

**Appliances Simplify Management.** Network appliances represent a maturity of functions in managing IT infrastructure. This maturity is gaining momentum as users strive to reduce complexity while pushing for more features and broader automation. Still in its early stages, the management appliance concept has a promising future.

***META Trend: During 2001/02, infrastructure and application management (IAM) initiatives will become increasingly pragmatic, and buyers will demand accelerated "time to value" from tool adoption. Through 2005, new business initiatives and evolving infrastructure complexity will continue to cause fragmented IAM strategies, and generalized end-to-end service management will remain elusive.***

Many network infrastructure functions have matured from general-purpose computing platforms to dedicated hardware devices (e.g., network routers, security firewalls, network-attached storage). Some infrastructure and application management (IAM) efforts are now turning their attention to this form of commodity packaging, bundling hardware with management software and an operating system. Current management appliances (e.g., Peregrine's InfraTools Network Discovery, Cisco's Hosting Solution Engine) are initially being greeted with curious skepticism, but users are happy with the concept. A change in operational mentality is accelerating adoption.

Management appliances are in the early adoption stages, garnering less than 5% of management implementations. Although Global 2000 enterprises are still years away from management systems rich in appliance-based systems, we predict 20% annual growth in the use of appliances through 2006. By 2008, appliance-based systems will dominate the enterprise network management market, serving 70% of information collection and 60% of processing. Initial deployments are in the form of utility collectors (e.g., Opto-22, NetBotz, Brix Networks), with Peregrine's InfraTools appliance (the former Kinnetics product from Loran) being the most popular fully packaged management system. Some currently available management appliances are identified in Figure 1 (in Addendum).

Functional consolidation will accelerate during 2002, incorporating distributed active agents (e.g., service-level measurements using synthetic transactions, localized data correlation) into some of the utility collectors.

Eventually, network infrastructure components (e.g., routers, switches) will assume extended management duties from appliances and traditional tools. Some traffic shapers and load balancers now include management technology. As embedded-agent technology matures to support complex services (e.g., voice over IP [VoIP], videoconferencing, peer-to-peer), the necessary embedded processing can be exploited to benefit management. Cisco's Service Assurance Agent is already demonstrating such capabilities. Consolidation at this level will generally lag the dedicated appliance model by one and a half to two years. Because appliances should offer ROI in six months or less, users should consider dedicated appliances rather than wait for the culmination of this consolidation. As new embedded technologies emerge, it will be prudent to transition from the dedicated appliance.

Management service providers (MSPs — see SMS Delta 923, 15 Aug 2000) are also using appliance-based technology (e.g., Silverback's appliance-based service, Oculan's appliances for MSP partners) to localize data collection and processing at the customer sites. As MSPs extend their reach deeper within their customers' sites (2002/03), their

#### *Business Impact*

**Simplified solutions will streamline operational efficiencies, enhance capabilities, and reduce support costs/capital expenditures.**

appliance use will grow even faster (30% annual growth) than self-managed enterprise implementations.

Traditional IAM tools come packaged as software, designed for installation on general-purpose computing platforms (e.g., Unix, NT). Although this packaging offers significant user flexibility, it also requires skills and resources beyond the IAM tool itself. A specific hardware platform is required and multiple skilled system administrators are often needed to configure the system and, possibly, to install the IAM software. A properly designed appliance eliminates the need for both the separate hardware platform and the specialty skills for systems administration.

Most system management tools (e.g., NetIQ's AppManager, HP's OpenView Operations, BMC Software's Patrol) require software on their respective managed servers, so it makes little sense to delegate this module of the IAM system to appliances. Because the hardware platform and administrative skills are central to these products, the resource issue is less valid. Network management (e.g., data collection, topology discovery) is the most notable IAM area where appliances bring benefit. Certain application management functions (e.g., distributed performance testing) also apply. Overall management consolidation (e.g., event aggregation, relationship mapping, root-cause analysis) is a sensible direction for appliances, but this effort will mature more slowly.

Pricing is key to the management appliance model. Dedicated devices must be priced low enough to offer ROI within six months. The low cost results in broader distribution of management intelligence, enabling stronger and more targeted data analysis. As hardware capabilities and demands evolve along with Moore's Law, the appliances must also be rotated every three or four years to minimize obsolescence. The cost and simplicity of this rotation should have minimal impact on the users. One solution to this rotation issue is to lease the appliance. As the lease expires, users can deploy the latest technology with minimal cost. The lease option also supports a deterministic view of future IAM costs.

#### *Bottom Line*

**Management systems based on appliances reduce complexity, but solutions are sporadically available and immature. Users should expect strong growth in the management appliance model through 2006 and consider solutions that fit infrastructure and application management requirements.**

The intricacies and management of the operating system (OS) in a management appliance should be hidden from the user. The OS is generally a pruned copy of Linux, with Windows in the minority. One key attraction of the appliance is its simplicity. If a user needs to dedicate expertise to maintain common OS issues (e.g., user maintenance, backups, OS upgrades/patches, storage management), then the goal of simplicity is drastically reduced. Configuration should be via an intuitive Web-based interface, either directly or through a centralized manager, presumably also on an appliance.

Appliances require flexibility to match or exceed software-only solutions. Configuration of the appliance itself is important, but ease of operation is of paramount concern. Most software solutions allow for multiple users with flexible management of roles/capabilities and flexible portals for viewing information as well as controlling the various functions of the system. Adaptable definitions of the managed domains themselves are necessary. In larger, multiappliance environments, all appliances must interact as a cohesive, yet distributed, single system.

Distributing low-cost appliances enables a widespread management system that scales to the largest enterprises. However, this scale can occur only if the system is envisioned as a whole and if the appliances possess the capabilities to aggregate and share management information. Object-oriented technologies and distributed databases reduce the challenges, but the resulting complexity must be insulated from the user. From the user's perspective, the collection of appliances will appear as one tool.

No management tool, appliances included, can perform all management functions in an isolated setting. Other tools from other vendors will always be part of the mix. Interoperability with these other tools will be crucial to the appliance-based systems. Existing and emerging standards (e.g., SNMP, xmlCIM) will provide the integration points to link tools. Users need to pressure appliance and software vendors to embrace and implement these standards.

**Figure 1 — Currently Available Management Appliances**

Vendor	Web Site	Product
<b>Full network discovery and fault management appliances</b>		
Peregrine Systems	www.peregrine.com	InfraTools
Oculan	www.oculan.com	OpticNerve <sup>1</sup>
<b>Utility data collectors</b>		
Opto-22	www.opto22.com	Snap-IT
NetBotz	www.netbotz.com	RackBotz and WallBotz
<b>Remote service measurement platforms</b>		
Cisco Systems	www.cisco.com	Hosting Solution Engine
Visual Networks	www.visualnetworks.com	IP InSight Appliance
Brix Networks	www.brixnetworks.com	Brix 100 and Brix 1000 Verifiers
NetQos	www.netqos.com	SuperAgent
<b>Services using on-site management appliances</b>		
Silverback Technologies	www.silverbacktech.com	InfoCare service
<b>Non-management appliances augmented with management functions</b>		
Packeteer	www.packeteer.com	PacketShaper
NetReality	www.net-reality.com	WiseWan
Sitara Networks	www.sitaranetworks.com	QoSWorks
Palisade Systems	www.palisesystems.com	PacketHound

<sup>1</sup>The OpticNerve appliance is only sold to Oculan's management service provider partners.

Source: META Group