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Horizon View 6 Blast Performance Features

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Introduction

With VMware's recent release of the Horizon Suite (specifically View 6), VMware has taken the performance and usability features and put them all under the Blast moniker. This category of features is grouped from a marketing perspective but will retain their technical terms in the documentation, similar to how the term vSphere encompasses both ESXi and vCenter.

The current version of the Horizon View Client on all supported platforms (including Windows, Mac, Ubuntu Linux, iOS, and Android) has all the features described in this white paper (support may vary with older clients or with Thin or Zero clients). Upgrade the View client or check with the manufacturer for supported features and upgrade paths.

This white paper examines various features of the components that comprises the Blast family, including a brief discussion of what they are, improvements in version 6, and any notes or requirements for implementation.

Blast Performance Components

In branding all the client-side performance features as part of the Blast family, VMware is trying to show the performance available from View, and probably, make this list extensible as new features come out. Not all situations require all the features here. In fact, in many cases, none are really required at all. Part of your challenge in designing a View environment is determining which features various groups of users need and then ensuring that those features are deployed properly on the View Connection servers, virtual desktops, and endpoint devices as required.

If you're upgrading, remember to upgrade the View Agent in the virtual desktops as well to take advantage of all the changes when you upgrade the rest of your View environment. Also note that the Remote Experience Agent that was a separate installation in View 5 is now included as part of the standard View Agent in View 6. The View 6 Agent is required to take advantage of the many Blast features described in this document.

Blast Adaptive UX

What Is It?
The PCoIP protocol delivers desktops through any of the View Clients with adaptive adjustments to bandwidth and latency changes to deliver a great experience over a LAN or WAN. This feature also includes delivery directly to ant HTML5-compatible web browser without the use of a View Client or PCoIP.

Improvements in View 6

VMware changed three defaults listed here as part of View 6:

- **Build to Lossless**: Now set to Off, this parameter defines whether PCoIP will ever try to build to the "perfect" lossless image or just to "perceptually lossless." In most scenarios, VMware has recommended this change for several versions but this should be configured to On for medical imaging, graphics artists, web designers, and other professions in which exact picture details are important.
- **Maximum Initial Image Quality**: Now set to 80% (down from 90%), this is the best quality image that PCoIP will try to build (and may stop at if build to lossless is disabled or if the frame changes too quickly, it may not even get to this level). This setting applies to rapidly scrolling through content or video; static content can still be built to lossless as time and bandwidth permit.
- **Minimum Initial Image Quality**: Now configured at 40% (down from 50%), this is the lowest quality and highest compression allowed if the network is congested and the picture keeps changing, otherwise it can continue to improve.

These changes can make a big difference on a wireless network where there can be a substantial variation in signal quality and bandwidth available, as well as on WAN links which are typically bandwidth limited and may have higher packet loss rates than a LAN. According to VMware, these changes on such networks can improve performance by up to 30% by reducing bandwidth consumption. For more details, see this blog post: http://blogs.vmware.com/euc/2014/06/vmware-horizon-view-6-pcoip-optimization-bandwidth-changes.html

Note: These changes only apply for new deployments of View. If you are upgrading, the original values will be preserved; make the changes listed above to see the same performance change if the scenario fits.
In addition, HTML Access (formerly HTML Blast) is built into the Connection and Security server installs, just be sure the component is installed.

Implementation Requirements / Notes

The PCoIP changes listed above only apply for new deployments of View. If you are upgrading, the original values will be preserved. Make the changes listed above to see the same performance change if the scenario fits.

Regarding HTML access, be sure that the component is installed on the server, the agent is installed in the virtual desktop, and that you are using a supported HTML5 compatible browser. The certificate also needs to be properly signed and the appropriate ports in the firewall(s) in place need to be opened as described in the documentation.

Blast Multimedia

What Is It?

It is a high-performance multimedia streaming to remote desktops, using multimedia redirection (MMR). It offloads the media decoding to the endpoint device instead of doing all the graphics processing on the virtual desktop. With this, the bandwidth required is the same regardless of the window size (instead of sending over bitmaps of the video to be played on the client device, which obviously will vary with window size). See the Implementation section below for notes and caveats.

Improvements in View 6

None beyond View 5.3 in which support was added for Windows Media Redirection.

Implementation Requirements / Notes

This requires the Wyse multimedia redirection port (9427) to be opened on the View desktop and is not supported with Windows 7 or later virtual desktops or client devices when using PCoIP. For Windows 7 and later, use Windows Media Redirection that is part of RDP 7 instead. You will also need Windows Media Player 10 or later on both the virtual and endpoint devices (which is the best practice for all Blast Multimedia deployments anyway). One final note, it only works with supported video formats on the client.

Blast 3D

What Is It?

View offers three levels of 3D graphics support, as follows:

- **Soft 3D**: Software (i.e., host CPU-based) rendering of 3D graphics. This feature was introduced with View 5.0.
- **vSGA**: Virtual Shared Graphics Acceleration, this feature takes a single graphics card (purpose built for virtualization) and shares it among multiple VMs. Check with the vendor to see how many VMs can be supported with a specific card. This feature was introduced with View 5.2.
- **vDGA**: Virtual Dedicated Graphics Acceleration is like Raw Device Mapping (RDM) for storage or VMDirectPath I/O for the network, in that it dedicates a single physical GPU (which may be an individual graphics card or there may be several GPUs on a single card) to a single VM. This provides the absolute best performance but requires a separate card for each VM that needs it. This feature was introduced with View 5.3.

The ability to deliver graphics using dedicated graphics cards in the ESXi servers (with vSGA and vDGA) instead of emulating graphics cards in software (with Soft 3D), provides an experience like that of a standard desktop with a traditional graphics card. This feature enables Windows Aero, graphics intensive applications (such as Photoshop or CAD applications) and the like in a Virtual Desktop Environment, which wasn't possible or at least plausible without this feature (at the same performance level—it may have been possible but the user experience was so bad that it was rarely used). Note that for many standard task worker-type tasks (word processing, spreadsheets, surfing the web), Soft 3D is sufficient.

Improvements in View 6

Supported card and performance enhancements (as compared to View 5.3) but no new functionality.

Implementation Requirements / Notes

DirectX 9, Open GL 2.1, and similar standards require vSGA to render well, while DirectX 10 and 11, OpenGL 3 and 4, video encoding, and other graphics-intensive activities will need vDGA to run well.

Soft 3D and vSGA VMs can be vMotioned as needed, even between servers in which one has a shared video card and one doesn't (as long as the pool is set to Automatic and not Hardware, which requires the graphics card to be present). The user is likely to notice a substantial difference in graphics performance (up or down depending on the change made, i.e., from physical to software or from software to physical). Both use the same Soft 3D graphics driver installed in the VM that is implemented when VMware Tools is installed.

With vSGA, half of the video RAM assigned to any given virtual desktop comes from GPU RAM and the other half from standard machine RAM (which you should keep in mind when purchasing cards and assigning the amount of video RAM to each virtual desktop as it directly affects the maximum consolidation ratios that can be achieved per ESXi server). Note that GPU hardware resources are assigned on a first come, first served basis as VMs are powered on until resources are all consumed.

vDGA uses the native graphics driver for the installed card and does not work with HA, DRS, or vMotion because it leverages VMDirectPath I/O, which does not support these features. Thus, this scenario is a very limited use case.

Note that VMware supports a maximum of eight vSGA or vDGA cards per server (although most cards take two PCIe x16 slots each, so you are likely to run out of slots well before this maximum is reached, as with many other VMware maximums). Most also require separate power supplies (the PCIe bus does not supply sufficient power), so take these factors into any View design.

Blast Live Communications

What Is It?

Provides optimizations for unified communications (such as VoIP calls and WebEx) as well as real time audio and video (RTAV) applications. This feature is used in conjunction with Blast Local Access to provide access to local audio and webcam resources on the client device.

Improvements in View 6

From an architectural standpoint, a new kernel mode driver for webcam support is installed on the virtual desktops, providing greater compatibility with browser-based video apps as well as many web conferencing applications.

From an application standpoint, Microsoft's Lync application for real time collaboration is now supported on Windows 8.

Implementation Requirements / Notes

Note that the actual drivers for the audio and webcam devices do not need to be installed in the virtual desktop, just the endpoint device.

Blast Unity Touch

What Is It?

Optimizes the traditional keyboard- and mouse-based Windows desktop for use on a touch device such as an iPad. It adds a slide out sidebar (outside the standard desktop) that provides access to installed applications (like the *All Programs* option on the Start menu) and common folder locations from which you can open files (including local as well as common cloud locations). It also provides access to the native *Search* functionality and can provide quick access to favorite files and applications; this list of favorites is tied to the user and will stay with them no matter from which device they connect. In addition, it displays the list of all running files; simply tap the app to switch to it (similar to the standard *Taskbar*). It also provides an onscreen trackpad to simulate using the mouse and a custom keyboard that provides access to the function keys and other buttons not on the standard iOS or Android keyboards.

Improvements in View 6

There have been some minor updates in View 6, namely the ability to minimize an app quickly and easily, the ability to add favorite apps or files directly from Search, and a more responsive onscreen trackpad.

Implementation Requirements / Notes

This is a feature of the View Client and nothing needs to be done on the server or View side but users may need to be reminded to upgrade the app to get the latest enhancements.

Blast Local Access

Provides access to local devices and peripherals, such as USB ports, webcams, and printers. This can be used in conjunction with the driver-free printing feature that View has supported for years, with Live Communications and so forth.

Conclusion

VMware has upgraded and enhanced many of the capabilities and grouped them together under a single heading to describe all the performance-enhancing options that View offers under the new Blast marketing term. Hopefully additional updates and capabilities will become available in future versions as well, making an already strong VDI platform even better.

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About the Author

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