Why Network Visibility Is Critical for Managing Digital Experience

This white paper is addressed to the four main roles that are typically responsible for managing Digital Experience for an enterprise. The content herein is relevant to the C-suite and any other roles who understand the importance of Digital Experience to the business, but the primary intended audience groups are the following:

Architect	App Dev / App Owner	IT Ops / Net Ops	LOB & IT Execs
Responsible for designing and optimizing architecture of the network, infrastructure, and data center/cloud. Goal is to optimize capacity to minimize cost and ensure high-quality and reliable user experiences.	Responsible for developing, delivering, supporting, and optimizing business-critical apps, including voice. Includes both developers and product owners who interface between development and the business.	Responsible for providing end-to-end service management and problem resolution for apps and the network and infrastructure over which they run. Includes groups adopting DevOps practices.	Responsible for ensuring that IT supports business goals—revenue, customer satisfaction, and workforce productivity, as well as cost-justifying and ensuring success of digital transformation initiatives.

Today is the era of digital business.

- Two-thirds of enterprises are investing in digital business today.[1]
- Digital capabilities and IT were the top two CEO investments in 2016.[2]
- The percentage of enterprises creating advanced digital transformation initiatives will more than double by 2020.[3]

Digital business = people, businesses, and things (machines) digitally communicating, transacting, and negotiating with each other**.**

Digital business is driving an unprecedented convergence of people, business, and things.

It's disrupting traditional business models—and the traditional technologies that support them. This convergence, from the human point of view, is called Digital Experience, or DE.

Digital Experience (DE) = the human experience when interacting with digital apps and services.

Managing Digital Experience is critical to business success going forward.

- By 2020, at least 30 billion end-user devices will be connected to the Internet.[4]
- CEOs expect their digital revenue to increase by more than 80% by 2020.[5]
- Digital will drive 58% of all retail sales by 2020.[6]
- The US B2B Digital Commerce market will be $1.13 trillion by 2020.[7]
- 89% of businesses expect to compete mainly on customer experience.[8]

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[1] Gartner's 2016 CIO survey.
[2] Ibid.
[3] http://www.forbes.com/sites/gilpress/2015/12/06/6-predictions-about-the-future-of-digital-transformation/#3464594225b4
[4] http://www.forbes.com/sites/gartnergroup/2014/05/07/digital-business-is-everyones-business/#41f84a392d66

[5]]https://www.forrester.com/report/The+State+Of+Digital+Business+2015+To+2020/-/E-RES119838
[6] Ibid.
[7] Ibid.
[8] http://blogs.gartner.com/jake-sorofman/gartner-surveys-confirm-customer-experience-new-battlefield/

And yet—most companies lack the tools, techniques, and training for effective Digital Experience Monitoring (DEM).

Gartner research shows:

- Only 5% of global enterprises have strategically implemented DEM technologies.

- More than a third (34%) of CIOs identify a gap in IT skills as the primary barrier to achieving their objectives, especially skills needed for new real-time data scenarios and advanced analytics.[9]

Digital Experience Monitoring (DEM) = the performance monitoring discipline focused on optimizing the human experience as the user interacts with digital applications and services.

DEM is the new battlefield for business.

Because they lack the tools and techniques for effective DEM, enterprises are losing business and customers due to technical failures.

- 78% of all organizations are experiencing some inconsistency with their digital experience quality.[10]

- 60% of business leaders indicate poor digital experience quality leads to a noticeable drop in productivity of at least 31%.[11]

- An e-commerce site slowing down by just one second can cost up to $1.6 billion in annual sales.[12]

- A typical broker loses $4M in revenues per millisecond when their trading platform is 5 milliseconds behind their competitor.[13]

What is a digital experience?

At the heart of every digital experience is an app that must be delivered to users. An app is not just software code on a server but a complex chain of interactions that includes many moving parts, any of which can affect the quality of the digital experience:

- Multiple services called by the app client

- Data in multiple databases and locations

- Application servers with intricate, multi-tier, and distributed software architectures

- Physical and virtual servers hosted in on-premises data centers and in the cloud

- Multiple networks connecting the data and services with each other and with end users

- And end users accessing the application from many device types and locations.

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[9] Gartner research on DEM 2015.
[10] Actual Experience, "Digital Experience Quality Report 2016," March 2016.
[11] Ibid.

[12] https://www.fastcompany.com/1825005/how-one-second-could-cost-amazon-16-billion-sales
[13] http://www.forbes.com/sites/advisor/2014/04/16/the-brokerage-world-is-changing-who-will-survive/#4207c2526eb9

Digital experiences are enabled by underlying technologies.

Thus, the quality of digital experiences is determined by the performance of those technologies, both separately and as they interact with each other in a complex chain of events.

## Digital services are only as strong as their weakest link.

Applications and digital services comprise a complex chain of interactions spanning applications, data, networks, infrastructure components, and devices that is only as strong as its weakest link.

All the parts of an application are links in the chain, and these links must mesh seamlessly across a complex, hybrid IT environment which is partly in the cloud and partly on-premises, with connectivity provided by a mix of private and public networks.

Any grain of sand in the gears, any tiny flaw in the infrastructure—from server failure, to issues within the software code, to a problematic database, to network latency, to user device compatibility—can slow the application down or cause it to fail completely.

There are many potential causes of poor digital experiences.
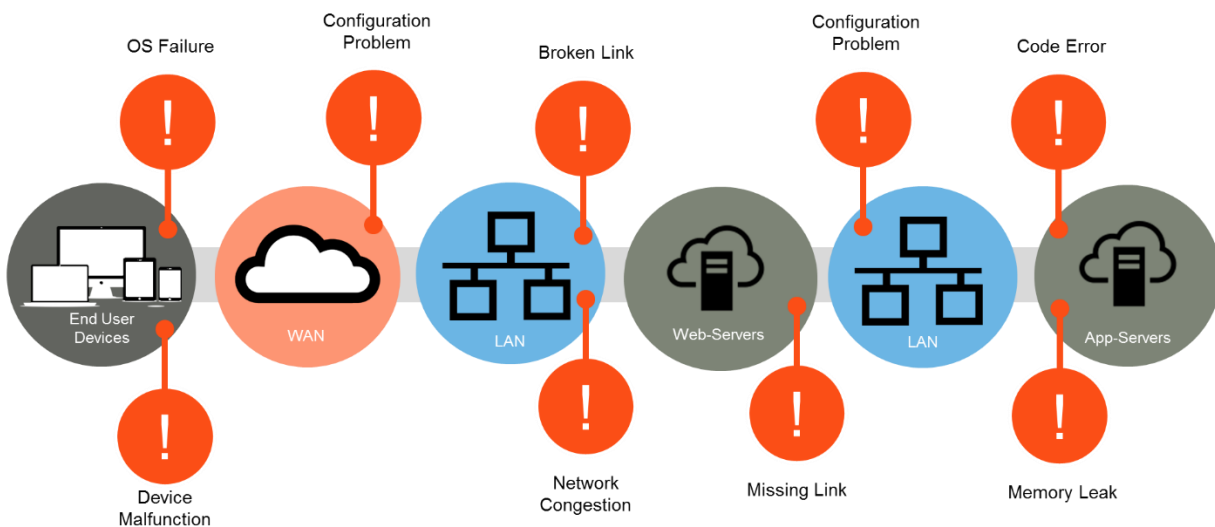
Enterprises, however, are ill-equipped to troubleshoot poor Digital Experiences.

The war-room approach to performance issues is still common. As troubleshooting exercises, war rooms are, by nature, reactive. Companies set up war rooms to solve application performance problems that can't be quickly fixed. A cross-domain team of IT engineers responsible for network performance, app performance, and end-user experience come together to collaborate in getting to the root cause of the issue.

The trouble is that each domain has its own performance management tools, which provide only fragmented visibility.

- 64% of organizations use a fragmented approach to technology monitoring.[14]
- The typical enterprise has 6 - 10 network monitoring and troubleshooting tools in use. 10% of large enterprises have more than 25.[15]

This leaves IT stuck in siloes. The end result more often is finger-pointing from silo to silo as each domain seeks to establish its innocence. "It's not my domain's issue, so it must be yours."

Everything seems ok from the perspective of each tool…
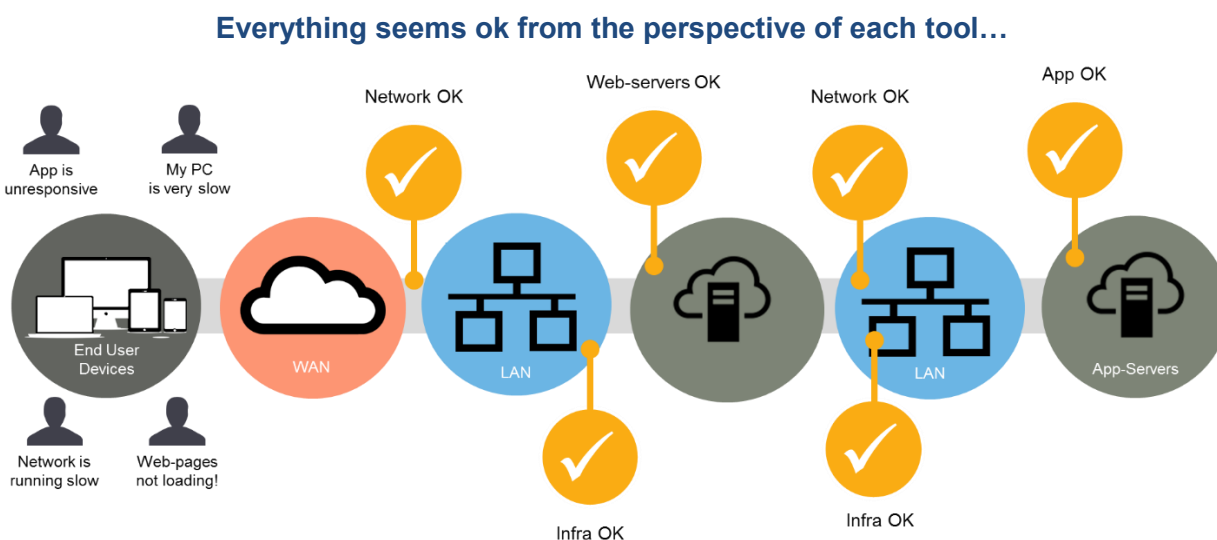
…but the reality of the Digital Experience for end users is not ok.

To solve the challenges of delivering great Digital Experiences over complex infrastructure components, you need universal visibility. There are two steps to take to achieve this.

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[14] Forrester Research, "Application Performance Management Is Critical To Business Success," February 2014.
[15] EMA, "Managing Networks in the Age of Cloud, SDN, and Big Data: Network Management Megatrends 2014," April 2014.
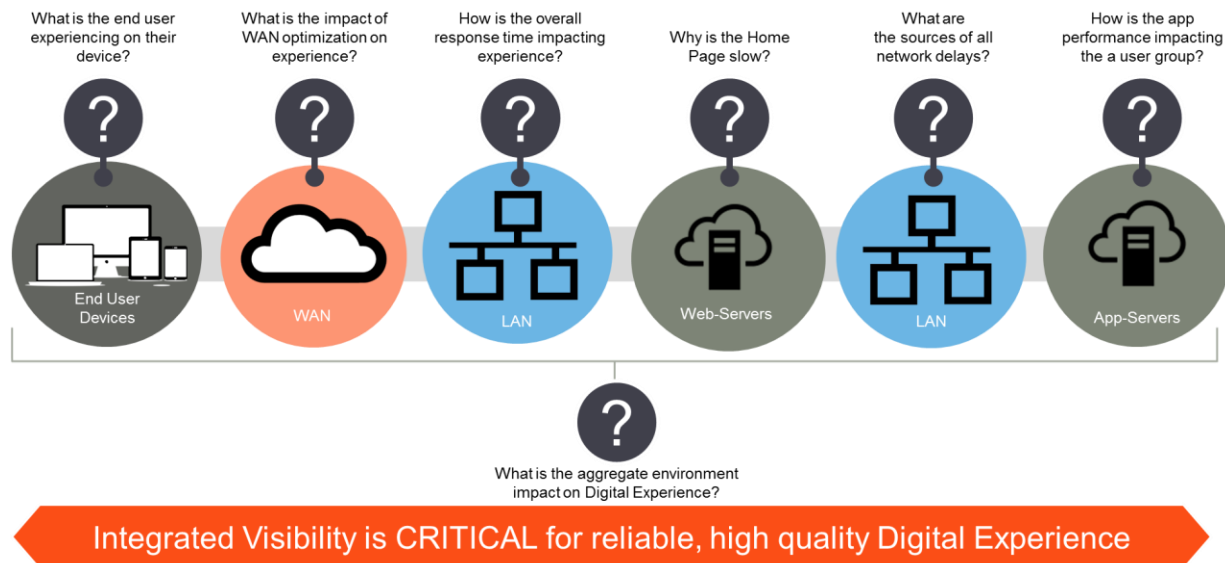
Step 1. Break down performance monitoring siloes between domains with an integrated visibility architecture that unifies performance monitoring across end-user, network, infrastructure, and app domains.


Integrated visibility spanning your entire application and service delivery architecture is the only way to address all of the potential problem sources and ensure high-quality digital experiences.

It's critical to integrate performance monitoring end-to-end, but that's just the first step. The second step is to make all those metrics actionable to enable direct improvement of the Digital Experience.

Step 2. Break down performance management siloes by aggregating end-to-end performance monitoring data from different tools in a single pane of glass to make it easy to share with technical disciplines as well as line-of-business owners who are unfamiliar with the technologies, and to drill down into any technical issue both reactively and proactively.
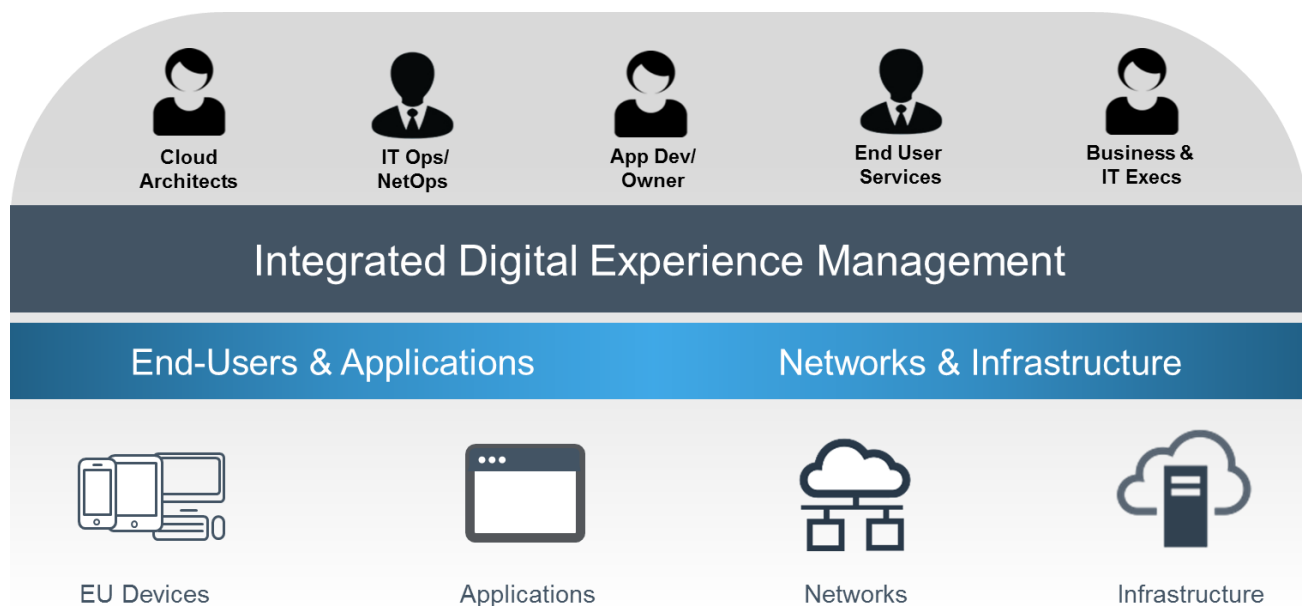
Enterprise Management Associates (EMA) recently conducted a survey that revealed that the most important aspect of any software-defined data center (SDDC) architecture, whether on-premises, cloud-based, or hybrid, is centralized management from a single control point or platform. Nearly half of enterprise

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adopters of SDDC architecture identified centralized management as a priority.[16] Silos, EMA found, are the kiss of death for hybrid infrastructure operations.

Such a single pane of glass combines breadth of monitoring and depth of analysis, presented in custom views according to role.

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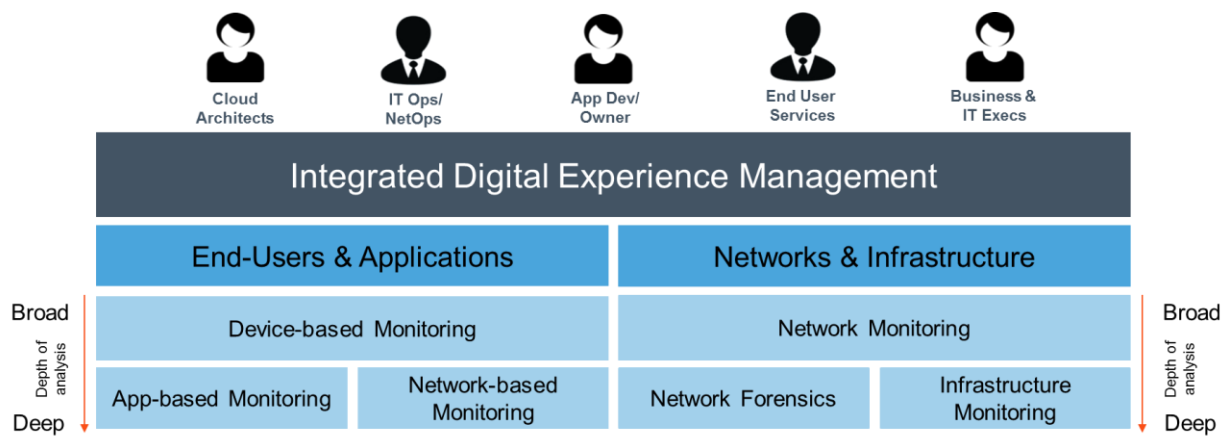
[16] https://www.riverbed.com/document/fpo/Analyst%20Reports/EMA-Riverbed_SteelCentral-1115-WP-Final.pdf

This comprehensive, integrated, portalized approach delivers several key benefits for enterprise DEM:

- Capture all data and transactions from all end-user devices, networks, infrastructure, and applications at a granular level for faster and more effective root-cause analysis. Devices and applications can vary widely, yet everything in the environment must be supported by the system.

- Provide fully integrated performance insights, blending and correlating analysis from all domains to provide a one-stop solution for managing performance. Performance monitoring and analysis solutions use built-in "big data" analytics to turn high-volume packet, flow, app, and transaction metrics into actionable intelligence. Your network planning and configuration solution(s) should integrate the physical map with application and logical network maps to give a view of changes to the infrastructure and device configurations that can be blended with network and app performance views.

- Detect and fix problems before they impact the business with performance insights designed to guide fixing, optimizing, and prioritizing application and network performance for hybrid networks and SD-WAN architectures.

- Measure, understand, and remediate business impact of poor app performance that leads to poor Digital Experiences.

- Provide role-specific insights for each stakeholder via custom dashboard views, consumable by non-technical line-of-business managers as well as technical professionals.

Great Digital Experiences require the seamless orchestration of devices, networks, infrastructure, and applications. Achieving this goal requires universal visibility, and that can only be achieved with integrated performance monitoring end-to-end across the enterprise, presented in ways that are easily actionable for any role via a single pane-of-glass.

About Riverbed

Riverbed, at more than $1 billion in annual revenue, is the leader in application performance infrastructure, delivering the most complete platform for the hybrid enterprise to ensure applications perform as expected, data is always available when needed, and performance issues can be proactively detected and resolved before impacting business performance. Riverbed enables hybrid enterprises to transform application performance into a competitive advantage by maximizing employee productivity and leveraging IT to create new forms of operational agility. Riverbed's 28,000+ customers include 97% of the *Fortune* 100 and 98% of the *Forbes* Global 100.

Learn more at riverbed.com