



A MITEL
PRODUCT
GUIDE

Deploying Virtual Appliances on VMWare

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Deploying a Virtual Instance on a VMware Infrastructure

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This guide describes the procedure for deploying and configuring a virtual instance on VMware infrastructure, including the required prerequisites and recommended best practices.

The intended audience for this guide is system engineers responsible for deploying and sizing Mitel virtual appliances on VMware vSphere/ESXi.

For product-specific deployment details, refer to the relevant System Engineering Guidelines.

Architecture and Topology

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This chapter contains the following sections:

- [Resiliency Example: MiVoice Business Virtual with vSphere HA](#)

Mitel virtual appliances are bundled with Mitel Standard Linux (MSL) and packaged as OVA files for import into a VMware ESXi hypervisor.



Figure 1: Figure 1: Mitel virtual applications on VMware infrastructure

System Configuration Objectives:

1. Ensure Mitel products work optimally with each other and with the existing infrastructure.
2. Optimize the overall solution for the virtual (VMware) infrastructure.
3. Confirm the VMware servers have the capacity to deliver the required standard of service.
4. Improve the availability of services and applications.

2.1 Resiliency Example: MiVoice Business Virtual with vSphere HA

A single-data-centre VOIP/UC virtual solution can combine MiVoice Business Virtual controllers with VMware HA. MiVoice Border Gateway Virtual clustering similarly ensures immediate voice-connectivity resiliency to the service provider; a failed MBG Virtual instance recovers using HA.

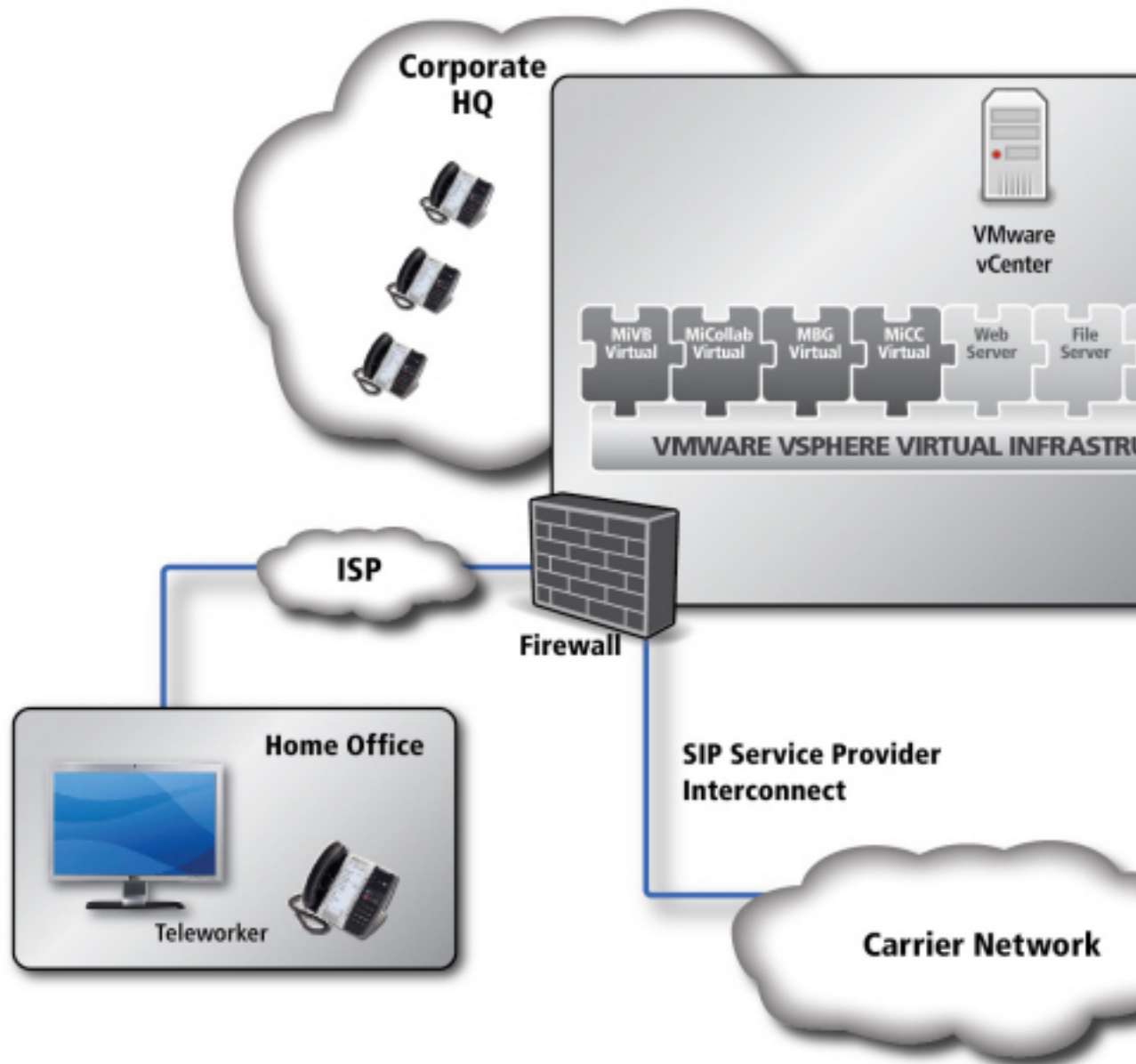


Figure 2: Figure 2: MiVoice Business Virtual application-layer resiliency with vSphere HA

Deployment Types

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The deployment type determines which VMware features (such as motion, HA, DRS, and DPM) are available and who is responsible for managing them.

The deployment type determines which VMware features (such as motion, HA, DRS, and DPM) are available and who is responsible for managing them.

Type	Characteristics	vCenter / HA / vMotion
SMB	Small number of host servers, often a single stand-alone host. Mitel apps typically coexist with non-Mitel apps.	May not be present.
Enterprise	Fits into existing virtual IT infrastructure or a dedicated UCC infrastructure. Mitel apps run on a subset of servers to leave room for vMotion/HA/DRS/DPM.	Generally required.
Hosted (SaaS / UCaaS / IaaS / Customer Premise)	Service-provider or enterprise-IT-hosted, large-scale cloud cluster; capacity is leased. See deployment-model definitions below.	Present, but not customer-accessible in provider-hosted models.

Hosted deployment models:

- **SaaS:** Mitel applications are hosted by the service provider.
- **UCaaS:** Mitel communication services are provided over the cloud.
- **IaaS:** The service provider provides the virtual infrastructure, while the customer manages the Mitel applications.
- **Customer Premises:** The Mitel solution is installed and managed on the customer's own infrastructure.

Table 1: VMware Infrastructure

Software Requirements	See, the Mitel's Product Compatibility Matrix (PCM) for the supported VMware versions. The PCM is the latest and most reliable source of information. The PCM decides which VMware features and products are supported with Mitel solutions, not the general VMware vCloud Suite list. Note: VMware vSphere version 5.x, 6.x is no longer supported
Host Servers and Clustering	1. Make sure the VMware host servers have enough CPU and memory to support all virtual machines, even if one host fails. 2. Use multiple VMware hosts with similar hardware so features like vMotion, HA, DRS, and DPM work properly. 3. Add the hosts to a DRS-enabled cluster for better load balancing and availability. 4. Configure the hosts for the best performance when running real-time Mitel applications by using the recommended processor and BIOS settings. Note: Mitel supports vMotion and Storage vMotion with its virtual applications when the VMware setup follows the recommended guidelines. If your setup differs from the recommendations, please contact Mitel Professional Services for assistance.
Network Requirements	1. Use a 1 Gbps network with at least four network ports on each VMware server. 2. Use a separate network for storage traffic. 3. Use a separate network for vMotion if HA or DRS is enabled. 4. Use a dedicated Voice VLAN for voice traffic. 5. Use the VMXNET3 network adapter for all Mitel virtual machines.

Storage Requirements	1. Use a fast and reliable storage system with enough performance for all applications. 2. Connect each VMware host and storage device using at least two network connections for better reliability. 3. Use RAID to protect data from disk failures. 4. VMware supports storage types such as iSCSI, NFS, Fibre Channel, vSAN, and local storage. However, local storage does not support vMotion or HA.
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Resource Dimensioning and Pooling

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Reserve at least 4 GB of RAM for the VMware ESXi hypervisor to ensure it runs smoothly.

Note: Do not use more than 70% of the CPU capacity on a VMware host server. Always keep 30% of the CPU resources free to handle peak workloads and maintain good system performance.

- Make sure the resource pool has enough CPU for all virtual machines.
- CPU resources should always be available when needed.
- Monitor CPU usage regularly to avoid performance issues.
- Use dedicated CPU resources for critical applications and Contact Centre deployments.

For example : An application still uses the same number of vCPUs, but it shares the available CPU resources in a resource pool. If you experience continuous voice quality or performance issues, switch back to the dedicated CPU reservation model.

Host Server Sizing and Resource Management

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This chapter contains the following sections:

- [Deploying Mitel Virtual Appliances](#)
- [Resize a Mitel Virtual Appliance](#)
- [Resource Sharing Guidelines](#)
- [Storage Provisioning](#)

Ensure the VMware host servers have enough CPU, memory, and storage resources to deliver reliable performance and support future growth.

Note: Each Mitel virtual appliance comes with the recommended CPU and memory reservations. Do not reduce these settings, as it may affect system performance.

For the Host Server Sizing information of all the Mitel products, see the [VAD Host Server Sizing Page](#).

6.1 Deploying Mitel Virtual Appliances

Deploy Mitel virtual appliances using the provided OVA/ISO file. The OVA/ISO includes the required settings, drivers, and VMware Tools for proper installation and best performance.

6.2 Resize a Mitel Virtual Appliance

If the virtual appliance does not have enough resources:

1. Deploy the OVA using the vSphere Client.
2. Select the required configuration and do not power on the VM after deployment.
3. Open the VM Settings.
4. Increase the CPU, Memory, and Disk size as required.
5. Set the required CPU and Memory reservations.
6. Save the changes.
7. Power on the virtual machine.

6.3 Resource Sharing Guidelines

Keep the host CPU usage below 70% to ensure good voice quality and reliable system performance

Sharing with Third-Party Virtual Appliances

Use CPU reservations for important Mitel applications to guarantee performance. Set the restart priority so that MiVoice Business Virtual starts first, followed by other Mitel applications, and then third-party applications.

Increased Density with MiVoice Business Virtual Instances

Where MiVB instances run lower traffic/user counts than standard deployments, GHz reservations may be tuned down to improve density. See the MiVoice Business Engineering Guidelines (Release 8.0+) or Engineering Guidelines for MiVoice Business ISS / Virtual (earlier releases). Contact Mitel Professional Services if unfamiliar with these settings.

Sharing with Other Mitel Virtual Appliances

Consider a resource pool when co-locating multiple Mitel appliances, to set intra-pool priorities. Minimum storage requirements are product-specific — see the relevant product engineering guidelines.

6.4 Storage Provisioning

Format	Behaviour	Mitel guidance
Thin provisioned	Storage allocated on demand; expands as needed. More storage-efficient, can slow down as it fragments.	Acceptable only where the underlying storage has de-duplication.
Thick provisioned (Lazy-zeroed)	All storage allocated immediately; each block is zeroed on its first write, so the first write to a block is slower than subsequent writes.	Use CPU reservations for important Mitel applications to ensure the best voice quality and performance. This is the recommended setting for all Mitel virtual appliances.

Resiliency, High Availability, and Disaster Recovery

This chapter contains the following sections:

- [Mitel Compatibility with VMware Resiliency Features](#)
- [VMware High Availability \(HA\)](#)
- [VMware Fault Tolerance \(FT\)](#)
- [DRS and vMotion](#)

VMware availability features improve system reliability but do not replace Mitel's built-in high availability. For Mitel applications without built-in resiliency, use VMware HA. Also, ensure that a single server or power failure does not affect the entire VMware cluster.

For more information about Mitel's resiliency guidelines, refer to the specific product's Resiliency Guide or Engineering Guidelines.

7.1 Mitel Compatibility with VMware Resiliency Features

Function	Compatil	Notes
vMotion	Yes	May cause brief voice degradation (observed in MiVoice Business Virtual Media Server features: conferencing, MOH, paging, RAD). Anti-affinity rules must prevent primary/secondary co-location.
Long Distance vMotion	Yes	Requires vCenter 6.0+ on both ends; same SSO domain via UI, cross-domain via API. 250 Mbps bandwidth required per operation.
Storage vMotion	Yes	May reduce storage performance during migration; recommended only when the VA is powered off or under low workload.
High Availability (HA)	Yes	Assign high restart priority to critical Mitel applications; anti-affinity rules are required for clustered pairs.
Fault Tolerance (FT)	No	Resource overhead negatively affects real-time voice performance.

Function	Compatil	Notes
Distributed Resource Scheduler (DRS)	Yes	Uses vMotion — same cautions apply. An “Aggressive” migration threshold may affect performance.
Storage DRS	Yes	
Distributed Power Management (DPM)	Yes	Uses vMotion — same cautions apply.
vSphere Replication	Yes	Per-VM replication; does not depend on SRM.
Site Recovery Manager (SRM)	Yes	Contact Mitel Professional Services.

7.2 VMware High Availability (HA)

VMware HA automatically restarts virtual machines on another host if a server fails. It helps reduce downtime but does not replace Mitel's built-in high availability features.

Example Failure Scenario

MiVB Virtual A (primary) on Host X, HA-protected; MiVB Virtual B (secondary) on Host Y, HA-protected:

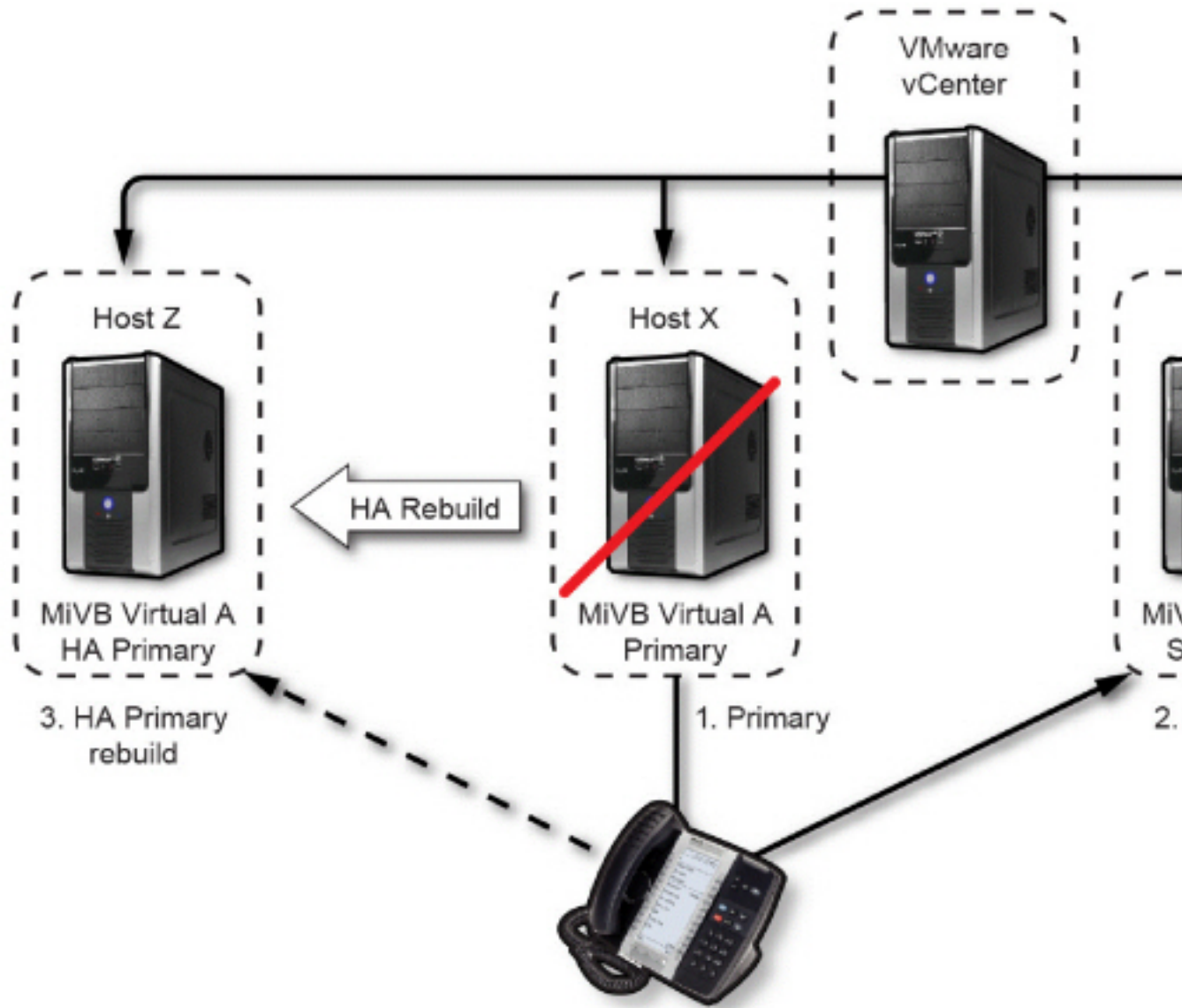


Figure 3: Figure 3: Resiliency using virtual MiVoice Business

1. Host X fails; MiVB Virtual A goes out of service.
2. IP phones homed to MiVB Virtual A re-home to MiVB Virtual B on Host Y within seconds, with no loss of active calls.
3. VMware HA restarts MiVB Virtual A on Host Z (anti-affinity rules prevent it from restarting on Host Y).
4. Once MiVB Virtual A recovers, IP phones re-home back to it on Host Z — primary-node downtime is reduced to minutes.

In the reverse case (Host Y fails), the secondary restarts elsewhere with zero service loss, since phones remain homed to the primary.

7.3 VMware Fault Tolerance (FT)

Not compatible with Mitel virtual appliances — FT's CPU overhead and cross-host synchronisation traffic degrade real-time voice performance. Use Mitel application-layer resiliency combined with VMware HA instead.

7.4 DRS and vMotion

Mitel recommends enabling DRS at the cluster level for Mitel virtual appliances, with automation level set to Fully Automated. DRS uses vMotion, so momentary voice-streaming pauses are possible — weigh full automation and migration-threshold aggressiveness accordingly.

Note: For resilient Mitel appliances (MiVoice Business Virtual, MBG Virtual, MiVoice Connect Virtual), DRS anti-affinity rules are critical: primary and secondary elements must never run on the same physical host, or a single host failure could defeat Mitel's resiliency mechanism.

Upgrading Mitel Virtual Appliances

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This chapter contains the following sections:

- [Upgrade Components and Methods](#)
- [Upgrade Procedures](#)
- [VMware Virtual Hardware Versions](#)
- [VMware Software Version Compatibility](#)
- [VMware Tools](#)

This section covers upgrading Mitel virtual appliances on VMware. Hyper-V upgrades follow the physical-server model — refer to the product-specific Installation and Maintenance Guide.

8.1 Upgrade Components and Methods

When upgrading a Mitel virtual appliance, consider the application, Mitel Virtual Framework (MVF), and the Mitel Standard Linux (MSL) operating system.

There are two ways to upgrade:

- **OVA Upgrade:** Deploy a new OVA file and restore the data from the old virtual appliance.
- **Blade Upgrade:** Upgrade the application directly using the MSL Blades panel.

Note: Blade upgrade is not available if the OVA dimensions have changed in the release — use an OVA upgrade instead. Refer to the Installation and Maintenance Guides and Release Notes for product-specific guidance.

Choosing an Upgrade Method

- Use a Blade Upgrade for minor updates and Service Pack (SP) releases.
- Use an OVA Upgrade for major version upgrades.
- Some releases require an OVA Upgrade even for minor updates. Always check the Release Notes before upgrading.

8.2 Upgrade Procedures

Note: Do not upgrade a Mitel virtual appliance manually. Always use the recommended upgrade method to ensure all required VMware settings, tools, and updates are applied correctly.

Blade Upgrade Method (minor release / Service Pack)

1. Back up the existing version for disaster recovery, using the product-specific backup method.

2. Power down the virtual machine.
3. After the upgrade completes, verify the virtual machine has the resources required for the new release — defaults set during the process may need adjustment for your environment.
4. After the first License Server sync, verify the upgraded licenses were applied correctly.

OVA Upgrade Method (major release)

1. Back up the existing virtual appliance.
2. Shut down the virtual machine.
3. Deploy the new OVA file.
4. Verify the CPU, memory, and storage settings for the new version.
5. Restore the backup data to the new virtual appliance.
6. Check that the licenses are updated and working correctly.

Snapshot Guidelines

- Take a VMware snapshot only before starting an upgrade and only when the virtual machine is powered off.
- If the upgrade fails, use the snapshot to restore the virtual machine.
- After a successful upgrade, delete the snapshot to maintain good performance.
- No need to clear the hardware ID on the License Server.

8.3 VMware Virtual Hardware Versions

- A virtual machine with a newer virtual hardware version cannot run on an older ESXi host.
- Virtual hardware version 10 is not supported for Mitel virtual appliances.
- Deploy the virtual machine on the lowest ESXi version in a mixed-version cluster to ensure vMotion and HA work across all hosts.

Once a virtual hardware version is upgraded, it cannot be downgraded. Upgrade only if required.

Note: The supported ESXi versions are verified against the Product Compatibility Matrix (PCM) available at [Mitel PCM](#). Before deploying a virtual machine, verify the supported virtual hardware version using [Broadcom KB Article 315655 – Virtual Machine Hardware Versions](#).

8.4 VMware Software Version Compatibility

Not all versions of VMware components (ESXi, vSphere, vCenter) are compatible with each other, and compatibility varies by Mitel product and release.

See, Mitel Product Compatibility Matrix for these details.

8.5 VMware Tools

VMware Tools improves communication and performance between the VM and its operating system. For MSL, VMware does not recognize it as a standard OS, so VMware Tools is managed through the MVF blade included in the OVA.

In the vSphere Client Summary tab, MVF-containing appliances show the VMware Tools field as “(3rd-party/Independent)” — VMware cannot manage or upgrade VMware Tools in that guest OS.

- MVF appliances show VMware Tools as “3rd-party/Independent”, so VMware cannot update them directly.
- MSL 10.0+ / MVF 2.0+: VMware Tools can be updated through an MVF upgrade or OVA upgrade.
- MSL 9.x / MVF 1.x: VMware Tools can only be updated through an OVA upgrade.
- Non-OVA and Windows appliances: Use the normal VMware Tools update method inside the guest OS.

Mitel Virtual Appliance	Release	VMware Tools Upgrade Method
MiVoice Business Virtual	10.5 SP1	OVA upgrade
MiVoice Office 400	7.1 SP1	OVA upgrade
MiCollab Virtual	10.2	OVA to 6.0 and above
Mitel Mass Notification	6.5	Firmware upgrade
MiVoice Border Gateway Virtual	12.3	MVF blade upgrade, or OVA to 8.1+
NuPoint UM Virtual (final release)	8.3	MVF blade upgrade, or OVA to 7.0+
MiVoice Business Express	8.0	MVF blade upgrade, or OVA to 6.0+
Open Integration Gateway	4.2 SP4	MVF blade upgrade, or OVA
MiContact Center Business	10.0	VMware methods

Mitel Virtual Appliance	Release	VMware Tools Upgrade Method
Mitel CX	1.0	VMware methods
MiContact Center Office	6.2 SP1	—
MiCloud Management Portal (Oria)	6.0	—
MiCloud Management Gateway	5.0	VMware methods
MiVoice Enterprise Manager	7.0	VMware methods (Tools not included)
MiVoice Call Recording	9.2 SP7	VMware methods
MiVoice Business Solution Virtual Instance	1.0	VMware methods
MiVoice Business Solution Virtual Instance	2.0	MVF blade upgrade, or OVA upgrade

This chapter contains the following sections:

- [Backups](#)
- [Restore](#)
- [Migrating a VM Between Hypervisors](#)
- [Troubleshooting](#)
- [Known Issues](#)

This section covers ongoing maintenance (backups, restores, monitoring) and troubleshooting for Mitel virtual appliances on VMware. Backup and troubleshooting follows the product-specific documentation and are not covered here.

9.1 Backups

Backups can be taken for the entire VM or individual products. Check the Release Notes and product guide for the recommended backup method for each application.

Snapshots

Note: Snapshots are not a backup method. Use them only as a temporary restoration point before an upgrade or risky reconfiguration, and delete them as soon as the change is verified — a retained snapshot consumes run-time resources (the virtual disk subsystem must track changed blocks) and degrades performance.

1. Live or suspended VM snapshots are not supported for Mitel virtual appliances. Shut down the VM before taking a snapshot.
2. A snapshot saves the VM's memory, settings, disk, and power state at that point and can be used to restore the VM later.

Recommended Backup Methods

Scenario	Recommended Method
After initial configuration or provisioning	Application or MSL backup.
Day-to-day backup for application data recovery	One or more of: scheduled Application/MSL backup; scheduled vSphere Data Protection; qualified third-party VADP software; Export/Import OVA.

Scenario	Recommended Method
Application blade software upgrade	Application or MSL backup, plus a snapshot (remove after the upgrade is validated).
Deploying a new appliance version (new release)	Application or MSL backup; import after OVA deployment of the upgrade (major release).
Migration from a physical application to a virtual appliance	Application or MSL backup; import after OVA deployment.

Note: MiVoice Business Virtual requires both a MiVoice Business backup and an MSL backup.

9.2 Restore

Use the product-specific restore routine matching the backup method used, see the product-specific engineering guidelines for more information.

Note:

For **MiCollab Virtual system recovery**: You can recover a MiCollab Virtual database on the same VM by deploying the latest MiCollab Virtual OVF, restoring the database backup, then installing the latest MiCollab application software. See the MiCollab Installation and Maintenance Guide for detailed steps.

9.3 Migrating a VM Between Hypervisors

1. Deploy the new virtual machine on the destination hypervisor (see Section 1 for VMware; refer to the corresponding guide for Nutanix or Hyper-V).
2. Manually configure and apply the Serial ID to MSL.
3. Download and install all licensed blades or application ISO files.
4. Restore an MSL backup (not recommended for MiVoice Business — see note below).

Note: Restoring from a running server is not a supported migration method. For MiVoice Business, restore an ESM backup instead of an MSL backup, to retain database customization. For all other MSL-based applications, an MSL backup is required to restore the database.

9.4 Troubleshooting

Each Mitel virtual appliance includes its own built-in diagnostics for issues local to that application.

Product	Guide Containing Troubleshooting Information
MiVoice Business / MiVoice Business Virtual	MiVoice Business Technician's Handbook; MiVoice Business Voice Quality Troubleshooting Guide; Installation Guide for MiVoice Business Virtual; Engineering Guidelines for Industry Standard Servers and MiVoice Business Virtual
MiCollab	MiCollab Installation and Maintenance Guide
NuPoint UM	NuPoint Unified Messaging Technician's Handbook
MiCollab Client	MiCollab Client Engineering Guidelines
MiVoice Border Gateway / MBG Virtual	MiVoice Border Gateway (MBG) Installation and Maintenance Guide
MiVoice Business Express	MiVoice Business Express Deployment Guide

Note: Enterprise-level troubleshooting in the VMware environment requires VMware vCenter, which provides the centralized visibility needed to isolate infrastructure issues from Mitel application issues.

Virtualization Diagnostic Tool (VDT)

VDT automatically collects system and diagnostic information from the virtual environment. This is especially useful when customers cannot access the service provider's virtual infrastructure.

- VDT is included in the MVF blade for most Mitel virtual appliances, except Windows-based MiContact Center Office and MiVoice Business Virtual.
- VDT requires MSL 10.0+, vSphere 4.1+, and MVF 2.0+.
- VDT is enabled by default, but it uses some CPU and network resources.

Access: From MSL Server Manager: Administration → Virtualization. The page shows a Diagnostic Overview (hypervisor support, OVA dimensioning, License Server connectivity, last nightly analysis) and lets you run a manual 7-day statistics analysis via Run Diagnostics.

9.5 Known Issues

Common symptom/cause/resolution patterns for Mitel virtual appliances on VMware.

Issue Details

Performance Issues Despite Sufficient CPU/Memory

Symptom	Poor voice quality, playback issues, or dropped calls, even when CPU and memory look sufficient.
Possible causes	Slow or unstable VM disk I/O, incorrect host/BIOS settings, or incorrect CPU resource settings.
Resolution	• Check VM disk performance and fix any disk-related issues. • Check the host CPU, BIOS, and hardware against the required specifications. If needed, move the application to a supported host. • Check CPU Ready time. If it is consistently above 100 ms, the VM may not have enough CPU resources. Check CPU reservations and avoid CPU over-subscription.

VMware Snapshots Slow Performance

Symptom	Sluggish performance, possibly poor voice quality, often after an upgrade.
Cause	Snapshots taken before the upgrade were not deleted afterward — more retained snapshots mean worse degradation.
Resolution	Delete all VM snapshots.

Read-Only File System Disables the Application

Problem	The Mitel application stops working. Check the VM Console to confirm, as logs cannot be written when the file system becomes read-only.
Cause	Very high disk latency between the ESXi host and VM datastore can cause MSL to switch the file system to read-only mode.
Immediate fix	Right-click the VM → Power → Restart Guest. Check the console to confirm the VM shuts down and starts correctly.
Root cause	Check for SAN connection issues and review VM disk performance. Average storage latency should be below 30 ms (lower for SSD storage).
Prevention	Configure a vCenter alarm for high VM disk latency to alert administrators before performance is affected.

Unresponsive VM Near 100% CPU

Problem	The VM CPU (and sometimes memory) stays near 100%, and the VM becomes unresponsive.
Cause	The SAN volume where the VM's disk is stored is unavailable due to a network or SAN issue. In vSphere, the datastore may show as "Inactive" or "Inaccessible."

Fix	If the VM is responsive, use Shut Down Guest. If not, restart the ESXi host as required.
Next step	Check and fix the underlying SAN or storage issue.

Slow Network Throughput for Large Transfers or Streaming

Symptom	Slow throughput for large file transfers, or poor/interrupted streaming media between VMs.
Cause	Large Receive Offload (LRO) enabled for the VMware vmxnet3 kernel module — MSL does not support LRO and ignores LRO packets, forcing retransmission.

Startup Issues After Power Off

Symptom	Startup delays, file system repairs, or startup failures after a VM that was shut down using Power Off.
Cause	Power Off disrupts running applications and system state abruptly, and can leave the virtual disk corrupted or inconsistent. i Note: Always use Shut Down Guest, not Power Off, to turn off a Mitel virtual appliance (see Section 7) — Power Off is equivalent to abruptly cutting power to a physical server.

Message Recording, Voice Prompt, or Playback Issues

Problem	Poor voice recording/playback or interruptions during prompt playback.
Cause	High disk latency, slow storage performance, or unstable disk access.
Resolution	• Check disk type: use Thick Provision Lazy Zeroed or Thick Provision Eager Zeroed. Do not use Thin Provisioning. • Remove snapshots: delete any VM snapshots, as they can increase disk I/O. • Check storage performance: review disk latency and throughput. Latency should be close to 0 ms. Consistent latency above 30 ms or peaks above 80 ms indicate a storage performance issue. • If needed: move the VM to a better-performing datastore.

This chapter contains the following sections:

- [Glossary](#)
- [Deployment Sizing Tiers](#)
- [Mitel Storage Recommendations for VMware Deployments](#)
- [Other Considerations](#)

This appendix contains reference information for system engineers planning or deploying Mitel virtual appliances on VMware.

10.1 Glossary

Terms retained here are either general virtualization terminology still in current use, or Mitel-specific terms a system engineer needs to plan and support a deployment. Terms that existed only to map a discontinued product name to its current name have been removed.

Term	Definition
ARID	Application Record ID. A bundle of Mitel licenses managed as a single set with a unique identifier; used for a single MSL deployment.
DMZ	De-Militarized Zone. A network segment inserted between a private network and an untrusted network to prevent direct access to internal hosts.
DRS	Distributed Resource Scheduler. A vSphere feature that dynamically balances VM load across hosts in a cluster.
dvSwitch	Distributed virtual switch, configured at the data center level across multiple ESXi hosts.
ESXi	VMware's bare-metal hypervisor and the current supported foundation for VMware-based Mitel virtual appliance deployments.
Guest / Guest OS	The operating system running inside a virtual machine.

Term	Definition
HA	vSphere High Availability. Automatically restarts affected VMs on another host after a physical server failure.
Host	The physical hardware on which a hypervisor and its virtual machines run.
Hypervisor	Software that presents a virtual platform to one or more guest operating systems (e.g., VMware ESXi, Microsoft Hyper-V).
I/O	Input/Output.
Licensing Mechanism	The Mitel process for acquiring, synchronizing, and de-activating software licenses via ARID against Mitel Licenses & Services. Only online licensing is supported for virtual appliances.
Mitel CX	Mitel Customer Experience.
Mitel Licenses & Services	The Mitel-hosted license server that Mitel applications authenticate to and retrieve licensing from, based on ARID.
MSL	Mitel Standard Linux. The Linux distribution, maintained by Mitel, on which most Mitel applications are built.
MVF	Mitel Virtual Framework. The installable component delivering generic Mitel virtualization support.
MiVoice Business	Mitel's IP-PBX call control software (formerly Mitel Communications Director / MCD).
MiVoice Business Express	A virtual appliance combining MiVoice Business with MiCollab applications, with an integrated MBG component and its own Initial Configuration Wizard.
MiVoice Border Gateway (MBG)	Provides secure remote access, teleworker connectivity, and SBC/NAT-traversal functions for Mitel voice applications.
MiCollab	Mitel's unified communications application suite.

Term	Definition
MiCollab Client	Mitel's UC client application (formerly Unified Communicator Advanced).
MiCollab AWV	MiCollab Audio, Web, and Video conferencing.
MiContact Center Business / Enterprise	Mitel's contact center solutions.
NAT	Network Address Translation.
NFS	Network File System. A distributed file-level storage access protocol supported by ESXi for virtual disks.
Online Licensing	The only licensing method supported for Mitel virtual appliances; requires network access to Mitel Licenses & Services.
OVA / OVF	Open Virtualization Archive / Format — the packaging format Mitel virtual appliances are distributed in.
pCPU	Physical CPU. The number of logical CPUs/threads available on a host, as distinct from physical cores.
PSTN	Public Switched Telephone Network.
RTP	Real-time Transport Protocol, used to carry voice and video media streams.
SAN	Storage Area Network.
SBC	Session Border Controller.
SLA	Service Level Agreement.
vCPU	Virtual CPU — the number of virtual processor cores assigned to a VM.

Term	Definition
Virtual Appliance	A pre-built software solution, comprising one or more VMs, packaged and managed as a unit.
VLAN	Virtual Local Area Network.
VM	Virtual Machine.
vMotion	VMware feature allowing live migration of running VMs between hosts in a cluster.
vNIC	Virtual Network Interface Card.
vSAN	VMware's software-defined storage solution, aggregating locally attached host disks into a shared datastore.

10.2 Deployment Sizing Tiers

The following tiers describe relative deployment scale by maximum user count.

Deployment Type	Maximum User Count
Small	250
Mid-market	1,500
Enterprise	2,500
Large Enterprise	5,000
Extra Large Enterprise	7,500

Note: Maximum user counts are release- and product-specific. Confirm current figures against the Engineering Guidelines for the specific Mitel product and release being deployed before using these tiers for capacity planning.

10.3 Mitel Storage Recommendations for VMware Deployments

Mitel recommends specific storage settings for running its virtual appliances on VMware ESXi. These settings are designed for real-time voice applications that require low disk latency and may differ from general VMware recommendations.

For the latest VMware storage and ESXi compatibility requirements, refer to the current VMware vSphere documentation.

RAID Level

RAID 10 is recommended. It provides the best balance of performance, redundancy, cost, and write penalty for Mitel's real-time workloads. Other RAID levels may be used where they better fit a specific workload's requirements.

Virtual Disk Mode

Dependent disk mode is the Mitel default and is supported. Dependent mode allows temporary disk snapshots, which Mitel applications use during backup and upgrade. Virtual disks must not carry snapshots during normal operation.

A.4.3 Virtual Disk Type

Thick Provisioned, Lazy Zeroed (the VMware default) is recommended. Mitel applications are real-time and require predictable, consistent performance, so all disk space should be allocated at install time. Thin provisioning is not recommended for Mitel virtual appliances.

Storage Network

1. Either iSCSI or NFS is suitable; iSCSI is marginally more efficient as a lower-level, block-based protocol.
2. Enable jumbo frames where end-to-end hardware support exists (adapters, arrays, and switches) to reduce packet-processing overhead.
3. Give iSCSI and NFS traffic a dedicated physical network where possible; use VLAN separation where it is not.

SAN Multipathing

Enabling SAN multipathing is recommended for fault tolerance and performance, despite the additional HBA and switch requirements — the resiliency benefit outweighs the cost for real-time voice workloads.

10.4 Other Considerations

1. Monitor host CPU usage to ensure enough CPU resources are available for Mitel workloads.
2. Avoid sharing physical NICs for high-network or latency-sensitive VMs where possible. Use separate NICs when practical. This is less important with 10 Gbps NICs that support multi-queue.
3. Do not use VMware Fault Tolerance (FT) for Mitel real-time applications, as it can add latency.

