

## White Paper

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# Agile Network Management Keeping Up with Network Changes

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## Key Benefits

- Increases network uptime and availability by eliminating human errors
- Reduces operating costs by automating administrator tasks
- Ensures Service Level Agreement (SLA) compliance with policy-based deployments
- Identifies unused network resources for capacity planning
- Enhances security and productivity through role-based delegation

## EXECUTIVE SUMMARY

Knowing what devices are on the network, taking inventory of switches and switch port usage and distributing configuration changes across groups of network switches are typically time-consuming, labor-intensive chores. Personnel costs are high. Moreover, costs skyrocket when configuration errors happen. Even the most trivial configuration error can cause prolonged downtimes, can consume lengthy, unplanned troubleshooting sessions, can allow hackers access to your network or can violate your company's compliance rules.

Network change automation technology solves these problems, and more. Change automation accurately discovers and identifies devices. It learns myriads of details, from switch names to switch port allocations. It uses policies and rules to configure device settings. It intelligently alerts you to problems and issues that it finds on the network. And network change automation painlessly documents your network's configuration settings.

EfficientIP's NetChange automates a network administrator's switch and device management responsibilities. With it, an administrator can centrally control an entire network's configuration settings. NetChange enhances uptime and availability, reduces skilled resource personnel expenses, helps avoid unexpected troubleshooting efforts and supports capacity planning efforts. You can use it to authorize, monitor and track configuration changes. Furthermore, NetChange boosts security, accountability, compliance and productivity.

## How Much Downtime Costs?

Network configuration is a labor-intensive task requiring skilled, costly administrators. Unfortunately, configuration errors inevitably occur at the most inopportune times. These all-too-human errors result in expensive downtime, protracted troubleshooting efforts, embarrassing security breaches and exposure-to-lawsuit compliance issues. Reducing personnel costs, increasing productivity and minimizing risk are strategic, significant goals for any organization.

The IT Process Institute's Visible Ops Handbook reports that «80% of unplanned outages are due to ill-planned changes made by administrators («operations staff») or developers.» (Source: IT Process Institute)

A USA Today survey of 200 data center managers found that over 80% of these managers reported that their downtime costs exceeded \$50,000 per hour. For over 25%, downtime costs exceeded \$500,000 per hour. (Source: USA Today). Even the most trivial configuration error can cause prolonged downtimes, consume lengthy, unplanned troubleshooting sessions, allow hackers access to your network or violate your company's compliance rules.

You've seen the problem first-hand, in your own organization. Perhaps a well-intentioned person made some network changes to "fix" a performance problem. Maybe a less-than-perfectly-knowledgeable assistant tried to reset some configuration settings. Or possibly an expert, veteran network administrator simply overlooked some necessary step, misunderstood a change request or became distracted by an interruption while making a network configuration change.

Sometimes the problem resulting from the configuration error happens immediately. However, hours, days or weeks may elapse before you (or some users) notice the problem. Regular work halts while people troubleshoot the issue. The cost of the network downtime as well as the expense of having a team of skilled people thrashing about to solve the problem represent lost revenue and unplanned budget variances.

Virtually every company has at least one network downtime horror story that it would very much like to forget. But the effect of the downtime on the company's profitability remains indelibly recorded in the accounting ledgers.

## Automating Network Administration

### Cost reduction

Automating the configuration of a network dramatically decreases the time and expense that skilled personnel devote to network administration tasks. Instead of changing each switch's configuration settings one device at a time, an administrator can address all switches (or just designated switches, at the administrator's option). Tedious configuration changes that used to take most of a person-day to accomplish can be performed in just a few minutes. The network automation software ensures that the desired change is consistently applied across all affected switches, and the administrator gets virtually instant feedback that the changes are not only complete but also done correctly.

EfficientIP's NetChange automates network administration chores and provides immediate and significant savings in skilled resource personnel expenses.

### Reducing Downtime and Minimizing Security Risks

Because the network automation software ensures that the changes are consistently applied across all designated switches, the network administrator can have confidence that the newly-configured communication links work properly. The administrator also has some assurance that the configuration changes have not inadvertently created a security gap for hackers to take advantage of.

NetChange helps minimize errors and misunderstandings, and it boosts uptime and availability. It minimizes security risks. With NetChange, you also avoid stumbling into unplanned, resource-draining troubleshooting sessions.

### Documenting the Network for Compliance and Audit Purposes

Network automation software should support virtually all device models. It should have a learning algorithm for new devices, and the network automation software vendor should distribute frequent updates with specific support for new devices. It should use thresholds that you set to monitor network devices for error conditions. The software should give you useful, informative reports that document the network, should aid in capacity planning and should detect unknown devices that are using your IP address spaces.

NetChange documents your network in ways you'll especially appreciate. Because it organizes and simplifies network administration, you can use NetChange to authorize, monitor and track configuration settings on a network-wide basis. The result is enhanced security, accountability, compliance and productivity.

### Centralizing Network Administration

EfficientIP's NetChange quickly and accurately discovers network devices, and it gleans a wealth of detail about switches on the network. Through the NetChange central console, an administrator can control device configurations across an entire network, for all switches or for designated groups of devices.

NetChange also allows administrators to easily delegate the configuration of switches to their teams and therefore control network deployment.

## How NetChange Works

NetChange uses a special set of protocols to discover and configure network devices. These protocols are Cisco Discovery Protocol (CDP), Extreme Discovery Protocol (EDP), Link Layer Discovery (LLDP) and Simple Network Management Protocol (SNMP) v1/v2c/v3. NetChange is quick and responsive, yet it uses the network sparingly.

It learns such details as: switch names, port numbers, MAC address, VLAN numbers, DNS names, IP address, port speed, duplex transmission (half or full duplex), interface slot, VLAN of the interface, status (up or down), POE (capable/Watts used), uplink port IDs...

NetChange also tracks and reports on port occupancy and thus helps you reclaim unused ports and perform capacity planning.

For a particular designated group of network switches, or for all switches, NetChange configures VLAN allocations, port trunk assignment, port access, 802.1x parameters, port speed and duplex, port description and shutdown or activation of a port.

For new devices, NetChange contains a self-learning algorithm. Furthermore, EfficientIP distributes frequent new-device updates to NetChange.

NetChange offers Advanced Network Data Reconciliation Management:

- Tracking changes, detecting unauthorized MAC addresses, and executing quick and accurate troubleshooting
- Reallocating unused IPs and network interfaces to avoid purchasing useless, costly devices
- Identifying non compliant switch configuration and deployment

NetChange's SmartAlerts notify you when network conditions exceed thresholds that you set. The thresholds can be quite simple, or they can be quite sophisticated. For example, you might want NetChange to notify you when a DHCP occupancy rate is greater than 80% in a range of IP addresses that you've devoted to VoIP devices.

NetChange's comprehensive reports and helpful audits will improve your capacity planning efforts, let you reclaim unused ports and IP addresses, track and document network configuration changes, correct inconsistent switch settings, detect IP address conflicts and monitor bandwidth for uplink ports. NetChange will also highlight unknown devices that are using your IP address spaces.

## The Benefit of NetChange

EfficientIP's NetChange is an easy, comprehensive approach to automating network configuration.

- Increases network uptime and availability by eliminating human errors
- Reduces operating costs by automating administrator tasks
- Ensures Service Level Agreement (SLA) compliance with policy-based deployments
- Identifies unused network resources for capacity planning
- Enhances security and productivity through role-based delegation

## ABOUT EFFICIENTIP

EfficientIP solutions address organizations' needs to drive business efficiency through the innovative use of IT. Its unified management framework for DNS-DHCP-IPAM, devices and network configurations enhances security, availability and agility of the IT infrastructure. EfficientIP's solutions have been chosen by hundreds of the most demanding organizations across all industries.

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