



NetChange

Network Change Management

Highlights:

- Enhance visibility on network changes and activity
- Reduce operating costs by automating common administrative tasks
- Increase network uptime and availability by minimizing human errors
- Ensure SLA compliance through policy-based deployments
- Simplify network capacity planning process by identifying unused network resources
- Shorten troubleshooting sessions by clearer visibility of the network
- Enhance security and productivity through role-based rights delegation

Maintaining a network infrastructure is a tremendous challenge. Ensuring an accurate audit of the provisioned resources requires efficient processes and time, which many teams simply do not have due to their daily network configuration activities. Common tasks such as VLAN deployment and tagging are rarely delegated or automated, despite the considerable underlying cost they imply.

Worse, these manual yet basic operations can often have a major impact on business - human configuration errors are reported to be the cause of 80% of unplanned outages in IT environments¹.

NetChange from EfficientIP has been developed to address these issues, providing you with advanced discovery tools to monitor your provisioned network resources through useful available reporting, thanks to a central network management interface which also allows for the automation and delegation of basic network operations.

¹ IT Process Institute's Visible Ops Handbook

Why NetChange

By monitoring your network-provisioned resources such as IP addresses or switch ports, you are provided with the necessary reports to reclaim unused ones or order what's necessary to respect your capacity planning, in order to sustain your business needs.

NetChange dramatically reduces your network maintenance expenses by automating your daily network operations. It virtually eliminates costly downtime caused by basic configuration errors. You can delegate common administrative actions while remaining in control of your network, enforcing predefined policies and keeping track of every action through clear audit logs.

Through the centralizing and versioning of your network devices' configuration, NetChange provides you with a practical tool to quickly identify configuration changes over time, improving your capacity to troubleshoot configuration issues.

As NetChange interacts natively with your IP Address Management (IPAM) system, its perspective on the network is perfectly accurate, allowing you to easily identify inconsistencies through clear reporting.

With NetChange, your company can:

- Significantly improve the network provisioning process
- Stop using skilled employees for basic configuration tasks
- Monitor configuration changes for accountability
- Reduce the time spent on resource-draining troubleshooting sessions
- Centrally control and backup your entire network's configurations
- Track devices across your network to locate them in case of suspicious activity

Name	IP address	Space	Uptime	Number of ports	Ports usage	802.1X	Port-security	Status	Vendor	Type	Last updated	Analysis Time	Version
IGto10G-Interco	10.0.253.4	My_Company	279 d 0:29	56	64.3%	Disabled	Enabled	OK	Cisco	Cisco Catalyst 3750E-48TD	10/06/2019 13:09:36	19.834 s	12.2(50)SE2
ap	10.10.28.1	My_Company	173 d 23:41	3	66.7%	unsupported	unsupported	OK	Cisco	Cisco Aironet 1130	10/06/2019 13:09:36	7.334 s	12.4(10b)JDA3
CH-RONE11/1	10.4.255.16	Certilience	4 d 17:51	54	11.1%	unsupported	unsupported	Timeout	Huawei-3Com	Huawei-3Com Superstack4 5500-EIPWR-52	22/05/2019 13:34:55	None	3Com OS V3.02.00
CH-RONE11/2	10.4.255.16	Certilience	4 d 17:51	52	3.8%	unsupported	unsupported	Timeout	Huawei-3Com	Huawei-3Com Superstack4 5500-EIPWR-52	22/05/2019 13:34:55	None	3Com OS V3.02.00
CH-RONE11/3	10.4.255.16	Certilience	4 d 17:51	52	3.8%	unsupported	unsupported	Timeout	Huawei-3Com	Huawei-3Com Superstack4 5500-EIPWR-52	22/05/2019 13:34:55	None	3Com OS V3.02.00
CH-RONE11/4	10.4.255.16	Certilience	4 d 17:51	28	17.9%	unsupported	unsupported	Timeout	Huawei-3Com	Huawei-3Com Superstack4 5500-EIPWR-52	22/05/2019 13:34:55	None	3Com OS V3.02.00
CH-RONE11/5	10.4.255.16	Certilience	4 d 17:21	18	61.1%	Disabled	Enabled	Timeout	Cisco	Cisco Catalyst 3750G-16TD	19/02/2019 13:01:29	None	12.2(55)SE5
Cisco-3750-Intranet	10.0.42.1	My_Company	144 d 19:28	6	50.0%	unsupported	unsupported	OK	Cisco	Cisco 7204WR	10/06/2019 13:09:36	15.834 s	15.2(4)S4
cisco3750	10.0.253.15	My_Company	17322 d 11:37	17	82.4%	Enabled	Enabled	Timeout	Cisco	Cisco Catalyst 3750G-16TD	03/05/2016 15:31:59	None	12.2(55)SE5
CoreSwitch-Huawei	10.0.0.254	My_Company	143 d 17:37	48	66.7%	unsupported	unsupported	OK	Huawei-3Com	Huawei-3Com Quidway S5700	11/06/2019 04:02:52	None	5.150 (S5700 V200R0030)E1
demo2_ansiintranet	127.0.0.1	My_Company	17 d 18:42	1	100%	unsupported	unsupported	OK	EfficientIP	EfficientIP SOLIDServer	10/06/2019 13:09:36	8.77 s	
demo3cniintranet	10.0.20.180	My_Company	27 d 19:32	5	100%	unsupported	unsupported	OK	EfficientIP	EfficientIP SOLIDServer	10/06/2019 13:09:36	19.792 s	
esx02-devintranet	10.0.30.209	My_Company	269 d 19:11	133	30.8%	unsupported	unsupported	OK	VMware	VMware VMware ESXi	10/06/2019 13:09:36	2.36 s	
esx02-intranet	10.0.0.24	My_Company	255 d 20:56	11	45.5%	unsupported	unsupported	OK	VMware	VMware VMware ESXi	27/05/2019 13:10:19	2.382 s	
esx07-devintranet	10.0.50.109	My_Company	244 d 23:42	150	19.3%	unsupported	unsupported	Timeout	VMware	VMware VMware ESXi	07/05/2019 13:08:11	None	
esx07-intranet	10.0.253.3	My_Company	234 d 2:34	49	34.7%	unsupported	unsupported	OK	Huawei-3Com	Huawei-3Com Quidway S5700	10/06/2019 17:08:29	502.438 s	5.150 (S5700 V200R0030)E1
LeftSwitch	10.0.253.3	My_Company	5 d 23:39	6	50.0%	unsupported	unsupported	OK	pSense	enterprises.12325.1.1.2.1.1	10/06/2019 13:09:36	9.428 s	
pSense-Intranet	10.10.23.252	My_Company	182 d 0:36	8	25.0%	Disabled	Enabled	OK	HP	HP Procurve 2610-24	10/06/2019 13:09:36	9.522 s	
Procureve-2610	10.0.111.111	My_Company	233 d 22:38	33	30.3%	Disabled	Enabled	OK	Netgear	Netgear GS108T-200	10/06/2019 13:09:36	6.916 s	
ps-switch	10.10.13.252	My_Company	278 d 20:31	8	75.0%	Disabled	unsupported	OK	Netgear	Netgear GS108T-200	10/06/2019 13:09:36	7.696 s	
qa-switch	10.10.7.252	My_Company	192 d 14:37	8	12.5%	Disabled	unsupported	OK	Netgear	Netgear GS108T-200	10/06/2019 13:09:36	7.363 s	
sales-intranet	10.0.9.10	My_Company	14 d 15:7	1	100%	unsupported	unsupported	Timeout	EfficientIP	EfficientIP SOLIDServer	19/02/2019 13:01:29	None	
Summit-SITx	10.0.111.222	My_Company	234 d 19:36	20	35.0%	Enabled	unsupported	OK	Extreme	Extreme SummitSITx	11/06/2019 10:01:42	13.43 s	7.1.1 (Build 11) B01
support-switch	10.10.21.252	My_Company	21 d 4:28	8	75.0%	Disabled	unsupported	OK	Netgear	Netgear GS108T-200	10/06/2019 13:09:36	7.568 s	
Switch_Nomios	192.168.1.254	My_Company	8 d 1:11	31	32.3%	unsupported	unsupported	Timeout	Huawei-3Com	Huawei-3Com Superstack3 3226	22/05/2019 13:31:24	None	
TenGig-Switch	10.0.50.115	My_Company	279 d 1:6	24	75.0%	unsupported	unsupported	OK	enterprises.26543.1.7.4		10/06/2019 13:09:36	23.892 s	

NetChange: How It Works

Devices and Switch/Router Discovery

The NetChange discovery tool allows you to locally or remotely discover, identify and inventory the physical and virtual devices of your network, as well as their connections (IP/MAC/VLAN/Switch/Port/Name/ VRF). To do so, NetChange makes use of various protocols, such as CDP (Cisco Discovery Protocol), LLDP (Link Layer Discovery Protocol) and SNMP v1/v2c/v3, allowing the retrieval of many configuration items and states. While it uses network resources frugally to build this database, it is nonetheless a quick performer, capable of dealing with over 5000 devices per hour.

NetChange provides comprehensive visibility of network resources deployment and usage, delivering unparalleled control over an organization's network resources provisioning process, retrieving details about actual network configuration from switches and routers:

At device level (switches / routers)	At port and interface level
<ul style="list-style-type: none"> • Device name • Number of ports • MAC addresses • VLAN(s) • Routes and Route Distinguisher • VRF(s) 	<ul style="list-style-type: none"> • Port slot and ID • Port name • Port speed and duplex • Port POE information (capability / consumption) • Port status • Port traffic statistics • VLAN(s) tagged and untagged • IP addresses (IPv4 and IPv6) • VRF Name and Route Distinguisher

Enrich IPAM information

NetChange gathered information can be pushed towards other management modules. The routing table from a router can be pushed to the IPAM and routes transformed into networks and subnets. This allows quick population of automatically discovered subnets with total control over how they will fit in the IPAM repository. The VLAN database discovered from switches and routers can be pushed to the VLAN manager module of the IPAM in order for that one to be accurate. As global VLAN management is always complex, this push mechanism allows a control loop between what has been planned and what is actually implemented in the network.

Unified and Automated Network Configuration Management

NetChange easily integrates administrator-defined policies and automates their deployment, simplifying switch configuration using wizard-driven templates. It enforces best practices and ensures compliance with corporate rules. From a central location, you can systematically apply myriads of settings across all or select groups of switches. These settings include:

- VLAN allocations
- Port trunk assignment
- Port access
- 802.1x parameters
- Port speed and duplex
- Port description
- Port state (up/down)

Discovered Items VRF Mapping

With increasing virtualization being used in modern networks, discovery of network information requires strict mapping with the virtual domain they belong to. NetChange provides such mapping of devices with the VRF engine during the discovery process. The result is available directly in the repository and provides extended visibility over virtualized networks.

Network Configuration Delegation

NetChange provides easy, intelligent delegation to control who, how and where network devices are deployed. A common application of such capabilities is to provide low skilled operators the ability to manage the access network ports' configuration from the GUI, while administrators remain in charge of dealing with inter-switch ports, better known as trunk ports. Such setup reduces the risk of human errors and the related possible downtime, while providing quicker responses to the end users.

Network Configuration Backup & Versioning

NetChange also provides a centralized and versioned configuration backup tool. As errors are inevitable, this is a very useful solution to enhance troubleshooting capabilities, allowing you to compare your network's configurations at different points in time. This data often highlights the impacting modification, and ensures it can be corrected quickly.

Network Data Reporting

As NetChange is tightly integrated with the SOLIDserver™ DDI solution and its related modules such as VLANs and Device Manager, it offers all the necessary tools to compare the intended network's configuration with the real one. This allows a complete reconciliation between what is stored in the database, and what is configured on the various network devices.

The screenshot displays the NetChange web interface for comparing configurations. The left sidebar shows navigation options like Dashboards, IPAM, DHCP, DNS, NetChange, Network devices, Routes, VLANs, Discovered items, Configurations, Workflow, Device Manager, VLAN Manager, VRF, and Administration. The main area is titled 'Network devices: cisco-vrf.intranet' and shows a comparison between two versions of the configuration. The top version is 'cisco-vrf.intranet (10.0.42.1) 2019-01-17 11:51:16' and the bottom version is 'cisco-vrf.intranet (10.0.42.1) 2019-01-17 13:34:04'. The interface shows a list of configuration lines with line numbers (e.g., 4696, 4697, 4698) and corresponding configuration commands for various VRFs and interfaces. A 'Global search' bar is visible at the top right, and there are buttons for 'Download', 'Previous changes', 'Download diff', and 'Full diff'.

Providing comprehensive reports and helpful audit tools, NetChange will improve your capacity planning efforts, allowing you to: reclaim unused ports and IP addresses, track and document network configuration changes, correct inconsistent settings, detect IP address conflicts, and highlight unknown devices connected within your IP address spaces.

Network reports examples include:

- Detecting unauthorized MAC addresses or inconsistent MAC-IP address association for troubleshooting
- Reallocating unused IP(s) and network interfaces to avoid purchasing unnecessary, costly devices

Thanks to this massive gathering of information, NetChange’s SmartAlerts are able to notify you when network conditions exceed defined thresholds. These thresholds can be simple or very sophisticated, depending on the filters that you set (for example, you might want NetChange to notify you when a switch port occupancy rate is greater than 80% within a range of specific devices dedicated to VoIP services). SmartAlerts allows you to proactively react to your business’s growth before any problems arise.

NetChange IPLocator

Customers can license a version of NetChange called NetChange IPLocator, for basic inventory features only. These include discovery, identification and details on network devices, as well as reports and notifications. Otherwise, the full version of NetChange can be licensed, which provides NetChange’s full range of management and configuration functions.



NetChange/IPAM/DHCP Generate: data comparison

User: ipmadmin
Date: 28/06/2018 14:42

NetChange/IPAM/DHCP Data Comparison Report

NetChange devices not listed in the IPAM and/or the DHCP

IP address	MAC address	DNS name	Device/Slot/Port
10.0.6.55	34:17:eb:ea:8b:aa		LeftSwitch/0/25
10.0.45.45	00:1e:c9:b0:3b:4e		cisco3750/0/9

IP addresses associated with a different MAC address in the IPAM

IP address	MAC address	IPAM MAC address	Device/Slot/Port
10.0.6.99	08:00:27:47:ad:6f	08:00:27:f2:20:04	Procurve-2610/0/24
10.0.20.110	00:50:56:b5:29:62	00:0c:29:1e:6a:eb	cisco3750/0/7
10.0.100.101	00:69:0d:3d:1c:9a	ac:87:a3:07:d1:a1	CoreSwitch-Huawei/0/46

MAC addresses associated with a different IP address in the IPAM

MAC address	IP address	IPAM IP address	Device/Slot/Port
00:21:b7:11:a2:cb	10.0.0.8	10.0.30.19	CoreSwitch-Huawei/0/46
00:22:19:d5:0c:12	10.0.0.17	10.0.0.31	cisco3750/0/8



REV: C-200527

As one of the world’s fastest growing DDI vendors, EfficientIP helps organizations drive business efficiency through agile, secure and reliable network infrastructures. Our unified management framework for DNS-DHCP-IPAM (DDI) and network configurations ensures end-to-end visibility, consistency control and advanced automation. Additionally, our unique 360° DNS security solution protects data confidentiality and application access from anywhere at any time. Companies rely on us to help control the risks and reduce the complexity of challenges they face with modern key IT initiatives such as cloud applications, virtualization, and mobility. Institutions across a variety of industries and government sectors worldwide rely on our offerings to assure business continuity, reduce operating costs and increase the management efficiency of their network and security teams.

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