Department of Mechanical Engineering

Indian Institute of Science

Bangalore 560012

PRE-BID CLARIFICATIONS

of

Tender No: IISc/ME/2022/INF-NTW/290922-Rev-1.0

Date: 29/09/2022

Revised Tender No: IISc/ME/2022/INF-NTW/290922-Rev-2.0

Date: 20/10/2022

Chair

Department of Mechanical Engineering

Indian Institute of Science

Bangalore 560012

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PRE-BID MEETING

Dt: 13/10/2022

The Pre-bid meeting of the IISc technical committee and the representatives of prospective bidders from different OEMs was held on 13/10/2022 at the ME conference room, Mechanical Engineering Department, IISc. The meeting for the ME network upgrade tender (Tender No: IISc/ME/2022/INF-NTW/290922-Rev-1.0) began at 2:00 pm and was presided over by Dr. Raghuraman N. Govardhan, Chair, ME, IISc.

Attendees

Members from IISc

1. Dr. Raghuraman N. Govardhan, Professor & Chair, ME, IISc
2. Dr. Pramod Kumar, Associate Professor, ME, IISc
3. Mr. Rahul Nair, Project Manager, DIGITS, IISC
4. Dr. Alok Behera, Facility Manager, ME, IISc

Representatives of Prospective Bidders

1. Vignesh Kannan- Senior Engineering- Networking, Netcon technologies Indian Pvt. Ltd., Bengaluru
2. Santosh Kumar T S- Regional Manager- Public Sector, Netcon technologies Indian Pvt. Ltd., Bengaluru
3. Arune Gowda- Assistant Manager Sales, Netcon technologies Indian Pvt. Ltd., Bengaluru
4. Velpalani Balaraman, Systems Architect, Cisco, Bengaluru
5. Mr. Mohammed Khan, Area Sales Manager- Karnataka, 3C3 Indian
6. Mr. A. R. Pradeep, Sales Manager, Convergent Wireless Communications, Bangalore
7. Mr. Naveen, Technical Engineer, Convergent Wireless Communications, Bangalore
8. Mr. Ajitesh, Network Engineer, ARISTA, Bangalore
9. Mr. Samrai Bhandari, System Engineer, ARISTA, Bangalore
10. Mr. Purushotham SB, Chief Operational Officer, Bharat Vikash Network
11. Mr. Dinesh Jayaraj, Sr. Technology Consultant, Intec Infonet, Bengaluru
12. Mr. Manjunatha R, Regional Sales Manager, Intec Infonet, Bengaluru

The clarification to the queries submitted by OEMs is attached here. The amendments are highlighted in Revided Tender No: IISc/ME/2022/INF-NTW/290922-Rev-2.0, Dated 20/10/2022.

SI	Clause Pg Ref*	Original Clause	Requested Clause Change	Amendments if any
1	NA	General	Tender Submission is through online portal or Physical Submission at IISC office, Bangalore.	Physical Submission at Mechanical Engineering Office, IISC, Bangalore.
2	NA	General	Please share the time schedule for the Delivery and project completion	**As per the Tender Doc-** Bidder on whom the order would be placed will have to execute the order and invoice the order before 1st March 2023
3	Pg-1	General	Extend the deadline for submission of bid as it is during Diwali	**Relaxed-** The extended date can be found in the revised tender doc. *(Revision on Pg 1 of revised Tender)*
4	Pg-27 Clause No 6 of 6.4 and Point No 4	The bidder is expected to be a profit-making company with an annual turnover of at least Rs.40 Crores in each of the last 3 financial years.	Requesting to amend the clause as The bidder is expected to be a profit-making company with an annual turnover of at least Rs.30 Crores in each of the last 3 financial years.	**No Change**
5	Pg-18 4.7.3 Alarms/Event Management	General	Kindly confirm virtual compute resources to install NMS will be provided by IISC.	The requisite server needs to be supplied by the Bidder.
6	Page-30 6.1 Bidder's Eligibility Criteria (BEC)	The bidder (Tier-1/Highest level System Integrator (SI) partner of the OEM) must have successfully completed three Wireless LAN Access Infrastructure (Wi-Fi / WIPS Solution) implementations in India in the last three years of which one must be Wi-Fi & WIPS Solution.	Please allow ongoing projects for fair competition under MSME Make in India Clause.	**Relaxed-** The bidder (Tier-1/Highest level System Integrator (SI) partner of the OEM) must have successfully completed/**ongoing** three Wireless LAN Access Infrastructure (Wi-Fi / WIPS Solution) implementations in India in the last three years of which one must be Wi-Fi & WIPS Solution. *(Revision on Pg 27 of revised Tender)*
7	Page-30 6.1 Bidder's Eligibility Criteria (BEC)	The bidder (Tier-1/Highest level System Integrator (SI) partner of the OEM) must have successfully completed three Wireless LAN Access Infrastructure (Wi-Fi / WIPS Solution) implementations in India in the last three years of which one must be Wi-Fi & WIPS Solution.	Please allow Tier-2 partners for fair competition under MSME Make in India Clause.	**Relaxed-** The bidder (Tier-1/**Tier-2**/Highest level System Integrator (SI) partner of the OEM) must have successfully completed/ongoing three Wireless LAN Access Infrastructure (Wi-Fi / WIPS Solution) implementations in India in the last three years of which one must be Wi-Fi & WIPS Solution. *(Revision on Pg 27 of revised Tender)*

***Ref Document - Tender No: IISc/ME/2022/INF-NTW/290922-Rev-1.0, Date: 29/09/2022**

SI	Clause Pg Ref*	Original Clause	Requested Clause Change	Amendments if any
8	Page-32	4. Bidders registered with NSIC / MSME will be exempted for EMD and Tender Fee. The bidder must submit copy of valid certificate.	We are registered in MSME under Medium category. Are we eligible for EMD and Tender Fee exemption. Please clarify.	OEM should provide the necessary certificates.
9	Page-37	6.5 Service Level Agreement and Warranty 12. IISc holds the rights to withheld 5 % of the total project value if the quality of execution and workmanship is not found satisfactory by the Technical Committee at IISc.	Please change the SLA clauses as follows. SLA uptime should be 99% LD will be 0.5% to Max 5% per week for non-satisfactory works	**No Change**
10	Page-39	6.7 Payment Terms	Please change the payment terms as follows. 70% against Delivery 30% against Installation, Testing, Commissioning and Submission of ePBG AMC Payment: Every Quarter	**No Change**
11	Pg 42 /ANNEXURE 2/1. Access Point- Type 1/i	Must have at least one 5 Gbps Ethernet interface.	Must have at least 2 x 5/10 Gbps Ethernet interface.	**No Change**- Vendor should propose minimum or higher configuration is accepted
12	Pg 42 /ANNEXURE 2/1. Access Point- Type 1/vii.	Access Point shall support tri radio operation with 4x4 MIMO on all three radio interfaces and MU-MIMO technology with option to combine the 2 radios to operate on 8x8 operation.	Access Point shall support tri radio operation with 4x4 MIMO on all three radio interfaces 2.4GHz,5GHz, and 6GHz With MU-MIMO technology with option to combine the 6Ghz radio to operate as dual 5GHz 4x4 radio.	**No Change-** Vendor should propose minimum or higher configuration is accepted
13	Pg 42 /ANNEXURE 2/1. Access Point- Type 1/x.	Access Point shall be able to power up using 802.3at power with full radio operation.	Access Point shall be able to power up using 802.3at power with full radio operation of 12 Spatial streams and transmit power upto 22dBm	**Relaxed-** Access Point shall be able to power up using 802.3at power with full radio operation of 12 Spatial streams and transmit power upto 22dBm *(Revision on Pg 42 of revised Tender)*
14	Pg 42 /ANNEXURE 2/1. Access Point- Type 1/xii.	Access Point shall have dedicated radio/chipset for spectrum monitoring capabilities, WIPS and off channel RRM without compromising and using the client serving radios.	Access Point shall have dedicated 2x2 radio/chipset for spectrum monitoring capabilities, WIPS and off channel RRM without compromising and using the client serving radios.	**Relaxed-** Access Point shall have a dedicated radio/chipset 1x1/2x2 for spectrum monitoring capabilities, WIPS, and off-channel RRM without compromising and using the client-serving radios. *(Revision on Pg 42 of revised Tender)*

SI	Clause Pg Ref*	Original Clause	Requested Clause Change	Amendments if any
15	Pg 42 /ANNEXURE 2/1. Access Point- Type 1/xiv.	Access Point should have 1x 5gig Multigigabit Ethernet (RJ- 45) – IEEE 802.3bz	Access Point should have 2x 5/10 gig Multigigabit Ethernet (RJ- 45) – IEEE 802.3bz	**No Change-** Vendor should propose minimum or higher configuration is accepted
16	Pg 42 /ANNEXURE 2/1. Access Point- Type 1/xvii.	Must Support data rate up to 5gbps.	Must Support data rate up to 10gbps.	**No Change-** Vendor should propose minimum or higher configuration is accepted
17	Pg 43 /ANNEXURE 2/2.Access Points – Type 2/i	Must have at least one 2.5 Gbps Ethernet interface.	Must have dual ethernet interfaces with at least one 5Gbps Ethernet interface.	**No Change**- Vendor should propose minimum or higher configuration is accepted
18	Pg 43 /ANNEXURE 2/2.Access Points – Type 2/vii.	vii. The Access Point must have at least 4X4 MU-MOMO spatial streams on both 5GHz radio and 2.4GHz radio.	The Access Point must have at least 2X2 MU-MIMO spatial streams 2.4GHz radio and 4X4 MU-MIMO spatial streams on 5GHz radio	**Relaxed-** The Access Point must have at least 2X2 MU-MIMO spatial streams 2.4GHz radio and 4X4 MU-MIMO spatial streams on 5GHz radio *(Revision on Pg 43 of revised Tender)*
19	Pg 44 /ANNEXURE 2/2.Access Points – Type 2/xxxiii.	Access Point should have 1x 100, 1000, 2500 Multigigabit Ethernet (RJ-45) – IEEE 802.3bz	Access Point should have dual ethernet interfaces with atleast 1x 100, 1000, 2500, 5000 Multigigabit Ethernet (RJ-45) – IEEE 802.3bz	**No Change**- Vendor should propose minimum or higher configuration is accepted
20	Pg 44 /ANNEXURE 2/Necessary Licenses, warranty, and support for all access points/ii.	All the AP feature should be active post expiration of the subscription/license validity. All the features and signatures available at the time of expiration of license should continue to work. Renewal of licenses should be required only for new features, Visibility, configuration changes and updates/releases announced by the OEM after the contract expires.	All Next gen Wi-Fi solution across all vendors are subscription based, its only the legacy offering where no development work is happening is where the concept of perpetual license is there. Request you to allow subscription based wireless as well, incase the subscription runs out, all AP features, client operations will continue to run, admins are not allowed to make any configuration changes.	**No Change**- The vendor must propose a perpetual license.
21	Pg 45 /ANNEXURE 2/3.48 Port Non-PoE/specification/iv	Switch should have dedicated slot for modular stacking, in addition to asked uplink ports. Should support for minimum 48 Gbps of stacking throughput with 8 switches in single stack.	kindly remove stacking as it is a vendor proprietary technology, It creates an architecture which is unstable as it creates fate sharing among all switches which are in a stack. Stacking does not allow a multi-vendor environment.	**Relaxed**- Stacking/interconnection with ring-based topology to have minimum 48Gbps throughput or 20Gbps for Direct interconnects. All necessary interconnectors and cables must be supplied along with the switches up to a pod of 4 Switches. *(Revision on Pg 45 of revised Tender)*

SI	Clause Pg Ref*	Original Clause	Requested Clause Change	Amendments if any
22	Pg 45 /ANNEXURE 2/3.48 Port Non-PoE /performance/vii	Switch should have 6MB or more packet buffer.	Switch should have 4MB or more packet buffer.	**Relaxed-** Switch should have 4MB or more packet buffer. *(Revision on Pg 45 of revised Tender)*
23	Pg 45 /ANNEXURE 2/3.48 Port Non-PoE/functionality/vi	Switch should support IPv6 Binding Integrity Guard, IPv6 Snooping, IPv6 RA Guard, IPv6 DHCP Guard, IPv6 Neighbour Discovery Inspection and IPv6 Source Guard.	Switch should support: RFC 2460 Internet Protocol, Version 6 (IPv6) Specification RFC 2461 Neighbour Discovery for IP Version 6 (IPv6) RFC 2462 IPv6 Stateless Address Auto-configuration and RFC 2463 Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification	**Relaxed-** Switch should support RFC 2460 Internet Protocol, Version 6 (IPv6) Specification RFC 2461 Neighbour Discovery for IP Version 6 (IPv6), RFC 2462 IPv6 Stateless Address Auto-configuration and RFC 2463 Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification *(Revision on Pg 46 of revised Tender)*
24	Pg 45 /ANNEXURE 2/3.48 Port Non-PoE/functionality/vii	Switch should support 802.1x authentication and accounting, IPv4 and IPv6 ACLs and Dynamic VLAN assignment and MACSec-128 on hardware for all ports.	Kindly remove MACsec	**Relaxed-**Switch should support 802.1x authentication and accounting, IPv4 and IPv6 ACLs and Dynamic VLAN assignment *(Revision on Pg 46 of revised Tender)*
25	Pg 46 /ANNEXURE 2/48 Port Mgig switch/specification/iv	Switch should have dedicated slot for modular stacking, in addition to asked uplink ports. Should support for minimum 48 Gbps of stacking throughput with 8 switches in single stack.	kindly remove stacking as it is a vendor proprietary technology, It creates an architecture which is unstable as it creates fate sharing among all switches which are in a stack. Stacking does not allow a multi vendor environment further 2 models of different series from the same OEM also are not compatible to be stacked together.	**Relaxed-** Stacking/interconnection with ring-based topology to have minimum 48Gbps throughput or 20Gbps for Direct interconnects. All necessary interconnectors and cables must be supplied along with the switches up to a pod of 4 Switches. *(Revision on Pg 46 of revised Tender)*
26	Pg 46 /ANNEXURE 2/48 Port Mgig switch/functionality/Vi	Switch should support IPv6 Binding Integrity Guard, IPv6 Snooping, IPv6 RA Guard, IPv6 DHCP Guard, IPv6 Neighbour Discovery Inspection and IPv6 Source Guard.	Switch should support: RFC 2460 Internet Protocol, Version 6 (IPv6) Specification RFC 2461 Neighbour Discovery for IP Version 6 (IPv6) RFC 2462 IPv6 Stateless Address Auto-configuration and RFC 2463 Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification	**Relaxed-** Switch should support RFC 2460 Internet Protocol, Version 6 (IPv6) Specification RFC 2461 Neighbour Discovery for IP Version 6 (IPv6), RFC 2462 IPv6 Stateless Address Auto-configuration and RFC 2463 Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification *(Revision on Pg 47 of revised Tender)*

SI	Clause Pg Ref*	Original Clause	Requested Clause Change	Amendments if any
27	Pg 47 /ANNEXURE 2/48 Port Mgig switch/Interface/i	48 UTP 10/100/1000 Mbps and atleast 12 ports of mgig (1/2.5/5 Gbps) port POE+ switch with 4 SFP+ port layer-2, manageable switch having at least 740 W power budget for POE (Support POE+ on 12 ports concurrently)	48 UTP 10/100/1000 Mbps/2.5 Gbps and at least 8 ports of mgig (1/2.5/5 Gbps) port POE+ switch with 4 SFP+ port layer-2, manageable switch having at least 740 W power budget for POE (Support POE+ on all ports concurrently)	**Relaxed-** 48 UTP 10/100/1000 Mbps and at least 8 ports of Mgig (1/2.5/5 Gbps) ports, at least 4 ports should be 1/2.5 POE+ for connecting type1 and type 2 APs, and the switch should have at least 4 SFP+ port layer-2, manageable switch having at least 740 W power budget for POE (Support POE+ on all ports concurrently) with redundant power supply. *(Revision on Pg 47 of revised Tender)*
28	Pg 47 /ANNEXURE 2/Core switch/gen features/v	Switch should have dedicated slot for modular stacking, in addition to asked uplink ports. Should support for minimum 320 Gbps of stacking throughput with 8 switches in single stack.	kindly remove stacking as it is a vendor proprietary technology, It creates an architecture which is unstable as it creates fate sharing among all switches which are in a stack. Further stacking is never required on the core switches, stable technologies like VPC or MLAG are used on the core switches for Active Active layer2 ad 3 forwarding of the traffic.	**Relaxed-** Stacking/interconnection with ring-based topology to have minimum 48Gbps throughput or 20Gbps for Direct interconnects. All necessary interconnectors and cables must be supplied along with the switches up to a pod of 4 Switches. *(Revision on Pg 47 of revised Tender)*
29	Pg 48 /ANNEXURE 2/Core switch/performance/vii	Switch should have 16MB or more packet buffer.	Core switches have multiple 10G links coming in but only 1 or 2 1G or 10G links towards the WAN, this creates an incast issue where the outgoing port becomes a bottleneck for all the traffic ingress from south to north, its hence advisable to have decent size buffers 1 or 2GB to take care of this congestion, so that packet drops are due to congestion is taken care of.	**No Change-** Vendor should propose minimum or higher configuration is accepted
30	Pg 48 /ANNEXURE 2/Core switch/functionality/vii	Switch should support 802.1x authentication and accounting, IPv4 and IPv6 ACLs and Dynamic VLAN assignment and MACSec-256 on hardware*	Kindly remove MACsec	**Relaxed-** Switch should support 802.1x authentication and accounting, IPv4 and IPv6 ACLs and Dynamic VLAN assignment *(Revision on Pg 48 of revised Tender)*

SI	Clause Pg Ref*	Original Clause	Requested Clause Change	Amendments if any
31	Pg 48 /ANNEXURE 2/Core switch/Interface/i	12 SFP+ ports with 4 SFP+ ports layer-3 manageable 1G/10G/25G switch with dual power supply	Kindly clarify the port count, its 16 SFP+ 10G ports	**Relaxed-** 16 SFP+ ports layer-3 manageable 1G/10G switch with dual power supply *(Revision on Pg 48 of revised Tender)*
32	Pg 48 /ANNEXURE 2/Wireless Cotroller/hardware/ii	The controller shall support min 5 Gbps tunnelling capacity and shall be upgradable to 10 Gbps.	Tunnel aggregator devices/controller should support min 150 Gbps of tunnelling capacity.	**No Change-** Vendor should propose minimum or higher configuration is accepted
33	Pg 48 /ANNEXURE 2/Wireless Cotroller/hardware/iii	The controller shall support 2x 10G/Multigigabit copper uplink.	controller/tunnel aggregator device should support atleast 6 X 25G interfaces.	**No Change-** Vendor should propose minimum or higher configuration is accepted
34	Pg 49 /ANNEXURE 2/Wireless Controller/software/iii	The controller shall support Inter-Controller Wireless Roaming	The controller shall support Inter-Controller Wireless Roaming incase the controller can manage only upto 500 APs	**Relaxed-** The controller shall support Inter-Controller Wireless Roaming, or the controller should support at least 1000 Aps *(Revision on Pg 49 of revised Tender)*
35	Pg 49 /ANNEXURE 2/Wireless Controller/RF Management/iii	The controller shall support optimized, automatic channel width (20~160Mhz) selection over 5GHz, 802.11ac	Kindly remove this clause for wider OEM participation	**Relaxed-** The controller shall support optimized manual/automatic channel width (20~160Mhz) selection over 5GHz, 802.11ac *(Revision on Pg 49 of revised Tender)*
36	Pg 50 /ANNEXURE 2/Wireless Cotroller/BYOD /Vii	The controller shall support Content Security using DNS integration, Web Classification shall be fully customizable	Kindly remove this clause for wider OEM participation	**Relaxed-** The clause will be removed *(Revision on Pg 50 of revised Tender)*
37	Pg 55 /ANNEXURE 2/NMS/Performance/x	IP SLA data collection & processing: The Management System shall be able to collect IP SLA data from probes and store them and furthermore processing and presentation	IP sLA probes are cisco Proprietary - kindly remove this point	**Relaxed-** The clause will be removed *(Revision on Pg 54 of revised Tender)*
38	Pg 55 ANNEXURE 3/Passive	Many passive component technical specifications are missing.	Please add as this is essential to maintain certain quality standards.	The technical specifications for passive components are incorporated to Annexure 3. *(Revision on Pg 55-63 of revised Tender)*