Out-of-Band Management: Marketplace Assessment

Executive Summary of EMA's Research Report
Prepared for Uplogix
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Abstract

Out-Of-Band (OOB) Management, focused on achieving strong ROI (Return On Investment) through centralized control and repair of local and remote IT infrastructure devices, has been a growing niche market for many years. Vendors in this space are reaching new levels of technical sophistication to provide economies of scale across multiple types of devices. Moreover, OOB presents the broader market with an unusual building block for achieving greater control, resiliency, and cost effectiveness by integrating with more pervasive in-band technologies. In this report, Enterprise Management Associates (EMA) will look at market leaders, technology trends, and adoption patterns as they exist in the present and point to the future.

Purpose of this Report

This report will assess the OOB market and the drivers that are taking it beyond its previous isolation and into the IT management industry's mainstream. With over sixty product manufactures, distributors, VARs (Value Added Resellers), and System Integrators (SI) participating in the OOB market, it is one of the most overlooked areas of innovation within the IT management marketplace. EMA has conducted in-depth briefings with three major vendors, targeting technology and market leaders, and interviewed many of their customers, as well as IT shops without OOB, but interested in OOB technology deployments.

Executive Summary

Out-Of-Band (OOB) Management, focused on centralized control and repair of local, and especially remote, IT infrastructure devices, has been growing as an isolated IT management niche market for many years. The core technologies used in this market have reached a state of maturity and further investments result in incremental additional, but rapidly diminishing returns. However, OOB presents the broader IT management market with a remarkable building block for achieving greater control, resiliency, and cost efficiency by closer collaboration with more pervasive in-band technologies. OOB vendors, such as, for example, Avocent, Lantronix, MRV, Raritan, and Uplogix, representing various sub-segments of the market, are embarking on or are executing evolutionary steps toward closer collaboration within the market and IT mainstream (in-band) management market.

The collaboration within the OOB market is driven by three primary forces; the requirement to manage IT infrastructure uniformly in its entirety, skyrocketing IT operating cost due to the high cost of IT staff as well as rising energy costs, and increased security requirements. By integrating the KVM (Keyboard, Video, Mouse) and serial console switching technologies, uniform management of the entire IT infrastructure can be achieved without a major investment due to the maturity of the technologies. Secure access to remotely located IT infrastructure devices is a hallmark of the OOB market, and incremental investments are required to accommodate the rapidly expanding number and variety of devices present in the corporate IT infrastructure. The rapidly growing demand by the "Branch office" market segment is a poignant demonstration of the need for such KVM and serial console server technology integration. Many OOB market vendors responded by integrating KVM and serial console technologies into one chassis to provide uniform management to all devices present in a remote location in compliance with high security requirements.

KVM technology's inability to collect IT management data for real-time processing drives the evolution of the OOB market toward collaboration with in-band IT market. This KVM technology limitation confines IT operations in the Data Center to reactive status. In short, "When the device fails, we will be able to do something about it." This reactive IT operational approach is quickly becoming unacceptable in support of business services. The famous or infamous "five-nines" availability requirement cannot be achieved by reactive IT operations. Server manufacturers introduced new capabilities, such as serial or Ethernet processors, to correct this KVM limitation. However, these alleviate but do not adequately solve the issue of business risk due to protracted outages of IT infrastructure components or its entirety. The collaboration between OOB and in-band technologies can have a significant positive effect by reducing and eventually eliminating a primarily reactive approach. EMA believes that computing-on-demand can become a reality only through a judicious collaboration between the OOB and in-band IT management technologies.

The road to the efficient collaboration between OOB and in-band technologies will not be easy and will evolve over a number of years. One of the major hurdles will be the elimination of the myopic mindset that kept the OOB market separate from IT management mainstream, namely that control can be exercised efficiently via in-band alone. The pressure for "five-nines" availability of IT services in support of business evades attainment despite incorporating a high level of redundancy and packing a greater functional density into a single chassis. The reason is simple; the probability of failure increases with an increasing number of devices in the IT infrastructure and the failure of a high-density device can affect larger segments of users or services. Achieving a higher level of proactive control via OOB and in-band collaboration will eliminate many, though not all, levels of redundancy and introduce new capabilities. **The close architectural integration of OOB and in-band technology by Uplogix in their Envoy product clearly demonstrates the advantages of convergence of these technologies.** The evolution of this and other approaches will result in a greater degree of proactive control and IT operational efficiency in support of business services.

EMA believes the OOB market is entering a new phase of a rapid transformation and growth. It will have an impact on market participants and the IT management industry as a whole.

OOB Market Overview

Introduction

The business mandate for Information Technology (IT) organizations to better align IT services with business objectives has existed since the first computer entered the corporate environment. However, there is a significant difference in the scope and complexity between then and now. In 1950, there were less than a dozen mainframes in US commercial operations while today there are 600 million or more servers, workstations, and personal computers in operation worldwide. During the past year, on-line sales grew dramatically. For instance on Dec. 12, 2005 Amazon.com reported a purchase rate of 41 items per second. Another evidence of significant change is the usurping of TV and other media advertising budgets in favor of advertising on the Internet. These are just two of numerous examples suggesting that the mandate for greater IT-to-business alignment has become dramatically more critical than in the past.

In a world that has once again become "flat," a mouse click separates a customer from doing business with a competitor, and poorly behaving networked services can result in very large productivity losses to the business, as well as its suppliers and partners. Business competitiveness and even survival are contingent on the availability and performance of its internal IT infrastructure. Equally critical is the quality of external services in support of this internal infrastructure. On the other hand, this increasing business dependence on IT services can put escalating pressures on an IT organization's capital and operational expenditures which, in turn, can severely impact corporate resources. Business executives rigorously scrutinize IT budgets and mandate that the IT organization "do more with less" with unprecedented urgency.

IT executives are therefore under pressure to maintain high IT service levels while reducing operational costs. The increasing complexity of services and the increasing number of components present in the IT infrastructure to support this complexity drive demand for more, rather than less, IT resources to maintain and improve IT services quality. With over sixty percent of IT budgets consumed by labor and maintenance of assets, IT executives must more often than not resort to many proverbial actions of "robbing Peter to pay Paul."

This situation is exacerbated by the fact that more IT infrastructure devices per technician increase the requirement for more automated tools. However, the pace of IT organizational automation has not increased proportionately to the IT infrastructure build out. As a result, highly skilled human resources are often predominantly engaged in firefighting activities rather than working on new products or services to increase revenue streams.

These critical dilemmas and others have, over the past decades, coalesced to undercut IT organizations' ability to:

- Raise IT Service Levels
- Reduce Capital and Operational Expenses
- Lower Risk

This is an ongoing process driving IT organizations to seek alternative strategies.

Looking Ahead

Emerging Markets

OOB in collaboration with in-band IT management can reduce the requirements for redundancy by enabling a more efficient identification, diagnosis, repair, and repair verification process within IT organizations. By reducing MTTR and increasing MTBF (Mean Time Between Failures), the collaboration between OOB and in-band management can have a tremendous impact on reducing IT infrastructure redundancy and structural complexity. This will accelerate the development of analytic engines to automate IT management tasks, thus increasing IT operations productivity in support of business operations.

Raritan's CommandCenter and **Uplogix Envoy** are the pioneer products in this OOB and in-band collaboration. The recent acquisition by Avocent of LanDesk, a major vendor of system management software, is a further indication that this trend is "picking up steam." EMA believes that collaboration between OOB and in-band management is essential for the computing-on-demand vision to become reality.

Summary

The OOB market has thrived for many years in isolation from the IT management mainstream in-band market. The reactive nature of techniques within the OOB market is no longer sufficient to meet the requirements of IT operations efficiency in support of business services. Collaboration with in-band technology is necessary to meet the IT operational efficiencies required. Many OOB market vendors have recognized this situation and are spearheading OOB market evolution toward closer collaboration with mainstream IT management. While the OOB and in-band markets are vital on their own, when combined they will bring forth IT management capabilities that would be otherwise unattainable, such as self-healing networks or self provisioned applications. Driven by a proactive approach to IT operations and empirical automation, the collaboration between OOB and in-band techniques will be crucial in ushering in the reality of on-demand computing.

Uplogix

Uplogix, Inc. a privately held, Austin, TX, corporation, provides solutions based on a breakthrough architecture called Intelligent Out-of-band (IOOB) that operates both in OOB and in-band modes. This innovative architecture allows automation of many of the network configuration management functions that otherwise require extensive manual intervention, including maintenance, support, and recovery. Automation of these operational functions significantly reduces the labor costs and enhances support of business operations. The IOOB architecture represents an innovation in bringing a closer collaboration between the in-band and OOB functional advantages to achieve a higher level of efficiency and significant cost reductions in managing the corporate network infrastructure.

Uplogix' management appliance, called Envoy Network Resource Manager (NRM), acts as a 24/7 virtual network administrator that addresses 95% of the issues that are known to cause service outages and degradations in distributed network environments, such as configuration errors, device failures, and telecommunication faults. By automating network support, maintenance, and recovery procedures, Envoy reduces errors and accelerates the time it takes to recover from network disruptions as it recognizes potential trouble spots and cycles through a list of rule-based recovery options. In addition, Envoy provides a secure platform for remote management and ensures compliance with internal management practices and external regulations. Some of the Envoy configuration management functionality is as follows:

- **Automated Diagnosis & Recovery** - reduces MTTR from hours to minutes by providing a standardized and automated diagnostic process that can be executed automatically to solve issues before they deteriorate into catastrophic failures. When Envoy is not able to automatically fix a problem, it alerts network administrators and provides the diagnostic data needed to manually solve the problem.
- **Automated Maintenance** - automated procedures for OS upgrades and patches, modifying configuration elements, and password updates and recovery. These standardized procedures minimize human errors, reduces the routine task execution time required and frees the network staff for more strategically vital activities.
- **Configuration Management Archives** - local repository archives multiple versions of OS images and configuration elements, as well as additional management data, such as syslog, console log, and reports on performance or auditing.
- **Surgical Rollback** - provides automated procedures for detecting and recovering from erroneous configuration changes. Transactional changes can be committed or rolled back on a per session basis. If a change is uncommitted, Envoy can automatically restore the system to the pre-change state impacting only the affected portions of the configuration. This feature can potentially eliminate the 60% or more of network unscheduled downtime caused by human error during ongoing configuration and maintenance activities.
- **Secure and Compliant Remote Management** - support for 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 device access and management procedures.

Uplogix also provides its Envoy customers with a Network Resource Management Server (NRMS), a centralized, web-based management portal for managing multiple Envoys. It presents a full inventory of both Envoy appliances and the infrastructure equipment connected to it. Via the Uplogix NRMS console, network operations staff can schedule and coordinate all maintenance and management operations. In addition, NRMS serves as a central repository and reporting interface for all data collection and audit logs provided by Envoy appliances.

A single, centralized NRMS is capable of managing up to 1000 Envoy appliances and can be linked together to achieve unlimited scalability for even the most widely distributed networks. NRMS can be used as a standalone management console for automating network management operations, or it can be integrated with third-party network management systems and/or software packages. NRMS:

- Provides centralized access network devices under management via a web-based, graphical portal
- Enables network staff to schedule, configure and maintain all network support operations from a single management interface

- Communicates via secure, encrypted, certificate-based protocols
- Brokers both in-band and out-of-band connections, regardless of the network's connectivity state
- Enables central management of all user access and authorization privileges

Uplogix has also introduced optional Management Modules that can be licensed separately and deployed across the Envoy network. These modules are designed to monitor, measure and manage the performance and service quality of various network-related applications, as well as provide Envoy with additional service-related data to better diagnose and resolve potential problems.

The add-on IPT QoS Management Module amplifies this capability by collecting an additional 40 specific QoS metrics and creates MOS scores through using the Harvard Sentences. This solution performs continuous active testing to measure QoS performance indicators, thereby enabling enterprises to more quickly diagnose issues and resolve them, before they impact business operations.

These and other Uplogix Envoy characteristics exemplify the enhanced IT management functionality achievable through close collaboration of OOB and in-band technologies.

EMA Perspective

Uplogix's Envoy products represent unique and advanced step forward toward the evolution of the OOB market collaboration with the mainstream in-band IT management market. Envoy architecture represents a close coupling between OOB and in-band technologies enabling enhanced functionality. The Envoy appliance not only manages network configuration and change management functionality, but has enhanced capabilities such as network fault and performance functionality as well as aspects of system and server management. Envoy also includes a critical capability to assist customers in managing QoS for their IP Telephony installations. This should render the Envoy appliance very appealing to collaborative IT services management organizations especially as demand for remote control grows and appropriate cost efficiencies are required. Investment into Envoy product will bring positive rewards now and in the future.

About Enterprise Management Associates, Inc.

Enterprise Management Associates is an advisory and research firm providing market insight to solution providers and technology guidance to Fortune 1000 companies. The EMA team is composed of industry respected analysts who deliver strategic awareness about computing and communications infrastructure. Coupling this team of experts with an ever-expanding knowledge repository gives EMA clients an unparalleled advantage against their competition. The firm has published hundreds of articles and books on technology management topics and is frequently requested to share their observations at management forums worldwide.

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