm, PMC18, ITA2 20kVA UPS (long backup) UPS standalone, intelligent lock, Fan controller, RDU501, 1x CRV4 DX power cables, max support 2+9</li> <li>e. Indoor unit DX, 60Hz, intelligent lock, electrical reheat &amp; electrode humidifier, with condenser pump, top piping, with CRAC HMI in rear door</li> <li>f. Outdoor unit, for 25KW50/60Hz, environment temperature:20~40°C</li> <li>g. Adjustable rail kit</li> <li>h. External battery cabinet, 2U</li> <li>i. RP2V2006 MPS switched PDU 32A, C13*18+C19*6, 5M length input cable</li> <li>j. 4G Modem for SMS notification</li> <li>k. Testing &amp; Commissioning, Smart Row Configuration 1+4, within business hours</li> </ul> <p><b>B. Fire Suppression System</b></p> <ul style="list-style-type: none"> <li>a. FSS with Point detectors: Novec1230 suppression for 1.5m</li> <li>b. 2.2 FSS with Point detectors: Novec1230 suppression for 3.0m3</li> <li>c. Rackmount Kit</li> <li>d. In-country training and onsite installation (Services - Mandatory Per System)</li> </ul> <p><b>C. Electrical System Works w/ Materials and Rough-ins</b></p> <p><b>D. Mechanical System Works w/ Materials and Rough- ins</b></p>		
7	IP-PBX		



	<p><b>IP BASED PAGING SYSTEM</b></p> <p><b>A. IPBX Main System</b></p> <ul style="list-style-type: none"> <li>a. Supports up to 2000 users</li> <li>b. Unlimited SIP trunk accounts</li> <li>c. Supports up to 200 concurrent call</li> <li>d. Provides security protection using SRTP, TLS and HTTPS encryption</li> <li>e. Supports up to a 5-level IVR (Interactive Voice Response)</li> <li>f. Built-in call recording server; recordings accessed via web user interface</li> <li>g. Supports Multiple configurable call queues, automatic call distribution (ACD) based on agent skills/availability/ work-load, in-queue announcement</li> <li>h. Built-in Call Detail Records (CDR) for tracking phone usage by line, date, etc.</li> <li>i. Multi-language auto-attendant to efficiently handle incoming calls</li> <li>j. Integrated LDAP and XML phonebooks, flexible dial plan</li> <li>k. Supports any SIP video endpoint that using the H.264, H.263 and H.263+ codecs</li> <li>l. Supports voicemail and fax forwarding to email</li> <li>m. Analog Telephone FXS Ports: 2 RJ11 ports (both with lifeline capability in case of power outage)</li> <li>n. PSTN Line FXO Ports: 2 RJ11 ports (both with lifeline capability in case of power outage)</li> <li>o. T1/E1 Interface: 1 RJ45 port</li> <li>p. Network Interfaces: Dual Gigabit ports (switched or routed) with PoE; A 3rd Gigabit port for Hot-Standby Clustering</li> <li>q. Supports Integrated NAT router</li> <li>r. Voice-over-Packet Capabilities: LEC with NLP Packetized Voice Protocol Unit, 128ms-tail-length carrier grade Line Echo Cancellation, Dynamic Jitter Buffer, Modem detection &amp; auto-switch to G.711</li> <li>s. Voice and Fax Codecs: G.711 A-law/U-law, G.722 , G.723.1</li> </ul>		
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	<p>5.3K/6.3K, G.726, G.729A/B, iLBC, GSM, AAL2-G.726-32, ADPCM; T.38</p> <p>t. Video Codecs: H.264, H.263, H263+ QoS: Layer 3 QoS, Layer 2 QoS</p> <p>u. DTMF Methods: In Audio, RFC2833, and SIP INFO</p> <p>v. Supports the following Network Protocols: TCP/UDP/IP, RTP/RTCP, ICMP, ARP, DNS, DDNS, DHCP, NTP, TFTP, SSH, HTTP/HTTPS, PPPoE, SIP (RFC3261), STUN, SRTP, TLS, LDAP, HDLC, HDLC-ETH, PPP</p> <p>w. Supports the following Disconnect Methods: Call Progress Tone, Polarity Reversal, Hook Flash Timing, Loop Current Disconnect, Busy Tone</p> <p>x. Mount: Rack mount &amp; Desktop</p> <p>y. Supports Caller ID: Bellcore/Telcordia, ETSI-FSK, ETSI-DTMF, SIN 227 – BT</p> <p>z. Supports Up to 8 Conference bridges, up to 64 simultaneous conference attendees</p> <p>aa. Supports the following Call Features: Call park, call forward, call transfer, DND, DISA, ring group, pickup group, blacklist, paging/intercom</p> <p><b>B. Operator Phone</b></p> <p>a. 12 dual-color line keys (with 6 SIP accounts), 5 XML programmable contextsensitive soft keysDual switched auto-sensing 10/100/1000 Mbps Gigabit Ethernet ports with integrated PoE</p> <p>b. 48 digitally programmable &amp; customizable BLF/fastdial keys, and supports up to 4 cascaded GXP2200EXT Modules</p> <p>c. Built-in Bluetooth for syncing headsets and mobile devices for contact books, calendars &amp; call transferring</p> <p>d. HD (High Definition) handset and speakerphone with support for wideband audio</p> <p>e. Supports full duplex speakerphone</p> <p>f. Graphic Display 4.3 inch (480x272) TFT color LCD</p> <p>g. <b>Feature Keys:</b> 12 line keys with up to 6 SIP accounts, 5 XML</p>		
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	<p>programmable context sensitive softkeys, 5 navigation/menu keys, 11 dedicated function keys for : MESSAGE(with LED indicator), PHONEBOOK, TRANSFER, CONFERENCE, HOLD, HEADSET, MUTE, SEND/REDIAL, SPEAKERPHONE, VOL+, VOL</p> <p>h. <b>Voice Codecs:</b> Support for G7.29A/B, G.711<math>\mu</math>/a-law, G.726, G.722(wide-band), in-band and outof-band DTMF(in audio, RFC2833, SIP INFO)</p> <p>i. Auxiliary Ports: RJ9 headset jack (allowing EHS with Plantronics headsets), USB, extension module port</p> <p>j. <b>Telephony Features:</b> Hold, transfer, forward, 5-way conference, call park, call pickup, shared-call-appearance(SCA)/bridged-line-appearance(BLA), downloadable phonebook(XML, LDAP, up to 2000 items), call waiting, call log(up to 500 records), XML customization of screen, off-hook auto dial, auto answer, click-to-dial, flexible dial plan, hot desking, personalized music ringtones and music on hold, server redundancy and fail-over</p> <p>k. <b>Supports Extension Module:</b> Can power up to 4 GXP2200EXT modules which features a 128x384 graphic LCD, 20 quick-dial/BLF keys which dual- color LED, 2 navigation keys, and less than 1.2W power consumption per unit.</p> <p>l. <b>Supports QoS:</b> Layer 2 QoS (802.1Q, 802.1P) and Layer 3 (ToS, DiffServ, MPLS) QoS</p> <p>m. <b>Security:</b> User and administrator level passwords, MD5 and MD5-sess based authentication, 256-bit AES encrypted configuration file, SRTP, TLS, 802.1x media access control</p> <p>n. <b>Power:</b> Universal power adapter included: Input:100-240V ; Output: +12V, 1.0A ;Integrated Power-over-Ethernet(802.3af) Max power consumption : 5.4W(without GXP2200EXT) or</p>		
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	<p>9.2W(with 4 cascaded GXP2200EXTs)</p> <p><b>C. IP PHONES</b></p> <p>a. <b>Features and Specifications:</b> 2 lines, 2 SIP accounts, up to 2 call appearances</p> <p>b. Graphic Display 132 x 48 backlit graphical display</p> <p>c. <b>Feature Keys:</b> 2 line keys with dual-color LED and 2 SIP accounts, 3 XML programmable context sensitive soft keys, 5 (navigation, menu) keys. 13 dedicated function keys for MUTE, HEADSET, TRANSFER, CONFERENCE, SEND and REDIAL, SPEAKERPHONE, VOLUME, PHONEBOOK, MESSAGE, HOLD, PAGE/INTERCOM, RECORD, HOME</p> <p>d. <b>Protocols/Standards:</b> SIP RFC3261, TCP/IP/UDP, RTP/RTCP, HTTP/HTTPS, ARP/RARP, ICMP, DNS (A record, SRV, NAPTR), DHCP, PPPoE, SSH, TFTP, NTP, STUN, SIMPLE, LLDPMED, LDAP, TR- 069, 802.1x, TLS, SRTP</p> <p>e. <b>Network Interfaces:</b> Dual switched auto-sensing 10/100 Mbps Ethernet ports, integrated PoE</p> <p>f. <b>Voice Codecs:</b> Support for G.711<math>\mu</math>/a, G.722 (wide-band), G.723 (pending), G.726-32, G.729 A/B, iLBC (pending), Opus (pending), in-band and out-of-band DTMF (In audio, RFC2833, SIP INFO), VAD, CNG, AEC, PLC, AJB, AGC</p> <p>g. <b>Telephony Features:</b> Hold, transfer, forward (unconditional/no-answer/busy), 3-way conferencing, call park/pickup, shared-call appearance (SCA) / bridged-line-appearance (BLA), Downloadable phone book (XML, LDAP, up to 500 items), call waiting, call history (up to 200 records), off-hook auto dial, auto answer, click-to-dial, flexible dial plan, hot desking, personalized music ringtones, server redundancy &amp; fail-over</p>		
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	<ul style="list-style-type: none"> <li>h. Supports Headset Jack: RJ9 headset jack (allowing EHS with Plantronics headsets)</li> <li>i. HD (High Definition) handset and speakerphone with support for wideband audio</li> <li>j. QoS: Layer 2 QoS (802.1Q, 802.1P) and Layer 3 (ToS, DiffServ, MPLS) QoS</li> <li>k. <i>Supports the following Security:</i> User and administrator level access control, MD5 and MD5- sess based authentication, 256-bit AES encrypted configuration file, TLS, SRTP, HTTPS, 802.1x media access control</li> <li>l. Automated provisioning options include TR-069 and XML config files</li> </ul> <p><b>D. UPS</b></p> <ul style="list-style-type: none"> <li>a. 2000VA/1800W, 230V</li> <li>b. Rack mountable</li> </ul> <p><b>E. Smart-UPS</b></p> <p>Branded and Brand New</p> <ul style="list-style-type: none"> <li>a. <b>Output:</b> <ul style="list-style-type: none"> <li>i. Output power capacity: 1.0 KWatts / 1.5 kVA</li> <li>ii. Max Configurable Power (Watts): 1.0 KWatts / 1.5 kVA</li> <li>iii. Nominal Output Voltage: 230V</li> <li>iv. Output Voltage Distortion: Less than 5%</li> <li>v. Other Output Voltages: 220, 240</li> <li>vi. Output Frequency (sync to mains): 47 - 53 Hz for 50 Hz nominal, 57 - 63 Hz for 60 Hz nominal</li> <li>vii. Other Output Voltages: 220, 240</li> <li>viii. Topology: Line Interactive</li> <li>ix. Waveform type: Sine wave</li> </ul> </li> <li>b. <b>Input:</b> <ul style="list-style-type: none"> <li>i. Nominal Input Voltage: 230V</li> <li>ii. Input frequency: 50/60 Hz</li> <li>iii. Input Connections: IEC-320 C14</li> <li>iv. Input voltage range for main operations: 160 - 286V</li> <li>v. Input voltage adjustable range for mains operation: 151 - 302V</li> </ul> </li> </ul>		
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	<ul style="list-style-type: none"> <li>vi. Other Input Voltages: 220, 240</li> <li>c. <b>Batteries &amp; Runtime</b> <ul style="list-style-type: none"> <li>i. Battery type: Maintenance-free sealed Lead-Acid battery with suspended electrolyte leak proof</li> <li>ii. Typical recharge time: 4hour(s)</li> </ul> </li> <li>d. <b>Communications &amp; Management</b> <ul style="list-style-type: none"> <li>i. Interface Port(s): RJ-45 Serial, SmartSlot, USB</li> <li>ii. Control panel: Multi-function LCD status and control console</li> <li>iii. Audible Alarm: Alarm when on battery: distinctive low battery alarm: configurable delays</li> <li>iv. Emergency Power Off (EPO): Optional</li> <li>v. Available SmartSlot™ Interface Quantity: 1</li> </ul> </li> <li>e. <b>Surge energy rating : 459Joules</b></li> </ul> <p><b>F. VHF Radio Integration Specification</b> (IP Interface Equipment bet VHF Radio and IP PBX)</p> <ul style="list-style-type: none"> <li>a. <b>General Specification:</b> <ul style="list-style-type: none"> <li>i. Power supply: 12V DC ±10%, MAX. 1.1A (main unit) 16W Max. (with supplied AC adapter)</li> <li>ii. Operating temperature range: 0°C to +40°C; 32°F to 104°F</li> <li>iii. Operating humidity: 5% to 95% RH</li> <li>iv. Dimensions (WxHxD)</li> <li>v. (Projections are not included): 232×38×168 mm; 9.13×1.5×6.61 in</li> <li>vi. Weight: 800g; 1.76lb (approx.)</li> <li>vii. Regulatory compliance: FCC (Part 15 Class B / Part 68), TIA 868-B ICES-003, ICCS-03 CE Mark, ETSI ES 203 021, ETSI EG 201 121 (Advisory Note)</li> </ul> </li> <li>b. <b>Interface Specification:</b> <ul style="list-style-type: none"> <li>i. LAN/WAN: RJ-45 connectors ×2 10BASE-T/100BASE-TX</li> <li>ii. Telephone set: RJ-11 connector ×1</li> <li>iii. Telephone line: RJ-11 connectors ×2</li> </ul> </li> </ul>		
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	<ul style="list-style-type: none"> <li>iv. Transceiver/repeater: Quick connectors ×2</li> <li>v. External equipment: Quick connectors ×2</li> <li>vi. USB: Standard A receptacle ×2</li> <li>c. Mobile Repeater Apparatus: 4 wheeled Cart with Telescopic Mast</li> <li>d. Cart and Telescopic Mast</li> <li>e. Cart type: Four wheel standing cart Cart Material: Steel Weight: 80 kg without batter</li> <li>f. Dimension(LxWxD): <ul style="list-style-type: none"> <li>i. 0.75 x 0.55x 1.09 in meters' w/o mast</li> <li>ii. 0.75 x 0.55 x 1.70 in meters with mast</li> <li>iii. 0.75 x .055 x 4.0 in meters with mast extended</li> </ul> </li> <li>g. Operating Temperature: -10° celcius-60° Celsius</li> <li>h. Mast Load /Height: 25 kg(max)/ 4m from the ground</li> <li>i. Mast Materials/Dynamics: Aluminum/Pneumatic</li> <li>j. Battery Type: Lead Acid/Lithium 12VDC/65 Ah x 4</li> <li>k. VAC Power Input: 220VAC/60HZ (for Charging only)</li> </ul>		
<b>8</b>	<b>IP BASED PAGING SYSTEM HARDWARE</b>		
	<ul style="list-style-type: none"> <li>a. Ceiling Speaker 6" cone type, 6W(100V), Sensitivity: 90 dB (1 W, 1 m) (500 Hz - 5 kHz, pink noise), Freq. response: 65 Hz - 18 kHz (peak -20 dB)</li> <li>b. Multi-functional Amplier with 5 zones, 4 audio inout for bgm, Rated power: 240 watts,Freq. response: 50Hz – 16kHz, Output Connection: Speaker output, Direct speaker line output,Line output,Recording output, Preamplifier output.</li> <li>c. Remote Microphone(unidirectional mic) connect to vm-2240, Freq. response: 100-20, S/N ratio: 60dB or more</li> <li>d. Playback-only Voice Announcing board, Freq. response: 20 - 20,000 Hz (44.1 kHz sampling) 20 - 14,000 Hz (32 kHz sampling), Distortion:</li> </ul>		



	<p>Under 0.3 % (44.1 kHz, recording method: Extremely High)</p> <p>e. 4 channels: 500 W × 4 (100 V line M4 screw terminal, Class D Amp, Freq. response: 50 Hz - 20 kHz (-3 dB), S/N Ratio: 100 dB (A-weighted)</p> <p>f. 30 Watts Tared input, Wide Range Weatherproof Speaker(outdoor), Sensitivity: 98 dB (1 W, 1 m), Freq. Response: 120 - 15,000 Hz, Horizontal Directivity: Constant directivity horn 90 °(±45 ° horizontal from front axis), 93 dB or more (1 W, 1 m), 3 kHz at ±45, Bracket already included</p> <p>g. Line Transformer converts unbalanced to balance</p> <p>h. Mobilisation and Demobilisation</p> <p>i. Hardware and Consumable Materials</p> <p>j. Engineering Services</p>		
<b>9</b>	<b>SMART-UPS 3000VA LCD RM 2U 230V</b>		
	<p><b>Output</b></p> <p>a. Output power capacity: 2.7 KWatts / 3.0 kVA</p> <p>b. Max Configurable Power (Watts): 2.7 KWatts / 3.0 kVA</p> <p>c. Nominal Output Voltage: 230V</p> <p>d. Output Voltage Note: Configurable for 220: 230 or 240 nominal output voltage</p> <p>e. Output Frequency (sync to mains) : 47 - 53 Hz for 50 Hz nominal, 57 - 63 Hz for 60 Hz nominal</p> <p>f. Other Output Voltages: 220, 240</p> <p>g. Topology: Line Interactive</p> <p>h. Waveform type: Sine wave</p> <p>i. Output Connections:</p> <p>j. (3) IEC Jumpers (Battery Backup)</p> <p>k. (1)IEC 320 C19 (Battery Backup)</p> <p>l. (8) IEC 320 C13 (Battery Backup)</p> <p>m. Transfer Time: 4ms typical : 8ms maximum</p> <p><b>Input</b></p> <p>a. Nominal Input Voltage: 230V</p> <p>b. Input frequency: 50/60 Hz +/- 3 Hz (auto sensing)</p>		

	<ul style="list-style-type: none"> <li>c. Input Connections: British BS1363A, IEC-320 C20, Schuko CEE 7/EU1-16P</li> <li>d. Cord Length: 2meters</li> <li>e. Input voltage range for main operations: 160 - 286V</li> <li>f. Input voltage adjustable range for mains operation: 151 - 302V</li> <li>g. Number of Power Cords: 1</li> <li>h. Other Input Voltages : 220, 240</li> </ul> <p><b>Batteries &amp; Runtime</b></p> <ul style="list-style-type: none"> <li>a. Battery type: Maintenance-free sealed Lead-Acid battery with suspended electrolyte : leak proof</li> <li>b. Typical recharge time: 3hour(s)</li> <li>c. Replacement Battery</li> <li>d. Expected Battery Life (years): 3 – 5</li> </ul> <p><b>Communications &amp; Management</b></p> <ul style="list-style-type: none"> <li>a. Interface Port(s): USB</li> <li>b. Control panel: LED status display with On Line: On Battery: Replace</li> <li>c. Battery and Overload indicators, Multi-function LCD status and control console</li> <li>d. Audible Alarm: Alarm when on battery: distinctive low battery alarm: configurable</li> <li>e. Available SmartSlot™ Interface Quantity : 1</li> </ul> <p><b>Surge Protection and Filtering</b></p> <ul style="list-style-type: none"> <li>a. Surge energy rating: 320Joules</li> <li>b. Standard warranty : Standard warranty</li> </ul>		
<b>10</b>	<b>IMPLEMENTATION SERVICES</b>		
	<p><b><i>Fiber Optic and Structured Cabling</i></b></p> <ul style="list-style-type: none"> <li>a. Supply and delivery of Fiber Optic components and materials.</li> <li>b. Installation, cable laying and termination of fiber optic cable and fiber panels/box to designated MDF and IDF racks.</li> <li>c. Installation, cable laying and termination of Cat 6 UTP cables.</li> <li>d. Installation of Patch panels to rack.</li> </ul>		



	<ul style="list-style-type: none"> <li>e. Installation of I/O (information outlet) and faceplates.</li> <li>f. Installation termination of patch cords to patch panel and switches.</li> <li>g. Testing and commissioning of the delivered and installed components.</li> </ul>		
	<p><b>Network Switches</b></p> <ul style="list-style-type: none"> <li>a. Supply and delivery of Core, Distribution and POE (Power Over Ethernet) switches.</li> <li>b. Installation of Core, Distribution and POE switches to designated racks.</li> <li>c. The switch must include 1 year hardware and software warranty</li> <li>d. Installation must be performed by atleast one (1) Certified Engineer. (Kindly provide Curriculum Vitae)</li> <li>e. Check patch cable termination of Core, Distribution and POE switches to patch panels.</li> <li>f. Setup and configuration of the Core, Distribution and POE switches.</li> <li>g. Testing and commissioning of the Core, Distribution and POE switches</li> </ul>		
	<p><b>Access Point and Central Controller</b></p> <ul style="list-style-type: none"> <li>a. Supply and delivery of Access Point and Central controller.</li> <li>b. Installation of Access Point to proper area/location.</li> <li>c. Installation of Central controller to rack.</li> <li>d. Setup and configuration of Access Points.</li> <li>e. Setup and configuration of Central controller.</li> <li>f. Testing and commissioning of Access Points and Central controller.</li> <li>g. The AP and Controller must include 3 years warranty</li> </ul>		
<b>11</b>	<b>TRAINING REQUIREMENTS</b>		
	<p><b>a. Training for Access Point Fundamentals</b></p> <ul style="list-style-type: none"> <li>i. Duration: 3 Days</li> <li>ii. Mode of Delivery: Web-based or Virtual Training</li> </ul>		



	<ul style="list-style-type: none"> <li>iii. No. of Trainees: 5 Pax</li> </ul> <p><b>b. Training for Employee and Guests Management System</b></p> <ul style="list-style-type: none"> <li>i. Duration: 3 Days</li> <li>ii. Mode of Delivery: Web-based or Virtual Training</li> <li>iii. No. of Trainees: 5 Pax</li> </ul> <p><b>c. Training for Enterprise Networking Switching Solution</b></p> <ul style="list-style-type: none"> <li>i. Duration: 5 Days</li> <li>ii. Mode of Delivery: Web-based or Virtual Training</li> <li>iii. No. of Trainees: 5 Pax</li> </ul> <p><b>d. Training for Access Point, Employee and Guest Management System and Controller</b></p> <ul style="list-style-type: none"> <li>i. Duration: 5 Days</li> <li>ii. Mode of Delivery: Web-based or Virtual Training</li> <li>iii. No. of Trainees: 5 Pax</li> </ul> <p><b>e. Training for Network Security Monitoring</b></p> <ul style="list-style-type: none"> <li>i. Duration: 2 Days</li> <li>ii. Mode of Delivery: Web-based or Online</li> <li>iii. No. of Trainees: 10 Pax</li> </ul> <p><b>f. Training for Security Monitoring</b></p> <ul style="list-style-type: none"> <li>i. Duration: 2 Days</li> <li>ii. Mode of Delivery: Web-based or Online</li> <li>iii. No. of Trainees: 10 Pax</li> </ul>		
<b>12</b>	<b>ONE YEAR LOCAL TECHNICAL SUPPORT</b>		
	<ul style="list-style-type: none"> <li>a. Provide 24 x 7 email, phone, remote and on-site technical support</li> <li>b. With Service Level Agreement (SLA). * 24X7 email, remote and on-</li> <li>c. site support services provided to customers for supported systems.</li> <li>d. Ticket status and summary reports</li> <li>e. Annual technical assessment and review</li> <li>f. On-site support (within Metro Manila)</li> <li>g. Severity Level Classification</li> </ul>		



	<p><b>Service Level Agreement</b></p> <p>a. Severity Level 1</p> <ul style="list-style-type: none"> <li>▪ Stopping of programs affecting production data, rendering the system unusable,</li> <li>▪ Complete loss of service</li> <li>▪ severity 1 issues have the following characteristics: <ul style="list-style-type: none"> <li>- data corruption;</li> <li>- a critical documented function is not available;</li> <li>- system hangs indefinitely,</li> <li>- causing unacceptable or indefinite delays for resources or response;</li> <li>- system crashes, and crashes repeatedly after restart attempts</li> <li>- software-related issue that stops all monitoring,</li> <li>- alerting, ticketing and reporting functions resulting in a loss of business productivity</li> </ul> </li> <li>▪ Response Time: Within 4 hours</li> </ul> <p>b. Severity Level 2</p> <ul style="list-style-type: none"> <li>▪ Severe loss of service,</li> <li>▪ Important features are unavailable with no acceptable workaround, but operations can continue in restricted fashion.</li> <li>▪ Service interruptions to some, but not all software modules.</li> <li>▪ Time sensitive issue reported by Customer, which may adversely affect operational, billing, monitoring and productivity</li> <li>▪ Response Time: Within 8 hours</li> </ul> <p>c. Severity Level 3</p> <ul style="list-style-type: none"> <li>▪ Minor loss of service</li> <li>▪ Impact is inconvenience, which may require workaround to restore functionality</li> </ul>		
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	<ul style="list-style-type: none"> <li>• For development environments, where the situation is causing your project to no longer continue or migrate into production</li> <li>• Response Time: Within 20 hours</li> </ul> <p>d. Severity Level 4</p> <ul style="list-style-type: none"> <li>• Request information, an enhancement, or documentation on software, but no impact on operation of software.</li> <li>• Recommendation for a future enhancement, reporting of documentation error with low-to-no impact in business. No loss of service.</li> <li>• Response Time: Within 24</li> </ul>		
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**STATEMENT OF COMPLIANCE**

I hereby commit to provide the above specified requirements in compliance with the Technical Specifications for the Project: **Supply, Delivery, Installation, Testing, Training and Maintenance of Department of Education Central Office Network Rehabilitation Project**

\_\_\_\_\_  
**Name and Signature  
of Authorized Representative**



## ***Section VIII. Checklist of Technical and Financial Documents***



# *Checklist of Technical and Financial Documents*

## **I. TECHNICAL COMPONENT ENVELOPE**

### ***Class “A” Documents***

#### Legal Documents

- (a) Valid PhilGEPS Registration Certificate (Platinum Membership) (all pages);  
**or**
- (b) Registration certificate from Securities and Exchange Commission (SEC), Department of Trade and Industry (DTI) for sole proprietorship, or Cooperative Development Authority (CDA) for cooperatives or its equivalent document,  
**and**
- (c) Mayor’s or Business permit issued by the city or municipality where the principal place of business of the prospective bidder is located, or the equivalent document for Exclusive Economic Zones or Areas;  
**and**
- (d) Tax clearance per E.O. No. 398, s. 2005, as finally reviewed and approved by the Bureau of Internal Revenue (BIR).

#### Technical Documents

- (f) Statement of the prospective bidder of all its ongoing government and private contracts, including contracts awarded but not yet started, if any, whether similar or not similar in nature and complexity to the contract to be bid; **and**
- (g) Statement of the bidder’s Single Largest Completed Contract (SLCC) similar to the contract to be bid, except under conditions provided for in Sections 23.4.1.3 and 23.4.2.4 of the 2016 revised IRR of RA No. 9184, within the relevant period as provided in the Bidding Documents; **and**
- (h) Original copy of Bid Security. If in the form of a Surety Bond, submit also a certification issued by the Insurance Commission;  
**or**  
Original copy of Notarized Bid Securing Declaration; **and**
- (i) Conformity with the Technical Specifications, which may include production/delivery schedule, manpower requirements, and/or after-sales/parts, if applicable; **and**
- (j) Original duly signed Omnibus Sworn Statement (OSS); **and** if applicable, Original Notarized Secretary’s Certificate in case of a corporation, partnership, or cooperative; or Original Special Power of Attorney of all members of the joint venture



giving full power and authority to its officer to sign the OSS and do acts to represent the Bidder.

Financial Documents

- (k) The Supplier's audited financial statements, showing, among others, the Supplier's total and current assets and liabilities, stamped "received" by the BIR or its duly accredited and authorized institutions, for the preceding calendar year which should not be earlier than two (2) years from the date of bid submission; **and**
- (l) The prospective bidder's computation of Net Financial Contracting Capacity (NFCC);  
**or**  
A committed Line of Credit from a Universal or Commercial Bank in lieu of its NFCC computation.

**Class "B" Documents**

- (m) If applicable, a duly signed joint venture agreement (JVA) in case the joint venture is already in existence;  
**or**  
duly notarized statements from all the potential joint venture partners stating that they will enter into and abide by the provisions of the JVA in the instance that the bid is successful.

Other documentary requirements under RA No. 9184 (as applicable)

- (n) [For foreign bidders claiming by reason of their country's extension of reciprocal rights to Filipinos] Certification from the relevant government office of their country stating that Filipinos are allowed to participate in government procurement activities for the same item or product.
- (o) Certification from the DTI if the Bidder claims preference as a Domestic Bidder or Domestic Entity.

**II. FINANCIAL COMPONENT ENVELOPE**

- (a) Original of duly signed and accomplished Financial Bid Form;  
**and**
- (b) Original of duly signed and accomplished Price Schedule(s).  
(Annex "C")



**List of all Ongoing Government & Private Contracts including contracts awarded *BUT* not yet started**

*Business Name* : \_\_\_\_\_

*Business Address* : \_\_\_\_\_

Name of Contract/ Project Cost	Owner's Name a. Address b. Telephone Nos.	Nature of Work	Bidder's Role		Date Awarded a. Date Started b. Date of Completion	% of Accomplishment		Value of Outstanding Works / Undelivered Portion
			Description	%		Planned	Actual	
<u>Government</u>								
<u>Private</u>								

Note: (In case of no ongoing contract, the bidder shall submit this duly signed form and indicate **“No ongoing contracts”** or **“None”** or **“Not Applicable (N/A)”** under the Column for Name of Contract (first column from left)

Submitted by: \_\_\_\_\_

Printed Name and Signature of Authorized Representative

Designation: \_\_\_\_\_

Date: \_\_\_\_\_



**STATEMENT IDENTIFYING THE SINGLE LARGEST COMPLETED CONTRACT**

Business Name : \_\_\_\_\_

Business Address : \_\_\_\_\_

Name of Contract	a. Owner's Name b. Address c. Telephone Nos.	Nature of Work	Bidder's Role		a. Amount at Award b. Amount at Completion c. Duration	a. Date Awarded b. Contract Effectivity c. Date Completed d. Contract Performance certified by End User
			Description	%		
<u>Government</u>						
<u>Private</u>						

Note: The bidder shall be able to support this statement with:

Duly signed Contracts/Purchase Orders (POs)/ Agreements/Memoranda of Agreement (MOA)/Notices of Award (NOA)/Job Orders or Notices to Proceed (NTP) with the corresponding

Certificates of Completion of Delivery (CCDs)/ Certificates of Final Acceptance (CFAs)/duly signed Delivery Receipts (DRs), or duly accomplished Inspection and Acceptance Reports (IARs)

Submitted by : \_\_\_\_\_

(Printed Name and Signature)

Designation : \_\_\_\_\_

Date : \_\_\_\_\_



## JOINT VENTURE AGREEMENT FORM

KNOW ALL MEN BY THESE PRESENTS:

That this JOINT VENTURE AGREEMENT is entered into By and Between \_\_\_\_\_, of legal age, (civil status), owner/proprietor of \_\_\_\_\_ and a resident of \_\_\_\_\_.  
- and -

\_\_\_\_\_, of legal age, (civil status), owner/proprietor of \_\_\_\_\_ and a resident of \_\_\_\_\_.

THAT both parties agree to join together their manpower, equipment, and what is needed to facilitate the Joint Venture to participate in the Eligibility, Bidding and Undertaking of the hereunder stated project to be conducted by the (Name of the Procuring Entity).

NAME OF PROJECT	CONTRACT AMOUNT

That both parties agree to be jointly and severally liable for the entire assignment.

That both parties agree that \_\_\_\_\_ and \_\_\_\_\_ own the share and interest of \_\_\_\_\_ and \_\_\_\_\_ [indicate percentage of shares) respectively

That both parties agree that \_\_\_\_\_ and/or \_\_\_\_\_ shall be the Official Representative of the Joint Venture, and is granted full power and authority to do, execute and perform any and all acts necessary and/or to represent the Joint Venture in the bidding as fully and effectively and the Joint Venture may do and if personally present with full power of substitution and revocation.

THAT this Joint Venture Agreement shall remain in effect only for the above stated Projects until terminated by both parties.

Done this \_\_\_\_ day of \_\_\_\_\_, in the year of our Lord \_\_\_\_\_.

\_\_\_\_\_



SIGNED IN THE PRESENCE OF:

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Witness

REPUBLIC OF THE PHILIPPINES) S.S.  
PASIG CITY, METRO MANILA )

A C K N O W L E D G M E N T

BEFORE ME, a Notary Public in and for Pasig City, Metro Manila, Philippines, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_ personally appeared:

<u>NAME</u>	<u>GOVERNMENT-ISSUED IDENTIFICATION CARD</u>		
	<u>Number</u>	<u>Issued on</u>	<u>Issued at</u>
_____	_____	_____	_____
_____	_____	_____	_____

Known to me and to me known to be the same persons who executed the foregoing instrument and acknowledged to me that same is the free and voluntary act and deed of the entities which they respectively represent.

The foregoing instrument is a JOINT VENTURE AGREEMENT consisting of \_\_\_ pages (exclusive of attachments), including this page on which this acknowledgment is written and signed by the parties hereto and their instrument witnesses on the left-hand margin of each and every page hereof.

WITNESS MY HAND AND SEAL on the date and place first above written.

NOTARY PUBLIC  
Until December 31, 20\_\_

Doc. No. \_\_\_\_\_  
Page No. \_\_\_\_\_  
Book No. \_\_\_\_\_  
Series of 20\_\_\_\_\_



**NET FINANCIAL CONTRACTING CAPACITY (NFCC) FORM**

- A. Summary of the Applicant Supplier’s/Distributor’s/Manufacturer’s assets and liabilities on the basis of the attached income tax return and audited financial statement, stamped “RECEIVED” by the Bureau of Internal Revenue or its duly accredited and authorized institutions, for the preceding calendar/tax year which should not be earlier than two (2) years from date of bid submission.

		Year 20__
1.	Total Assets	
2.	Current Assets	
3.	Total Liabilities	
4.	Current Liabilities	
5.	Net Worth (1-3)	
6.	Net Working Capital (2-4)	

- B. The Net Financial Contracting Capacity (NFCC) based on the above data is computed as follows:

NFCC = K (current asset – current liabilities) minus value of all outstanding works under ongoing contracts including awarded contracts yet to be started

NFCC = P \_\_\_\_\_

K = 15 regardless of contract duration

Herewith attached are certified true copies of the income tax return and audited financial statement: stamped “RECEIVED” by the BIR or its duly accredited or authorized institution for the preceding year which should not be earlier than two (2) years from date of bid submission.

Submitted by:

\_\_\_\_\_  
Name of Supplier / Distributor / Manufacturer

\_\_\_\_\_  
Signature of Authorized Representative

Date: \_\_\_\_\_

*NOTE: If Partnership or Joint Venture, each Partner or Member Firm of Joint Venture shall submit the above requirements.*



## **Bid Security (Bank Guarantee) Form**

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WHEREAS, *[insert name of Bidder]* (hereinafter called the “Bidder”) has submitted its bid dated *[insert date]* for the *[insert name of contract]* (hereinafter called the “Bid”).

KNOW ALL MEN by these presents that We *[insert name of Bank]* of *[insert name of Country]* having our registered office at *[insert address]* (hereinafter called the “Bank” are bound unto the *DEPARTMENT OF EDUCATION Central Office*, (hereinafter called the “Entity”), in the sum of *[insert amount]* for which payment well and truly to be made to the said Entity the Bank binds itself, its successors and assigns by these presents.

SEALED with the Common Seal of said Bank this \_\_\_\_ day of \_\_\_\_\_ 201\_\_.

THE CONDITIONS of this obligation are:

1. If the Bidder:
  - (a) withdraws its Bid during the period of bid validity specified in the Form of Bid; or
  - (b) does not accept the correction of arithmetical errors of its bid price in accordance with the Instructions to Bidder; or
2. If the Bidder having been notified of the acceptance of its bid by the Procuring Entity during the period of bid validity:
  - (a) fails or refuses to execute the Contract Form in accordance with the Instructions to Bidders, if required; or
  - (b) fails or refuses to furnish the Performance Security in accordance with the Instructions to Bidders.

We undertake to pay to the Entity up to the above amount upon receipt of its first written demand, without the Entity having to substantiate its demand, provided that in its demand the Entity will note that the amount claimed by the Entity is due to the Entity owing to the occurrence of one or both of the two (2) conditions, specifying the occurred condition or conditions.

The Guarantee will remain in force up to and including the date *[insert days]* days after the deadline for submission of Bids as such deadline is stated in the Instructions to Bidders or as it may be extended by the Entity, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this Guarantee should reach the Bank not later than the above date.

DATE \_\_\_\_\_  
WITNESS \_\_\_\_\_

SIGNATURE OF THE BANK \_\_\_\_\_  
SEAL \_\_\_\_\_

(Signature, Name and Address)



## Bid Securing Declaration Form

*[shall be submitted with the Bid if bidder opts to provide this form of bid security]*

REPUBLIC OF THE PHILIPPINES)  
CITY OF \_\_\_\_\_) S.S.

### BID SECURING DECLARATION Project Identification No.: *[Insert number]*

To: *[Insert name and address of the Procuring Entity]*

I/We, the undersigned, declare that:

1. I/We understand that, according to your conditions, bids must be supported by a Bid Security, which may be in the form of a Bid Securing Declaration.
2. I/We accept that: (a) I/we will be automatically disqualified from bidding for any procurement contract with any procuring entity for a period of two (2) years upon receipt of your Blacklisting Order; and, (b) I/we will pay the applicable fine provided under Section 6 of the Guidelines on the Use of Bid Securing Declaration, within fifteen (15) days from receipt of the written demand by the procuring entity for the commission of acts resulting to the enforcement of the bid securing declaration under Sections 23.1(b), 34.2, 40.1 and 69.1, except 69.1(f), of the IRR of RA No. 9184; without prejudice to other legal action the government may undertake.
3. I/We understand that this Bid Securing Declaration shall cease to be valid on the following circumstances:
  - a. Upon expiration of the bid validity period, or any extension thereof pursuant to your request;
  - b. I am/we are declared ineligible or post-disqualified upon receipt of your notice to such effect, and (i) I/we failed to timely file a request for reconsideration or (ii) I/we filed a waiver to avail of said right; and
  - c. I am/we are declared the bidder with the Lowest Calculated Responsive Bid, and I/we have furnished the performance
  - d. security and signed the Contract.

IN WITNESS WHEREOF, I/We have hereunto set my/our hand/s this \_\_\_\_\_ day of  
*[month] [year] at [place of execution].*

*[Insert NAME OF BIDDER OR ITS AUTHORIZED  
REPRESENTATIVE]*

*[Insert signatory's legal capacity]*

Affiant

### **[Jurat]**

*[Format shall be based on the latest Rules on Notarial Practice]*



## Omnibus Sworn Statement

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REPUBLIC OF THE PHILIPPINES)  
CITY/MUNICIPALITY OF \_\_\_\_ S.S.

### AFFIDAVIT

I, *[Name of Affiant]*, of legal age, *[Civil Status]*, *[Nationality]*, and residing at *[Address of Affiant]*, after having been duly sworn in accordance with law, do hereby depose and state that:

1. *[Select one, delete the other:]*

*[If a sole proprietorship:]* I am the sole proprietor or authorized representative of *[Name of Bidder]* with office address at *[address of Bidder]*;

*[If a partnership, corporation, cooperative, or joint venture:]* I am the duly authorized and designated representative of *[Name of Bidder]*;

2. *[Select one, delete the other:]*

*[If a sole proprietorship:]* As the owner and sole proprietor, or authorized representative of *[Name of Bidder]*, I have full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for *[Name of the Project]* of the *[Name of the Procuring Entity]*, as shown in the attached duly notarized *Special Power of Attorney*;

*[If a partnership, corporation, cooperative, or joint venture:]* I am granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for *[Name of the Project]* of the *[Name of the Procuring Entity]*, as shown in the attached *[state title of attached document showing proof of authorization (e.g., duly notarized Secretary's Certificate, Board/Partnership Resolution, or Special Power of Attorney, whichever is applicable);]*;

3. *[Name of Bidder]* is not "blacklisted" or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board, by itself or by its association or relation with another blacklisted person or entity as defined and provided for in the Uniform Guidelines on Blacklisting;
4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;
5. *[Name of Bidder]* is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;
6. *[Select one, delete the rest:]*



*[If a sole proprietorship:]* The owner or sole proprietor is not related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

*[If a partnership or cooperative:]* None of the officers and members of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

*[If a corporation or joint venture:]* None of the officers, directors, and controlling stockholders of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

7. *[Name of Bidder]* complies with existing labor laws and standards; and
8. *[Name of Bidder]* is aware of and has undertaken the responsibilities as a Bidder in compliance with the Philippine Bidding Documents, which includes:
  - a. Carefully examine all of the Bidding Documents;
  - b. Acknowledge all conditions, local or otherwise, affecting the implementation of the Contract;
  - c. Made an estimate of the facilities available and needed for the contract to be bid, if any; and
  - d. Inquire or secure Supplemental/Bid Bulletin(s) issued for the *[Name of the Project]*.
9. *[Name of Bidder]* did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.
10. In case advance payment was made or given, failure to perform or deliver any of the obligations and undertakings in the contract shall be sufficient grounds to constitute criminal liability for Swindling (Estafa) or the commission of fraud with unfaithfulness or abuse of confidence through misappropriating or converting any payment received by a person or entity under an obligation involving the duty to deliver certain goods or services, to the prejudice of the public and the government of the Philippines pursuant to Article 315 of Act No. 3815 s. 1930, as amended, or the Revised Penal Code.

IN WITNESS WHEREOF, I have hereunto set my hand this day of, 20 at \_\_\_\_\_, Philippines.

Name and Signature of Bidder's  
Authorized Representative

*[Jurat]*

*[Format shall be based on the Rules on Notarial Practice]*



# Bid Form for the Procurement of Goods

[shall be submitted with the Bid]

## BID FORM

Date: \_\_\_\_\_  
Project Identification No.: \_\_\_\_\_

To: [name and address of Procuring Entity]

Having examined the Philippine Bidding Documents (PBDs) including the Supplemental or Bid Bulletin Numbers [insert numbers], the receipt of which is hereby duly acknowledged, we, the undersigned, offer to [supply/deliver/perform] [description of the Goods] in conformity with the said PBDs for the sum of [total Bid amount in words and figures] or the total calculated bid price, as evaluated and corrected for computational errors, and other bid modifications in accordance with the Price Schedules attached herewith and made part of this Bid. The total bid price includes the cost of all taxes, such as, but not limited to: [specify the applicable taxes, e.g. (i) value added tax (VAT), (ii) income tax, (iii) local taxes, and (iv) other fiscal levies and duties], which are itemized herein or in the Price Schedules,

If our Bid is accepted, we undertake:

- a. to deliver the goods in accordance with the delivery schedule specified in the Schedule of Requirements of the Philippine Bidding Documents (PBDs);
- b. to provide a performance security in the form, amounts, and within the times prescribed in the PBDs;
- c. to abide by the Bid Validity Period specified in the PBDs and it shall remain binding upon us at any time before the expiration of that period.

[Insert this paragraph if Foreign-Assisted Project with the Development Partner:  
Commissions or gratuities, if any, paid or to be paid by us to agents relating to this Bid, and to contract execution if we are awarded the contract, are listed below:

Name and address Amount and Purpose of Agent Currency Commission or gratuity

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(if none, state "None")]

Until a formal Contract is prepared and executed, this Bid, together with your written acceptance thereof and your Notice of Award, shall be binding upon us.

We understand that you are not bound to accept the Lowest Calculated Bid or any Bid you may receive.

We certify/confirm that we comply with the eligibility requirements pursuant to the PBDs.



The undersigned is authorized to submit the bid on behalf of *[name of the bidder]* as evidenced by the attached *[state the written authority]*.

We acknowledge that failure to sign each and every page of this Bid Form, including the attached Schedule of Prices, shall be a ground for the rejection of our bid.

Name: \_\_\_\_\_

Legal capacity: \_\_\_\_\_

Signature: \_\_\_\_\_

Duly authorized to sign the Bid for and behalf of: \_\_\_\_\_

Date: \_\_\_\_\_



## Performance Securing Declaration (Revised)

*[if used as an alternative performance security but it is not required to be submitted with the Bid, as it shall be submitted within ten (10) days after receiving the Notice of Award]*

REPUBLIC OF THE PHILIPPINES)  
CITY OF \_\_\_\_\_ ) S.S.

### PERFORMANCE SECURING DECLARATION

Invitation to Bid: [Insert Reference Number indicated in the Bidding Documents]

To: [Insert name and address of the Procuring Entity]

I/We, the undersigned, declare that:

1. I/We understand that, according to your conditions, to guarantee the faithful performance by the supplier/distributor/manufacturer/contractor/consultant of its obligations under the Contract, I/we shall submit a Performance Securing Declaration within a maximum period of ten (10) calendar days from the receipt of the Notice of Award prior to the signing of the Contract.
2. I/We accept that: I/we will be automatically disqualified from bidding for any procurement contract with any procuring entity for a period of one (1) year for the first offense, or two (2) years **for the second offense**, upon receipt of your Blacklisting Order if I/We have violated my/our obligations under the Contract;
3. I/We understand that this Performance Securing Declaration shall cease to be valid upon:
  - a. issuance by the Procuring Entity of the Certificate of Final Acceptance, subject to the following conditions:
    - i. Procuring Entity has no claims filed against the contract awardee;
    - ii. It has no claims for labor and materials filed against the contractor; and
    - iii. Other terms of the contract; or
  - b. replacement by the winning bidder of the submitted PSD with a performance security in any of the prescribed forms under Section 39.2 of the 2016 revised IRR of RA No. 9184 as required by the end-user.

**IN WITNESS WHEREOF**, I/We have hereunto set my/our hand/s this \_\_\_\_ day of [month] [year] at [place of execution].

*[Insert NAME OF BIDDER OR ITS  
AUTHORIZED REPRESENTATIVE]*

*[Insert signatory's legal capacity]*

Affiant

**[Jurat]**

*[Format shall be based on the latest Rules on Notarial Practice]*



**Performance Security (Bank Guarantee) Form**

To : The Secretary  
Department of Education  
DepEd Complex, Meralco Avenue  
Pasig City

Attention: The Chairperson  
Bids and Awards Committee

WHEREAS, *[insert name and address of Supplier]* (hereinafter called the “Supplier”) has undertaken, in pursuance of Contract No. *[insert number]* dated *[insert date]* to execute *[insert name of contract and brief description]* (hereinafter called the “Contract”);

AND WHEREAS, it has been stipulated by you in the said Contract that the Supplier shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

AND WHEREAS, we have agreed to give the Supplier such a Bank Guarantee;

NOW THEREFORE, we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Supplier, up to a total of *[insert amount of guarantee]* proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of *[insert amount of guarantee]* as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Supplier before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract to be performed there under or of any of the Contract documents which may be made between you and the Supplier shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until the date of your issuance of the Notice of Final Acceptance.

SIGNATURE AND SEAL OF THE GUARANTOR \_\_\_\_\_  
NAME OF BANK \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
DATE \_\_\_\_\_





**PROJECT:** **Supply, Delivery, Installation, Testing, Training and Maintenance of Department of Education Central Office Network Rehabilitation Project**

**CONTRACT NO.:** **2021-ICTS3(002)-BII-CB-0\_\_**

**CONTRACT AGREEMENT**

**THIS AGREEMENT** made and entered into this \_\_\_\_ day of \_\_\_\_\_ 2021 by and between **DEPARTMENT OF EDUCATION**, located at DepEd Complex, Meralco Avenue, Pasig City, Philippines, represented herein by its \_\_\_\_\_, \_\_\_\_\_, as per Department Order No. 023, s. 2021 (hereinafter referred to as “**DEPED**”); and \_\_\_\_\_ represented herein by its \_\_\_\_\_, \_\_\_\_\_, with office address at \_\_\_\_\_, Philippines (hereinafter referred to as “\_\_\_\_\_”).

**DEPED** and \_\_\_\_\_ are collectively called “**PARTIES.**”

**WHEREAS, DEPED** invited bids for the **Supply, Delivery, Installation, Testing, Training and Maintenance of Department of Education Central Office Network Rehabilitation Project** with contract duration of **one (1) year**, consisting of **one (1) lot**, and received bids from \_\_\_\_ (\_\_) bidders; **DEPED** opened, read, and evaluated the bids of the \_\_\_\_ (\_\_) bidders and declared \_\_\_\_\_ as having the lowest calculated bid for the above-captioned project; after evaluation, **DEPED** post-qualified and declared the bid of \_\_\_\_\_ as the lowest calculated responsive bid in the sum of **PHILIPPINE PESOS \_\_\_\_\_ MILLION, \_\_\_\_\_ THOUSAND, \_\_\_\_\_ and 00/100 (PhP \_\_\_\_\_) ONLY**, (hereinafter called the “Contract Price”) detailed as follows:

Description	Items	Amount (Php)
Supply, Delivery, Installation, Testing, Training and Maintenance of Department of Education Central Office Network Rehabilitation Project	Fiber and Copper Network Structured Cabling	
	Fiber and Copper Network Active Components, Employee and Guest Management System, Network Monitoring System, and Security Monitoring System	
	Data Center Upgrading	



	Unified IP Telephone System	
	IP-Based Unified Paging System	

**NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:**

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to;
2. The following documents as required by the 2016 Revised Implementing Rules and Regulations of Republic Act No. 9184 shall be deemed to form and be read and construed as part of this Agreement, viz:
  - i. Philippine Bidding Documents (PBD);
    - a. Schedule of Requirements;
    - b. Technical Specifications;
    - c. General and Special Conditions of the Contract; and
    - d. Bid Bulletin No. 1 dated \_\_\_\_\_.
  - ii. \_\_\_\_\_'s bid, including the Eligibility Requirements, Technical and Financial Proposals, and all other documents or statements submitted;
  - iii. Performance Security;
  - iv. Notice of Award of Contract and \_\_\_\_\_'s conforme thereto; and
  - v. Other contract documents required by existing laws and/or DepEd in the PBD. \_\_\_\_\_ agrees that additional contract documents or information prescribed by the GPPB that are subsequently required for submission after the contract execution, such as the Notice to Proceed, Variation Order, and Warranty Security, shall form part of the Contract.
3. The goods and services shall be delivered within **one hundred twenty calendar days** from receipt of \_\_\_\_\_ the Notice to Proceed or as may be indicated in the Notice to Proceed. Risk and title to the Goods shall not be deemed to have passed to **DEPED** until its receipt and final acceptance of the Goods at the **DepEd Central Office**;
4. \_\_\_\_\_ shall post a Performance Security within ten (10) calendar days from receipt of the Notice of Award in the form and amount prescribed therein. The performance security shall be posted in favor of **DEPED**, and shall be forfeited in the event it is established that \_\_\_\_\_ is in default of any of its obligation under this contract. \_\_\_\_\_ shall be responsible for the extension of its performance security and/or undertake to renew its performance security whenever necessary, and without need of prior notice or instruction from the **DEPED**, to ensure that it is in force and effect for the whole duration of the contract and until a Certificate of Final Acceptance is duly issued.
5. The goods and services supplied under this Contract should conform to and comply with the standards mentioned in Section VI. Schedule of Requirements



and shall comply with the final technical specifications, a copy of which is hereto attached as Annex "A" and made an integral part hereof. Any proposal to deliver items of equivalent, higher or superior technical specifications, in lieu of those of the approved bids or samples shall be discretionary to **DEPED** and is subject to the evaluation and recommendation of the end-user or implementing units and the approval of the herein authorized representative and signatory.

6. Goods with defects or non-compliant with the required specifications shall be rejected by **DEPED** and replaced by \_\_\_\_\_. **DEPED** shall have the option to inspect \_\_\_\_\_'s premises covered by the Contract, at any time or stage of contract implementation, to monitor and assess \_\_\_\_\_'s capacity to discharge its contractual obligations.
7. The procured goods or items contemplated under this Contract shall be inspected by **DEPED** Inspectorate Team duly constituted for this Project prior to delivery to the project site in accordance with the provisions of the Special Conditions of the Contract, the Schedule of Requirements, or otherwise indicated in other parts of the bidding documents.
8. \_\_\_\_\_ shall deliver the goods and services to the project site – **DepEd Central Office, Meralco Avenue, Pasig City**. Goods delivered to sites other than the DepEd Central Office without **DEPED's** written authorization and/or approval may be rejected by the latter. Violation of this provision, based on documents and reports submitted and validated by the authorized receiving personnel may be a cause for the termination of the Contract.
9. In case \_\_\_\_\_ encounters condition(s) impeding timely delivery of the goods, \_\_\_\_\_ shall promptly notify **DEPED** in writing of such condition(s). As a rule and on account of the emergency nature of this project, no work suspensions and/or contract delivery period extension shall be allowed.
10. The Contract Price shall be paid to \_\_\_\_\_ in accordance with the following disbursement procedures:
  - 10.1 An advance payment not to exceed fifteen percent (15%) of the Contract Price shall be allowed and paid within sixty (60) calendar days from signing of the contract. An irrevocable Letter of Credit or Bank Guarantee of an equivalent amount must be submitted, and shall remain valid until the goods are delivered, and accompanied by a claim for advance payment.
  - 10.2 \_\_\_\_\_ may submit a request for payment based on Progress Reports which shall be attached to the progress billing and include the following: (1) Cumulative value of the work delivered based on the schedule of deliveries and other relevant terms and conditions of the contract; and (ii) Signed Inspection and Acceptance Reports (IARs), including certification by \_\_\_\_\_, duly signed and dated by the authorized representative of the **DEPED** indicating that the items have been delivered and installed in accordance with the Contract. Other



documents in support of a request for payment may be prescribed by **DEPED** pursuant to existing disbursement, accounting and auditing rules and procedures.

10.3 Subject to the recoupment of the advance payment contemplated in Clause 10.1 above, and retention contemplated in the immediately succeeding clause, payment shall be made to \_\_\_\_\_ within sixty (60) calendar days after the date of acceptance of Goods and upon submission of the documents specified in SCC Clause 2.2 and other documents as may be prescribed by **DEPED**, in the following manner:

Milestone	Description	Percentage of the Contract Price
1	At least 40% work accomplishment  Complete installation and operation of works in: <ul style="list-style-type: none"> <li>• Mabini Building</li> <li>• Mabini Data Center</li> </ul>	40%
2	Additional 40% work accomplishment  Complete installation and operation of works in: <ul style="list-style-type: none"> <li>• Aguinaldo Building</li> <li>• Alonzo Building</li> <li>• Bonifacio Building</li> <li>• Rizal Building</li> </ul>	40%
3	Additional 20% work accomplishment and final acceptance  Complete installation and operation of the following: <ul style="list-style-type: none"> <li>• Employee and Guest Management System</li> <li>• Network Monitoring System</li> <li>• Security Monitoring System</li> <li>• Unified IP Telephone System</li> </ul> Delivery of: <ul style="list-style-type: none"> <li>• Knowledge Transfers and Training Sessions</li> </ul>	20%

The statement of work accomplished must be certified by **DEPED's** Representative/Project Engineer.



- 10.4 Final payment shall constitute release of the retention money in case of expiry of the warranty period, or in case of use in part of the retention money by reason of a call upon the warranty, the final payment shall constitute the release of the balance amount.
11. Payments shall be subject to the “Warranty” provision in the form of a Special Bank Guarantee in the amount equal to at least five percent (5%) of the Contract Price required under Section 62 of R.A. 9184 and its revised IRR.
- The warranty period will remain for three (3) years for:
- a. The following equipment:
    - i. Core switch
    - ii. Access Point
    - iii. Distribution Switch
    - iv. Power Over Ethernet Switch
    - v. Smart Data Cabinet
    - vi. IPBX Main System
    - vii. Operator Phone
    - viii. IP Phones
    - ix. UPS
    - x. Door Access System
    - xi. IP Based Paging System Hardware
    - xii. Stand Alone FDAS with Notification
  - b. Workmanship
12. \_\_\_\_\_ shall be liable for liquidated damages for the delay in its performance in an amount equal to one-tenth (1/10) of one percent (1%) of the cost of the delayed goods scheduled for delivery, for every day of delay until such goods are finally delivered and accepted by **DEPED**. **DEPED** shall deduct the liquidated damages from any money due or which may become due to \_\_\_\_\_, or collect from any of the securities or warranties posted by \_\_\_\_\_, whichever is convenient to **DEPED**. Once the cumulative amount of liquidated damages reaches ten percent (10%) of the Contract Price, **DEPED** may rescind or terminate the Contract, without prejudice to other courses of action and remedies available under the circumstances.
13. \_\_\_\_\_ and its employees, as agents of **DEPED**, shall uphold strict confidentiality of any information relating to this Contract. \_\_\_\_\_ shall hold Proprietary Information in strict confidence. \_\_\_\_\_ agrees not to reproduce, transcribe or disclose Proprietary Information to third parties without prior written approval of **DEPED**.
14. The **PARTIES** shall make every effort to resolve amicably and by mutual consultation any and all disputes or differences arising between the Parties in connection with the implementation of the Agreement. Should such dispute not be resolved amicably, it shall be submitted to arbitration in the Philippines according to the provisions of Presidential Decree No. 242 and Executive Order No. 292. Provided, however, that by mutual agreement, the Parties may agree in writing to resort to other alternative modes of dispute resolution.



**IN WITNESS WHEREOF**, the Parties hereto have caused this Agreement to be executed in accordance with governing laws on the day and year first above written.

*SIGNED, SEALED AND DELIVERED BY:*

\_\_\_\_\_  
Department of Education

*SIGNED IN THE PRESENCE OF:*

\_\_\_\_\_  
*DEPED's Witness*

\_\_\_\_\_  
*'s Witness*

*CERTIFIED FUNDS AVAILABLE:*

\_\_\_\_\_  
*Chief Accountant*

REPUBLIC OF THE PHILIPPINES)  
\_\_\_\_\_, METRO MANILA) S.S

**ACKNOWLEDGMENT**

**BEFORE ME**, a Notary Public in and for \_\_\_\_\_, Philippines,  
this \_\_\_\_ day of \_\_\_\_\_ 2021 personally appeared:

**NAME**

**GOVERNMENT ISSUED ID**

*(Number, Issued On, Issued  
By)*

Known to me and to me known to be the same persons who executed the foregoing instrument and acknowledge to me that the same is the free and voluntary act and deed of the entities which they respectively represent.

The foregoing instrument is a CONTRACT consisting of six (6) pages (exclusive of attachments), including this page on which this acknowledgment is written and signed by the parties hereto and their instrument witness on the left-hand margin of each and every page hereof.



WITNESS MY HAND AND SEAL on the date and place first above written.

Doc. No. \_\_\_\_;  
Page No. \_\_\_\_;  
Book No. \_\_\_\_;  
Series of 2021.

NOTARY PUBLIC

### **BANK GUARANTEE FORM FOR ADVANCE PAYMENT**

To: **Department of Education**

*[name of Contract]*

Gentlemen and/or Ladies:

In accordance with the payment provision included in the General Conditions of Contract to provide for advance payment, *[name and address of Supplier]* (hereinafter called the "Supplier") shall deposit with the PROCURING ENTITY a bank guarantee to guarantee its proper and faithful performance under the said Clause of the Contract in an amount of *[amount of guarantee in figures and words]*.

We, the *[bank or financial institution]*, as instructed by the Supplier, agree unconditionally and irrevocably to guarantee as primary obligator and not as surety merely, the payment to the PROCURING ENTITY on its first demand without whatsoever right of objection on our part and without its first claim to the Supplier, in the amount not exceeding *[amount of guarantee in figures and words]*.

We further agree that no change or addition to or other modification of the terms of the Contract to be performed thereunder or of any of the Contract documents which may be made between the PROCURING ENTITY and the Supplier, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition, or modification.

This guarantee shall remain valid and in full effect from the date of the advance payment received by the Supplier under the Contract until *[date]*.

Yours truly,

Signature and seal of the Guarantors

---

*[name of bank or financial institution]*

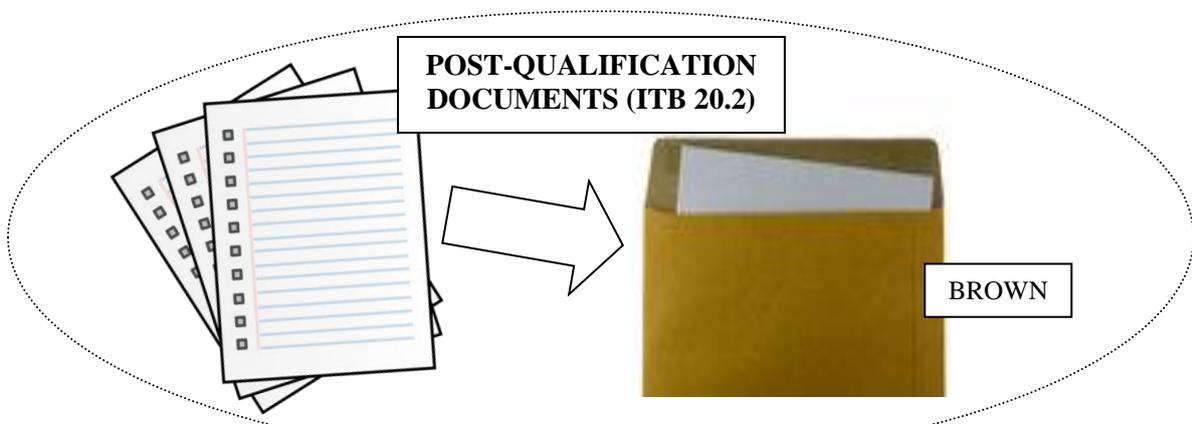
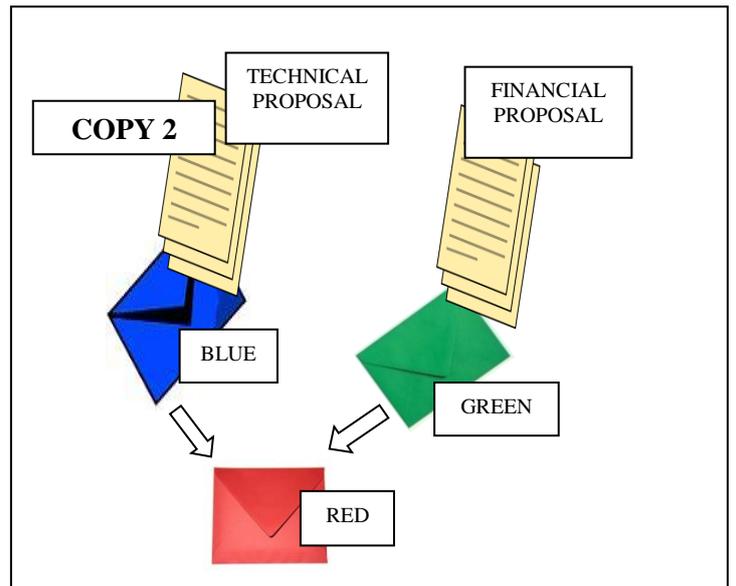
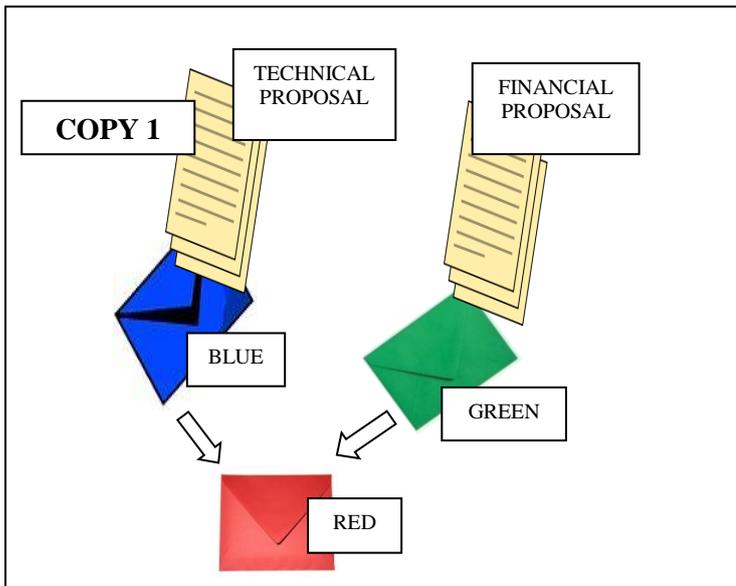
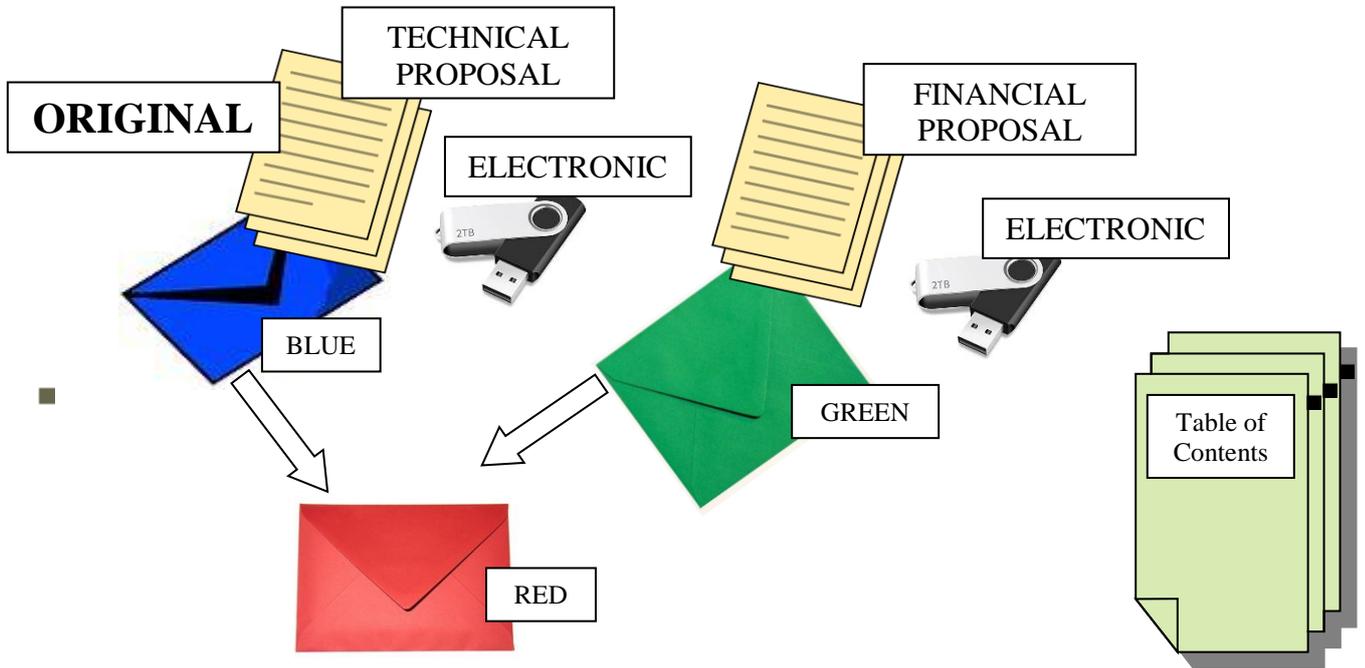
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*[address]*



# SEALING AND MARKING OF BIDS

[date]





ORIGINAL / COPY NO. \_\_\_\_\_

[BIDDER'S COMPANY NAME]  
[COMPANY'S OFFICE ADDRESS]  
PUBLIC BIDDING: [PROJECT TITLE]  
BIDDING FOR   [no.]  :   [item description]   (if applicable)

THE CHAIRPERSON  
BIDS AND AWARDS COMMITTEE  
DEPARTMENT OF EDUCATION CENTRAL  
OFFICE  
[VENUE OF BID OPENING]

***DO NOT OPEN BEFORE [TIME AND DATE OF BID OPENING]***



