Troubleshooting Virtual Desktop Infrastructure Deployments with Cascade

Virtual desktop infrastructure (VDI) offers organizations the means to centrally manage and deliver desktops as a service to reduce costs, increase data security, and streamline desktop management while enabling anytime, anywhere access across a wide variety of devices. IT consumerization trends such as BYOD (bring your own device) and device diversity are accelerating VDI adoption, which is expected to double over the next year.

However, because VDI technologies are latency-sensitive, interactive solutions that are wholly dependent on the network, they present new challenges for IT operations teams. It is not uncommon for IT managers to receive frequent complaints of poor end-user experience, especially at branch offices where inherent performance challenges with the wide area network (WAN) frequently stem from bandwidth constraints and latency delays.

Fine-grained visibility into VDI environments is critical to understanding where and why performance issues are occurring; however, it is often an overlooked part of ensuring the success of a VDI initiative and safeguarding end-user productivity. The problem is that it hasn't been easy to do – VDI solutions act as a proxy for backend applications, tunneling traffic to the end user, thereby making it difficult to get end-to-end visibility needed to identify and troubleshoot problems. For example, it's difficult to identify if the VDI environment is at fault or if the application running within the VDI session is to blame for slowness.

The Cascade solution

The Riverbed® Cascade® application-aware network performance management (NPM) solution enables IT operations to find network and application performance problems earlier and fix them fast to keep VDI environments running at peak efficiency. The Cascade solution provides end-to-end visibility to automate performance monitoring, enable smarter planning and decision-making, and accelerate problem diagnosis – up to 67% faster, according to research firm IDC. Cascade collects, correlates, analyzes, and reports on massive volumes of packet and flow data from across the entire IT infrastructure to deliver the most complete picture of network and application performance.

BENEFITS

- Improve end-user productivity by ensuring consistent and reliable performance of desktop/application virtualization technology:
  - Reduce end-user downtime
  - Accelerate troubleshooting of performance and QoS issues
  - Improve desktop SLAs
  - Enhance planning and control

Fig. 1: The Cascade solution provides end-to-end visibility into network and application performance to identify problems sooner and troubleshooting them faster to help keep VDI environments running at peak efficiency.
Unlocking VDI visibility
Cascade® Pilot software, the analysis and reporting console for analyzing packet data on Cascade® Shark products and Riverbed Steelhead® products, delivers detailed insight into the utilization, latency and DSCP priorities of the individual virtual channels used by the most common VDI applications. This visibility enables IT operations to understand and troubleshoot the performance of critical session or channel actions such as print, keystrokes, mouse movements, file sharing, and screen refreshes and to prioritize more time-sensitive actions (i.e., keystrokes, screen refreshes, and mouse movements) over less sensitive commands (i.e., print and file sharing). Cascade Pilot supports ICA, CGP, and PCoIP, the protocols used by Citrix® XenDesktop / XenApp, and VMware® View.

Accelerate troubleshooting
Without a solution like Cascade Pilot, determining the cause of performance problems in VDI environments can be time consuming and, in some cases, impossible. While adoption of WAN optimization technology, such as Steelhead appliances, can accelerate and prioritize desktop virtualization traffic over other application traffic to reduce many latency and performance issues, it may not provide sufficient insight into root cause. The Cascade solution provides the detailed metrics necessary to quickly isolate where problems are occurring and what’s causing them, dramatically reducing mean time to resolution (MTTR) and business disruption.

Validate prioritization
ICA, CGP, and PCoIP have ingrained methods of ensuring that certain virtual sessions or channels are prioritized over others. This enables the more time-sensitive user interface data to be prioritized and sent ahead of all other data. In most networks, virtual desktop and application sessions are given the highest priority, equal to or greater than VoIP, to ensure that VDI traffic receives preference over all other traffic on the network.

Yet, one of the most common problems with VDI environments is when quality of service (QoS) policies get out of alignment. Cascade Pilot enables IT operations to quickly troubleshoot QoS issues as they arise, capturing detailed session or channel prioritization information to ensure that network prioritization is in sync with session prioritization. See Figure 3 below.

Fig. 2: Cascade Pilot unlocks visibility into Citrix XenDesktop, XenApp, and VMware View channels for enhanced troubleshooting and planning.

Fig. 3: Understand ICA (Citrix) priority distribution.
Protect end-user performance and SLAs
Monitoring and understanding end-user performance is critical to the success of VDI deployments. Few computing problems match the frustration caused by the delay of basic desktop functions, such as keystrokes. Cascade Pilot monitors perceived latency to quickly identify which clients and/or servers are experiencing issues. It validates performance and availability of transactions for all end users to help verify if contractual commitments have been met and identify outliers, which are important to managing SLA compliance.

Fig. 4: Use ICA perceived performance metrics by client and server to quickly identify where performance problems are occurring.

Improve capacity planning
VDI does not operate in a vacuum. Cascade Pilot helps IT operations understand Citrix or VMware View performance in context with the other applications on the network, measure the impact changes have on end-user experience, and understand and track utilization to plan for bandwidth upgrades or WAN optimization initiatives.

Fig. 5: Gain insight into VMware View session priority and utilization.

The Cascade solution keeps Citrix XenDesktop, XenApp and VMware View VDI environments running at peak efficiency, ensuring consistent and reliable end user performance by reducing downtime, accelerating troubleshooting of performance and QoS issues, monitoring desktop SLAs, and enhancing planning and control.
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.