

Is Your Monitoring Strategy Ready for the Latest Citrix Virtual Apps And Desktops?

Understanding the need for your monitoring strategy to support the new capabilities and enhancements in the latest Citrix Virtual Apps and Desktops releases

Introduction

With Citrix XenApp 6.5 having reached End-of-Life (EoL) on June 30, 2018, organizations around the world are making their move to Citrix Virtual Apps and Desktops 7 (what earlier used to be called Citrix XenApp and XenDesktop). From the time when XenApp 7 was first released in 2013, we have gone a long way in adding a ton of new functionalities and enhancements. The architecture itself has changed completely with the integration of both virtual application and virtual desktop delivery into one solution. Many new protocols have been introduced and user experience improvements have been made. These include support for the latest technologies, cloud deployment flexibility, and much more. If you have not already upgraded to the new version, it's highly recommended to do so to take advantage of all the new capabilities.



Citrix Workspace

Only Citrix offers the most complete and integrated workspace to enable people to securely access their apps, desktops, and data from anywhere. Rely on Windows app and desktop delivery from Citrix Virtual Apps and Citrix Virtual Desktops®, device security from Citrix Endpoint Management®, secure file sync and sharing with Citrix Content Collaboration®, and network security with Citrix Gateway®. Only a Citrix Workspace offers you complete choice of device, cloud and network, streamlined for IT control and simple, secure access for users.

Performance monitoring has always remained a critical part of Citrix deployments in organizations — whether it's a brand new Citrix deployment or upgrade from an older version. Citrix administration teams always factor in monitoring as an integral part of ensuring great user experience. With the many advances in the Citrix product line, organizations will need to rethink their monitoring strategy. The tools and methodologies in use will also need to evolve to account for the new changes and functionality improvements.

This white paper highlights Citrix upgrade trends, discusses in detail some of the significant new functionalities introduced in Citrix Virtual Apps and Desktops 7, and underscores the need for performance monitoring to be Citrix Virtual Apps and Desktops 7 ready.

The Move to Citrix Virtual Apps and Desktops 7

In a [recent industry survey](#) conducted by eG Innovations and DABCC involving 795 Citrix professionals from across the globe, it was found that the migration to Citrix Virtual Apps and Desktops 7 was happening in full swing. 17% of organizations had already migrated to the new version, and another 70% are expected to complete the migration very soon.

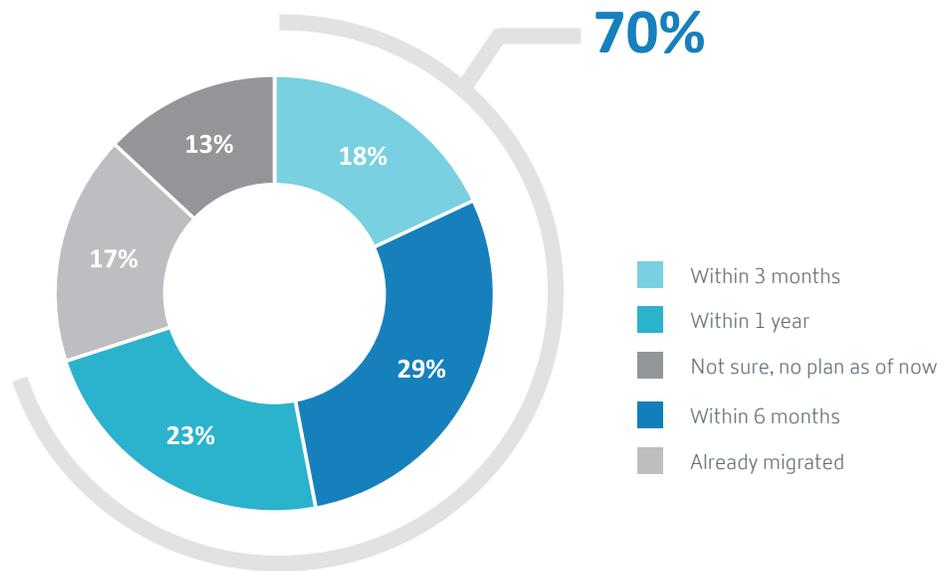


Figure 1: Citrix migration trends

For Citrix customers who are making the upgrade, already upgraded, or considering the upgrade, this document help you understand the potential of Citrix Virtual Apps and Desktops 7 and how you can achieve performance success post-migration.

What is Architecturally Different in Citrix Virtual Apps and Desktops 7?

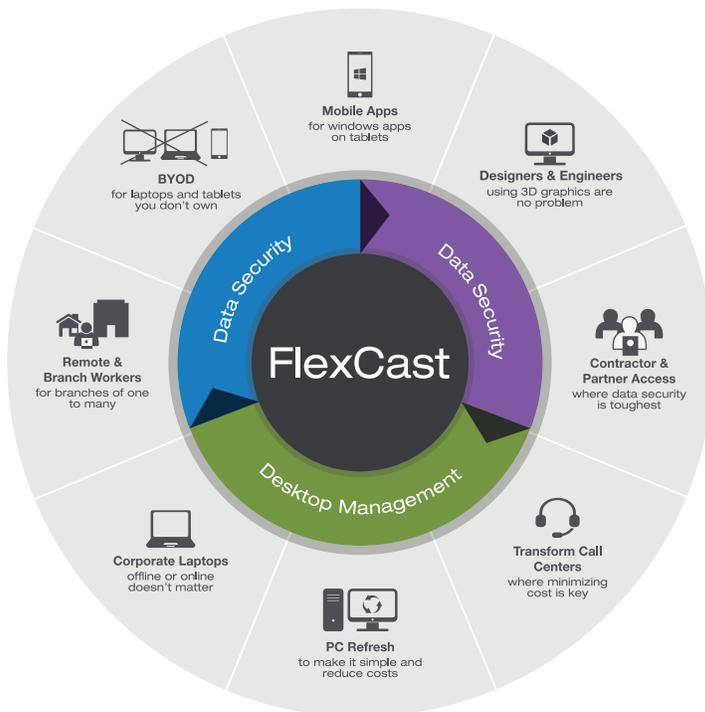


Figure 2: Applications of Citrix FMA architecture

Roles you would have been familiar with in XenApp 6.x have now been redesigned to fit into the FlexCast Management Architecture (FMA) of XenDesktop (Citrix Virtual Desktops) has already been running with FMA for some time, but now XenApp (Citrix Virtual Apps) has made the shift to 7 meaning that you have a simplified infrastructure regardless of whether you are virtualizing applications or desktops.

Some of the key architectural changes in Citrix Virtual Apps and Desktops 7 are listed below:

- **Data Collectors replaced by Delivery Controllers**

Delivery Controllers are the most critical component in your Citrix infrastructure. It is the server-side component that is responsible for managing user access, plus brokering and optimizing connections.

The Controller performs the following tasks:

- Talks to SQL directly, and is the only component in a Citrix Site that talks to SQL
- Brokers connection requests to backend Virtual Delivery Agents (VDAs)
- Power manages VDAs
- Provides access to applications and desktops using Local Host Cache, if the connection to SQL becomes unavailable

- **Citrix Farms replaced by Citrix Sites**

A Citrix Site is made up of a Citrix Site database, which is hosted on SQL. Other components that reside in a Citrix Site are the Delivery Controllers, Machine Catalogs, VDAs, and Delivery Groups. A Citrix Site can be split into multiple Zones.

- **Worker Groups replaced by Machine Catalogs**

A Machine Catalog consists of one or more Virtual Delivery Agents (VDAs) which deliver desktops and/ or applications to end-users.

- **App Center replaced by Citrix Studio**

Using Citrix Studio allows you to create a Site, and manage that Site including Machine Catalog/ Delivery Group and policy creation.

- **EdgeSight monitoring replaced by Citrix Director**

Director is a web-based helpdesk tool that allows ICT staff to manage user sessions and view basic level monitoring of a Citrix Site.

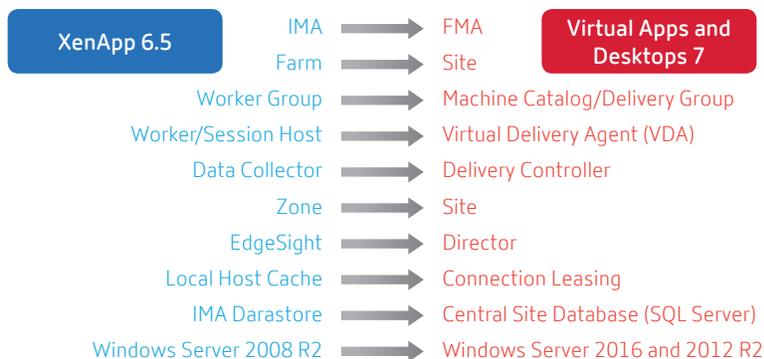


Figure 3: Summary of major changes from XenApp 6.x to Citrix Virtual Apps and Desktops 7

What's New in Citrix Virtual Apps and Desktops 7?

Citrix is constantly innovating to keep up with the fast pace of change when it comes to how organizations consume technology. In line with this trend, several new features and capabilities have been added in course of the many releases of in the Citrix Virtual Apps and Desktops 7 product line:



Long Term Service Release

Long Term Service Release (LTSR) versions of Citrix Virtual Apps and Desktops are suitable for organizations who want to remain supported on a particular version of the product for up to five years, with the option of extending support for a further five years. The current LTSR-enabled version is 7.15. With LTSR versions, only bug fixes are released via Cumulative Updates. If customers wish to make use of new features, they must upgrade to a Current Release (CR) version such as 7.18. To learn more about LTSR, please visit <https://www.jgspiers.com/what-is-long-term-service-release/>

Citrix Workspace Environment Management

Workspace Environment Management (WEM) provides you with the ability to customize a user's workspace by mapping drives, printers, applications, registry entries and so on to the user session. The added benefit of WEM is that it performs these actions after a user has logged on, which reduces the user's time to log on. WEM also can perform VDA lockdown and perform CPU/RAM and I/O optimization.

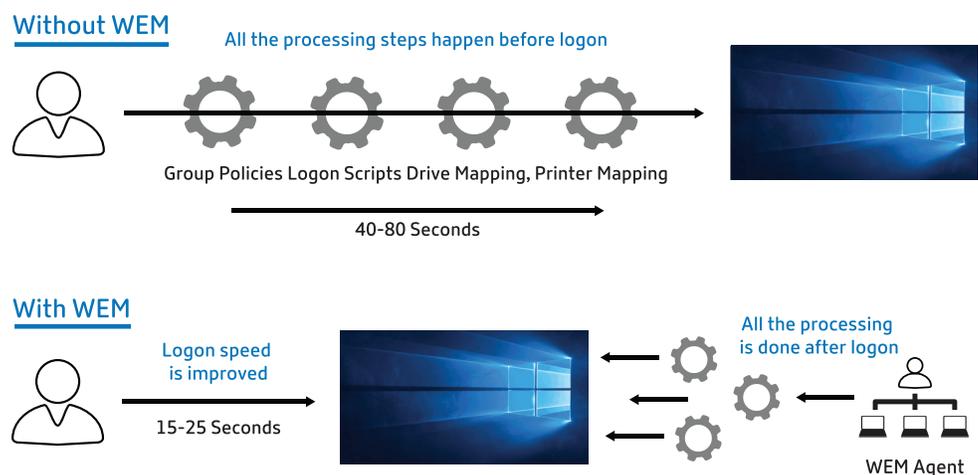


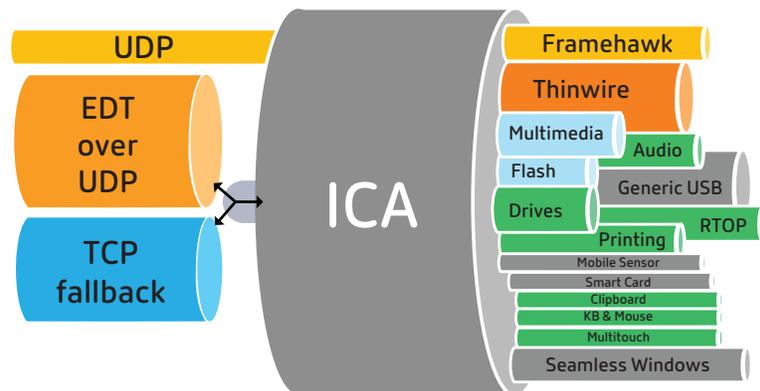
Figure 4: How Citrix WEM works

Citrix App Layering

App Layering simplifies image management by reducing the number of images you have to maintain in your Citrix environment. Rather than bundle all your applications and settings on one single image, you can separate each application and operating system into individual layers, which can be later tied together.

Enlightened Data Transport (HDX Adaptive Transport)

Adaptive Transport is a new ICA transmission protocol which transports the ICA virtual channels via UDP. Compared to the traditional TCP transport mechanism, UDP works better when ICA connections run over latent connections as is more commonly experienced with today's mobile workforce.



*Framehawk actually uses its own UDP data transport layer based on gearing

Figure 5: ICA channels with EDT as the default transport protocol

Bidirectional Content Redirection

HTML5 web content is becoming the norm in today's world, with Flash enabled content gradually phasing out. Using Bidirectional Content Redirection, you have the ability to offload web content to an endpoint PC, Laptop, Thin Client, etc. to save processing power on the VDA.

Adaptive Display v2

A revamped edition of Adaptive Display now gives you the option to compress the entire screen using the popular H.264 codec, to compress only part of the screen or perform no compression at all.

MCS IO

Like PVS has the ability to write to RAM, machines provisioned by Machine Creation Services also now have the ability to direct their machine writes to RAM, beginning XenApp and XenDesktop 7.9.

Broader GPU Support

Over the years, Virtual Apps and Desktops 7 has come to support a wide range of NVIDIA GPUs. AMD and Intel GPUs have also more recently been added to the list.

Profile Management Enhancements

Redirecting the OST and Outlook search index to a container and being able to remove large unwanted files and folders from user profiles automatically are just some of the improvements released with the latest versions of Citrix Virtual Apps and Desktops.

Citrix Cloud

Several services now exist that deploy Citrix Virtual Apps and Desktops 7 workloads in the cloud. You have the options of Citrix Virtual Apps Essentials, Citrix Virtual Desktops Essentials, and the Citrix Virtual Apps and Desktops Service on Citrix Cloud. For example, the Virtual Apps and Desktops Service allows you to offload the management plane (Delivery Controllers, StoreFront, SQL Server, etc.) to Citrix. It is Citrix who then manages these infrastructure components, keeping them up to date and highly available.

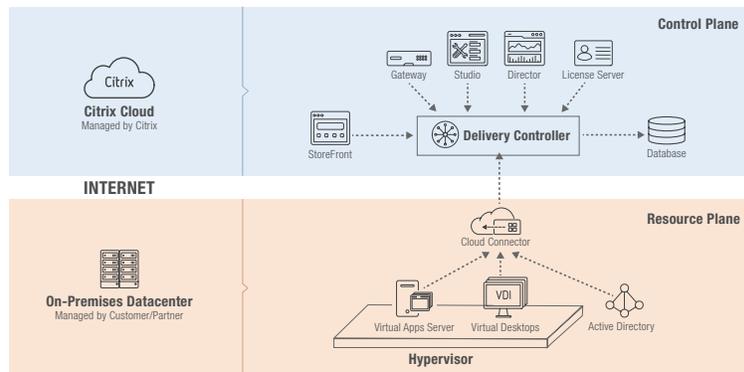


Figure 6: Citrix Cloud architecture

Citrix Director Enhancements

Over the last several Citrix Virtual Apps and Desktops releases, Citrix Director is now shipped with a lot of new features. Some of those features include:

- The ability to monitor processes and track how much CPU/RAM they consume
- The ability to set up alerting for ICA RTT, logon durations, CPU, memory, and so on
- Custom reporting for the creation of advanced reports
- Session idle timers for inactive sessions
- Ability to shadow sessions that run from Linux VDAs
- Application probing for simulated application availability testing

Is Your Citrix Monitoring Keeping Up with The Evolution of Citrix Virtual Apps and Desktops 7?

A key question to ask regarding Citrix Virtual Apps and Desktops is whether the same monitoring techniques used in a Citrix 6.x environment can be used for Citrix Virtual Apps and Desktops 7.



Figure 7: Evolution of mobile technology

To answer this question, let's consider the analogy of the evolution of mobile networks and the simultaneous evolution of mobile devices. With technology evolution from G to 2G to 3G to 4G, mobile devices also became more sophisticated to support the new use cases that modern mobile networks supported. Older mobile device models do not support the newer enhancements in 4G.

Similarly, for Citrix monitoring to be effective, your monitoring must address the architectural changes and new functionalities included in the Citrix Virtual Apps and Desktops 7 architecture. Just relying on the same techniques and metrics collected in a Citrix 6.x farm to monitor Citrix Virtual Apps and Desktops 7 will not be sufficient.

A monitoring tool that is Citrix Ready verified for Virtual Apps and Desktops must:

- Monitor all aspects of user experience in a Citrix Virtual Apps and Desktops infrastructure, and have a proactive approach to alerting before users experience problems and complain
- Monitor the new components, protocols and deployment architectures introduced in Citrix Virtual Apps and Desktops 7
- Support any infrastructure-level changes made to support Citrix Virtual Apps and Desktop service delivery (e.g., upgrade of the server operating systems, use of Citrix ADC, etc.)

User Experience Monitoring for Citrix Virtual Apps and Desktops 7

Citrix user experience is one of the most important measures for Citrix administrators. Since Citrix Virtual Apps and Desktops 7 has so many enhancements, it's important to quantify the user experience and know when a user is affected, why, what caused it, were there any indications to have caught it proactively, and so on.

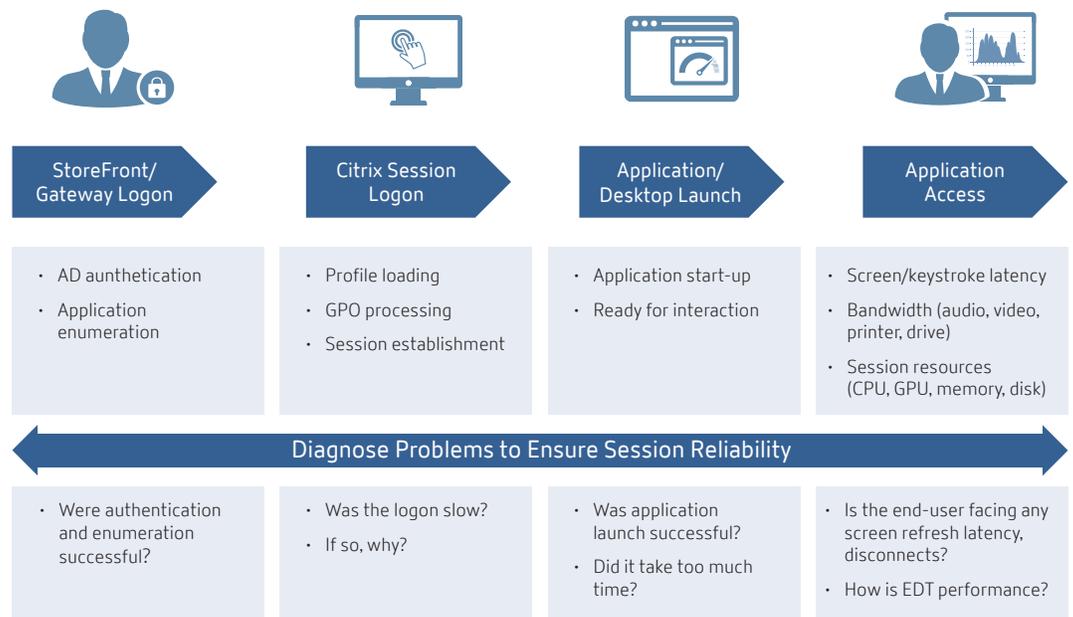


Figure 8: Monitoring all aspects of Citrix user experience

Citrix user experience is typically calculated on factors such as:

- How quickly a logon takes place to a published application or published desktop
- How responsive a Citrix session is when clicking on buttons, menu options, inserting text and so on
- Application compatibility, including how well web applications perform and work within a published desktop
- Persistency, and being able to access the same files, folders and settings across different desktops from any location
- Availability of published desktops and or published applications
- Ease of use of the overall systems provided by Citrix Virtual Apps and Desktops

When it comes to monitoring user experience in Citrix Virtual Apps and Desktops 7, you should concentrate on keeping a check on the following:



Logon times. Logon is one of the most critical steps in the Citrix delivery process. Slowness in logon processing will negatively impact user productivity and business continuity. A typical

Citrix logon experience will comprise the following steps:

1. Loading StoreFront (either directly or through Citrix Gateway) and logging on
2. Receiving an enumeration of published apps and/or desktops
3. Delivery Controller brokering to the best available VDA
4. Profile load, group policy load, Citrix policy load
5. VDA shell initialization and WEM processing

For this reason, your monitoring must record the overall logon time as seen by the user. The monitoring must be end-to-end, so as to reflect the user experience as closely as possible.



Proactive user experience monitoring. Citrix administrators should consider [synthetic monitoring](#) of Citrix user experience as part of their monitoring strategy. While monitoring real users in real time is helpful to troubleshoot issues for impacted users, synthetic monitoring can help identify problem areas before even Citrix users connect to the Citrix Site. Synthetic monitoring usually involves using a robot to synthetically test logon connectivity, logon processing time, enumeration time, application launch time, etc. in periodic intervals from different locations and understand if there are any performance issues. The results of the simulation can also help benchmark KPIs in the Citrix Virtual Apps and Desktops infrastructure and test whether the entire Citrix stack is working in concert as expected to deliver user logon and application/desktop access.

Look for two specific synthetic monitoring techniques:

1. **Synthetic logon simulation:** This synthetically tests logon processing time at every step and helps identify which logon step is failing or causing slowness.
2. **Full session simulation:** This goes beyond logon simulation and simulates the entire operation of the user accessing applications/desktops and performing transactions.

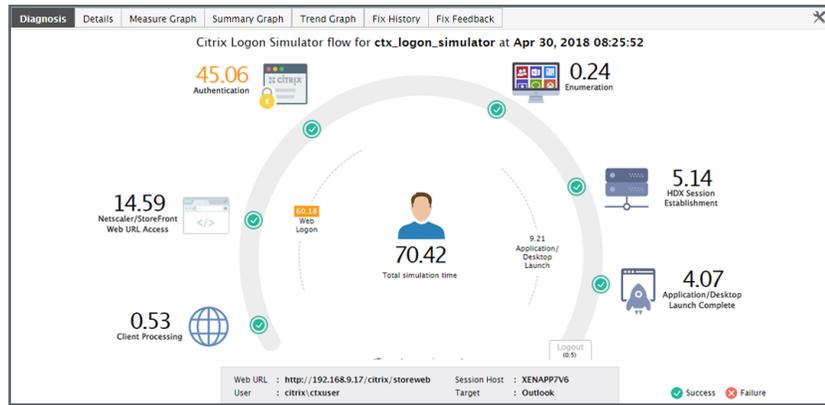


Figure 9: Synthetic logon simulation Citrix Logon Simulator

Try the FREE eG Enterprise Express Citrix Logon Simulator



Availability. At the same time, your monitoring must include checks to make sure the individual Citrix components are available and responding. This will include availability checks of your Citrix ADC, StoreFront, server VDAs, databases, etc. When the simulation of user access reports an issue, the individual checks of the different Citrix components can help identify the problem areas.



Real user monitoring. While synthetic monitoring is useful, it does not replace monitoring of the real users. Logon processing in Citrix Virtual Apps and Desktops 7 now happens in two places: some activities during logon happen through the Citrix Delivery Controller (e.g., brokering, VM start, etc.), while the VDAs are responsible for other activities (e.g., profile loading, GPO processing etc.). To troubleshoot logon slowness, you will need metrics from the Citrix Delivery Controllers and the VDAs, ideally presented on the same dashboard. To troubleshoot slowness issues, you will need timing information from the different Citrix components supporting the service as well – for example, resource enumeration times on StoreFront servers, boot times of devices from Provisioning servers, license checkout times from VDAs, etc. All these times can affect the user experience.

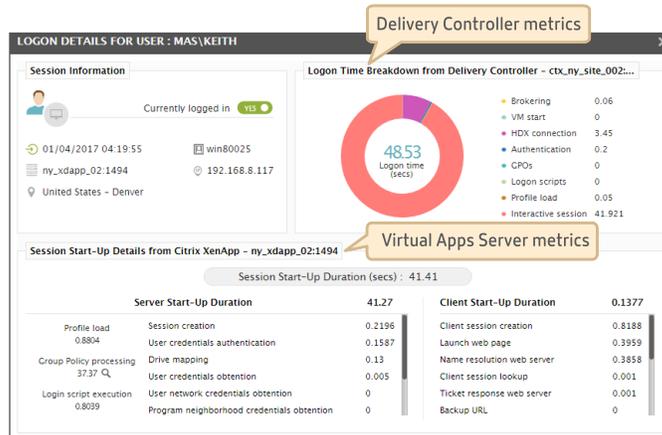


Figure 10: Collecting logon metrics from Delivery Controller and Virtual Apps servers and Virtual Desktops VMs

DETAILS OF CLIENT SIDE EXTENSION			
CSE EXTENSION NAME	CSE ELAPSED TIME(SECS)	GROUP POLICY NAME	CSE ERROR CODE
Group Policy Drive Maps	36.3278	Map-Drive	0
Citrix Profile Management	0.3857	None	0
Folder Redirection	0.299	Disk Fragmentation	0

Figure 11: Deep-dive into GPO processing to identify slow GPO Client-Side Extensions



Application compatibility and health. Slowness or failures during application access also affects user experience. Hence, you will need monitoring and alerting for events such as:

1. **Application launch failures.** Application failing to launch because it has encountered conflicts with another application on the same VDA, or it has a conflict with the operating system, with your profile management solution, or it simply has developed a bug.
2. **Application crashes due to DLL conflicts, or .EXE crashes.** To better support your suite of business applications, you should be alerted upon application crashes and be informed which process or file causes the crash. This way, you could identify trends if, for example, a specific .EXE kept causing the application to crash and send that information to the application vendor for resolution.

What New Components in Citrix Virtual Apps and Desktops 7 Should Be Monitored?

When it comes to monitoring a Citrix Virtual Apps and Desktops 7 environment, there are a few key components, whose performance is critical to measure.

StoreFront Servers

Citrix StoreFront replaces the Web Interface server in the Citrix 7 architecture. Built on Microsoft IIS web server, StoreFront supports browser-based access to the Citrix Site. Web access to the Citrix site will fail should the StoreFront servers become unavailable. Also keep track of resource enumeration times as long load times may result in an issue between StoreFront and the Delivery Controllers, or an issue with SQL.

Delivery Controllers

The Delivery Controller is the most important component in your Citrix Site. It communicates with SQL Server, performs power management of VDAs, brokers users on to VDAs, enforces Citrix Studio policy settings and more.

The key components you want to monitor on a Delivery Controller are the FMA services, RAM and CPU. There are over 20 services that must be running at all times to ensure user performance and experience is not affected.

Monitoring and alerting are necessary for events such as:

1. **VDA registration issues.** If a VDA is unregistered, a user may receive connection issues and call the helpdesk.
2. **VDA failures.** Quite like registration issues, a VDA failure could result in outage, or a reduced user experience as there is more resource contention placed on the remaining, healthy VDAs.

3. **Delivery Controller availability, including service status.** There are over 20 services that make up FMA. You need to make sure these are running.
4. **SQL availability.** The SQL Site database is required to be online and in a healthy state. If not, your site will fall back to using Local Host Cache.

Key Citrix Delivery Controller Metrics to Monitor			
Desktop Sessions	Breakdown of Desktops	Breakdown of Sessions	Controller Services
<ul style="list-style-type: none"> • User logon performance • New user connections • User connection failures • Client connection failures • Machine failures • Configurations errors • Unavailable license • Unavailable capacity 	<ul style="list-style-type: none"> • Powered on/off • With maintenance mode enabled • Assigned/Unassigned • With pending image update • Preparing/resuming • Start failures • Stuck on boot desktops • Unregistered desktops 	<ul style="list-style-type: none"> • Active sessions • Connected sessions • Disconnected sessions • Preparing sessions • Reconnecting sessions • Non-brokered sessions • Pending sessions • Unknown sessions 	<ul style="list-style-type: none"> • Broker service • AD identity service • Configuration service • Host service • Machine creation service • Licensing service • Monitoring service • Logging service

Figure 12: Key Delivery Controller performance metrics

Services such as the Citrix Desktop Service may be stopped, and could cause registration to fail. You need a monitoring solution that can alert you under conditions such as when a Delivery Controller is not accepting registration requests, or a VDA is not responding.

RAM and CPU are also an important factor. As part of the user brokering process, the Delivery Controller must find the best positioned VDA to handle a connection. During logon storms which typically occur in the morning, a Delivery Controller which is resource constrained may impact the time it takes users to be connected to a desktop.

VDAs

The Virtual Delivery Agent (VDA) enables connections to applications and desktops. The VDA is installed on the machine that runs the applications or virtual desktops for the user. It enables the machines to register with Delivery Controllers and manage the High Definition eXperience (HDX) connection to a user device. Your monitoring solution should monitor the registration state, and health of these VDAs. If the VDAs are unregistered or in a failed state, service denial is a potential, or a reduced user experience possible due to more resource constraint and demand placed on remaining available and health VDAs. There are several reasons why VDAs can fail to communicate with the Delivery Controllers (refer to: <https://support.citrix.com/article/CTX136668>). Ideally, your routine monitoring must help uncover when registration issues occur and the reasons for these issues.

You should also monitor for events such as RAM consumption, CPU consumption and IOPS consumption of the VDAs. Your monitoring solution should be able to pull resource metrics from each VDA, but also capture data from the network, storage, hypervisor layers and so on as these layers can directly impact your Citrix estate. For example, slow network connections to file servers could increase profile load times. High RAM utilization on one of your VDAs would impact user experience by offering a less responsive desktop.

Linux VDAs

Like Windows VDAs, Citrix Virtual Apps and Desktops supports an increasing number of Linux variants, such as Ubuntu, CentOS and Red Hat. Linux VDAs are becoming a popular way to deliver web browsers to corporate users. The reduced number of exploits written for these operating systems, coupled with the increased potential of being infected via a web browser, makes deploying these VDAs appealing to customers.

Customers deploying Linux VDAs will need the same level of visibility into users and sessions as they have with Windows VDAs.

Profile Management

If you are using Profile Management, chances are you store your profiles on DFS servers, likely as part of a DFS Namespace. If any components are capable of impacting user experience, it is the profile solution that you use. Profiles must be available on demand, and your users must have quick access to them. This means building highly available file servers that maintain fast connections to the VDAs that run under your Citrix Site.

If the file servers are experiencing RAM, CPU or IOPS constraint, profile load times will increase, and user experience will be impacted. Other things to monitor are of course disk space, and disk read and write latency.

Your profile solution must also monitor the components that a file server relies on, such as the network infrastructure and storage infrastructure that would have a direct impact on file services.

Workspace Environment Management

Workspace Environment Management (WEM) consists of Agents which run on each VDA, and a WEM server which the Agent speaks with to allow for the appropriate configuration to be applied to a user's session. If the Agent cannot contact the WEM server, or the WEM server cannot contact SQL, actions such as printer mappings and drive mappings old or new may not be applied to a user's session. This will ultimately impact user experience and generate calls to the helpdesk. It is important that WEM is monitored end-to-end: from the SQL-side right through the WEM server and on to the Agent.

WEM processing slowness also affects the user experience. When WEM is used, user logons will be faster, but user data and policies may not be applied until WEM processing is completed. Hence, it is important to monitor WEM processing times for each and every user logon.

WEM can also be used to throttle CPU for applications. These actions limit the impact of any run-away applications on the servers and desktops. Administrators need to be aware of when and how often CPU throttling happens and what applications are affected.

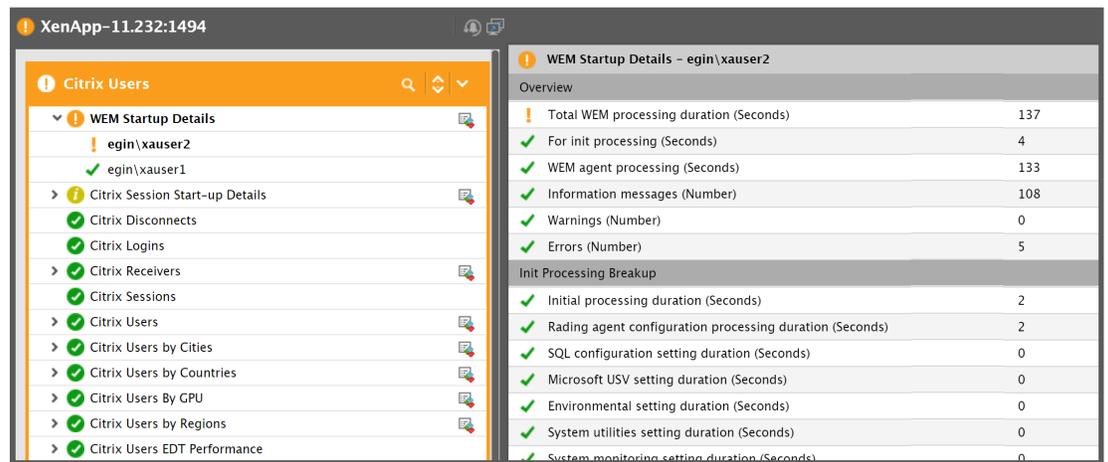


Figure 13: Monitoring Citrix WEM performance allows admins to know when WEM processing is slow and why

App Layering

While App Layering simplifies image management in a Citrix environment, addition of layers can slow down logon times. Admins must be able to see which app layers are widely used and how long it takes to load each layer elastically.

Citrix Cloud Services

If you are using any of the Citrix Cloud services, you want to be able to monitor them just like you would with your on-premises versions of Citrix Virtual Apps and Desktops.

To communicate with Citrix Cloud, Cloud Connectors are installed on pairs of servers within your resource plane. That resource plane could be on private or public clouds. The Cloud Connector offers secure, one-way communication to Citrix Cloud. If your Cloud Connector servers are in a failed state, or they are encountering communication issues with Citrix Cloud, you will potentially encounter issues such as being unable to broker connections to your VDAs for example, if using the Citrix Virtual Apps and Desktops Service. Therefore, it is important to monitor the Cloud Connectors and their communication with Citrix Cloud. Resource usage levels on the Cloud Connectors must also be monitored.

Ideally, you need a central dashboard to monitor the status of your on-premises and Citrix Cloud services. Since you will not have direct access to the Citrix Cloud to install any agents, monitoring of Citrix Cloud has to be agentless, using Citrix Cloud APIs, so you can track the status of the VDAs, track the utilization of the delivery groups and machine catalogs, and track user sessions.

Enlightened Data Transport (EDT)

Screen refresh time has an impact on how a user perceives their experience with Citrix Virtual Apps and Desktops. EDT runs over UDP, so it is designed to offer quicker screen refreshes when users are running connections across higher latency networks.

It is important that your monitoring solution captures RTT (Round Trip Time) values and alerts you when averages are high. It is perfectly acceptable and advisable to also run EDT over LAN connections, so monitoring is essential to ensure the network and VDAs are optimally performing.

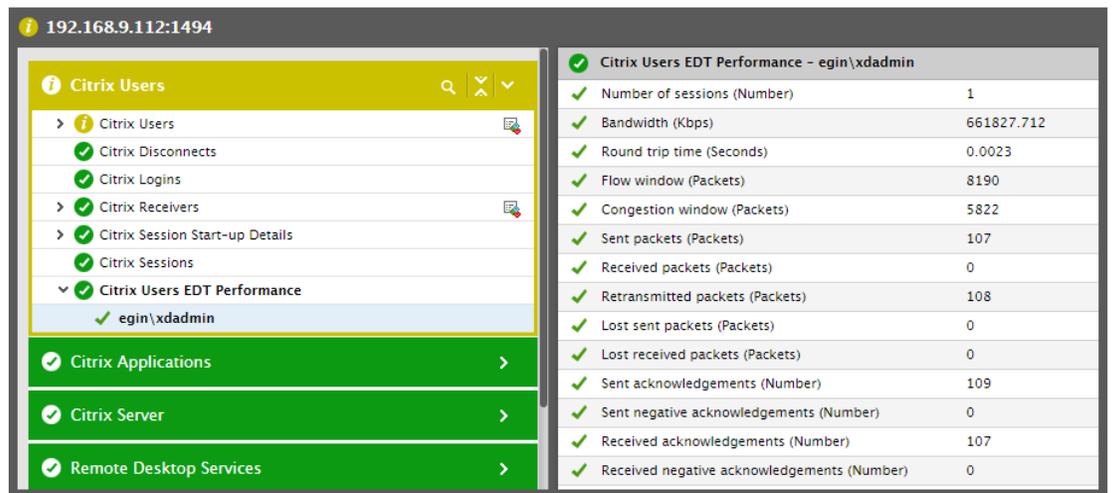


Figure 14: Monitoring EDT performance for every user session

Session Pre-launch and Lingering

Session pre-launch and lingering are useful features when used in the right way.

- Session pre-launch:** As a client (typically with single sign-on Windows Receiver) signs on to a PC, their published applications launch or “prepare” in the background. It is typically found that when a user logs on to a desktop, they don’t automatically launch every application that they have access to. Given this, we can take advantage of that behavior and launch the applications quietly in the background. This means that when they do click to launch a published application, it launches almost instantaneously, offering enhanced user perception.
- Session linger:** When a user closes out of a published application, there may be instances where they have forgotten to perform an action and need to re-launch the application. As such, using prelinger, you can keep the session active for a defined period of time in the event that a user does want to reconnect back to the application. This prevents the user from having to go through the entire logon and launch process again.

Due to the way these features work, they keep a license checked out for the user and also take up resource on the VDA. For example, with session linger, a session is kept running on the VDA, using up RAM and CPU. Such resource consumption may be found to be typically small, but when coupled with hundreds of users you could be taking up a lot of resource. The same applies for pre-launch. If a user never clicks to launch that application, you should free up both the license and any resource required on a VDA to keep the session running in a pre-logon state. As a result, your monitoring solution should alert you if pre-launch or linger sessions have been running too long, so you can take action and better control the times when sessions are kept active.

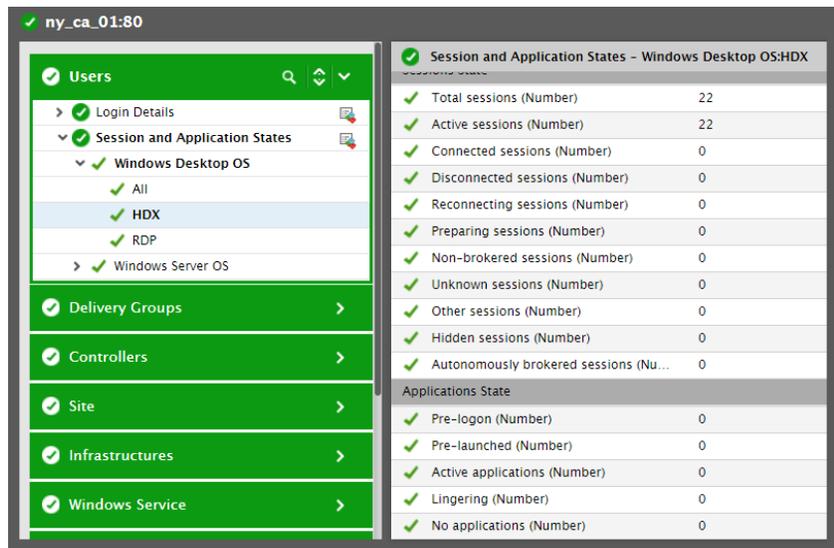


Figure 15: Monitoring session pre-launch and lingering

GPU

Because Citrix Virtual Apps and Desktops 7 supports the use of GPU for enhanced user experience delivery, your monitoring solution should be able to track the availability and usage metrics of GPU. If NVIDIA GPU cards are being used in Citrix delivery, based on whether it is a shared or pass-through deployment, administrators must know how much GPU is being consumed by each session, which application/process is hogging the most GPU, whether GPU is over-provisioned or under-provisioned for desktop VMs and server VMs.

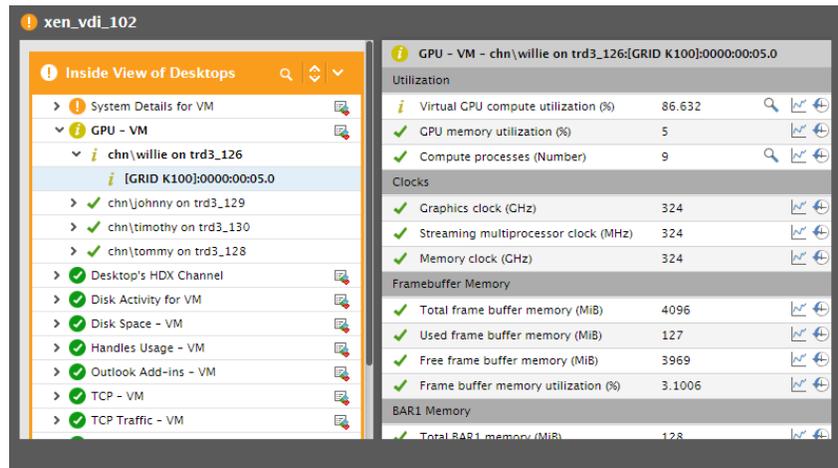


Figure 16: In-depth NVIDIA GPU usage analytics

Specialized Performance Monitoring for Citrix Virtual Apps and Desktops 7 with eG Enterprise

eG Enterprise is a Citrix Ready verified performance monitoring solution for Citrix environments. Embedded with deep domain expertise to troubleshoot even the most complex performance problems occurring in Citrix environments, eG Enterprise provides centralized and correlated visibility of the entire Citrix delivery infrastructure:

- **Monitors all Citrix components:** Citrix Virtual Apps, Citrix Virtual Desktops, StoreFront, Citrix ADC, Citrix Gateway, Citrix Provisioning, Citrix WEM, License Server, Citrix Cloud, etc.
- **Monitors all non-Citrix components:** network, Active Directory, virtualization, storage, database, etc.

Using built-in correlative intelligence, eG Enterprise understands dependencies between various components, correlates performance metrics, and **automatically pinpoints the root cause of performance problems.**

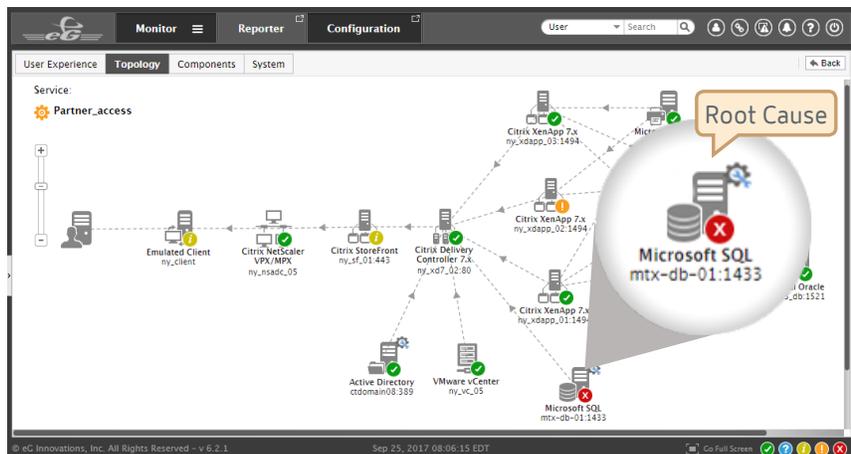


Figure 17: End-to-end topology visualization and automatic root cause diagnosis with eG Enterprise



About the Author

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eG Enterprise includes customized and purpose-built monitoring capabilities to support Citrix Virtual Apps and Desktops 7 environments. With native support for HDX Adaptive Transport (EDT), WEM, session lingering and pre-launch, network connection quality measurement, Framewark, Linux VDAs, GPU metrics and more, eG Enterprise extends monitoring capabilities of Citrix Director to deliver comprehensive performance visibility of 7 environments.

eG Enterprise also includes synthetic monitoring capabilities for **logon simulation** and **full session simulation**. This helps Citrix admins test their infrastructures and catch user experience issues before migration to 7 and production deployment.

Out-of-the-box reports in eG Enterprise provide intelligent analytics for capacity planning and right-sizing the 7 infrastructure. Using machine learning, eG Enterprise automatically baselines the Citrix Virtual Apps and Desktops 7 environment to identify performance deviations from the norm.

Conclusion

Citrix Virtual Apps and Desktops 7 offers many new enhancements and functionalities that help Citrix customers achieve a better digital workspace experience. For performance monitoring to be truly effective in 7 environments, the monitoring solution should support these specific capabilities. Whether you are migrating to 7, or if you have already migrated, look for a third-party Citrix monitoring solution, that augments Citrix Director and provides end-to-end monitoring insight across all aspects of Citrix Virtual Apps and Desktops 7.

Learn more: www.eginnovations.com/Citrix

Next Steps

For more information, please visit <https://citrixready.citrix.com/eg-innovations/eg-enterprise.html>

Email us at info@eginnovations.com

Live Demo

Request a personal walkthrough to learn first-hand how eG Enterprise can help improve performance and operations in your business environment.

<https://www.eginnovations.com/eg-enterprise-live-demo>

Free Trial

15 days of free monitoring and diagnosis, in your own infrastructure. Try it and learn exactly how eG Enterprise helps you ensure a great end-user experience and improve IT operations.

<https://www.eginnovations.com/eg-enterprise-free-trial>



About Citrix Ready

Citrix Ready identifies recommended solutions that are trusted to enhance the Citrix Delivery Center infrastructure. All products featured in Citrix Ready have completed verification testing, thereby providing confidence in joint solution compatibility. Leveraging its industry-leading alliances and partner ecosystem, Citrix Ready showcases select trusted solutions designed to meet a variety of business needs. Through the online catalog and Citrix Ready branding program, you can easily find and build a trusted infrastructure. Citrix Ready not only demonstrates current mutual product compatibility, but through continued industry relationships also ensures future interoperability. Learn more at citrixready.citrix.com.

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About eG Innovations

eG Innovations provides the world's leading enterprise-class performance management solution that enables organizations to reliably deliver mission-critical business services across complex cloud, virtual, and physical IT environments. Where traditional monitoring tools often fail to provide insight into the performance drivers of business services and user experience, eG Innovations provides total performance visibility across every layer and every tier of the IT infrastructure that supports the business service chain. From desktops to applications, from servers to network and storage, eG Innovations helps companies proactively discover, instantly diagnose, and rapidly resolve even the most challenging performance and user experience issues.

eG Innovations' award-winning solutions are trusted by the world's most demanding companies to ensure end user productivity, deliver return on transformational IT investments, and keep business services up and running. Customers include 20th Century Fox, Allscripts, Anthem Blue Cross and Blue Shield, Aviva, AXA, Biogen, Cox Communications, Denver Health, eBay, JP Morgan Chase, Southern California Edison, Samsung, and many more.

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