

On-Demand Call Center with VMware View

A VMware View™ 5 and Mitel® Unified Communication Practice

KEY BENEFITS

- Leverage infrastructure consolidation and desktop virtualization to deliver instant call center architecture.
- Provide service level agreements (SLA) required for desktop and VoIP availability.
- Ease technology acquisition budgets among enterprises and service providers as the global economy recovers from the recent downturn.

SOLUTION COMPONENTS

VMware ESX 5.0
VMware vCenter Server 5.0
VMware View 5
Mitel Virtual Communications Director (vMCD)
Windows-Embedded Thin Client
Microsoft Windows 2008 R2
Windows 7

Deploy Voice and Collaboration to Virtualized Desktops

Traditional contact centers, until now, have been unable to stream clear, real-time, high-quality voice transmissions from unified communication (UC) systems to and from all of the desktops and devices within a virtual desktop infrastructure.

This solution enables any business to build an on-demand call center from scratch in a virtual desktop environment.

Before today, you may have set up audio in a VDI scenario without VMware View or PCoIP – but it was not scalable at the core. Now, by offloading that RTP burden at the core, you reduce potential latency and jitter in the hairpinning. In the meantime, you also reduce the processing overhead required to code and decode the audio.

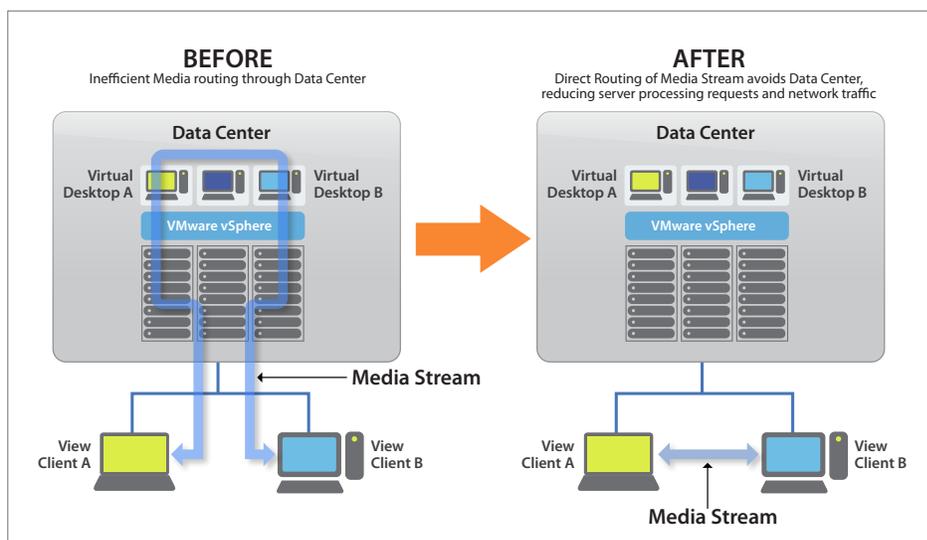


Figure 1: Hairpinning of Real Time Protocol (RTP) media, bandwidth, and the lack of Quality-of-Service (QoS) support for traffic priority were the key inhibitors for VoIP to function properly in the encapsulated desktop virtualization protocols.

Desktop virtualization using VMware View already offers tremendous benefits by moving desktops and applications into the cloud and delivering them as a managed service. IT administration is more automated and efficient, security is improved and the total cost of desktop ownership can be reduced.

Now, by implementing this solution, your end users can get a rich, consistent, and high-performance call center desktop and audio experience from any qualified device, including Windows-embedded thin clients or tablets. And your IT department can reduce capital expenditure by leveraging your existing hosted infrastructure.

Your Challenge

Call center infrastructure (inbound and outbound telemarketing services, help desk services, government-operated support centers and other structured communication operations) needs equipment, software, and services to operate call centers for basic telephony and multichannel support. Solutions have traditionally been hardware-centric, but most UC vendors' solutions are now shipped as software that the customer can run on properly configured commercial, off-the-shelf servers. Some still require proprietary components.

Traditionally, it takes time and IT budgets to establish the call center operation procurement and service provisioning. Most companies are looking to leverage the location-independent nature of IP-based infrastructure to reduce duplication of infrastructure investments. In response to the interest in consolidation and centralization of infrastructure, most vendor solutions now support the VMware ESX platform.

With desktop virtualization, server consolidation at external hosting facilities, or a cloud environment, it is possible for a business to build out an on-demand contact center quickly and effectively.

VMware and Mitel Bring Unified Communications and Collaboration to Desktop Virtualization

This solution brief outlines the building of a call center in a cloud environment based on the latest VMware View Media Services work with Mitel. The solution is generally applicable to other independent software vendors (ISVs) with VMware Unified Communication (UC) API integration.

In this solution, VMware View UC APIs allow UC solutions to detect when they are running in a View session. The user connects to the View desktop and seamlessly interacts with softphones or UC applications to establish the signaling. The actual encoding and decoding is rendered between client endpoints instead of going through the challenges shown in the “BEFORE” section of Figure 1 for display protocols.

To maintain the QoS for VOIP media stream, the lab validation leverages QoS standards such as VLANS using 802.1p and 802.1q on the Layer 2 switch and adding DSCP tagging:

- Each port on the switch was configured to ensure that it had at least 300KB/sec bandwidth available at all times.
- Hands-on tests included making calls from 25 thin clients at one location to 25 thin clients in another location.
- ComputerLab integrated thin clients with Windows 7 OS embedded are used in this solution validation. All audio processing happens at the endpoint thin client.
- Constant audio stream was transmitted from one side to the other without any dropped packets to ensure optimal call quality on both sides.

Subscribed Environment

For this validation, three host nodes are subscribed from external hosting services. The first eight-core instance has 12GB RAM running VMware vCenter. The remaining two nodes host View Connection Server, Mitel UC components, Active Directory, and View Security Server and employ virtual desktops for call agent remote access.

Mitel Virtual Appliances

The Virtual Mitel Communications Director (vMCD) is the core call control. A single vMCD supports 500 contact center users and 2,500 general users. Total capacity is 64,000 users with clustering.

vMBG 7.0 – Virtual Mitel Border Gateway	<ul style="list-style-type: none"> • 50 SIP Trunking Licenses • 50 Teleworker Licenses • 50 Compression Licenses
vMCD 5.0 – Virtual Mitel Communication Director	<ul style="list-style-type: none"> • 50 User Licenses for the softphones • 50 ACD (automatic call distribution) licenses • 50 SIP Trunking Licenses
vUCA 4.1 – Virtual Unified Communicator (UC) Advanced	<ul style="list-style-type: none"> • 50 UC Advanced users with softphone capability

Optimized Media Streaming Architecture – Solution Components

Virtual MCD, Release 5.0	Provides voice telephony, hot desking, intergrated session mobility with Dynamic Extension
Mitel UC Advanced Desktop Client	Rich end user desktop client, with embedded softphone
Mitel Media Plug-In	Media services plug-in for VMware View 5 enabled thin clients and refurbished PCs (thick clients)

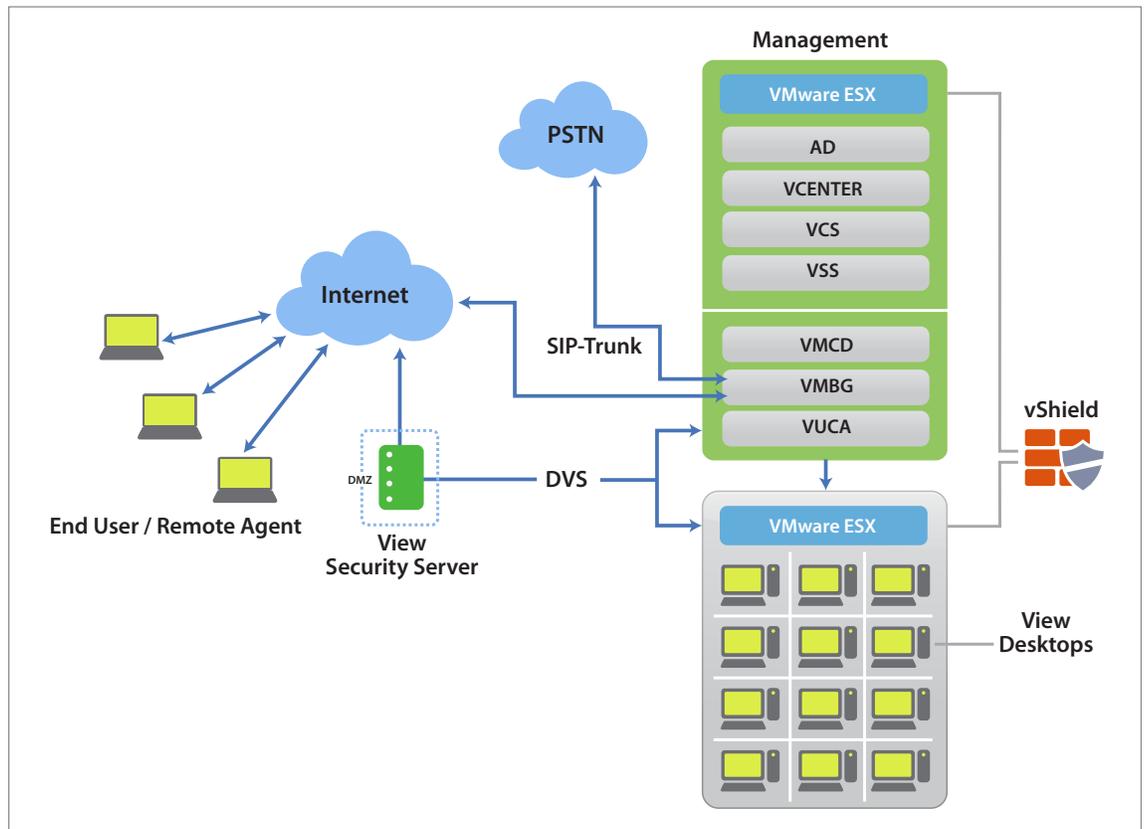


Figure 2: The Logical Design

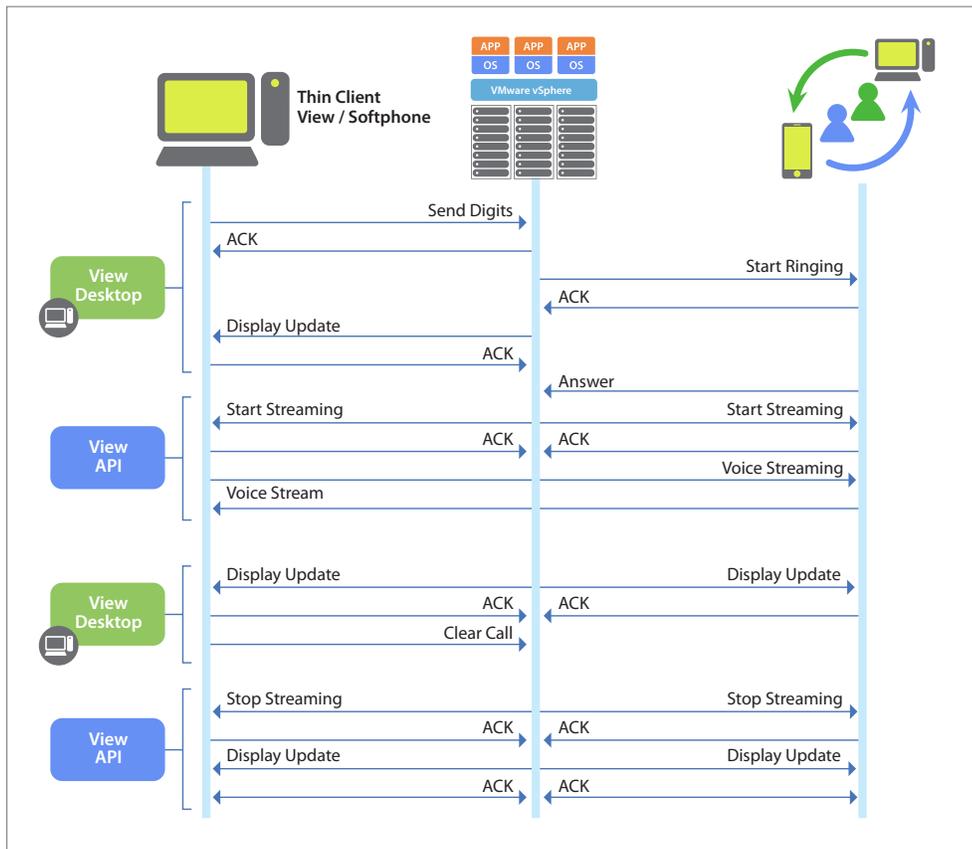


Figure 3: The Call Flow

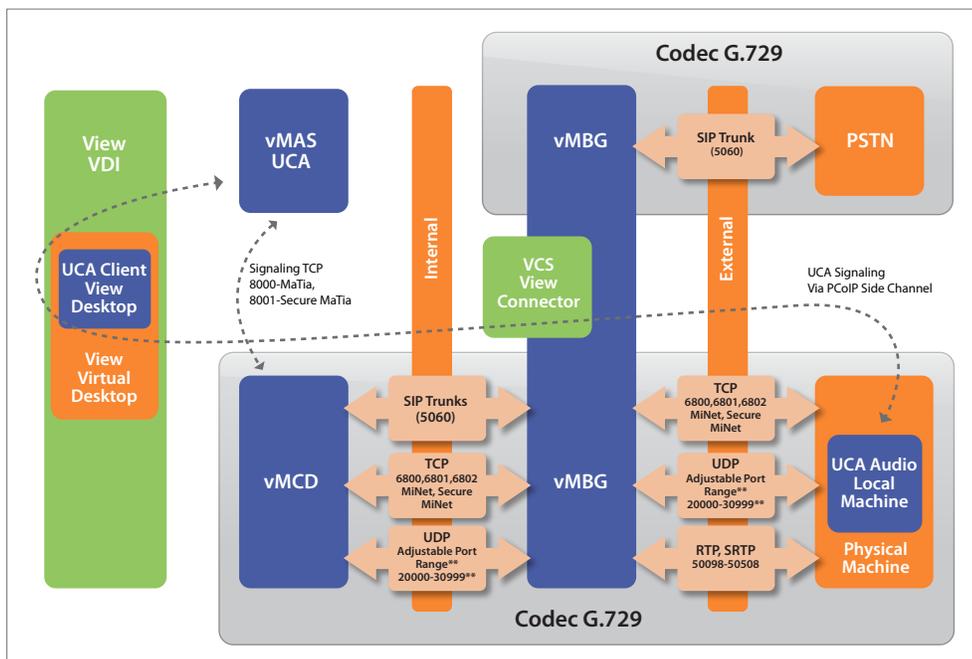


Figure 4: Call Flow Details

Unified Communication with VMware View

This solution gives employees the tools they need to enhance productivity and organizational efficiencies, such as immediate information about inbound and outbound calls and fast and easy click-to-dial functions.

Each View desktop has a Mitel softphone connected to the Virtual MCD, a virtual appliance that can scale to 500 contact center users and 2,500 general users. With clustering, its total capacity is 64,000 users.

In this solution, each subscribed instance had 48GB of RAM and 8 CPUs x 2.4 GHz. Each node can run up to 50 stateless desktops, but adding more hardware nodes and expanding layer 2 switches connected to dVS allows the environment to scale easily. Adding hardware nodes will depend on the type of applications each desktop will be running.

View Composer can provision desktops once additional hardware has been provisioned and configured into the cluster. And a load balancer will allow you to scale this environment to support more View desktops by adding multiple connection servers behind it.

You may consider adding more VMware View Connection Server replica instances and network load balancers in front of all connection servers to distribute incoming requests and login times more smoothly for remote or home agents.

Security

Within this solution, Security Gateway allows only public connections to the View Security Server to reach the Virtual Desktops. vShield Edge and App enforce your policies and protect against any network-based threats. And all access to the management VMs from virtual desktops is restricted.

Solution Summary

Companies operating call centers today are under great pressure to improve operating efficiencies and increase economic impact. By reducing hosting expenses and increasing storage consolidation, this on-demand call center solution provides instant access with superior QoS — direct from your call agents' desktops and devices. By integrating additional recording, monitoring, and a CRM suite, you can build out a full range of contact center resources without up-front procurement.

Next Steps

<http://www.vmware.com/view>

Social Media

- Blog: <http://blogs.vmware.com/view/>
- Twitter: @vmwareview

About Mitel

Virtual Mitel Communications Director (Virtual MCD) is the industry's first virtualized voice communications software application. Through the combined efforts of Mitel and VMware, voice and business applications are now able to run together in a virtualized environment. This unprecedented development enables IT managers to minimize voice management tasks and consolidate voice and non-voice applications on a single server.

Virtual MCD offers the same MCD functions and capabilities deployed on Mitel 3300 Controllers, and can be deployed on any industry standard server. The virtual appliance uses open standards, enabling it to be inserted into virtualized data centers along with other business applications.

About CLI

CLI Inc. is the innovative leader in thin computing-based software and hardware solutions that target Green IT, cloud computing and virtualization. For more information, visit www.computerlab.com.

About VMware View Unified Communication API

View Media Services for Unified Communications is a set of exposed APIs that can be leveraged by partners to allow integration of Unified Communications with virtual desktops.

About the Authors

The solution management team within VMware's End-User Computing business unit built the solution infrastructure, validated the design, and produced this solution brief. Integration efforts were provided by Mitel (UC components) and ComputerLab International (integrated thin clients).

