WHITE PAPER

How Xangati Drives Accelerated VMware View Proof of Concepts and Pilots

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Introduction

Virtual desktop infrastructure (VDI) is a powerful framework to enable an entirely new and productive computing experience. Organizations that successfully undertake this endeavor often find significant operational cost savings by reducing the complexity of managing remote site and remote access computing users. At the same time, VDI delivers productivity benefits by providing anytime, anywhere access to mission critical applications from any mobile computing device whether that is a tablet PC or a smartphone.

Given these rich benefits it is no wonder that so many organizations are lining up to run proof of concepts (POCs) or pilot projects. A very significant percentage of these organizations are choosing to base their implementations on VMware View which is the award-winning VDI product from the market leader in virtualization. The challenge with POCs and pilots for VDI is that the single most important factor for the success of these implementations is the end-user community's experience with the service. That is where the Xangati infrastructure performance management (IPM) solution comes into play by providing much needed operational performance insight into all the interactions off all the key components that can have an impact on end-user experience including: network, storage, the vSphere host, the PCoIP VDI protocol as well as the client-side devices. This highly differentiated functionality Xangati refers to as "VM-to-Anything"—is a way for you to track the desktop VM and anything that interacts with it. In addition to providing this unique vantage point the Xangati solution has a live and continuous view for every set of interactions for that virtual desktop and even for the VDI protocol.

Seeing all the "moving parts" that are part of the VDI environment from the very beginning will enable you to have a framework from day one that will allow you to track the activity of all your VDI end-users individually and as a community. The Xangati solution is of such great value to VMware View environments that VMware itself uses the Xangati software to help them manage their labs at VMworld—the labs are delivered over hosted desktops that are served up from the cloud.

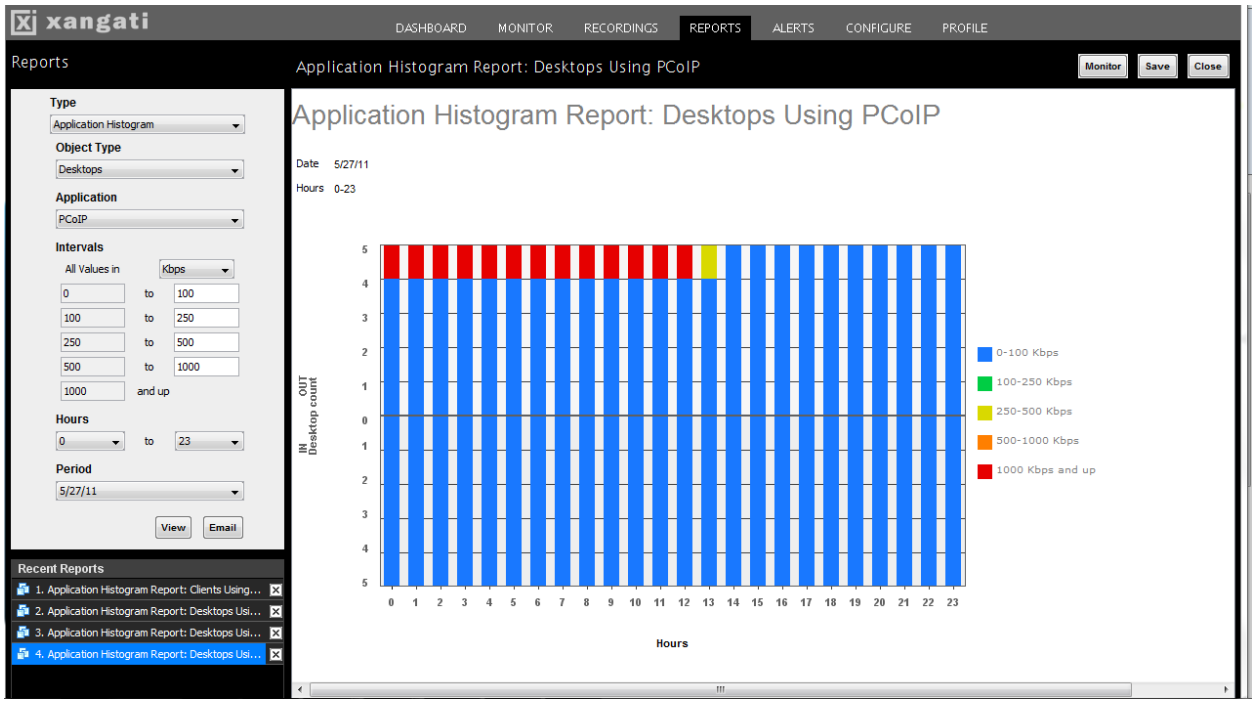
The rest of this paper is focused on a number of key areas on which the Xangati solution can be leveraged in early implementations to identify and remediate infrastructure performance issues that

are affecting the users experience with your POC/pilot. It is worth noting that the Xangati solution is also the only performance management solution tailored to VDI that does not require the use of guest agents. In this manner, our solution can be there all along the way as you move into production and scale up your user community from 10s and 100s to thousands. The paper is broken up into two sections: performance areas that might have an impact on the display performance for your end users and the other related to the "OS" as linked with the responsiveness of the applications.

Display Performance for End Users

Issue #1: Protocol Bandwidth Consumption

One of the most the complicated areas of any architectural decision for VDI, a.k.a. a hosted desktop solution, is planning for network bandwidth consumption. Regardless of the display protocol to be used, PCoIP or RDP, there are no absolute values that can be referenced for optimal performance. Multiple factors can go into bandwidth consumption including the total number of concurrent users, the type of content being displayed, the size of the user display(s), the use of audio redirection, and if USB redirection is being used. Moreover, in terms of a production environment it is very important for you to get a sense of how active your user community is and who is using their virtual desktops.



Xangati Solution: Protocol Distribution Reporting

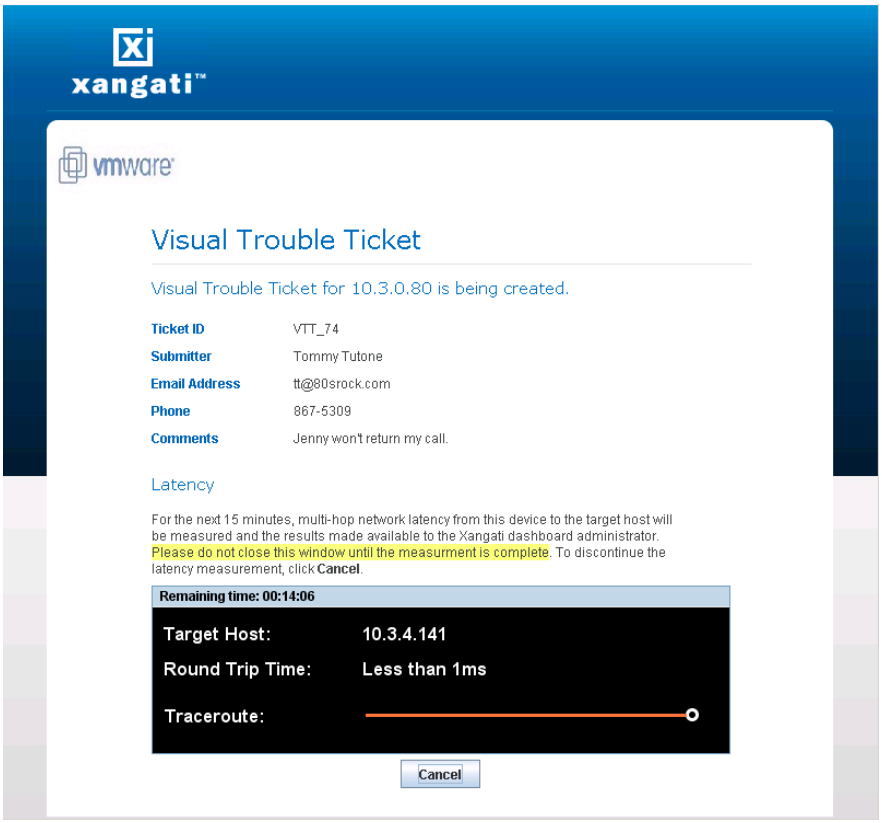
The Xangati VDI Dashboard provides the administrator a single view into the overall performance of display protocols across their infrastructure. Xangati's unique ability allows administrators to quickly isolate out just the protocol of interest and drill into its activity in great detail. Leveraging the Xangati dashboard an administrator can filter the view to just display the performance statistics of the specific protocol in question. With this view, it is very easy to determine what the throughput rates are for each of the hosted desktops and where unexpected consumption rates occur. By drilling into the performance of the specific desktop in question the administrator can easily correlate if the applications are performing as expected or if there are specific outliers using too much of the network and could be slated for configuration optimizations that would lighten the network workload. Additionally, protocol distribution reporting will allow you to track who is actually using your VDI pilot vs. those who are just logged and are showing a simple heartbeat. This is a great use case for environments where you are trying to monitor outsourced employees who are working on your company's behalf.

Issue #2: Network Latency to End User Devices

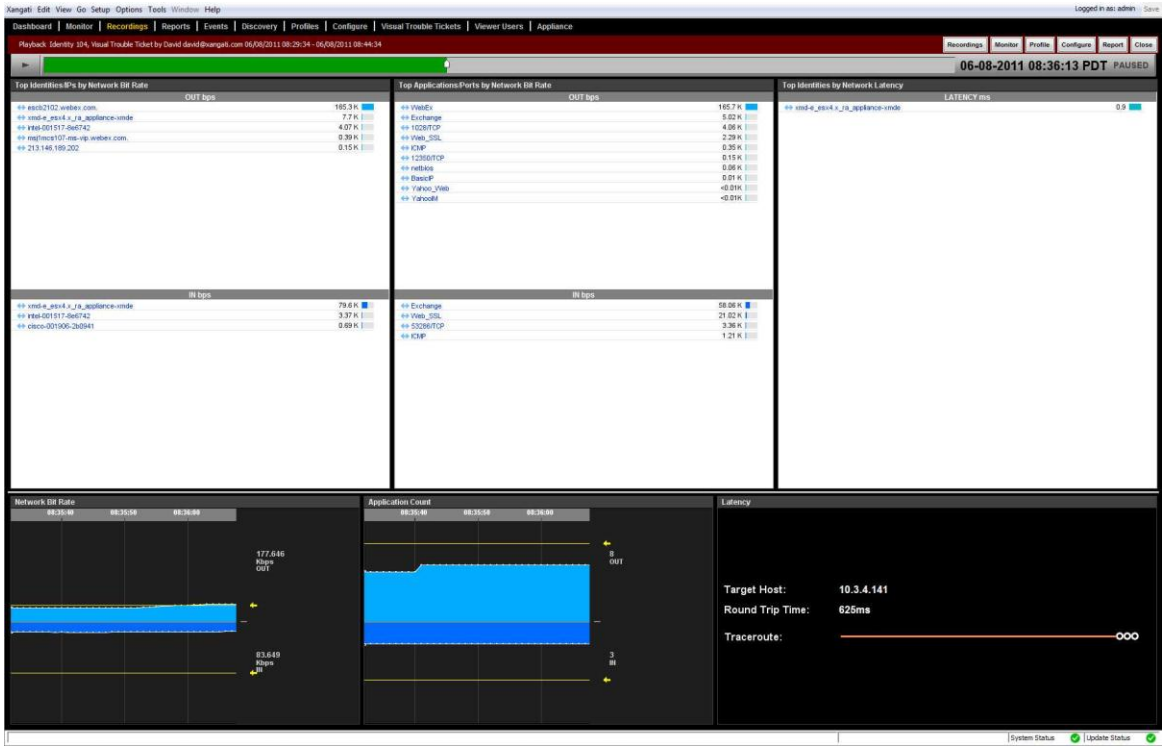
Another common issue across all remote display protocols is the affect that network latency has on the display performance. The impact of high latency on the end users can result in user dissatisfaction with the display or, even worse and unusable session due to lack of keyboard and mouse responsiveness. PCoIP has technology that helps to compensate for network latency through its "build to lossless" functionality which is a unique differentiator in high latency environments. However there is a limit to even this very impressive feature set and when you are dealing with users who might have more than 250 milliseconds of latency—their experience will ultimately be affected due to the network. Of course, latency is unlikely to be a problem on the corporate LAN, but can be an issue for your remote users trying to VPN in from their homes or for corporations that might be working with an outsourcing partner or consulting firm half way around the world. In these cases, not only can there be significant latency issues, but also it might be a matter for finding where the latency is.

Xangati Solution: End-user Driven "DVR" Recordings

The Xangati solution has a novel capability to track end-user experience issues at the exact time that they occur. This solution is known as the Xangati Visual Trouble Ticket (VTT) portal. It allows an end-user to initiate and submit a DVR-style recording of their to-the-second networked application activity at the moment they are experiencing a problem. Instead of taking copious written notes on what an end-user speculates is the reason for an application or network performance issue, the VTT is a visual "note" of the end-user's experience. This automated process enhancement dramatically accelerates the time to resolve the most difficult incidents, which are often performance related.



Once the administrator receives notification of the trouble ticket they can easily pull up the user initiated recording from the Xangati dashboard. The recording of this user session can be played back infinite times to aid the administrator in determining what may have been the root cause of the performance issue. *(See screen shot on next page.)*



Operating System (OS) Performance – Related to Application Responsiveness

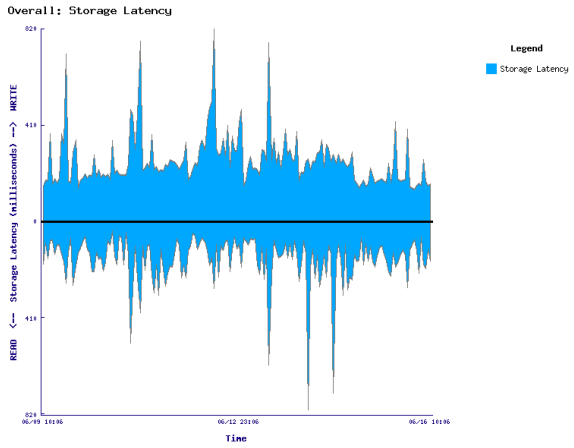
Issue #3: Storage Performance

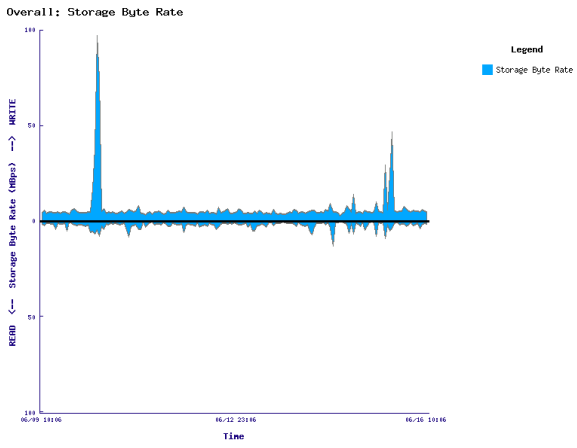
Storage performance issues can be some of the most challenging areas to troubleshoot due to inadequate reporting mechanisms from the various management tools. Issues with the storage subsystem can manifest themselves as unresponsive desktops and applications even though plenty of CPU and memory is available to the virtual machine. These performance challenges can be due to any number of extenuating circumstances. These circumstances include periodic spikes in storage read and write latencies, overtaxed storage arrays, or misconfigured network storage appliances.

Xangati Solution: General and Drill-down Reporting

Xangati provides the ability to run reports across all aspects of the monitored environment. Starting with an Overall Report for a given time period, an administrator can quickly identify anomalies that weren't expected at a specific time. For example, if the administrator notices a

large amount of storage writes that occur in the middle of the day they can quickly drill down into that specific time slice to determine who generated the increase in storage traffic. Additionally, this capability can help isolate storage latency spikes that could be linked as an example to anti-virus tools scanning entire disks across all the VMs simultaneously.

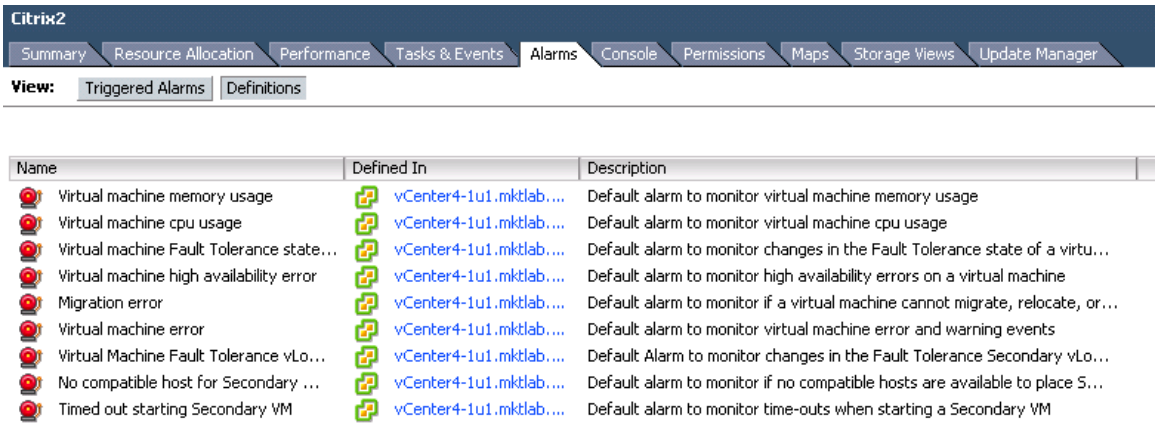




In addition to the storage reporting that can be delivered. The live continuous Xangati UI can capture very dramatic fluctuations in storage latency that would be impossible to capture anyway else. The power of these precision recordings is they can be forwarded on to the storage administrator so they can see, in great detail, the timing of the issue and go investigate the logs on the storage system to see what was happening within the environment at a further depth.

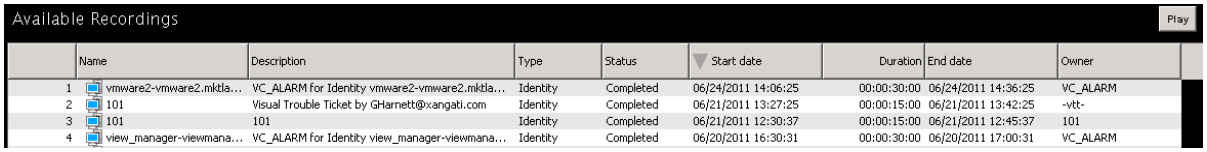
Issue #4: CPU and Memory Consumption

The VMware vSphere platform has extremely robust capabilities to allow for simultaneous execution of virtual machines with little resource contention. It also has functions allowing for alerting mechanisms to kick in when CPU and memory thresholds are exceeded for individual VMs and vSphere hosts. What it doesn't effectively highlight is the correlation of CPU and memory spikes against other events occurring on the same system. CPU contention on a given host can result with the end user having an unresponsive desktop. When memory utilization increases too high in a given VM the end user can experience poor application responsiveness. Both of these situations will result in user dissatisfaction and increased help desk calls with issues that can be problematic to troubleshoot.

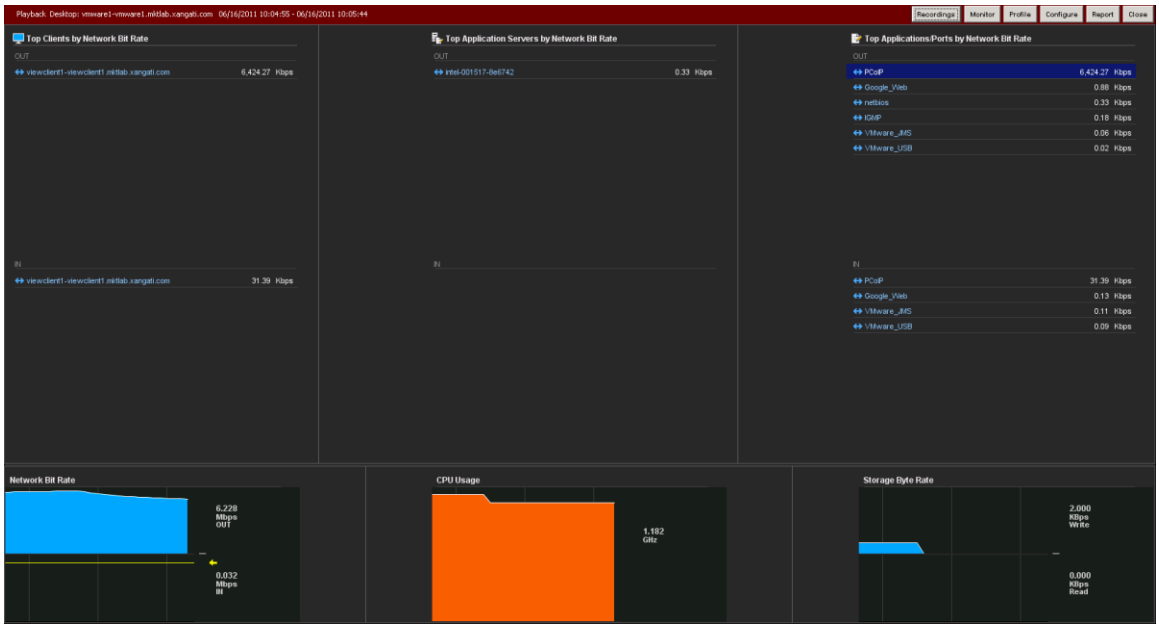


Xangati Solution: Event Recording and Playback with Alert Correlation

When a user experiences a performance issue many times these events are over by the time the administrator has a chance to either respond to the help desk call or determine root cause of the event. The Xangati VDI Dashboard is the only product that understands the operating parameters of the environment based on historical data as opposed to arbitrarily assigned thresholds. When a Xangati learned profile value (such as CPU or memory consumption) is exceeded or a vCenter alert is generated, the dashboard will record all aspects of that event for playback by the administrator.



This allows the administrator to have a unique view into the issue by allowing him to see the event in second by second from various vantage points. By allowing this unique view into an event the administrator can quickly see the common cause of the issue and provide a faster response to the end user. For example, when a CPU spike occurs the administrator will be able to quickly determine which applications were running at that time and what the impact of those applications were to the environment.



Summary

The Xangati infrastructure performance management (IPM) solution is the only VDI performance management solution for the VMware View ecosystem to provide insight into all the interactions off all the key components that can have an impact on end-user experience including: network, storage, the vSphere host, the PCoIP VDI protocol as well as the client-side devices. This is all achieved without agents. The words of one of our most successful customer CB Richard Ellis (CBRE)—the largest real estate services firm in the world—highlight why every VMware View implementation could benefit from a Xangati VDI dashboard.

> "CBRE has long been recognized for utilizing emerging and innovative technologies, like Xangati, to help move the company's business goals forward," **said Rory Clements, Virtualization Architect EMEA for CBRE.** "Our VMware View VDI initiative has given us the ability to improve customer service by giving our employees a better and more productive computing experience virtually than in a more traditional desktop-based environment. VMware View combined with the Xangati VDI Dashboard enables us to quickly identify and resolve both network- and storage-related infrastructure issues impacting performance, and gives us the confidence to push forward to the next stage of the rollout."