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Ivan McDuffie  
NEC Unified Solutions  
Area Engineering Manager



### About NEC Unified

NEC Unified Solutions is a subsidiary of NEC Corporation of America and a global leader in VoIP, data, and unified communications solutions. For the last two years, Gartner has ranked NEC No. 1 in worldwide enterprise telephony market share.

The company offers wireless, unified communications, voice, and data management services for enterprise and small to medium businesses with additional emphasis on the healthcare, hospitality, education, and government markets.

NEC Unified has approximately 1,400 employees in 32 offices around the United States. NEC Corporation in Japan is a Global 500 company with more than 100 years of history and over 150,000 employees. The company has annual revenues of \$40 billion.

### Network Instruments Solutions

- GigaStor™ Portable
- Gigabit Portable
- Observer® Expert
- VoIP Monitoring

### Challenges

As organizations across the United States prepare to deploy and manage VoIP, NEC Unified Solutions provides pre-deployment network assessments to troubleshoot potential obstacles that could impede VoIP

performance. When Ivan McDuffie, area engineering manager for NEC Unified, took over management of the network assessment program for NEC, he found the existing analysis tools to be bulky, inflexible, and lacking sufficient memory to adequately perform an assessment.

Because VoIP is extremely sensitive to overall network performance and delay, it is critical to constantly monitor VoIP along side other applications. As a result McDuffie needed a single solution capable of presenting and analyzing everything running on a network.

Another challenge NEC faced was not having enough storage space to adequately record traffic during pre-deployment assessments.

“Usually, when we perform a network assessment we try to get a full week’s worth of data at a customer’s site,” explained McDuffie. “With our existing equipment, that just wasn’t possible. Due to the limited hard-drive space, we could only analyze a period of two to three days. We would have to remove the appliances from the client’s site, unload the captured data at our lab, and then reinstall the appliances at the customer’s site. It became an unmanageable situation.”

NEC also requested a solution that could handle multiple topologies and multiple network connections. NEC’s existing setup required lugging and installing three to four boxes to monitor all the topologies and technologies on a given network.

### Solution

NEC Unified purchased several GigaStor Portable and Gigabit Portable appliances to serve as the backbone of their VoIP and network assessment practice around the United States.

The Gigabit Portable is a mobile device that contains all the hardware and software required to troubleshoot and manage the most-advanced wire-speed gigabit and 10 GbE networks in real time. It provides immediate analysis and reporting on performance across full-duplex networks. GigaStor Portable contains all the hardware and software necessary to store terabytes of network traffic for later playback and review. Engineers can use the GigaStor interface to scroll to a point of interest and perform Expert Analysis.

“After looking at three other vendors, I determined that the Network Instruments® GigaStor Portable and Gigabit Portable appliances were the best solutions for NEC,” said McDuffie. “From a single appliance I can connect to and monitor multiple interfaces and I can monitor traffic remotely. The GigaStor Portable unit gives us the storage capacity we need. We can now capture between one and two weeks of traffic. Its flexibility and storage capacity made GigaStor Portable the logical choice on which to standardize our network practice.”

### Managing VoIP and Reconstructing Conversations

McDuffie chose Network Instruments because their solutions provide both extensive VoIP capabilities and overall network traffic monitoring, which is critical in the pre-deployment phases of VoIP. Before a VoIP roll-out, McDuffie uses Network Instruments tools to identify bottlenecks and points of contention on the network.

McDuffie uses the same Network Instruments portable units in his daily troubleshooting of VoIP issues. Network Instruments portable units monitor and provide Expert Analysis on network, application, and security events across multiple network topologies including LAN, WAN, and gigabit. Expert Analysis speeds the time to resolution by automatically diagnosing network





problems and suggesting resolutions. The units decode over 600 primary protocols, and provide over 600 Experts and over 70 VoIP-specific metrics. In managing VoIP, the analytics provide McDuffie comprehensive bursts, gaps, and jitter metrics that allow him to quickly identify and gauge the seriousness of a performance problem. In addition to monitoring call quality, Observer and GigaStor can reconstruct and replay an entire call.

“Network Instruments tools let me rebuild and listen to an entire VoIP call,” says McDuffie. “By listening to that, I get a sense of the user’s experience. VoIP is still a fairly new technology, so you want to make sure everything is set up correctly. This tool set allows me to have eyes and ears into a customer’s network. I know that if the Network Instruments tool points to delay on the network, I can look at the current bandwidth on the network or see if QoS is properly configured.”

#### In-Depth Network and Retrospective Analysis

In addition to conducting pre-deployment testing, McDuffie uses GigaStor Portable to quickly troubleshoot sporadic network issues that could adversely affect VoIP performance, and to capture days of network traffic to disk for later analysis. GigaStor Portable gives them eyes into all activities occurring on the network allowing them to replay any network problem rather than having to wait for the problem to recur.

Using GigaStor’s unique time-based navigator, NEC engineers can quickly sort through massive amounts of

traffic and find the specific issue impacting VoIP or any other business-critical traffic. The GigaStor’s user interface makes it easy to navigate between different points in time and run Expert Analysis on a specific period.

“If the problem took place on Tuesday and this is Thursday, we can go back with GigaStor,” McDuffie said. “Having everything saved to disk means we can quickly isolate the time of the event, pinpoint the source and present evidence to our client of the occurrence. It definitely cuts down on the time we spend trying to find the source of the problem.”

#### Time Savings and Convenience

NEC found Network Instruments’ portable units to be flexible and economical. For example, one unit takes the place of 3 to 4 appliances. The company’s portable units have been configured to support analysis of gigabit, LAN, and WAN topologies on the same unit. The flexibility the portable solutions provide in monitoring multiple network interfaces on a single appliance make all the difference.

GigaStor Portable also saves time. Network Instruments solutions reduced set-up time by 75%, so that engineers can begin analyzing traffic in as little as an hour rather than the 4 hours they were accustomed to spending. The GigaStor Portable provides ample storage capacity, eliminating the “in-between” visit where engineers had to remove appliances from the site and unload the data in their lab.

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*Ivan McDuffie*

“Our old tools didn’t have enough disk space for a complete assessment,” McDuffie said. “Now, we can leave GigaStor out there for an entire week and capture a full cycle of the network and make recommendations based on that. This decreases the time we have to spend at the customer’s site.”

#### Having GigaStor Portable Pays

Pay back on the GigaStor Portable for NEC Unified has been immediate and significant. The unit allows them to provide a comprehensive, customizable service and guarantee successful VoIP deployments. “Essentially the revenue generated from each assessment we do usually more than pays for the cost of a single GOSS or GigaStor Portable,” said McDuffie. “The last three assessments generated \$58,000, \$30,000, and \$22,000.”



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