

Resolve Performance Issues Within Your Citrix XenApp Environment

Riverbed OPNET CX-Tracer

Citrix XenApp application virtualization technology enables Microsoft Windows applications to be virtualized, centralized, and delivered to users as a service. It is a prevalent technology for delivering applications due to its ability to vastly reduce administration costs, make more efficient use of IT resources, and improve the performance of enterprise applications over wide area and mobile networks.

While powerful and beneficial, the Citrix XenApp environment can present new challenges to IT departments when troubleshooting application performance issues. Citrix acts as a proxy for backend applications, making it difficult to get end-to-end visibility of transactions and to identify and troubleshoot end-user experience problems. By default, problems are typically blamed on the Citrix tier or 'the network'.

Troubleshooting Citrix performance

Determining the root cause of a performance issue through a Citrix XenApp server can be time consuming, and in some cases, impossible. As the troubleshooter, the challenge is to take a step back and look at the big picture first, since Citrix can get the blame when the true source of the problem actually has nothing to do with the Citrix server.

There are sometimes obvious culprits, for example a particular XenApp server may be oversubscribed in terms of CPU or memory, the WAN connection between the user and the XenApp server may be congested, or the application being accessed on the backend may be over utilized. However, these basic performance indicators frequently appear to be fine even when the end-users are complaining that their sessions are slow.

The next step is to take a closer look at the individual user sessions. Typically, investigating user transactions through the Citrix tier involves downloading the packet data at each hop along the path between the end user, the XenApp server, and the backend application. The key is to look for clues in the stream that help "single out" the user's connection to the application server in the data center.

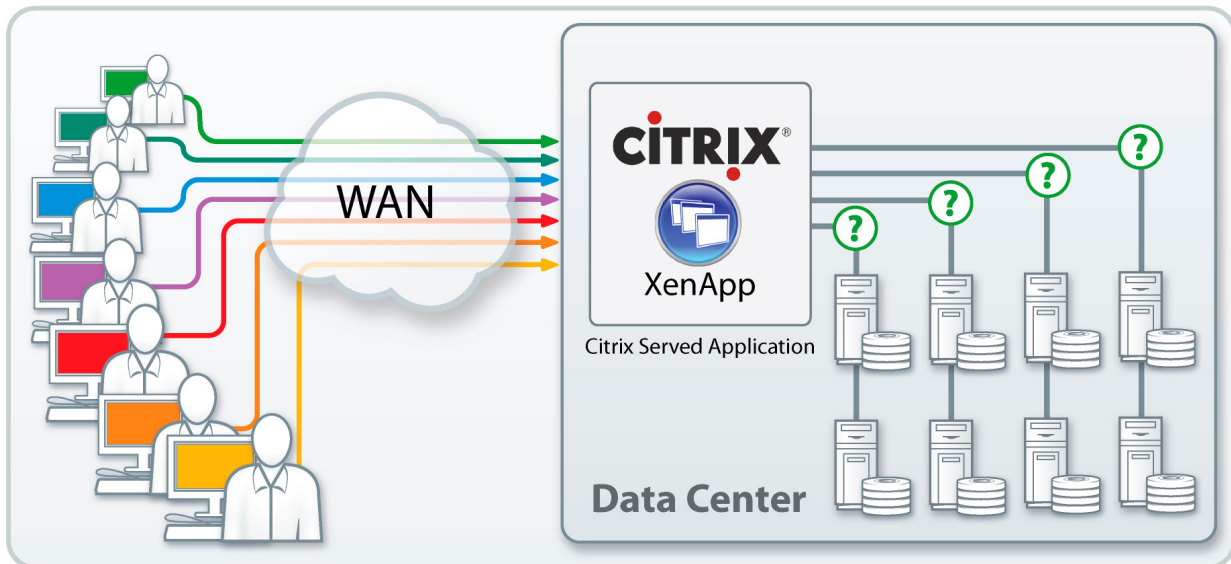


Figure 1: Typical visibility in the Citrix tier – thousands of transactions with no way to see who is doing what

One of the main challenges is isolating a single user's session end to end. After connecting to the Citrix server, a user's unique transactions to the backend application components are lost in the crowd of all transactions. While it is relatively easy to see the aggregate performance of the crowd, it is difficult to isolate individual users and investigate their individual transactions.

The mapping between front-end Citrix sessions and backend applications boils down to an educated guess. For these reasons, analyzing user transactions is seen as haphazard at best.

Breakthrough solution for end-user transaction tracing and Citrix servers

The OPNET CX-Tracer™ module for Riverbed® OPNET AppResponse Xpert™ is a breakthrough solution that provides unprecedented end-to-end visibility into user transactions traversing a Citrix XenApp server. OPNET CX-Tracer enables you to:

- Pinpoint the root cause of performance problems for Citrix-hosted applications
- Automatically correlate front-end user sessions to the corresponding back-end application transactions
- Quickly determine why performance is slow, whether the problem originates with the client, network, server, or application

OPNET CX-Tracer flips the Citrix performance management paradigm on its head. It automatically traces every end-user transaction through the Citrix XenApp server and into the backend application with perfect accuracy. It uses agents to perform this tracing, which employs a unique, deterministic technique to eliminate the fuzzy, best-guess analysis that used to take hours.

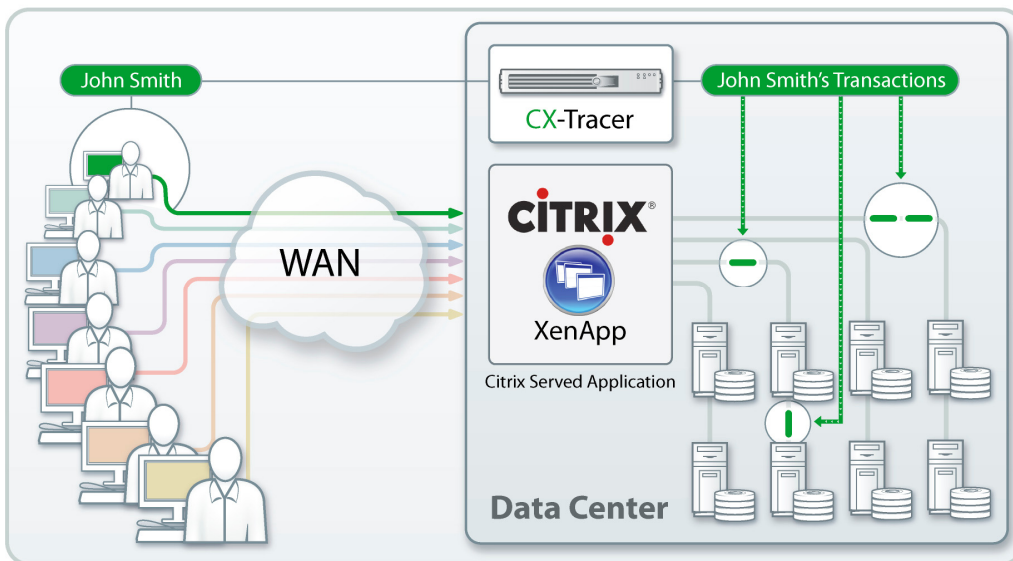


Figure 2: OPNET CX-Tracer deterministically identifies user transactions and follows a user end-to-end through the Citrix tier.

Identifying the root cause of a performance bottleneck with OPNET CX-Tracer is much faster than the manual approach. Typically, a root cause determination can be made within a few minutes. After being alerted to a problem, the troubleshooter can jump directly to a clean, end-to-end transaction trace that spans from the desktop, through the XenApp server, and into the backend application. This transaction trace will conclusively identify the bottleneck.

The technology behind OPNET CX-Tracer

The OPNET CX-Tracer module for OPNET AppResponse Xpert™ leverages industry-leading analytics to isolate performance problems to application tiers or network infrastructure factors. In addition, OPNET CX-Tracer automatically integrates with the full suite of Riverbed performance management products to correlate the user transaction with delays in SQL and other application protocols. With OPNET CX-Tracer you can:

- Trace user transactions through the Citrix tier and extract only related back-end transactions
- Continuously monitor end-to-end Citrix user performance
- Store Citrix performance metrics and related packets for subsequent troubleshooting
- Use intuitive dashboards and visualizations tailored for end-to-end Citrix analysis

OPNET AppResponse Xpert is an appliance-based solution that continuously monitors end-user experience for all users and applications across your enterprise. It leverages the central role of the network in transporting transaction data to obtain vital information about relationships among clients, servers, and server tiers. On-board analytics extract transactions from application flows and break down application response time, identifying which parts of the infrastructure are contributing most to delays. OPNET AppResponse Xpert automatically summarizes data according to applications and user-defined business entities such as locations or departments. This information is essential for performance analysis and troubleshooting.

OPNET CX-Tracer and Citrix EdgeSight

OPNET CX-Tracer complements Citrix EdgeSight™ and extends your existing investment in Citrix monitoring solutions. Citrix EdgeSight monitors the overall health of the entire Citrix farm and manages only Citrix components. OPNET CX-Tracer focuses on individual user performance and shows the performance impact of non-Citrix components. In the case, when a user complains about Citrix being slow, EdgeSight will determine if the root cause of the delay resides in the Citrix server itself, while OPNET CX-Tracer will report on front-end and back-end performance to provide true end-to-end visibility of application performance through the Citrix tier.

Conclusion

This breakthrough technology is necessary for anyone who must frequently troubleshoot performance issues across a Citrix server. It is valuable not just because it saves time, but because it also takes the guesswork out of the analysis and brings Citrix application performance management into the realm of science rather than art.

The combination of OPNET AppResponse Xpert with the OPNET CX-Tracer module provides true end-to-end visibility throughout the infrastructure, including the Citrix tier, in order to achieve the greatest performance efficiencies available from application virtualization. It is a truly unique solution in the end-user experience (EUE) monitoring space, offering not only end-user experience information at the transaction level, but also the “next steps” typically required by analysts. It allows them to break down end-user experience data and drill down into various parts of the application infrastructure to understand the contributors to application performance issues. Equally valuable to application support teams and network teams, OPNET AppResponse Xpert with the OPNET CX-Tracer module eliminates the “finger pointing” between teams and promotes a cooperative approach to problem solving.

About Riverbed

Riverbed delivers performance for the globally connected enterprise. With Riverbed, enterprises can successfully and intelligently implement strategic initiatives such as virtualization, consolidation, cloud computing, and disaster recovery without fear of compromising performance. By giving enterprises the platform they need to understand, optimize and consolidate their IT, Riverbed helps enterprises to build a fast, fluid and dynamic IT architecture that aligns with the business needs of the organization. Additional information about Riverbed (NASDAQ: RVBD) is available at www.riverbed.com.



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