

VMware Horizon View with Rich Media, Unified Communications and 3D Graphics

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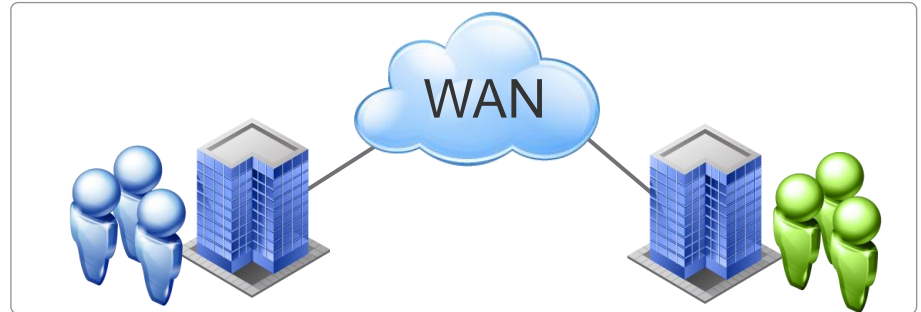
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Agenda

- Evolution of VDI
- Horizon View with Unified Communications
- Horizon View with 3d Graphics
- Horizon View with Real-Time Audio-Video
- Horizon View with Rich Media
- Summary

Evolution of VDI



Contractors, Offshore workers, Task workers

Power Users, BYOD, Mobile Users

VMware Horizon View

**View Media Services for
Unified Communications**

**View Media Services for
3D Graphics**

**View Media
Services**

**View Media Services for
Rich Media**

**View Media Services for
Real-Time Audio-Video**



VMware Horizon View with Unified Communications

Background

64% of customers deployed UC apps today – Nemertes Research

20 – 25% of Virtual Desktops require Unified Communications - VMware

New VDI and Unified Communications Architecture

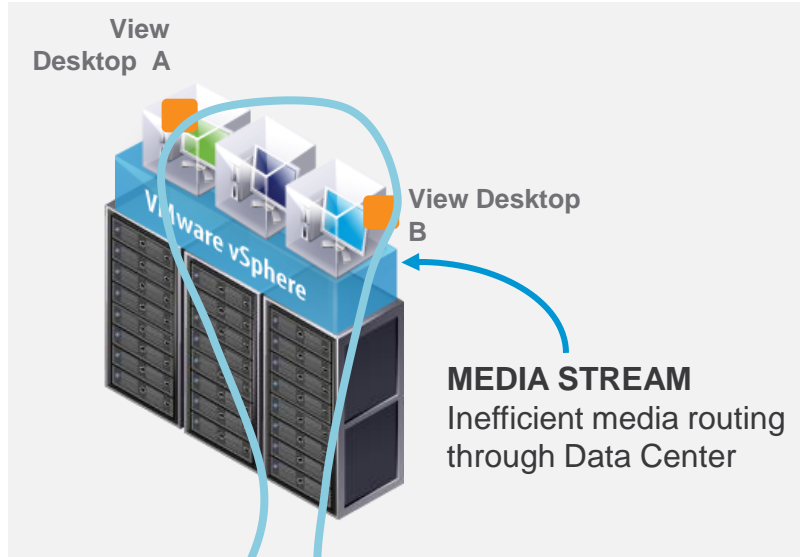
Unified Communications



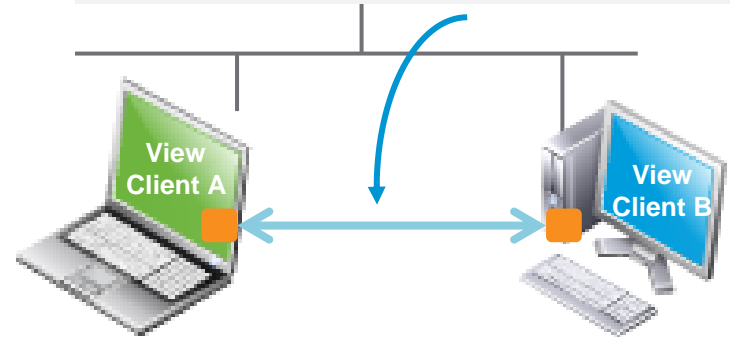
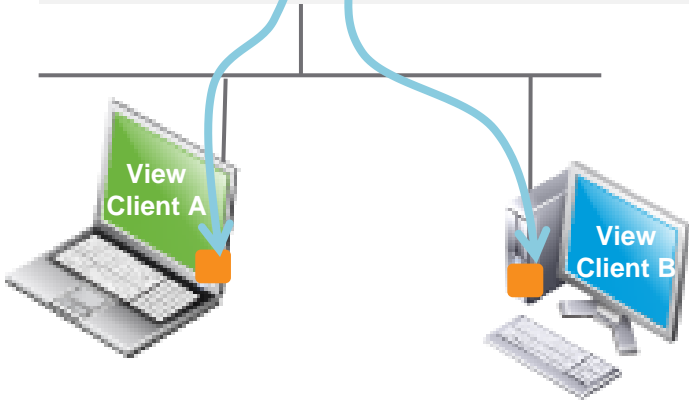
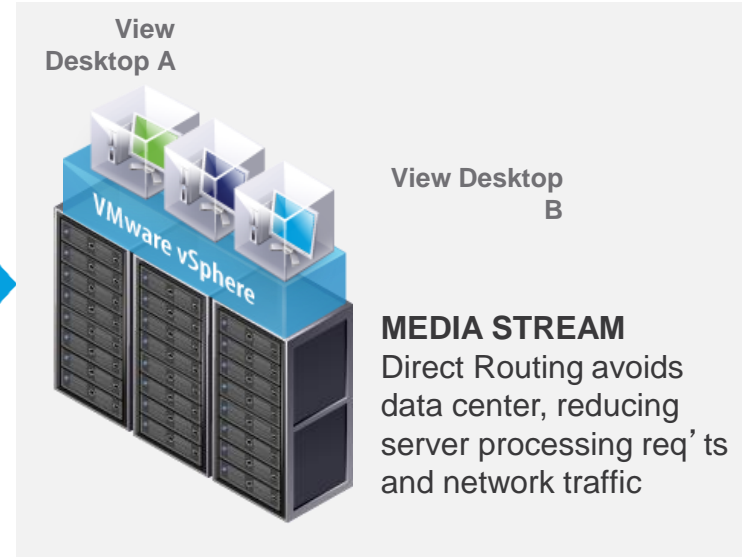
- VMware and UC Partner ISV solutions
- Resolves VDI and Rich Media Problems
 - High load on datacenter server
 - Media-hair pinning or Tromboning
 - Bandwidth explosion
- Resulting Solution
 - Offload server processing to clients - Completely scalable
 - Optimized peer-to-peer media delivery
 - Enterprise-grade UC voice and video

VMware Horizon View with Mitel Unified Communicator Advanced (UCA)

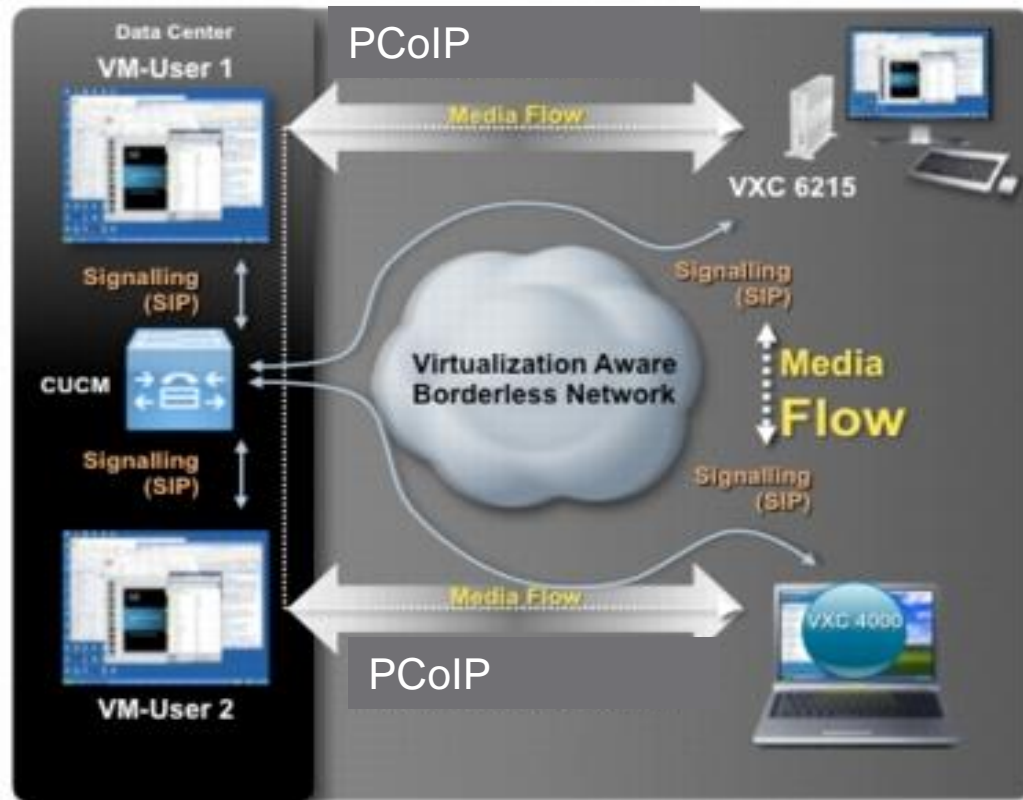
DATA CENTER



DATA CENTER



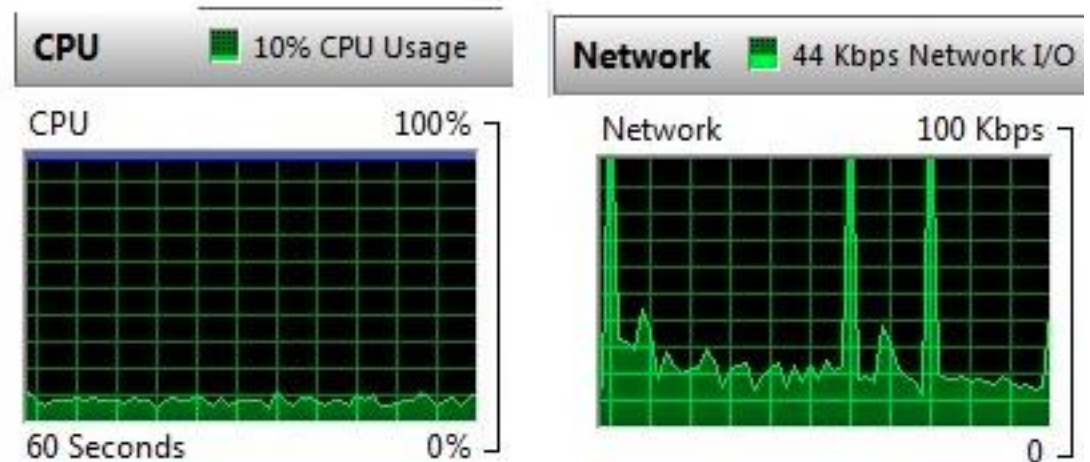
VMware Horizon View with Cisco UC Jabber Client and VXME



- Cisco Jabber on VMware Horizon View desktops
- Cisco Virtualization Experience Media Engine (VXME) software on clients
- Available initially on the Cisco VXC 6215
- Secure high definition audio and video via local media processing
- Quality of Service via MediaNet service for Voice/Video and Data traffic
- Cisco VXC 4000 supports VoIP / Cisco VXC 6215 supports VoIP and Videoconferencing

Benefits of VMware Horizon View with Cisco Jabber / VXME

- Completely scalable solution with local media processing on client endpoint
 - Prevents bandwidth explosion
 - Media delivered out of band and point-to-point between endpoints
 - Low CPU usage even while on a VoIP or videoconferencing call



VMware Horizon View with Avaya VDI Communicator

Solving for scale & QoS for improved real-time communications in VDI

Performance

- off loads processing of real time communications to thin client or PC and Avaya Aura

Survivability

- basic voice if connection to data center or virtual PC is down

Flexibility

- works in various customer environments; choice of vendors within the VDI ecosystem

Software only

- no Avaya hardware required
- deskphone is optional

Collaboration

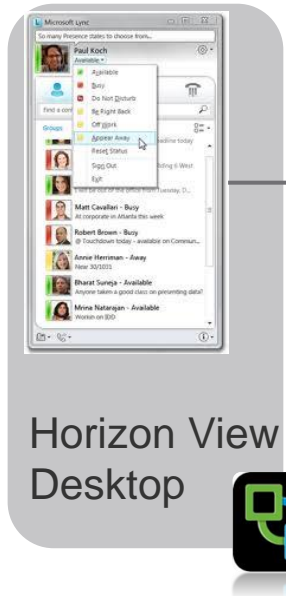
- Voice, IM/Presence, contacts / directory, conferencing, messaging



Virtual Desktop

- Avaya one-X Communicator view
- VDI Communicator on HP or Dell Wyse Thin Clients; or Windows PC
- Support for VMware View

VMware Horizon View with Microsoft Lync 2013 VDI Integration



Horizon View Desktop

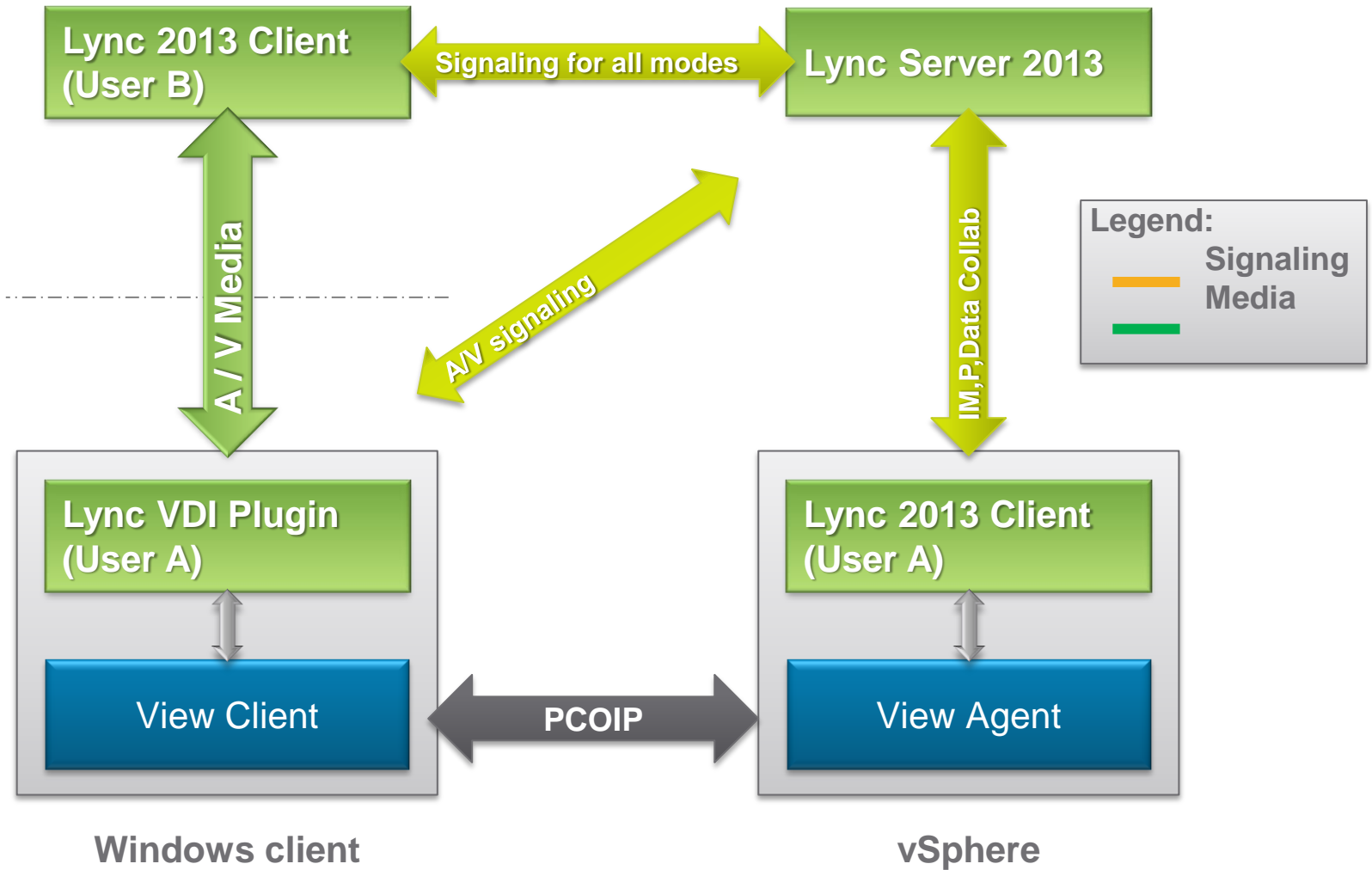


Windows Client

- Microsoft Lync 2013 client on VMware Horizon View desktops
- Lync VDI plugin on Windows client running Windows 7/8
- Support for rich UC VoIP and Video with PCoIP
- Highly scalable solution with local media process on client endpoint
- Full QoS support
- Tightly integrated with Office 2013 for full integration and collaboration

MS Lync 2013	VDI
Presence/IM	Supported
Desktop Sharing	Supported
Application Sharing	Supported
Sharing Whiteboards	Supported
VoIP	Supported
Video Chat	Supported
Online Meetings	Supported

Lync 2013 Architecture



Benefits of VMware Horizon View with Lync 2013 VDI Integration

- Overall VDI Compute Host Performance information (For point to point call)

	Peak Processor Utilization (Without VDI Plugin)	Peak Processor Utilization (With VDI Plugin)	CPU Utilization Reduction
Audio Call	3.8%	1.1%	71%
Video Call	10.29%	1.22%	88%

Source: DVS Enterprise with VMware Horizon View 5.2 Reference Architecture



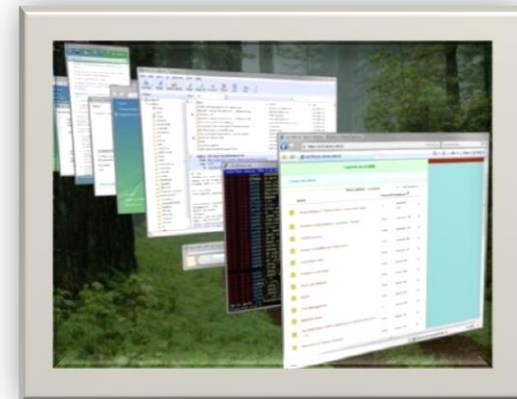
View Media Services for 3D

Soft 3D – Basic 3D without GPU

Software renderer provides 3D to productivity apps

Overview

- Basic 3D graphics capabilities for productivity workers
- Targeted at Task and Knowledge Workers who need AERO or applications that require 3D graphics
- Requires additional CPU and reduces consolidation, but enables 3D for light use cases



Benefits

- Enables DirectX 9 and OpenGL 2.1 apps
- No physical GPU required
- Lower initial VDI CAPEX
- No Windows client side dependencies



vSGA – Improved Shared 3D Graphics With Multiple Virtual Machines

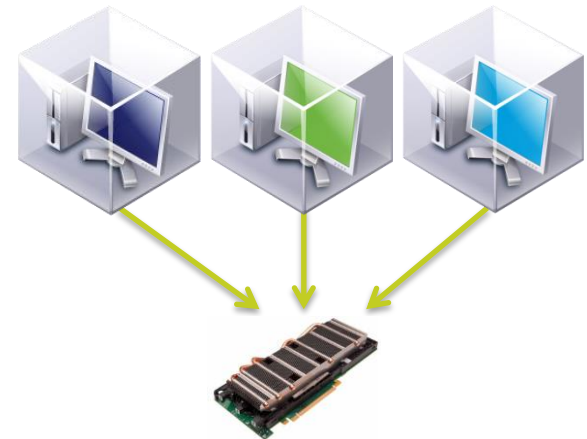
Overview

- Supports select NVIDIA & AMD/ATI Graphics Cards
- Enables shared access to physical 3D graphics cards for high performance graphical workloads.
- Desktops see abstracted VMware SVGA device for maximum virtual machine compatibility & portability.
- Share single 3D graphics card with multiple virtual machines



Benefits

- Enables truly high performance graphics
- Cost effective with multiple VMs sharing single 3D graphics card
- Full compatibility with vMotion, DRS for hosts lacking physical 3D graphics cards



vDGA – Deliver Workstation Class 3D Graphics with VDI Desktops

Full workstation class user experience with dedicated NVIDIA graphics card

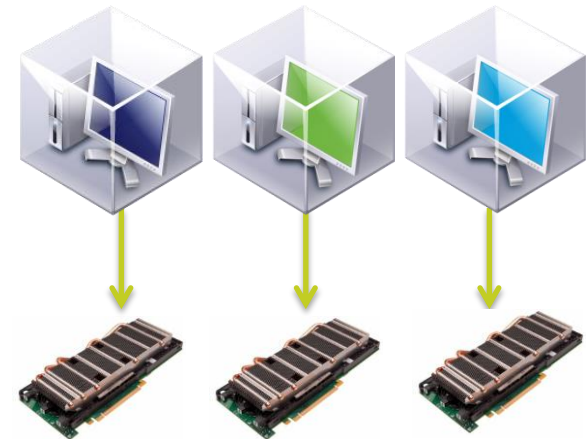
Overview

- Enables dedicated access to physical GPU hardware for 3D and high performance compute workloads.
- Uses native NVidia drivers
- CUDA and OpenCL compute APIs supported
- Best for super high performance needs like design, manufacturing, oil & gas



Benefits

- Compliments vSGA cost/performance
- True workstation replacement option
- Full capabilities of physical NVIDIA GPUs
- High performance compute GPU option





View Media Services for Real-Time Audio-Video

Real-Time Audio-Video (Webcam & Microphone)

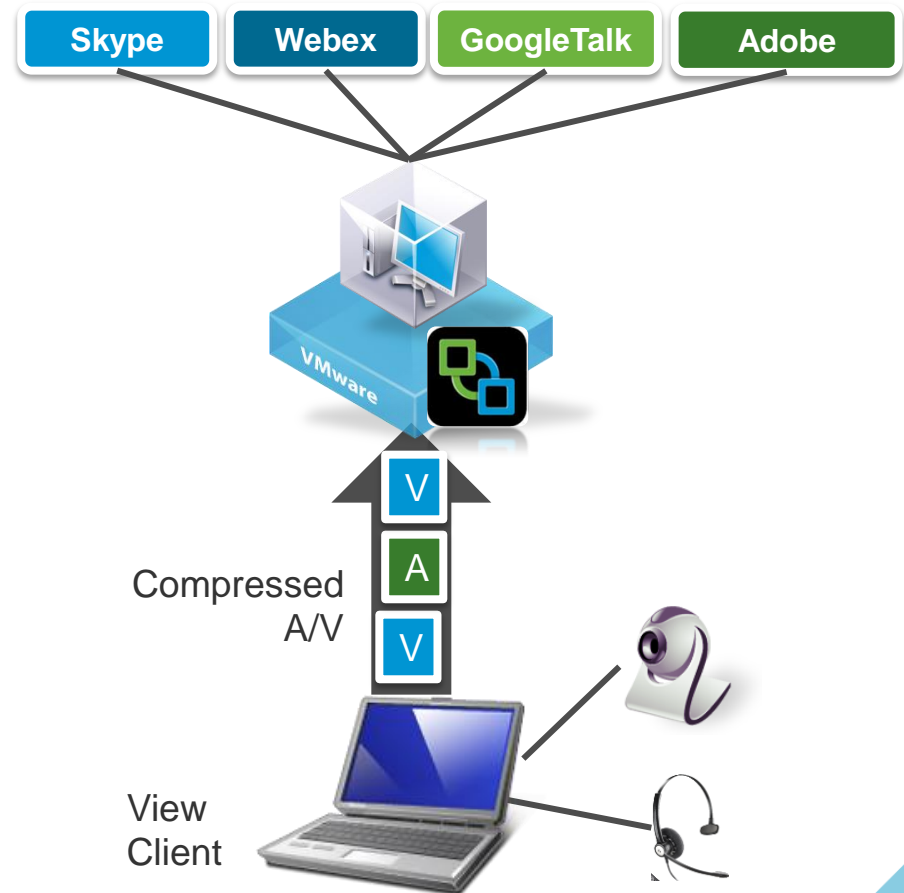
Improved Webcam experience and performance

Overview

- Optimized delivery of webcam & microphone traffic for View desktops
- Encoded and compressed video reduces upstream bandwidth for webcam traffic to as low as 300kbps
- Improves installation and administration of webcam devices

Benefits

- Improved end user experience
- Lower (100x) bandwidth consumption



“Real-Time Audio-Video” Overview

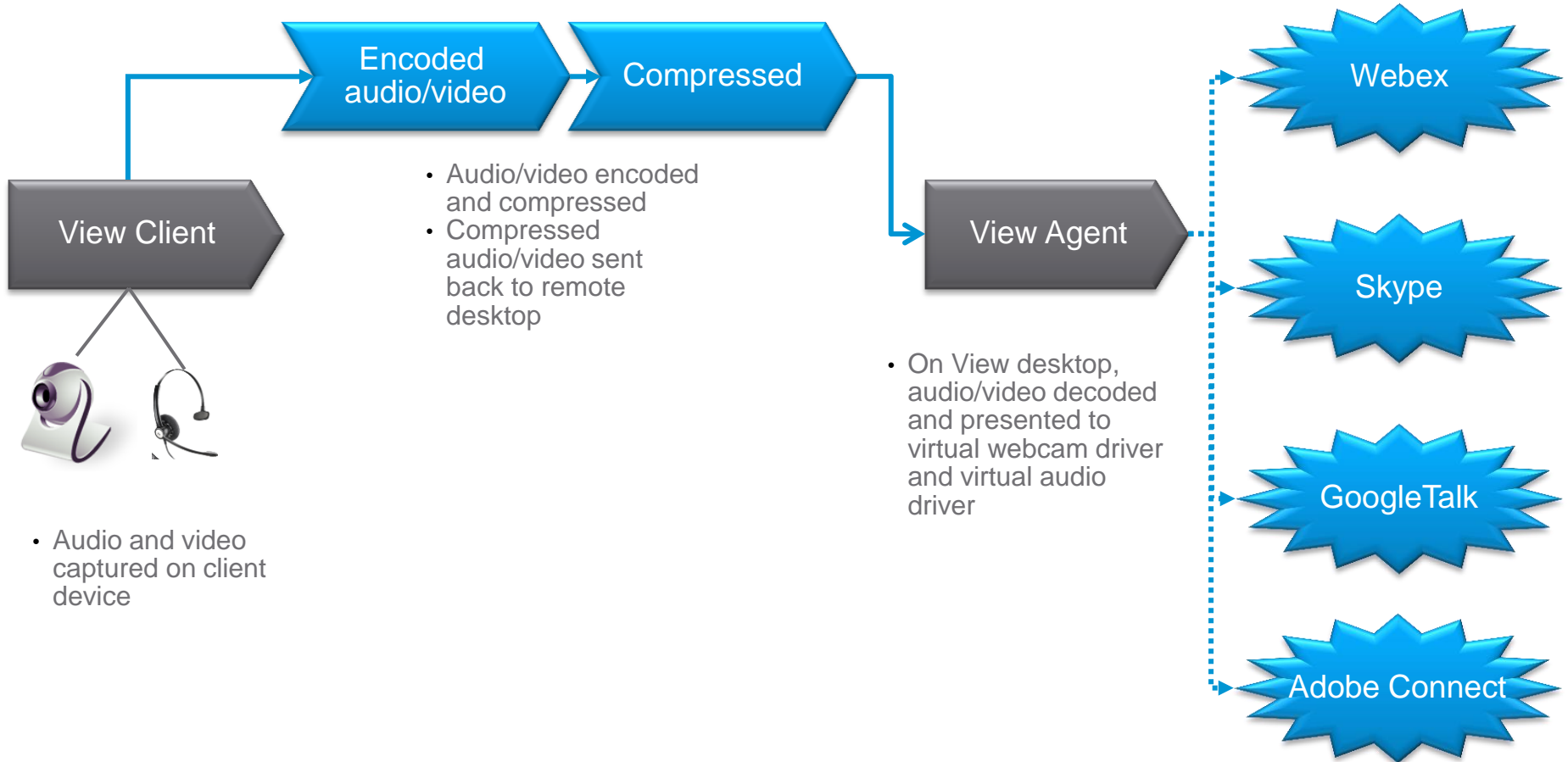
Before

- Webcams were unsupported with Horizon View desktops, unless specifically used with optimized UC vendor solutions
- USB redirection of webcams and headsets resulted in bandwidth explosion
 - Single webcam stream can result in **60 Mbps upstream** to remote desktop
 - Due to bandwidth explosion, unable to support USB webcam redirection over WAN

After

- General support for microphones and webcams with Horizon View desktops
- Broader application support for use with webcam video and microphone audio
- Audio/video from microphone/webcam is encoded and compressed on client endpoint
 - Bandwidth reduction to as little as **300-600kbps**

How “Real-Time Audio-Video” works



Comparison: Real-Time Audio-Video vs. UC Optimized Solution

	Real-Time Audio-Video	UC Optimized Solution (Microsoft, Cisco, Avaya, Mitel)
Description	VMware delivered “Real-Time Audio-Video” to enable improved microphone/webcam performance with View desktops	Solutions from UC providers that work optimally in VDI environment
Use Cases	General bi-directional audio/video support with applications inside VDI desktops	Enterprise grade UC VoIP and video chat, call centers, etc.
Media processing	All media is host-side rendered	All media is rendered on client endpoint
Pros	<ul style="list-style-type: none"> • Broader generalized application support 	<ul style="list-style-type: none"> • Completely scalable (client-side rendered media) • Point-to-Point media delivery
Cons	<ul style="list-style-type: none"> • Host-side rendered solution • Media hairpinning 	<ul style="list-style-type: none"> • Limited application support



View Media Services for Rich Media

Flash URL Redirection

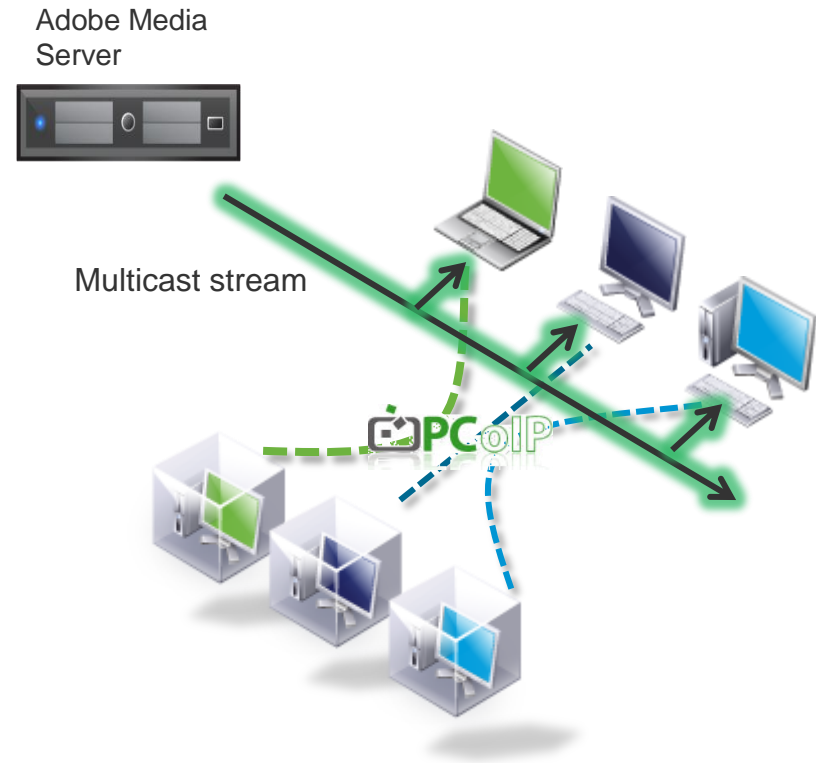
Streaming of live video events from Adobe Media Server

Overview

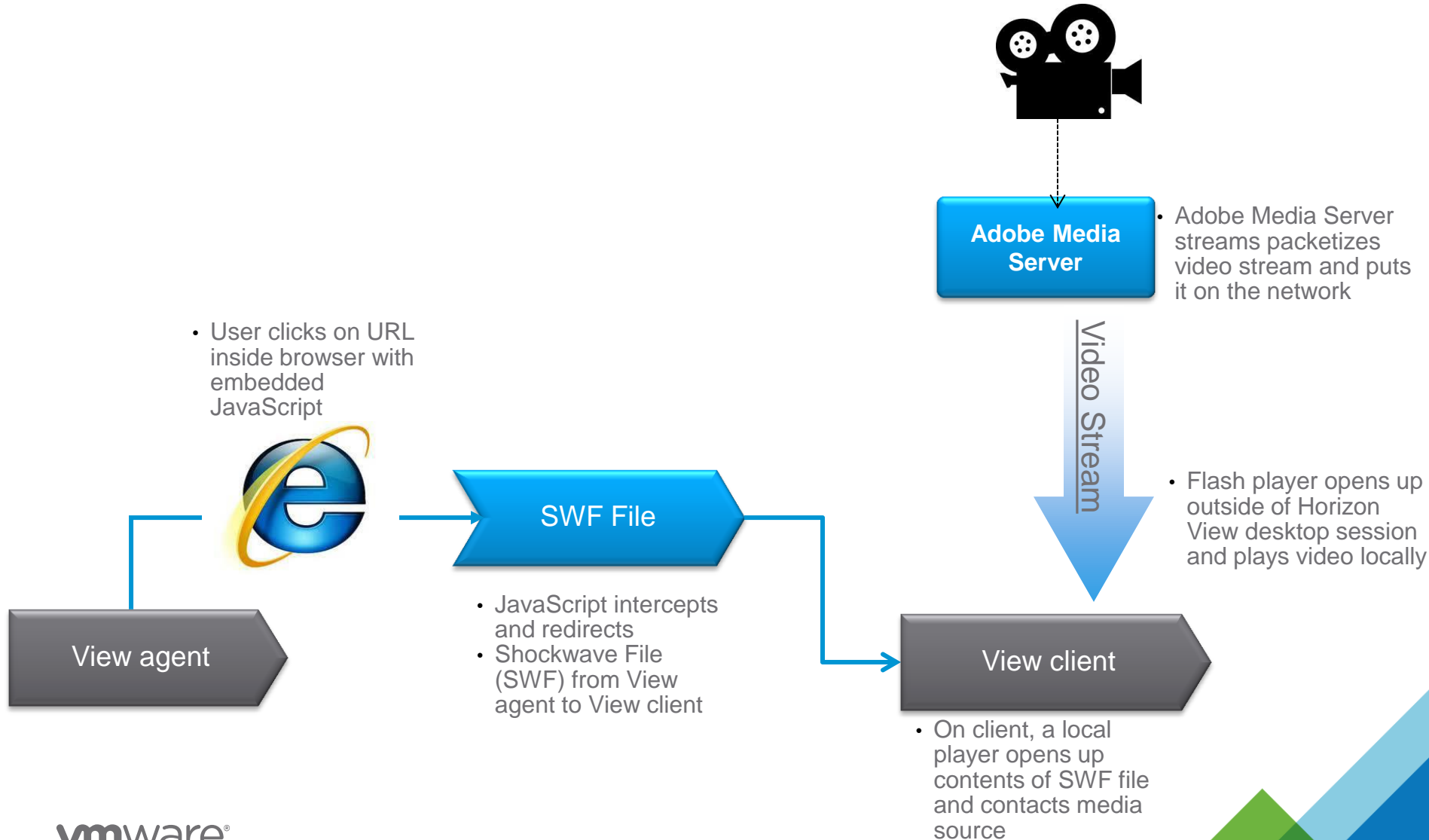
- Stream live video events optimally to Horizon View desktops
- Support for live video streaming on Adobe Media Server
- Supported with Windows and Linux thin clients

Benefits

- Stream live video events to virtual desktops without affect datacenter server and network
- Enables new multimedia use cases with virtual desktops



How “Flash URL Redirection Works” works





Wrap Up

Key Takeaways

- VDI landscape is changing
 - Customers demanding more out of their virtual desktops
 - Mobility, Unified Communications & Collaboration are all key
 - Customers are expanding their VDI deployments to more users
- View Media Services enables scalable UC with Horizon View desktops.
- View Media Services with Real-Time Audio-Video expands application support for bi-directional audio and video.
- Scalable live video streaming is now possible for Horizon View desktops