
\Orchestrating a brighter world
NEC
NETWORK OPERATION ENGINE (NOE)
NEW ENHANCED VERSION

AT A GLANCE

NEC's Network Operation Engine (NOE) provides network automation and virtualization managed through an easy-to-use management interface. It simplifies day to day network management with drag-and-drop network configuration and high-availability resulting in a secure, flexible and centrally configurable enterprise campus network.

NOE allows the creation of multiple virtual networks (using a single common physical network) for each category of devices, and create the optimal configuration and isolation for each virtual network:

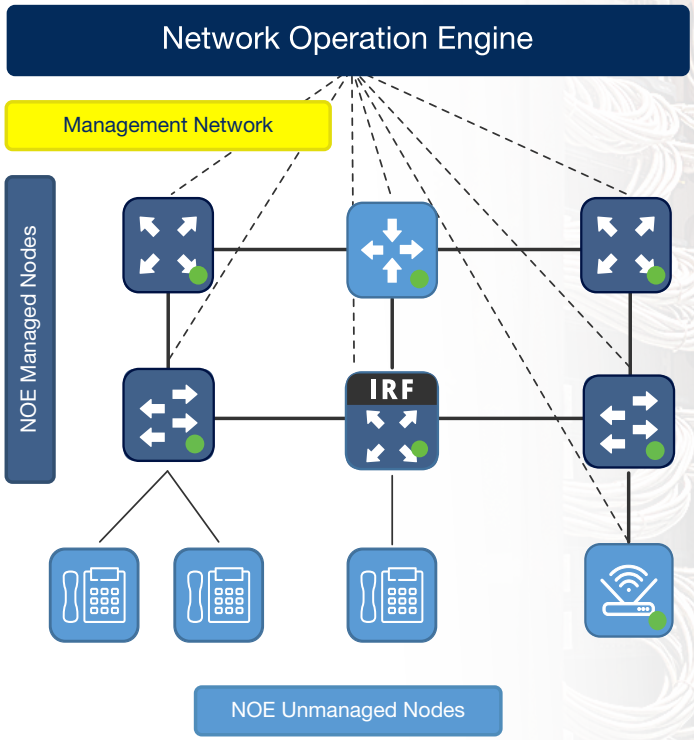
> Access to local cloud for residents but not for guests– future proofing your technology
> Isolation of cameras and other IoT devices to improve security
> Low latency, low jitter voice and video networks

As compared to traditional networks, NOE provides abstraction and automation of L3 virtual networks.

Devices can be easily added/migrated throughout the virtual network from a central management interface without requiring changes in the physical network



HIGHLIGHTS



EASE OF OPERATION

> Traditional networks typically require configuring each network element (switch, router) independently from its Command Line Interface (CLI), leaving the network operator the daunting task of creating and maintaining a full network model

> NOE's easy to use browser-based management interface displays

the full physical network topology and provides an intuitive view of the virtual networks

> This results in simple and fast installation, easy management and a more agile network, reducing the operation costs and duration

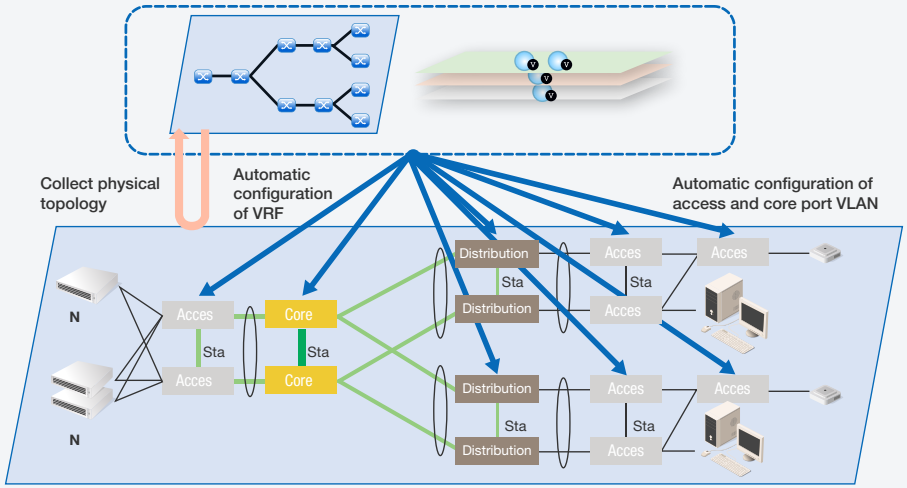
> "Automated bulk configuration" via a Graphical User Interface (GUI) operation eliminates misconfiguration or inconsistency in comparison to manual switch CLI operations

VIRTUAL L2/L3 NETWORKS

> Map physical topology for Virtual Local Area Network (VLAN) auto configuration and display in GUI

> Creates virtual L2 networks (automatically set the VLAN of the access switch)

> Creates virtual L3 networks (virtual L3 node added to virtual L2; automatically set Virtual Routing and Forwarding (VRF) of core switch)



VIRTUAL L2/L3 NETWORKS

MAIN PRODUCT FEATURES

NETWORK VISUALIZATION (PHYSICAL AND VIRTUAL):

> Network discovery through registered nodes via Simple Network Management Protocol (SNMP)/Link Layer Discovery Protocol (LLDP) (Node can be Router, L2/3, L2, AP, IP-Phone, Generic)

> Display interface information of links, Multilink and LAG

> User-configurable Node Icon

> Scheduler for Health-check, Audit

> Ability to grasp the device health and link status by health check or audit on-demand

> On-demand bandwidth usage monitoring

VIRTUAL L2:

> Virtual L2 network across single or multiple physical network device

> Automatically sets the VLAN of the access switch corresponding to the virtual L2 network

VIRTUAL L3:

> Virtual L3 network using VRF - A virtual L2 network is attached to a virtual L3 node

> Automatically sets VRF of core switch corresponding to virtual L3 network

NETWORK ISOLATION: VIRTUAL NETWORKS [FORMERLY VIRTUAL TENANT NETWORK (VTN)] CONSISTING OF VRF AND VLANS

AUTOMATIC L2 SETUP:

> Virtual L2 network sets VLAN and Access Control List (ACL) (flow filter) configuration
> VLAN setting on core ports (VLAN auto configuration)

AUTOMATIC L3 SETUP:

> Virtual L3 sets the static route on corresponding virtual router interface
> Virtual L3 sets DHCP relay function so that corresponding switch can relay DHCP packets
> Routing Table visualization / Advance Visualization: Display routing table, ARP table from WAN router/L3 SW; displaying change in state, and generate alarms

RADIUS AUTHENTICATION: USER AUTHENTICATION FROM LOCAL TO RADIUS SERVER

802.1X, STACKING, IPV6, ... (SUPPORTED BY QX SWITCHES)





SPECIFICATIONS

REALM	ITEM	UNIT	VALUE
Physical	Number of nodes that can be managed	Entire system	1,000
	Number of interfaces that can be registered	Entire system	48,000
	Number of entries learned in IP location information	Entire system	200,000
Virtual	Network Node Group	Entire system	16
	Virtual Network	Entire system	64
		Network Node Group	16
	Virtual Router	Entire system	16
		Virtual Network	1
	Virtual Switch	Entire system	4,000
		Virtual Network	1,000
	Virtual Router Interface	Entire system	4,000
		Virtual Router	1,000
	Mapping	Entire system	120,000
		Network Node Group	64,000
		Virtual Switch	1,000
	IP Address (Primary)	Virtual Router Interface	1
	IP Address (Secondary)	Virtual Router Interface	8
	DHCP Relay Server	Virtual Router Interface	8
	Static Route	Entire system	32,000
		Network Node Group	3,200
		Virtual Router	500

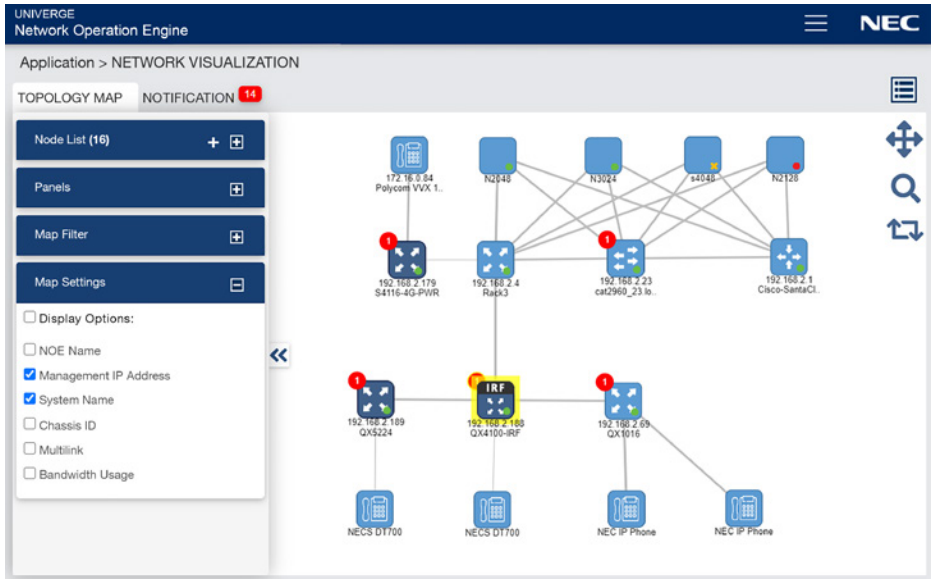
COMPATIBILITY

SWITCH MODEL	L2	L3
QX-S1000G - PoE and non-PoE	X	
QX-S4100 – PoE and non-PoE	X	
QX-S5200G – PoE and non-PoE	X	
QX-S4300X	X	
QX-S5800 (*)	X	X
QX-S6600 (*)	X	X

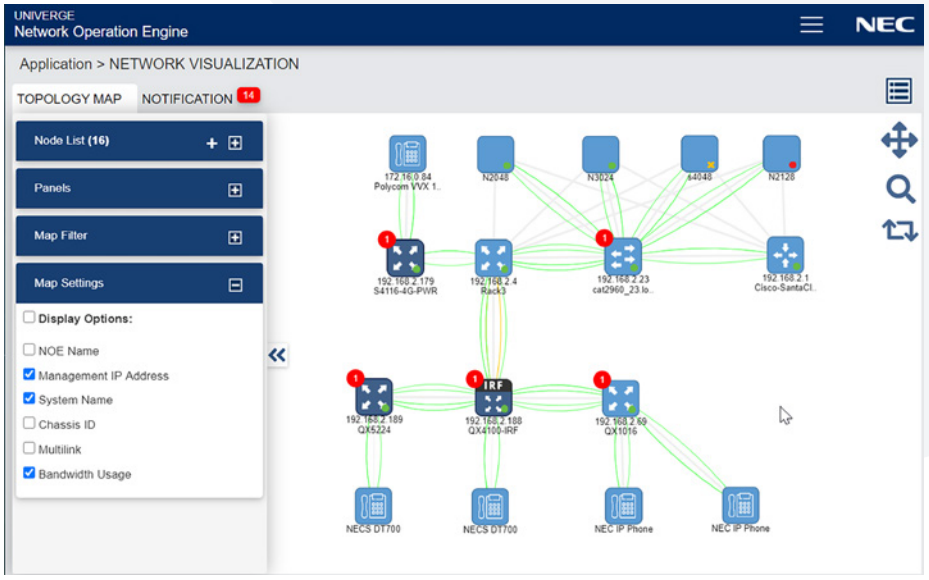
NOTES:
(*) Minimum one L3 switch must be included to enable the Virtual Network configuration.
Support for third party switches ensures smooth brown field deployments of QX switches

GUI

The GUI Dashboard shows the automatically discovered map of the network:



The status of the network is also displayed, with various levels of resolution:



OVER
$28 BILLION
REVENUE

75 MILLION
GLOBAL USERS

125+
COUNTRIES

#1
SMB & ENTERPRISE COMMS WORLDWIDE

GLOBAL 100
MOST SUSTAINABLE COMPANIES IN THE WORLD
(CORPORATE KNIGHTS)



LEADER IN
BIOMETRICS

RECOGNIZED AS A LEADER
BY FROST & SULLIVAN IN ENTERPRISE COMMUNICATIONS TRANSFORMATION

TOP 100
GLOBAL INNOVATORS
(THOMSON REUTERS)

4,000+
CHANNEL PARTNERS

107,000
TEAM MEMBERS
WORLDWIDE

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