

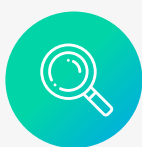
UfiSpace NetGence Network Management System (NMS)

Offers a single pane of glass for network-wide visibility and management. It incorporates rich monitoring and control tools to simplify and automate management of UfiSpace products, so you can achieve the highest levels of network performance and service assurance.

NetGence consists of a network management platform and FCAPS management, modular and containerized deployment for reducing costs and provisioning new services quickly.



Global Dashboard
Instantly see an in-depth view of your entire network.



Node Discovery
Automate detection and onboarding of NetGence managed devices.



Topology Viewer
Visually design, inspect and manage your network topology.



Network Provisioning
Enable devices to be configured by using the designated network protocol.



Network Analysis
Monitor key performance indicators. Generate report for analysis to optimize the network configuration.



Fault Management
Monitor network health with real-time notifications of preset or customized events.



Security Management
Ensure the system security with multiple security mechanism and flexible administrative control.

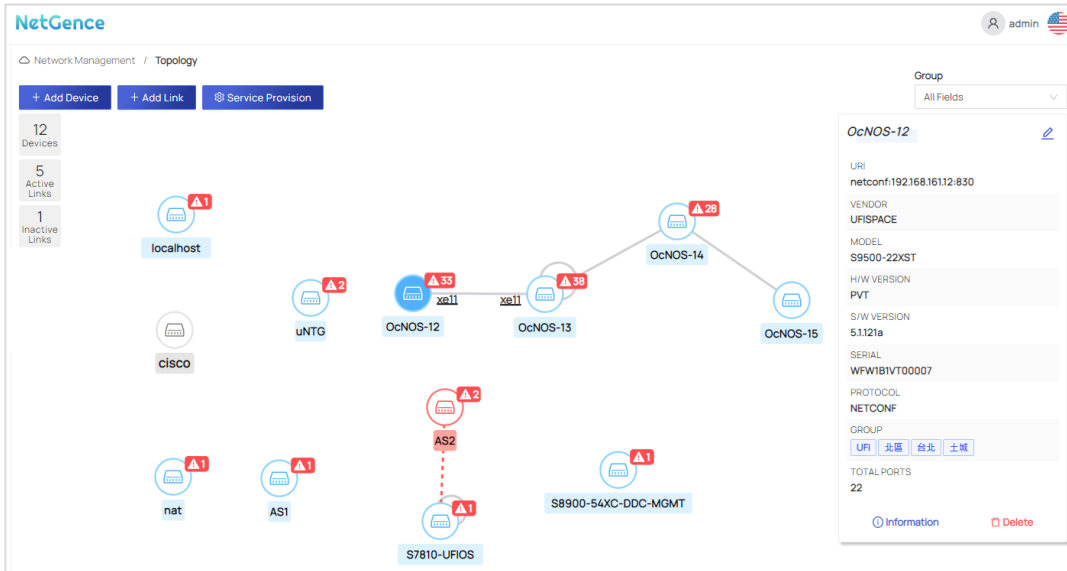


OSS Integration
Subscribe to forward inventory, alarms, topology, performance data to OSS system.



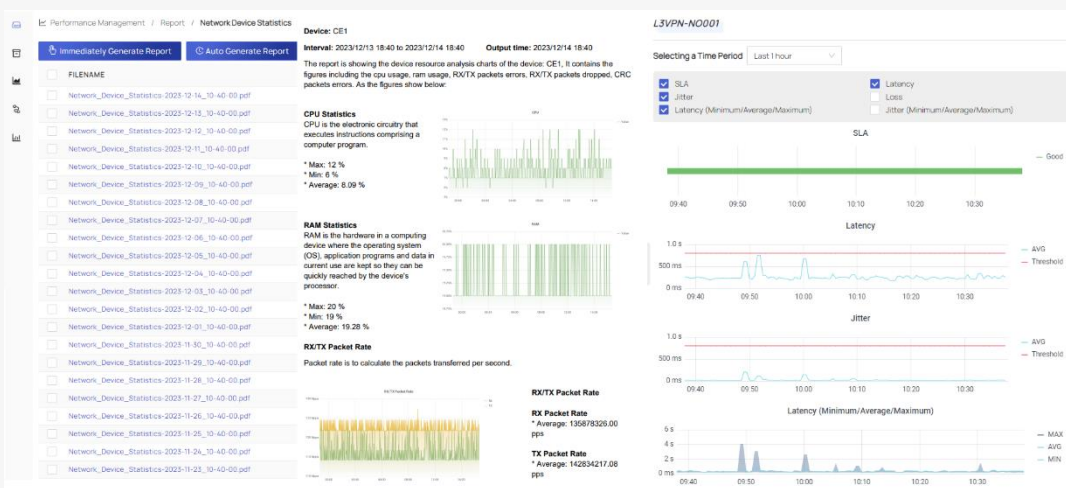
Key Highlights

Universal Network Control and Management



NetGenie provides an intuitive web 2.0 GUI to offer user-centered and holistic management experience over your network through a standard web browser. NetGenie consolidates network switch equipment information, statistics, traffic history and much more into user-friendly visual representations. It empowers network administrators with tools to build topologies, configure routing and services, monitor node status in real time.

Network Analysis



Monitor critical metrics such as fan speed, temperature, PSU status, port utilization, CPU usage, memory, traffic integrity, and more. Support for TWAMP enables the measurement of network performance, including packet loss, delay, and jitter, to optimize the network and ensure compliance with Service-Level Agreements (SLAs). Reports on network device status, inventory, port usage, link status, and Digital Diagnostic Monitor (DDM) not only assist in conducting analysis but also offer a comprehensive view of network utilization.

User-Friendly Visuals

Device Management / Devices / Dashboard

Device OcnOS-12 **ACTIVE** CPU: 12% Memory: 41%

Details

Basic Information

ID: netconf:192.168.16112:830
 Type: Switch
 Ports: 22
 Serial: WFWIB1VT00007
 Vendor: UFISPACE
 S/W Version: 5.1.201
 H/W Version: PVT
 Model: S9500-22XST
 Chassis ID: e8c57a8d6667
 Protocol: NETCONF
 IP Address: 192.168.16112
 OS: ocnos
 Driver: ocnos-netconf
 Master: NODE-3
 Site: UFI-YN2 永年2

Temperature

Sensor: 1 (Normal)
 Name: Temp_MAC
 Temperature: 37°C

Sensor: 2 (Normal)
 Name: Temp_CPU
 Temperature: 37°C

Sensor: 3 (Normal)
 Name: Temp_BMC
 Temperature: 28°C

Sensor: 4 (Normal)
 Name: Temp_DDR4
 Temperature: 27°C

Power Supply

Power Supply: 1 (Operational)
 Name: PSU0_POWEROK
 Type: Removable

Power Supply: 2 (Operational)
 Name: PSU1_POWEROK
 Type: Removable

Fan

Fan: 2 (Operational)
 Name: FAN_1
 Type: Removable
 Speed: 7700 RPM

Fan: 3 (Operational)
 Name: FAN_2
 Type: Removable
 Speed: 7600 RPM

Fan: 4 (Operational)
 Name: FAN_3
 Type: Removable
 Speed: 7500 RPM

Fan: 5 (Operational)

NetGenie provides administrators with a faster and more efficient way to configure their system and network switches. Complicated tasks like device on boarding, service deployment and network topology configuration are made easier with visual graphics and simple drag and drop settings. Tedious maintenance routines can be eliminated with NetGenie’s flexible task management tool, which automates upgrading and configuration processes in bulk. Device management and monitoring can be easily accessible with a virtual panel to easily configure each and every port.

Enhanced Security

Security Management / Audit Event

Time Range: Last 7 days [Refresh] [Export]

ALL (136)	LOGIN AUDIT (73)	DEVICE AUDIT (38)	GROUP AUDIT (0)	SITE AUDIT (0)	USER AUDIT (0)	CONFIGURATION AUDIT (25)
OCURRED TIME	USER	MODULE	EVENT			
2023-12-11 17:44:20	ufiadmin	Device Configuration	OcnOS-19 add PTP interface: ce1			
2023-12-11 17:43:53	ufiadmin	Device Configuration	OcnOS-19 add PTP instance: 0			
2023-12-11 17:43:31	ufiadmin	Device Configuration	OcnOS-19 delete a PTP instance: 0			
2023-12-11 17:32:24	ufiadmin	Device Configuration	Device: OcnOS-19 edit OSPF instance: 100			
2023-12-11 17:20:48	ufiadmin	Device Configuration	OcnOS-19 add PTP interface: ce1			
2023-12-11 17:20:10	ufiadmin	Device Configuration	OcnOS-19 delete a PTP interface: ce1			
2023-12-11 17:19:48	ufiadmin	Device Configuration	OcnOS-19 edit PTP interface: ce1			
2023-12-11 17:19:29	ufiadmin	Device Configuration	OcnOS-19 attempt to edit a PTP interface: ce1 failed (417) % Unconfigure master first if configured			
2023-12-11 17:04:25	ufiadmin	Device Configuration	OcnOS-17 add PTP interface: xe11			
2023-12-11 17:03:29	ufiadmin	Device Configuration	OcnOS-17 add PTP instance: 0			
2023-12-11 17:02:46	ufiadmin	Device Configuration	OcnOS-17 delete a PTP instance: 0			
2023-12-11 16:07:28	ufiadmin	Device Configuration	Device: OcnOS-17 delete ISIS interface ID: lo			
2023-12-11 16:07:28	ufiadmin	Device Configuration	Device: OcnOS-17 delete ISIS interface ID: xe11			
2023-12-11 14:38:09	ufiadmin	Device Configuration	Edit interface ce14 of device OcnOS-20			

NetGenie can be easily integrated to an organization network through LDAP. It enhances security and operational flexibility through role-based control workflows and multiple login accounts. Sensitive events and operations are recorded with detailed information for auditing purposes, ensuring compliance with policy enforcement and preventing security breaches.

Real-time Health Monitoring

ALARM TYPE	SEVERITY	HOSTNAME	OBJECT NAME	ALARM TIME	CANCEL TIME	STATUS	NOTE	USER	UPDATE TIME
MEMORY USAGE THRESHOLD PROBLEM	Alert (1)	OcNOS-12		2022-03-07 14:03:39		UNPROCESSED			2022-03-07 14:03:39
MEMORY USAGE THRESHOLD PROBLEM	Alert (1)	OcNOS-12		2022-03-07 14:01:15	2022-03-07 14:01:25	PROCESSED			2022-03-07 14:01:25
MEMORY USAGE THRESHOLD PROBLEM	Alert (1)	OcNOS-12		2022-03-07 14:00:19	2022-03-07 14:00:29	PROCESSED			2022-03-07 14:00:29
DEVICE PSU PRESENCE PROBLEM	Critical (2)	OcNOS-14	PSU1_POWERDC	2022-03-07 09:47:23		UNPROCESSED			2022-03-07 09:47:23
DEVICE FAN PRESENCE PROBLEM	Critical (2)	OcNOS-14	PSU1_FAN	2022-03-07 09:47:23		UNPROCESSED			2022-03-07 09:47:23
LDP SESSION PROBLEM	Critical (2)	OcNOS-14	xe18	2022-03-07 09:01:02	2022-03-07 09:02:07	PROCESSED			2022-03-07 09:02:07
LDP SESSION PROBLEM	Critical (2)	OcNOS-12	xe11	2022-03-07 09:00:48	2022-03-07 09:01:10	PROCESSED			2022-03-07 09:01:10
CONNECTIVITY PROBLEM	Critical (2)	OcNOS-12	xe11	2022-03-07 09:00:48	2022-03-07 09:00:48	PROCESSED			2022-03-07 09:00:48
LDP SESSION PROBLEM	Critical (2)	OcNOS-13	xe17	2022-03-07 09:00:48	2022-03-07 09:02:07	PROCESSED			2022-03-07 09:02:07
CONNECTIVITY PROBLEM	Critical (2)	OcNOS-13	xe17	2022-03-07 09:00:48	2022-03-07 09:00:48	PROCESSED			2022-03-07 09:00:48

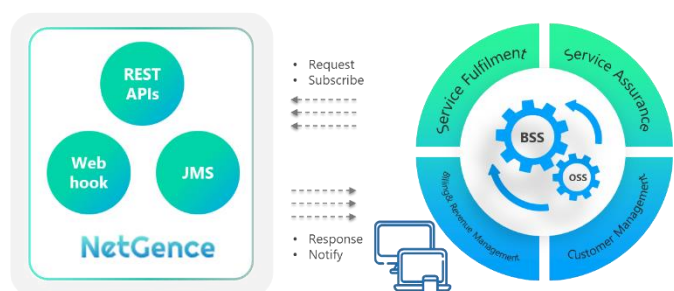
Monitor the health of your network and devices with flexible pre-defined or customizable event management. Real time events are consolidated in one place to provide a full view of your network performance and a priority tag manager to highlight which events need attention. A 3-year history database is provided with a powerful search tool to quickly lookup specific issues for analyzing. Alarms and event notifications ensures the administrator(s) be aware of any potential issue and response in real-time.

Flexible Interfacing Architecture

NetGence could be deployed on a single server or in a cluster for a pay-as-you-grow model to accommodate network scaling and optimized total cost of ownership (TCO). Its cluster architecture distributes service load and offers real-time failover mechanisms to ensure service continuity in any condition. It supports standard interfaces such as REST API to provide flexible and scalable northbound interfacing with client applications. Additionally, it supports SNMP and NETCONF for southbound interfacing to ensure interoperability with network equipment and facilitate efficient network management.

OSS Integration

Support both push and pull mechanisms for Operation Support System (OSS) integration, providing network performance data such as syslog, inventory, alarms, and topology, etc. Through a REST API interface, OSS can obtain network management information when needed. Additionally, a subscription-based model is implemented, enabling NetGence to notify OSS of any real-time changes.





NetGence Features

Basic Features

- Dashboard
- Web-based user interface
- Multiple language (US/TW)
- Support multiple southbound protocol (NETCONF/SNMP/REST)
- Search/Sort/Filter in data table
- Table data export
- Task scheduling management

Topology Management Features

- Auto discovery of network topology (LLDP)
- Display device and connection status
- Display traffic utilization
- Add virtual devices/links manually
- Show the connected edge devices
- Global sites map
- Clock synchronization topology

Device Management Features

- Auto discovery of devices
- Import devices from CSV or create manually
- Switch virtual panel
- Device allows grouping to accelerate management
- Device configuration auto-backup
- Comparison of device backup files
- Firmware upgrade (batch)
- Firmware repository version control
- Download firmware images and configuration file from repository via web UI
- Applying a script on multiple devices
- Web terminal
- Restart network devices remotely
- Configure device interfaces (IP address, MTU, speed, etc.)
- Clock synchronization (SyncE/PTP) settings

Network Management Features

- BGP/OSPF/ISIS network provisioning
- Provisioning of L2VPN and L3VPN services
- Circuit management
- Support custom script file to provision
- VPWS/VPLS/L3VPN statistics and topology

Fault Management Feature

- Abnormal alarm overview
- Alarm auto-clear
- Instant alarm notification (Email/SMS)
- Custom alarm search/filtering
- Archive alarms to historical database (automatic)
- Alarm details export
- Ack alarms and record the operations

- Alarm batch processing
- Multi-alarm window monitoring
- Receive and store syslog in log system
- Send alert notification by custom event
- Alarm re-notification
- Alarm severity customization
- Alarm synchronization
- Alarm merging
- Syslog/Alarm retention time

Security Management Features

- Audit events and operation logs
- LDAP Authentication
- User password security (ISO-27001)
- Multiple login account and role-based administrative controls

License Management

- NetGence license management
- NOS license management

Performance Management Features

- Port traffic graph and CRC errors
- Fan/PSU/Temperature statistics and real-time charts
- DDM statistics collection and real-time charts
- Custom analysis period of charts
- On-demand monitoring
- Network measurement (TWAMP)

System Management Features

- Group level mechanism for accessing right control
- Global site management
- User permission settings
- NMS Data Backup/Restore
- SMTP server settings
- SMS service provider settings

Reporting

- Network device status/statistics
- Inventory
- Port usage
- Network link status
- DDM (Digital Diagnostic Monitor)

Data Forwarding (OSS Integration)

- NB REST APIs
- Syslog forwarder
- Subscribe to forward inventory, alarms, topology and performance data to OSS system
- OSS heartbeat notifications

High Availability

- Geo-redundancy
- Load balancing
- Real-time failover
- Backup management



NetGence System Requirements

System Requirements

Containerized deployment eliminates limitation of OS and more scalability. For reducing costs and provisioning quickly.

Requirement	Mode	Configuration	Description
Hardware Requirements	Standalone	Configuration 1 up to 300 devices <small>2 sets for Active/Standby redundant configuration</small>	CPU: 16 cores (32 vCPUs) RAM: 64 GB DDR4 HDD: 2TB NIC for management: 10G network adapter
		Configuration 2 up to 500 devices <small>2 sets for Active/Standby redundant configuration</small>	CPU: 32 cores (64 vCPUs) RAM: 128 GB DDR4 HDD: 4TB NIC for management: 10G network adapter
		Configuration 3 up to 1000 devices <small>2 sets for Active/Standby redundant configuration</small>	CPU: 64 cores (128 vCPUs) RAM: 192 GB DDR4 HDD: 6TB NIC for management: 10G network adapter
		Configuration 4 up to 2000 devices <small>2 sets for Active/Standby redundant configuration</small>	CPU: 64 cores (128 vCPUs) RAM: 256 GB DDR4 HDD: 10TB NIC for management: 10G network adapter
	High Availability, Load Balancing	Cluster up to 500 devices	3 x sets equipment from Configuration 1 1 x RAID storage
		Cluster up to 1000 devices	3 x sets equipment from Configuration 2 1 x RAID storage
		Cluster up to 2500 devices	7 x sets of equipment from Configuration 2 1 x RAID storage

Requirement	Description
Software Requirements	Operating System: Ubuntu 22.04.3 LTS
	Docker: v24.0.7 (NetGence is distributed as a set of containers)
	Docker Compose: v1.29.2