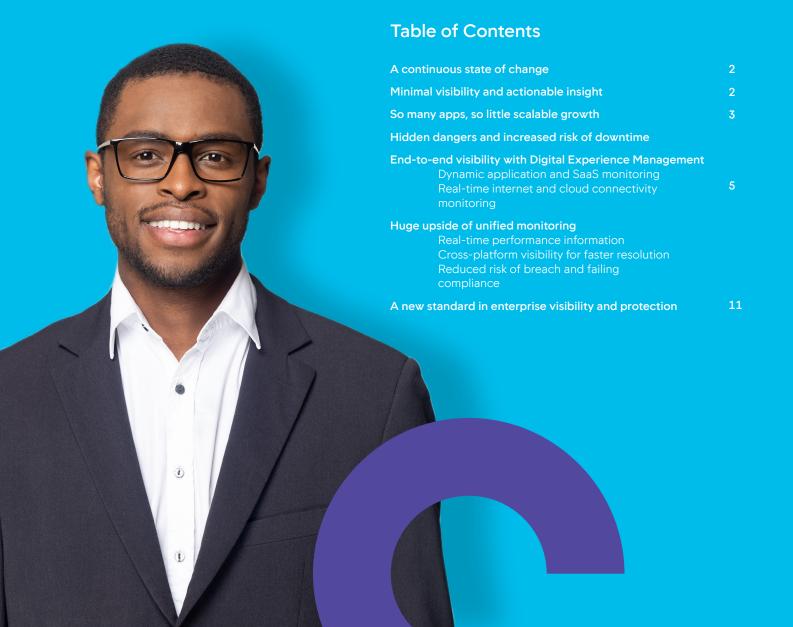# The Ultimate Guide to Network & Application Visibility

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Combining network and application performance monitoring is key to end-to-end discovery, insights, and protection

The IT world is in a continuous state of change. New technologies emerge, priorities shift, and the demands of consumers and end business users alike continue to evolve. As the urgency of digital transformation initiatives grows, IT leaders face mounting pressure from both internal and external audiences to do more — optimize performance, reduce costs, and deliver innovative services — with fewer resources and less time.

Contrast that with the old days, when managing an IT environment required little more than setting up and monitoring servers, troubleshooting a terminal, or configuring new software for a team or department. But today's IT environment is significantly more complex and can't be managed effectively with outdated tools and strategies. There are exponentially more endpoints to configure, an array of public and private clouds to optimize, and a never-ending parade of cloud-based apps to monitor and secure.

> The average enterprise uses as many as 5 clouds[1]
> and over 1,200 cloud services[2]

Driven by increased transition to work-from-home models, new and more sophisticated security threats, and the growth of SaaS tools, organizations need to efficiently and effectively deal with the constantly expanding perimeters of IT. While many enterprises have deployed a range of application and network monitoring solutions to extend the reach and capabilities of their teams, they're also finding that standalone point solutions operate in silos that dramatically limit their visibility, agility, and control over their environment.

In response, progressive IT and business leaders are increasingly seeking integrated solutions that combine conventional application performance monitoring (APM) and network performance monitoring (NPM) to create a Digital Experience Management (DEM) platform and gain end-to-end visibility across the entire enterprise footprint for maximum agility, security, and control.

[1] *"Flexera 2020 State of the Cloud Report." Flexera.com. May 21, 2020.*
[2] *Brinker, Scott. "The average enterprise uses 1,295 cloud services." ChiefMartech.com. February 12, 2020.*

Minimal visibility and actionable insight

Application and network performance monitoring solutions have exploded in popularity in recent years amid the mass adoption of digital transformation initiatives among global enterprises. Collectively, the industry is projected to grow an average of more than 11% annually through 2027[3] as IT infrastructure continues to expand and evolve.

Yet, despite having more solutions available for monitoring the health and performance of mission-critical applications and network connections, many IT teams are left in the dark because continuous performance monitoring has traditionally been managed through various individual APM, NPM, and systems monitoring tools (SPM) that don't integrate with one another.

While these standalone solutions are great for managing specific systems or groups of applications, they weren't designed for today's more expansive IT ecosystems in which one application can easily impact dozens of other applications and systems. Traditional NPM tools flatline outside the shrinking perimeter of the enterprise, while native cloud monitoring tools lack visibility outside the app environment.

> A single hour of downtime can now cost enterprises up to $5 million, exclusive of any legal fees, fines or penalties[4]

Employing a number of disparate systems and tools can create potentially catastrophic visibility gaps that make it extremely difficult for IT teams to quickly identify and mitigate network or app issues, including breaches.

There's no easy way to assign accountability for app or digital platform performance and wading through huge volumes of alerts spread across multiple systems usually means costly unplanned downtime or critical security breaches that jeopardize the customer experience, revenue operations, and even brand reputation — simply because IT didn't have enough time or resources.

[3] *"Application Performance Management Global Market Trajectory and Analytics." Global Industry Analysts, Inc. www.strategyr.com. Accessed October 12, 2020.*
[4] *DiDio, Laura. "ITIC's 11th annual Hourly Cost of Downtime Survey: Forty Percent of Enterprises Say Hourly Downtime Costs Top $1Million." ITIC-Corp.com. June 19, 2020.*

So many apps, so little scalable growth

In addition to increasing an organization's risk of loss, conventional performance management solutions can also stymie growth. IT has historically operated from a single location or two — from data centers, specifically — that could be easily monitored by a small team and relatively few resources.

But the increased complexity of IT environments also means an expanded perimeter, stretching teams beyond their capacity. And if new apps or services can't be fully and sufficiently supported, businesses are likely to shy away from launching them in the first place, forgoing crucial growth opportunities.

Today, each new app or service must be specifically configured to the needs of end users and business scenarios, and may require backend access to hundreds or thousands of disparate systems. The sheer volume of apps, endpoints, and data challenges even the most experienced and efficient IT teams in three ways:

- **Adding monitoring tools or configuring built-in tools** is time-consuming
- **Configuring individual monitoring solutions** can be very expensive given the specialized skills required
- **Outsourcing monitoring operations** can also be cost prohibitive

Hidden dangers and increased risk of downtime

To further complicate matters, monitoring application health and performance is but one part of the IT equation. IT teams must also monitor every WAN/LAN and cloud connections that power virtually every workload and software application — frequently adding even more visibility tools to the mix.

Worse, much of the hardware and software found in common overlay technologies are hidden from monitoring tools, obscuring critical IT operations from the very teams charged with supporting and managing them.

81% of public cloud users choose two or more providers[5]	**94%** of all workloads will run in some form of cloud or virtualized environment by the end of 2021[6]	**89%** of companies use software-as-a-service (SaaS) applications, and nearly **75%** use infrastructure-as-a-service (IaaS) solutions[7]

That means despite every effort and the best intentions, there's virtually no way for IT teams to easily or regularly evaluate vital performance metrics like network-wide round-trip times, quality of service, or page load speeds for customer-facing sites and applications — all of which can have disastrous business consequences if left unattended.

Who and what does monitoring affect most?

Business productivity apps/ remote worker connectivity	Content delivery and streaming services	Government-citizen services applications	Telehealth services and connected medical devices	Online banking and personal finance services

[5] Goasduff, Lance. "Why Organizations Choose a Multicloud Strategy." Gartner.com. May 7, 2019.
[6] "Cisco Annual Internet Report (2018–2023)." Cisco.com. March 9, 2020.
[7] "2018 Cloud Computing Survey." IDG Communications, Inc. Accessed October 12, 2020.

End-to-end visibility with Digital Experience Management (DEM)

Eager to gain wider and more granular visibility into their operations and assert greater control over every facet of their operation, business executives are increasingly embracing Digital Experience Management (DEM) solutions.

Unlike popular point products, DEM solutions combine traditional APM, NPM, and other monitoring systems into a cohesive, integrated platform for unprecedented visibility into every corner of the business — every app, network, ISP, API, SaaS product, and third-party service in the environment.

Now IT leaders, line of business executives, and application or product owners can take a more proactive approach to optimizing performance, security, and availability failsafes from a single, unified platform.

Dynamic application and SaaS monitoring

DEM platforms enable easy, reliable visibility into each facet of an application and every SaaS endpoint. Authorized IT users can see inside the digital experience — everything from the application code and instrumentation level to every network or dependency in use — to proactively identify and mitigate threats to performance or availability. They can even monitor collaborative SaaS applications like web conferencing tools and popular business productivity products at the application level, including hop-by-hop network performance visibility from user devices, data centers, and remote or branch office locations to help ensure continuous availability and top-flight performance.

Real-time internet and cloud connectivity monitoring

In the Digital Age, connectivity is the coin of the realm. With DEM solutions, network operations teams can proactively monitor internet, DNS, content delivery, and even cloud node connectivity in real-time. Now, end-user experience monitoring teams can pinpoint issues tied to specific ISPs or specific failures in a cloud-based service to either resolve the bottleneck or reroute traffic to maintain quality of service and availability for users in a fraction of the time as other methods.

Huge upside of unified monitoring

Today's technology landscape is markedly different from any time in history. End-user-driven cloud consumption — such as the rapid shift to remote workforces because of COVID-19, enormous traffic spikes when a smartphone maker launches its next-gen device, or a popular software provider issues its latest release — will continue to promote the expectation of exceptional performance, responsiveness, and security.

Enterprises that embrace Digital Experience Management solutions to unify application and network management operations can gain deeper insights into their daily operations, while improving performance and availability to promote greater productivity, responsiveness, and deliver a superior customer experience that fuels sustainable growth.

Real-time performance information

These tools arm them with real-time reporting and AI-supported workflows that help accelerate Mean Time to Resolution (MTTR) for any app- or network-related issue. They can precisely monitor each transaction within a complex digital service delivery supply chain to help ensure the business runs flawlessly from all vantage points, while database administrators can better understand how applications and databases interact to prevent potential negative impacts on database performance.

Cross-platform visibility for faster resolution

DEM solutions transcend traditional platform barriers and segregation, providing comprehensive cross-platform visibility. Now, IT teams can avoid chaotic war rooms and dreaded finger-pointing by enabling IT operations to triage and escalate problems to the right team, and move easily between application and network to get to the root cause, fast. They can easily manage or troubleshoot connectivity and performance issues for all their internet-dependent applications and even execute automated runbooks for quicker problem resolution and fewer customer or end user complaints.

Reduced risk of breach and failing compliance

Perhaps most importantly, unified monitoring platforms can significantly reduce the risk of security breaches and falling out of compliance with industry and government standards. Real-time visibility into every corner of an enterprise's IT environment, proactively scanning for potential threats, alerting IT operators to patch when necessary, and providing a detailed digital audit trail to make each process as transparent as possible.

A new standard in enterprise visibility and protection

AppDynamics and ThousandEyes are leading the charge in providing organizations big and small with the insights, transparency, and actionable intelligence they need to protect their most sensitive information and create memorable end user digital experiences.

Combining the popular and powerful application monitoring tools from AppDynamics with the real-time network monitoring across all internal and external connections by ThousandEyes, the solution is the first and only comprehensive monitoring solution available to proactively monitor every app, network or cloud connection, and SaaS endpoint in an enterprise environment.

Unlike legacy systems and standalone tools that require hours of custom integrations, the unified solution takes minutes to configure using Smart Code Instrumentation that adapts to changes in the environment for faster time-to-value and effortless scale with minimal overhead.

More importantly, AppDynamics+ThousandEyes features simple-to-use, role-relevant views to cross-app teams, along with built-in analytics capabilities that help IT teams aggregate, correlate, and analyze data in real-time to identify and resolve issues faster than ever.

Today's digital enterprises are at risk from hidden threats. Despite the litany of application (APM) and network performance monitoring (NPM) solutions available, most are standalone products that operate in silos and create visibility gaps that can leave businesses exposed to higher risk of breaches, downtime, and other costly business interruptions.

Instead, as the IT perimeter continues to expand outwardly and there are more endpoints, systems, and users to manage, IT teams need a fully integrated solution that combines the best of APM and NPM capabilities into a complete Digital Experience Management system for greater transparency and 360-degree, real-time visibility across the entire enterprise environment.

Want to learn more about how AppDynamics is driving end-to-end visibility with ThousandEyes?

Visit https://www.appdynamics.com/free-trial/ to start a free trial.