



# **Noble Truths** of Network, Server and Application Monitoring

**IPSWITCH**  
WhatsUpGold

IT MANAGEMENT MADE SIMPLE

# Introduction

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## IT's evolving challenge...

Nearly every organization is highly dependent on the reliability, availability and performance of its IP networks, physical and virtual servers and IT applications. This connected web of IT infrastructure, software, virtual and mobile technology is the backbone of business across almost every industry.

How can IT teams meet the need to thrive while dealing with an increasingly large and complex environment, constantly “doing more with less” and the requirements to deliver near-zero downtime? The nine noble truths of [network, server and application monitoring](#) explain the problem and describe the path to its solution.



# Truth #1



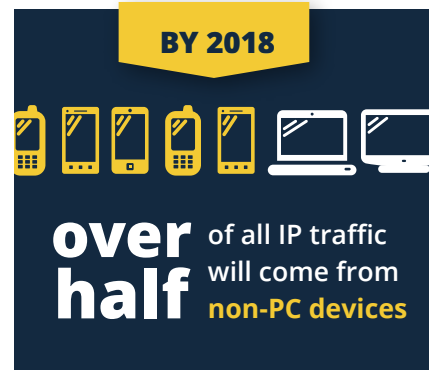
The number of devices, amount of traffic, and load on your network is exploding.

Demands on your network continue to skyrocket. Business applications, unified communications, video, mobile devices, rich media, big data, and the Internet of Things all place new and growing demands on your infrastructure and increase the challenge of maintaining uptime, performance and service levels.

For example, the use of bandwidth-intensive applications like [Microsoft Lync](#), SharePoint and Exchange has caused global IP traffic to increase fivefold over the past five years, and it will increase another threefold over the next five years. These business-critical services enable users to move large volumes of data across networks at will, around the clock, significantly impacting bandwidth consumption.

Globally, **IP video traffic will be 79 percent of all IP traffic** (both business and consumer) by 2018 as users continue to indulge in entertainment services like YouTube, Netflix and iTunes over the corporate network, further increasing the risk of bottlenecks and slowdowns. Yet with so much business being transacted online these days, from email to file transfers to VoIP to web conferences high-quality bandwidth is absolutely and fundamentally vital to business communication.

IT must be able to pinpoint and manage **“bandwidth hogs”** to prevent service degradation. Balancing the bandwidth needs of business-critical apps with the influx of consumer devices connecting to the network like smartphones, wearable technology laptops and tablets, can be a challenge. Bottlenecks can quickly lead to poor website experiences, low-quality video conferencing, dropped VoIP calls... and a flurry of calls to helpdesk staff.



# Truth #2



## Business comes to a halt when IT infrastructure and applications perform poorly.

Your IT infrastructure has never been more business-critical. User expectations have never been higher. Business *is* ebusiness, and IT is no longer a back-office function. IT is the primary way that organizations engage with their customers, employees and partners.

Your IT systems are at the center of almost every customer interaction, and this trend is only increasing as organizations continue to deploy more self-service processes. Assuring top-notch availability and performance, which is essential for end-user satisfaction, is one of the most important aspects of IT's role today.

It's well known that slow transactions reduce conversion rates, and that poor service responsiveness leads to frustrated customers, disgruntled employees and poor user experiences. But "slow response time" can be [almost as damaging to the bottom line](#) as an outage.

Studies show that a one-second delay in B2C website response can correlate to a 2.1% decrease in cart size, a 7% decrease in conversions, an 11% decrease in page views and a 16% decrease in customer satisfaction. If your site earns \$100,000 per day, that equates to **a loss of \$2.5 million in sales**. Similarly, accelerating site performance translates into significant sales gains.

IT infrastructure is strategic not only because it enables transactions, but also because it enables access to data. Employees and customers must be able to access information whenever, wherever, from any device. This is one of the key ways that IT delivers a competitive edge.

Seven out of ten organizations believe IT infrastructure plays an important role in [enabling competitive advantage](#) or optimizing revenue and profit. Organizations with leading IT infrastructure practices more likely to deliver superior financial results, including greater revenue growth and profitability than industry peers.

**The performance of your website directly impacts revenue:**



Microsoft Bing found that a **2 second slowdown** = a **2.5% decrease** in queries and overall clicks.

Amazon finds that a **100 ms** slowdown can mean a **1% decrease** in revenue.

Yahoo! reports that a **400ms FASTER LOAD TIME** = **+9% SITE TRAFFIC**

400ms improvement in load time gives a 9% increase in traffic.

# Truth #3

## IT complexity is growing faster than your IT team.

It has been asserted for centuries that the universe and the natural and human-created systems within it seem to have an inbuilt tendency to become more complex with time. No IT executive, manager or administrator would argue with that!

As [CIO.com](#) put it: *Managing an IT project is like juggling chunks of Jell-O. It's neither easy nor pretty. Information technology is especially slippery because it's always moving, changing, adapting and challenging business, as we know it.*


Factors contributing to the mounting complexity of IT include:


- BYOD and the consumerization of IT, which puts pressure on IT to maintain network availability and support an ever-growing array of device types, operating systems, software applications and security capabilities
- Your network's constant evolution—including, wired, wireless, physical, cloud, virtual, hosted, on-premise, and hybrid systems and applications—as IT strives to remain aligned with the business
- Escalating IT security and regulatory compliance demands as more and more data, applications and business activity bridges the corporate firewall
- Hidden threats to your network stability and performance, such as rogue and non-sanctioned devices and “shadow IT” systems


IT is continually charged to do more with less. Yet the number of hours in the day remains the same. Teams may also be downsized in the face of increasing competition and a shrinking bottom line. The headcount in standalone IT roles will likely shrink by 75 percent or more of the current total by 2015, according to CEB's report, [The Future of Corporate IT](#).

The challenge facing IT teams is how to thrive in a world where complexity and risks in your IT environment are almost certainly growing faster than your IT team. To manage this growing complexity while maintaining the same or smaller headcount, budget and footprint, organizations need simple and powerful IT management tools that are easy to buy, deploy and use.

**IT COMPLEXITY**

Nearly **70%** of federal agencies believe that **network complexity is increasing.** 

**81%** of federal network managers believe that **network complexity can SLOW DOWN IT performance.** 

**62%** of employees use their own devices, adding to **network complexity.** 

**IT RESOURCES**

**58%** of IT managers believe that their **staff is going to be reduced.** 

**MOST IT LEADERS** believe that their **budgets are going to shrink.** 

# Truth #4

## Downtime is not an option.

You can't afford downtime—its cost to a modern company can easily **exceed \$500,000 per hour**. According to Dunn & Bradstreet, the productivity impact of downtime alone is estimated at more than **\$46 million per year** for a Fortune 500 enterprise.

Downtime costs vary not only by industry, but also by the scale of business operations. For a mid-sized business, the exact hourly cost may be lower, but the impact on the business may be proportionally much larger.

[Aberdeen found that between June 2010 and February 2012](#), the cost per hour of downtime **increased by 38%**. As organizations continue to automate and rely on the network to get business done, the increase cost of downtime will only continue to rise. Every type of company relies on an application on a network to complete some aspect of its work process—and a stop there means a stop to business.

In today's non-stop world, systems must be up 24/7. Paper-based backup processes are no longer viable options. No wonder businesses have less and less tolerance for downtime and network and application performance degradation, as reflected in today's service level agreements (SLAs).

When the stakes are this high, availability and performance of critical systems becomes the most important charge of any IT department. IT must prioritize limited bandwidth to business-critical applications and quickly unclog bottlenecks so slowdowns don't turn into downtime.

If IT can't pinpoint problems quickly, the business impact could be crippling. To minimize business risk and the cost of downtime, IT Teams need to allocate network resources effectively to mitigate issues before users are impacted, and rapidly find and fix any problems that do occur.

### Hourly Cost of Downtime by Industry



**MEDIA . . . . . \$90,000**



**HEALTH CARE . . . . . \$636,000**



**RETAIL . . . . . \$1.1 million**



**MANUFACTURING \$1.6 million**



**TELECOM . . . . . \$2.0 million**



**ENERGY . . . . . \$2.8 million**



**BROKERAGE SERVICES . . . . . \$6.48 million**

When Amazon.com went dark for approximately **49 minutes** in January 2013, it cost the company an estimated **\$4 million+** in lost sales.



That's about **\$1,104 per second**

# Truth #5



## Network and application performance defines your reputation.

From the perspective of customers, partners and employees, your network is your business and your reputation is on the line every time they access it. Few things affect user experience and perception more than the availability and [performance of your applications](#) and network.

Lost revenues, lost productivity and the cost of restoring systems can be significant even for minor disruptions. But the impact of a major outage or security breach that impacts reputation can be even greater. According to a recent study by IBM and Forbes magazine, [reputational damage lasts far beyond recovery times](#); long enough to impact quarterly results in most cases. Major incidents can impact reputation, and the bottom line, for years—**over \$5 million over two years**, according to estimates.

So, you need the capability to:

- Find and fix problems fast
- [Measure and strategically allocate bandwidth utilization](#)
- Show KPIs related to delivering a high-quality customer and/or end-user experience
- Validate that you are consistently meeting and exceeding service level agreements (SLAs)

How important are efficient and effective monitoring tools in this context? [One survey reported](#) that **70% of organizations had a critical network event** that took at least one full business day to diagnose. **73% reported that they had unresolved network events** at the time of the survey. These are the kinds of issues that well-orchestrated monitoring can virtually eliminate.

Further, there are no second chances when it comes to the deployment of new IT infrastructure and services. You need to deliver expected results, rapidly and with minimal disruption. Is your network ready for the launch of a new service? Have you addressed the risks associated with a major infrastructure change? Can you deliver pre- and post-deployment metrics to show success?

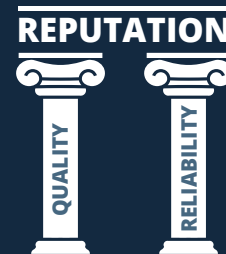
*“Organizations that have capabilities for measuring quality of end-user experience are twice as likely as other companies to improve their brand reputation and 75% more likely to improve employee productivity.”*

— Hyoun Park, Research Analyst, Aberdeen Group

*“Organizations must ensure that the Website is engineered to deliver the best possible experience for each customer. **Without this quality of experience, the Website can damage the overall brand image of the company.**”*

—META Group

**Quality and reliability** are two of the top factors



shaping reputation for any organization.

**5.27 million DOLLARS**

The estimated 2-year **reputation-related costs** resulting from a substantial event disrupting business or operations.



# Truth #6



## You must find and fix problems before users are impacted.

IT Teams shouldn't find out about problems from the helpdesk. You must be able to proactively identify and resolve issues before users report service degradations. Proactivity has three aspects:

**First** is a comprehensive, real-time view of network and server performance, availability and health. This includes a range of monitors, alerts and escalations so your team can isolate and resolve issues as fast as possible. To stay ahead of the widest possible range of issues, you need a unified dashboard showing early warning notifications across [applications, networks and servers from three types of monitors](#):

- Monitors that proactively poll devices and services, awaiting an expected response. An unexpected response or no response triggers an alert or action.
- Monitors that listen for problematic device events detect unusual activity and can point toward potential future issues. They complement other monitors by gathering data beyond simple up/down device states, such as authentication failures and other important but infrequent events.
- Monitors that gather key device metrics (e.g., CPU, disk and memory utilization) as a basis for reports that correlate historic and threshold data to trend utilization and availability of critical components so you can plan for the future.

**Second** is a complete, historical report view of how your network and server infrastructure is performing as it changes over time. This enables you to spot trends, remain aligned with service level agreements, keep up with growing network traffic, meet new bandwidth demands and plan for additional capacity—so the IT infrastructure is “always-on,” efficient and responsive.

A full spectrum of built-in reports from your monitoring tool, plus the ability to quickly generate custom reports, is essential for proactivity. For example, you should be able to view and report on performance data side-by-side with network traffic and configuration data to derive insight into bottlenecks and “limiting factors” in optimizing the performance of your infrastructure.

**Third** is the ability to proactively plan critical maintenance windows so these activities take place at times that are least likely to impact users and customers, and whatever impacts occur are minimized and planned for in advance.

**7 Most Common Root Causes of Network Performance Issues**

- Network Congestion
- Network Configuration Changes
- Server Systems (including virtual machines)
- Security Systems
- Application Design Issues
- End-user or Client System Error
- Storage Systems



# Truth #7



## Unified monitoring is essential across wired and wireless networks, physical and virtual servers, and applications.

As business relies more and more on IT to achieve success, a hiccup in one area can have a ripple effect across the entire business. Unified monitoring across wired and wireless networks, physical, virtual servers and applications—including network traffic and bandwidth usage, log files, and ultimately user experience—is essential as IT teams evolve to cope with escalating IT complexity and diversity.

No matter where a problem lies, you must be able to conclusively identify its root cause and assign responsibility for resolving it—and the only way to do that is to have complete visibility across the whole infrastructure. Unified monitoring can slash **mean time to repair by 25% or more**.

To rapidly find and fix problems and reduce “blamestorming” and reliance on “war rooms,” IT teams benefit from one system to monitor availability and performance of all their infrastructure and applications. A unified view is the foundation for simplifying troubleshooting, [measuring network performance](#) against SLAs, accelerating detection of policy violations and unauthorized changes, optimizing application performance, responding to spikes in demand, and monitoring user experience. Your team needs “the big picture” along with the ability to drill down into the details on-demand. But the solution needs to be simple enough that you don’t have to allocate a full-time resource to maintaining and monitoring it.

A [unified monitoring solution](#) also enables development of a “common language” across network and system specialties. When teams come together around a unified tool and everyone has real-time understanding of availability across the IT infrastructure, each specialty can support proactive identification of root causes and deployment of resources to address them. Likewise, a unified monitoring solution offers comprehensive alerting, bringing the right people to the table right away.

**The Benefits of Unified Monitoring**

✓✓✓

**End user productivity increases up to 20%**

 20%

through increased infrastructure availability.

Improved availability of business services



**reduces negative revenue impacts up to 15%.**

 -25%

Mean time to repair **slashed by 25% or more.**

Unified monitoring



**cuts system outages by 20%**

# Truth #8



## Automatic discovery and continuous dependency mapping saves time and enables you to find and fix problems faster.

The ability to see and understand the relationship among devices is critical to managing your infrastructure, and to quickly identify the root cause of problems. Today's networks are highly dynamic, with changes happening quickly and continuously: new application deployments, new infrastructure coming online, office reallocations, mergers/acquisitions, new dependencies among components, and so on.

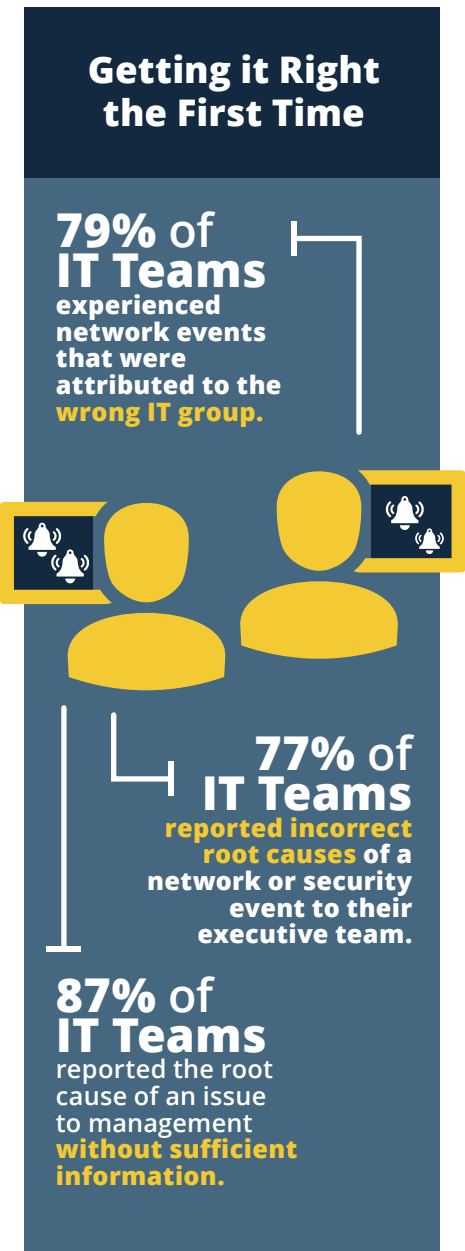
When your dependency maps are always up-to-date, your infrastructure reliability improves. But keeping up with these changes manually would be far too complicated, error-prone and labor-intensive without investing far more resources than would make sense. [For example](#), 79% of IT Teams experienced network events that were attributed to the wrong IT group. 77% reported incorrect root causes of a network or security event to their executive team. Fully 87% were forced at least once to report the root cause of an issue to their management without sufficient information while 39% reported having to do this multiple times.

Automated tools for discovery and dependency mapping save a tremendous amount of time and effort. But they also support IT agility, which starts with having the right data at the right time. To even think about being agile, IT needs to understand what devices it has, where they are and how they relate.

Automated discovery and [network diagrams](#) also mitigate "alarm fatigue," which is the failure to respond appropriately to alarms due to an inability to sort out their criticality or priority. This is what happens when one device fails and its entire hierarchy of dependent devices sends out alerts as well. How can you respond rapidly to a problem when you're chasing down false alarms? Automation ensures teams get the most meaningful alerts about the right devices at the right time.

Benefits of automated discovery mapping:

- Enables admins to keep an accurate and up-to-date network diagram, simplifying network documentation with minimal effort
- Automates report creation
- Tracks hardware asset inventory



# Truth #9



## Simplicity and automation accelerate time-to-value.

As pressure mounts on IT to meet availability targets, automation becomes essential as a means to understand, monitor and inform IT teams about the network's makeup, health, and potential and actual problems. Yet such a tool can be powerful and flexible without being costly or complex to deploy and manage.

In a world of increasing complexity, IT teams need tools that solve real problems, install easily, don't require teams of experts to configure, and deliver rapid time-to-value and ROI. Users also want sleek IT management systems that don't require paying for functions and features that aren't needed and won't be used.

IT teams want tools that just work – out of the box – no fuss, no muss. These tools should be:

- Easy to buy, deploy and use
- Up-and-running and able to discover your network and dependencies quickly—in about an hour instead of days or weeks
- Priced simply and fairly

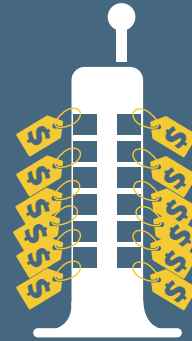
There are three keys to simplicity and rapid time-to-value for an integrated monitoring solution:

1. **A single pane of glass.** The solution must bring together management information into intuitive, informative consoles and dashboards to provide at-a-glance insight into network operations
2. **Get started fast.** Set-up and configuration including automatic device and dependency discovery and mapping in about an hour.
3. **Cost structure.** Simple, affordable product licensing and low maintenance effort are the biggest contributors to low total cost of ownership and ongoing cost scalability.

Device-based pricing models are recognized as the least expensive, least complex and most predictable in the marketplace because users pay once and can then monitor any number of ports or components on a device. This eliminates a year-over-year budget increase for monitoring, as well as additional budget approval cycles that can waste time and hamper IT agility.

### \$ The Right Cost Structure Matters

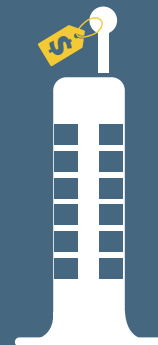
**Interface-based licensing** forces IT to pick and choose what's important.



And if you change your mind later, you + \$ \$ have to pay more.

**MANUAL & COMPLEX**

**Device-based licensing** means all interfaces on a device are covered.



Just pay once for full device coverage.

**SIMPLE & AUTOMATED**

# In Summary...

## No Network = No Business

While every modern company is unique, they all have one thing in common: no network = no business. Communication, collaboration and commerce—the purpose of the organization and all its primary functions—cannot happen without the network and associated server and application infrastructure.

With so much riding on its availability, and with so many internal and external factors threatening its stability and performance, monitoring and managing this infrastructure is central to IT team's core mission.

The nine noble truths of network monitoring come down to this: Your network, server and application infrastructure is your business, and your ability to maintain and optimize its operation is only as good as the real-time and historical information available to you about it.

Best-of-breed network, server and application monitoring solutions unify performance and availability data on all components of the interrelated IT infrastructure within a single, easy-to-use dashboard view. This comprehensive view delivers the insight that IT teams need to optimize user productivity, ensure customer satisfaction, enable business agility and support strategic technology investment.

The best monitoring solutions will be easy to deploy, easy to use out-of-the-box with minimal training, and deliver outstanding time-to-value and ROI. At the same time, the solution must be comprehensive so that you don't need to buy or manage additional tools. Popular options like [virtual infrastructure monitoring](#), [application performance monitoring](#), [log management](#) and [change/configuration management](#) should be affordable and available as options that integrate seamlessly with the core solution.

A top monitoring solution will also offer straightforward and cost-effective licensing and a modular architecture, so you pay only for what you need and budgeting is predictable.

[Ipswitch](#) offers a simple, powerful and cost-competitive solution for [network and server monitoring](#). Integrating IT monitoring in one single view, Ipswitch tools let you focus on what matters and alert you to problems before users complain.

See how Unified Monitoring can transform IT's workflow and improve performance...

IPSWITCH  
**WhatsUpGold**  
IT MANAGEMENT MADE SIMPLE

Click to download your  
**30-Day FREE TRIAL**

*"It's sometimes difficult to differentiate between hype and reality when it comes to topics such as cloud, ITaaS, SDN, DevOps, hybrid this and hybrid that. But there are a few certainties in the IT universe and one of them is that **IT doesn't function if all of the pieces can't talk to one another**, and that means the network needs to be rock solid. Some of that is under the control of enterprise IT teams as internal network infrastructure, but some of it isn't, such as WAN or Internet. Because connectivity is so essential, no one questions the need for making sure the network is healthy and operational at all times, and that its role is assured in the grand scheme of IT.*

– Jim Frey, VP, Analyst, EMA

## About Ipswitch

Ipswitch helps solve complex IT problems with simple solutions. The company's software is trusted by millions of people worldwide to transfer files between systems, business partners and customers; and to monitor networks, applications and servers. Ipswitch was founded in 1991 and is based in Lexington, Massachusetts with offices throughout the U.S., Europe and Asia.

For more information, visit [www.ipswitch.com](http://www.ipswitch.com).

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See how Unified Monitoring can transform IT's workflow and improve performance.

**Download your 30-Day FREE TRIAL of WhatsUp Gold Network & Server Monitoring ►**