

Boosting the business value of today's networks

Integrated network management makes killer apps and killer services even more powerful



Introduction

In today's smart world, applications and services rule. Need to reset your password? Don't call tech support. Log on and do it yourself. Is a building across town running hot? Check the air conditioning remotely—before you send a service crew.

But who rules the applications? Who is the power behind the throne?

Somewhere, somebody's network is running those applications. And behind the network lies network management.

The questions for the modern network administrator, then, become not only how to use the network to advance business but also whether the network can deliver the applications users expect. And whether the network management team has the insight and control they need to make network applications dependable and valuable.

That's because in today's instrumented, interconnected and intelligent world, network management does a lot more than ensure resource availability. For organizations with business models and operations that rely on network-based applications, network management is critical to success. Network management today is about the entire life cycle of the network, not just a point-in-time snapshot of current availability. It is central to handling the complexity of technology. It supports a positive user experience. It enables growth and change. And it makes new business opportunities possible.

Think about the network the next time you connect to do business. It doesn't matter whether you're on the desktop computer in your office, your laptop computer at the airport or your phone in a coffee shop. Type a URL into your browser. Touch an icon on your handheld device. Punch a text message into your phone. And you're on someone's network. That's the way the world works today. Information goes out.

A response comes back. And in between it crosses a network—or multiple networks—the collection of parts that make these connections possible.

The network behind applications is important. Because even when the physical network is invisible to users, the business results never are.

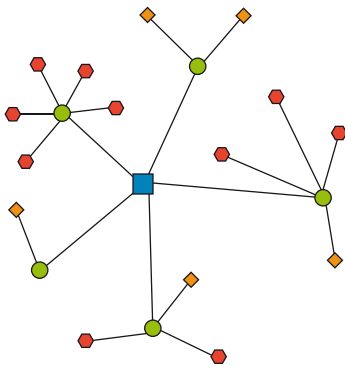
Network services now reach far and wide

Today, nearly every company has a network. And every network links people and resources. But in recent years, networking has increasingly centered on network-based applications that deliver services to customers, employees and other end users. Network services have evolved far beyond transmitting information internally or to a company's remote locations. Networks now reach into areas of business that include customer care, sales and a full range of operations. They connect a wide array of devices in new ways. And they reach new ecosystems of people in the organization—with new requirements for those who have traditionally dealt with networking.

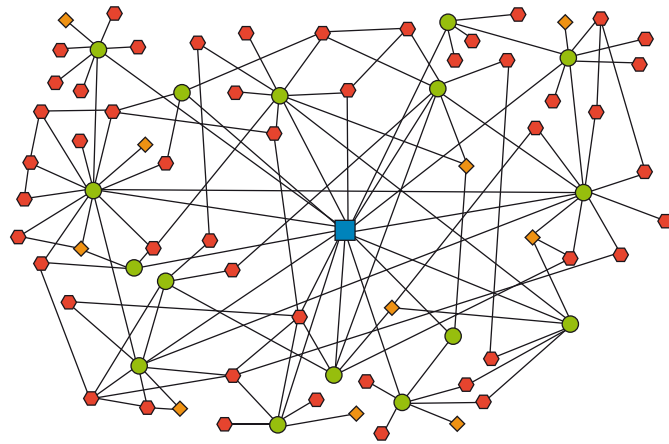
Operations executives, for example, now have to manage the infrastructure in ways that are completely different from earlier processes—because they now have to manage a proliferation of instrumented, interconnected and intelligent systems.

The challenge now lies in how well organizations can integrate these network systems, how well they can manage the entire network life cycle, and how well they can use network management to support services that create marketplace innovation and advantages. The challenge lies in how they can use the networks themselves to take fullest advantage of new, network-based business models that have evolved. In many instances, the use of the network as a business tool has moved ahead rapidly, offering new services and creating innovations, while the structure for supporting the networks has remained unchanged. But insufficient network management tools and processes can mean insufficient business performance. The time for a new management model has arrived.

Networks 20 years ago



Networks today



Networks and their associated management tasks have become significantly more complex in recent years. Connections now reach far beyond internal resources to people and technologies around the globe.

The importance of management is higher than ever

It is network management that makes service delivery possible. But it wasn't always that way.

If networks are a three-tier pyramid, management once resided at the bottom, databases in the middle and applications at the top. Applications—especially the so-called “killer apps” that could dominate a marketplace niche or a business function—were critical to business. But their use remained inside the organization. The network was simpler, it typically functioned well, and when it didn't, network management would focus on connectivity or availability problems. At the same time, application management was focusing on the life cycle of the asset, from the decision to purchase through deployment, maintenance, upgrades and end of life.

Then people started connecting to the network from outside the organization. Using a host of devices from a host of locations, these connections focused new attention on the importance of the network itself—and they prompted the need for management that went beyond simple availability and performance. Network management became viewed as part of integrated service management. Management needed to address services and events—online business transactions and purchases, for example—as much as it addressed application and hardware performance. It needed to address equipment upgrades. It needed to focus on the network life cycle in a manner similar to the life cycle approach that had been developed for applications.

Network management needed a way to integrate the infrastructure, applications and services—and it needed to control these elements in a way that would give the business confidence that it could increase its network service offerings. An airline, for example, considering the addition of Wi-Fi to its

in-flight services first must have confidence that its network or a partner network can support such an offering. If the network cannot be relied on to seize new opportunities, the business is forced to explore other ways—most likely outside the use of technology—to build business.

Network management takes a more active role

But if network management is more than assuring performance or availability, what is it?

First, today's network management is not reactive. It is not only a response to events such as slow performance, bottlenecks or broken connections—though it continues to manage such things.

Modern network management is comprehensive—and integrated. It manages infrastructures and applications used by external constituents through sales, collaboration and other outward-facing functions. At the same time, it manages solutions for entirely inward-facing functions such as building operations.

Modern network management provides insight, with greater visibility into and control of the infrastructure and its operations than ever before. As networks become more complex, visibility becomes more important. The management team, after all, cannot manage what it cannot see.

To support the instrumented, interconnected and intelligent solutions that create smarter businesses, modern network management encourages the use of applications that are fully automated. It may include specific modules for the management of performance, service levels, customer experience or other functions.

But modern network management also contains overarching capabilities that span operations. It enhances the network's ability to offer services that draw on different components of the organization's expertise, extending the strengths and the capabilities of existing networks as it supports the creation of new ones.

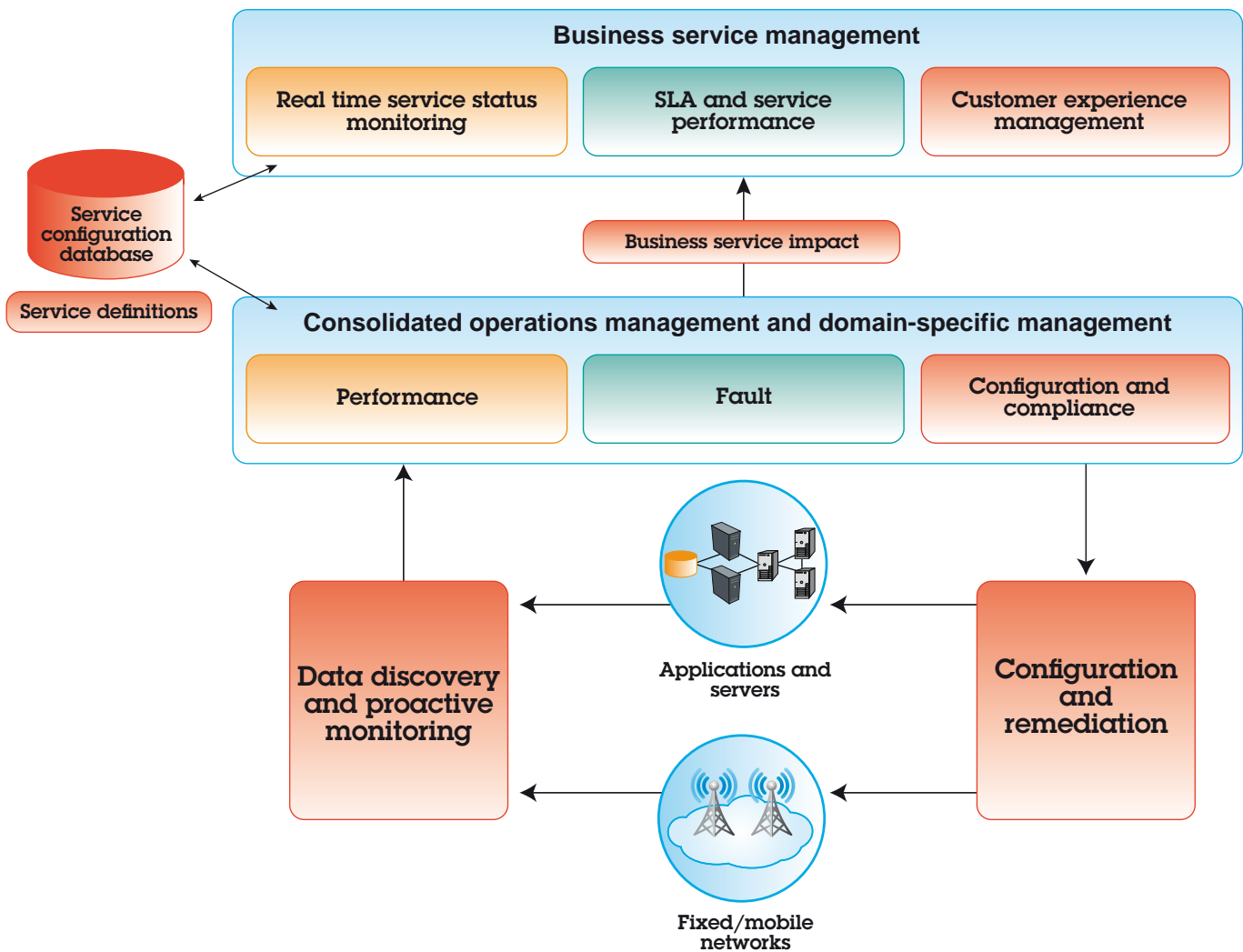
Management: It's about technology and a whole lot more

You've heard the buzzwords—cloud, VoIP, IPTV, MPLS, MetroEthernet, LTE and 4G. They're as pervasive as networking itself. Each brings a different element to the networking experience, and each plays a role in making the world a smarter planet.

Is your organization boosting utilization of its IT resources by virtualizing resources “in the cloud”? Have you experienced the convenience of using Wi-Fi during an airline flight? These are just two of the ways network services are changing today—bringing into the marketplace new “killer apps” and “killer services” that benefit companies as well as their customers.

With business today looking to network services to expand customer satisfaction, innovation and growth, managing the network that underpins those services must follow a similarly expansive path. Just as services today reach a constituency that goes beyond the company's employees, effective network management extends beyond technology deployment, configuration and performance.

Effective network management has to include integration—making sure technology components work together with current and next-generation services to streamline operations, and attract and serve customers. It is about helping companies of all shapes and sizes define the new market opportunities, new applications and new services that will give them a competitive advantage. It is about sustaining and growing the organization. It is about achieving business goals.



Network management solutions enable monitoring and controlling changes—enhancing the ability to manage the impact on business services.

Increasingly, no network means no business

The world today is one big network. People seem always to be connected. And while it was once the case that only a small number of industries—most notably telecommunications and managed service providers—dominated the ranks of connected companies, companies of all types and sizes today use their networks to enhance business.

Consider the intelligence now built into devices. Building components such as elevators or HVAC systems, for example, can gather information about conditions and performance. Networks enable these intelligent devices to communicate with each other. And network applications analyze their data to trigger actions—often fully automated, without human intervention.

It is network management's job to keep this chain of data gathering, communication, analysis and action moving smoothly. But if your network doesn't make use of the intelligence that is increasingly incorporated into devices, that intelligence might as well not exist.

The world has become so dependent on network functions like these, in fact, that for many companies, when the network is not fulfilling its potential, there may be no business. They may not be able to serve their existing customers or attract new ones. Importantly, with an insufficient and inefficient network, companies may not be able to add new services or capitalize on new network-based business opportunities.

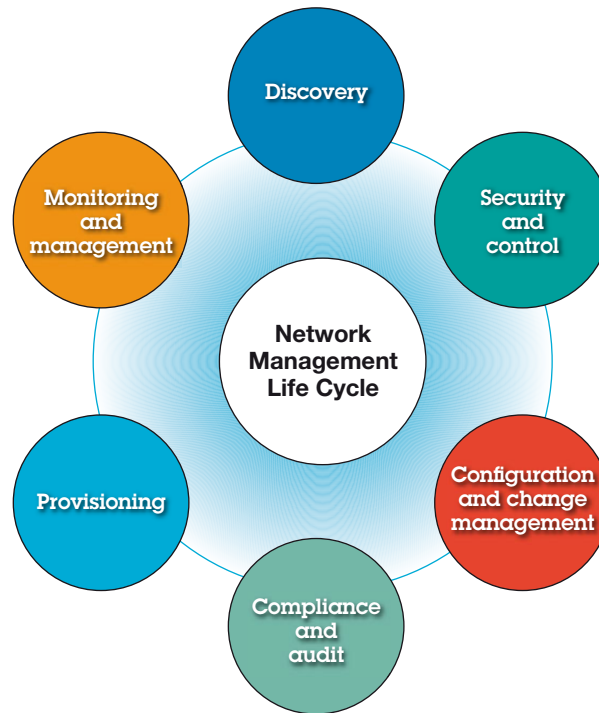
Like network services, management needs are everywhere

Today's killer apps, killer services and next-generation devices are everywhere. Developers are writing applications like crazy for phones and other handheld devices. Users are connecting in the office, in stores or at the bank. But it's not only the application developers and the communications providers that are transforming the network. Across industries, companies are coming up with new ways to extend their business with new ways to use the network.

The scope is huge. Utility companies are adding smart meters to houses—and to their networks—to automatically collect and transmit data on energy use. They are using their networks to support programs that allow building owners with solar devices to sell power they generate back to the grid. Meanwhile, trucking companies are using their networks to collect and transmit not only schedule and performance data on their vehicles but information on the conditions of the products they are hauling.

But there's a catch. To be successful with new models of networking, companies have to be able to deliver and manage applications and services as quickly and cost effectively as possible.

Service providers have long offered service level agreements to ensure that performance lives up to the user's expectations. Now is the time for network management to apply the same rigor to its own functions. The same attention to methodology and granularity that service providers have used to support their offerings can be applied to networks—to pinpoint problems, build confidence in solutions, and capture business opportunities.



The network management life cycle provides a comprehensive approach in ensuring optimal business value.

Effective management addresses the network life cycle

Modern network management is also management of the network life cycle. Beginning with configuring and activating a service, along with provisioning and reconciling resources, it provides ongoing network support with resource problem and performance management, service problem and quality management, and management of the customer's quality of service, including service level agreements.

And within the context of the life cycle, modern network management addresses fundamental business and operational issues. How, for example, does an organization extend the

management system to accommodate new and growing services? Or given that a large number of network incidents result from changes, how can the organization better manage change?

Effective network management can help the organization gauge its expenditures on network resources, understand which operations are consuming resources so it can make adjustments or plan for new purchases, pinpoint the root cause of outages in real time, and determine the impact of any event on the business.

Network management can bring together views of events and services so they are understood and managed in the context of integrated resources, solutions and services. An integrated view can help show an organization why each of its management capabilities and services is important and how the role it plays contributes to business success. Ultimately, management can support the ability to extend new services and take advantage of new business opportunities.

Network management solutions: Better ways to manage data

Today's applications and smart devices regularly gather data and forward it to network managers. But not all data is equal. And managers don't want data for its own sake. What is important are the insights that are gained from data and how they can benefit the business. This is true for all three types of core network data—events (a notification that something out of the ordinary has happened), performance (data on how the network and services are functioning) and configuration (descriptions of how network components are defined and connected to work together). With effective insight, experts can use each kind of data to optimize each aspect of the network.

The highest value, however, comes from stitching together various types of data—pulling information from devices that might range, for example, from door switches to heat sensors to servers—and using it in a single interconnected and automated system that supports business service applications and service quality.

Layered on top of the core functions that point solutions and specialized data enable, integrated network data management can address broad needs in ways not otherwise possible.

Is all well with the network simply because the network manager has not received any alerts? Integrated network data management can provide a comprehensive view that can reveal potential weaknesses and vulnerabilities. Automation can ensure that changes and updates occur reliably, without error-prone human intervention. And when errors and problems do occur, root cause analysis can be expedited—based on the content or context of the network data—to speed resolution. Managers can avoid bogging down in overwhelming detail from individual applications and devices that have been affected by the failure but did not cause it.

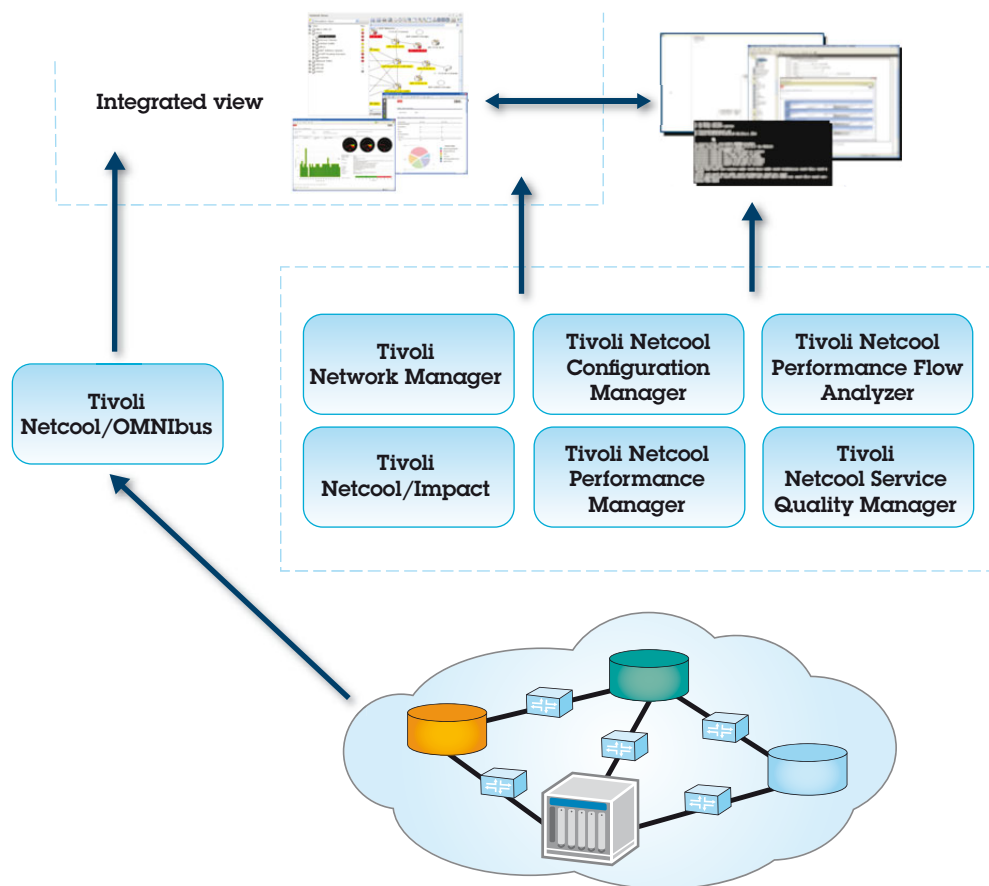
Network management solutions: Building successful companies

Successful network management is fundamental to building a successful business. But the issue in today's smart world of connected technologies and companies is less about whether an individual router has failed than it is about what affect that failure will have on business. For some organizations, the effect will appear as a few hours of lost employee productivity. For others, the effect can be devastating. A company whose entire business is conducted on the Internet, such as an online trading firm, can lose millions in those same few hours.

For enterprise organizations, the need is for network services that support business offerings. For communications and managed services providers, the need is to support a network that essentially is the business offering. But both share a common need: In a world of smarter networks, the importance of network and data integration is huge.

IBM has achieved a leadership position among network management providers with solutions that address these key areas—the company’s need to build business and the network manager’s need for powerful, integrated solutions to support business goals.

The scenarios below illustrate ways in which IBM Tivoli® Netcool® Integrated Network Management solutions can be implemented as a comprehensive, integrated portfolio—or individually—to meet specific business needs.



Tivoli integrated network management is a flexible and effective solution for network and service assurance.

Meeting the needs of an enterprise organization

In an effort to improve operational efficiency, a large, geographically diverse enterprise looked to reduce the number of management applications they had deployed. They looked to integrate both network management and performance management areas that, at the time, were handled by separate groups. The network team also needed to extend monitoring to include a recently implemented VoIP system.

As part of their overall service management strategy, they chose IBM Tivoli Netcool solutions to manage their world-wide network. IBM Tivoli Netcool Performance Manager gives them the ability to monitor and manage their thousands of network devices. It also gives them a common event management solution platform that bridges the two groups, providing them with the ability to better collaborate and improve their operations. Additionally, they are able to provide customers with information and reports regarding conformance to service levels, quality of call services and other key metrics in support of operational efficiency and customer satisfaction.

Meeting the needs of communication service providers

As part of a network life cycle management process, the requirements of one provider extended well beyond real-time monitoring of network health. The company needed more responsive network capacity planning and improvements in automating its operations processes. The goal was to deliver more new services to customers and increase the overall

customer base. The company faced challenges, however, in delivering new services at the rate the market demanded—and delivering them with the quality that customers required.

To help manage traffic on its service networks and monitor customer service levels, the company implemented Tivoli Netcool Performance Manager software. Real-time dashboard views of network activity along with task and report automation provide visibility to improve operational effectiveness. This visibility transforms event data into service information for critical insight into the health and performance of both networks and services. Integrated monitoring of network health supports flexibility and scalability for the backbone network. Ultimately, the solution improves the customer experience.

Using Tivoli Netcool Performance Manager, the company could improve capacity planning with visibility into which resources were experiencing high traffic volume and which resources were used only lightly. Managers could provide trend analyses based on historical data, enabling operations to better predict where a service issue was likely to occur—and proactively make changes to avoid impact to services.

Tivoli Netcool Performance Manager's monitoring and capacity planning capabilities gave the company the tools it needed to isolate, analyze and resolve problems more responsively, addressing service issues and planning for changing traffic demands, with the ability to respond quickly to unforeseen problems.

Automating the monitoring and reporting for new services and devices enabled the company to optimize delivery of new and enhanced services while continuing to broaden both its subscriber base and its range of products.

Meeting the needs of a managed services provider

Managing customer networks with multiple solutions was making it difficult for the service desk staff to differentiate between events that required immediate action to avoid impacting customer services and events that were not affecting service.

To solve this dilemma, the company implemented a Tivoli Netcool solution as a strategic component of their network management system. The Tivoli solution enabled the company to consolidate a number of management solutions into a single system—collecting and filtering information from different sources and then providing information to the network operator on a single display.

The Tivoli solution consisted of a network surveillance component responsible for keeping track of the different networks and collecting information. Another important function was to prevent flooding managers with thousands of alarms as soon as a minor issue occurred in the network. Using Tivoli Netcool Performance Manager, the company could gather statistics over time quickly and easily and provide views of aspects such as utilization in different parts of the network. A Tivoli Netcool/Impact solution integrated with a configuration management database containing information on all current devices allows the company to prioritize actions in response to events.

Tivoli Netcool solutions enable the company to save time and effort while significantly improving the quality of its services. The ability to filter and display relevant information and to come up with recommended solutions to problems enables the company to offer greater security and peace of mind to its customers.

Summary

Twenty years ago, businesses knew networks were important. But few grasped that networks and the far-reaching applications they enable would some day become their lifeblood. Twenty years ago, the focus would have been on internal operations. Today, the network carries the business into the larger world.

And the instrumented, interconnected and intelligent world of today is also the world of tomorrow. It is complex now, and it grows more complex daily. But it is alive with possibilities. Companies that want to get the most from their resources, deliver services that will attract and keep customers, and grow and expand with new opportunities must manage their networks and their network services well.

An integrated solution that brings together the necessary insight, control, life-cycle perspective, end-to-end infrastructure and business reach can support an integrated network environment that sets a company apart and keeps it on the path to success.

For more information

To learn more about Tivoli Netcool integrated network management solutions from IBM, contact your IBM sales representative or IBM Business Partner, or visit ibm.com/tivoli/solutions/network

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