

## Air Force aloft with network upgrade

*State-of-the-art network analyzer puts in place products and procedures to accomplish a global remedy*

In the early 1990s, the U.S. military remained at the forefront of technology and readiness by developing homegrown systems specific to each base. Armed with their own budgets and decision-making authority, technology personnel wrote all their own code, operated on their individual platforms and established their own LANs and WANs. The result was a boundary-intensive system that varied from base-to-base.

As the 1990s came to a close, however, the Air Force was realizing the potential of pioneer technologies such as highspeed networking and multimedia communications. With 108 installations around the world, the potential for faster, more accurate communications existed—as did the potential for a boost in national defense communications.

Accustomed to having robust systems, this armed forces branch set the ambitious goal of eliminating its fragmented system in favor of one that brought its military bases together. What it needed was to rev up communications within its LANs and WANs, as well as link those networks with each other for real-time exchange among its locations in the U.S., Europe and the Pacific Rim.

The Air Force fixed its planning radar on its technology destination: a complete infrastructure revamp and the adoption of a powerful client/server model. Using commercially developed software with the capability for customization, and a TCP/IP-based network framework, the new system would accelerate communication. At the same time, it would establish an intrabase and base-to-base network that could be upgraded quickly, easily and with little disruption to daily operations.

The Air Force's emphasis on data security dictates that any information systems upgrade be navigated with extreme care. Traditionally, the organization would have undertaken such a project with a basic hardware and software inventory.

This mission, however, was much more ambitious than previous technology projects, and needed to take into account the system's underlying structure. This brought about the need for extensive evaluation and documentation of the individual systems on each base—right down to the network protocols—and a forecast of the impact an upgrade would have on network load.

The Air Force turned to Quality Research, a Huntsville, AL-based technology services firm focused on military projects. Most of its personnel have prior military service experience—and security clearance—making them uniquely qualified for these types of projects. Quality Research sent teams of four to each Air Force base to gather information and formulate an unbiased view of each system.

"These systems house a lot of sensitive data," says Alex Almazan, network manager, Quality Research. Three months were spent just writing out the procedures to do the surveys.

The teams evaluated the LAN and WAN capabilities on each base around the world. To get the depth of information it needed, Quality Research employed Network Instruments' Observer®, a network monitor and protocol analyzer for ethernet, token ring and FDDI, providing metrics, protocol capture and trending for both shared and switched network environments.

"Our responsibility is to draw and document the network infrastructure in every Air Force building," notes Almazan. "We initiate this first by touch and feel, but Observer gives us the real-time picture of actual protocols running across the wire."

Observer identifies each LAN segment's traffic patterns, bandwidth utilization, client-to-client throughput metrics, percentages of broadcast and multicast traffic and error rates, and took a snapshot of the network at minimum, maximum and average usage.

Almazan's team and the other Quality Research groups have thus far identified various networking issues that materially affect the Air Force's system performance, such as:

- A server was polling every network client continuously, consuming approximately 70% of network resources. When the server was reconfigured, network traffic fell to 4%.
- Another base had a browsing function operating continuously, polling the network every 30 seconds and accounting for 50% of network traffic.
- Printer traffic was posing a burden for networks, as they continuously alerted the print server of their presence. Locations were advised to install traffic management software on their printer networks.

The teams of network engineers are wrapping up their world tour of analysis duty, visiting the last sites in the U.S. and Pacific Rim. Now, with an in-depth technology strategy and map, the Air Force is armed to put in place the products and procedures to help its system soar.

### About Network Instruments

Network Instruments provides in-depth network intelligence and continuous network availability through innovative analysis solutions. Enterprise network professionals depend on Network Instruments' Observer product line for unparalleled network visibility to efficiently solve network problems and manage deployments. By combining a powerful management console with high-performance analysis appliances, Observer simplifies problem resolution and optimizes network and application performance. The company continues to lead the industry in ROI with its advanced Distributed Network Analysis (NI-DNA™) architecture, which successfully integrates comprehensive analysis functionality across heterogeneous networks through a single monitoring interface. Network Instruments is headquartered in Minneapolis with sales offices worldwide and distributors in over 50 countries. For more information about the company, products, technology, NI-DNA, becoming a partner, and NI University please visit [www.networkinstruments.com](http://www.networkinstruments.com)

### Corporate Headquarters

Network Instruments, LLC • 10701 Red Circle Drive • Minnetonka, MN 55343 • USA  
800-526-7919 toll-free • (952) 358-3800 telephone • (952) 358-3801 fax • [www.networkinstruments.com](http://www.networkinstruments.com)

### European Office

Network Instruments • 7 Old Yard • Rectory Lane • Brasted, Westerham • Kent TN16 1JP • United Kingdom  
+44 (0) 1959 569880 telephone • +44 (0) 1959 569881 fax • [www.networkinstruments.co.uk](http://www.networkinstruments.co.uk)

The Air Force set the ambitious goal of eliminating its fragmented system in favor of one that brought together its 108 military bases around the world.