Unified Network Management—Are We There Yet?

As networks become increasingly complex, having a clear view into, and a firm grasp on, how they are performing gets to be a challenge. How close are we to a unified view for managing the modern network?
What Does It Take to Really Unify Network Management?

You would think that unifying would mean simplifying, but unfortunately that’s not the case when it comes to unified network management. The process of bringing together all the elements of a modern enterprise network, and getting them to work as one, seems to be getting more and more elusive. Networks today combine wired and wireless elements, clouds of all sorts—private, public and hybrid—not to mention a grab bag of applications, personal devices and more.

That’s why we’ve put together this Technical Guide on managing and monitoring the modern network. In it we’ll examine how the tools available today for unified network management work, which vendors are doing what in this market, and what it all means for you.

We start with a primer on unified network management. Next we’ll delve into some of the key features in network management tools and learn how vendors approach this market segment. Finally, we’ll see if the available tools really deliver the features networking pros need.

Being a modern network manager is, as Amy Larsen DeCarlo puts it in Chapter 3, a high-wire act. This comprehensive Technical Guide to unified network management, though, should help you keep your balance.

Brenda L. Horrigan, Ph.D.
Associate Managing Editor
Networking Media Group TechTarget
A user reports that the Wi-Fi in a conference room isn’t working. After the helpdesk determines that the problem doesn’t stem from the endpoint, the network administrator logs into the management console monitoring the wireless LAN infrastructure to run some diagnostics. The result? The access point isn’t overloaded, misconfigured or faulty. There is no radio-frequency interference. The WLAN controller is functional.

According to the console, everything looks OK. Unfortunately, the helpdesk has an incomplete picture. Without concurrent insight into the wired network, the network administrator may not see that the root cause of the problem is the connection between the wireless access point and the switch it plugs into.

“A management system that looks at only the wired network or the wireless network is likely to misinterpret some of the spikes in the response time and blame the wrong network component,” wrote the authors of a Microsoft Research paper, *Towards Unified Management of Networked Services in Wired and Wireless Networks*. “A single system that jointly manages and diagnoses both aspects simultaneously has much better odds of correctly finding the cause of observed problems.”

That’s precisely the role of unified network management tools, which provide network administrators with a consolidated view of both their wired and wireless network assets.

**WHAT IS UNIFIED NETWORK MANAGEMENT?**

Through that single interface, network managers can identify, configure, monitor, update and troubleshoot all of their wired and wireless network devices. This approach—often referred to as a “single pane of glass”—eliminates the need for network admins to toggle between multiple network management tools.
to diagnose a performance issue or reconfigure devices.

Many of the traditional networking vendors—notably Cisco Systems and HP Networking—sell unified network management tools, as do more specialized WLAN vendors. The market also includes third-party vendors that specialize in network management.

The concept of unified network management has been discussed for years, so it is not quite an emerging technology, but mature commercial products have only recently begun to take shape.

“The primary [wired network management] platforms have, for some time, been able to recognize and do fault or availability monitoring for wireless controllers and access points,” said Jim Frey, vice president of network management research at Enterprise Management Associates, based in Boulder, Colo.

“Configuration [management] and performance monitoring have not necessarily been under the same set of tools, but I think it’s getting a little better.”

WHY CARE ABOUT UNIFIED NETWORK MANAGEMENT?

Wireless no longer plays second fiddle to the wired network, with deployments today having evolved from spot coverage in conference rooms and lobbies to implementations blanketing entire buildings and campuses. At the same time—or perhaps consequently—users increasingly expect the corporate WLAN to provide full-throttled connectivity for their personal devices. Meanwhile, LAN architectures are getting more complex as they support larger amounts of bandwidth.

—Jessica Scarpati
**Features to Look For, Vendor Approaches to Look Out For**

Although vendor approaches to unified network management vary, network managers should look for five essential features and functions when evaluating these tools.

The key characteristics of a unified network management platform include the following:

- **Multiple management functions.** Although some capabilities are still evolving, network managers should look for a vendor whose platform can perform a variety of management functions—or at least have them on its roadmap. “This means not only monitoring for availability, faults and errors, but also tying into some concept of performance and some concept of configuration management,” said Jim Frey, the vice president of Enterprise Management Associates. “So, when you recognize a problem ... you have within that same product the ability to take action to correct the issue.”

- **Multi-network support.** At the most basic level, unified network management tools must provide visibility into both wired and wireless network assets. But there’s also a growing need for these platforms to manage virtual networking components like virtual switches, as well as do some network performance monitoring for cloud services, Frey said.

- **Multi-vendor support.** With the exception of Cisco and HP Networking, few vendors manufacture both wired and wireless networking equipment. Consequently, many enterprises have multi-vendor networks, and support for such heterogeneous environments is crucial.

- **Reporting tools for multiple roles.** Network managers aren’t the only ones with a greater need for visibility. As the network plays a bigger role in how enterprises do business, network managers need reporting tools that
can analyze and present information about the network to different constituencies within and outside of IT, Frey said.

- **Endpoint awareness.** Although the capability is still developing, unified network management platforms have begun to offer visibility into some endpoints, recognizing key servers or ancillary devices like firewalls, application delivery controllers and load balancers, Frey said. This is a departure from traditional network management tools, which primarily provided insight into just the core network equipment like switches and routers. As networks grow more complex, network managers need a more comprehensive approach that enables them to zero in on a single device or pull back for a high-level view of the network, Frey said.

**HOW DO DIFFERENT VENDORS APPROACH UNIFIED NETWORK MANAGEMENT?**
Because unified network management is an area of technology that is still evolving, it is best to research or contact potential vendors to learn about their latest approach. There are three general vendor paths to consider, according to Frey.

The first path includes wired and wireless network equipment vendors that provide integrated configuration management and monitoring across their wired and wireless product lines, he said. These include Cisco (with its Meraki and Cisco Prime product lines), HP Networking’s Intelligent Management Center (IMC), Enterasys’ NetSight, Xirrus’s XMS and Aerohive’s HiveManager.

“Other than HP, none of these solutions promote themselves overtly as being multi-vendor capable—although they all are, to some extent, on the wired side of things,” Frey said. “Also, other than HP and Cisco Prime, all focus primarily on the wireless side of the equation, adding wired management only as an adjunct.
capability. Basically, you would not buy any of these products, other than HP IMC, as a full-blown, multi-vendor, integrated wired/wireless solution—only if or when you were investing in that vendor’s wireless devices.”

The second path comprises network-monitoring platforms, many of which have added some degree of support for wireless elements from a fault- or availability-monitoring perspective, he said. Some vendors in this category are CA, Entuity, HP, IBM, Ipswitch, Paessler and SolarWinds.

The final path follows performance management systems that vendors have enhanced to gather statistics and metrics from wireless devices, and to decode wireless protocols for troubleshooting, Frey said. Examples of vendors in this group are CA, Riverbed, NetScout, Network Instruments, SolarWinds and WildPackets. —Jessica Scarpati
Do Today’s Unified Network Management Tools Deliver?

ENTERPRISE network management can be a high-wire act: IT must meet soaring end-user expectations for exceptional service quality but to do so requires clear visibility into traffic as it travels across increasingly complex networks. Quite a challenge! These infrastructures, literal and figurative backbones of enterprise operations today, are now a mix of wired and wireless networks, with end users connecting from a host of devices, both personally owned and corporate-issued.

Traditionally, IT separated tools to manage the discrete wireless and wired elements of their networks. However, as these formerly separate elements have become more integrated over time, end users have come to expect all enterprise assets to work together seamlessly so that they can access whatever resources they need quickly and reliably. Separate management consoles don’t provide the kind of holistic view and the level of immediacy IT needs to identify potential bottlenecks or find the source of other issues.

Today the effectiveness of enterprise network management is measured by whether IT can guarantee end users have fast, reliable and secure access to the business resources they need to do their jobs successfully. And in the era where online all the time is the rule, end users have zero tolerance for downtime.

A BETTER VIEW
To support a more comprehensive end-to-end approach, enterprises are pushing for management tools to monitor and administer equipment from multiple vendors—including controllers and endpoint devices that previously were not part of the network management picture. At the same time they need tools that provide visibility and control across
both wireless and wired segments of their infrastructures.

A number of vendors, including networking equipment suppliers Aerohive Networks, Cisco, Enterasys Networks, HP, Huawei and Xirrus Wi-Fi Networks, and enterprise management and enterprise management companies like CA Technologies and SolarWinds, tout their unified network management products as providing consolidated monitoring and control for both wireless and wired equipment. While some of these tools offer a more accurate picture of the conditions across their entire network topology, there is still a long way for most to go before they can be categorized as offering truly unified network management.

Not surprisingly, vendors offer a greater degree of control and more sophisticated management capabilities for their own equipment. This includes, when it comes to tracking and managing for instance, everything from more automated configuration to advanced diagnostics and better reporting.

**IN PERSPECTIVE**

Most tools still have quite a distance to travel, and a number of features and functions to add—like better support for third-party gear and more visibility across the entire infrastructure—before they can really qualify as a true unified network management solution.

For now, IT is best served by recognizing the limitations (from a monitoring perspective) of vendor-specific tools. Networking professionals should prioritize in their enterprise budget the acquisition of products and technologies that can help derive the best performance from the enterprise’s end-to-end infrastructure.

—Amy Larsen DeCarlo
AMY LARSEN DECARLO has worked in the IT industry for over 17 years and is a principal analyst at Current Analysis Inc., for its security and data center services. DeCarlo assesses the managed IT services sector, with an emphasis on security and data center services delivered through the cloud, including on-demand application, unified communications and collaboration, and managed storage offerings.

JESSICA SCARPATI is the features and e-zine editor for TechTarget’s Networking Media Group. She writes for, edits and oversees the group’s e-zine, Network Evolution. Jessica was previously the site editor of SearchCloudProvider. Prior to that, she was the senior news writer for SearchEnterpriseWAN, SearchTelecom and SearchUnifiedCommunications.

This Technical Guide on Unified Network Management—Are We There Yet?, is a Networking Media Group e-publication.

Kate Gerwig | Editorial Director
Kara Gattine | Executive Managing Editor
Brenda L. Horrigan | Associate Managing Editor
Jessica Scarpati | Features and E-zine Editor
Chuck Moozakis | Executive Editor
Antone Gonsalves | News Director
Linda Koury | Director of Online Design
Neva Maniscalco | Graphic Designer
Doug Olender | Senior Vice President/Publisher
dolender@techtarget.com
TechTarget, 275 Grove Street, Newton, MA 02466
www.techtarget.com

© 2015 TechTarget Inc. No part of this publication may be transmitted or reproduced in any form or by any means without written permission from the publisher. TechTarget reprints are available through The YGS Group.

About TechTarget: TechTarget publishes media for information technology professionals. More than 100 focused websites enable quick access to a deep store of news, advice and analysis about the technologies, products and processes crucial to your job. Our live and virtual events give you direct access to independent expert commentary and advice. At IT Knowledge Exchange, our social community, you can get advice and share solutions with peers and experts.