

Management at the Edge: Intelligent Out-of-Band

A New Solution for Managing Distributed Networks

Branch Office Outages Are Expensive

Distributed enterprises depend on branch offices for sales, manufacturing, retail, distribution, and customer support. Despite their vital importance, these sites are the most vulnerable management points in enterprise networks due to the challenges inherent at the network's edge. Unlike central or core network sites, remote locations must overcome single points of failure and limited management visibility and control, as well as a lack of technical staff in order to maintain network services. Outages are common and frequent, leading to costly levels of aggregate downtime. With current management solutions branch office networks expose security vulnerabilities and regulatory compliance gaps, especially during network outages. It is simply not possible nor affordable for operations teams using existing management technologies to guarantee the availability, security, or compliance of these branch office environments.

Envoy Solves the Branch Office Problem

Uplogix delivers a radical new solution for managing branch office networks. Envoy is a remote management appliance that removes traditional WAN support barriers by providing an Intelligent Out-of-band (IOOB) solution that complements existing in-band monitoring systems. A virtual network assistant, Envoy addresses 95% of the service outages that regularly affect branch office networks. Additionally, Envoy provides a secure platform for remote management and ensures compliance with internal management practices, regardless of the state of the network. Envoy's innovative approach to WAN management enables your organization to achieve unprecedented availability and security in branch office environments.

"Gartner reports that over 40% of network outages can only be addressed with out-of-band management solutions."

Intelligent Out-of-Band

The new Uplogix Intelligent Out-of-Band architecture combines the power and management control of console-based administration with the device-aware intelligence

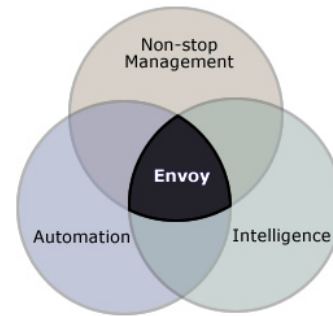


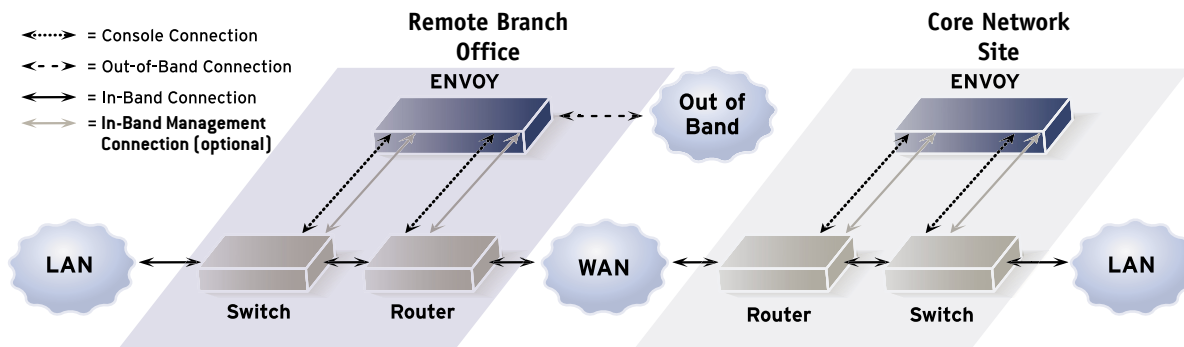
Figure 1: Envoy, Intelligent Out-of-Band (IOOB) management.

of centralized, software-based systems. By shifting core management applications to the console, IOOB puts the management tools, intelligence, and control where administrators need them, at the network's edge. IOOB does more than change the execution point for management interaction; it enables device-perspective intelligence and automation simply not possible with previous solutions. These new abilities allow IOOB to power advanced management, recovery, security, and compliance services.

Envoy's management services include:

- **SurgicalRollback™** ensures network availability by automatically repairing line item configuration changes
- **Physical console connectivity** enables continuous low-level monitoring of device configuration and performance
- **Nonstop management** automatically re-routes management activity out-of-band during device, network, and power outages
- **Device awareness** enables standardized administration procedures leveraging vendor-specific management practices
- **Management policies** automatically respond to key network events by diagnosing remote faults, executing recovery procedures, and collecting additional management data (system debug, remote circuit diagnosis, etc.)
- **Automated maintenance** speeds configuration and operating system changes while preventing user error





Sample Envoy branch office deployment.

- **Security and compliance** supports corporate and regulatory requirements for remote management with secure connectivity (SSHv2), local or remote authentication, complete audit tracking of all device interactions, and granular authorization models to control remote device access and management functionality.

Real Benefits

Deploying Envoys throughout your branch office environments will reduce the labor burden for supporting each site, improve network security, and shrink downtime costs immediately. Real ROI is quickly achieved, with a full return coming within months of deployment.

Envoy's Immediate Impact

| WAN Downtime | MTR | |
|----------------------------|----------|----------|
| | Today | Envoy |
| 70% Config Errors | 2-6 hrs. | < 5 min. |
| 20% Wedged Device | 2-6 hrs. | < 5 min. |
| 5% Telecom Issue Diagnosis | 2-3 hrs. | < 5 min. |

Figure 2: Envoy drastically improves branch office availability.

Increased Availability

In most distributed enterprise networks, configuration errors, wedged devices, and telecommunications incidents account for 95% of network service interruptions. These outages impact your bottom line, contributing to the 2-16% of annual revenues lost to network downtime. Using IOOB management your organization can eliminate or drastically improve the mean-time-to-recovery (MTTR) of these issues.

Configuration Errors

In addition to enabling out-of-band connectivity for manually resolving configuration errors, Envoy also provides several targeted solutions to automatically address the challenges of configuring distributed network devices.

- **SurgicalRollback™**—Envoy provides automated procedures for detecting and recovering from inadvertent or erroneous configuration changes. Because of Envoy's physical console connectivity, service-impacting changes do not affect its ability to capture, store, and rollback configuration changes. Using Envoy's SurgicalRollback you can eliminate the 60-70% of network downtime caused by human error during ongoing device maintenance and configuration.
- **Configuration Archive**—Envoy locally archives multiple versions of each device's configuration and operating system elements. Using automated procedures, Envoy ensures that configuration versions are kept up-to-date and locally available for each device. In addition to local storage and manipulation, Envoy also provides automated procedures for updating or installing new or archived configuration elements. Envoy's combination of local archives and automation improves network support response and greatly increases the supportability of remote devices.

Power Cycle

Wedged devices and other network problems that are resolved by rebooting a device conservatively account for as much as 20% of the service interruptions in the average network. Envoy automatically detects wedged, or suspended, devices and instantly initiates power cycles. In many cases this simple, automated response can reduce a standard outage cycle of several hours down to a matter of minutes.

Telecommunications Faults

The fragile web of telecommunication circuits deployed throughout your WAN can be extremely difficult to remotely troubleshoot and support. This is evident when you consider that many companies continually have 5-10% of their branch offices impacted by service provider related outages. Envoy delivers a complete set of management tools for monitoring and diagnosing these remote circuits. Using management policies, Envoy can automatically notify administrators of remote circuit issues and provide them unprecedented management visibility to remote circuit problems. Envoy reduces the average 2 to 3 hours operators spend per incident diagnosing and documenting telecom circuit failures to less than 5 minutes by automatically responding to service incidents and generating detailed outage reports.

Improved Security and Compliance

Regulatory compliance and security risks are increasing the challenges of managing branch office networks. Centralized management systems provide an incomplete solution for meeting these challenges, as many of these network-based systems are simply not available to protect your business during service interruptions when support teams must resort to manual or emergency management procedures. Envoy adds critical security and audit compliance capabilities to support the rising demands on today's branch office network.

- **Secure Management**—Envoy addresses the security risks of traditional management protocols (such as SNMP, Telnet, and TFTP) by providing end-to-end encrypted access to all managed devices. Granular authorization assigns role-based permissions to individual devices and management procedures. Envoy further protects management interactions through physical console and private IP management connectivity.
- **Compliance and Auditing**—Envoy collects and reports *all* configuration changes and device interactions for each managed device. Reports detail individual user sessions, including device response. Envoy's physical console connectivity enables the capturing of device interactions and configuration changes regardless of the state of the device or network services.

Integration

Whether in-band or utilizing its ability to automatically re-route management connectivity out-of-band, Envoy provides a continuous stream of management data that can be integrated with existing systems. Envoy can forward granular interface and system performance data, generate SNMP traps, forward SYSLOG or console data, and upload security logs regardless of the current outages or interruptions impacting the network. These services ensure that your existing management applications will have the critical data they need to drive the support processes and management reporting that your organization depends on.

Summary

Business demands of the remote branch office networks require operations teams to guarantee availability and security levels that are neither possible nor affordable with existing technologies. Envoy, the Uplogix virtual network administrator, extends your local support capabilities to each branch office location, greatly reducing the costs and complexities of maintaining these critical network services. You are only a short time away from your next branch office outage, how will you solve it?

About Intelligent Out-of-Band (IOOB)

Intelligent Out-of-Band is an emerging technology for maintaining and supporting remote network equipment. Combining the traditional aspects of generic console-based management with advanced device-aware support capabilities, IOOB allows administrators more than just remote access device consoles. It delivers a framework for deploying management applications locally to each device, eliminating network or device dependencies and truly unlocking the power of automation and management system intelligence.

About Uplogix

Uplogix provides innovative remote administration solutions that ensure secure, distributed network management functionality. Uplogix solutions increase network uptime, lower support costs, and improve network services. Uplogix is privately held and headquartered in Austin, Texas. For more information please visit www.uplogix.com.

