

CASE STUDY

Increasing Network Operations Efficiency and Reducing Costs with Netcordia NetMRI

Sponsored by: Netcordia

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Executive Summary

IDC conducted a study of Netcordia's NetMRI network management product that included seven Netcordia customers from North America and Europe. These customers were able to improve service quality, reduce network management costs, and mitigate the risk of network failure through better management of change in their networks. Key findings from IDC's ROI research conducted with customers of NetMRI include:

- ☒ NetMRI allows customers to better utilize their existing staff. On average, NetMRI customers were able to avoid the future hiring of 2.5 personnel tasked with managing network configuration changes.
 - ☒ On average, customers experienced operational efficiency savings of \$203,207 per year.
 - ☒ The total three-year discounted benefit of NetMRI is \$830,566.
 - ☒ Netcordia NetMRI customers, on average, recouped their investment within four months with an ROI of 625%.
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Introduction

Netcordia is a privately held company, and its flagship product, NetMRI, is a network infrastructure management tool that primarily focuses on automating and managing the impact of change and configuration on network health. NetMRI highlights include:

- ☒ **Automation of configuration changes** enables network operations to shift from a manual configuration change process to an automated process that improves consistency and reduces the time it takes for configuration tasks. Furthermore, it ties network change with network performance, showing the impact of network changes on the health of the network.
- ☒ **Audit trail** enables companies to ensure changes are tracked and logged to meet compliance requirements. It can show what changed, where the change was, when it was made, and who made it.
- ☒ **Proactive management** enables auditing of the impact of configuration changes on the stability of the network and automatically analyzes network information against built-in expertise, rules, and policies to find potential issues before they impact the network.

- ☒ **Change detection** enables the monitoring and tracking of changes to the configuration of network devices.
- ☒ **Device discovery** enables companies to know what is running on their network and with what configuration.
- ☒ **Improved network stability** establishes consistency across network configurations based on corporate policy and a clear understanding of who is changing what, where, when, and why and ensures overall network stability.

Managing Network Infrastructure: The Challenge

Even without the challenges of tough economic times, the growing complexity of today's IP environments has made it very difficult to effectively manage the network infrastructure. Change has become a constant, and the ability to successfully manage that change and understand the impact has become next to impossible. The downside is that IT departments are reluctant to do frequent upgrades for fear of destabilizing the network and of being unable to correct the problem in a timely fashion.

While management strategy has evolved to include a combination of large system management solutions along with a mix of ad hoc tools for solving very specific tasks, rarely does the strategy provide a holistic approach toward managing change across the network. Because network stability is dependent upon effective change management, there is an opportunity to improve and optimize current change management practices. Today, too much of the process in managing change across the network is manual. For example, every time a change is rolled out, an engineer — or several engineers — must be tasked to update each individual device. This process not only is time consuming but also creates greater risk of generating configuration errors, which introduce potential risk to the stability of the network. Avoiding the introduction of errors and increasing operational efficiency are achieved through automation.

Benefits of Automation

Automation can provide the following benefits:

- ☒ Enforces policies to ensure that consistent configuration changes are pushed out to network devices
- ☒ Enables a single engineer to push out changes to multiple devices in much less time than it would take to manually configure each device
- ☒ Frees up more senior staff to do more business-critical work and allows more junior staff to manage configuration updates as their work can be monitored
- ☒ Provides the first step toward introducing a formalized process for managing change in the network

When organizations lack a formalized process for managing changes, they have difficulty knowing who made changes to devices on the network and what the changes were. All too often, too many hands are touching and changing configuration parameters without any shared knowledge or awareness of others' efforts. This leads

to a potential point of failure. Failures could be reduced by monitoring changes, tracking them, and remediating them if necessary. These practices would also improve mean time to repair (MTTR).

IT departments need tools that will enable the proactive management of change within their networks. Manually executing upgrades to the network requires an extensive amount of time considering the number of devices on the network. In the current economic climate, maximizing staff efficiency and productivity also makes automation a necessity. In addition, as compliance requirements become more commonplace, companies will need to document network changes to ensure they remain within regulations.

Business Value of Netcordia NetMRI

Study Demographics

IDC interviewed seven Netcordia customers whose businesses are located in North America and Europe. The companies operate in industries including education, agriculture/chemical, IT services, business services, and public sector. Table 1 shows the customer demographics.

TABLE 1

Netcordia NetMRI Customer Demographics

Average number of employees		7,717			
Average number of IT staff		97			
Average number of NetMRI operators		7			
Geographies		North America, Europe			
	Industry	Geography	Number of Employees	Number of IT Staff	Number of NetMRI Users
1	Technology	Europe	20,000	–	10
2	Education	North America	18,000	200	8
3	Education	North America	15,000	200	7
4	Agriculture/Chemical	North America	10,000	200	7
5	Business Services	North America	2,800	9	3
6	Military	North America	2,000	35	5
7	Education	North America	500	40	6

Source: IDC, April 2009

Deployment

In this study, the average deployment lasted 9.3 hours and ranged from half an hour to 24 hours. Several customers noted the ease of deployment. One manager said, "It wasn't hard to set up at all — it took a few hours. We spent about a week customizing it, and I was getting basic readings within a day after that." One customer noted that "we chose NetMRI because it is easy to manage, provides a score on the network's health, and does not impact the network while it runs."

Benefits of Netcordia NetMRI

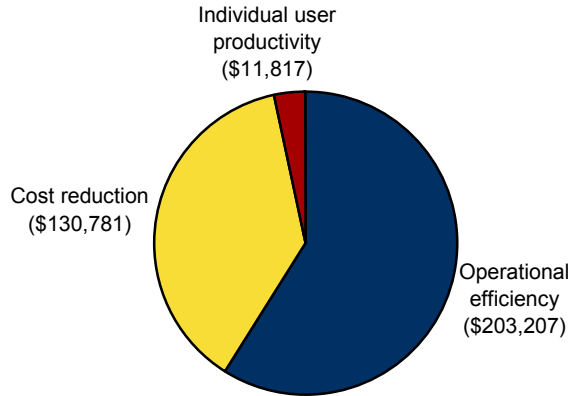
Benefits from the NetMRI solution are concentrated in four areas:

1. **Operational efficiency.** NetMRI allows operations to become more efficient through the automation of configuration tasks. The time to execute configuration changes is reduced, and operational efficiency is increased. Prior to the NetMRI deployment, tasks were performed manually, requiring each change to be repeated over time, which increases the risk of creating configuration errors. Now changes can be made once, correctly, and pushed out across multiple devices. This greatly reduces the time it takes to do configuration and maintenance updates.
2. **Staff optimization.** The increased operational efficiency enabled Netcordia NetMRI customers to reduce future hires in personnel required to execute configuration changes. In addition, network operations has the opportunity to redeploy existing staff. For example, more junior staff can be used to do the configuration changes since the process can be tracked and monitored. Likewise, more senior staff can be reassigned to work on more business-critical projects. This was a common theme among the customers IDC interviewed.
3. **Compliance.** More rigid regulatory guidelines are making compliance a growing concern for companies since they must remain within these guidelines or face financial penalties. In the current economic crisis, avoiding additional costs is driving the demand for policy compliance. NetMRI reports can be aligned with Sarbanes-Oxley (SOX), PCI, and other policies to ensure a business remains in compliance.
4. **Improved network stability.** Configuration errors can create an unstable network. Neglecting maintenance upgrades and configuration changes can both destabilize and degrade network performance. Change that is effectively managed leads to better-running networks, and as a result, organizations experience less downtime and higher user productivity.

Figure 1 quantifies the average annual benefits of Netcordia NetMRI across the four aforementioned categories. Compliance is included in the cost reduction category.

FIGURE 1

Average Annual Benefits of Netcordia NetMRI



Total = \$345,805

Source: IDC, April 2009

Operational Efficiency

Netcordia NetMRI customers improved their operational efficiency in three ways: moving from a manual configuration process to an automated process, monitoring and detecting changes in the network from a single console, and reducing time to perform audits.

Automation

In the past, many customers executed change management and inventory management tasks manually. There was no audit trail of when changes were made, who made the changes, and what the changes were. Also, changes were made inconsistently across devices, which introduced errors and potential points of failure into the network. An automated process allows changes to be made correctly, the first time. Configurations are also automatically backed up. With regard to the impact on staffing, because tasks are automated, junior staff can be assigned to perform routine maintenance, and their work is monitored.

Monitoring and Reporting of Changes in the Network

The ability to monitor and detect changes was a significant operational benefit for all the customers in this study. One manager said, "We used to spend anywhere from two to eight hours every time we needed to go see if a domain had been changed and who did it. We had to make phone calls to figure out who actually touched it, and what they changed. But now, we spend only about 15 minutes." Since the deployment

A NetMRI customer estimates that it is saving 70% of staff time since the deployment. Four staff members are now engaged in more business-enabling roles.

On average, customers are saving 195 hours per year on change management tasks.

Total operational efficiency savings equal \$203,207 on average.

of NetMRI, it is easier for customers to find changes in the network and correct them, if needed, because all of the change information is saved and archived in the system.

One company in the study is avoiding "seven to eight events per month since the deployment," as reported in the interview. Another participant mentioned the resulting time savings for IT staff: "Before, we would be looking at one or two engineers having to find out what the problem was, then fix those errors. At three to four hours per incident for two bodies, NetMRI is saving us a lot." Operations no longer manually manage issues such as software revisions, configuration issues, trunk interface terminations, or user status. One manager said, "Before, we would have one guy dedicated for two to three days per month. Now that information is presented in a report — it only takes about 10 minutes."

Auditing

Customers are saving several hours per week for network audits. In the past, operators would have to review and collect the data subjected to the audit. Since the deployment, however, Netcordia NetMRI gathers this information in real time and quickly produces reports. As one manager said, "NetMRI pretty much gathers all the stuff on its own; you really don't spend any time on that now — it's all set up."

Another manager said, "Enterprisewide, we can click a button and within three or four minutes produce a report [from NetMRI]. We only need to do that once or twice a year, but we could do it daily if we wanted to."

On average, customers in this study are saving 107 hours per year in auditing time.

Staff Optimization

Managing a large number of devices manually is extremely time consuming and error prone. Through automation, Netcordia NetMRI customers reduce the time it takes to perform routine maintenance tasks. This allows staff to be freed up for other tasks. Without NetMRI, network operations would require more technicians to maintain the same level of performance; with NetMRI, customers are able to avoid hiring an average of 2.5 new staff. One manager said, "Without this, I would either need more people, or it would be more difficult to keep the network up and running. We would have to hire three more people to keep the same level of service. We are entering the era of 'do more with less,' and NetMRI is the device that's going to help us do that."

Average annual cost reduction from avoided hires is valued at \$130,781.

Compliance

Compliance is a growing concern, and IT departments are responsible for ensuring that companies meet compliance requirements. Customers that are subject to SOX and PCI regulations benefit by preventing costly compliance penalties. Netcordia NetMRI produces automated reports in which company data is congruent with SOX and PCI regulations. As a result, customers have saved several hours per audit in data search and report development time. Through the reporting mechanism, companies can quickly determine what devices are out of compliance and fix them.

Improved Network Stability

Because of the improved change management and the reduction in configuration errors, customers experience less network downtime. In the past, several customers either ignored errors or waited until calls were received by the help desk. By not monitoring the network, users would suddenly lose access to the system. Network operations would then investigate the problem and often rebuild the configurations from scratch — requiring several days of effort. The rebuild affected the majority of the users, and their productivity was impacted significantly. One customer mentioned that this type of severe downtime event happened at least twice per year, but since the deployment of Netcordia NetMRI, system outages of this degree no longer occur. This customer said in the interview, "If we didn't have NetMRI, we'd probably go back to the old model of having to rely on the users to tell us that there's a problem."

Since the deployment of Netcordia NetMRI, the network operations center (NOC) creates forecasts to predict when the system will experience critical errors that will likely cause significant downtime. As one manager said, "We're more proactive. By looking at the dashboard, when I see something that looks wrong — specifically on a router or a switch — I'm able to go in and fix or replace what is needed and prevent the thing from failing."

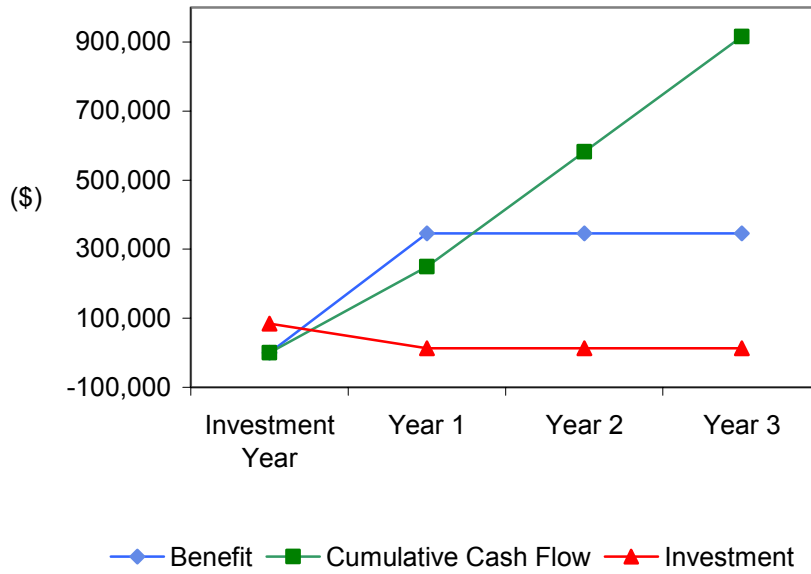
Once a company has established consistent change management practices, it will perform more frequent upgrades with confidence that the stability of the network will not be compromised. Several customers mentioned that prior to deploying NetMRI, they would examine each router's configuration manually, and, often, the technician was prohibited from making the required changes. Consistent change management policies and procedures have eliminated this issue.

Benefit of and Investment in NetMRI over Time

The benefit of and investment in Netcordia NetMRI over time are shown in Figure 2. Note that NetMRI customers experience a high-level benefit within the first year due to the rapid deployment time. The majority of the investments are made in the first year (investment year) in the model. This investment includes total purchase price (hardware and software) and staff hours required to deploy. The low annual investment in NetMRI is driven by ease of maintenance (an average of less than 30 hours per year).

FIGURE 2

Investment, Benefit and Cash Flow over Time



Source: IDC, April 2009

Return on Investment

IDC calculated an ROI (see Table 2) based on the benefit and investment data obtained in the seven interviews in this study (refer back to Table 1 for sample set description). On average, Netcordia NetMRI customers realize a return of \$6.25 for every dollar invested in the solution and payback occurs in four months. The average three-year discounted benefit is \$830,566.

TABLE 2

Three-Year ROI Analysis per 100 Employees

Benefit	\$830,566
Investment	\$114,528
Net Present Value (NPV)	\$716,038
ROI	625%
Payback (months)	4.0
Discount percentage	12%

Source: IDC, April 2009

ROI Methodology

IDC performs a three-step process to calculate the ROI and payback period:

1. Measure the benefits from staff efficiency, cost reduction, and user productivity since the deployment.
2. Ascertain the total investment made while deploying the solution (hardware, software, FTE requirements for deployment and annual maintenance, customization).
3. Project the investment and benefit over three years and calculate the ROI and payback for Netcordia NetMRI. The ROI is shown as the three-year NPV of the benefit divided by the discounted three-year investment. To account for the time value of money, IDC bases the ROI and payback period calculations on a 12% discounted cash flow.

IDC Considerations

While automation has been widely embraced both in the datacenter and for application management, it has not been as widely adopted in the NOC. Network configuration in the NOC remains stubbornly rooted in a manual process. The size of the networks and the shortage of trained operations staff make it imperative that automation find its way to greater adoption in the area of managing devices in the network.

To achieve higher levels of efficiency in the NOC, companies must replace manual processes with automated processes. IT departments should look more closely at the time that it takes to currently execute network configuration and maintenance tasks. Moreover, operations should look back through help desk logs and determine which network failures were due to configuration errors that could have been avoided.

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