

Dynamic military networks demand dynamic network management.

In 1991, for Operation Desert Storm, 100 megabits of bandwidth supported 500,000 troops. Ten years later, in Operation Iraqi Freedom, more than 3,000 megabits of satellite bandwidth supported 350,000 warfighters — 30 times more for a 45% smaller force.

Ten years and a lot of bandwidth are just part of the differences between Desert Storm and Iraqi Freedom. The interconnected networks that support our armed forces have seen an even greater increase in size, traffic and complexity. It has been driven primarily by the rise of converged networks that weave together heterogeneous technologies from simple data to voice, video, wireless, satellite, secure systems, GPS, cryptographic devices and more.

Adding to a growing management challenge is that the U.S. military is at the cutting edge of a wider movement, the rise of Net-Centered Applications. While the commercial world still struggles to master technologies such as web services, VoIP and video conferencing, the military weaves these and more together in the granddaddy of all net-centered apps, Net-Centric Warfare.

Net-Centered Applications require a different kind of network management, one that takes a platform approach to integrating all network activity. Proven as the network management component of INMS, JNMS, Ballistic Missile Defense and other key GIG components, only NeuralStar from Ai Metrix provides the next-generation Integrated Event Resolution to fully support the integration of combatant commands, military service, garrison and tactical networks.

Inside:

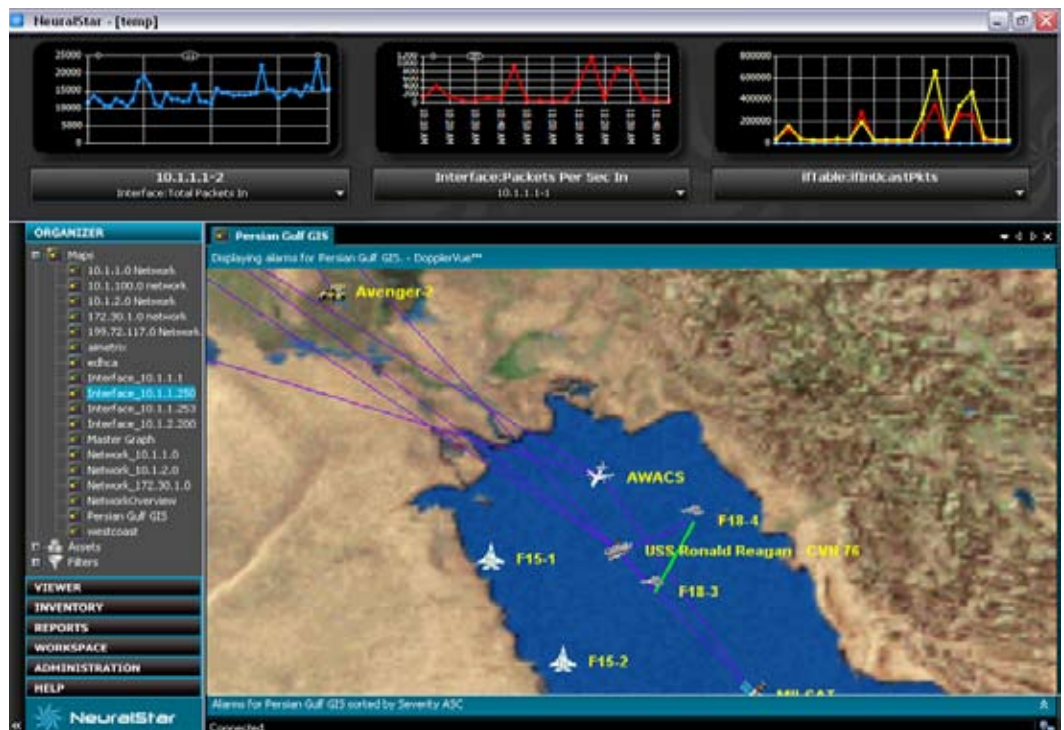
How NeuralStar supports:

- power to the network's edge
- unified management platform
- situational views
- preparedness and responsiveness
- unit autonomy
- information assurance
- force readiness
- platform integration

One
network.

One
view.

Total
control.



▲ NeuralStar's Dynamic Network Management supports the unique, integrated needs of combatant commands, military service, garrison and tactical networks.

A Dynamic Approach to Net-Centric Operations

Self-synchronizing ... Speed of command ... Responsive

Words like these describe net-centric warfare and the joint command structure with it. Whether managing people, platforms or the very network itself, they demand a next generation solution that is flexible, operates in real-time and is capable of heading off problems *before* they occur.

Traditional network management disciplines like Performance, Fault and Service Level Management are still essential, but they are not enough for converged environments. To achieve the control and responsiveness demanded of military networks, Dynamic Network Management capabilities pioneered by NeuralStar are needed to achieve goals including:

Power to the Network's Edge

Traditional network management products reside either at the highest level (such as the “manager of managers”), or at the network element level. Both approaches limit power and visibility for all other management levels. In today’s interlocking command structure, however, local and field administrators frequently need Global NetOps Center (GNC) level visibility, and vice-versa. NeuralStar’s architecture mirrors the force command, providing full functionality, views and relevant data to every network specialist, whether working from a laptop, an AWAC or the GNC. Policy-based security and information management

features define the right level of access and control for users at all operational and security levels.

Unified Management Platform

NeuralStar delivers an abstraction engine for use across disparate networks, devices, protocols, software applications and technologies. Network engineers can find, manage and control any and all network-connected entities from a single window for a true view of the entire network—voice, video, data, wireless, satellite and any other technologies deployed today or tomorrow. Performance and availability are managed together, rather than through multiple products or interfaces. In addition, high-speed discovery—both network-wide or targeted—lets managers quickly and easily find newly-installed or configured devices, including those added by remote administrators.

Situational Views

Users at any level can share common operational pictures across a unit, garrison, battlefield or theater. This helps eliminate “swivel chair” management across multiple monitors by allowing administrators to drill down to any network view in a single window. In the field, it helps unit administrators identify issues or bottlenecks upstream, downstream or surging through peer networks. Users and administrators can select from a wide variety of visualization formats, charts, gauges and maps, including physical device locations based on GPS data. Administrators are not constrained to pre-loaded or pre-configured visualizations or correlations, although limitations can be specified if desired by commanders.

Powerful Performance, Availability and Other Management Features

- Extensive protocol support including TCP, SSH, UDP, X.25, SNMP, Telnet, and ASCII (TL-1, Asynchronous Serial or any ASCII stream).
- Automated event management for pro-active response across network elements.
- Real-time network monitoring of performance metrics including port utilization and node latency, http, email (SMTP and POP3) and DNS availability and latency
- Relational and data warehouse information stores enable viewing, trending, analyzing and reporting on performance and alarm history.
- Rules-based system for multi-source correlation, alarm suppression, thresholding and filtering
- Patented DopplerVUE™ technology that enables visualization of real-time performance degradation.



Preparedness, Assurance, Responsiveness

The wisdom that no battle plan survives first contact with the enemy is true of networks, too. With NeuralStar, network engineers—even those without programming experience—can create rules-based routines that will initiate new processes if certain network or traffic conditions occur. When necessary, specialists can actively intervene to respond to unanticipated situations or mission changes.

Unit Autonomy

Imagine that in battle a mobile NOC goes off the grid. NeuralStar uses pre-determined policies to automatically redirect unit communications to a new management point. Luckily, the loss is just the result of weather conditions. NeuralStar continues to manage the local network from the mobile NOC, storing relevant data and pushing it up the line once connectivity is re-established to the larger force.

Information Assurance Support

How can a network management platform support security and information assurance? NeuralStar contributes by integrating and correlating network performance and event data with event information from security products, such as firewalls, intrusion detection systems and physical security devices. Operations and security personnel can visualize the impact and nature of security breaches, and only NeuralStar provides the ability to automatically and dynamically turn down ports or redirect traffic based on network and security policy parameters.

Force Readiness

Today, any unit can be mobilized for service in a joint operation. Efficiency and readiness improve dramatically, and training time is reduced, with integration between service or garrison network management and joint systems like the INMS or JNMS. With NeuralStar, garrisons get this integration with joint force without sacrificing control over how they configure their own concept of operations (ConOps).

Platform Integration

With full support for web services, XML and related technologies, NeuralStar can serve as the center of network information, automate data exchange with other systems, help eliminate data silos and enable linked data centers or similar information structures. NeuralStar makes it easy to create device drivers and similar extensions on the fly. What's more, where other products charge for device drivers as separate software products or customized components, Ai Metrix provides a wide range of drivers "out of the box" at no charge which customers use or even adapt to meet their specific needs.

Why are net-centric applications different?

Net-centric applications are latency-intolerant processes such as voice communications running on, or in coordination with, latency tolerant systems such as data networks. Where a 30-second lag in transferring email is imperceptible, for example, it makes voice and video services unusable, creates a transaction bottleneck in web services and spells disaster when compromising the interception of a ballistic missile.

There is another characteristic that makes net-centric applications different. Unlike email, where two computers control the process of pushing data between them, the logic for running a net-centric application is actually spread throughout the network. With VoIP for example, there are several servers and network elements responsible for establishing and maintaining a call. In many cases, these devices are also responsible for the flow of application data throughout the network.

Combine latency intolerance with distributed logic, and old school network management simply isn't equipped for these new complexities. That's because simply assigning priority to voice, for example, won't work for all situations and, perhaps most importantly, will eventually degrade data performance as well. Instead, all the devices and technologies that make up the network must be managed as a single, real-time, dynamic system.

NeuralStar's Next Generation Approach to Today's Challenges

NeuralStar's ability to provide advanced services and benefits like these is based upon delivering *Integrated Event Resolution*, a more responsive vision of what it takes to effectively manage today's converged networks.

Why new? Because convergence, complexity and net-centric applications have created a new kind of network environment to manage. Traditional needs such as uptime, availability and quality of service (QoS) are still the goal, but new functionality is needed to achieve them in real-time, mission-critical, cross-technology networks.

The answer is Integrated Event Resolution, the marriage of IT and telecom network management solutions in a single platform that supports reliable operation of net-centric applications in converged networks.

Integrated Event Resolution: The Next Step in Network Management

NeuralStar from SYS Technologies, Inc is the one network management solution that eclipses traditional “monitor-and-alert” products to deliver Integrated Event Resolution (IER). NeuralStar enables network professionals to actually take control of network conditions by:

- integrating management for all network technologies—data, voice, video, wireless, satellite and more—all in a single window,
- integrating events for all network conditions—fault, performance and security, even QoS and SLA policy violation events,
- providing the ability to move easily from the big picture to situational views of network conditions, all while delivering power to *the network’s edge*—the frontline operators who must maintain service levels,
- issuing commands directly to any network-connected device, application or service, enabling automatic and split-second responses to network events.

At the heart of the IER approach is NeuralEvents™ technology, a unique package of management information pioneered by Ai Metrix through extensive development of converged network solutions in telecom, enterprise and military environments forms. NeuralEvent have three parts:

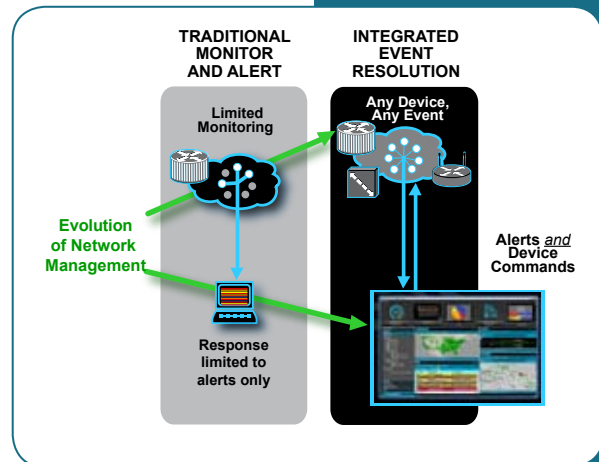
Monitored Data about a specific network event. The data can be about any network element—device, port, application, service, etc.—and for any management discipline—Fault, Performance, Security, QoS Policy Violation or SLA Violation event. Drivers collect this data and pass it to the Abstraction Engine, which normalizes the different languages and vocabularies.

Business Context can include virtually any kind of information from historical reporting, device customized specs and inventory information to circuit routing and business policies.

Workflows are the user-defined instructions for how NeuralStar should respond to an event automatically. It can be as simple as sending an alert to one or more administrators, or use bi-directional communications capabilities to issue commands directly to devices.

NeuralStar, with its next generation Integrated Event Resolution and NeuralEvents technology, is proven in some of the world’s most intensive environments, including Broadwing, Cincinnati Bell and the U.S. Department of Defense’s Ballistic Missile Defense and DISA’s Integrated Network Management System and the Joint Network Management System deployed around the world by US Joint Task Forces.

For more information or to arrange a demonstration of NeuralStar, please contact SYS Technologies at 703-668-1000 or send an email to info@neuralstar.net.



▲ Beyond traditional “monitor and approach,” IER addresses the specific demands of complex, converged networks and network-centric applications such as VoIP and videoconferencing.

NeuralEvents result in better “informed” network professionals and the alerts they send. Automated device commands make event resolution even faster.

