Oria Engineering Guidelines

JANUARY 2017

RELEASE 5.3

NOTICE

The information contained in this document is believed to be accurate in all respects but is not warranted by Mitel Networks™ Corporation. The information is subject to change without notice and should not be construed in any way as a commitment by Mitel or any of its affiliates or subsidiaries. Mitel and its affiliates and subsidiaries assume no responsibility for any errors or omissions in this document. Revisions of this document or new editions of it may be issued to incorporate changes.

TRADEMARKS

Mitel, MiVoice Business, MiVoice Business Express, MiCollab, and MiVoice Border Gateway are trademarks of Mitel Networks Corporation.

VMware and ESX are trademarks of VMware Inc.

Other product names mentioned in this document may be trademarks of their respective companies and are hereby acknowledged.

Engineering Guidelines
Oria Release 5.3
January 2017

Table of Contents

1 About this Document

1.1 Overview

This document provides engineering guidelines to assist in the planning and installation of Oria. The guidelines describe specific areas of the product that need to be considered before installation. These guidelines should not be considered as a comprehensive list, but as useful reminders or pointers for consideration.

This document describes:

- Product functionality, enhancements, and functional changes
- Network and element requirements
- System requirements
- System configuration for providing services to customers
- Performance specifications

This document provides only the guidelines specific to Oria system provisioning at the service provider for new customer installations. Retrofitting existing customer installations into an Oria-management framework is not explicitly supported; however, it can be accomplished if required by Mitel Professional Services.

This document should be used by system engineers to:

- Determine the network and element requirements to ensure compatibility;
- Determine the platform requirements for Oria installation;
- Collect customer site information and requirements;
- Analyze and record any special configuration information required at the site for optimal performance.

1.2 References

Documents referenced by the Engineering Guidelines include:

[1] MiCloud Business Solution, Blueprint, Release 3.3, Mitel, 2017.

[2] MiCloud Business for Service Providers, Medium-Large Business, Deployment Guide, Mitel, 2017.

[3] MiCloud Business for Service Providers, Small Business, Deployment Guide, Mitel, 2017.

[4] Oria Installation and Administration Guide, Mitel, 2017.

[5] Oria Release Notes, R5.3, Mitel, 2017.

[6] Virtual Appliance Deployment, Solutions Guide, Mitel, 2016.

[7] Mitel Standard Linux Qualified Hardware List, Mitel, 2016.

[8] MiCollab Client for Mobile Resiliency Guide, Release 7.3, Mitel, 2017.

[9] MiCollab Client Engineering Guidelines, Release 7.3, Mitel, 2017.

[10] Oria Engineering Guidelines (this document), Mitel, 2017.

All Mitel documents are available through Mitel Connect at http://connect.mitel.com. You will require a valid user name and password to access this site.

2 System Overview

The Oria platform is a system management and customer self-service application for voice and unified communication services. The goal of Oria is to cut down on the 'swivel chair'[1] administration operations and make it easier and more efficient for a service provider to offer and deploy services to their customers.

Oria enables a service provider to manage and deploy hosted services to their customers. At the same time, Oria allows the service provider to offer each of their customers an administration and self-service portal to make site specific moves, adds, changes, and deletes. Additionally, phone users that are created for a customer have access to a variety of phone features defined by their assigned feature set (also called a bundle).

Oria 5.3 is included as part of the MiCloud 3.3 release. Oria could also be deployed independently outside of MiCloud. For a good understanding of MiCloud, please refer to reference documents [1], [2] and [3] in section 1.2 of this document.

2.1 Multi-Tiered Management

Oria is a multi-tiered application that provides several levels of control. The various levels and their attendant capabilities are:

- Service Provider (SP):
  - Platform (MiVoice Business/MiCollab/MiVoice Business Express/MiVoice Border Gateway) management
  - Control of Customer Sites
  - Customer User Creation
  - Direct Inward Dialing (DID or DDI) Management
  - Customer Emergency Services Identification (CESID)
  - Dial Plans and Key Templates
  - Billing and Licensing Information
  - Service Definition and Bundling
  - Customer site parameters (Voicemail hunt group, mailbox ranges, etc)
  - Reseller (Virtual Service Provider and Value Added Reseller) creation and management.
- Virtual Service Provider (VSP)
  - All the features of Service Provider except reseller creation and management
- Value Added Reseller (VAR)
  - All the features of Virtual Service Provider except plat
- Customer Administrator:
  - User Management

[1] Definition: https://www.techopedia.com/definition/1034/swivel-chair-interface

- Assign DIDs
- Call Rerouting
- Call Groups (Hunt, Ring, Page, Pickup)
- Hot Desk Phones
- Twinning
- Voicemail
- Call Flow
- ACD
- Key Template
- Auto Attendant
- Business hours
- Music-On-Hold

- End User:
  - Voicemail PIN
  - Twinning Number
  - Call History
  - Phone Directory
  - Programmable Keys
  - Personal Profile
  - Password management

2.2 Oria and MiVoice Business (MiVB) Relationship

The main purpose of Oria is to allow service providers to deploy unified communications services to their customers and manage any customer issues. It also enables the customer to perform their own management and self-service operations. To do so, Oria modifies MiVB data on behalf of the customer. Customers no longer need to configure their MiVBs directly.

When configuration changes are made directly to an MiVB via its management interfaces (i.e. outside of the Oria framework) these changes can create discrepancies between Oria's database and that of the MiVB. These conditions should be avoided when possible.

2.3 Oria and MiCollab/MiVoice Business Express (MiCollab/MiVB-X) Relationship

Oria can manage users on a MiCollab or a MiVB-X. Oria can also manage NuPoint mailboxes for call groups on these platforms. The current user update capabilities for a MiCollab or a MiVB-X platform include User Data, Phone Data and Features.

Call group mailboxes are not associated with users. Oria creates them without creating users on MiCollab or MiVB-X.

When configuration changes are made directly to a MiCollab or a MiVB-X via their management interfaces (i.e. outside of the Oria framework) these changes can create discrepancies between Oria's database and those of the platforms. These conditions should be avoided when possible.

2.4 Oria and MiVoice Border Gateway (MiVBG) Relationship

Oria interacts with the MiVBG in the following scenarios:

- As DIDs are created in Oria, these can be written to a MiVoice Border Gateway as SIP trunk routing rules.
- As users are assigned SIP or Minet devices in Oria, these can be written to the MiVoice Border Gateway.

MiVBGs are treated as separate platform items, in that they are registered by administrators and then allocated to voice platforms (MiVB/MiCollab/MiVB-X) as required. A stand-alone MiVoice Border Gateway can be shared by multiple voice platforms in the services of DID call routing, proxying for MiCollab clients and handling Teleworker devices.

A MiVBG that is embedded in a MiCollab or MiVB-X platform can only be used by its host platform.

2.5 Oria and MiCollab Client Multi-Tenant Relationship

When an Oria user is created with a bundle that has the MiCollab option, then Oria will create a unified communications account on the assigned MiCollab Client Multi-Tenant server.

MiCollab Client Multi-Tenant is treated as separate platform item, in that it is registered by administrators and then allocated to voice platforms (MiVoice Business) as required. A single MiCollab Client Multi-Tenant can be shared by multiple voice platforms.

2.6 Features introduced this release

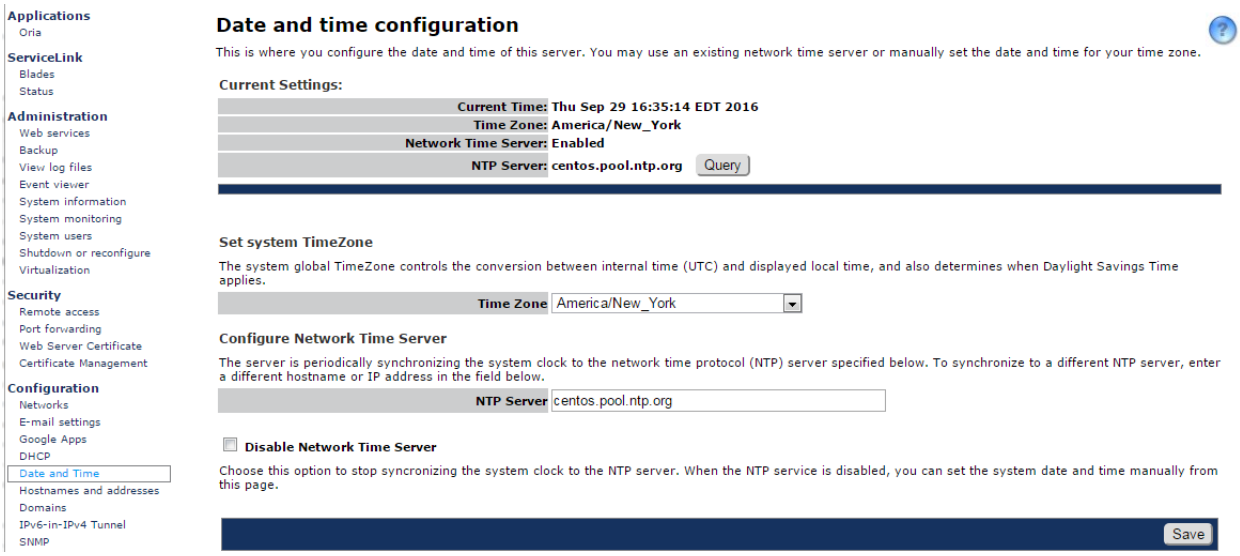
A complete list of new features can be found in reference documents [4] and [5]. No new feature affects the Engineering Guidelines.

3 Network and Element Requirements

3.1 Date and Time Settings

For consistent operations, the clock of the Oria server and those of the platforms should be set to the same time zone. Mitel recommends synchronizing with a networking time server to maintain accurate time.

The Date and Time setting is a function of the MSL OS on which Oria runs and can be found when you log in to the server-manager address. The figure below shows the Date and Time menu.



3.2 Deployment Topologies

Reference document [1] gives a very good description of the different MiCloud deployment topologies. It is well worth reading that first before proceeding. This section redacts those deployment topologies into two main strategies. The goal here is to provide a quick overview.

Oria is normally deployed in a hosted environment, where the only telephone equipment on the customer site is the end-user phone sets.

The goal of any deployment scenario is to:

1. Provide a data path from the customer site to the Oria server for execution of site-specific administration functions such as local user management, group management, auto-attendant configuration, etc.
2. Provide a voice and data path from the customer site to the customer's assigned platforms.

The following illustration shows the logical relationships between the elements and roles in a hosted Oria environment. Subsequent sections discuss alternative methods of implementing this. In the diagram, any server instance (include the Oria server) can be a physical or virtual computer.

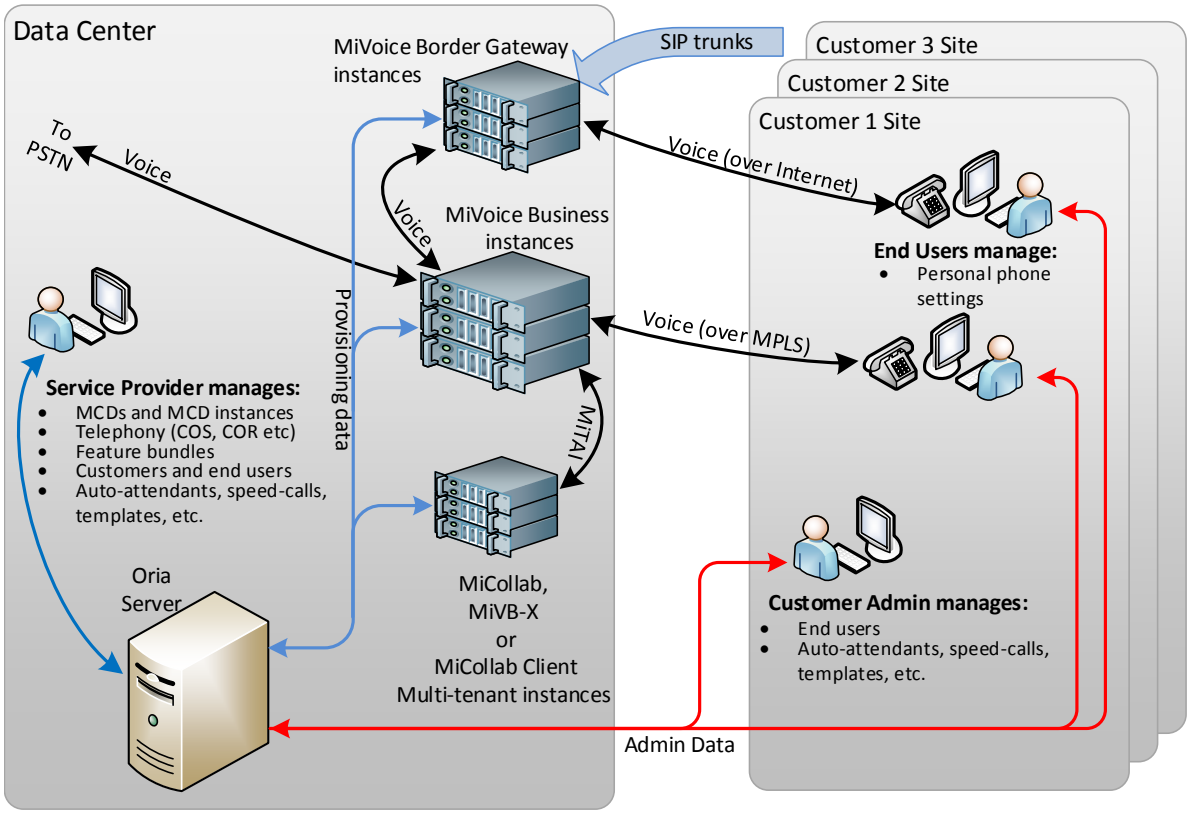


Figure 1 Overview diagram.

There are two basic strategies for user voice that can be adopted when deploying an Oria-managed system:

1. Internet-based, which will require a MiVoice Border Gateway to be the gateway for voice over the public Internet.
2. Virtual Private Network (VPN) which can be *Internet Protocol* (IP) or *Multiprotocol Label Switching* (MPLS) based

Other deployments are possible. For example, the platforms can be located at the customer site and managed by Oria, but the networking requirements are significantly more complicated than a fully hosted environment. The following sections present the two main alternatives.

3.2.1 Internet-Based Deployment

In this type of deployment, voice and data travel from customer sites over the internet to the hosting data center. Voice and data arrive at a border gateway in the data center. The gate way then routes voice to the MiVoice Business instances and data to the Oria server.

With this type of deployment, end users and customer admins can be located anywhere there is an Internet connection.

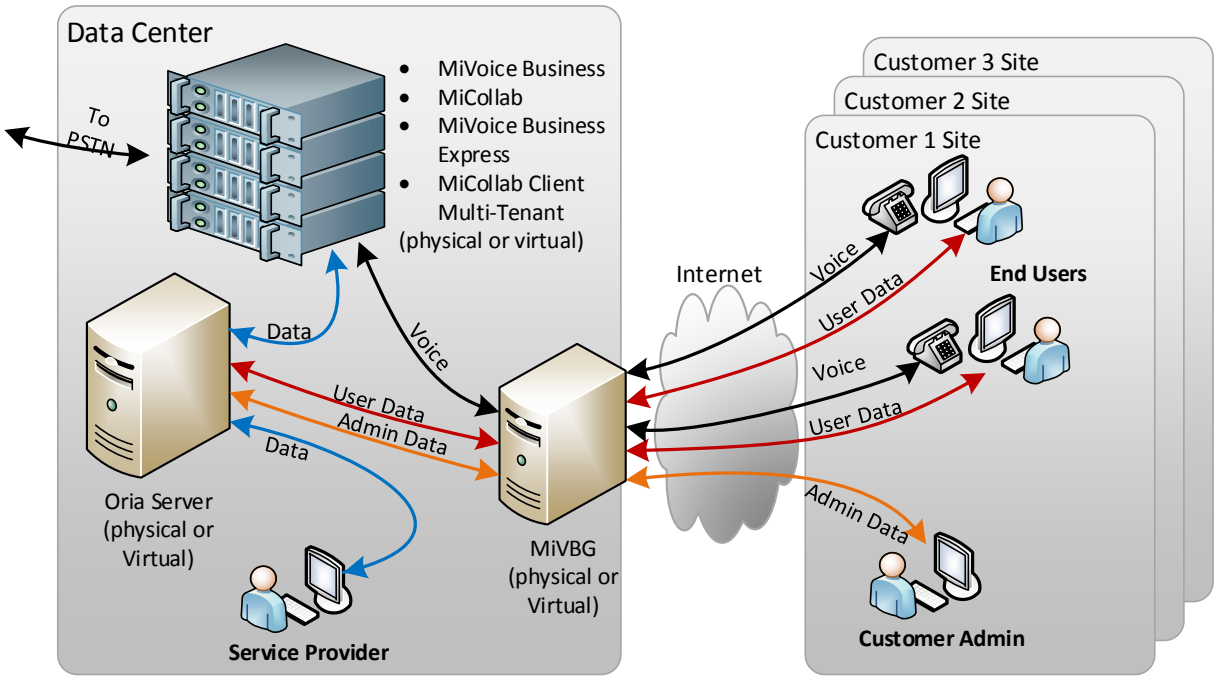


Figure 2 An example of Internet-based deployment topology.

The recommended solution for the gateway component is the MiVoice Border Gateway, which has been specifically designed for Teleworker applications. With the MiCollab and MiVoice Business Express platforms, the provider can choose whether to use the embedded MiVoice Border Gateway or an external MiVoice Border Gateway for their needs. For information on configuring a MiVoice Border Gateway refer to section 5.6 of this document.

Oria makes it a lot easier to employ MiVBGs in solutions, as it has the ability to manage SIP trunk routing rules and client devices as part of the solution.

3.2.2 Virtual Private Network (VPN) Deployment

This alternative employs a VPN to extend the customer site network into the data center (or vice-versa) and providing a customer site with data access to the Oria server and voice access to the assigned MiVoice Business instances.

From the Wikipedia definition for Extranet:

"If all the sites in a VPN are owned by the same enterprise, the VPN is a corporate intranet. If the various sites in a VPN are owned by different enterprises, the VPN is an extranet. A site can be in more than one VPN; e.g. in an intranet and several extranets."

With that definition in mind, this alternative actually describes an "Extranet", however the term "VPN" will be used due to most people's familiarity with it.

A VPN solution provides end users and admins with essentially local access to the Oria server for data, and the MiVoice Business/MiCollab/MiVoice Business Express/MiCollab Client Multi-Tenant instances for voice and data. At the data center, service providers must manage the VPN policies carefully to allow customer access only to those elements assigned to the customer.

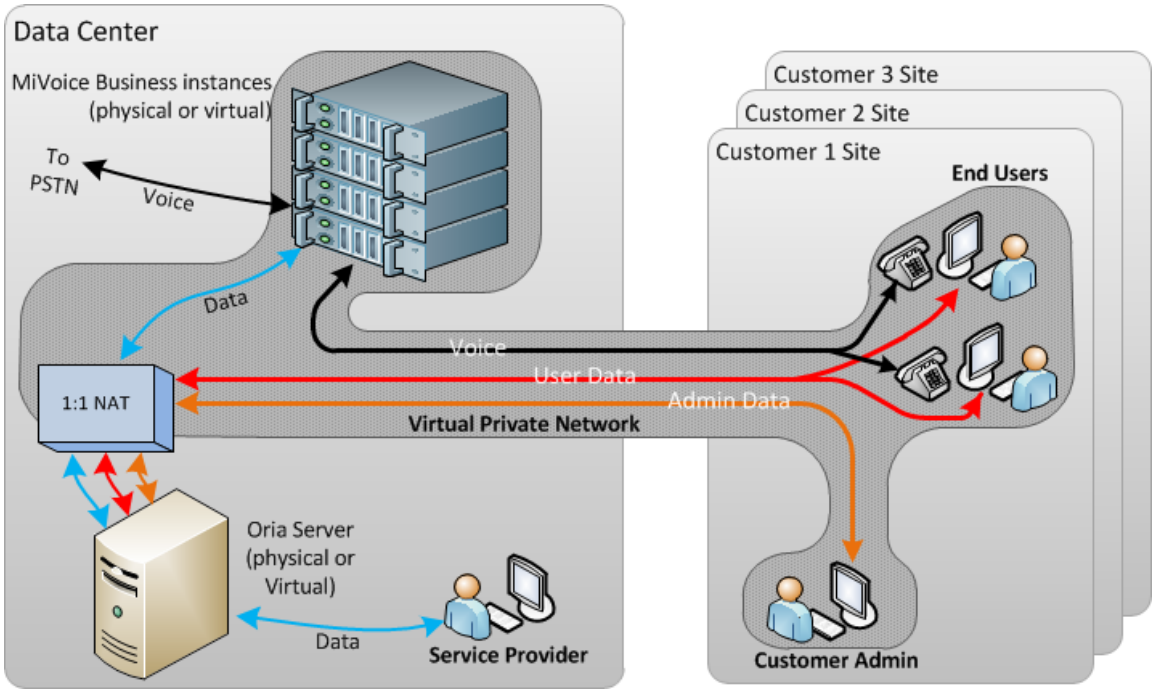


Figure 3 VPN deployment topology.

3.3 Deployment Considerations

Cost

Cost is always an important consideration when planning a deployment. The two alternative deployment topologies presented previously have different costs associated with them as well as common costs (i.e. MiVoice Business licenses, in particular user and voicemail licenses).

- The Internet-based/MiVoice Border Gateway alternative requires a Teleworker license for each end user, as well as user and mailbox licenses. Furthermore, this solution requires the acquisition of the gateway hardware and software, whose costs will be borne by the data center and included in the cost structure of the provided service. However, a MiVoice Border Gateway can support thousands of connections so a single MiVoice Border Gateway can service many customer sites. Refer to the MiVoice Border Gateway documentation for the current connection capacity.
- The VPN alternative incurs the cost of maintaining the VPN between the customer site and the data center. In particular, a high-performance MPLS link can be quite expensive. Normally these costs are recurring. If the VPN is hosted at the data center, then these costs will be borne by the data center and included in the cost structure of the provided service.

Voice Quality

Due to the vagaries of the Internet, the Teleworker solution may experience reduced voice quality during times of high traffic on the Internet. On the other hand, the best voice quality is achieved via an MPLS VPN.

Vendor Count

The Teleworker option is an all-Mitel solution, whereas the VPN option requires the acquisition and maintenance of a 3rd party component, namely the VPN. If problems occur at the data center or at a customer site, with an all-Mitel solution, the service provider has fewer parties to deal with.

4 System Requirements

4.1 Application Requirements

Oria 5.3 is part of the MiCloud 3.3 suite of products. The most up to date list of compatible software versions for MiCloud 3.3 can be found in [5]. It is reproduced here for convenience.

Application	Recommended Software Level Requirement
Oria	5.3.9
MiVB	14.0.0.95
MiVB-Virtual	8.0.0.94
MiVB-MI	2.0.1.8
MiVB-Express	7.3.0.29
MiCollab	7.3.0.30
MiCollab NG Client	7.2.115
MiVBG	9.4.0.29
MMG	5.0.6.0
OIG	4.0.29
MiCC	8.1.1
MiV-CR	9.1
MPA	2.1

To take advantage of the latest features, upgrade the platforms to the recommended versions stated above.

Oria is compatible with older versions of Mitel platforms. For a list of backward compatible versions of Mitel platforms, please refer to reference document [5].

4.2 LAN/WAN Requirements

Oria is deployed in a number of hosted topologies. Figure 2 and Figure 3 show two such topologies while reference document [1] describes more variations. Depending on the topology chosen, different network equipment and services are employed. Network design is a large subject and won't be covered by this Guide. Here, only mention major components specific to the needs of Oria.

4.2.1 Static IP Address

Oria is a server application that runs on MSL. As such, it requires a static IP address. Choose a static IP address that is routable on the network that Oria will be deployed. This IP address will be required during installation or deployment of the Oria server.

4.2.2 DNS Servers

For VPN based deployments (Figure 3), where Oria is in a different network than the customers' platforms, each network needs a separate DNS server to resolve FQDNs to local addresses.

4.2.3 1:1 NAT

For VPN based deployments (Figure 3), a NAT device is required for Oria to communicate with the voice platforms and for customers to reach Oria. NAT devices will be discussed in sections 5.3 and 5.4.

4.3 Hardware and Software Requirements

4.3.1 Support for Virtual Environments

Oria Web Portal is supported in virtualized environments. Product testing has been limited to VMware ESXi Servers. Supported versions of VMware are:

Application	Recommended Software Level Requirement
VMware ESXi	5.5, 6.0
VMware vCenter	5.5, 6.0

To learn more about deploying Oria in a virtual environment (vOria), please refer to reference document [6].

4.3.2 Oria Server Requirements

Software Requirements

Oria is a Linux based server application. It requires the following Linux operating system.

Software	Version
MSL	10.5.17.0 (64-bit)

If Oria is deployed using the Oria OVA, the correct MSL version is built into the OVA.

Hardware Requirements

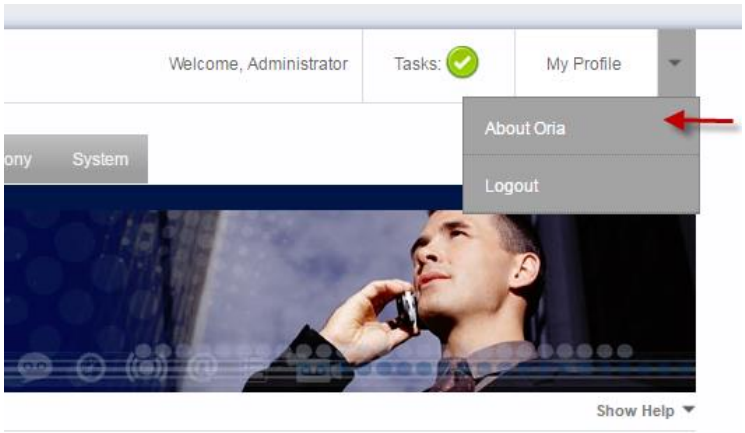
It is highly recommended that a dedicated physical server or dedicated virtual server instance be provided for the Oria server. The *minimum* server requirements for Oria can be found in reference documents [6] and [7]. Search for the key word Oria in those documents.

Virtual Machine Requirements

Normally, installation is done by importing the Oria OVA file into a virtual environment. This is the simplest and quickest method of installing Oria. It also ensures that all virtual machine settings are in accordance with Mitel recommendations. If for some reason Oria has to be installed manually in a virtual environment (i.e. starting with an MSL install and proceeding through a manual Oria installation) then the installer must first configure the virtual machine to meet the requirements in reference document [6].

4.3.3 Browser Requirements

Oria's service provider portal, customer administrator portal and end-user portal work with all three major browsers running on Windows. These are Mozilla Firefox, Microsoft Internet Explorer/Edge and Google Chrome. Mitel recommends to upgrade to the latest versions of browsers to avoid security issues. Minimum browser versions supported can be found in the *About Oria* menu of the portal.



The customer administrator portal also runs on tablets that support Chrome, Firefox or IE.

Smartphones are not yet supported.

5 Configuration

5.1 Port Usage

The following ports should be viewed with a help of a diagram such as Figure 2 and Figure 3.

Port	Function	Platform	Usage
80	http	Oria, MiVB, MiCollab, MiVB-X	Users connect to any of these servers with their browsers.
	Management API	MiVB	Oria uses this port to manage the MiVB
443	https	Oria, MiVB, MiCollab, MiVB-X	Users connect to any of these servers with their browsers.
	Management API	MiVB	Oria uses this port to manage the MiVB
10245-10250	Management API	MiCollab	Oria connects to this MiCollab's API to manage users
10255-10260	Management API	MiCollab	Oria connects to this MiCollab's API to manage users
35600	Management API	Multi-tenant MiCollab Client Service (UCA)	Oria connects to this UCA's API to manage accounts

5.2 VLAN Support using Split DNS

With reference to section 3.2.2, each customer's VPN is a VLAN. The Oria server is in a separate network; the service provider's (SP) network. Communication between the Oria server and the platforms is facilitated by the NAT box in the figure.

Here are some details about this implementation:

- Oria is deployed in the SP's management network.
- The platforms (MiCollab, MiVoice Business, MiVoice Business Express) to be provisioned by Oria are deployed in an isolated VLAN for a given customer.

VLAN support in Oria is accomplished through:

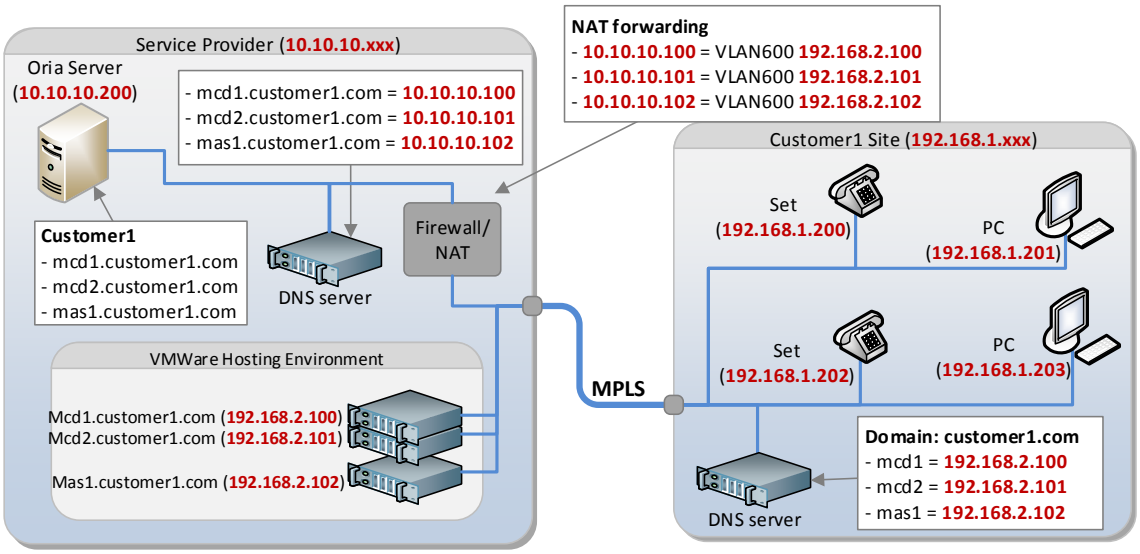
- The use of FQDN. Platform registration in Oria are done using the FQDNs of the respective platforms
- With Flow Through Provisioning, the registration of MiVBs on MiCollab is done using IP addresses. Please refer to section 5.5 for details.
- The use of NAT between the SP's management network and the customer's VLAN.
- The use of a DNS in both the SP's management network and the customer's VLAN.

In the illustration below, all platforms for *custertomer1* are registered in Oria using FQDNs, not IP addresses. In the SP's network, the DNS server translates the FQDNs of these platforms to IP addresses in the service provider address space (10.10.10.xxx).

On the customer site, the DNS server translates FQDNs of the same platforms to IP addresses in the customer's VLAN (192.168.2.xxx).

The use of different DNS servers resolving the same FQDN to different IP addresses, depending on which network the request originates from, is referred to as Split-DNS

In the hosting environment, IP addresses from the customer site are sufficient to reach the respective hosted platforms. However, IP addresses from the service provide need to be NATed from the service provider address space to the hosted VLAN addresses.



5.3 NAT with Mitel Management Gateway (MMG)

Mitel has a NAT product that can perform the necessary 1:1 NAT function represented by the NAT box in the figure above. Details of the MMG and how to configure it can be found in the section on *UCC Platform Deployment* of reference document [2].

5.4 NAT with VMware's vShield Edge

The NAT functionality can also be implemented using VMware's vShield Edge product. For more information on vShield Edge, please refer to VMware's on-line materials on this product.

The following summarizes some considerations when installing and configuring vEdge:

- A provider needs to first created a IP reuse plan for the tenant spaces
- There are several options for edge deployment to support the 1:1 NAT function. For example:
    - vCloud deployment NAT from an Application network
    - vCloud deployment NAT from an Organization network
    - Direct vCenter deployment with port group backed networks

  Providers need to evaluate the options for the best suitability.
- vEdge will deploy with a conflicting IP address on an interface. Make absolutely sure that no IP conflicts exist during vEdge deployment
- DNAT rules must be individual entries; range programming does not support true 1:1 NAT on the vEdge
- SNAT rules on the vEdge require a full vEdge reset after programming to take effect
- Split DNS must be used to support IP reuse between tenants

All Mitel vApps registered with Oria must do so using a FQDN and not a straight IP to support the split DNS and NAT functionality.

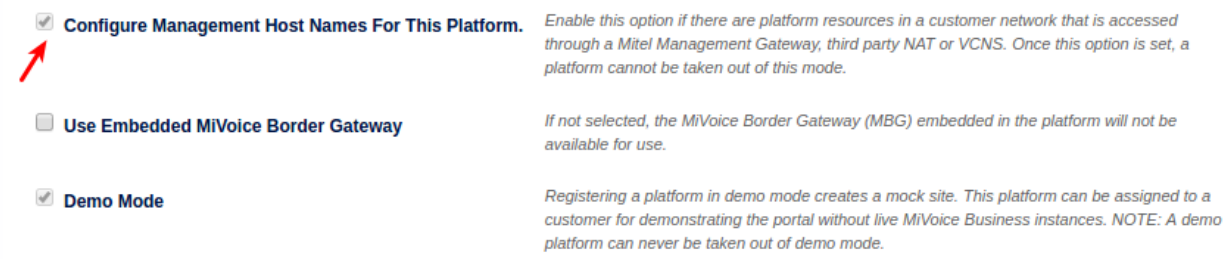
5.5 Working with MiCollab Flow Through Provisioning

If a MiCollab platform has Flow Through Provisioning enabled, Management Host Names must be configured. More details on this can be found in reference document [2], section *Upgrading MiCloud*.

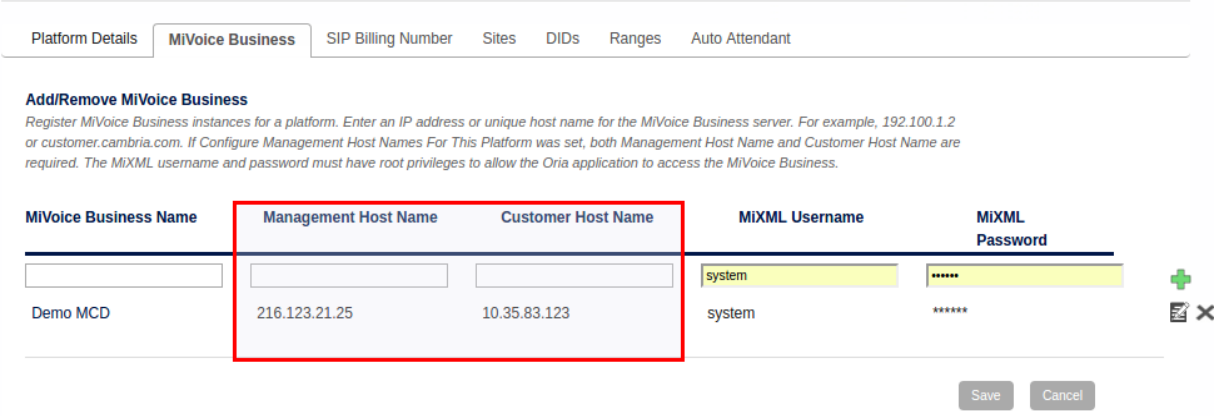
Basically, each platform IP address in the customer's VLAN must be paired with an IP address in the management network. In the example below, a MiVB platform whose address in the customer VLAN is 10.35.83.123 is paired with the address 216.123.21.25 in the SP's network. Oria uses the address in the SP's network to talk to the MiVB.

The following shows how to assign a management plane's IP address to a platform.

First, edit the platform and check the checkbox *Configure Management Host Names For This Platform*:



Then for each MiVB that is connected to this platform, a Management Host Name has to be provided. Oria uses the Management Host Name address to communicate directly with the MiVB.



5.6 MiVoice Border Gateway Configuration

Oria includes support for managing DID rules and devices (Mitel phones, SIP, and UC clients) on a set of MiVBGs assigned to a customer's MiVoice Business/MiCollab/MiVoice Business Express platform.

5.6.1 Network Topology

Oria is compatible with networks where the platforms (MiVoice Business, MiCollab, MiVoice Business Express) are contained within a hosted virtual local area network (VLAN). However, there are specific considerations that must be addressed when this is done. In particular, you will have to use FQDNs to identify platforms, instead of specifying IP addresses, and there are DNS and NAT requirements that must be met.

MiCollab Multi-Tenant may use VLANs, but not for customer isolation. It will be deployed in a LAN rather than a VLAN, and the requirements for 1:1 NAT don't exist.

5.6.2 MiVoice Border Gateway Web Services

Oria communicates with MiVoice Border Gateway servers via a web service interface that was introduced in MiVoice Border Gateway release 8.1. By default, the web services on the MiVoice Border Gateway are turned off. They must be explicitly turned on before the MiVoice Border Gateway is registered with Oria. MiVoice Border Gateway releases prior to release 8.1 are not compatible with Oria.

The web services are turned on by logging into the web admin console of the MiVoice Border Gateway server, locating and clicking on the *Web Services* category on the left, and clicking the *Start* button.

5.6.3 Registering MiVoice Border Gateway platforms

MiVBGs must be registered with Oria in order to be used for managing DID rules or for SIP and Mitel phones management. In cases where a cluster of MiVBGs are used, only register the master[2] MiVBG. Do not register two MiVBGs from the same cluster.

Who can register MiVBGs?

- SPs can register MiVBGs on behalf of VARs and Virtual Service Providers (VSP) through the *Login As* feature.
- VSPs can register MiVBGs on their own by logging to their own portal.
- VARs cannot register MiVBGs by logging in the portal.

Once a set of MiVBGs have been registered, they can be assigned to platforms for DID routing or device management functions. If the MiVoice Border Gateway is stand-alone (i.e. not embedded in a MiCollab or MiVoice Business Express server) then the same MiVoice Border Gateway can be assigned to multiple platforms for both DID routing or device management.

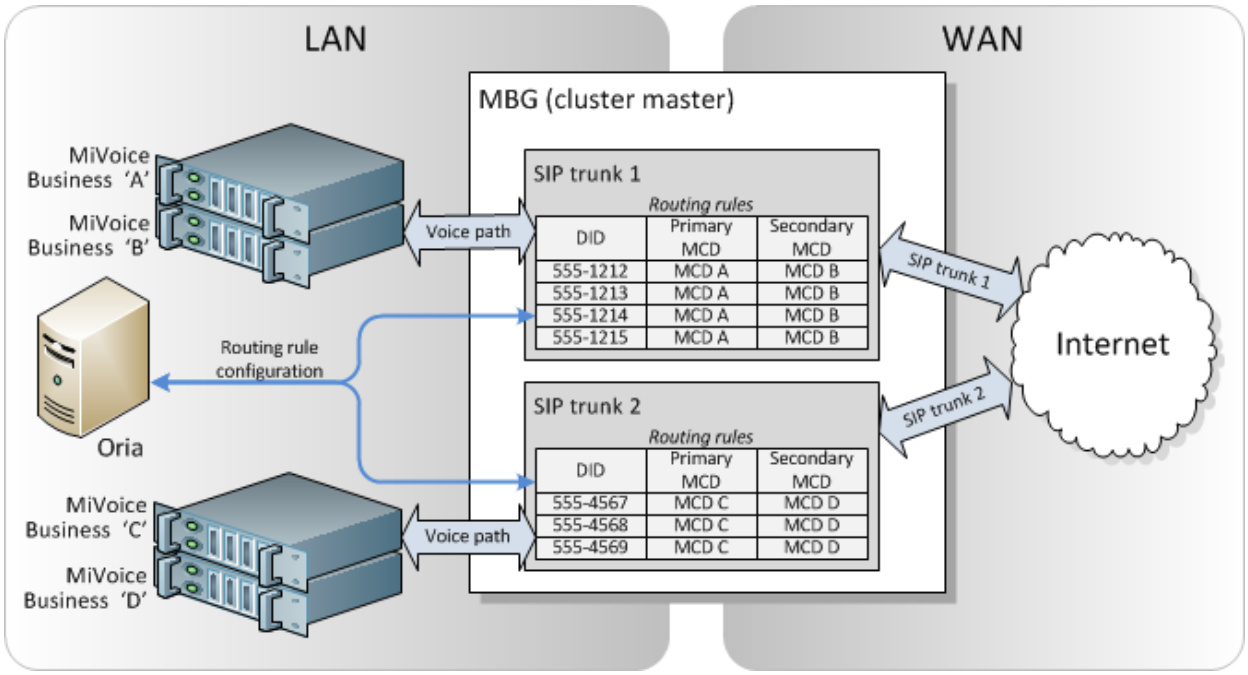
Embedded MiVBGs can be optionally automatically registered when the hosting MiCollab or MiVoice Business Express platform is registered. Those MiVBGs are only available to the hosted platforms.

When MiCollab Client for Mobile for softphones are deployed and they are to be resilient the FQDN of the MiVBG cluster is used in place of the master MiVBG when an MiVBG cluster is registered. A thorough treatment of this subject is given in reference document [8], section *Configure Oria with FQDN/IP address of MiVBG*.

[2] The exception is in the case of MiCollab Client resiliency. See in the last paragraph.

5.6.4 DID Routing

Oria can maintain the DID routing rules for each SIP trunk on MiVBGs. The following illustration shows a simplified configuration for discussion purposes:



The following are considerations when deploying MiVBGs for DID routing under Oria control.

- Oria is responsible for managing routing rules for all SIP trunks on the MiVoice Border Gateway. The DIDs in the routing rule tables on the MiVoice Border Gateway correspond to DIDS set up in Oria. For DIDs that are routed by the MiVoice Border Gateway, it is important that the correct SIP trunk be selected in Oria when specifying DIDs for a platform. In the illustration above, DIDs 555-1212 to 555-1214 are associated with SIP trunk 1, and of course will not work at all if written to the routing rule table of SIP trunk 2.
- Oria does not use DID rule wildcards (N, X, and *). All DID rules are written as explicit phone numbers.
- Each platform group can have multiple MiVBGs assigned for routing DIDs. Also, the same MiVoice Border Gateway can be assigned to several platform groups. In the illustration above, the pair **MiVoice Business A&B** can be in a different platform group than the pair **MiVoice Business C&D**, and thus the same MiVoice Border Gateway will be used by two customers for SIP DID routing.

  The same MiVoice Border Gateway can be shared between SP, VSP and VAR however it should be registered separately for SP, VSP and VAR
- Oria maintains some MiVoice Border Gateway state information required for the management of DID rules. In particular, if DID rules with wildcards are put in by another entity other than Oria, Oria keeps track of where wildcards are being used in the DID rules, in order that new rules are written above the wildcards. This prevents the wildcards from overriding explicit DIDs that contain no wildcards.

It is important that a MiVoice Border Gateway is not assigned to more than one Oria system. Otherwise the DID ordering may be adversely affected when two MiVBGs do near-simultaneous MiVoice Border Gateway DID rule assignments.
For the same reason, once Oria is managing the DID rules on the set of MiVBGs, it is highly recommended that DID rules are not edited via the MiVoice Border Gateway admin interface.

- Oria does not support SIP trunk configuration on the MiVoice Border Gateway. All SIP trunks must be pre-provisioned on MiVBGs before registering the MiVBGs with Oria. In the illustration above, SIP trunk 1 and SIP trunk 2 are configured via the MiVoice Border Gateway administration web interface, except for the actual DID routing rules.

There are 2 parameters in Oria that affect how the DID rule creation functions on the MiVBG:

- **ORIA_MAX_MiVBG_DID_COUNT**

  The MiVBG does not enforce any limits on the number of DID rules that can be assigned to a SIP trunk. This has caused problems in the past, when the number of DID rules approached about 20,000. The property ORIA_MAX_MiVBG_DID_COUNT limits the number of DID rules per SIP trunk on all MiVBGs managed by the Oria server.

  It is recommended to not let the number of DID rules per MiVBG SIP trunk exceed about 24000.

- **ORIA_MiVBG_REST_TIMEOUT_SECONDS**

  On heavily loaded systems, adding DID rules to MiVBG SIP trunks can take longer than the MiVBG interface allows. This causes client timeouts in Oria, which appear as failures when in fact the DID rule is eventually successfully written to the database.

  The default value for the timeout is 60 seconds. If DID rule creation results in timeouts, then the value can be increased. This number can be arbitrarily large, however it will also affect the length of time before a disconnected server is detected.

  It is recommended that the timeout should not exceed about 400 seconds.

These parameters are set as properties in the file *standalone.xml* on the Oria server, in the following directory:

```
/opt/dist_jboss/wildfly-8.2.0.Final/standalone/configuration/standalone.xml
```

Setting these parameters involves adding some XML to the above document, in the exact format as shown below, except that the values can be changed as appropriate. Add this XML fragment near another <system-properties> section in the file.

```
<system-properties>
    <property name="ORIA_MAX_MiVBG_DID_COUNT" value="24000"/>
    <property name="ORIA_MiVBG_REST_TIMEOUT_SECONDS" value="300"/>
</system-properties>
```

5.6.5 Mitel phone, SIP, and UC Device Management

Oria release 3.3 introduced the concept of *sites*, which replaces the *phone systems* of previous releases. Whereas a phone system simply identified a primary and secondary MiVoice Business, a site adds to this the following:

- Whether or not to associate the platform device MiVoice Border Gateway to this site, and if so specify the following:
  - The MiVoice Border Gateway cluster zone
  - The MiVoice Border Gateway installer password.
- An optional default CESID, MiVoice Business zone and CPN

So essentially a site dictates whether or not a Mitel phone, SIP, or UC set is registered on a MiVoice Border Gateway and which cluster zone it is assigned to. When properly set up, this insulates the customer administrator from having to know about or deal with MiVBGs. Furthermore, it provides a way to automatically assign a default CESID and CPN simply by selecting a site for a user.

The following are considerations when deploying MiVBGs for device management under Oria control.

- MiVBGs must be registered with Oria in order to be used for device management.
- Each platform group can have a separate MiVoice Border Gateway assigned for each type of device (Mitel phones, SIP, and UC clients) or the devices can all be assigned to the same MiVoice Border Gateway. However, the same MiVoice Border Gateway can be assigned to several platform groups and thus is used by several customers.
- It is recommended that one or more MiVBGs are used exclusively for the routing of SIP devices.

5.6.6 Managing MiVoice Border Gateway Cluster Zones

Oria requires a cluster zone specification when adding a Mitel phone to the MiVoice Border Gateway. However, at this time Oria is not able to extract the cluster zone names from the MiVoice Border Gateway via the web services interface. Therefore, whenever a cluster zone is created on a managed MiVoice Border Gateway, the zone name must also be manually added to a local XML file. As long as the cluster zones on the MiVoice Border Gateway and in the XML file are manually synchronized, administrators will be able to correctly assign a MiVoice Border Gateway cluster zone when creating sites.

The file that contains MiVBG clusters zones can be found at the following location on the Oria server:

```
/opt/dist_jboss/wildfly-
8.2.0.Final/standalone/deployments/OriaEar.ear/KonosPortal.war/mbgZones.xml
```

It is helpful, but not essential, to have a bit of an understanding of XML when editing this file. Existing entries can be used as models when making manual updates. The general format to specify a set of zones for a MiVoice Border Gateway in this file is as follows:

```
<mbgCluster host="mymbg.mydomain.com">
        <zone>Downtown</zone>
        <zone>Uptown</zone>
        <zone>Midtown</zone>
</mbgCluster>
```

- The MiVoice Border Gateway is identified by its IP address or hostname, always in quotes, after the text **host=**
- Each zone is specified on its own line, between the text **<zone>** and **</zone>**
- The line containing **</mbgCluster>** is essential and must be included.

- Each MiVoice Border Gateway requires its own section, modeled on the above fragment.

Future releases of the MiVoice Border Gateway will provide a mechanism to extract the set of cluster zones from the server itself, making the XML file unnecessary.

NOTE: When MiVoice Border Gateway DID rule and device settings are migrated from earlier releases of Oria to release 3.3, this file is automatically updated with all the zones discovered during the importing of the Mitel phones from the MiVBGs. For information about settings migration refer to section 5.6.7.

5.6.7 Initial Oria/MiVoice Border Gateway Synchronization

Oria 3.3 provides support for synchronizing Oria with devices and DIDs previously provisioned on MiVoice Border Gateway outside of Oria. This feature is only supported for existing Oria deployments being upgraded from earlier releases to Oria release 3.3.

Oria does not support the migration of DID's from a 3.2 release to 4.0 or later. If this is required, then the 3.2 Oria system must be upgraded to 3.3, the DID migration commands are then run, and then Oria can be upgraded to 4.0 or later.

Synchronization, also known as migration, must be performed immediately after the upgrade to Oria 3.3. See the "Oria-MiVoice Border Gateway synchronization" section of reference document [4] for instructions on how to perform the synchronization.

Briefly, synchronization involves the following activities:

- Verify that all DID rules on the managed MiVBGs correspond to DIDs in Oria. Any discrepancies are presented in a report. For example, Oria does not use wild cards (X, N, and *) in its DID rules, so existing DID rules on the MiVoice Border Gateway that use wildcards are not migratable.
- Perform the actual migration of DID rules, and present the results in a report. At the end of this procedure, the DIDs in Oria that match the DID rules listed in the various SIP trunks in the MiVBGs will be updated in the Oria database to reflect this relationship.
- Verify that all phone sets on the managed MiVBGs correspond to sets in Oria. Any discrepancies are presented in a report.
- Perform the actual migration of phone sets, and present the results in a report. At the end of this procedure, phone sets in Oria that match with corresponding phone sets in the MiVBGs will be updated in the Oria database to reflect that relationship.
- Create additional sites as required. The migration of Mitel phones in the previous step will have identified all the relevant MiVoice Border Gateway cluster zones used by those phone sets. This allows Oria to set up customer sites for the MiVoice Border Gateway cluster zones. As a side-effect of this, the MiVoice Border Gateway cluster zones are automatically added to the **mbgZones.xml** file, as described in section 5.6.6.

5.7 MiCollab Client Multi-Tenant

Oria includes support for managing MiCollab Client Multi-Tenant to a service provider's MiVoice Business platform.

5.7.1 MiCollab Client Multi-Tenant Web Services

Oria communicates with MiCollab Client Multi-Tenant via a web service. By default, the web services on the MiCollab Client Multi-Tenant is turned on port 35600 and it is ready for Oria to create tenants on MiCollab Client Multi-Tenant.

5.7.2 Registering MiCollab Client Multi-Tenant platforms

MiCollab Client Multi-Tenant must be registered with Oria in order to be used for managing Device and Feature management.

MiCollab Client Multi-Tenant is not clustered. Multiple tenants are managed within the same server.

Who can register MiCollab Client Multi-Tenant servers?

- SPs can register MiCollab Client Multi-Tenant on behalf of VARs and VSPs through the *Login As* feature.
- VSPs can register MiCollab Client Multi-Tenant on their own by logging to their own portal.
- VARs cannot register MiCollab Client Multi-Tenant by logging in the portal.

Oria allows a single MiCollab Client Multi-Tenant to be shared between several platforms (i.e. customers). The Tenant Id of the MiCollab Client Multi-Tenant however needs to be unique for each platform.

Once Oria is configured to manage MiCollab Client Multi-Tenant, it is highly recommended that MiCollab Client Multi-Tenant is not managed directly via the MiCollab Client Multi-Tenant admin interface. Further, any default applications that may or may not be part MiCollab Client Multi-Tenant should not be directly used as well.

6 Performance Specifications

Here are some performance limits of Oria:

Limit	Value
Number of customers	1000
Number of end users	100,000
Number of end users per customer	5000

Table 1 - User limits.

Oria call flows use MiVB's call rerouting resources to create branches, as such call flow limits depend on the number of call rerouting resources available:

Limit	Value
Total number of branches (call rerouting resources available for call flows)	156
Number of branches per call flow	3
Number of call flows with 3 branches	52

Table 2 – Call flow limits.

6.1 MiVoice Border Gateway performance

A MiVBG can be shared amongst many Oria customers so the number of DID rules and phones can be quite large. The higher the number of DID rules, the slower the MiVBG responds to Oria. To keep response time reasonable, apply the operational limits detailed in section 5.6.4.

6.2 MiCollab Client Multi-Tenant Performance

Here are some performance limits of a MiCollab Client Multi-Tenant server.

- Up to a maximum of 250 tenants.
- Up to a maximum of 25,000 devices in total.
- Up to a maximum of 12,500 users in total, with a single tenant not exceeding 5000 users at max 2 devices per user. The more users per tenant, the fewer tenants in total.

Refer to reference document [9] for engineering guidelines for this product.

7 Best Practices

Mitel recommends the following best practices.

7.1 Reassigning platforms

When platforms such as MiVBs are reassigned to new customers, some programming artifacts from previous customers may remain. This may cause unwanted behaviours for new customers. The best practice is to create new MiVB instances for new customers.

7.2 Importing large number of users

Importing users into the system is done through the Oria Bulk Import Spreadsheet, which provides a blank template. The generated template has tabs for the different service bundles supported. The administrator then manually populates the spreadsheet, one bundle at a time. Currently, due to performance limitations, there is a limit of 500 users per import. If more than 500 users are to be imported, the best practice is to import them in batches of 500.

8 Glossary

ACD **Automatic Call Distribution.** A package of advanced call processing features, relating to groups of agents who handle calls and agent supervisors.

CESID **Customer Emergency Services Identifier.** A means of correlating a user and a directory number to information stored in a physical location data base.

COS **Class of Service.** Defines the permissions an extension will have on a PBX or Centrex.

CPN **Calling Party Number.** What is used as the calling party number when making outgoing calls.

CPU **Central Processing Unit. T**he hardware within a computer that carries out the instructions of a computer program by performing the basic arithmetical, logical, and input/output operations of the system.

DID **Direct Inward Dialing.** IAlso known as direct-dial-in or DDI. In DID service the telephone company provides one or more trunk lines to the customer for connection to the customer's PBX and allocates a range of telephone numbers to this line (or group of lines) and forwards all calls to such numbers via the trunk.

EMEM **Embedded Mitel Express Messenger.** The built-in voice messaging system in an MiVoice Business software load.

ESM **Embedded System Manager.** The web-based management interface for the 3300 and MiVoice Business class of PBX.

EHDU **External Hot Desk User.** An off-premises hot-desk user.

HDD **hard Disk Drive.** A data storage device used for storing and retrieving digital information using rapidly rotating disks (platters) coated with magnetic material.

IEEE **Institute of Electrical and Electronics Engineers.** A technical professional society promoting the development and application of electrotechnology and allied sciences.

IP **Internet Protocol.** A protocol that specifies the format of data packets (also called datagrams) on a network, and the addressing scheme

MiCollab A Mitel product that provides unified communication features such as messaging, collaboration, softphone clients, mobile clients as well as border gateway. Previously known as MAS.

MiCollab Client This is one the the applications of the MiCollab product. It provides softphone clients, mobile clients functionality. Previously known as UCA.

MiNET A proprietary stimulus protocol that carries keystroke information from a telephone set to a call control server. It can also be used to carry information to the set for the control of simple text displays.

MiVB MiVoice Business. Previously known as the 3300 or the MCD.

MiVBG **MiVoice Border Gateway.** Previously known as the MBG. Mitel's platform for secure deployment of multiple services, including Teleworker, Sip trunking, secure call recording, web proxy, and remote management.

MiVB-X MiVoice Business Express. Previously known as the vUCC.

OVA **Open Virtualization Archive.** An open standard for packaging and distributing virtual appliances or more generally software to be run in virtual machines.

PBX **Private Branch Exchange**. A telephone system within an enterprise that switches calls between enterprise users on local lines while allowing all users to share a certain number of external phone lines

RAM	**Random Access Memory**. Volatile computer memory that holds instructions and data.
SIP	**Session Initiation Protocol**. A signaling communications protocol, widely used for controlling multimedia communication sessions such as voice and video calls over IP networks.
UC	**Unified Communications**. The integration of real-time communication services such as instant messaging , presence information, telephony (including IP telephony), video conferencing, data sharing, call control and speech recognition with non-real-time communication services such as voicemail, e-mail, SMS and fax.
UCA	**Unified Communications Advanced**. This is an obsolete acronym representing the MiCollab Client Service.
VAR	**Value Added Reseller**. A company that adds extra features to products it has bought before selling them on.
VLAN	**Virtual Local Area Network**. A single layer-2 network partitioned to create multiple distinct broadcast domains, which are mutually isolated so that packets can only pass between them via one or more routers; such a domain.
VM	**Voicemail**. A computerized system for answering and routing telephone calls.
VPN	**Virtual Private Network**. An extension of a private network across a public network, such as the Internet.
VSP	**Virtual Service Provider**. A company that offers services under its own company or brand name, while actually using the equipment and facilities of another service provider to provide those services.
VoIP	**Voice Over IP**. A technology that allows telephone calls to be made over data networks using IP technology.
XML	**Extensible Markup Language.** A set of rules for encoding documents in a format that is both human-readable and machine-readable.

GLOBAL HEADQUARTERS	U.S.	EMEA	CALA	ASIA PACIFIC
Tel: +1(613) 592-2122 Fax: +1(613) 592-4784	Tel: +1(480) 961-9000 Fax: +1(480) 961-1370	Tel: +44(0)1291-430000 Fax: +44(0)1291-430400	Tel: +1(613) 592-2122 Fax: +1(613) 592-7825	Tel: +61(0) 2 9023 9500 Fax: +61(0) 2 9023 9501

FOR MORE INFORMATION ON OUR WORLDWIDE OFFICE LOCATIONS, VISIT OUR WEBSITE AT **MITEL.COM/OFFICES**