



# GAUHATI UNIVERSITY

Gopinath Bordoloi Nagar: Guwahati 781014: Assam: India

NIQ No.: GU/G/3680D\_\_\_, Dated 22-11-2016

## Notice Inviting Quotation For Implementation and Maintenance of Secure Gigabit Campus Network, Gauhati University

### **Important Dates:**

Issue of NIQ: 31-12-2016

Late date and Time: 18-1-2016      12 noon      Quotation Opening: 18-1-2016 3 PM

1. Name of work: **“Implementation and Maintenance of Secure Gigabit Campus Network, Residential Area, Gauhati University”**
2. Tender No. : **GU/G/3680D**\_\_\_, Dated **22-11-2016**
3. Validity of the Offer: 100 (One Hundred) Days
4. Completion Period: 90 (Ninety) Days,
5. Processing fee- Rs. 500/ vide DD drawn in favour of Registrar, GU

### **SCOPE OF WORK -**

Gauhati University intends to build a Secure Campus Area Network over Optical Fiber dropping to Residential Quarters and IP Cameras.

Vendors, joint ventures/consortium, companies, or authorized entities of companies, who are with adequate expertise and experience for similar works may participate in the quotation process for consideration for selection.

The following terms and conditions in brief will be applicable:

1. Two Bid Procedure: The quotation must be in a two-bid system. All technical documents, along with the supporting documents in conformity of the terms and conditions are to be in a sealed envelop to be marked as “Technical Bid”. Price quotations for various components clearly indicating the amount quoted, various tax components etc. must be in the second envelop to be marked as “Price Quotation”. Both the envelopes are

- to be put in a single envelope and to be sealed and submitted to the Registrar, Gauhati University.
2. Only registered vendor with proper registration of Companies/Trades/Services, and for applicable Taxes of the Government can participate. Necessary documents must be enclosed.
  3. At least 3(three) Campus Network work contract in Educational Institutes or Government Organization/Telecom Sector in previous 3 years is required.
  4. The Vendor should have atleast one work order of value 60% of the current quoted value.
  5. At least 1(one) similar work with successful implementation and completion certificate from the customer must be produced.
  6. Manufacturer Authorization Form to be submitted for all the Products.
  7. Back-lining support from Original Equipment Manufacturer (OEM) for 3 years. The OEM support should cover advance hardware replacement, firmware updates and bug fixes for 3 years without any additional cost.
  8. The product or parts should not become end of support for next five years
  9. The products or parts should not become end of sale as on date of order.
  10. OEM warranty and service policy should be included.
  11. OEM should have their distributor/partners in Guwahati.
  12. OEM should have a dedicated Technical Support Center in India.
  13. The Bill of Materials should entirely fulfill the purpose. The design should not be restricted to the specification mentioned in this bid document. In case there is additional requirement it should be quoted.
  14. EMD in form of DD in favour of Registrar, Gauhati University, payable at Guwahati for an amount of 2% of the total quoted value must be submitted, and to be put in the Price Quotation envelope.
  15. The last date of submission of quotation is \_\_\_\_\_, 2016, \_\_\_\_\_ AM. The quotations will be opened on the same day at \_\_\_\_\_ PM. Representatives of the participating vendors may attend the quotation opening meeting to be held in the office of the Registrar, GU.
  16. Rates must be quoted module/item wise.
  17. Payment will be made 80% on delivery and 15% after successful implementation and 5% after completion of 3 years.
  18. The solution should be supported for 3 (three) years and in addition the bidder should sign an agreement covering the below conditions-
    - i) All active components should have hardware replacement warranty from OEM for 3 years.
    - ii) The bidder should bear the Cost of replacement of optical fiber of total length 3000 meters with accessories, rectification and manpower charges for the entire duration of the project support of 3 years.
    - iii) Spare for all the components except UTM should be available with the bidder for Next Business Day replacement.
    - iv) Bidder should have support arrangement from 10AM to 5PM - onsite during office hours and on-call basis (5PM to 7PM), except holidays.
    - v) Operation and Maintenance Cost for 3 years should be proposed separately complying all the conditions mentioned in Clause no 17.
  19. All other terms and conditions will be as per the GU rules and regulations.
  20. Site survey to be done by the bidder at their own cost at a predefined time provided by the University Authority.

21. GU reserves the right of modifications, cancellations and decisions in regards to the entire process.
22. All communications must be addressed to the Registrar, Gauhati University, Guwahati 781014, Assam, India.

**Quantity of Items to be quoted for:-**

<b>Sl No</b>	<b>Descriptions</b>	<b>UoM</b>	<b>Qty</b>
1.1	Campus Distribution Switches (Layer 3) for connectivity to Quarters (10/100/1000 Mbps+4SFP Ports)	nos.	2
1.2	1Gbps Single Mode Transceivers for UPLINK	nos.	4
1.3	a) Access Switches (Layer 3) for connectivity to Quarters (48x10/100/1000Mbps+2SFP Ports)	nos.	2
1.3	b) Access Switches (Layer 3) for connectivity to Quarters(24x10/100/1000Mbps+2xSFP Ports)	nos.	2
1.4	a) Active Optical Components (Media Converters & Media Converter Chassis (Single Mode-Single Fiber, 15km or higher) for 150 Quarters and 50 IP cameras) (10/100/1000Mbps for Quarters and 10/100Mbps for IP Cameras)	nos.	Chassis- As per bidder Media Converter-200
1.4	b) Active Optical Components (GEAPON-OLT/ONU for 150 Quarters and 50 IP Cameras) (10/100/1000 Mbps for Quarters and 10/100Mbps for IP Cameras)	nos.	OLT – 2 ONU-200
1.5	Single Mode Optical Fiber(Backbone-24-Cores)	meters	4000
1.6	Single Mode Optical Fiber(Backbone-12-Cores)	meters	3000
1.7	a) Single Mode Optical Fiber(Distribution- 6 Cores)	meters	3000
	b) Single Mode Optical Fiber (Distribution-4 Cores)	meters	3000
	c) Single Mode Optical Fiber (Distribution-2 Cores)	meters	4000
1.8	Optical Patch chords(Single Mode-SC-SC)-1m/2m	nos.	1m-100 2m-100
1.9	a) Optical Patch chords(Single Mode-LC-SC)-1m	nos.	100
1.9	b) Optical Patch chords(Single Mode-LC-LC)-2m	nos.	100
1.9	c) Optical Splitters – 1:16		8
1.9	d) Optical Splitters – 1:8		16
1.9	e) Optical Splitters – 1:4		8
1.9	f) Optical Splitters – 1:2		8
1.10	24 Port LIU Fully Loaded Single Mode LIU	nos.	10
1.11	Optical fiber Enclosure Boxes(outdoor), GI Wire and other optical accessories	nos.	As required
1.12	a) Network Rack 42U w/ accessories. (Valrack/President/Netrack/WQ/etc)	nos.	1
1.12	b) a) Network Rack 12U w/ accessories. (Valrack/President/Netrack/WQ/etc)	nos.	3
1.13	a)Passive Copper Components (1m Cat6 Cable and patch Chords) for connectivity at quarters and switches.	nos.	400
1.1.3	b)Passive Copper Components (2m Cat6 Cable) for connectivity at quarters and switches.	nos.	200
1.13	c) Passive Copper Components (3m Cat6 Cable) for connectivity at quarters and switches.	nos.	200
1.14	b)Cat5e STP Cable (for IP Camera to Pole Mount Enclosure Boxes).	meters	1000
1.14	1KVA UPS with battery bank, rack/stand, accessories (1hr backup on half load) for PoPs.	nos.	3

1.15	3KVA UPS with battery bank, rack/stand, accessories (1hr backup on half load) for Central Campus Fiber Distribution Room.	nos.	1
1.16	Unified Threat Management System with user login, per user bandwidth Control, Gateway Antivirus, IPS, URL Filtering and reporting feature for 200 concurrent users.	nos.	1
1.17	Access Points - Wireless Router (Home Use). 802.11n(100Mbps minimum)	nos.	150
1.18	a) 3MP IP Bullet Camera with IR	nos	40
1.18	b) 4MP IP Bullet Camera with IR	nos.	10
1.19	Network Video Recorder – 32 Channel	nos	2
1.20	42” LED Monitor for Surveillance System	nos	2
1.21	Pole/Light Post Mount Enclosures with lock and key for housing - IP Camera accessories and UPS unit. It should have 5 sockets Power Board (with single switch, fuse, surge protection unit etc). The enclosure should be of insulation material. (Bidder may offer better solution.)	nos.	50
1.22	600VA(minimum) UPS for IP Camera units. (Bidder may offer better solution.)	nos.	50
1.23	Fiber Laying Charges per meter (Overhead)	job	per meter
1.24	Fiber Splicing and Testing for Entire Operation	Job	Per splicing
1.25	Design, Configuration and Documentation	Job	As required
1.26	Electrical Components (if required)	Nos.	As required
1.27	Electrical Wiring, Casing capping etc	Job	As required
1.28	For new site preparation for Campus Optical Fiber termination point/s (PoPs). (civil works)	Job	As required
1.29	Any other components bidder would like to include.		

**Note –**

- 1) All the above components should be of reputed brand. The bidder should not compromise the quality of products, work and brands to lower the cost. Evaluation will be based on the products, design, operation and maintenance strategy and cost.
- 2) All outdoor IP Cameras should be connected over fiber only.
- 2) The number and size of Network Racks will depend upon locations provided by the G.U. authority for distributing the fiber network.
- 3) The quantity mentioned above table is for financial calculations. However all components will be billed as per actual after completion of the task.
- 4) Per meter overhead fiber laying cost to be proposed.
- 5) Cost per splicing to be proposed.
- 6) Cost of items from Sl. No. 1.26 to 1.28 will not be considered for financial evaluation.

**Product Specifications:**

**1. Distribution Switches (For Residential Campus)**

Sl No	Features	Compliance Y/N	Web Reference
	<b>General features</b>		

1	The switch should support 24 nos of 10/100/1000 Mbps ports and 4 nos of SFP/GBIC Combo ports/slots. Should be available to accommodate 100Base-LX,100Base-FX,1000Base-LX,1000Base-SX and 1000Base-LH transceiver Modules of the same OEM make		
2	The switch forwarding rate should be minimum 56 Gbps		
3	The switch should support the following LED's System, Link/Act, Speed for easy monitoring. The LEDs can be manually turned off to save on Energy		
	<b>Layer 2 features</b>		
5	The switch should support 802.1d Spanning Tree , 802.1w RSTP , 802.1s (MSTP)		
6	The switch should support IEEE 802.3ad Link Aggregation Control Protocol (LACP) supporting upto 8 groups and 8 ports per group		
7	The switch should support atleast 4000 VLANs simultaneously		
8	The switch should support Port-based and 802.1Q tag-based VLANs, MAC-based VLAN,Management VLAN,Private VLAN Edge (PVE) with multiple uplinks,Guest VLAN Unauthenticated VLAN ,Dynamic VLAN assignment via Radius server along with 802.1x client authentication, Voice VLAN		
9	The switch should support Generic VLAN Registration Protocol (GVRP)/Generic Attribute Registration Protocol (GARP)		
10	The switch should support Unidirectional Link Detection to detect unidirectional links caused by incorrect wiring or cable/port faults to prevent forwarding loops and blackholing of traffic in switched networks		
11	The switch should support Jumbo frames of 9000 bytes		
12	The switch should support 16000 MAC addresses		
	<b>Layer 3 features</b>		
13	The switch should support atleast 500 IPv4 static routes and 120 IP interfaces		
14	The switch should support layer 3 interface on physical port, LAG, VLAN interface or Loopback interface		
15	The switch should support Dual IPv6/IPv4 stack		
16	The Switch should support IPv4 DHCP Server serving IP addresses for multiple DHCP pools/scopes		
17	the switch should Support DHCP options (12, 66, 67, 82, 129, and 150)		
18	The switch should support the following IPv6 standards RFC 4443,RFC 4291,RFC 4291,RFC 2460,RFC 4861,RFC 4862,RFC 1981,RFC 4007,RFC 3484		
	<b>Security</b>		

19	The switch should support 802.1X: RADIUS authentication and accounting, MD5 hash; guest VLAN; unauthenticated VLAN, single/multiple host mode with single/multiple sessions		
20	The switch should support STP Bridge Protocol Data Unit (BPDU) Guard ,STP Root Guard, DHCP snooping,IP Source Guard, Dynamic ARP Inspection (DAI),IP/Mac/Port Binding, Port security, Storm control.		
21	The switch should support atleast 500 access control rules to drop or rate limit based on source and destination MAC, VLAN ID or IP address, protocol, port, differentiated services code point (DSCP)/IP precedence, TCP/ UDP source and destination ports,802.1p priority, Ethernet type, Internet Control Message Protocol (ICMP) packets, IGMP packets, TCP flag. Time-based ACLs should also be supported.		
22	The switch should support a mechanism to manage sensitive data (such as passwords, keys, etc) securely on the switch. Access to view the sensitive data as plaintext or encrypted is provided according to the user configured access level and the access method of the user.		
23	The switch should provide Layer 2 isolation between devices in the same VLAN, even on multiple uplinks.		
24	The switch should support the ability to lock Source MAC addresses to ports, and limit the number of learned MAC addresses.		
	<b>Quality of Service</b>		
25	The switch should support atleast 4 hardware queues		
26	The switch should support scheduling based on (i) Strict priority and weighted round-robin and (ii) DSCP and class of service (802.1p/CoS)		
27	The definition of class of service should be Port based; 802.1p VLAN priority based; IPv4/v6 IP precedence/type of service (ToS)/DSCP based; Differentiated Services (DiffServ);		
28	The switch should support classification and remarking based on access control lists		
29	The switch should allow rate limiting based on Ingress policer; egress shaping and rate control; per VLAN, per port, and flow based.		
30	The QoS capabilities should be hardware based and supported on both IPv4 and IPv6 address		
31	The switch should support a TCP congestion avoidance algorithm to minimize and prevent global TCP loss synchronization.		
32	The switch should prioritize IPv6 packets and Drop or rate limit IPv6 packets in hardware		
	<b>Management</b>		

33	The switch should support browser-based device configuration (HTTP/HTTPS). The web based switch configuration utility should support system dashboard, system maintenance, and monitoring.		
34	The switch should be configurable through command line interface		
35	The switch should support SNMP versions 1, 2c, and 3 with support for traps and SNMP version 3 user-based security model		
36	The switch should support Embedded RMON software agent supporting 4 RMON groups (history, statistics, alarms, and events) for enhanced traffic management, monitoring, and analysis		
37	The switch should support port/VLAN mirroring where the traffic on a port/VLAN can be mirrored to another port for analysis with a network analyzer or RMON probe. Up to 8 source ports/VLAN can be mirrored to one destination port. A single session should also be supported.		
38	The switch should support dual operating system images		
39	The switch should allow firmware upgrade through Web browser (HTTP/HTTPS) ,TFTP , over SCP running over SSH and Upgrade can be initiated through console port .		
40	The configuration file of the switch can be edited with a text editor and can be downloaded to another switch, facilitating easier mass deployment		
41	Should be able to automatically apply QoS and security capabilities to the port based on the devices discovered over LLDP-MED.		
42	The following features should also be supported Traceroute; single IP management; HTTP/HTTPS; SSH; RADIUS; port mirroring; TFTP upgrade; DHCP client; BOOTP; SNTP; cable diagnostics; ping; syslog; Telnet client (SSH secure support)		
43	The switch should support user-defined schedule for Link up or down		
	<b>Power efficiency</b>		
44	The switch should support Supports 802.3az on all copper ports		
45	The switch should intelligently adjust signal strength based on cable length.		
46	The switch should be of fanless design		
	<b>Miscellaneous</b>		
47	The following certification should be present UL (UL 60950), CSA (CSA 22.2), CE mark, FCC Part 15 (CFR 47) Class A;USGv6 and IPv6 Gold Logo certified		
48	The operating temperature of the switch should support a range between 32°to 104°F (0°to 40°C)		

49	The operating humidity should support a range between 10% to 90%, relative, noncondensing		
	<b>Warranty</b>		
1	3 years Onsite advance hardware replacement warranty from OEM.		
2	3 years Onsite Support & Service by OEM/Authorized Partner.		
3	3 years firmware upgrade and bug fixes from OEM.		
4	The proposed product should not become End-of-Support for next 3 years.		
5	The OEM Should have registered office in India		
6	The OEM Should have dedicated Technical Support Center in India		

## 2. Access Switches (Layer 3)

SI No	Features	Compliance Y/N	Web Reference
	<b>General features</b>		
1	The switch should support 48 nos of 10/100/1000 Mbps ports and 2 nos of SFP/GBIC Combo ports/slots. Should be available to accommodate 100Base-LX,100Base-FX,1000Base-LX,1000Base-SX and 1000Base-LH transceiver Modules of the same OEM make		
2	The switch should support the following LED's System, Link/Act, Speed for easy monitoring. The LEDs can be manually turned off to save on Energy		
	<b>Layer 2 features</b>		
3	The switch should support 802.1d Spanning Tree , 802.1w RSTP , 802.1s (MSTP)		
4	The switch should support IEEE 802.3ad Link Aggregation Control Protocol (LACP) supporting upto 8 groups and 8 ports per group		
5	The switch should support atleast 4000 VLANs simultaneously		
6	The switch should support Port-based and 802.1Q tag-based VLANs, MAC-based VLAN, Management VLAN, Private VLAN Edge (PVE) with multiple uplinks, Guest VLAN Unauthenticated VLAN ,Dynamic VLAN assignment via Radius server along with 802.1x client authentication, CPE VLAN , Voice VLAN , MVR ,Q-in-Q VLAN .		
7	The switch should support Generic VLAN Registration Protocol (GVRP)/Generic Attribute Registration Protocol (GARP)		
8	The switch should support Unidirectional Link Detection to detect unidirectional links caused by incorrect wiring or cable/port faults to prevent forwarding loops and blackholing of traffic in switched networks		



9	The switch should support Jumbo frames of 9000 bytes		
10	The switch should support 16000 MAC addresses		
	<b>Layer 3 features</b>		
11	The switch should support atleast 500 IPv4 static routes and 120 IP interfaces		
12	The switch should support layer 3 interface on physical port, LAG, VLAN interface or Loopback interface		
13	The switch should support Dual IPv6/IPv4 stack		
14	The Switch should support IPv4 DHCP Server serving IP addresses for multiple DHCP pools/scopes		
15	the switch should Support DHCP options (12, 66, 67, 82, 129, and 150)		
16	The switch should support the following IPv6 standards RFC 4443,RFC 4291,RFC 4291, RFC 2460,RFC 4861,RFC 4862,RFC 1981,RFC 4007,RFC 3484		
	<b>Security</b>		
17	The switch should support 802.1X: RADIUS authentication and accounting, MD5 hash; guest VLAN; unauthenticated VLAN, single/multiple host mode with single/multiple sessions		
18	The switch should support STP Bridge Protocol Data Unit (BPDU) Guard ,STP Root Guard, DHCP snooping, IP Source Guard, Dynamic ARP Inspection (DAI),IP/Mac/Port Binding, Port security, Storm control.		
19	The switch should support atleast 500 access control rules to drop or rate limit based on source and destination MAC, VLAN ID or IP address, protocol, port, differentiated services code point (DSCP)/IP precedence, TCP/ UDP source and destination ports,802.1p priority, Ethernet type, Internet Control Message Protocol (ICMP) packets, IGMP packets, TCP flag. Time-based ACLs should also be supported.		
20	The switch should support a mechanism to manage sensitive data (such as passwords, keys, etc) securely on the switch. Access to view the sensitive data as plaintext or encrypted is provided according to the user configured access level and the access method of the user.		
21	The switch should provides Layer 2 isolation between devices in the same VLAN, even on multiple uplinks.		
22	The switch should support the ability to lock Source MAC addresses to ports, and limit the number of learned MAC addresses.		
	<b>Quality of Service</b>		
25	The switch should support atleast 4 hardware queues		
26	The switch should support scheduling based on (i) Strict priority and weighted round-robin and (ii) DSCP and class of service (802.1p/CoS)		

27	The definition of class of service should be Port based; 802.1p VLAN priority based; IPv4/v6 IP precedence/type of service (ToS)/DSCP based; Differentiated Services (DiffServ);		
28	The switch should support classification and remarking based on access control lists		
29	The switch should allow rate limiting based on Ingress policer; egress shaping and rate control; per VLAN, per port, and flow based.		
30	The QoS capabilities should be hardware based and supported on both IPv4 and IPv6 address		
31	The switch should support a TCP congestion avoidance algorithm to minimize and prevent global TCP loss synchronization.		
32	The switch should prioritize IPv6 packets and Drop or rate limit IPv6 packets in hardware		
	<b>Management</b>		
33	The switch should support browser-based device configuration (HTTP/HTTPS). The web based switch configuration utility should support system dashboard, system maintenance, and monitoring.		
34	The switch should be configurable through command line interface		
35	The switch should support SNMP versions 1, 2c, and 3 with support for traps and SNMP version 3 user-based security model		
36	The switch should support Embedded RMON software agent supporting 4 RMON groups (history, statistics, alarms, and events) for enhanced traffic management, monitoring, and analysis		
37	The switch should support port/VLAN mirroring where the traffic on a port/VLAN can be mirrored to another port for analysis with a network analyzer or RMON probe. Up to 8 source ports/VLAN can be mirrored to one destination port. A single session should also be supported.		
38	The switch should support dual operating system images		
39	The switch should allow firmware upgrade through Web browser (HTTP/HTTPS) ,TFTP , over SCP running over SSH and Upgrade can be initiated through console port .		
40	The configuration file of the switch can be edited with a text editor and can be downloaded to another switch, facilitating easier mass deployment		
41	Should be able to automatically apply QoS and security capabilities to the port based on the devices discovered over LLDP-MED.		

42	The following features should also be supported Traceroute; single IP management; HTTP/HTTPS; SSH; RADIUS; port mirroring; TFTP upgrade; DHCP client; BOOTP; SNTP; cable diagnostics; ping; syslog; Telnet client (SSH secure support)		
43	The switch should support user-defined schedule for Link up or down		
	<b>Power efficiency</b>		
44	The switch should support Supports 802.3az on all copper ports		
45	The switch should intelligently adjust signal strength based on cable length.		
46	The switch should be of fanless design		
	<b>Warranty</b>		
1	3 years Onsite advance hardware replacement warranty from OEM.		
2	3 years Onsite Support & Service by OEM/Authorized Partner.		
3	3 years firmware upgrade and bug fixes from OEM.		
4	The proposed product should not become End-of-Support for next 3 years.		
5	The OEM Should have registered office in India		
6	The OEM Should have dedicated Technical Support Center in India		

### Unified Threat Management (UTM) Solution for G.U. Residential Area Network Users.

SI No	Features	Compliance Y/N	Web Reference
1	Should offer a IMIX throughput of minimum 1 Gbps with all the proposed threat prevention features active.		
2	Should have on appliance user authentication, authorization and accounting feature.		
3	The appliance should have inbuilt per user based bandwidth control mechanism.		
4	Should have at least 4X1Gbps RJ45 interfaces and 4XSFP Slots		
5	Should support minimum 200 concurrent users.		
6	Should have inbuilt IPS Engine		
7	Should have inbuilt URL Filtering Mechanism		
8	Should have inbuilt Application filtering mechanism		
9	Should have inbuilt Antimalware prevention mechanism.		
10	Should be listed in Gartner Magic Quadrant for UTM for last 3 years.		
11	The OEM UTM/NGFW products should be tested by NSS Labs or any other reputed third parties of International standard.		
12	In case subscription is applicable, it should be available for 3 years.		

	Warranty		
1	3 years Onsite advance hardware replacement warranty from OEM.		
2	3 years Support & Service by OEM/Authorized Partner.		
3	3 years firmware upgrade and bug fixes from OEM.		
4	The proposed product should not become End-of-Support for next 3 years.		
5	The OEM Should have registered office in India		
6	The OEM Should have dedicated Technical Support Center in India		
7	MAF, Warranty & Support Certificate from OEM is required.		

### **IP Based Surveillance System-**

#### **3MP IR Bullet Camera with Mounting Bracket and accessories (Outdoor)**

Sl No	Features	Compliance Y/N	Web Reference
1	Up to 3 megapixel (2048 × 1536) resolution		
2	High-performance and long service life Infrared LED, Approx. 20 to 30 meters IR range		
3	IR cut filter with auto switch		
4	PoE (Power over Ethernet)		
5	Weather proof rating: IP66		
6	3D DNR		
7	Digital WDR		
8	Video Compression - H.264/MJPEG		
9	Video bit rate: 32Kbps~16Mbps		
10	Dual Stream		
11	Max. Image Resolution: 2048 × 1536		
12	Frame Rate: 50Hz: 50Hz: 20fps (2048 x 1536), 25fps (1920 ×1080), 25fps (1280 x 720) 60Hz: 20fps (2048 x 1536), 30fps (1920 ×1080), 30fps (1280 x 720)		
13	Image Settings - Saturation, brightness, sharpness, contrast, sharpness adjustable through client software or web browser		
14	Network Storage: NAS		
15	Motion detection, line crossing detection, tampering alarm, scene change detection, face detection, intrusion detection		
16	TCP/IP,ICMP,HTTP,HTTPS,FTP,DHCP,DNS,DDNS,RTP,RTSP,RTCP, PPPoE,NTP,UPnP,SMTP,SNMP,IGMP,802.1X,QoS,IPv6,Bonjour		
17	Security:User Authentication, Watermark		
18	Communication Interface: 1 RJ45 10M / 100M Ethernet interface		
19	Power Supply: 12 VDC ± 10%, PoE (802.3af)		

20	System Compatibility: ONVIF, PSIA, CGI		
21	Operating Range : upto 60 °C		
<b>4MP IR Bullet Camera with Mounting Bracket and accessories(Outdoor)</b>			
Sl No	Features	Compliance Y/N	Web Reference
1	Up to 4 megapixel (2688×1520) resolution		
2	High-performance and long service life Infrared LED, Approx. 30 meters IR range		
3	IR cut filter with auto switch		
4	PoE (Power over Ethernet)		
5	Weather proof rating: IP67		
6	3D DNR		
7	128dB Digital WDR		
8	Video Compression - H.264/MJPEG/H.264+		
9	Video bit rate: 32Kbps~16Mbps		
10	Dual Stream		
11	Max. Image Resolution: 2688×1520		
12	Frame Rate: 50Hz:Main stream:20fps(2688×1520),25fps(1920×1080), 25fps(1280×720), Substream:25fps(352×288),25fps(640×360) 60Hz: Main stream:20fps(2688×1520),30fps(1920×1080),30fps(1280×720), Sub stream: 30fps(352×240),30fps(640×360)		
13	Image Settings - Saturation, brightness, sharpness, contrast, sharpness adjustable through client software or web browser		
14	Network Storage: NAS, Support on-board storage up to 128GB		
15	Motion detection, line crossing detection, tampering alarm, intrusion detection		
16	TCP/IP,ICMP,HTTP,HTTPS,FTP,DHCP,DNS,DDNS,RTP,RTSP,RTCP, PPPoE,NTP,UPnP,SMTP,SNMP,IGMP,802.1X,QoS,IPv6,Bonjour		
17	One-key reset, Anti-flicker, heartbeat, mirror, password protection, privacy mask, watermark, IP address filtering, Anonymous access		
18	Communication Interface: 1 RJ45 10M / 100M Ethernet interface		
19	Power Supply: 12 VDC ± 25%, PoE (802.3af)		
20	System Compatibility: ONVIF, PSIA, CGI		
21	Operating Range : upto 60 °C		
<b>Network Video Recorder (NVR) - 32-Channel</b>			
Sl No	Features	Compliance Y/N	Web Reference

1	Audio/Video Input - 16-Ch, 32-Ch & 64-Ch IP Video Input - 16-Ch, 32-Ch & 64-Ch Audio Input - 1-ch, BNC (1kΩ)		
2	Connectable to the third-party network cameras like Bosch, Canon, PANASONIC, SAMSUNG, SANYO, SONY and cameras that adopt ONVIF or PSIA protocol.		
3	Video Compression - H.264+, H.264		
4	Incoming Bandwidth- 100Mbps(with RAID enabled)		
5	Outgoing Bandwidth - 100Mbps(With RAID enabled)		
6	Remote Connections – 128		
7	Video/Audio Output - Recording Resolution- 6 MP/5 MP/3 MP/1080p/UXGA/720p/VGA/4CIF/DCIF/2CIF/CIF/QCIF Main stream: 60 fps, Sub-stream: 60 fps Audio - 2-ch, BNC (Linear, 600Ω)		
8	Live View - 6MP /5MP /3MP /1080P /UXGA /720P /VGA /4CIF /DCIF /2CIF /CIF /QCIF Capability - minimum 10Ch@720P (for 16Ch-NVR) -16Ch@720P (for 32Ch/64Ch-NVR)		
9	HDMI/VGA Output - 1-ch, resolution: 1920 × 1080p/1600 × 1200/1280 × 1024/1280 × 720/1024 × 768		
10	Support live view, storage, and playback of the connected camera at up to 6 megapixels resolution		
11	Simultaneous HDMI, VGA and CVBS outputs; and respective live view and playback via VGA and HDMI outputs.		
12	Support HDD quota and group modes; different capacity can be assigned to different channel.		
13	Up to 8 SATA hard disks and 1 eSATA disk can be connected, for both recording and backup.		
14	Hot-swappable HDD supporting RAID0, RAID1, RAID5, RAID10 storage scheme. And 8 arrays can be configured		
15	Either normal or hot spare working mode is configurable to constitute an N+1 hot spare system		
16	2 self-adaptive 10M/100M/1000M network interfaces, with working modes configurable: multi-address, load balance, network fault tolerance, etc.		
17	Support network detection, including network delay, packet loss, etc.		
18	dual-OS design to ensure the security of system running.		
19	Support VCA search for behavior search, face search, people counting, heat map and plate search.		
20	Support enabling H.264+ to ensure high video quality with lowered bitrate		
21	Incoming bandwidth of 200Mbps		
22	Outgoing bandwidth of 160Mbps		

23	Recording Resolution - 6MP /5MP /3MP /1080P /UXGA /720P /VGA /4CIF /DCIF /2CIF /CIF /QCIF		
24	HDMI & VGA output		
25	Audio Output		
26	8 SATA interfaces for 4 HDDs + 1 DVD-R/W		
27	2 RJ-45 10 /100 /1000 Mbps self-adaptive Ethernet interfaces		
28	RS-232; RS-485; Keyboard		
29	3 × USB 2.0		
30	Power Supply - 100 ~ 240 VAC, 50 ~ 60 Hz		
31	Working temperature upto 55 °C		
32	19-inch rack-mounted with maximum 2U chassis		
33	Minimum 2x4TB HDD (WD/Seagate/equivalent brand) to be populated from day 1.		
<b>Warranty and Service requirement</b>			
1	3 years Onsite advance hardware replacement warranty from OEM/Authorized Distributor/Partner.		
2	3 years Onsite Support & Service by OEM/Authorized Service Partner.		
3	3 years firmware upgrade and bug fixes from OEM.		
4	The proposed product should not become End-of-Support for next 3 years.		
5	The OEM Should have registered office in India.		
6	The OEM Should have dedicated Technical Support Center in India		
7	Warranty & Support Certificate from OEM/Authorized Dealer is desired.		

### GEPON – Optical Line Terminal (OLT).

SI No	Features	Compliance Y/N	Web Reference
1	Should have 4xPON (Populated), 8xCombo ( 10BASE-T,100BASE-TX,1000BASE-T;100BASE-FX and1000BASE-X), 1xConsole		
2	Should have 128MB RAM and 8 MB Flash		
3	Form Factor should not be more than 2RU.		
4	Should have Store-and-Forward switching mode.		
5	Should support IEEE Standards – IEEE 802.3ah EPON IEEE802.3(10Base-T) IEEE802.3u(100Base-TX) IEEE802.3z (1000BASE-X) IEEE802.3ab (1000Base-T) IEEE802.1Q(VLAN) IEEE802.1d(STP) IEEE802.1W(RSTP) IEEE802.1S(MSTP) IEEE802.1p(COS)		

	IEEE802.1x(Port Control) IEEE802.3x (flow-control) IEEE802.3ad(LACP) Each OLT interface supports at most 64 ONU ; Transmission distance of each OLT is at most 20Km		
6	VLAN,QinQ,link convergency, broadcast storm control Support at most 4096 VLAN ; 16K MAC address; Bandwidth control		
7	Aggregation group- 64 groups, each group should have at least 8 members.		
8	ACL/QoS- Support ingress, egress ACL Backpressure flow control (half duplex) IEEE 802.3x flow control (duplex) IEEE p802.1p, CoS WRR,SP and FIFO queue scheduling algorithm 802.1P/DSCP priority Mark/Remark Uplink and downlink speed limitation based on each ONU Support traffic classification of DBA and SLA Support remark priority , packet redirection based on traffic		
9	Security- Limit quantity of maximum user at each port Port violation Packet storm control ACL access control based on data stream Encryption of PON port transmitting data Support 802.1X authentication		
10	Multicast – IGMP v1/v2/v3 IGMP Snooping Multicast VLAN; controlled multicast		
11	Port Mirroring		
12	Configuration and Management SNMP NMS ; CLI, Web, SNMP, TELNET, cluster etc. RMON v1, 1,2,3,9 groups SSHv1/v2 Software and bootrom upgrade by TFTP and FTP Local server syslog to record system log English command prompt Ping and trace route Debug		
13	Service port has lightning protection		
14	<b>Temperature</b> - 0°C ~ 50°C <b>Humidity</b> - 5% ~ 95% <b>Power</b> - AC: 180V ~ 260V AC 47/63Hz		
<b>Optical Network Unit (ONU) – Type 1</b>			
1	Should have 1x PON ports (1.25G) and 1x 10/100/1000Mbps Ethernet Port		
2	Should conform to IEEE802.3ah standard		
3	Support Ethernet service layer 2 switching and wire-speed forwarding of uplink and downlink services.		



4	Support frame filtering and suppression		
5	Support standard 802.1Q VLAN function, support VLAN conversion		
6	Support 4094 VLANs (802.1Q)		
7	Support Dynamic Bandwidth Allocation (DBA) function		
8	Support QoS, including traffic flow classification, priority marking, queue and dispatch, traffic shaping and traffic control.		
9	Support IGMP Snooping Support Ethernet port rate-limit loop detection Support lightning protection for power supply and lightning protection for service port		
<b>Optical Network Unit (ONU) – Type 2</b>			
1	Should have 1x PON ports (1.25G) and 1x 10/100/1000Mbps Ethernet Port, 1 WLAN		
2	Should conform to IEEE802.3ah standard		
3	Support Ethernet service layer 2 switching and wire-speed forwarding of uplink and downlink services.		
4	Support frame filtering and suppression		
5	Support standard 802.1Q VLAN function, support VLAN conversion		
6	Support 4094 VLANs (802.1Q)		
7	Support Dynamic Bandwidth Allocation (DBA) function		
8	Support QoS, including traffic flow classification, priority marking, queue and dispatch, traffic shaping and traffic control.		
9	Support IGMP Snooping Support Ethernet port rate-limit loop detection Support lightning protection for power supply and lightning protection for service port		
10	Complies with 2.4GHz IEEE802.11n v2.0 and backward compatible with IEEE 802.11b/g standards		
11	Supports NAT/NAPT IP sharing		
12	WAN Protocols: PPPoE/StaticIP/PPTP/DHCP		
13	WAN Protocols: PPPoE/StaticIP/PPTP/DHCP		
14	Supports advanced 2T2R MIMO technology to enhance the throughput and coverage range significantly High speed data rate - up to 300Mbps		
<b>Warranty and Support</b>			
1	3 years Onsite advance hardware replacement warranty.		
2	3 years Support & Service by OEM/Authorized Partner.		
3	3 years firmware upgrade and bug fixes from OEM.		
4	The proposed product should not become End-of-Support for next 2 years.		
5	The OEM Should have registered office in India		
6	The OEM Should have dedicated Technical Support Center in India		
7	MAF, Warranty & Support Certificate from OEM is required.		

### Optical Media Converter

Sl No	Features	Compliance Y/N	Web Reference
1	Should comply IEEE 802.3u 100Base-Tx/FX		
2	Wavelength Supported – Tx/RX : 1310/1550 and Tx/RX : 1550/1310		
3	Connector Type- Fiber : Single Mode Single Fiber (SC Type) Copper : RJ45		
4	Automatic identification of MDI/MDI-X cross line		
5	Data Rate of 100Mbps		
6	Cable Type- Fiber (Single Mode): 8.3/125, 8.7/125,9/125 or 10/125µm Copper : Cat 5 twisted-pair cable		
7	Maximum Distance Covered- Copper : 100 meters Fiber : single fiber 15km (minimum)		
8	LED Indicators - PWR, LAN, Fiber		
<b>Optical Media Converter Chassis/Rack</b>			
1	1 Rack enclosure, 2U or of higher size		
2	Minimum 16 Media converters line cards supported in a single rack. (higher is better)		
3	Common Back plane supports power distribution for all line cards		
4	SC Connector for Optical ports		
5	Hot swap support for line cards		
6	Line cards support Single mode, Multimode and Single fiber options		
7	LED Indications for Link/Activity, Speed & Power supply status		
8	Redundant AC Power supply option		
9	Should support 10/100Mbps or 1Gbps Ethernet line Cards		
10	All line cards should be hot swappable		
<b>Warranty</b>			
1	3 years Onsite advance hardware replacement warranty.		
2	3 years Support & Service by OEM/Authorized Partner.		
3	3 years firmware upgrade and bug fixes from OEM.		
4	The proposed product should not become End-of-Support for next 3 years.		
5	The OEM Should have registered office in India		
6	The OEM Should have dedicated Technical Support Center in India		

### OPTICAL FIBER NETWORK FOR G.U. RESIDENTIAL AREA NETWORK (OVERHEAD FIBER)

Sl No	Item Description	Unit Rate
1	Physical Network Design for the Residential Areas is to be proposed by the bidder as per site survey. Total number of fiber dropping is expected to be approximately for 150 quarters. All quarters should have optical fiber dropping from Core or Access Switches that are proposed for the Residential Campus Network.	<b>Itemwise technical and financial proposal</b>

2	Active Optical Components including Optical Media Converters/Chassis/GEAPON-OLT/ONU and other accessories for approximately 150 Residential Quaters to be proposed by the bidder as per their solution design. Evaluation will be based on the complete solution (Financial & Technical) proposed by the bidder with 3 years warranty and services.	<b>has to be proposed for the entire task.</b>
3	Passive Optical components including Fully Loaded LIU (Single Mode), Optical Fiber Patch Chords(SM), other accessories to be proposed by the bidder as per their site survey and design.	
4	Network Racks, Cat6 cables, patch chords, Jack Panels are to be proposed by the bidder as per their site survey and design.	
5	UPS and battery banks (with minimum 1 hr backup) are to be proposed by the bidder as per their solution with 3 years onsite warranty and services.	
6	Civil and Electrical works if required to be proposed by the bidder as per site survey.	
<b>Warranty &amp; Services for products proposed in item .</b>		
A	The OEM Should have registered office in India	
B	The OEM Should have dedicated Technical Support Center in India	

**Technical Terms and Conditions: -**

- 1) Products for which specification is not mentioned here will be as per bidder solution.
- 2) Datasheets and manuals have to be provided for all products.
- 3) All products should have web reference of manufacturer and should be from reputed manufacturer.
- 4) For all active components OEM should have dedicated Technical Support Team in India
- 5) For Passive Components – Dlink/Digilink/iBall/Finolex/etc (preferred)
- 6) All products should have a hardware replacement warranty of 3 (Three years) from OEM.

**Important Dates:**

Issue of NIQ: 31-12-2016

Late date and Time: 18-1-2016

12 noon

Quotation Opening: 18-1-2016 3 PM

Registrar  
Gauhati University

**Copy to:**

1. Rector, GU
2. Secretary to the Vice Chancellor, for information of the Vice Chancellor
3. Treasurer, GU
4. Controller, GU
5. Jt. Registrar, GU, for uploading in the GU website
6. M/s Gulf Advertising Agency, for publishing the BRIEF VERSION of this notice in the Assam Tribune in the immediate next issue, and submit the bill in triplicate for payment.
7. Office Files



Registrar  
Gauhati University 31-12-2016

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গুৱাহাটী বিশ্ববিদ্যালয়, গুৱাহাটী-১৪  
Registrar  
Gauhati University, Guwahati-14