



IP Office Server Edition Solution Overview Guide IP Office 9.0

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Chapter 1: Introduction

Purpose

This document describes a unique Avaya solution from a holistic perspective focusing on the strategic, enterprise, and functional views of the architecture. It includes a high-level description of each verified reference configuration for the solution.

Intended audience

The primary audience for this document consists of sales engineers. It describes how the solution and its verified configurations meet customer needs at a high level. Sales engineers can use this document, in conjunction with the *Reference Configuration* and the *Product Overview and Specification* documents, when responding to customers' requirements. It can also be used by solution architects, implementation engineers, and support personnel.

Related documents

This section lists the related documents for the products and the solution components referenced in this document.

	Document	Document ID
1	IP Office Server Edition Reference Configuration	15-604135
2	IP Office Manager	15-601011
3	Deploying IP Office Server Edition Solution	15-604134
4	IP Office Web Manger for Server Edition and Standard Mode	—

Chapter 2: IP Office Server Edition Solution

Overview

IP Office Server Edition provides IP Office telephony capabilities, unified communications, mobility and collaboration, provides high availability, ease of use, and low total cost of ownership (TCO). Targeted at the Midsize Enterprise, IP Office Server Edition supports up to 32 sites, 2000 users and comprehensive resilience.

Highlights of IP Office Server Edition Solution	
<ul style="list-style-type: none">• Supports 100 to 2000 users as a fully integrated solution.• You can add Server Edition Expansion System to increase the capacity and capabilities• You can deploy IP Office Server Edition Solution as a centralized or distributed set up• Offers low Total Cost of Ownership:<ul style="list-style-type: none">- Highly cost effective for an IP only or an hybrid of IP and analog set up- Easy to install and manage- Centralized administration- Centralized licensing	<ul style="list-style-type: none">• IP Office Server Edition supports extensive unified communications features optimized for IP Telephony• Supports native IP, digital, and analog trunks and extensions• Integrates messaging, collaboration, mobility, and presence features• Offers out of the box resilience• Supports all IP Office endpoints and trunks including Avaya Flare® Experience, video conferencing, DECT, and Wi-Fi

IP Office Editions

IP Office Server Edition is designed to complement the existing range of IP Office editions to enable Midsize Enterprise customers to benefit from the extensive IP Office features whilst adding integrity and capacity:

IP Office Edition	Platform	Business size (Users)	Market need
Basic Edition	IP 500 V2	<25	Telephony
Essential Edition	IP 500 V2	20–99	IP Telephony with Essential Mobility
Preferred Edition	IP 500 V2	21–250	Unified Communications with Preferred Mobility
Advanced Edition	IP 500 V2	21–250	Unified Communications with Contact Center
Server Edition	Linux Server, IP 500 V2 and Linux Expansion	100 — 2000	Unified Communications with Preferred Mobility

Solution architecture

This section describes the architecture of IP Office Server Edition Solution.

IP Office Server Edition Solution is based on a fixed star network topology that provides comprehensive features and their management. The solution provides a flexible and modular architecture which can scale up the number of users and sites by networking multiple servers. The components function as a single logical unit through an integrated management system.

IP Office Server Edition Solution provides the following features:

- A single Server Edition Primary server provides IP Office Server Edition, Voicemail Pro, and Avaya one-X[®] Portal.
- You can optionally add a Server Edition Secondary server to increase the capacity and ensure resilience.
- IP Office Server Edition Solution supports up to 30 expansion systems which provide additional capacity, support analog or digital interfaces, and remote sites.
- Server Edition Expansion System can be an existing IP500 V2 or IP Office Server Edition server.
- The IP Office Server Edition Solution users can be configured on IP Office Server Edition server or Server Edition Expansion System.
- IP Office Server Edition software distribution includes the components such as IP Office Server Edition Manager, System Status Application (SSA), Voicemail Pro client, and SoftConsole.

- You can set up Server Edition Secondary or Server Edition Expansion System either centrally or at a remote site.
- You can optionally configure a separate application server dedicated to Avaya one-X® Portal to provide more Power User capacity above the maximum that Server Edition Primary supports.
- You can add new servers and expansion systems any time.

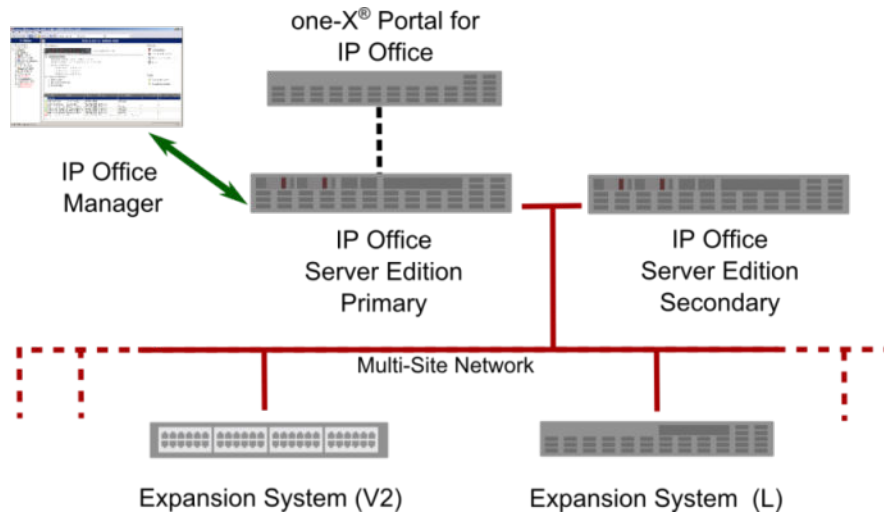


Figure 1: Solution Architecture

Solution components

IP Office Server Edition Solution includes Server Edition Primary, Server Edition Secondary, Server Edition Expansion System, and Avaya one-X® Portal for IP Office. The following section provides an overview of the individual components.

Related topics:

[Server Edition Primary server](#) on page 12

[Server Edition Secondary Server](#) on page 14

[Server Edition Expansion System](#) on page 15

[Server Edition Manager](#) on page 17

[Web Manager](#) on page 19

[one-X Portal for IP Office Server Edition](#) on page 20

Server Edition Primary server

Server Edition Primary is the only hardware component required for IP Office Server Edition Solution. All other components are optional. Avaya can also supply a software-only solution to Avaya customers and Business Partners.

Server Edition Primary server is available in two capacities and depends on the platform that you select.

Material Code	Description
270393	HP DL360G7 IPO SERVER EDITION
302788	R210 II XL SRVR IPO SE EXP

*** Note:**

The Dell R210 is a replacement for the HP DL120 and provides the same performance and capacity. The HP DL120 server will continue to be available until 2014. For more information about discontinuance of HP DL120, see end of sale notice.

Server Edition Primary contains an integrated set of the following components and features:

- IP Office feature server
- Voicemail Pro server
- Avaya one-X[®] Portal and Mobility server
- Solution Administration web portal
- IP Office Server Edition Manager, including System Status Application
- Voicemail Pro client
- Client and DevConnect applications such as IP Office Softphone and DevLink
- Acts as a central host for licensing, Solution directory and time server
- IP focused telephony capabilities to support 1500 users and extensions such as H.323, SIP, IP DECT, and Wi-Fi
- Backup server for up to 1500 IP extensions
- Supports voicemail recording and Text to speech (TTS) channels
- Supports remote worker including Avaya one-X[®] Portal, Avaya one-X[®] Mobile, and Flare Experience clients
- Conference resources for ad-hoc and meet-me conferences
- Upgrade packages for all the components of the IP Office Server Edition Solution including phones.

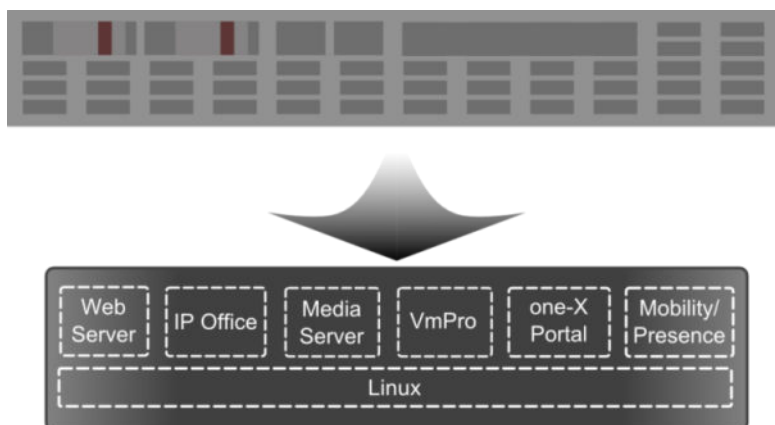


Figure 2: IP Office Server Edition

Highlights of Server Edition Primary server	
<p>Scaling (HP DL360)</p> <ul style="list-style-type: none"> • Up to 1500 users/extensions (H.323, SIP, IP DECT, Wi-Fi, SIP ATA) • Up to 250 IP trunks (H.323, SIP) • Supports failover for up to 1500 users/extensions • 150 Voicemail recording channels • 300 active one-X Portal for IP Office users • 256 conference channels <p>Scaling (HP DL120 / Dell R210)</p> <ul style="list-style-type: none"> • Up to 750 IP users/extensions (H.323, SIP, IP DECT, Wi-Fi, SIP ATA) • Up to 125 IP trunks (H.323, SIP) • Supports failover for up to 750 users/extensions • 75 Voicemail recording channels • 200 active one-X Portal for IP Office users • 128 Conference channels 	<ul style="list-style-type: none"> • Integrated appliance • Hardware resilience: Hot plug Hard drives and Power supplies (HP DL360 only) • Web based wizard for initial provisioning • Web Solution Administration Portal • Directory and Time server • Efficient Media server • Dual LAN support • VLAN support • Comprehensive Avaya IP Phone support including DHCP and upgrades • All native Linux applications • High integrity Linux OS (CentOS 6.x) • Full software distribution and solution upgrade • Backup and restore
<p>Application support</p> <ul style="list-style-type: none"> • Telephony • Conferencing • Unified Messaging 	

Highlights of Server Edition Primary server	
<ul style="list-style-type: none"> • Mobility • Presence • Receptionist 	

Server Edition Secondary Server

The Server Edition Secondary provides both capacity and resilience for the solution, and can be added to the Server Edition Primary at any time. The Server Edition Secondary need not be located in the same place as the Server Edition Primary. The Server Edition Secondary server is available in two capacities and depends on the platform that you select:

Material Code	Description
270393	HP DL360G7 IPO SERVER EDITION
302788	R210 II XL SRVR IPO SE EXP

Server Edition Secondary contains the following IP Office components:

- IP Office feature server, including backup hunt group processing
- Media server – no hardware VCMs required
- Backup Voicemail Pro server for resilience
- Backup solution administration web portal
- IP focused telephony capabilities to support 1500 users or phones such as H.323, SIP, IP DECT and Wi-Fi
- Backup server for up to 1500 IP extensions
- Supports 150 backup voicemail or recording channels
- 256 conference channels for ad-hoc and meet-me conferences

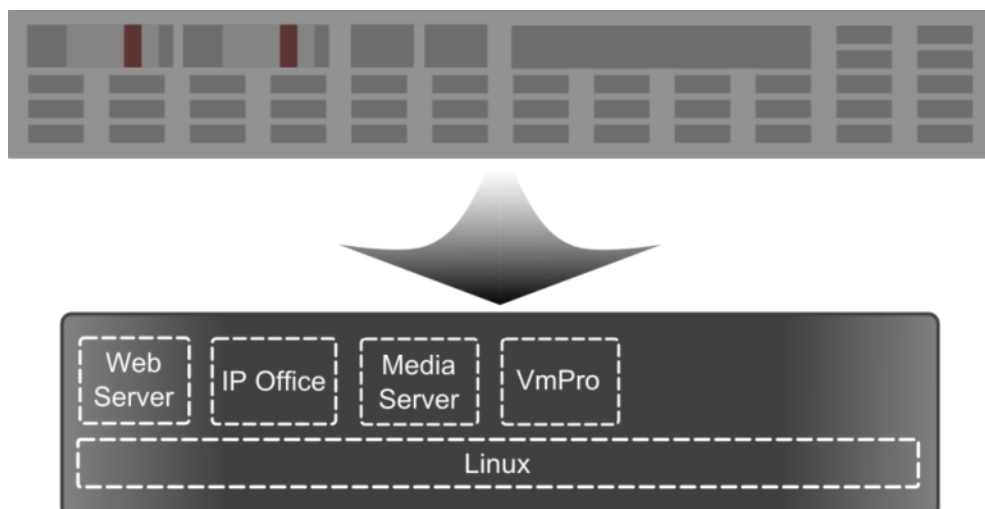


Figure 3: : Server Edition Secondary

Highlights of Server Edition Secondary server	
<p>Scaling (HP DL360)</p> <ul style="list-style-type: none"> • Up to 1500 users/extensions (H.323, SIP, IP DECT, Wi-Fi, SIP ATA) • Up to 250 IP trunks (H.323, SIP) • Supports failover for up to 1500 failover users/extensions • 150 backup Voicemail recording channels • 256 Conference channels <p>Scaling (HP DL120/ Dell R210)</p> <ul style="list-style-type: none"> • Up to 750 IP users/extensions (H.323, SIP, IP DECT, Wi-Fi, SIP ATA) • Up to 125 IP trunks (H.323, SIP) • Supports failover for up to 750 users/ extensions • 75 backup voicemail recording channels • 128 Conference channels 	<ul style="list-style-type: none"> • Centrally Managed • Integrated appliance • Hardware resilience: Hot plug Hard drives and Power supplies (HP DL360 only) • Web based wizard for initial provisioning • Backup Web Administration Portal • Directory and Time server • Efficient Media server • Dual LAN support • VLAN support • Comprehensive Avaya IP Phone support including DHCP and upgrades • All native Linux applications • High integrity Linux OS (CentOS)

Server Edition Expansion System

Server Edition Expansion System provide additional capacity, locations or analog or digital capabilities. Server Edition Expansion System can be added to the Server Edition Primary

server at any time. You can add a maximum of 30 Server Edition Expansion Systems and the Server Edition Expansion Systems need not be in the same location. There are two types of Server Edition Expansion Systems, and you can use these systems in any combination:

Server Edition Expansion System (V2) to support IP, digital, and analog telephony

Material Code	Description
700476005	IPO IP500 V2 CNTRL UNIT

Server Edition Expansion System (L) to support IP telephony

Material Code	Description
302788	R210 II XL SRVR IPO SE EXP

Highlights of Server Edition Expansion System	
<p>Server Edition Expansion System (L) Scaling</p> <ul style="list-style-type: none"> • Up to 750 IP users/extensions (H.323, SIP, IP DECT, Wi-Fi, SIP ATA) • Up to 125 IP trunks (H.323, SIP) • 128 Conference channels <p>Application support</p> <ul style="list-style-type: none"> • Telephony • Conferencing 	<ul style="list-style-type: none"> • Centrally managed • Centrally licensed • Users or extensions on H.323 only, you can backup the users or extensions on a primary or secondary server • Web based wizard for initial provisioning • Efficient Media server • Dual LAN support • VLAN support • Comprehensive Avaya IP Phone support including DHCP and upgrades • All native Linux applications • High integrity Linux OS (CentOS 6.x)
<p>Server Edition Expansion System (V2) Scaling</p> <ul style="list-style-type: none"> • Up to 384 IP, digital or analog users/ extensions • Up to 125 IP trunks (H.323, SIP) • Up to 204 analog trunks • Up to 8 PRI and 16 BRI trunks • 128 Conference channels • 148 VCM channels 	<ul style="list-style-type: none"> • Uses current IP Office IP500 V2 chassis, expansion modules and expansion units • Centrally managed • Centrally licensed • Users or extensions on H.323 only, you can backup the users or extensions on a primary or secondary server

Highlights of Server Edition Expansion System	
Application support <ul style="list-style-type: none"> • Telephony • Conferencing 	<ul style="list-style-type: none"> • Comprehensive Avaya IP Phone support including DHCP and upgrades • You can convert an existing IP500 V2 installation to IP Office Server Edition, including configuration and licenses

Server Edition Manager

Server Edition Manager is a specific mode of operation of the existing IP Office Manager. Server Edition Manager supports complete centralized administration for up to 2000 users or extensions and up to 32 devices including one Server Edition Primary, one Server Edition Secondary, and 30 Server Edition Expansion Systems. Server Edition Manager also provides IP Office telephony and Unified Communications feature set. Server Edition Manager in Server Edition mode provides an effective solution management for all the components of the solution for activities such as:

- Single point of configuration for IP Office and Voicemail
- Simple initial installation wizard
- Overview of the solution with inventory and status
- Common settings consolidated to the Server Edition Primary
- Supports online, offline administration, and configuring a complete solution
- Integrated System Status, Voicemail Pro client, SystemMonitor
- Template operations
- Centralized configuration and template storage
- Administrator account management utility
- Retains existing IP Office expertise

Even though Server Edition Manager is a Windows application, Server Edition Manager can be installed directly from the Web administration portal of Server Edition Primary server. This enables you to use any Windows personal computer that has any IP Office Manager that is pre-installed immediately.

Using Server Edition Manager, the administrator can create templates for many management items such as users, extensions, Hunt Groups, and Lines. The administrator can then create any new item using the default settings or the template. You can create multiple users and extensions using one template.

Highlights of Server Edition Manager	
<p>Scaling</p> <ul style="list-style-type: none"> • Administration of up to 2000 users or extensions • Up to 32 devices <p>Application</p> <ul style="list-style-type: none"> • Windows XP, Vista, 7, Server 2003/2008 • Installed through Web Manager or Administration DVD • Integrated Voicemail Proclient, System Status Application, and Linux Platform settings access • Context sensitive help 	<p>Call Routing Support</p> <ul style="list-style-type: none"> • Full IP Office ARS and dial plan support • Default routing simplifies configuration • Solution wide auto line group numbering • Common incoming call routes provide resilience • Resilient Hunt Groups <p>Offline Operation</p> <ul style="list-style-type: none"> • Complete solution can be created and/or managed offline if required • Can still manage when some devices offline • On/offline configuration sync options to harmonize as required
<p>Solution Management</p> <ul style="list-style-type: none"> • Complete solution view with status and inventory • Users and Hunt Groups are solution wide • Centralized User Rights, feature short codes, Time Profiles, Incoming Call Routes, and Account Codes • Permits advanced per-device configuration if desired • All configurations stored on primary server • Solution wide system directory • Easy management of central and per-device licenses 	<p>Resilience management</p> <ul style="list-style-type: none"> • You can manage every device locally for 'rainy day' events • You can manage the solution through a secondary server when the primary server fails or in a 'split WAN' setup • On/Offline configuration sync options to harmonize as required
<p>Add or Remove Devices</p> <ul style="list-style-type: none"> • Single process for addition or removal of device • In-built Initial Configuration Utility (ICU) to simplify adding a new device • Common configuration items from primary server is auto populated • Can configure before you install a new device 	<p>Validation</p> <ul style="list-style-type: none"> • Configuration validation on read and any change. • Solution wide validations

Highlights of Server Edition Manager	
Localization <ul style="list-style-type: none"> English, French, Italian, LA Spanish, and German 	Template <ul style="list-style-type: none"> Create a local and centralized template from an existing Line, Extension, User, Hunt Group, Time Profile, Firewall Profile, IP Route and Service entries Recreate multiple Extension and Users from one template
Remote access <ul style="list-style-type: none"> Supports access from service through SSL VPN 	Security <ul style="list-style-type: none"> Single Sign On to all except one-X Portal administration

Web Manager

Web Manager is a web based solution management application that you can use for performing tasks such as upgrades, backup and restore, day to day user management, using a viewing syslog control, Linux platform administration, creating and modifying admin users.

The following table lists the various tasks that you can perform using the different management interfaces.

Task	Server Edition Manager	Web Manager
Installation	Yes	No
Initial configuration	Yes (ICU)	No
IPOSS on-boarding (SSL VPN)	No	Yes
Upgrades	No	Yes
Backup/Restore	No	Yes
Linux platform configuration	No	Yes
User administration	Yes	Yes
Hunt group, Line, Extension, License	Yes	No
Call routing	Yes	No
Security Administration	Yes	Yes
Embedded File management	Yes	No
VMPPro client launch	Yes	Yes
One-X Portal administration launch	Yes	Yes

one-X Portal for IP Office Server Edition

You can add an Application Server with only Avaya one-X[®] Portal for IP Office to support more than 300 users, or for higher call processing capacity on the primary server. You can add the server to the solution at any time from the same pre-installed distribution present on all Server Edition platforms.

You can activate Avaya one-X[®] Portal for IP Office on Server Edition:

Material Code	Description
270393	HP DL360G7 IPO SERVER EDITION
302788	R210 II XL SRVR IPO SE EXP

Highlights of Avaya one-X [®] Portal for IP Office	
<p>Scaling</p> <ul style="list-style-type: none"> • Up to 750 active one-X Portal users on DL360 or up to 500 active one-X Portal users on DL120 / R210 • Allows up to 7200 BHCC on the Primary 	<ul style="list-style-type: none"> • Web based wizard for initial provisioning • Dual LAN support • VLAN support • High integrity Linux OS (CentOS 6.x)

Chapter 3: Features

Business continuity

This section describes the design of IP Office Server Edition Solution and the associated components that offer business continuity.

IP Office Server Edition Solution offers business continuity features to maintain a high level of service in the event of any network or device outage to ensure normal operation. A combination of the various remote access features, resilience, and redundancy ensures business continuity.

Highlights of business continuity	
Remote access features <ul style="list-style-type: none">• Avaya one-X® Portal for IP Office• Avaya one-X® Mobile for IP Office• IP Office Softphone• Remote worker phone	Resilience <ul style="list-style-type: none">• HP DL360 server supports hot swap able hard drives and Power Supply Units• Components such as IP Office, IP Phones, Voicemail Pro, and Hunt Groups provide resilience• The inter IP Office links or trunks provide resilience through network topology and PSTN backup

Resilience

This section provides an overview of the resilience that the various components of the IP Office Server Edition Solution offers.

A single Server Edition Primary server supports redundant Hard Disk Drives and Power Supply Units. You can also configure it to use alternative trunks using the IP Office Alternate Route Selection feature when the trunks are busy or there is a failure of the trunk. To provide resilience at any level you need to add a Server Edition Secondary server.

Server Edition Secondary server provides resilience for hunt groups, messaging and all H.323 extensions or users of Server Edition Primary without any administration. Server Edition Secondary does not provide resilience for Avaya one-X® Portal for IP Office .

Adding an Server Edition Expansion System with H.323 extensions or users enables you to backup those on either the Server Edition Primary or Server Edition Secondary servers. The dual star Multi-Site Network topology when a Server Edition Secondary server is present supports diverse routing between all nodes.

At all times, no server hardware is forced to be idle, enabling you decide whether to provide true redundancy, or shared resource resilience.

IP Office Server Edition Solution provides IP extension resilience for Avaya H.323 16xx, 96xx and 96x1 phones. The Server Edition Expansion System with the integrated DHCP server enable upgrade and configuration support, installing and configuring resilient phone is a straightforward operation and can even support two systems on the same LAN subnet.

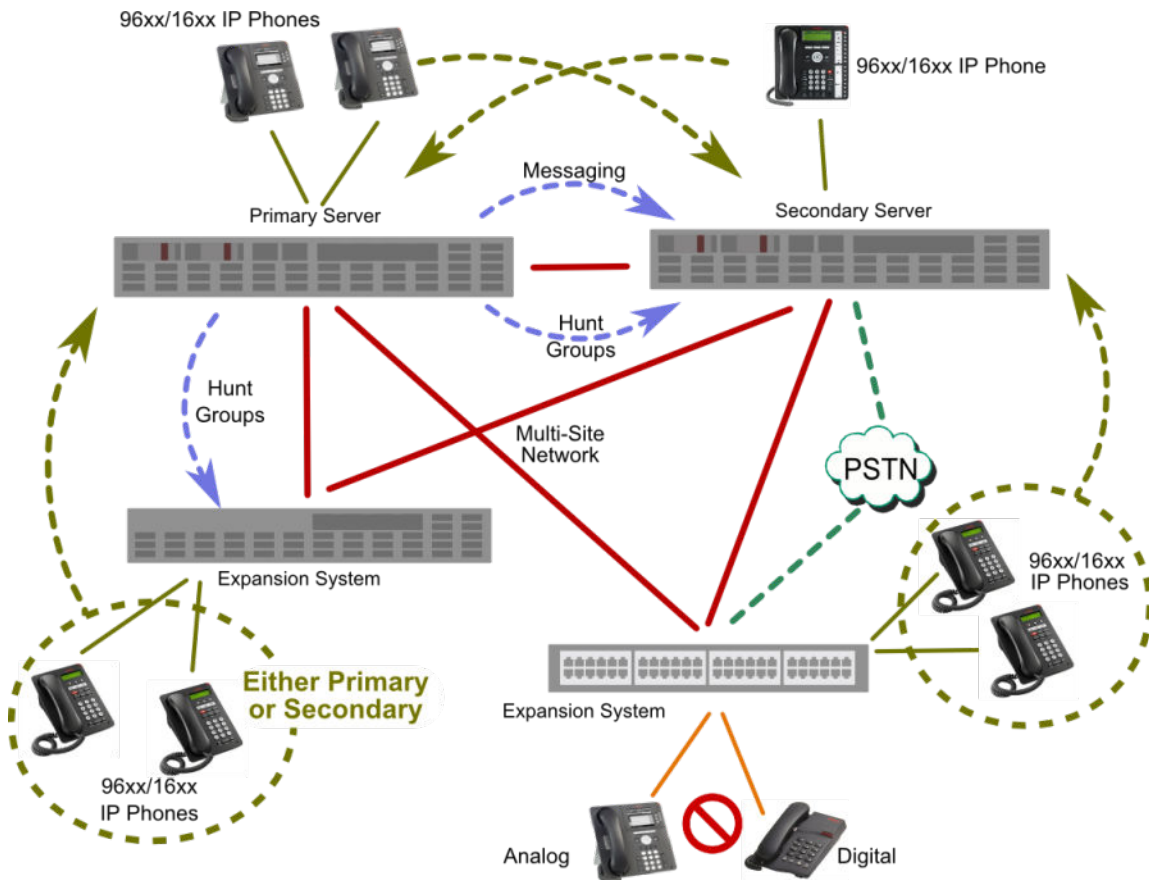


Figure 4: Resilience overview

Components that are resilient

The following components of IP Office Server Edition Solution are resilient:

- IP Office Server Edition
- Voicemail Pro server
- IP Phones
- Hunt groups

- Inter IP Office device links
- Trunks
- Incoming Call Routes

Highlights of a resilient multi-site network	
<ul style="list-style-type: none"> • Transparency for most of the features • Resilience of users and hunt groups • Back up system for Voicemail Pro 	<ul style="list-style-type: none"> • Network topology provides resilience • None of the hardware is idle • Simple to activate resilience

Resilience management

You can continue to administer and manage the failure of IP Office Server Edition server and devices in an IP Office Server Edition Solution network through the Server Edition Secondary server. This provides management without the offline capability, and a facility to realign the configuration after the outages have been resolved. The resynchronization feature highlights the time and source of configuration change and enables the administrator to decide which change set to retain. In addition, you can directly manage each device and application to allow configuration whilst isolated. You can use the resynchronization capability to realign the configurations after the devices are reconnected.

Backup and Restore

IP Office Server Edition supports a variety of backup and restore features to preserve and optionally reinstate both configuration and data in the event of an equipment failure. Server Edition Primary offers a flexible and secure, manual or scheduled solution backup to an external server which can optionally be Server Edition Secondary. Each server and expansion system including Application Server with Avaya one-X[®] Portal for IP Office can be configured to copy configuration, mailbox, and call recordings data. In addition local daily backups are supported.

Highlights of backup and restore	
<p>IP Office Server Edition Manager</p> <ul style="list-style-type: none"> • Saves all IP Office device configuration and templates on Server Edition Primary. • Save IP Office device configuration and templates to a local drive of a computer. • Restore IP Office device configuration from a local drive of the computer or Server Edition Primary. 	<p>Server Edition Primary</p> <ul style="list-style-type: none"> • Solution Backup or Restore using solution administration web portal for each component or the whole solution. You can take a backup of up to 15 sets on a local drive

Highlights of backup and restore	
	<p>or a remote SCP file server that can be another IP Office Server Edition server.</p> <ul style="list-style-type: none"> • Recover a corrupted or failed server configuration, application and user data. • Configure each local application backup to the local drive, and use default or predefined directories.
<p>Server Edition Expansion System (V2)</p> <ul style="list-style-type: none"> • Back up to the local SD card. • Back up manually through phone, Manager or automated 24 hr - active by default. • Back up configuration, security, and binary files as a single file set. • Restore through IP Office Server Edition Manager or phone command or automatically as a result of boot failure. 	<p>Voicemail Pro</p> <ul style="list-style-type: none"> • Back up to a local drive of Server Edition Primary server. • Back up manually or periodically (daily, weekly, monthly) through Voicemail Pro Client. • Options to backup content which can include configuration and messages • Back up multiple backup file sets up to a maximum of 4 file sets. • Restore through the Web Control Panel. The restore is a complete backup data set.
<p>Server Edition Expansion System(L)</p> <ul style="list-style-type: none"> • Back up to the local hard drive. • Back up manually through Phone, Manager or automated 24 hr - active by default. • Back up configuration, security, and binary files as a single file set. • Restore through a Manager or phone command, or as a result of boot failure. 	<p>Avaya one-X® Portal for IP Office</p> <ul style="list-style-type: none"> • Back up the Avaya one-X® Portal for IP Office database, Presence and Mobility settings to a local drive or an FTP server. • Back up manually using Avaya one-X® Portal for IP Office by logging in as a <i>Superuser</i>. • Back up multiple backup file sets (unlimited). • Restore using Avaya one-X® Portal for IP Office by logging in as a <i>Superuser</i>.

Security

IP Office Server Edition Solution is a reliable and secure solution. For more information about security, see *IP Office Security Guide*.

Highlights of the security in IP Office Server Edition Solution	
<p>Platform</p> <ul style="list-style-type: none"> • IP Office for Linux Operating system is CentOS 6.3 based on Red Hat Enterprise Linux that is further hardened for defaults, packages, and users. • Operating system of Server Edition Expansion System (L) is developed for IP Office. The operating system is simple, stable, and reliable. • Components that are secure: <ul style="list-style-type: none"> - Software security engine for all the components. - Hardware security engine for Office Server Edition Expansion System (V2). - Internal Access Control Engine polices for external service requests and internal applications. 	<p>IP Office Server Edition Manager</p> <p>Most of the administrative data is in the IP Office</p> <ul style="list-style-type: none"> • Transport Layer Security (TLS) secures the communications between IP Office Manager and IP Office and insecure ciphers are disabled. • Provides Role based user access control (RBAC). • Provides comprehensive user account and password controls. • You can enable a PKI Trust domain. • The system generates warnings messages if administrative passwords are set to default. The system sends alarms or login failure. • The system records all the accesses in the audit trail. • You can disable unused services and ports such as HTTP.
<p>Administration User Accounts</p> <p>The Administration user accounts can be controlled for:</p> <ul style="list-style-type: none"> • Password complexity • Previous password history (administrative accounts only) • Change password on next login • Idle lockout and login failure lockout • Time and date the account expires (administrative accounts only) 	<p>Single Sign On (SSO)</p> <ul style="list-style-type: none"> • Administration credentials to log in to Linux Platform settings are securely transferred to Manager, SSA, Voicemail Pro client. • All administrative logins on all IP Office components including Voicemail Pro and Avaya one-X[®] Portal for IP Office use security settings of IP Office. • Server user management feature in Web Manager synchronizes administrative user credentials with all components of IP Office including Voicemail Pro and Avaya one-X[®] Portal for IP Office in IP Office Server Edition Solution.

Highlights of the security in IP Office Server Edition Solution	
<p>Audit trail</p> <ul style="list-style-type: none"> • Each IP Office system maintains an audit trail of access and configuration change. • Linux Platform settings also maintains an audit trail. • The IP Office system displays the audit trail in IP Office Server Edition Manager and SSA. <p>* Note:</p> <p>The system does not maintain an audit trail of Voicemail Pro and Avaya one-X[®] Portal for IP Office.</p>	<p>Public Key Infrastructure (PKI)</p> <ul style="list-style-type: none"> • IP Office supports X.509 certificates • The Trusted Certificate Store can be configured and Identity certificate is available. • The system performs a Certificate Signing Request (CSR) through Simple Certificate Enrollment Protocol (SCEP). • The system creates a self-signed Identity certificate that can be copied to all HTTPS/TLS interfaces. • Flexible controls to enforce Trust domain on specific services. Extended trust controls for PKI . • Web Management Console, Voicemail Pro and Avaya one-X[®] Portal for IP Office on Linux support X.509 certificates, but not PKI.
<p>LAN</p> <ul style="list-style-type: none"> • The servers and expansion systems are thoroughly tested for resistance to Denial of Service and other attacks Server Edition Expansion System (V2) supports a configure able Firewall • Time profiles on Server Edition Expansion System (V2) only • Static NAT and NAT in Server Edition Expansion System (V2) • ICMP Filtering • L2TP/PPP VPN on Server Edition Expansion System (V2) only • PAP or CHAP password exchange • Idle or quota timeout • IPSec VPN on Server Edition Expansion System (V2) only 	<p>Endpoints</p> <ul style="list-style-type: none"> • Username and PIN or password or login code are in the IP Office configuration, and you can administer these through IP Office Server Edition Manager • You can use HTTP or HTTPS for settings and firmware upgrades • You cannot make calls unless you are logged in

Highlights of the security in IP Office Server Edition Solution	
<p>Call Barring</p> <ul style="list-style-type: none"> • You can configure flexible call barring controls using login name or account code to allow internal, local, national or international calls on the basis of every user and system. • You cannot use speed dials, transfers, forwarding, and conferences to bypass controls. • You can enable trunk to trunk calls using IP Office Server Edition Manager. Trunk to trunk calls are disabled by default. • SIP trunk configuration for incoming calls must match URIs.. • You can use SMDR (CDR) to create a record of all calls. 	<p>Voicemail Pro client</p> <ul style="list-style-type: none"> • You can enforce user login with Personal Identification Number (PIN) and configure complexity for the PIN. • You can enforce PIN change when the user logs in for the first time. • Idle timeout.

Remote access

You can access IP Office Server Edition Solution remotely. Some of the components that can be accessed remotely are:

- System Status Application
 - RBAC username and password
 - Password is securely exchanged
 - SSA port can be disabled
- System Monitor
 - Access after password exchange
- SSL VPN or IP Office Support Services
 - The system uses HTTPS and TLS channel
 - Password is securely exchanged
 - Prompts for periodic re keying
- Mobility and Avaya one-X® Portal clients
 - User name and password is the IP Office configuration, and administered through IP Office Server Edition Manager

Licensing

IP Office Server Edition Solution leverages the IP Office licensing method with a variety of enhancements to simplify management and operation. Many existing IP Office licenses are redundant in IP Office Server Edition as a new edition license enables a host of features that previously required many separate licenses.

- Centralized administration of all the licenses through IP Office Server Edition Manager enables you to configure the licenses in one place, and SSA gives a complete overview of current license status and operation.
- Server Edition Primary server acts as a central host for all common licenses
- Central pool for efficient allocation and cost effective procurement
- Grace periods to support network outages
- Extensive alarms and status to provide visibility of operation
- Purchase the licenses online through Avaya Direct International (ADI)

Licensing in IP Office Server Edition Solution

Highlights of licensing in IP Office Server Edition Solution	
<ul style="list-style-type: none"> • Centralized administration of the licenses through IP Office Server Edition Manager • Centralized allocation for all common licenses • You need a Server Edition license for each of the device to enable operation • You need a Server Edition Upgrade license for each device to enable operation when you upgrade from release 8.1 	<ul style="list-style-type: none"> • Server Edition Primary acts as a central host for all the licenses • You can purchase the licenses online through Avaya Direct International (ADI) • The system sends alarms through SSA, SNMP, Syslog, and email when you over allocate the license. The system also sends reminders at the beginning and end of the grace period.

Related topics:

- [Centralized licensing](#) on page 28
- [Local licensing](#) on page 29
- [Server Edition licensing](#) on page 30

Centralized licensing

The Server Edition Primary is the license server for all common licenses including the Edition, SIP trunk, user and endpoint licenses in an IP Office Server Edition Solution. For Release 9.0,

centralized licensing is designed to operate without any license shortfall and the Server Edition Primary allocates on a first come first served basis, after reserving all the licenses necessary for its own operation.

All central licenses are issued to the System ID (Feature Key Serial Number) of the Server Edition Primary server. All IP Office for Linux platforms have a System ID derived from a hardware signature. This section describes about how licensing is centralized in IP Office Server Edition Solution


Highlights of centralized licensing	
<ul style="list-style-type: none"> • Common licenses such as Server Edition, endpoints, SIP trunk channels, Office Worker, Power User, and UMS Web Services are located in the Server Edition Primary • Avaya IP Office System Status Application (SSA) provides detailed status of the licenses that are allocated 	<ul style="list-style-type: none"> • Server Edition Primary allocates the licenses to Server Edition Secondary Server Edition Expansion System on request

Local licensing

Some of the licenses are located on the local device and are administered centrally through IP Office Server Edition Manager. SSA provides the status of the licenses that are allocated on the devices.

Server Edition Expansion System (V2) <ul style="list-style-type: none"> • TAPI Wav • PRI Channels • CTI Link Pro • IPsec Tunnelling • Receptionist <p>* Note: The TAPI Wav, PRI Channels, and IPsec Tunnelling cannot be allocated on a Server Edition Primary, Server Edition Secondary, or Server Edition Expansion System (L).</p>	Server Edition Primary and Server Edition Secondary <ul style="list-style-type: none"> • Receptionist Server Edition Primary <ul style="list-style-type: none"> • Messaging Ports • Messaging Text To Speech (TTS) Pro • Messaging Recordings Administrators
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Supported licenses

License	Server Edition Primary	License Location
Server Edition upgrade	New	On Server Edition Primary
Server Edition	Existing	On Server Edition Primary
Avaya/3rd Party IP Endpoint	Existing	On Server Edition Primary  Note: In Server Edition, the system uses these licenses for configured endpoints rather than just the registered endpoints.
Power User	Existing	On Server Edition Primary
Office Worker	Existing	On Server Edition Primary
Office Worker to Power User upgrade	New	On Server Edition Primary
Receptionist	Existing	On Server Edition Primary or Server Edition Secondary or Server Edition Expansion System
SIP Trunk Channel	Existing	On Server Edition Primary
UMS Web Services	Existing	On Server Edition Primary
Additional Messaging Ports	Existing	On Server Edition Primary
Messaging TTS Professional	Existing	OnServer Edition Primary
Recordings Administrator	Existing	OnServer Edition Primary
Additional PRI Channels	Existing	On Server Edition Expansion System (V2)
CTI Pro	Existing	On associated device
CTI Wav users	Existing	On Server Edition Expansion System (V2)
IPSec Tunnelling	Existing	On Server Edition Expansion System (V2)

Server Edition licensing

You need only one license for Server Edition:

Material Code	Description
275658	IPO R9 SE ADI LIC

You need one Server Edition licence for each of the Server Edition Primary, Server Edition Secondary, and Server Edition Expansion System. Some of the features of the Server Edition license are:

- You can enable basic operation (without the Server Edition license you cannot make any calls)
- You can not make calls unless there are valid licenses.
- You can add two additional messaging ports to Server Edition Primary
- You can enable unlimited voice networking channels
- You can enable meet-me conferencing, advanced messaging, automated attendant, call recording, conditional call routing, and queue announcements
- You can enable basic mobility features such as Mobile Twinning, call control, and callback.

*** Note:**

You need one upgrade license for each node upgraded from Release 8.1 to Release 9.0. The upgrade license is centralized, located on Server Edition Primary.

User licenses

In addition to the separate Receptionist license, the following user features can be enabled:

User License Feature	Base User	Office Worker	Power User	Notes
Mobility Features	Yes	Yes	Yes	Mobile twinning, mobile call control. One-X Mobile Essential
one-X Portal Services	-	Yes	Yes	one-X Portal for IP Office support for users one-X Mobile Preferred (iOS/Android)
UMS (voicemail) Services	-	Yes	Yes	MAPI (Microsoft Exchange) or SMTP voicemail integrations
Flare Experience	-	Yes	Yes	Avaya Flare [®] Experience for iPad Devices or Avaya Flare [®] Experience for Windows
TTS Email Reading	-	-	Yes	Listen to emails using TTS
Telecommuter options	-	-	Yes	one-X Portal Telecommuter mode

User License Feature	Base User	Office Worker	Power User	Notes
Remote Worker	-	-	Yes	Remote H.323 extensions.
IP Office Softphone	-	-	Yes	IP Office Video Softphone

Related topics:

[Unsupported licenses](#) on page 32

Unsupported licenses

License	Reason
Small/Large System Upgrade	First phase of Server Edition
Essential & Preferred Edition	All relevant features enabled in the Server Edition license
IP500 Voice Networking	Unlimited Voice Networking enabled in the Server Edition license
Teleworker, Mobile Worker licenses	Simplification - features supported in Office Worker and Power User
Embedded Messaging Ports	Embedded messaging not supported on Server Edition
CCR Agent and Supervisor	CCR not yet supported on Server Edition
Voicemail ProNetworked Messaging, Database interface, Visual Basic Script	Not supported on Voicemail Pro for Linux
CCC, Phone Manager, VCM channels, Mobility	Legacy licenses

IP Office Server Edition Solution versus Avaya Aura Midsize Enterprise Solution

The following table compares the key features of IP Office Server Edition Solution and Avaya Aura[®] Midsize Enterprise Solution:

Feature	Avaya Aura Midsize Enterprise (with no UC add-ons)	Server Edition	Server Edition Comments
Capacity	250 locations	32 locations	
	2400 users on single server	2000 users per server	
Performance	BHCC	18,000 BHCC	Concurrent calls direct media IP
	2000 concurrent calls	1500 concurrent calls	
Solution Complexity	Medium	Low	Just single server for 1500 users, full UC, one Manager
CTI	Solution wide via AES	Per device using IPO CTI interfaces:	Future plan to support solution CTI using REST web services via one-X Portal
	- TAPI 2/3	- TAPI 2/3	
	- CSTA	- Custom (XO)	
	- ASAI		
	- etc		
Resilience	Full HA for 5x 9's plus availability	No HA	Geo-redundancy for all components except one-X Portal
		Typical 4x 9's availability	
Security	SRTP	Security limited to admin interfaces (TLS)	SRTP planned for next release
	802.1x	No true SSO	
	SSO		
IP Networking	IPv4/IPv6	IPv4	
Telephony Networking	CAC	CAC	
	Connection preservation	Connection preservation	
Topology	Star with G450/ G430/B5800 gateways	Single/double star	
Existing upgrade path	Upgrade from CM/ G4x0	Upgrade from IP Office	
Future evolution path	Full Aura	Server Edition only	
Endpoint support	Mix of Avaya and 3rd party endpoints:	Mix of Avaya and 3rd party endpoints:	Server Edition supports more

Features

Feature	Avaya Aura Midsize Enterprise (with no UC add-ons)	Server Edition	Server Edition Comments
	- IP (H323+SIP)	- IP (H323+SIP)	endpoint types than any other product
	- TDM	- TDM	
	- Analogue	- Analogue	
Administration tools	Unified Aura Manager (SMGR)	Unified IP Office Manager (IPO Manager)	
Software Only Solution	No	Yes (Controlled introduction at present)	
Virtualized environment	Yes (Xen)	Yes (VMware)	
Contact Centre	Yes – 1000 agents. Integrated Contact Center (CC-Elite), Avaya Aura Contact Center via integrated AES Services	No	
Audio Conferencing	Max 6 party Note: Add AAM for higher capacity and Audio/Web/Video conferencing Max channels?	Max 128 party/256 channels per server/ expansion	
IP DECT	Up to 1000	Up to 120 per Server or Expansion system	3840 maximum
Voicemail	1000 VM channels 2400 mailboxes	150 VM channels 2000 mailboxes	
Web Conferencing	With AACC	No	In roadmap
Video conferencing	With AACC	With Scopia	
Mobility	One-X Mobile Lite, CES for full mobile convergence	One-X Mobile Lite Rich UC with one-X Mobile Preferred	
Desktop clients/Soft Clients	Flare Communicator for iPad, Flare Experience on ADVD, IP Office Video Softphone, One-X Client	Flare Communicator for iPad and Windows IP Office Video Softphone	Flare Exp in roadmap

Feature	Avaya Aura Midsize Enterprise (with no UC add-ons)	Server Edition	Server Edition Comments
Desktop integration	Outlook, Salesforce.com, SAP, IBM Lotus	One-X Portal thin client Outlook plugin Salesforce plugin	
Presence and IM	Integrated Avaya Aura Presence Server	XMPP based Presence server – telephony presence, calendar presence, custom presence status	
Presence and IM Federation	Google Talk and MS Lync	With Google Talk	

IP Office Server Edition versus Preferred or Advanced Edition

The following table compares the key features of IP Office Server Edition and Preferred or Advanced Edition.

Feature	Preferred/Advanced Edition	Server Edition	Server Edition Comments
Capacity	32 locations	32 locations	
	1000 users total	2000 users total	
	7200 BHCC	18000 BHCC	
SCN/Multi-Site	Free from Star, mesh, chain SCN trunks anywhere SCN trunk channels licensed	Single or double star No additional SCN trunks Unlimited SCN trunk channel licenses	Restricted topology allows many optimizations Other H.323 trunk types still allowed
Administration	Limited centralized (SCN Manager)	Fully centralized (Server Edition Manager)	Consolidated mode for complete centralization. Non-consolidated mode for per device configuration
Licensing	Individual or distributed	Central pool	All common licenses centralised.

Features

Feature	Preferred/Advanced Edition	Server Edition	Server Edition Comments
			Some still distributed.
			All administered centrally
User Profile Licenses	Telecommuter	Office Worker	
	Mobile Worker	Power User	
	Office Worker		
	Power User		
O/G Call Routing	Complex, no default assistance	Simplified	Server Edition Manager and default routes allow simpler O/G call routing
I/C Call Routing	Complex, no default assistance	Simplified	Common ICRs allow simpler I/C call routing and resilience
Time	Free form/complex	Simplified by default, can still be freeform	Primary Server acts as solution time server by default
System directory	Free form/complex	Simplified by default, can still be freeform	Primary Server acts as solution directory server by default
Fax transport	IP Office T.38 fax transport	G.711 fax transport	No need to configure codec sets to enforce; G.711 fax transport used automatically
SIP Trunk Direct Media to remote device across SCN	None	Direct media supported to remote H.323 and IP DECT endpoints	Includes SIP Info and RFC 2833 support No in-band DTMF support
Hunt Groups	Freeform	Hunt groups only on primary	Performance optimised for VMPro location (also on Primary)
			Automatic resilience when secondary present.
SoftConsole	Up to 4 per IP Office	Up to 10 on Primary only, 4 per Expansion system,	Overcomes SoftConsole IP

Feature	Preferred/Advanced Edition	Server Edition	Server Edition Comments
		maximum 32 per solution	connectivity and SCN limitations
Add/remove device	Manual	Integrated through Server Edition Manager	Auto population of Multi-Site links and common configuration
Device Status/connectivity	Not checked	Access and interconnects checked by SE Manager	Immediate indication if device offline or incorrectly networked
IP Office Initial configuration	Manual	Automated with Initial Configuration Utility (ICU)	Remote install technician without IP Office knowledge
Upgrades	Individual	Centralized	All expansion systems upgraded at same time
Backup/restore	Individual per IP Office and per application	Centralized	
Voicemail Pro Ports	40	150	Voicemail, recording, Auto attendants
Voicemail Pro TTS Ports	40	40	
Embedded VM/AA	Supported	Not supported	Central VMPro only
Voicemail Pro VRL, VRLA	Supported	Supported	
Visual Basic Scripts, Database access, Web campaign management	Supported on Windows VMPro server	Not supported	Campaigns are supported, but not the web access for management
CCR	Supported	Not supported	
Software distribution	Admin DVD + Apps DVD	Single iso distribution, VMware OVA	Non English TTS separate DVDs
Software Only Solution	No	Yes (Controlled introduction at present)	
Single management portal	No	Yes – Web Manager on Primary Server	Backup portal on Secondary Server

Features

Feature	Preferred/Advanced Edition	Server Edition	Server Edition Comments
IP Office DevConenct/SDKs	Supported	Supported as a set of individual IP Office devices	No whole-solution SDK supported at present
Templates	Analogue and SIP trunks only, local to the Manager PC	Line, Extension*, User*, Hunt Group, Time Profile, Firewall Profile, IP Route, Service, Tunnel, ARS.	
		Centrally stored	
		*Multiple creation option	

Chapter 4: Deployment

Hardware components

Server Edition Primary is the only hardware component you require:

- You can add Server Edition Secondary server anytime to increase user capacity and for resilience
- The Server Edition Secondary server can be in a local or remote location
- Expand TDM, analog, and digital capabilities with an Server Edition Expansion System(V2)
- The Server Edition Expansion System can be in a local or remote location
- The Server Edition Expansion System adds IP capacity
- You can add a separate Avaya one-X® Portal for IP Office at any time to increase the capacity of Avaya one-X® Portal for IP Office and for higher Server Edition Primary BHCC
- Rest of solution engineering is the same as IP Office Multi-Site Network (SCN) with a star or double star topology

Example deployments

<p>Centralized IP only</p> <p>One Server Edition Primary located at the Head Quarters.</p>	<p>Distributed IP only</p> <ol style="list-style-type: none"> 1. One Server Edition Primary located at the Head Quarters. 2. One Server Edition Secondary located at the remote site.
<p>Centralized IP, Analog, and Digital</p> <ol style="list-style-type: none"> 1. One Server Edition Primary located at the Head Quarters. 2. One Server Edition Expansion System (V2) located at the Head Quarters. 	<p>Distributed IP, Analog, and Digital</p> <ol style="list-style-type: none"> 1. One Server Edition Primary located at the Head Quarters. 2. One Server Edition Expansion System located at the Head Quarters. 3. One Server Edition Expansion System located in each of the remote sites.

Software-only distribution

Software-only Server Edition (that is, no servers bought from Avaya) is available to customers only under exceptional circumstances; any exceptions will be approved on a case by case basis. You can use Software-only version by using the following Server Edition license and DVD:

Material Code	Description
302556	IPO R9 SFTW ONLY SE ADI LIC

Deployment

Material Code	Description
700506052	IPO R9 SE INSTL DVD

Chapter 5: IP Office Server Edition Solution specification

Server specifications

The following tables list the minimum server specifications for the IP Office Server Edition Solution:

Server option	Large server #1	Large server #2	Large server #3
Chassis	Dell R620 1U	HP DL360G7 1U	Dell R610 1U
Processor	Xeon E5-2630, 2.3 GHz	2 x E5620, 2.4 GHz	2 x E5620, 2.4GHz
Memory (RAM)	32 GB	12 GB	12 GB
Hard disk drive	2 x 600 GB	2x 300 GB, 10K	2x 300 GB, 10K
RAID	RAID 1 Hot swap	RAID 1 Hot swap	RAID 1 Hot swap
RAID Controller		P410i	H700
Power Supplies		2x 460W AC Hot swap	2x 502W AC Hot swap
NICS	4x GB full duplex	4 Port, Motherboard	4 Port, Motherboard
Optical Drive	1x DVD +/- RW	1x DVD+/-RW, SATA, INTERNAL	1x DVD+/-RW, SATA, INTERNAL
PCI Type		1-LP X8 PCIe & 1-FL/FH X16 PCIe Riser	2 x8 Gen2 Slots (PCIe)

Server option	Small server #1	Small server #2
Chassis	HP DL120G7 1U	Dell R210 1U
Processor	1 x E3-1220, 3.1 GHz	1 x E3-1220, 3.1 GHz
Memory (RAM)	12 GB	12 GB
Hard disk drive	1x 250 GB, 7.5K	1x 250 GB, 7.5K

Server option	Small server #1	Small server #2
RAID	RAID 0 (none)	RAID 0 (none)
RAID Controller	P212, 256 MB	On board
Power Supplies	1 x 400 W AC	1 x 502 W AC
NICS	2 Port, Motherboard	2 Port, Motherboard
Optical Drive	1x DVD+/-RW, SATA, INTERNAL	1x DVD+/-RW, SATA, INTERNAL
PCI Type	1-HL/LP X8 PCIe & 1-FL/FH X16 PCIe Riser	1 x16 Gen2 Slots (PCIe)

*** Note:**

In some geographies, where 12GB of RAM is not a standard Dell option use 16GB RAM.

You can configure a DL360 as Server Edition Primary, Server Edition Secondary. You can also configure a DL360 as Server Edition Expansion System (L), or an Application Server with only Avaya one-X[®] Portal for IP Office to increase performance or capacity.

You can configure a DL360 as Server Edition Primary, Server Edition Secondary, Server Edition Expansion System, or a Application Server with only Avaya one-X[®] Portal for IP Office.

The Server Edition Primary and Server Edition Secondary must be on the same platform.

You can also configure an existing IP500 V2 as a Server Edition Expansion System (V2).

You cannot configure an external Voicemail Pro to Server Edition Primary or Server Edition Secondary.

You can configure a combination of virtual and native nodes. However, Server Edition Primary or Server Edition Secondary must be the same.

You cannot configure a Avaya one-X[®] Portal for IP Office server or IP500 V1 as a component of the solution.

Related topics:

[Operating system support](#) on page 42

Operating system support

Server support

The following server operating systems support IP Office Server Edition Manager:

- Windows Server 2012 (64 bit only)
- Windows Server 2008/2008R2 (32 and 64 bit)

Client support

The following client operating systems support IP Office Server Edition Manager:

- Windows 7 (32 and 64 bit)
- Windows 8 (32 and 64 bit)
- Windows XP Professional Service Pack 3 (32 bit only)

Chapter 6: Capacities and scalability

IP Office Server Edition Solution supports a maximum of 2000 users or extensions.

The following table lists the performance and capacity requirements when IP Office Server Edition Solution is deployed on an appropriate platform as defined in the *Reference Configuration* guide.

Feature	9.0	Comments
Users		
Maximum Solution Users	2000	'NoUser' and RAS Users not counted * Note: 1100 Series and 1200 Series phones are not supported if the solution exceeds 1000 users. The minimum hardware deployment required is a Primary Server and Secondary Server or a Primary Server and two IP500 v2 Expansion Servers. A single, central SoftConsole can only see busy status updates for up to 1680 users. Above 1680 users, a local SoftConsole can be placed at each node to provide complete coverage.
Maximum users per DL360 (Primary/ Secondary)	1500	
Maximum users per DL120/R210 (Primary/ Secondary)	750	
Maximum users per DL120/R210 (Expansion)	750	
Maximum users per IP500 V2	384	
Extensions		
Total Extensions	2000	
Maximum extension per DL360 (Primary/ Secondary)	1500	96x1/16xx extension type
Maximum extensions per DL120/R210 (Primary/ Secondary)	750	

Capacities and scalability

Maximum extensions per DL120/R210 (Expansion)	750	
Maximum DECT R4 Extensions per device	384	DL360, DL120/R210 or IP500 V2
Maximum additional button module buttons per system, Linux	2048	Regardless of whether the buttons are configured for use or not
Maximum additional button module buttons per system, IP500 V2	1024	Regardless of whether the buttons are configured for use or not
Multi-Site Network		
Maximum devices	32	
Maximum servers	2	2 Core Servers (Primary and Secondary)
Maximum expansions	30	
Trunks		
Registered SIP Trunks, DL360 (Primary/Secondary)	250	Maximum number of SIP trunks not number of SIP trunk channels
Registered SIP Trunks, DL120/R210 (Primary/Secondary)	125	
Registered SIP Trunks, DL120/R210 (Expansion)	125	
Registered SIP Trunks, IP500 V2	125	
Maximum SIP Channels, DL360 (Primary/Secondary)	512 (direct media) 256 (indirect media)	See also concurrent VoIP call capacity below
Maximum SIP Channels, DL120/R210 (Primary/Secondary)	256 (direct media) 128 (indirect media)	See also concurrent VoIP call capacity below
Maximum SIP Channels, DL120/R210 (Expansion)	256 (direct media) 128 (indirect media)	See also concurrent VoIP call capacity below
Maximum SIP Channels, IP500 V2	128 (direct media) 120 (indirect media)	See also concurrent VoIP call capacity below
Maximum trunk channels per SCN, Linux	250	Links between Server Edition nodes
Maximum trunk channels per SCN, IP500 V2	250	Links between Server Edition nodes
Call Processing		
DL360 Server call capacity (BHCC)	18000 with no one-X Portal users active, or remote one-X Portal server	Maximum: 96x1 H.323 users/ extensions, total users/extension, active VM channels, active conference channels, logged in one-X Portal users, G.711 codec

	7200 with one-X Portal users active	Performance with SIP extensions may be lower
DL120/R210 Server call capacity (BHCC)	7200 with or without one-X Portal users active	Maximum: 96x1 H.323 users/ extensions, total users/extension, active VM channels, active conference channels, logged in one-X Portal users, G.711 codec
		Performance with SIP extensions may be lower
IP500 V2 Expansion call capacity (BHCC)	7200	Maximum 96x1 H.323 users/ extensions, maximum active conference channels, G.711 codec
		Performance with Digital extensions may be higher
		Performance with SIP extensions may be lower
Overall call capacity (BHCC)	18000/7200	Maximum Servers, Expansions, users/extensions, conference channels, logged in one-X Portal users, with G.711 codec
		The overall solution call capacity is determined by a variety of external factors including the solution construct and network performance.
Concurrent VoIP calls: direct media	1500	Note there are some IP Office networking constraints to achieve direct media
Concurrent VoIP calls: indirect media, DL360	256	
Concurrent VoIP calls: indirect media, DL120/R210	128	
Concurrent VoIP calls: indirect media, IP500 V2 VCM	120	
Concurrent VoIP calls: indirect media, IP500 V2 RTP relay	120	
VCM/transcoding channels, DL360	256	Specified capacity is for G.711 a-Law/mu-Law
VCM/transcoding channels, DL120/R210	128	The codecs used have an effect on performance and capacity.
VCM/transcoding channels, IP500 V2	148	Two channels are required per call for transcoding

Capacities and scalability

Hunt Groups		
Maximum Hunt Groups	300	Total hunt groups in solution
Hunt Group size	750	Maximum users in a single hunt group
Total Hunt Group members	3000	Members spread over max hunt groups with a single hunt group not exceeding individual max size
Conferencing		
Conferencing channels	256 per DL360 128 per DL120/R210 128 per IP500 V2	Both ad-hoc and meet-me with one-X Portal active, a solution-wide limit of 512 conference channels applies. No dynamic solution-wide allocation supported, only static via call flows
Maximum Conferences, DL360	85x3	
Maximum Conferences, DL120/R210	42x3	
Maximum Conferences, IP500 V2	42x3	
Maximum conference size, DL360	1x256	
Maximum conference size, DL120/R210	2x64	
Maximum conference size, IP500 V2	2x64	
Paging group size, DL360	128	
Paging group size, DL120/R210	128	
Paging group size, IP500 V2	64	
Messaging/Recording		
Mailboxes	2000	
Voicemail/ Auto Attendants channels, DL360	150	
Voicemail/ Auto Attendants channels, DL120/R210	75	
Maximum Recording/VRLA channel capacity	Total 150: 85 per DL360 42 per DL120/R210 42 per IP500 V2	Capacities are per node, up to the total solution capacity 1 recording channel takes 3 conference channels and one licensed voicemail channel Location of conference channels used determined by point of recording: - ICR recording done at trunk location - User recording done at users' location - System recording at node location. Maximum BHCC 9,000 (Linux), 3,600 (IP 500V2)

Total message store capacity (hrs)	2000	Storage @ 1MB per minute
Single mailbox maximum capacity (mins)	60	Fixed.
Total call recording capacity (hrs)	333	Fixed. Storage @ 1MB per minute Avaya Contact Recorder storage not included (separate server)
TTS Channels	40	
Voicemail Email users – IMAP/SMTP/MAPI	2000	SMTP Voicemail forwarding to email
		MAPI Voicemail forwarding to Exchange Server
		IMAP server
Exchange Integration – MAPI	490	Microsoft Exchange Server two-way integration Fixed at 490 maximum for 9.0
Productivity		
One-X Portal active clients on Primary DL360	300	Maximum including all one-X Portal client types of any mix, including plugins. Not more than 10% can be Flare All HTTP clients - HTTPS supported at 50% capacity
One-X Portal active clients on Primary DL120/R210	150	Maximum including all one-X Portal client types of any mix, including plugins. Not more than 10% can be Flare All HTTP clients - HTTPS supported at 50% capacity. * Note: Call handling capacity is reduced from 18000 to 7200 calls per hour (BHCC) when one-X portal users are active. One-X Portal UC clients must not be deployed concurrently on a system with a busy contact center where total system call rate would exceed 7200 calls per hour.
One-X Portal active clients on separate DL360	750	New Applications Server DL360 platform for 9.0
One-X Portal active clients on separate DL120/R210	500	
SoftConsole active instances, Linux Server/Expansion	10	

Capacities and scalability

SoftConsole active instances, V2 Expansion System	4	
SoftConsole active instances, SE solution	32	Per node capacity cannot be exceeded
Resilience		
Server backup extension/users capacity, DL360	2000	<p>No additional capacity over normal users for 9.0 Avaya 16xx/96xx H.323 phones only.</p> <p>* Note:</p> <p>To achieve full resilience to any single node failure, the sum of users on the Primary Server and any other node should not exceed 1500 users.</p> <p>Example 1: Primary Server = 750 users, Secondary Server = 750 users, Expansion Server = 500 users.</p> <p>Example 2: Primary Server = 750 users, Secondary Server = 750 users, 2 x IP500 v2 Expansion Server = 250 users each.</p>
Server backup extension/users capacity, DL120/R210	750	Linux and IP500 V2 Expansion cannot host user/extension backup operation
Single phone failover time	2-3 minutes	Typically just over 2 minutes
Maximum complete server failover time, minutes	15	Primary with 50% solution maximum extensions/users, voicemail active and hunt groups. No extensions/users already on Secondary Server.
Directory		
System directory capacity	5000 entries	Over complete solution. Up to 2500 from configuration, 5000 from LDAP, 5000 from HTTP import.
Personal directory capacity	100 per user	Total 10800 per device.
HTTP/TFTP user list capacity	2000	HTTP or TFTP. 11xx/12xx will not support above 1000.
HTTP/TFTP HG list capacity	750	HTTP or TFTP. 11xx/12xx will not support above 1000
Networking		
DHCP server capacity, DL360	1500	96x1 phone support

DHCP server capacity, DL120/R210	750	96x1 phone support
DHCP server capacity, IP500 V2	384	
Minimum DHCP server pools, IPOL	32	
DHCP server pools, IP500 V2	8	
HTTP phone server clients, DL360	1500	
HTTP phone server clients, DL120/R210	750	
Startup/Availability		
Phone service availability after restart, DL360	1000 in 10 minutes	Able to make calls. 96x1 phone with DHCP, no upgrade. No PoE or other data equipment start-up times included
Phone service availability after restart, DL120/R210	500 in 5 minutes	Able to make calls. 96x1 phone with DHCP, no upgrade. No PoE or other data equipment start-up times included
Phone service availability after restart, IP500 V2	384 in 5 minutes	Able to make calls. 96x1 phone with DHCP, no upgrade. No PoE or other data equipment start-up times included
Phone upgrade performance, DL360	200 per 50 minutes	For 96x1 phone types. 16xx and 94xx types are typically quicker
Phone upgrade performance, DL120/R210	100 per 50 minutes	For 96x1 phone types. 16xx and 94xx types are typically quicker
Phone upgrade performance, IP500 V2	50 per 50 minutes	For 96x1 phone types. 16xx and 94xx types are typically quicker

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