

Command Information

An Intelligent, Converged IPv6-Enabled Network

Case Study

Command Information

Command Information, Inc., is the largest pure-play Internet Protocol version 6 (IPv6) solutions provider in America. The company established Command Labs to provide a research and development laboratory for Fortune 1000 companies and government organizations to rapidly prototype IPv6 solutions for network-centric systems.

A key solution that Command Information wished to deploy in Command Labs was an open, scalable infrastructure that could serve as a test bed to link data from distributed devices, systems, and network directly into the IPv6 network and provide real-time monitoring and control over the Internet. When Command Information was designing the lab within an IPv6 network powered by Cisco Systems, Inc., the company turned to Augusta Systems® to provide technologies for the intelligent convergence of this distributed data.

IPv6 and the Internet of Things

Any device that functions as part of the IP network, whether a local area network or the Internet itself, receives a distinct, numeric IP address. This address uniquely identifies each device and enables communication.

While the protocol's current form, IPv4, can accommodate four billion unique addresses, it fails to provide a sufficient number for today's enterprises. The emerging next generation protocol, IPv6, on the other hand, supports unique addresses well beyond the trillions. This opens up the potential for an Internet of Things, where vast numbers of devices, systems, and networks become part of the IP network.

“The purpose of an Internet of Things is to link the world, in real-time,” said Dave Green, research and development chief for Command Information. “By extending the IP network and IT infrastructure to the level of data-gathering devices and systems, we can create a global network for real-time monitoring and communications.”

The challenge for Command Information was to rapidly develop a prototype distributed, intelligent IPv6 network infrastructure that could showcase this potential and easily accommodate real-world needs, such as the ability to rapidly converge and integrate both IPv6-enabled devices and systems with non-IP devices and systems into the network.

“Since Command Labs is a test bed for IPv6 solutions, we needed an open, scalable infrastructure to ensure that enterprises using the facility would have the opportunity to learn-by-doing. We needed an architecture that could accommodate both legacy and emerging devices, systems, and networks, functioning with distributed intelligence within the IP network,” Green said.

After setting up an IPv6 backbone at Command Labs, powered by Cisco Systems routers, switches, and other devices, Command Information selected Augusta Systems to provide the software and hardware needed for this open, scalable solution.

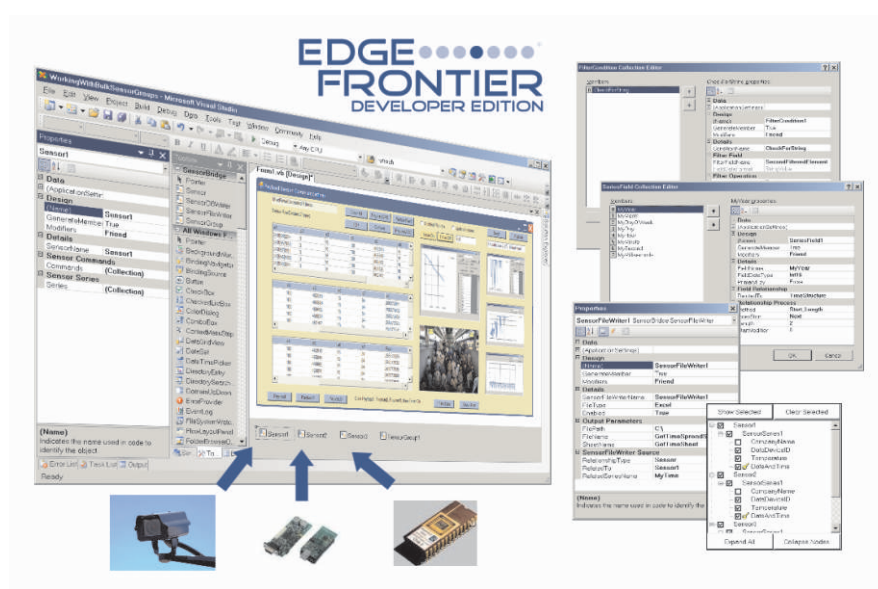
An Open, Scalable Solution

“There's a strong link between IPv6 and a converged, intelligent infrastructure,” said Patrick Esposito II, president and chief operating officer of Augusta Systems. “IPv6 enables an Internet of Things. An open, scalable solution helps to align the data from these 'things' – regardless of the amount or variety of devices, systems, or networks.”

It is this diversity of data that creates a challenge for developers of open, scalable solutions. Devices, systems, and networks often communicate in proprietary protocols over separate network infrastructures, which create walls between data, events and control functions. For example, legacy devices may run specialized non-IP communications protocols such as non-IP versions of BACnet. New devices, system, or networks may run the non-IP ZigBee protocol, while others may be IPv6-enabled. This inability to communicate limits the usefulness of the devices and systems and removes the opportunity for dynamic monitoring, control, and automation solutions.

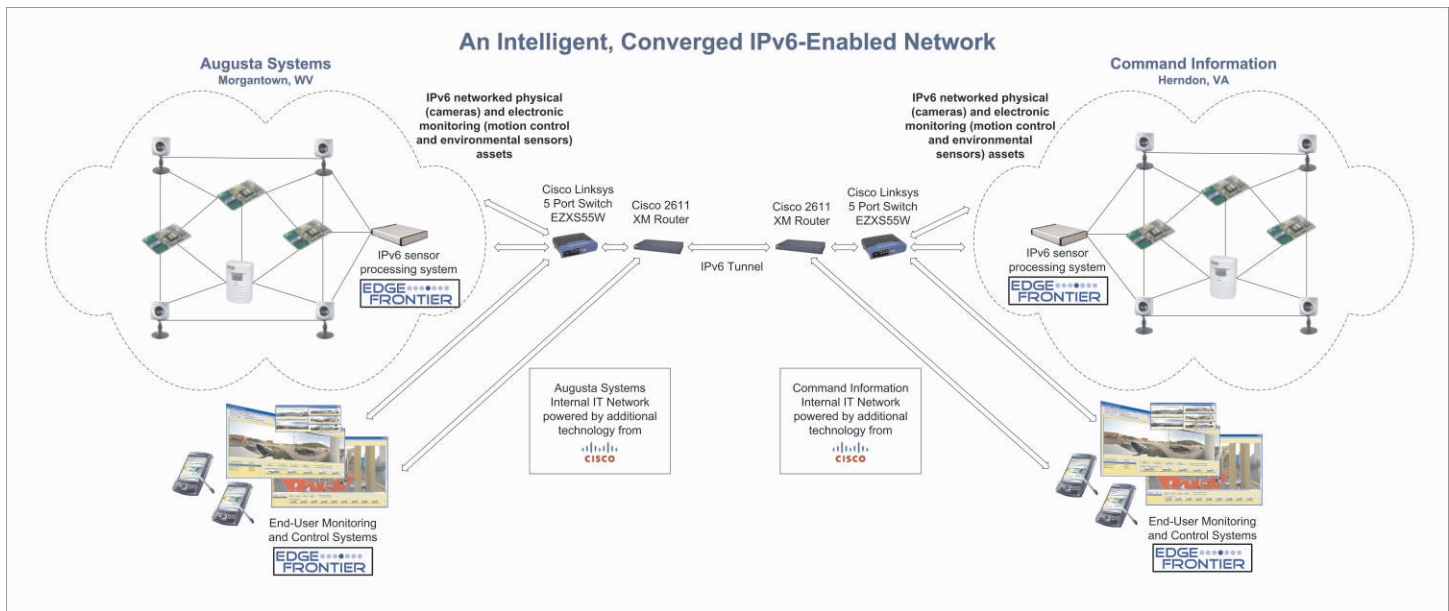
To overcome these challenges and build a true, open, scalable solution, Command Information relied upon EdgeFrontier® Developer Edition from Augusta Systems. EdgeFrontier Developer Edition delivers EdgeFrontier capabilities within a suite of components for the Microsoft Visual Studio integrated development environment, enabling engineers and developers with advanced requirements to create intelligent convergence solutions.

EdgeFrontier provides a configurable technology platform for building and managing complex monitoring, control, and automation solutions. It supports integration and normalization of data, events, and control functions from diverse devices, systems, and networks, regardless of manufacturer or communications protocol, including sensors, wireless sensor networks, RFID systems, video devices and systems, access control systems, metering and measurement devices, actuators, databases and file repositories, and others. In addition, the product provides structures for event processing and configuration of event or policy-based actions through a policy engine.



In addition, Command Labs utilized EdgeFrontier Appliance from Augusta Systems. EdgeFrontier Appliance is a network appliance pre-installed with EdgeFrontier. It provided Command Information with a complete software and hardware platform for remote network access and distributed processing, which is crucial to enabling Command Information to extend the IP network to distributed devices, systems, and networks. Of particular importance was the appliance's ability to convert and integrate non-IP device and system data into the IPv6 network.

With the technologies for an open, scalable solution in place, Command Information worked with Augusta Systems to intelligently converge diverse data; extend the IP network to the level of a remote devices, systems, and networks; and demonstrate the opportunities presented by an Internet of Things. To showcase the power and flexibility of these technologies, Command Information established an open, scalable solution built upon Augusta Systems technologies at Command Labs in Herndon, Va. with IPv6 links to a second deployment at the Augusta Systems offices in Morgantown, W.Va., as illustrated below.



For purposes of the deployment, Command Information utilized the Augusta Systems technologies to rapidly develop and manage a multi-site, remote monitoring and security system. For the effort, non-IP security cameras were linked with motion detectors, ZigBee environmental sensors (temperature, humidity and light) and IPv6-enabled cameras into a converged system. The open architecture provided the ability to dynamically add more sensors or devices into the system and even link in another networked location as needed.

To demonstrate the power of IPv6 coupled with an open, scalable solution, an IPv6 tunnel (using IPv4 for IPv6 data transmission) was created between the IPv6 backbone in Herndon and the Morgantown site. The remote monitoring and security system was developed so that

specific data entering the system from the motion detectors, ZigBee sensors or IPv6-enabled cameras in either location would trigger activity by the non-IP security cameras in either location. (For example, sensor data indicating a temperature elevation or motion detection at the Herndon demonstration site would be instantly processed, filtered and fused and could trigger the security cameras in either or both locations.) The processed, intelligent information was made available to on-site and remote users with additional availability for information dissemination on a global basis.

Benefits

Through the open, scalable solution developed with Augusta Systems technologies for the Command Labs' test bed, Command Information demonstrated the opportunities for rapid convergence and integration of diverse, non-IP device, system, and network data into the IPv6 network.

“IPv6 will significantly improve capabilities in security, privacy, location-based services, networking and mobility,” Green said. “This will open up new areas of business solutions that were previously impossible, including those with the ability to flexibly integrate remote device and system data into the IP network. That's why Command Information is striving to ensure that cutting-edge platform and infrastructure technologies, like those from Augusta Systems, support IPv6 and are compatible with baseline networking and enterprise technologies, like those from Cisco and Microsoft.”

A number of benefits are available to enterprises that use configurable technology platforms to power intelligent convergence, as part of their IPv6 plans:

- Enabling integration and utilization of diverse device, system, and network data, events, and control functions
- Enabling convergence of data within enterprise IT infrastructures and IP networks to enhance analysis and response
- Maximizing existing client technology assets and leveraging future investments by enabling the building and management of open, scalable solutions
- Increasing value of data through system and network-driven access, processing, and correlations
- Reducing the total cost of ownership of devices, systems, and networks
- Increasing return on investment for devices, systems, and networks

The Command Labs open, interoperable solution, built with Augusta Systems technologies, showcases the opportunities for enterprises to leverage IPv6 and the intelligent convergence of devices, systems, and networks. Command Information's use of EdgeFrontier products demonstrates the power and flexibility of these technologies and the advantages they can bring to organizations in need of the rapid creation of open, interoperable solutions featuring distributed processing, control, and automation throughout the network infrastructure.

Contacts

For more information, please contact:

Patrick Esposito II
President & Chief Executive Officer
Telephone: 304.599.3200 x118
Email: patrickesposito@augustasystems.com

Jack Williams
Manager, Sales & Business Development
Telephone: 304.599.3200 x121
Email: jwilliams@augustasystems.com

Research Ridge
3592 Collins Ferry Road, Suite 200
Morgantown, WV 26505
Telephone: 304.599.3200
Fax: 304.599.3480
www.augustasystems.com

About Augusta Systems

Augusta Systems, Inc. powers the intelligent convergence of devices, systems, and networks. Our award-winning EdgeFrontier products provide configurable technology platforms for building and managing complex monitoring, control, and automation solutions, including applications for safety and security, energy and utility management, asset tracking, building management, and other business functions.

Our products support integration and normalization of data, events, and control functions from diverse devices, systems, and networks, regardless of manufacturer or communications protocol. In addition, EdgeFrontier products provide structures for event processing and configuration of event or policy-based actions through a policy engine.

Leveraging these capabilities, EdgeFrontier products enable rapid creation of open, interoperable solutions featuring distributed processing, control, and automation throughout the network infrastructure. With the power of EdgeFrontier products, enterprises can unlock new features, decrease solution development costs, improve operational efficiencies, and increase the return on investment for new and legacy devices, systems, and networks.

For more information please visit www.augustasystems.com.