The Future of Digital Experience: Secure SD-WAN and Digital Experience Monitoring

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Executive Overview

With the growth of the remote workforce and the migration of applications to the cloud, IT organizations are struggling to meet their digital experience objectives for application performance. This puts both employee productivity and customer experience at risk. One of the key contributing factors is that most companies rely on legacy monitoring tools such as application performance monitoring (APM) and network performance monitoring (NPM). These lack the holistic visibility necessary to evaluate, troubleshoot, and optimize today's user-to-application experience. To successfully identify technology performance issues and align user-to-application experience to support business objectives, organizations are turning to digital experience monitoring (DEM) tools and secure SD-WAN.

> **"By 2026, at least 60% of I&O leaders will use DEM to measure application, services, and endpoint performance from the user's viewpoint, up from less than 20% in 2021."[1]**

The global software-defined wide area network (SD-WAN) market size is expected to grow... to $13.7 billion by 2027, at a Compound Annual Growth Rate (CAGR) of 31.9% during the forecast period.[2]

Performance-Monitoring Tools Are Siloed

Modern business success depends on users having consistent, high-quality access to applications. Today's end-users, whether customers or employees, may be at home, on the road, in a retail location around the corner, or in a branch office across the globe. At the same time, most businesses depend on a combination of business applications in a data center, private or public clouds, or delivered via Software-as-a-Service (SaaS) providers. Users may connect to those applications via local area network (LAN), Wi-Fi, wide area network (WAN), or internet service providers (ISPs).

Wherever users are located and however they connect to business applications, a great user-to-application experience is critical for employee productivity and customer satisfaction. IT teams have long relied on performance monitoring tools to optimize and troubleshoot potential performance issues. But with greater digitalization and cloud adoption, IT teams are finding that their existing performance monitoring tools lack the end-to-end visibility necessary to monitor and troubleshoot digital experience.

IT professionals struggle with uneven visibility and control as branch and remote users access applications directly from their endpoints, which hampers their ability to support and resolve user concerns.[3] As teams cobble together data from multiple traditional sources, they struggle to establish sufficient insight to troubleshoot and optimize the user-to-application experience.

The DEM market size is projected to grow to $5.96 billion by 2028 at a CAGR of 15.9%. DEM lays a strong basis for future system changes or ongoing innovation, demand for better end-user experience, and adoption of cutting-edge technologies.[4]

Complexity Impedes End-to-End Visibility

Traditional APM tools are useful for collecting information regarding an application's health and performance. Is application response-time adequate? Are there performance bottlenecks in the code, and if so, where? However, organizations with multiple-cloud environments as well as on-premises or hybrid apps may require multiple APM tools. While the information from these tools is important to measure key performance indicators (KPIs) and help DevOps and IT operations teams troubleshoot issues with code, it doesn't provide any understanding of the user's end-to-end application performance. That requires insight from the user's perspective.

Synthetic transaction monitoring (STM) plays a role in helping IT teams better understand the user's experience of application performance. Synthetic transaction monitoring simulates user behavior to test application performance. Periodic synthetic checks from the user's vantage point help IT teams gain insight into performance from the user's perspective, wherever they may be located. For public-facing applications, geographically distributed synthetic monitoring can provide early warnings about potential issues (such as regional ISP outages) so they can be proactively addressed. Synthetic checks from branch offices, retail stores, or end-user devices can provide proactive insight into internal and SaaS business application potential issues and proactively alert IT teams if application availability or performance degradation occurs.

But while STM provides useful insight into the user experience, it alone can't determine the cause of a problem. Is it the network? Infrastructure? The application? The user's device? To troubleshoot and optimize performance issues, IT teams typically rely on network, infrastructure, and device monitoring tools for a variety of information. Are the end-user's device resource utilization metrics acceptable? Is bandwidth available? Is the Wi-Fi signal stable? When correlated with application performance and availability data from the user's perspective, this information provides insight for troubleshooting and optimizing the end-user experience.

While IT teams may be able to stitch together data and metrics from multiple, siloed tools to understand and troubleshoot user-to-application performance issues, relying on this tractional approach is complex, time-consuming, and error-prone.

DEM ensures uninterrupted productivity, quickly assists in problem resolution, and enables IT professionals to comprehend issues from a user's point of view. Monitoring also simplifies evaluating how well third-party solutions function, allowing IT teams to enforce service-level agreements.[5]

Holistic Monitoring from the User's Perspective

As a result of the shortcomings of traditional monitoring tools, IT teams are increasingly turning to DEM solutions to ensure that the end-user experience better aligns to business goals. Digital experience monitoring is the evolution of end-user experience monitoring, application performance monitoring, and infrastructure performance monitoring tools into a holistic solution that analyzes the efficacy of an enterprise's applications and services.[6]

Digital experience monitoring enables IT teams to shift their focus to monitoring performance from the user's perspective. Modernizing siloed tools into a comprehensive DEM platform enables end-to-end visibility across the overall user experience—no matter where the user resides or where the application is hosted. It also helps IT teams more efficiently troubleshoot issues and proactively optimize the user's digital experience.

The essential requirements for an effective DEM solution include:

- **Reach:** Because customers and employees may be anywhere around the world, a DEM solution must be able monitor the user's application performance experience from multiple physical vantage points.

- **Versatility:** A DEM solution must enable monitoring of user-to-application performance for all of the many different applications and services the business depends on, whether public cloud-based, private cloud-based, deployed on-premises, or SaaS.

- **Accurate alerting:** When user-to-application performance is disrupted or degrades, the solution should send an alert providing detailed vendor-agnostic insights into device, network, infrastructure, and application health and performance to help quickly pinpoint the root cause of the issue.

- **Correlation and automation:** During an incident, the solution should also correlate all related data and reports to facilitate collaboration, remediation, and workflow automation.

- **Integration:** Perhaps most critically, the solution should integrate easily with existing networks, infrastructure, applications, and services to provide end-to-end visibility across the environment. Seamless integration should also make DEM easy to set up, use, and scale with the business.

There are several differentiating advantages to this monitoring approach. A DEM solution helps organizations:

Reduce time to troubleshoot and resolve issues
DEM correlates end-to-end performance metrics to quickly identify the root causes of technical issues, whether related to endpoint devices, local networks, VPNs, remote offices, SD-WAN, or applications. This reduces the time to resolve issues.

Preemptively identify and remediate problems
DEM establishes thresholds and notifications to identify performance degradation and remediate potential user-to-application performance problems before the business is impacted.

Improve customer and employee digital experience
Digital experience monitoring uses STM for insights into performance at each step throughout a service. The source of performance issues can be identified, optimization can be addressed, and user experiences improved.

Addressing Business Demands with SD-WAN

Software-defined wide area network solutions offer the ability to use available WAN services more effectively and economically—giving users across distributed organizations the freedom to better engage customers, optimize business processes, and innovate. Wide area network innovation with additional carrier links can be leveraged to provide redundancy, load balancing, and optimization of application traffic. It also makes WAN management more cost-effective, which is why SD-WAN solutions will continue to be a robust growth market for the foreseeable future.

To answer this demand, there have been many SD-WAN solutions introduced in the last few years. But not all of them include the necessary capabilities.

The optimal SD-WAN for an enterprise depends on the organization's requirements regarding:

- Security
- Application performance

- Cloud on-ramp to multi-cloud deployments
- Simplified operations with centralized management at any scale

To address these business requirements, organizations need a comprehensive SD-WAN offering with built-in security and the performance capabilities to scale across any size enterprise. This solution should also enable centralized visibility and management.

As branch offices are directly exposed to the internet via broadband connections with SD-WAN, an ideal solution integrates SD-WAN and a next-generation firewall in a single appliance or virtual machine (VM).

Instead of separate WAN routers and security devices such as firewalls and secure web gateways (SWGs), a single NGFW should perform all these functions.

Aligning Application Performance to Business Goals

Digital transformation and hybrid workforces have necessitated that organizations focus on providing outstanding end-user experience for their applications. But user-to-application performance can be impacted by many different technical variables. Before issues arise, IT teams need early and accurate insights into performance degradation to manage and maintain an optimal user experience.

An end-to-end DEM solution can help organizations proactively monitor application performance from the user's perspective. Digital experience monitoring gives IT teams visibility into applications and their dependent network and cloud services to help optimize user-to-application performance in support of broader business objectives.

In an Unequal SD-WAN Market, Choose Wisely

As cloud-based applications and tools like voice and video become increasingly critical to distributed businesses, organizations must be able to embrace the benefits of digital innovation without putting security at risk, bottlenecking application performance, or impacting end-user productivity.

To reap the benefits of SD-WAN, organizations should evaluate solutions carefully. Rarely do SD-WAN solutions employ one operating system for SD-WAN and security for true integration. Comprehensive, integrated SD-WAN and security managed by one console, at any scale, is essential, yet few vendors offer it. Further, an effective SD-WAN solution needs to have advanced capabilities to enable expected QoE for end-users and IT staff and improve operational efficiency across WAN and cloud edges.

DEM Advanced SD-WAN Monitoring Eliminates Blind Spots

Digital experience monitoring eliminates blind spots by providing end-to-end performance monitoring capabilities from multiple vantage points from a single platform. With its capabilities of providing network and application-layer monitoring over SD-WAN links, DEM enables IT teams to:

- Proactively identify performance degradation

- More efficiently troubleshoot issues

- Reduce resolution times

- Better meet application SLAs

Digital experience monitoring enables IT teams to efficiently observe, correlate data, and respond to issues whether network, service provider, device, or application-based in any cloud, on-premises, or hybrid deployment.

[1] Gartner, [Market Guide for Digital Experience Monitoring](#), 28 March 2022, Mrudula Bangera, Padraig Byrne, Gregg Siegfried.

[2] Markets and Markets, [Software-Defined Wide Area Networks (SD-WAN) Market](#), accessed April 18, 2023.

[3] "[Why Digital Experience Monitoring is Important for Cybersecurity](#)," IT Security Wire, July 22, 2022.

[4] "[Digital Experience Monitoring Market Worth $5.96Bn, Globally, by 2028 at 15.9% CAGR](#)," Globe Newswire, May 18, 2022.

[5] "[Why Digital Experience Monitoring is Important for Cybersecurity](#)," IT Security Wire, July 22, 2022.

[6] "[Digital Experience Monitoring Market To Register a Stout Growth By 2022-2031](#)," Digital Journal, July 27, 2022.

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