

improving the  
**QUALITY OF  
EXPERIENCE**  
for critical apps

INDUSTRY  
PERSPECTIVE



# executive SUMMARY

We've all been there: You're in the middle of a virtual meeting, and all of a sudden the audio gets choppy or — even worse — you're dropped from the meeting entirely. It usually takes a minute for you to regain your bearings, reconnect to the meeting and try to dive back into the discussion.

It's frustrating, to say the least.

For remote employees in the field or those who telework extensively, muffled audio and grainy screens aren't just frustrating; they hinder employees from getting their jobs done. The reality is well-functioning voice, video and collaboration technologies are no longer nice-to-haves; in today's world, they are must-haves. For 911 dispatchers, remote employees and many other professionals, seamless technology operations are vital.

Organizations of all sizes are becoming increasingly dependent on these mission-critical applications to connect employees and better serve customers. They are providing more digital services and using Internet-based applications to deliver those services, especially in the government and education sectors.

But when the technology doesn't work, mission-related tasks are crippled or come to a grinding halt. Think of all the technologies you depend on to carry out your mission and what a glitch in service or extended interruption could cost you. It could affect adoption rates of the technology among employees and citizen customers and even increase the likelihood of errors if information is not properly transmitted.

That's why quality of experience, or QX, is key to your mission success.

**Good QX ensures that applications perform to the level your users need to do their jobs, and it also means their experience is consistent and reliable. But providing that level of service doesn't happen by chance. It takes deliberate planning and insight into what applications are hosted on your network or in the cloud and better visibility into your network traffic.**

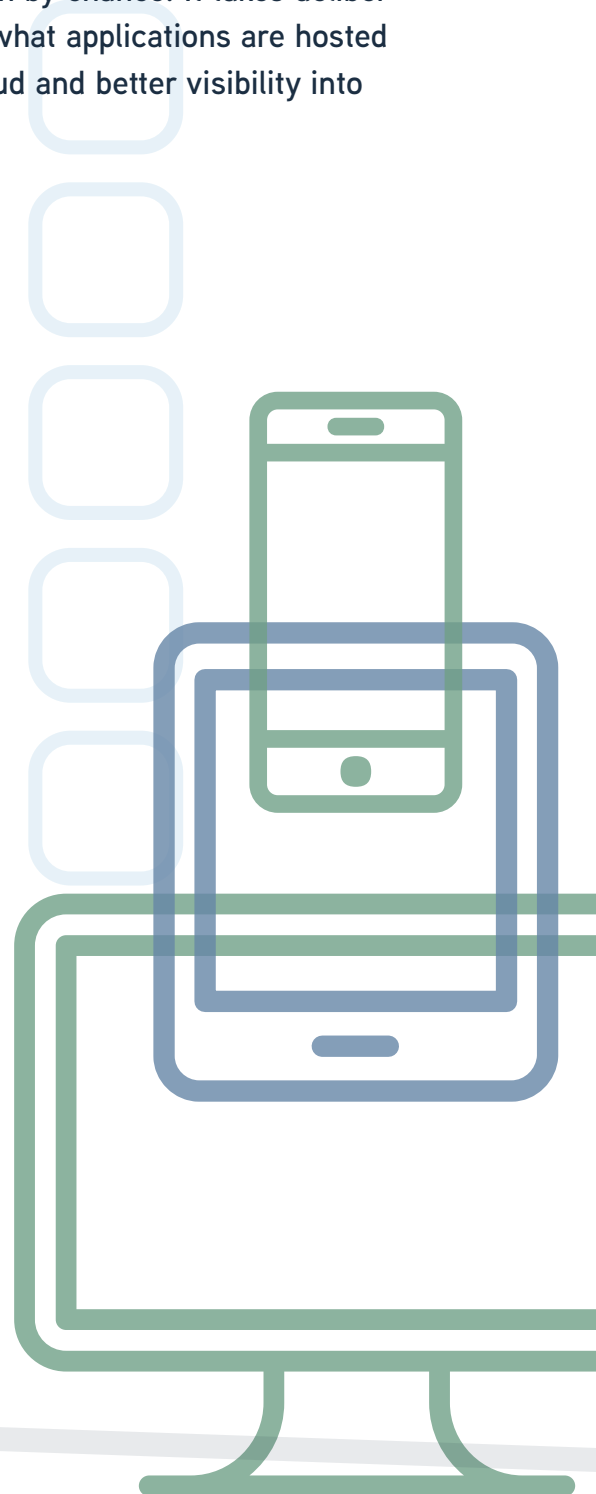
That's why GovLoop and Exinda, a company that specializes in ensuring QX for application users, teamed up to provide this resource filled with best practices and insights for your agency. For these best practices, we spoke with Kevin Sutor, Vice President of Product Management at Exinda.

By reading this report you'll learn:

- The elements that make a quality user experience
- Tips for ensuring the quality of experience for applications hosted locally and in the cloud
- Success stories from some of the largest organizations around the world and how they tackled their pressing application issues
- How Exinda can help your agency bring control to cloud applications

"It is clear that organizations rely on dozens of mission-critical apps in their daily operations, and those apps compete for shared underlying infrastructure, whether it's computer infrastructure, networking infrastructure or other resources," Sutor said. "This makes the application quality of experience a must for the IT organization."

To better understand the importance of application quality of experience, let's start by defining what makes a good experience and how this translates into the performance of your most critical applications.



# what makes a good QUALITY OF EXPERIENCE?

When it comes to applications, QX is generally perceived as being synonymous with fast and high-performing. But that alone won't guarantee the QX you need.

Think about the things we rely on in our everyday lives, like cars, for example.

*At its core, application QX consists of three primary characteristics:*

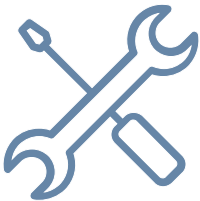
## Consistency:

Let's continue with the car example. When the quality of your car is consistent, your level of acceleration is consistent with the speed at which your car travels. When you brake, the car slows down at the same rate every time, and you become more familiar with how the car operates. Likewise, when you use different features of an application, they should perform consistently each time. That way, you know how to best use them. Over time, your muscle memory takes over, and you won't have to relearn processes every time you use the application.



## Reliability:

A fast and high-performing car means nothing if it isn't reliable. Every motorist wants to have a high degree of confidence that their car will start when they need it to. Similarly, users want to have that same level of assurance when it comes to their applications. A good QX means the application will be available when users need it.



## Controllability:

On the road, drivers must be able to control and maneuver their cars to avoid accidents and adapt to traffic and weather conditions. Likewise, end users need to have a certain level of control when it comes to regulating the behavior of an application and how it performs.



**"Most individuals don't require their automobiles to be the fastest car on the road when they're commuting to work; what they need is an efficient, reliable form of transportation that they can safely maneuver through traffic and get to where they want to go. Application quality of experience should be viewed the same way."**

Kevin Suitor

*Vice President of Product Management, Exinda*

Most users don't know exactly what's happening behind the scenes to ensure applications run smoothly. But they know when there's a breakdown in those operations and features aren't functioning properly. They expect the same level of service at work and in their personal lives, and their growing expectations inevitably put greater demands on government IT departments.

Nowadays, the success of IT departments is measured by their ability to support users' digital operations and increased use of both on premise and cloud-based applications.

"It was only five years ago that most organizations had a handful of apps, like Salesforce, SAP's enterprise resource planning software or even email, that they considered mission-critical in the sense that activities would come to a halt if they failed," Suitor said.

For many organizations, that number has drastically increased as more communications and transactions move online.

Consider all the voice and video applications the U.S. military uses to relay messages to service members and the tools first responders use to communicate with one another. There are also the applications you use daily to collaborate in real time with coworkers and the citizens you serve. But as the quantity of applications increases, agencies can't afford to see the performance and quality of those apps suffer.

# CONTROLLING APPLICATIONS in cloud & on premise

Many public-sector organizations operate in a hybrid environment with some applications maintained on-premise and others hosted in the cloud. But one thing these applications have in common is they compete for capacity on a shared network.

"Applications are often selfish in their behavior, and this is done by design," Suitor said. "They consume as many of the resources that are made available to them. This often leads to resource intensive applications stealing valuable resources from critical business apps, which leads to unreliability and inconsistency."

For example, you may have experienced this degradation in services while using file backup services in the cloud. If you've ever connected a new computer to a file-sharing drive, you've probably experienced the headache of your device trying to download and synchronize the entire system to your desktop as quickly as possible. It does not matter what else is running on your network, whether you are at work, in an airport or sitting in a hotel. Abrupt syncing of massive amounts of data from these file backup services causes other applications to behave erratically.

"Sudden swells in network traffic are transient issues and often the primary cause of critical applications like VoIP and unified communications not having satisfactory quality of experience, not because they don't work well, they just don't work reliably," Suitor said. "This unsatisfactory QX then delivers lower-than-expected business benefits because people and users don't adopt those applications."

But these types of experiences don't have to define your agency. Numerous organizations around the world have not only rebounded from these types of ordeals but come back stronger than before.

For numerous private-sector firms, that success has come through partnerships with Exinda to improve application performance. Thousands of organizations worldwide have deployed Exinda's orchestration products and technology for policing and controlling the behavior of applications across the networks.

***For governments seeking to improve their application performance, here's a proven approach to achieve those results:***

**1. Identify the applications** running on the network.

**2. Analyze the application traffic** and attribute it to a specific user or group. This enables agencies to understand which applications are being used and how much traffic they contribute to the overall network.

**3. Relate network and application metrics**, so there are key performance indicators to help IT protect, prioritize and optimize the critical application traffic.

**4. Codify expert knowledge** for the IT employees and help them detect and respond to issues faster. Exinda's recommendation engine can produce different types of recommendations, such as application-specific recommendations or others that target the cost of the network and network conditions.

There's a growing list of applications that employees bring into an organization, so Exinda continuously monitors changes in the top applications. If a new application is detected, Exinda can communicate how much network bandwidth it's using and work with agencies to create a business policy to control the use of that app.

## WHY QUALITY MATTERS

Poor QX can have various consequences, depending on the type of application. Issues can range from minor inconveniences to lost revenue or major inefficiencies if information is not properly transmitted using the app. For users, poor QX is most notable when using applications like Voice over IP and others that include audio or video.

"We have all experienced poor audio quality, echoes, pixilation and dropped calls, and that speaks to an unreliability and inconsistency that leave users helpless and frustrated," Suitor said. "In other applications, QX measures can mean a slower information refresh rate that leaves users with data that isn't current. You need the data to be coherent and consistent across different screens so you're not acting on different data at different times."

For tech-savvy citizens, there's a perception that state and local governments cannot keep pace with their needs. They want to have a quality experience using government applications where they live, work and play, Suitor said. "For state and local governments, it doesn't matter how limited the population, how diverse the user community, there's a common thread that runs through: a desire to really improve the user experience for the employees and for their customers."



# QX IN PRACTICE



## Quality of Experience Goes Global at a Leading Food Company

One of Exinda's leading customers is a top five global food processing company that has amassed a portfolio of more than 200 food and beverage brands. But the company's size and name recognition don't make it immune to the everyday problems that plague organizations both large and small.

Picture employees starting their mornings the same way as many of us. Employees log onto their computers and open the software applications they use extensively throughout the day. For this company, it's Microsoft SharePoint. The issue, however, was the lengthy wait time for the pages to load and the loss of productivity it caused employees, not to mention frustration.

The company turned to Exinda for help. Exinda was able to reserve bandwidth for SharePoint and lower the bandwidth for commonly sent files using a technique called data de-duplication. IT staff can also override policies and alleviate load-time issues for critical hires and certain employees.

## Improving the Call Center Experience

For many organizations, call centers are vital for connecting internal employees with outside customers. So when a leading national mortgage lender and servicer began experiencing poor audio quality at its call centers, something had to change. This organization uses Voice over IP in its call centers, but representatives were unable to hear internal and external callers because of high jitter degrading the audio.

Working with the customer, Exinda first identified the problem and prioritized Voice over IP traffic to ensure there was sufficient network bandwidth availability. Exinda also used diagnostics and shaping tools to ensure 99.9 percent of the callers don't have issues hearing or communicating.





# it's not just app control, YOU ALSO NEED VISIBILITY

Most organizations have a horizontal view of their IT organizations. For example, there's a group that manages networks, another for middleware and a different group that manages applications.

"These three groups operate in three different silos, and they're horizontal, not vertical," Suitor said. "Each one has its own manager, and this leads to this suboptimal visibility and diagnostic capability. Everyone can understand there's something wrong below them or above them but they cannot see or diagnose or act upon those problems because they don't have visibility into other areas."

Application managers typically don't understand the nuances of the network, and network managers don't understand much about the applications. This lack of knowledge leads to incorrect root-cause analyses.

"That's why we think it is important for both seeing and reporting on network traffic, to understand and manage the quality of experience for applications," Suitor said. "Great quality of experience requires visibility and control across your applications and your network, whether it's a cloud network or a hybrid network."

Exinda goes beyond typical network management tools to provide a highly detailed and real-time visibility of network traffic. This allows organizations to separate traffic by user, device and application. Partnering with Exinda, IT administrators have access to a rich policy engine to shape particular types of traffic to meet their specific goals. With over 2000 application signatures, and growing, admins are able to create specific policies tailored to their applications. For example, an organization can constrain the use of YouTube on its network during business hours, but the training team may have a legitimate need to use YouTube and therefore be granted access to the site.

But it all comes down to multi-dimensional visibility and control. You have to know what applications are running on your network and how they're being used.

**"Great quality of experience requires visibility and control across your applications and your network, whether it's a cloud network or a hybrid network."**

Kevin Suitor

*Vice President of Product Management, Exinda*



## about EXINDA

Exinda is a leading global supplier of WAN solutions that enable organizations to assure a predictable user experience for strategic business applications. Exinda solutions intelligently allocate network bandwidth and optimize traffic based on the priorities of the business. The company has helped more than 4,000 organizations in over 80 countries worldwide assure application performance, improve the end-user experience, contain recreational applications and reduce network operating costs for the IT executive.



## about GOVLOOP

GovLoop's mission is to "connect government to improve government." We aim to inspire public-sector professionals by serving as the knowledge network for government. GovLoop connects more than 250,000 members, fostering cross-government collaboration, solving common problems and advancing government careers. GovLoop is headquartered in Washington, D.C., with a team of dedicated professionals who share a commitment to connect and improve government.

For more information about this report, please reach out to [info@govloop.com](mailto:info@govloop.com).





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