Network Service Is Evolving Fast: Do You Have the Tools to Keep Up?

Frontline professionals weigh in on the real drivers of change and their impact on network management.

A research project conducted by Dimensional Research to understand drivers of change within the network management industry.
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The days of linear network management maturation are coming to an end, but not for the reasons you might think. While technology advancements continue their march, it’s organizational demand for faster delivery that’s forcing network management to make unprecedented leaps. Additionally, with drivers occurring outside of IT, required change can catch networking teams off guard.

In this report, we’ll take a closer look at the events, technologies, and initiatives that pushed network teams to accelerate the services they provide. Specifically, you’ll discover:

- Key influences and disruptions around network management evolution
- Lessons learned from network professionals
- The evolution of network management

**Key Findings**

- Business, security, and organizational drivers impact the speed of network service evolution more significantly than networking technology advancements.

**Surprising Drivers, Unprecedented Leaps**

Among this study’s most surprising findings is that pressure for evolution in network management isn’t coming from technology advancements but rather from multiple teams within a company, both in and out of IT.

The network professionals we interviewed emphatically pointed to these organizational influences and pressures (figure 1) as driving the most significant changes to the network team and network management progression.

**Outside In: Influences and New Network Capability Requirements**

We spoke with network professionals from a variety of enterprises and industries to understand their progression of network technology and the drivers of change. In the pages that follow, let’s take a deeper look at the organizational influences and pressures and hear from the professionals that faced these issues.

**The Evolution of Network Services**

In the emerging scenario, network managers must be aware that their customer requirements won’t be defined by a traditional linear technology progression. While the first three levels of the network evolution may be linear, the requirement to leap-frog to the latter three stages can come from any of the first three levels.

Reviewing the organizational influences and pressures can help network managers predict where the business may define the next level for your team. However, enterprise-level network management tools must be in place to support the delivery of these advanced services.
Influence: FOCUS

Key Findings
Organizational influences:

- The most important takeaway in this study is that network service progression was not driven based on linear progressions in technology, but rather by new requirements mandated by the business.
- By comparing the organizational influences model with organizational trends, network managers can predict requirements and choose suitable products to meet future demands.

FOCUS—From Interfaces and Devices to Services and Business Needs
Participants indicated that the evolution of individuals on the network team as well as the company as a whole is based on the method of networking service delivery. Initially, the network team focuses on offering connectivity and basic networking infrastructure. From there, networking becomes a critical IT enabler with focus shifting to IT support in addition to networking capabilities. Finally, networking becomes dedicated to enabling the business, not only applications but DR, remote offices, mobile employees, security requirements, and new business opportunities. Thus, networking decisions are now governed not by what is best for the network or the administrators but by what supports the business.

“As a basic network admin, you think about this network segment being up or down. But as the team matures, they think about the applications running on it, access to data, and security. They change from a network-centric world to understanding what the network facilitates for the benefit of the business. This changes how you measure and manage network effectiveness.”

Network operations manager
Global technology company
Influence: TEAMS

Key Findings

- Teams need to evolve to meet new requirements from the business.

TEAMS—Silos Dissolve and Networking Aligns With Security, DevOps, and Beyond

Organizationally, teams change and drive the network operational evolution. Initially, the network team is a standalone entity and operates in a silo. But participants explained that in modern IT organizations, networking soon receives a second master to serve in the form of a security team. Security and network architecture must be aligned to ensure security as well as fast, reliable access. Many businesses have realized that the classic silo model no longer works for the new IT environment. Public and hybrid clouds, agile development, virtualization, and mobility create very complicated environments. This mandates heavy skill overlap from the development team to the release team to the operations team, as well as the capability to deliver rapid triage. For many companies, this is the driver for emerging DevOps roles and organizations.

Teams Must Find New, More Flexible Ways to Work Together

“The teams are just not siloed anymore. We don’t have a network admin that only reports up to the network team or network architecture. The network specialist is part of the DevOps organization, and a developer may call on him one day and next someone who works in the datacenter or with storage and then a request from an ops manager or the help desk. That pulls the individuals into this new world team that has to work together. That fundamentally changes how they work and the tools they need to manage the network.”

IT director
International retail company

Business Requirements Cause the Need to Rethink Functionality

“The network admin tools are fairly good at managing the network and doing triage. But with a converging IT culture and the need for transparency and alignment to the business, the admin tools just couldn’t provide the needed functionality. That was the tipping point for new tools.”

Network engineer
Domestic financial services corporation
Influence: TOOLS

Key Findings

Tool sets:

- Silo-centric tools frequently fail to provide capabilities for the long-term needs of the company.
- Scalable tools that can integrate into your solution ecosystem contribute to organization's agility to respond to disruptive influences.

TOOLS—Out Of the Silo and Into Cross-Domain Operational Systems

According to network professionals, the tools needed and used are clearly affected by the six phases of network service evolution. However, participants consistently indicated that changing focus and team structures drove the need for new networking tools. Silocentric and enterprise scale tools fulfill basic networking tasks, but fail to keep the company and converged teams informed, resulting in the need for new integrated solutions.

Integration Requirements Drive Tool Decisions

“Often we bought tools just as we needed them. It was too hard to rip and replace so we ended up with a lot of tools. But then you realize you have a lot of point tools, and they don't integrate with each other. You can't get a full view and have to look at a lot of different dashboards. The network team can manage to a point but then you realize the network info has to integrate with the operations tools, help desk solutions, security, and others. Then you wished you had thought ahead and bought a tool that would do that down the road.”

Network manager
Global restaurant and hospitality company

Plan Ahead to Scale

“As we grew, the old tools just couldn't handle the network traffic increases. Either they just locked up or couldn't support enough collection points or devices. Ultimately, when we looked for new tools, there were new features we had wanted for a while and that provided an opportunity to get them.”

Senior IT network analyst
National health service provider

Let Future Requirements Drive Decisions; Not Just Current Requirements

“I wish I could go back and remake some of the network tool decisions. They met needs at the time but failed to provide some of the capabilities needed just a few months after deployment.”

VP of IT
International financial institution
Influence: SECURITY

SECURITY—Security Organization Advances, Networking Must Follow

Security requirements directly affect the needs and requirements of not only network technology and operations but the tools to manage the network as well. Participants noted that early on, network design, automation, and growth require security approval, adding another stakeholder whose objectives further challenge the speed and accessibility they’re trying to offer. The pace of security advancement is often a function of the company’s industry. Those who were progressing to the automated network phase were often pulled there by the security team’s desire to adopt advanced and persistent threat prevention tools. Those security solutions require application, location, and data context to prevent specific data from leaving authorized end points, which requires holistic network visibility, management, and control.

Security Is Now a Core Deliverable of the Network Team

“Security directly affects our network. Perimeter security is mandated, as well as firewalls within our network for PCI [Payment Card Industry] data security standard compliance. Now it is network-based APT [Advanced Persistent Threat] security that is trying to correlate if sensitive data is going to a destination it shouldn’t. So security and the network are the two sides of a coin.”

Network engineer
National healthcare provider

Traditional Network Evolution:
Linear Steps Forward

Conceptually, networks evolve through six core service management and operations phases, in a linear fashion (figure 2). From discovery to advanced automation, each phase represents the network team’s management and operations objectives, the main focus of which is summarized in topline quotes, informed by feedback from research participants.

For some companies, phase-to-phase progression happens with discrete separation; for others, there is overlap. The first three are often driven from within the networking team, while the remaining three often occur to meet changing business requirements. The more mature and complex the organization becomes, the more outside influences impact the network services.

Key Findings

Network management evolution model:

- Progression drives toward an automated and agile service delivery model.
- Examination of business and organizational drivers can help managers predict where your team will need to leap to support the business.
Phase-to-Phase Linear Progression of Network Management

DISCOVERY—What, Where, and Which Version
According to research participants, this phase is about ensuring that network teams have an accurate topology of their network and connected devices. These teams also want to verify configurations and versions, as well as compatibility between network devices and technologies. This is the place where new companies start as well as the time when a company’s first dedicated network management professional comes on board. For many existing companies, this phase is revisited when a new office or data center is being brought online or when a significant change occurs in the IT architecture such as leveraging the public cloud.

Lessons Learned in Network Management and Network Service Evolution

FAULT—Uptime All the Time
Network professionals point to this phase as the core operation of the network. It ensures that all offices and datacenters have network services and Internet connectivity, with a focus on high availability and reliability, and a response and remediation plan for service interruption. Successful fault management contributes to IT and organization confidence in network dependability.

PERFORMANCE—Fast, Reliable, and Nothing Less
"This is where the core competency for network operations occurs. The business expects and receives a fast, reliable network, and decisions about the network architecture, data center, and application architecture are consciously discussed to ensure a fast and reliable network."

Solution architect
Global IT services company
Those we interviewed are well aware of businesses’ reliance on internal and external apps, and the fast and reliable networks that support them. The same goes for SaaS solutions, public cloud resources, backup, and disaster recovery (DR) services connectivity. Many network teams establish service-level agreements (SLAs) to meet these performance and uptime expectations. Decisions about network equipment, network architecture, and workload placement are centered on high-performing support services.

COMPLIANCE—Who, What, When, and Which Device

“To keep the network fast and reliable, we needed to institute a change and configuration management process and implement a tool. However, about the same time, the business came to us with compliance and security requirements that affected our processes and reporting requirements.”

Senior network engineer
Global automobile manufacturer

Network professionals pointed to change and configuration management processes as drivers of network reliability, performance, and efficiency. It allows quick recovery for mistakes and ensures a consistent process for deployment, configuration, and updates. Network and operational tools provide reporting, tracking, and remediation capabilities to support business and regulatory compliance. According to network professionals, this phase is heavily influenced by the needs of other teams and of business, which range from development requiring responsive infrastructure provisioning to strategic business initiatives such as unified communication or rapid app deployment.

BASIC AUTOMATION—Save Time, Do More

“We had 10,000 network elements, and it just took too much time to patch and configure each one manually. We started off with scripts, and then got an orchestration tool. That allowed us to do basic automation. But it became clear that we need a dedicated automation platform and one that would do reporting for us and our stakeholders.”

Director of network services
Leading global financial conglomerate

According to research participants, the automation phase is a continuum with many stepping stones. The initial objective of basic automation is to remove repetitive tasks from network team members, freeing them to work on strategic tasks. This phase also consciously attempts to reduce common misconfiguration errors and other mistakes that cause network service interruption. Basic automation begins with scripts that are kicked off manually. As tasks become automated, the need to create automated reporting and compliance grows, relieving personnel from these additional arduous tasks.
ADVANCED AUTOMATION—Fully Loaded

“This is where the networking team wants to be, and where IT needs to be, to serve the business. We can automate to make IT services happen faster, happen pro-actively and do it with less human intervention, fewer errors, and entirely documented.”

Architect
Global technology company

Networking professionals told us that fully automated network functionality is the nirvana they aspire to. Many indicated that the network must become automated to support the vision for dynamic cloud initiatives and self-healing capabilities, as well as to enable self-service offerings. Those interviewed described the net result as generating the agility and speed needed to meet dynamic business needs but with fewer resources, and designed for continued compliance. Companies seeking agility and employing a DevOps strategy require automation of network services to keep pace with the speed of DevOps processes.

Updated Network Tools: How Not To Get Caught Off Guard

Network professionals from a variety of enterprises and industries experience different progression of network technology and drivers of change. While many are familiar with the phases of the network technology, the key finding was that business and organizational changes, not technology advancements, are driving network evolution.

![The Evolution of Network Services](image)

**Figure 3.** Organizational influences, pressures, and the network evolution.
Key Findings

Adapting to change:

- Network managers can use change, such as a new campus or data center, moving to a hybrid infrastructure, or implementation of Agile and/or DevOps development models to validate new tools.
- Targeting advanced-stage management models will help network teams avoid operating in a reactive mode.

Networking Professionals Need to Be Aware of the Business Influences and Pressures That Will Drive New Requirements in Tools and Processes

“A big part of change is that it is not just network admins looking at the tools any more, we had application managers and business stakeholders. The app, and the network, have to correlate and integrate from a tool perspective. It needs to cover monitoring for both app and network but also provide data to the help desk and experts to triage issues.”

Senior architect
National aeronautics and defense solution company

“Just think about change management, asset management, and compliance reporting. Your old network ops tools could not provide the data we needed. So new tools were required to meet these new networking requirements.”

Senior network engineer
Global technology and storage company

Networking professionals need to be aware of the non-technical drivers coming from the business and IT. Resulting changes can be abrupt and require a change in operations, shared information, and tools. Network teams may need to purchase tools that meet the needs of today but fail to meet those of tomorrow, forcing a haphazard adoption approach. Most companies and IT teams are continually moving toward the right-hand side of the evolution model, but the following may signal imminent advancement to the next phase and further:

- Request for network data or logs for integrations coming from other departments, such as operations, finance, development, business, compliance teams, and help desk
- Reorganizations toward an increasingly DevOps approach
- Growing focus on virtualization and automated cloud operations and services
- Security teams talking about Advanced Persistent Threats (APTs) and dedicated defense tools
- The desire to implement self-service for IT, developers, and the business

All of these will require tools that collect and share network data with other departments and systems, and if chosen wisely, will contribute to advanced automated network services.
Micro Focus: Network Operations Management

IT Operations Management

Easier, faster, transformative—Continuous change, rapid delivery, and greater user expectations are the new normal. Traditional solutions and architectures can't keep up. Our ITOM innovations transform IT operations to be analytics driven, intrinsically automated, and collaborative, making IT faster, smarter, and more responsive.

The Network Operations Management (NOM) suite from Micro Focus delivers complete control of your modern network infrastructure. NOM provides visibility into your network topology, health, and configuration; optimizes it for performance, capacity and compliance; and orchestrates the configuration through automation. Unlike point-tools, NOM’s comprehensive set of capabilities provide the broadest set of scenarios to identify, analyze, and solve incidents across physical, virtual, and software-defined networks across the core set of requirements—fault and availability, performance, configuration, and compliance. Network Operations Management uses system guided workflows to lead users through problem resolution across traditional organizational teams to solve problems faster. And, because NOM also reduces tool sprawl, it removes conflicts that result from disjointed reports from mismatched tools to compress the network incident lifecycle improving mean time to remediation. The end result - staff has the complete set of tools they need to proactively manage modern networks.

- Industry-leading support for physical, virtual, and SDN-enabled devices
- Single toolset delivers performance management and configuration
- Network-focused orchestration content speeds service delivery
- Policy-based audit and remediation drives security compliance
- Capacity and configuration modeling tools enable effective planning

And, because NOM also reduces tool sprawl, it removes conflicts that result from disjointed reports from mismatched tools to compress the network incident lifecycle improving mean time to remediation.

Figure 4. Service management for enterprise networks
Research Methodology

Micro Focus commissioned Dimensional Research to interview experienced enterprise network professionals from independent sources. The objective was to understand the key IT projects and drivers that created change for network technologies and tools. They were asked questions about their organizations’ network environment, current architecture, and future network and tool requirements. They were specifically asked what factors affected network technology and operational direction.

All content in this report was taken directly from interview transcripts, although some quotes have been edited for grammar and readability. All participants were ensured their feedback would be presented only as part of a summarized report with no attribution to ensure that they presented the most realistic, unfiltered information about their experiences.

About Dimensional Research

Dimensional Research provides practical marketing research to help technology companies make their customers more successful. Our researchers are experts in the people, processes, and technology of corporate IT and understand how IT organizations operate. We partner with our clients to deliver actionable information that reduces risks, increases customer satisfaction, and grows the business.

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