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eBook

The Guide to Taming SaaS App Architecture Sprawl

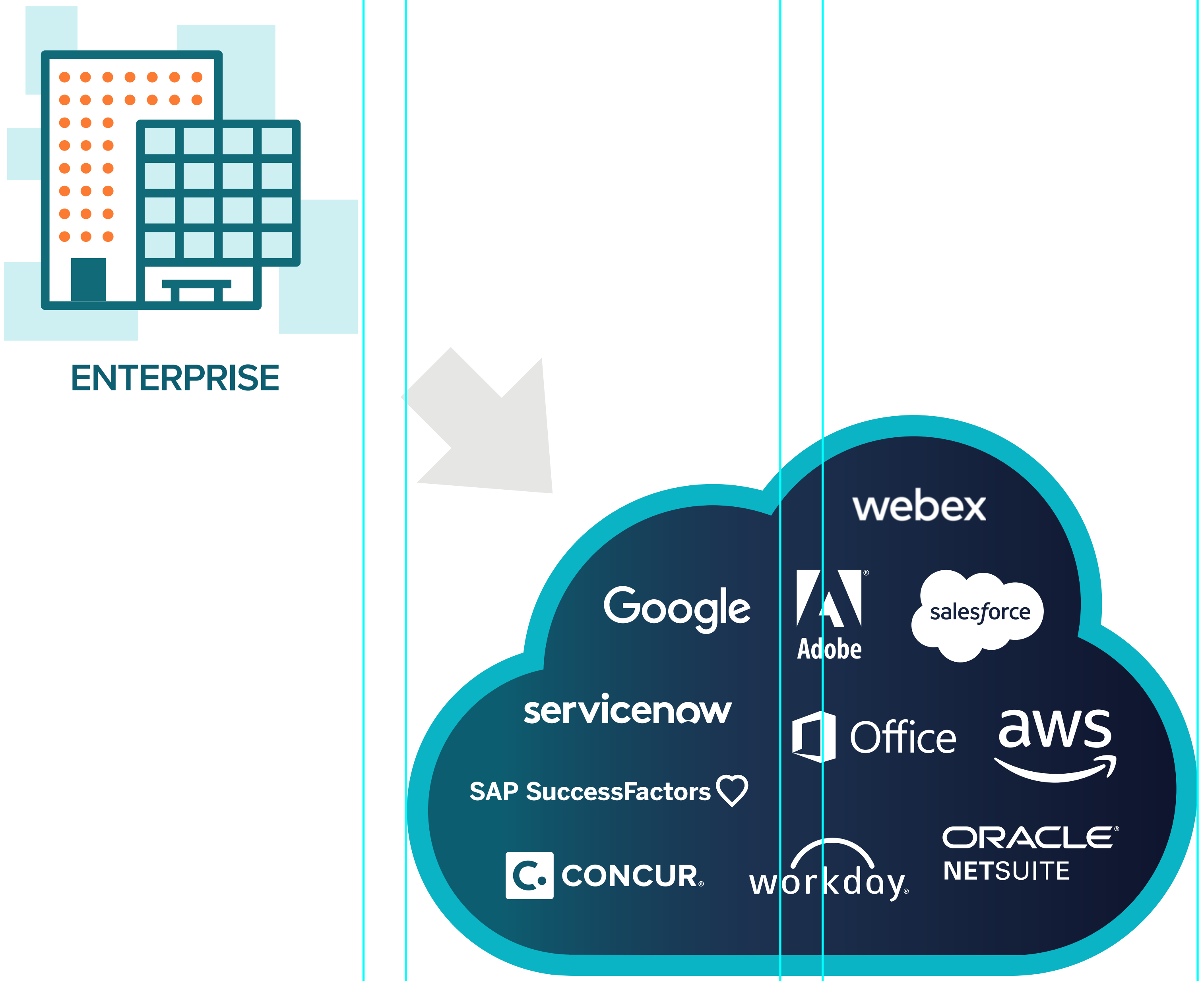
The State of SaaS App Dependence and Monitoring

The mass adoption of Software-as-a-Service (SaaS) apps by enterprises in recent years has transformed the business landscape, and along with it the scope of ITops teams' responsibilities. It used to be that enterprises owned and controlled their business-critical infrastructure and applications, and when something went wrong, ITops had the tools and visibility needed to identify root causes and troubleshoot quickly.

However, as digital transformation efforts have ushered in a new wave of cloud-based applications, SaaS has become the new app stack. Internally-hosted, monolithic applications have shifted to reside outside of the corporate perimeter, and therefore outside of the visibility and reach of IT. At the same time, these applications have grown increasingly central to business success so monitoring them has become more important than ever before.

While SaaS offers enterprises the benefits of scalability and performance regardless of user location, they also present challenges when it comes to troubleshooting performance or availability issues. Legacy monitoring techniques that rely on code injection can't effectively monitor SaaS applications, and the diversity, dynamism, and complexity of SaaS architectures demands a bespoke approach for each application. That applies even to apps from the same SaaS provider.

This eBook will examine these issues through three examples of SaaS architectures, and offer ITops teams what they need to know to make sure they're monitoring critical SaaS applications for optimal user experiences.



Understanding the Challenges of Monitoring SaaS Apps

ITops has long relied on some tried-and-true legacy network monitoring solutions to troubleshoot application performance issues. But these solutions fall short in three key areas when it comes to effectively monitoring SaaS applications:

1. Part of the problem is that SaaS apps are built on modern, massively scalable and dynamic architectures, which are entirely outside of ITops visibility. They can run across multiple clouds, regions, and data centers, and the public Internet plays a critical role in their delivery infrastructure. In addition to the numerous ISPs that make up the Internet, third-party services—such as DNS, CDNs and secure web gateways (SGWs)—all need to function. **Figure 1** demonstrates the vast ecosystem of providers and services that are critical to SaaS application delivery over the Internet.

2. Traditional NPM or APM monitoring techniques aren't designed for such complex and dynamic environments. NPM toolsets focus on owned networks, while APM needs to inject code (often Javascript) into an application, which delivers valuable insights into transactions and code performance. However, they don't work when the application in question isn't yours, and they also struggle to provide a detailed understanding of network connectivity throughout the application.

3. Further complications arise when ITops needs to troubleshoot the root cause for outages or performance issues with SaaS apps. IT teams often feel as if they're being left to fend for themselves, and vendor status pages frequently lag behind outages in real time.

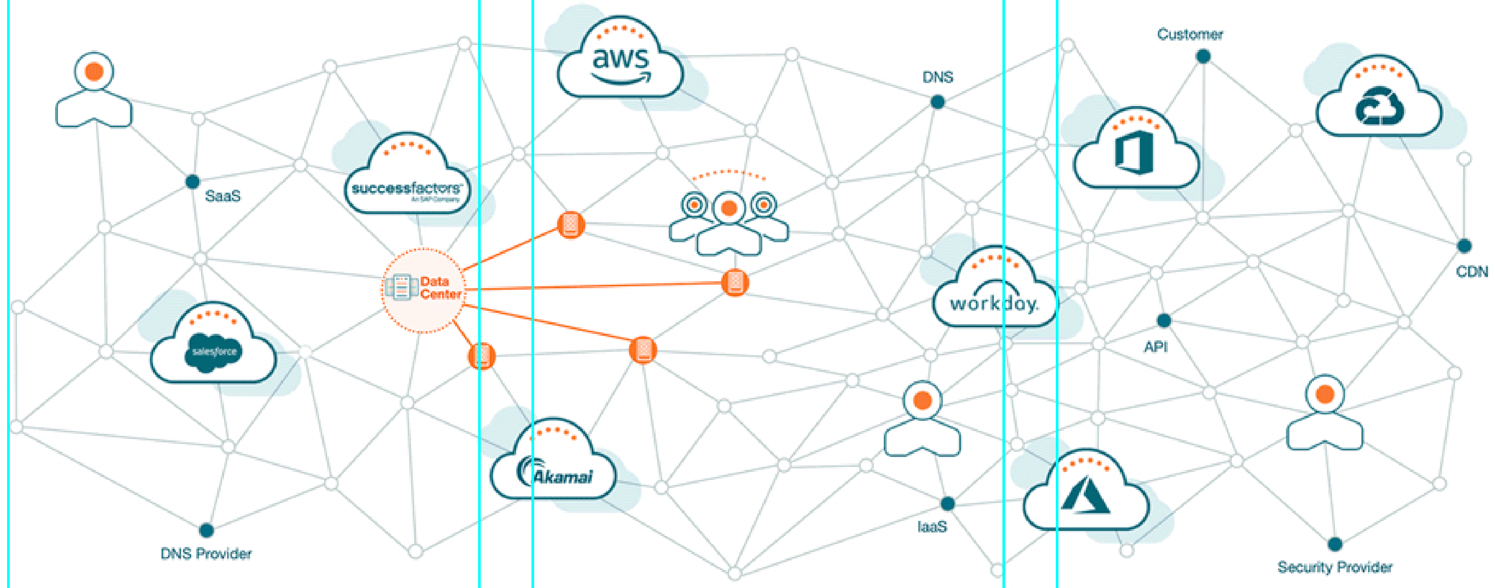


Figure 1. The SaaS app delivery chain relies on a much larger ecosystem of services and providers

Despite these challenges, an effective SaaS monitoring solution is a must-have for businesses, and we're seeing tolerance for performance issues with SaaS applications decrease. If recent events have shown us anything, it's that we're more reliant than ever on well-functioning applications.

So, what can ITops teams do to close these monitoring blind spots? There are solutions, but the answer can depend on the application.

SaaS Application Monitoring Is Not One-size-fits-all

The breadth, complexity and diversity of SaaS application infrastructures means that each application can require a different approach to monitoring. As mentioned, that applies even to applications from the same provider. To see what that means in practice, let's look at a few examples:

Microsoft 365 Suite of Productivity Applications

Despite being part of the Microsoft umbrella of services (and, therefore, on the Azure cloud), individual applications such as Outlook, Sharepoint or Dynamics are used and often architected differently, which makes troubleshooting them more complex than meets the eye.

For example, Outlook employs a DNS-based global load balancing technique that selects edge server locations based on where the user is located for better performance and resiliency. Sharepoint, on the other hand, uses a technique called anycast, whereby multiple physical edge locations are represented by a single IP address. Both techniques are effective, proven practices, but they make monitoring these services a bit nuanced.

Depending on where an end user is connecting from geographically, there will also be different ISPs involved, or they may be traversing the Internet to reach the Microsoft Azure backbone differently. A user in Los Angeles might enter the Azure network in San Jose, while a user in Milan might enter the Azure network in Frankfurt. And, as providers make peering changes or bring newer Points of Presence (PoPs) and edge locations online, Internet routing can change without notice seemingly overnight.

These often-imperceptible differences lie behind the scenes, and the different tasks their users need to perform can make all the difference when troubleshooting performance challenges.

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The Salesforce Multi-cloud Ecosystem

While some opt for a single-cloud approach, more and more SaaS providers are dependent on a multi-cloud infrastructure. For instance, Salesforce had traditionally run their own cloud infrastructure, but it has increasingly inherited applications running on public cloud platforms, such as AWS and Azure, in recent years via its numerous acquisitions. This means that a single suite of applications can be running across multiple regions and clouds.

In addition, the Salesforce platform focuses on the strength of its partner ecosystem, which allows for integrations into the Salesforce platform for enhanced business functionality. These ecosystem partners may have built their applications on the Salesforce platform, but equally could be running on their own cloud or on another public cloud provider, so businesses may be running critical integrations on a multi-cloud environment that is reliant on high-performing APIs without realizing it. For ITops, this type of scenario means more complexity and more layers of monitoring, and the approach can change with the integrations that a business uses. It's not just your cloud you need to be worried about.

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Real-time Collaboration Platforms

The rise of remote work has brought a huge increase in usage of real-time collaboration platforms like Webex, Slack and Microsoft Teams. These applications are now critical to business performance, and on an important video call, milliseconds matter. Unlike a slow-loading Salesforce record, performance degradations are immediately visible to end users and can be costly in terms of productivity.

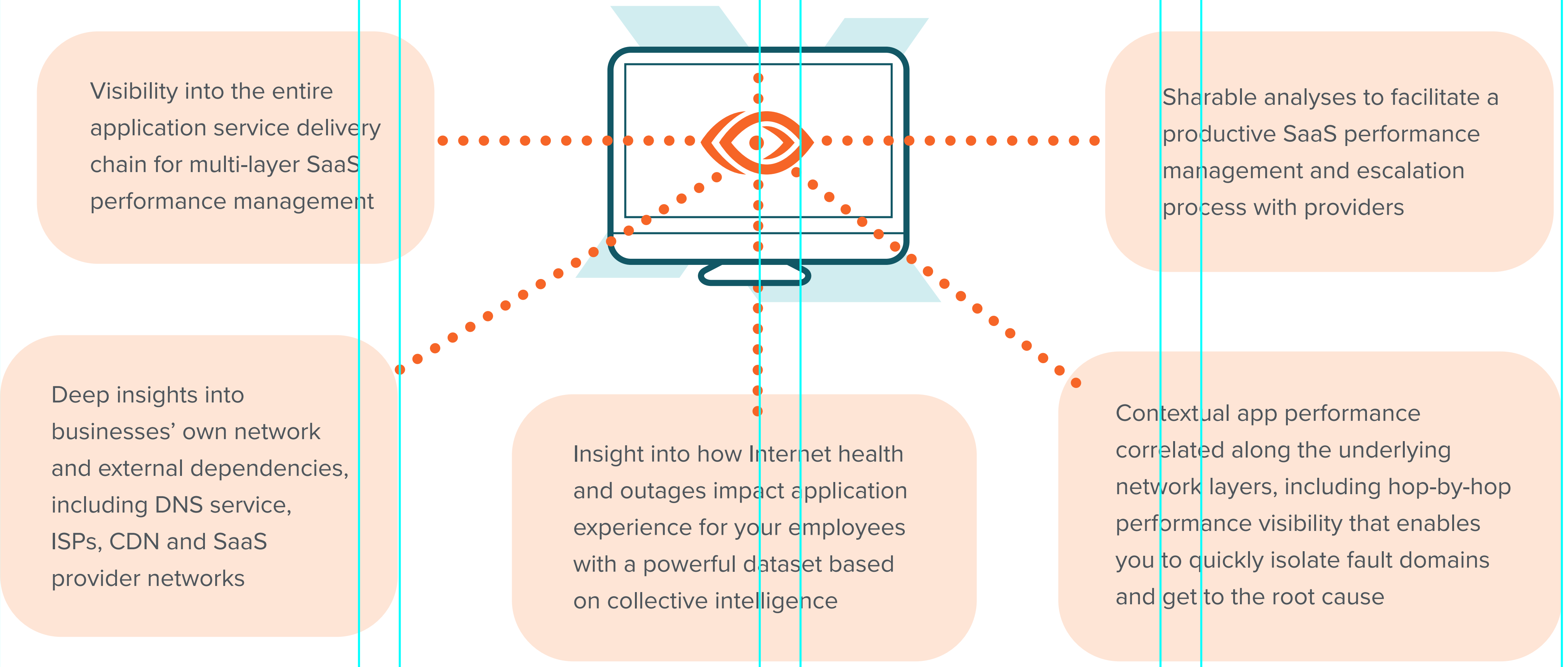
But delivering a real-time collaboration app across the end-to-end delivery chain can be rife with obstacles—the culprit behind poor performance could lie anywhere from a user's device and home Internet service all the way through to your infrastructure. Expected variations in performance metrics like loss, latency and jitter that may have been acceptable for other applications are no longer tolerable for real-time media, and so new benchmarking exercises and dedicated monitoring is required to ensure everyone can keep communicating. IT needs to be able to treat this digital delivery chain differently to optimize it for maximum performance and troubleshoot user-impacting issues.

ThousandEyes Provides the Monitoring Capabilities Enterprises Need

By now it should be clear, without effective SaaS monitoring, IT groups are left blind when something goes wrong, which means increased help desk costs, loss of productivity and reputational and business process impacts.

That’s where ThousandEyes comes in.

ThousandEyes SaaS monitoring includes a multi-pronged approach with a number of benefits, providing:



Visibility into the entire application service delivery chain for multi-layer SaaS performance management

Sharable analyses to facilitate a productive SaaS performance management and escalation process with providers

Deep insights into businesses’ own network and external dependencies, including DNS service, ISPs, CDN and SaaS provider networks

Insight into how Internet health and outages impact application experience for your employees with a powerful dataset based on collective intelligence

Contextual app performance correlated along the underlying network layers, including hop-by-hop performance visibility that enables you to quickly isolate fault domains and get to the root cause

This is all achieved through a flexible and uniquely expansive agent deployment process. For end-to-end visibility into all your SaaS providers, ThousandEyes Enterprise Agents can be locally deployed in your data centers and branch offices. For remote end user SaaS performance data, Endpoint Agents can be deployed on user devices. And ThousandEyes pre-deployed Cloud Agents are also available in nearly 200 cities around the globe, as well as in many regions of the major public cloud providers. That means businesses have independent vantage points for monitoring SaaS applications, so they can compare performance between enterprise and neutral locations and do readiness planning.

The Benefit of Powerful SaaS App Visibility Speaks for Itself

The takeaway? By offering vantage points to any SaaS app, from any user location, within the enterprise or remote and across the Internet, ThousandEyes can make ITops lives easier and help them meet their own objectives, like:

Reducing MTTR by quickly pinpointing issues, identifying responsible providers, and making it easy to collaborate on shared data. This means fast troubleshooting and issue resolution.

Improving user experience by detecting and resolving SaaS performance issues before they impact user productivity, and offering real-time user data to quickly address help desk tickets.

Ensuring SaaS migration success by validating performance and success metrics before deployment and uncovering issues that could lengthen SaaS rollout time.

Ready to manage SaaS apps like you own them?

Book a demo here to see what ThousandEyes can do for your ITops team and for your business.

ThousandEyes

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About ThousandEyes

ThousandEyes delivers visibility into digital experiences delivered over the Internet. The world's largest companies rely on our platform, collective intelligence and smart monitoring agents to get a real-time map of how their customers and employees reach and experience critical apps and services across traditional, SD-WAN, Internet and cloud provider networks.