

Email

Mohit Gupta

Fwd: Replacement of obsolete Layer-3 switches at NHRC

From : Sanjeev Sharma <ssa.nhrc@nic.in> Wed, Aug 28, 2024 12:54 PM
Subject : Fwd: Replacement of obsolete Layer-3 switches at NHRC 2 attachments
To : Mohit Gupta <programmer.nhrc@nic.in>

Sir/Madam,

For necessary actions please.

With best regards

Sanjeev Sharma
Senior Systems Analyst
National Human Rights Commission
Ph. 011-24663228

From: "Mahesh M Halyal" <mhalyal@nic.in>
To: "Sanjeev Sharma" <ssa.nhrc@nic.in>
Cc: "Devendra Kumar Nim" <js-nhrc@nic.in>, "SanjeevSharma SSA" <support.nhrc@nic.in>
Sent: Tuesday, August 27, 2024 12:21:56 PM
Subject: Re: Replacement of obsolete Layer-3 switches at NHRC

Dear Sanjeev ji,

PFA specifications of L3 switches as provided by NIC, Network team.

Also see the note below by Network team.

Enclosing the Generic specifications of L3 Switches (24 ports and 48 ports) for reference only. The user can change the specs as per unique site requirements, NIC will not verify any OEM specifications ,nor certify any OEM model/specs to work against these specifications.

सादर | Regards,

महेश एम. हल्याल | Mahesh M. Halyal
वरिष्ठ निदेशक (आई टी) | Senior Director (IT)
प्रभागाध्यक्ष | HoD (CVC, NHRC)
राष्ट्रीय सूचना-विज्ञान केंद्र | National Informatics Centre
नई दिल्ली | New Delhi | Contact : 7045503591

---- On Thu, 08 Aug 2024 11:43:41 +0530 **Sanjeev Sharma** <ssa.nhrc@nic.in> wrote ---

Dear Sir,

NIC designed the network for NHRC in the year 2013 which is operated from 2 Network Operation Centers (NOCs) at Ground and 2nd Floors of the NHRC Building for redundancy in network operations i.e each floor is connected with both NOCs. Each NOC is connected in NICNET using leased lines provided by Railtel and PGTL. NHRC installed network devices (CISCO make) such as Routers, Layer 3 switches, Layer 2 switches etc as per the specifications advised by the Network Division of NIC.

2. During last year, except 02 Layer-3 (Cisco 4506-E) switches, NHRC replaced all networking items with new items as they reached their end of life/ support. Details of new networking items are tabulated below:

Sno	Item	Description	Qty
i	Layer 2 Access Switch Rev 1	cisco-l2av1-c9200l-24p-4x-e-worps-wstk-5y	7
ii	Layer 2 Access Switch Rev 1	cisco-l2av1-c9200l-48t-4x-e-worps-wstk-5y	19
iii	Layer 2 Access Switch Rev 1	cisco-l2av1-c9200l-24t-4x-e-worps-wstk-5y	2
iv	Wireless Access Point Rev 1	cisco-wapv1 c9120axi-d-5y	37
v	Wireless Controller	ciscodnaadvantage	35
vi	Network Monitoring Software (Version 2.0)	cisco-nmsv2-pi-ucsm5-apl-k9-r-mgmt3x-n-k9-5y	1
vii	Router	cisco-r-isr4431k9-5y	2
viii	Small form-factor pluggable transceiver	cisco-sfpt-sfp-10g-sr-s-5y	6
ix	Fibre Optic Cable (Patch Cord) by M/s Molex India Pvt. Ltd		4

3. Recently, OEM has informed that AMC of the existing Layer-3 switches (Cisco 4506-E) beyond 05.09.2024 due to end of life of its main part (supervisor module). To avoid any discontinuity in network operations, NHRC wants to replace said 02 layer-3 switches with suitable network switches & items. In this regard, it is also relevant to mention that the nodes on Gr. and 2nd floors which are directly connected to respective Layer-3 switches do not get advantage of redundancy rather faces network disconnection if Layer-3 switches are under maintenance.

4. In view of the above background, OEM authorized partner was contacted to suggest the replacement & solution for above problem. Following solution has been advised:

- (i) existing 02 Layer-3 switches (Cisco 4506-E - three chaises model) may be replaced with 02 new Layer-3 switches (Cisco 9300X Layer-3 switch - single chaises model for fibre connectivity).
- (ii) nodes of Gr. and 2nd floors may be connected to Layer-2 Access switches as per the number of nodes and existing make & models of switches (CISCO 9200L) installed in the present network. These Layer-2 switches may be connected to both new Layer-3 switches for redundancy.
- (iii) This solution not only provides redundancy but also is cost-effective as the latest Layer-3 switches (Cisco 9407R) with three chaises are very costly in comparison to Layer-2 access

switches.

Tentative specifications and quantity of network items planned for procurement are below:

Sno	Part Number	Description	Qty
i	C9300X-24Y-A	Catalyst 9300X 24x25G Fiber Ports, modular uplink Switch	2
ii	C9200L-48T-4X-E	Catalyst 9200L 48-port data only, 4 x 10G, Network Essentials with stack cables	1
iii	SFP-10G-SR-S	10GBASE-SR SFP Module, Enterprise-Class	6
iv	GLC-TE	SFP Module UTP connectivity	2
v	Any reputed brand	2 Meters Fibre Patch cords	4
vi	Stack cables		2

5. Network Division of NIC may kindly be requested to suggest/ vet the replacement of obsolete Layer-3 network switches with new network switches & items as per the above mentioned requirement and specifications. CISCO make may be considered for compatibility with existing CISCO make networking items.

With best regards

Sanjeev Sharma
Senior Systems Analyst
National Human Rights Commission
Ph. 011-24663228, 9560093318



Disclaimer:

This e-mail and its attachments may contain official Indian Government information. If you are not the intended recipient, please notify the sender immediately and delete this e-mail. Any dissemination or use of this information by a person other than the intended recipient is unauthorized. The responsibility lies with the recipient to check this email and any attachment for the presence of viruses.

**L3 24 Port Switch Generic Specification.pdf**

179 KB

**L3 48 Port Switch Generic Specification.pdf**

180 KB

From : SanjeevSharma SSA <support.nhrc@nic.in>	Tue, Aug 27, 2024 12:39 PM
Subject : Fwd: Replacement of obsolete Layer-3 switches at NHRC	2 attachments
To : Mohit Gupta <programmer.nhrc@nic.in>	

Sir/Madam,

With best regards

Support Team
National Human Rights Commission
Ph. 011-24663410

From: "Mahesh M Halyal" <mhalyal@nic.in>
To: "Sanjeev Sharma" <ssa.nhrc@nic.in>
Cc: "Devendra Kumar Nim" <js-nhrc@nic.in>, "SanjeevSharma SSA" <support.nhrc@nic.in>
Sent: Tuesday, August 27, 2024 12:21:56 PM
Subject: Re: Replacement of obsolete Layer-3 switches at NHRC

Dear Sanjeev ji,

PFA specifications of L3 switches as provided by NIC, Network team.

Also see the note below by Network team.

Enclosing the Generic specifications of L3 Switches (24 ports and 48 ports) for reference only. The user can change the specs as per unique site requirements, NIC will not verify any OEM specifications ,nor certify any OEM model/specs to work against these specifications.

सादर | Regards,

महेश एम. हल्याल | Mahesh M. Halyal
वरिष्ठ निदेशक (आई टी) | Senior Director (IT)
प्रभागाध्यक्ष | HoD (CVC, NHRC)
राष्ट्रीय सूचना-विज्ञान केंद्र | National Informatics Centre
नई दिल्ली | New Delhi | Contact : 7045503591

---- On Thu, 08 Aug 2024 11:43:41 +0530 **Sanjeev Sharma <ssa.nhrc@nic.in>** wrote ---

Dear Sir,

NIC designed the network for NHRC in the year 2013 which is operated from 2 Network Operation Centers (NOCs) at Ground and 2nd Floors of the NHRC Building for redundancy in network operations i.e each floor is connected with both NOCs. Each NOC is connected in NICNET using leased lines provided by Railtel and PGTL. NHRC installed network devices (CISCO make) such as Routers, Layer 3 switches, Layer 2 switches etc as per the specifications advised by the Network Division of NIC.

2. During last year, except 02 Layer-3 (Cisco 4506-E) switches, NHRC replaced all networking items with new items as they reached their end of life/ support. Details of new networking items are tabulated below:

Sno	Item	Description	Qty
i	Layer 2 Access Switch Rev 1	cisco-l2av1-c9200l-24p-4x-e-worps-wstk-5y	7
ii	Layer 2 Access Switch Rev 1	cisco-l2av1-c9200l-48t-4x-e-worps-wstk-5y	19
iii	Layer 2 Access Switch Rev 1	cisco-l2av1-c9200l-24t-4x-e-worps-wstk-5y	2
iv	Wireless Access Point Rev 1	cisco-wapv1 c9120axi-d-5y	37
v	Wireless Controller	ciscodnaadvantage	35
vi	Network Monitoring Software (Version 2.0)	cisco-nmsv2-pi-ucsm5-apl-k9-r-mgmt3x-n-k9-5y	1
vii	Router	cisco-r-isr4431k9-5y	2
viii	Small form-factor pluggable transceiver	cisco-sfpt-sfp-10g-sr-s-5y	6
ix	Fibre Optic Cable (Patch Cord) by M/s Molex India Pvt. Ltd		4

3. Recently, OEM has informed that AMC of the existing Layer-3 switches (Cisco 4506-E) beyond 05.09.2024 due to end of life of its main part (supervisor module). To avoid any discontinuity in network operations, NHRC wants to replace said 02 layer-3 switches with suitable network switches & items. In this regard, it is also relevant to mention that the nodes on Gr. and

2nd floors which are directly connected to respective Layer-3 switches do not get advantage of redundancy rather faces network disconnection if Layer-3 switches are under maintenance.

4. In view of the above background, OEM authorized partner was contacted to suggest the replacement & solution for above problem. Following solution has been advised:

- (i) existing 02 Layer-3 switches (Cisco 4506-E - three chaises model) may be replaced with 02 new Layer-3 switches (Cisco 9300X Layer-3 switch - single chaises model for fibre connectivity).
- (ii) nodes of Gr. and 2nd floors may be connected to Layer-2 Access switches as per the number of nodes and existing make & models of switches (CISCO 9200L) installed in the present network. These Layer-2 switches may be connected to both new Layer-3 switches for redundancy.
- (iii) This solution not only provides redundancy but also is cost-effective as the latest Layer-3 switches (Cisco 9407R) with three chaises are very costly in comparison to Layer-2 access switches.

Tentative specifications and quantity of network items planned for procurement are below:

Sno	Part Number	Description	Qty
i	C9300X-24Y-A	Catalyst 9300X 24x25G Fiber Ports, modular uplink Switch	2
ii	C9200L-48T-4X-E	Catalyst 9200L 48-port data only, 4 x 10G, Network Essentials with stack cables	1
iii	SFP-10G-SR-S	10GBASE-SR SFP Module, Enterprise-Class	6
iv	GLC-TE	SFP Module UTP connectivity	2
v	Any reputed brand	2 Meters Fibre Patch cords	4
vi	Stack cables		2

5. Network Division of NIC may kindly be requested to suggest/ vet the replacement of obsolete Layer-3 network switches with new network switches & items as per the above mentioned requirement and specifications. CISCO make may be considered for compatibility with existing CISCO make networking items.

With best regards

Sanjeev Sharma
Senior Systems Analyst
National Human Rights Commission
Ph. 011-24663228, 9560093318



**Disclaimer:**

This e-mail and its attachments may contain official Indian Government information. If you are not the intended recipient, please notify the sender immediately and delete this e-mail. Any dissemination or use of this information by a person other than the intended recipient is unauthorized. The responsibility lies with the recipient to check this email and any attachment for the presence of viruses.

 **L3 24 Port Switch Generic Specification.pdf**
179 KB

 **L3 48 Port Switch Generic Specification.pdf**
180 KB

Generic Technical Specifications of 24 Ports L3 Switch	
Form Factor	
19" Rack Mountable	
Architecture	
The switch should have sufficient RAM/DRAM/flash memory or more to support multiplesoftware images for backup purposes, log report and future scalability.	
The switch throughput of minimum 800 Gbps or more	
Traffic handling capacity should be minimum 650 Mpps	
The switch should have Redundant Power supply	
Should have minimum 100k IPv4, 50k IPv6 routes and 8k Multicast Routes	
All modules/ SFP, fan trays & Power supplies should be hot swappable	
Interfaces	
Should have Minimum 24 x 1/10 Gbps SFP from day 1 (loaded with 6X10G MM, 4X10G SM 10km, 9X1G SM 10km, 5X1G RJ-45 SFPs) **	
Should support minimum 2 x 40/100 Gbps Uplink Interfaces	
Protocols	
Should have SVIs, Routed-Layer-3 interfaces (with more than one IP address per port, per SVI), static routing, RIP, OSPF, OSPFv3, uRPF, VRRP, PBR, IP SLA/RPM or equivalent, PIM, PIM SSM, BGP, IS-IS	
Should support IEEE Standards 802.1D, 802.1s, 802.1w, 802.1x, 802.3ad, 802.1ae, 802.3x, 802.1p, 802.1Q,802.1ak, 802.1AB, 802.1ad, 802.1Q-Q, 802.3ab, 802.3z, 802.3ae	
Should support VRF-lite/VRF/virtual router	
Should support minimum 64K MAC Addresses and 4000 active VLANs	
Should Support Access List/Firewall Filters, QoS, Policy based routing, IPv6, SSHv2, SNMPv2c, SNMPv3, NTP, RADIUS and TACACS+, Jumbo frame.	
Switch should support high availability through Clustering/stacking of switches OR should support MC-LAG	
Security	
Should Support 802.1x authentication and accounting, IPv4 and IPv6 ACLs, Dynamic VLAN assignment andMACSec-128 minimum on uplink ports.	
Should Support IP Source Guard, 802.1x, DHCP Option 82 or equivalent, Dynamic ARP Inspection (DAI), MAC Limiting, Sticky MAC or equivalent, Proxy ARP	
Should Support IPv6 Security IPv6 RA Guard, IPv6 DHCP Guard/DHCP snooping, IPv6 Neighbor Discovery Inspection and IPv6Source Guard	
Should Support Telemetry & Visibility using Netflow/jflow/sflow, SPAN, RSPAN /Remote Port Mirroring	
Should support SDN functionality using open APIs/NETCONF/RESTCONF using YANG/XML data models for external tools to automatically provision network resources/configuration	
Should support QOS 802.1p class of service, marking, classification, policing and shaping and minimumeight egress queues	
The switch/ switch series should be EAL3/NDPP/NDcPP certified under Common Criteria	
Switch should support operating temperature ranging 0 (or lower) to +40 (or higher) degree centigrade, relative humidity: 10% to 85% non-condensing	
Warranty & Support	
5 year warranty & 7 years support from the date of delivery. **	

****As per the requirement of Department.**

Generic Technical Specifications of 48 Ports L3 Switch
Form Factor
19" Rack Mountable
Architecture
The switch should have sufficient RAM/DRAM/flash memory or more to support multiplesoftware images for backup purposes, log report and future scalability.
The switch throughput of minimum 1.3 Tbps or more
Traffic handling capacity should be minimum 1000 Mpps
The switch should have Redundant Power supply
Should have minimum 100k IPv4, 50k IPv6 routes and 8k Multicast Routes
All modules/ SFP, fan trays & Power supplies should be hot swappable
Interfaces
Should have Minimum 48 x 1/10 Gbps SFP from day 1 (loaded with 12X10G MM, 8X10G SM 10km, 18X1G SM 10km, 10X1G RJ-45 SFPs) **
Should support minimum 2 x 40/100 Gbps Uplink Interfaces
Protocols
Should have SVIs, Routed-Layer-3 interfaces (with more than one IP address per port, per SVI), static routing, RIP, OSPF, OSPFv3, uRPF, VRRP, PBR, IP SLA/RPM or equivalent, PIM, PIM SSM, BGP, IS-IS
Should support IEEE Standards 802.1D, 802.1s, 802.1w, 802.1x, 802.3ad, 802.1ae, 802.3x, 802.1p, 802.1Q,802.1ak, 802.1AB, 802.1ad, 802.1Q-Q, 802.3ab, 802.3z, 802.3ae
Should support VRF-lite/VRF/virtual router
Should support minimum 64K MAC Addresses and 4000 active VLANs
Should Support Access List/Firewall Filters, QoS, Policy based routing, IPv6, SSHv2, SNMPv2c, SNMPv3, NTP, RADIUS and TACACS+, Jumbo frame.
Switch should support high availability through Clustering/stacking of switches OR should support MC-LAG
Security
Should Support 802.1x authentication and accounting, IPv4 and IPv6 ACLs, Dynamic VLAN assignment and MACSec-128 minimum on uplink ports
Should Support IP Source Guard, 802.1x, DHCP Option 82 or equivalent, Dynamic ARP Inspection (DAI), MAC Limiting, Sticky MAC or equivalent, Proxy ARP
Should Support IPv6 Security IPv6 RA Guard, IPv6 DHCP Guard/DHCP snooping, IPv6 Neighbor Discovery Inspection and IPv6Source Guard
Should Support Telemetry & Visibility using Netflow/jflow/sflow, SPAN, RSPAN /Remote Port Mirroring
Should support SDN functionality using open APIs/NETCONF/RESTCONF using YANG/XML data models for external tools to automatically provision network resources/configuration
Should support QOS 802.1p class of service, marking, classification, policing and shaping and minimumeight egress queues
The switch/ switch series should be EAL3/NDPP/NDcPP certified under Common Criteria
Switch should support operating temperature ranging 0 (or lower) to +40 (or higher) degree centigrade, relative humidity: 10% to 85% non-condensing
Warranty & Support
5 year warranty & 7 years support from the date of delivery. **

**As per the requirement of Department.