



## IDC TECHNOLOGY SPOTLIGHT

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# Optimizing Cloud Applications for the Enterprise

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Adapted from *IT's 3rd Platform Drives Need for Network Innovation* by Nolan Greene and Rohit Mehra, IDC #259317

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*The 3rd Platform (cloud, mobility, big data/analytics, and social business) has transformed the role of enterprise IT, with key goals now centered around operational transformation and customer engagement. This transformation includes a reliance upon cloud applications for mission-critical business functions that can result in meaningful cost savings and new revenue streams, thereby elevating the role of enterprise IT. The proliferation of cloud applications — both public and private — is driving the need to optimize and control these services, especially at the enterprise edge/branch, so that enterprise IT is positioned to proactively address emerging hybrid environments rather than continually react to issues as they occur. This Technology Spotlight addresses the transition toward enhanced cloud application control and policy-enabled optimization tools so that IT can stay ahead of internal and external business needs and applications.*

## Introduction

### **Digital Transformation of the Enterprise**

IDC defines digital transformation (DX) as the application of 3rd Platform technologies to fundamentally change the way in which new organizational business models, processes, products, and services deploy — generally led by a design-centric view of the organization or its customers.

DX enables business model evolution and is a top priority for a vast majority of organizations today. Organizations that disregard the need for transformation increasingly will fall behind the competition, lose revenue and/or market share, and potentially go out of business. However, IDC finds that while most enterprises use digital technologies, few actually reap their full potential. Organizations often focus on technology selection, deployment, and management on a project-by-project basis and pay less attention to developing the disciplines that make it possible to transform themselves — as well as their products, services, and customer interactions — continually. We are still at a point where 1st and 2nd Platform investments take at least two-thirds of IT budgets, and in many cases, the right processes and tools for enabling DX success (e.g., leadership and executive sponsorship, compliance/policy, integrated networks/ecosystems, IT expertise and support, automation, performance management tools, and business analytics) are still lacking.

In just a few short decades, IT has moved from the back office (IDC's 1st Platform) to the front office (IDC's 2nd Platform) and has embedded itself into nearly every aspect of our business and personal lives. The technologies of the 3rd Platform have spawned an era in which the distinction between the technologies and processes that businesses deploy links so tightly to customers and markets that the boundary between the internal operations of the enterprise and its external ecosystem is rapidly disappearing. In this context, business leaders and their IT counterparts are challenged to move their enterprises to the next level — that of digital business transformation — employing digital technologies along with organizational, operational, and business model innovation to create new ways of operating and growing businesses.

Digital technologies and the new business models and strategies that they enable will continue to affect most organizations at a rising level of intensity. IDC predicts that by 2018, one-third of the top 20 market leaders in most industries will be significantly disrupted by new competitors that use the 3rd Platform to create new services and business models.

### ***IT's Growing Affinity for Cloud and Mobility: Impact on the Enterprise Branch***

Enterprise IT is rapidly embracing cloud and mobility for obvious business and organizational reasons. But as cloud and mobility extend beyond the physical boundaries of enterprise IT's on-premises resources, IT faces many new challenges as it enables the enterprise branch. These challenges include little or no control over areas such as network visibility (quality of service [QoS], bandwidth, latency), policy-based intelligent path selection for delivery of applications across the WAN, and application delivery optimization. Finding the right environment for the right workload and then optimizing both will be a priority for hybrid IT strategies.

In this new paradigm of anywhere, anytime connectivity in a hybrid environment, enterprise IT requires end-to-end visibility and control over its applications (including software-as-a-service [SaaS] apps and apps spun up at infrastructure-as-a-service [IaaS] providers) so that it can effectively address or preempt issues as they arise.

That said, the range of solutions to provide application and network optimization capabilities continues to evolve. Pure-play WAN optimization vendors are augmenting their own capabilities, while traditional WAN infrastructure players, including industry-leading router vendors, are adding to the core functions of their platforms as well. Moreover, as networking technologies transition into software-based architectural approaches that encompass software-defined networks (SDNs), enterprises will look to emerging technologies that dynamically optimize delivery and control of cloud applications across the hybrid WAN (MPLS, broadband Internet, LTE/4G) to branch offices and remote sites.

The rapid explosion of devices to the network edge (Internet of Things, or IoT) will drive the need for more enterprise systems to deploy, manage, and make use of these devices and associated applications. It will also involve managing and optimizing traffic from the network core outwards and from the edge inwards, likely impacting computing and communications architectures. Meanwhile, the growth of the public/private cloud and related enterprise hybrid cloud strategies are having a significant impact as well. Increased adoption of SaaS applications, in particular, changes expectations of the WAN. While it might make sense to backhaul all business-critical legacy application traffic over MPLS, it is neither a desirable nor a cost-effective approach for SaaS applications delivered from the public cloud rather than from enterprise datacenters. For cloud applications, policy-based utilization of broadband Internet connectivity, for example, might be favored over MPLS connectivity for reasons of cost and efficiency.

## ***Profile of the Hybrid Enterprise Branch***

Although traditional IT still accounts for over 50% of enterprise IT spend, the continued growth of public and private cloud is top of mind for most IT executives and CIOs, whether they are rolling out new applications or modifying existing applications. For several reasons — cultural, financial, regulatory — both public and private cloud rollouts will continue for the near future.

However, the wall between public and private will gradually come down as automation and orchestration management technologies enable IT architects to leverage their enterprise datacenters, external cloud-based resources, and corporate WANs to move to a comprehensive hybrid cloud and branch environment. Transitioning to this hybrid environment not only will enhance flexibility for (and within) enterprise IT organizations but also will help transform the organizational dynamics between enterprise IT and the lines of business (LOBs), allowing enterprise IT to show its business value while improving the end-user experience.

For enterprises to realize the full value of hybrid cloud, the role of the hybrid cloud-enabled WAN is critical. This is especially true for today's distributed enterprises, where branch and remote sites and mobile employees provide a critical link to the value chain of the business. Of course, the ultimate objective is to optimize and manage application performance for all users, regardless of where the application is consumed or from what type of cloud it originates.

Other factors to consider are the various types of WAN connectivity that deliver hybrid cloud applications to users. As cloud services increasingly come into play for enterprises, traditional VPN technologies (including MPLS services) may need to be augmented by cost-effective technologies such as intelligent path selection and cloud VPNs that leverage broadband Internet and other WAN connectivity options. As such, there could be significant ramifications for WAN architectures and technologies. Broader approaches that encompass application performance, visibility, and optimization will be paramount to meeting the needs of a hybrid enterprise.

Other aspects of the cloud-enabled hybrid branch include:

- The critical nature of cloud-enabled applications, such as unified communications and collaboration (UC&C) and ERP/CRM
- A focus on optimizing application performance across IT and network infrastructure
- The need for scalability, automation, and business continuity

Benefits associated with an architectural approach to cloud applications include:

- Improved quality of experience (QoE) for the end user and/or customer
- An application-centric approach that delivers the agility and flexibility that businesses need from IT as a result of automation and programmability
- A comprehensive unified view of the network and associated private/public cloud applications that delivers business value 24 x 7
- Predictive analytics and insights with recommendations to help remediate issues before or after they occur

## Considering Exinda

The number and the variety of applications that IT leaders deal with today are exploding. All of the applications compete for capacity on a chaotic common network — the Internet — as traffic grows exponentially. A huge problem for IT and other organizations is poor end-user QoE for mission-critical applications. With more applications delivered through the cloud and hybrid networks, guaranteeing the quality of the application experience (QX) is harder than ever. The Exinda platform seeks to deliver a consistently reliable application experience for enterprises running cloud and hybrid architectures.

In a world of "shadow IT," great QX requires visibility and control across an organization's applications and cloud/hybrid/on-premises networks. However, this is impossible without intelligence about an organization's applications and network. Every day, enterprise teams depend on popular business apps for their success. Exinda helps IT leaders deliver quality experiences with these applications while ensuring that personal or recreational applications do not adversely affect the business.

The four primary functions of the Exinda platform are as follows:

- **Deliver superior QX:** Single, real-time view of application experience quality; application experience quality reporting for senior IT and LOB leaders
- **Obtain app-specific QX:** App-specific logic for diagnosing, preventing, and resolving QX problems; an extensive app signature engine for boosting QX
- **Ensure QX:** Multidimensional policy control to prioritize and ensure resources for critical applications; limit resources and impact of personal applications
- **Improve QX:** Easy-to-use policy engine that offers sophisticated business control; monitor traffic and application behavior; prescriptive recommendations to address impactful changes

Table 1 highlights Exinda's key performance management products and functions.

**TABLE 1**

### Exinda's Key Performance Management Products and Functions

Exinda Product/Solution	Function
Exinda Management Console	Instance of management portal that runs in the cloud and connects to all appliances in a customer network
ExOS	Virtual and physical appliances that provide WAN optimization functionality to deliver multidimensional policies to prioritize business-critical applications and limit the impact of personal and recreational applications
QX Boosts	Optional add-on packages that provide additional performance measurement data that integrate over APIs with vendor-specific back end to provide complete correlation on performance characteristics
QX Probes	Virtual instances that gather relevant network performance data for QX Boosts

Source: Exinda, 2016

An example of an important opportunity for Exinda is the enterprise UC&C market, where "agile" digital businesses are embracing the technology to improve employee collaboration, empower the mobile workforce, reduce voice/data infrastructure total cost of ownership (TCO), and improve customer service, among other things. The real-time voice and video requirements of UC&C, in addition to the increasing numbers of end users and devices, place considerable demands on the enterprise network. Many organizations see the value in capabilities for managing the QX of their UC&C platforms. A proper QX solution must:

- **Guarantee the UC&C performance** for VoIP, video, and other apps for all employees, customers, partners, and suppliers.
- **Monitor the entire UC&C application** across the network for real-time end-to-end health monitoring and complete visibility.
- **Respond to UC&C issues faster** in order to identify, diagnose, and alert IT to service-impacting issues.
- **Provide prescriptive recommendations** to deliver insights and meaningful solutions to assist IT in addressing service-impacting issues.
- **Control the UC&C experience** to ensure that UC&C applications have the appropriate resources to perform reliably and consistently.

### **Challenges**

IDC sees challenges both for Exinda and for enterprises as they consider deploying Exinda solutions to optimize cloud application rollouts:

- **Broadening Exinda's capabilities from WAN optimization to cloud application optimization and control:** Just as enterprise IT is looking to achieve greater levels of automation and performance to optimize cloud applications, Exinda is extending beyond its roots in WAN optimization. While this move addresses the ongoing market shift, the company will need to carefully make this transition to showcase its value to existing customers and partners while addressing the needs of new customers and industry segments.
- **Organizational resistance to paradigm shift (cloud, network, IT operations):** Despite the benefits of cloud services, moving the network to the cloud can be difficult. Organizations need to be conscious of a number of issues, and the network architecture they put in place to accommodate their cloud infrastructure must address them. The issues include managing centralized data with decentralized users and devices, the proliferation of media-rich content, achieving reliability and low latency in the WAN, ensuring security, and reducing management complexity.
- **Organizations opting for default performance management tools from the incumbent network or UC vendor:** Traditional network management, VoIP, and vendor tools in general are not designed to manage real-time applications and are not capable of relating user complaints to performance measurements (echo, voice/image distortion, blurring, and volume levels). Nor do they measure QoE performance for each stream, in each direction, for every call. Most of the time, they measure only the IP network statistics, often across a group of sessions, without recognition of content. This sometimes means that problems cannot be assigned correctly for remediation (to the WAN provider, desktop support, LAN support, or voice/video support), which is what Exinda is trying to address.

## Conclusion

With such momentum today around cloud services, digital business transformation, IoT, collaborative applications, and mobility, the requirement for comprehensive network and UC&C performance management tools has grown considerably. Consequently, IT organizations are requiring more powerful performance management solutions for the enterprise/branch that can provide comprehensive network views and workflows to triage disruptions for customers deploying network and collaborative applications both on-premises and in the cloud. These new tools can provide functionality such as automated migration; data analytics; multiplatform analysis; reporting and diagnostics; insights about workforce activities, business processes, and system performance; and intelligence gathering for the business. They can play an important role across the entire network life cycle of planning, implementation, administration, operations, and change management.

As with every ICT investment, it is mandatory to indicate a return on investment (ROI) and show how productivity and efficiency have improved for the overall business and specific business processes. Organizations must learn how to best measure and maintain control of their network and applications. Vendors such as Exinda have become bolder in pushing these data analytics, control, and management solutions to market while adding services to help educate partners and end users about measuring the full benefit not only within the company but also externally in terms of customer relations and sales.

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