# *Evaluating Internal and Outsourced Models for Network Monitoring*

**A White Paper By**

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# Introduction

Managing network availability and performance can be a difficult task for companies with limited IT resources and no real-time visibility into network status and related issues. In fact, nearly 70% of IT managers learn of network issues only after users contact them. On the business side, network downtime can cost a company up to $50,000 per hour. Factor in this the estimation that the core traffic in networks is growing at an average pace of 100 percent a year, and your issues increase exponentially.

An effective way to stay on top of your network and reduce downtime losses is through 24x7 monitoring of network components and end-to-end service quality.

Network monitoring provides the following benefits:

- Maximizes *network performance and availability* with 24x7 proactive monitoring of the network.
- *Identifies operational problems* by helping quickly determine if performance problems are caused at the hardware, operating system or application level before users detect them
- *Automatic Event Reporting* by sending critical information to the right people via alert notification.
- *Technical expertise* with respect to specialized toolsets, interpretation of alarms and recommendations for resolution.

Companies seeking to ensure network availability and performance can either develop an in-house Network Operations Center or engage a 3rd party NOC to provide remote monitoring services.

This white paper discusses both in-house and outsourced NOC options with respect to business and technical considerations.

# In-House NOC Option

An in-house NOC is appealing because it relieves the apprehension of losing direct control over a company's IT Infrastructure. This advantage, however, requires a heavy investment in tools, resources and maintenance.

Let's say your company wants to monitor and manage network support for 500 users over 3 years. To provide an adequate level of 24x7 monitoring support, you would need to employ 4

NOC staff members at a minimum (plus one to cover for one of the others in the event of vacation or illness).

You would also have to buy management software tools, the hardware to run them on, find the space to put the servers, and purchase maintenance on all of the hardware and software.

Once purchased, the tools then need to be integrated with the trouble ticketing system, the end user information and the notification and escalation systems. All monitoring personnel also require training on how to use the tools.

An in-house NOC must also be able to accommodate changes or additions to business requirements. A new IT technology may require a new management system or at least an integration into your existing systems; or your management systems providers will deliver a new version that has to be installed.

All of your management systems must be able to scale to accommodate the growth. Bear in mind that on average, most companies can experience growth of up to 20% annually.

The below table illustrates the estimated monthly costs for maintaining an in-house NOC:

Table 1. Estimated Annual In-House Monitoring Costs

| Qty. | NOC Requirements | Cost per unit | Total Cost |
|---|---|---|---|
| 5 | IT Support / Monitoring staff | $90,000 | $450,000 |
| 1 | Monitoring Systems Support Staff | $95,000 | $95,000 |
| 1 | Computer and Networking Hardware[1] | $65,000 | $65,000 |
| 1 | Consulting Services Install | $20,000 | $20,000 |
| 1 | Software Licensing[1] | $150,000 | $50,000 |
| 5 | Training For Monitoring Staff | $6,000 | $30,000 |
| | | **Annual Cost:** | $710,000 |

If your organization has the funding and resources to maintain your own NOC, this option is well-suited for you. Some organizations, however, may have the resources but would prefer to focus their efforts on their core competencies and leave the day-to-day management of network issues to a trusted provider.

## Outsourced NOC Option

By comparison, the outsourced NOC model is ideal for companies who have limited funding and resources, or who prefer to focus their efforts on their main business.

Companies in this scenario are able to benefit immediately from an established NOC without the capital investment for:

- Five staff members providing IT operations support 24x7x365
- One system analyst to support the management systems (equipment & applications)
- Management system servers and network hardware
- Management system software licensing
- Staff training on management systems

This model trades the estimated $710K needed annually to operate an in-house NOC for a substantially lower annual fee of around $60,000 with an annual savings of over $650,000[1].

## NEC's Solution

To help companies effectively manage their networks, NEC Unified Solutions offers Remote Monitoring and Management Services, which provide 24x7x365 remote monitoring and management of LAN and WAN devices, as well as applications, servers, wireless devices, IP Telephony infrastructure and digital signage.

NEC Remote Monitoring leverages a fully staffed Network Operations Center and industry-leading tools from NetIQ and System Management Arts (SMARTS), NetIQ and Voyence to monitor network infrastructure including routers, switches, and servers - whether they are in a single location or distributed across the country.

The monitoring service provides:

[1] Assumes 36-month depreciation of costs annually.

- **24x7x365 Monitoring** - Ensures high availability with 24x7 proactive monitoring of the health and performance of network devices, reducing the time spent diagnosing and resolving issues. NEC Unified Solutions' system resolves potential performance issues with event-driven actions before users can be affected.
- **Fault isolation and escalation** - Device monitoring conducted by the NEC Unified Solutions Network Operations Center (NOC) provides for root cause analysis and identifications of device and equipment impairments. Identified impairments will be escalated to NEC Unified Solutions Technical Assistance Center (TAC) for resolution for devices protected by NECSecure maintenance. Identified impairments for devices not covered under maintenance will be escalated to customer designee for resolution.
- **Performance/Engineering Analysis** - Quality of Service is assured through ongoing measurement of voice quality on each segment of your network. NEC Unified Solutions' certified engineers provide network recommendations based on analysis of utilization, trending, and error exception reports. These recommendations focus on improving availability and the.
- **Configuration Backup** – NEC tracks and stores configuration information about monitored CLI-based devices daily.
- **Managed Component Reporting** – NEC Unified Solutions delivers key reports about the customer's network environment to the customer's desktop over the web or through e-mail. Extensive reports allow for monitoring service levels, overall performance, usage trends and capacity planning.

The following diagram illustrates the connectivity between a customer's monitored network components and the NEC Unified Solutions Network Operations Center (NOC):

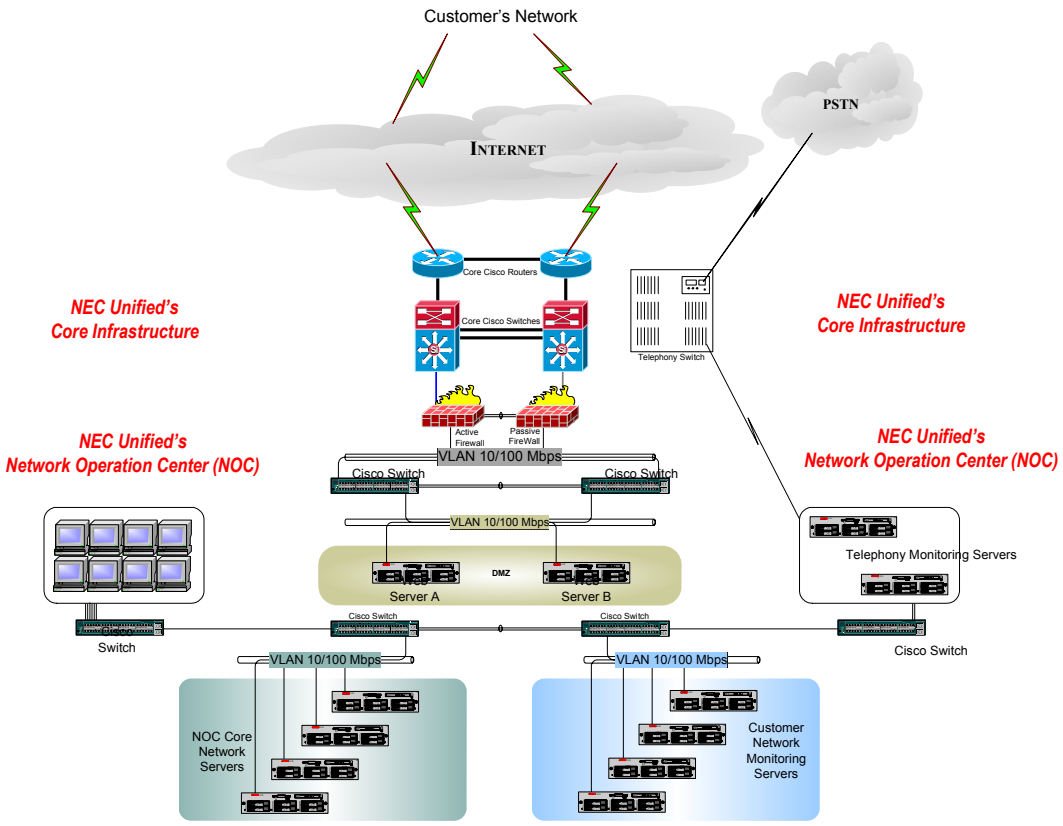


Fig. 1 Customer connectivity to NEC Unified Solutions NOC

Each customer network is connected to the NEC Unified Solutions NOC through a secure VPN connection, limiting SNMP and ICMP traffic. Remote management, also available through NEC, and remediation of monitored devices is provided for on alternative VPN connections.

NEC's Remote Management Services allow companies to either share management of their LAN/WAN infrastructure or out-task these responsibilities completely, depending on their business needs. These services include:

- **Essential Remote Management Service** – provides Remote Monitoring, incident management and configuration backups for network devices. This option allows customers to retain control over configuration management and optimization.
- **Comprehensive Remote Management Service** – in addition to the Essential Remote Management Service, provides configuration management, ongoing trend analysis and optimization and a dedicated customer service manager. This option

provides the customer with a fully managed arrangement.

## Why NEC Unified Solutions?

With a rich telecommunications heritage of over a century, NEC Unified Solutions is well-versed in a total solution approach to implementing and managing voice and data networks. No other provider can effectively address management of both NEC and Cisco equipment. Our state of the art Network Operations Center in Irving, TX, is integrated with best-of-breed monitoring and notification systems and staffed 24x7x365 by certified network engineers whose sole responsibility is to monitor, report on and make recommendations regarding customer networks. Unique customizations enable NEC to achieve better-than-industry mean times to notification and repair, and our technical support is consistently rated as outstanding by our customers.

If you would like to learn how NEC can help your organization ensure network availability and performance, as well as reduce the time spent diagnosing and resolving issues, contact us at services_info@necunified.com or visit www.necunified.com/RMS.

### About NEC Unified Solutions

NEC Unified Solutions Inc., a leader in integrated communications solutions for the enterprise, delivers the industry's most innovative suite of products, applications and services that help customers achieve their business goals. With more than a century of communications and networking expertise, NEC Unified Solutions, Inc., a subsidiary of NEC America and affiliate of NEC Corporation (NASDAQ: NIPNY), offers the broadest range of communications services and solution choices, flexible product platforms and applications, and an open migration path to protect investments. NEC Unified Solutions, Inc. serves the Fortune 1000 and customers across the globe in vertical markets such as hospitality, education, government and healthcare. For more information, visit www.necunifiedsolutions.com.

### Document Information

This document is intended to provide outline information only and can change without prior notice.

## Additional Resources

1. Computerworld. “Six ways to prepare your core network for traffic overload.” Aug. 15, 2006.
2. Network World. ”Calculating downtime's drag on productivity and profit can help make the case for network improvements.” Jan. 5, 2004.
3. Techworld. “IT managers remain in dark over network performance.” April 22, 2004.