Interactive Voice Gateway (IVG) Cisco UCCE technical overview version 3.4.0 or later

Interactive Voice Gateway (IVG) is a next generation interaction platform that allows companies to communicate with their customers in ways that improve self-service, reduce costs, and improve sales. IVG combines a CCXML interpreter, a VXML browser, a Database Management System, and a VXML application server in an easy to install package. IVG provides support for SIP inbound and outbound calls. IVG is a platform for all VXML Interaction Server (VIS) based applications.

IVG provides both inbound and outbound Callback Application processing within a standards compliant SIP based environment enabling customers to take full advantage of VHT's market-leading Scheduled and ASAP callback offering and patented virtual queuing technology.

The IVG consists of the following self-contained components that are installed on a single Virtual Machine (VM) per the supported deployment models:

- **Holly Voice Platform** - Holly Voice Platform (HVP) is a VoiceXML-based Interactive Voice Response system. It is an open-standards environment consisting of Telephony, CTI interfaces, and IVR applications. The components of HVP are engineered as independent modules which communicate with each other over IP messaging protocols. They are designed to be deployed redundantly, with several instances of a component running simultaneously within the same distributed environment. HVP also includes a web-based portal which features configuration forms, management tools, system reports, and utilities for the administration and management of the platform.
- **VXML Interaction Server** - When executed from the integrated Apache Tomcat application server, serves VoiceXML to the HVP to deliver Virtual Hold Callback treatment.
- **Call Control Interaction Server (CCIS)** - CCXML application which initiates an outbound call to deliver a requested callback based on a request received from the Outbound Contact.

Return to top.

IVG Features and Requirements

IVG Features

Features available with IVG include:

- **Offline Installation** - After the installer package is downloaded from Flexera, installation can be performed in an offline environment.
- **Automated Installation and Configuration** - The IVG Installer installs the application and its dependencies on a VM in an automated installation process
- **Single and Multiple IVG Instances** - IVG may be installed as a single instance or as multiple instances, with each VM installed with a single IVG instance containing the voice platform, VIS, and CCIS. The PostgreSQL database

may be installed locally, remotely, or standalone, depending on the deployment model being used.

- **Standalone and High Availability deployments** - IVG can be installed in a standalone or high availability Callback deployment.
- **Integration support** - Support for Cisco UCCE.
- **Centralized Management** - The web-based management system provides a centralized user interface to administer one or more IVG voice platforms.
- **Improved Performance** - The Standalone Virtual Hold with Single IVG deployment model in IVG 3.0 or later, running on the baseline IVG Hardware specifications, now supports 250-300 concurrent calls. By comparison, IVG Versions 2.1 and earlier only supported 50 concurrent calls.
- **Multiple Software Combinations Supported** - The following two combinations of operating system, Tomcat, and Java versions are supported:
  CentOS 6.8 or RHEL 6.8, Tomcat 7.0.70, and Java 6
  CentOS 7.3 or RHEL 7.3, Tomcat 8.5.13, and Java 7 (IVG 3.3.0 or later)

IVG Hardware Requirements

The IVG requirements are as follows:

Number of Calls	Number of Cores	Number of vCPUs	RAM	Disk Space
Up to 250 concurrent calls	4	8	8 GB	60 GB

Codec Support

The following codec can be used for SIP calls to the voice platform:

- G.711

Performance

While actual performance is dependent on the IVG system, internal VHT acceptance testing has achieved the following performance level when all recommended configuration procedures were followed.

Operating System	Integration	Number of Cores	Number of vCPUs	RAM Memory	Disk Space	Total Ports	Total Calls Per Hour	Average Memory Usage	Average CPU Usage
Linux (RHEL/ CentOS)	Cisco	4	8	8 GB	60 GB	250	15,000	45%	45%

Return to top.

Virtual Machine Requirements

IVG software has been tested using the following virtualized environment:

- VMWARE ESXi (version 5.5 or higher), 64-bit compatible.

Return to top.

Operating System Requirements

IVG software has been tested using the CentOS 6.8, RHEL 6.8, CentOS 7.3 (IVG 3.3 or later) and RHEL 7.3 (IVG 3.3 or later) operating systems (64-bit only).

Note:

/tmp needs to be mounted as a tmpfs file system. Given the HVP writes call recordings and cache temporarily to /tmp/holly, which can have a significant performance impact if /tmp is retained at its normal disk based file system location. Refer to /tmp as tmpfs for more information on how to perform manual configuration.

Important:

Your IVG system will require more free disk space than these minimum values. Adjust your system resources accordingly.

Use the following table to identify the Linux OS disk partitioning sizing guidelines for IVG installation:

File System	Space Requirements
File system separate from root	A minimum of 1 GB free disk space is recommended.
“/export/home”	A minimum of 5 GBs free disk space is recommended.
“/tmp”	A minimum of 4 GBs free space is recommended. /tmp should be mounted as a tmpfs partition.
swap	A swap space equal to the amount of memory at a minimum is recommended.

Return to top.

Supported Integrations

Support for Cisco UCCE:

Cisco component requirements are:

- UCCE 10.5
  - Unified Communications Manager 10.5.1
  - Cisco Voice Platform 10.5.1
  - Intelligent Contact Management 10.5.1
- UCCE 11.5
  - Unified Communications Manager 11.5.1
  - Cisco Voice Platform 11.5(1)
  - Intelligent Contact Management 11.5(1)

Return to top.

IVG Platform

IVG is used in conjunction with Virtual Hold Callback, and can be integrated with Cisco UCCE environments to process incoming calls through to successful callback.

Deployment Architecture Diagrams

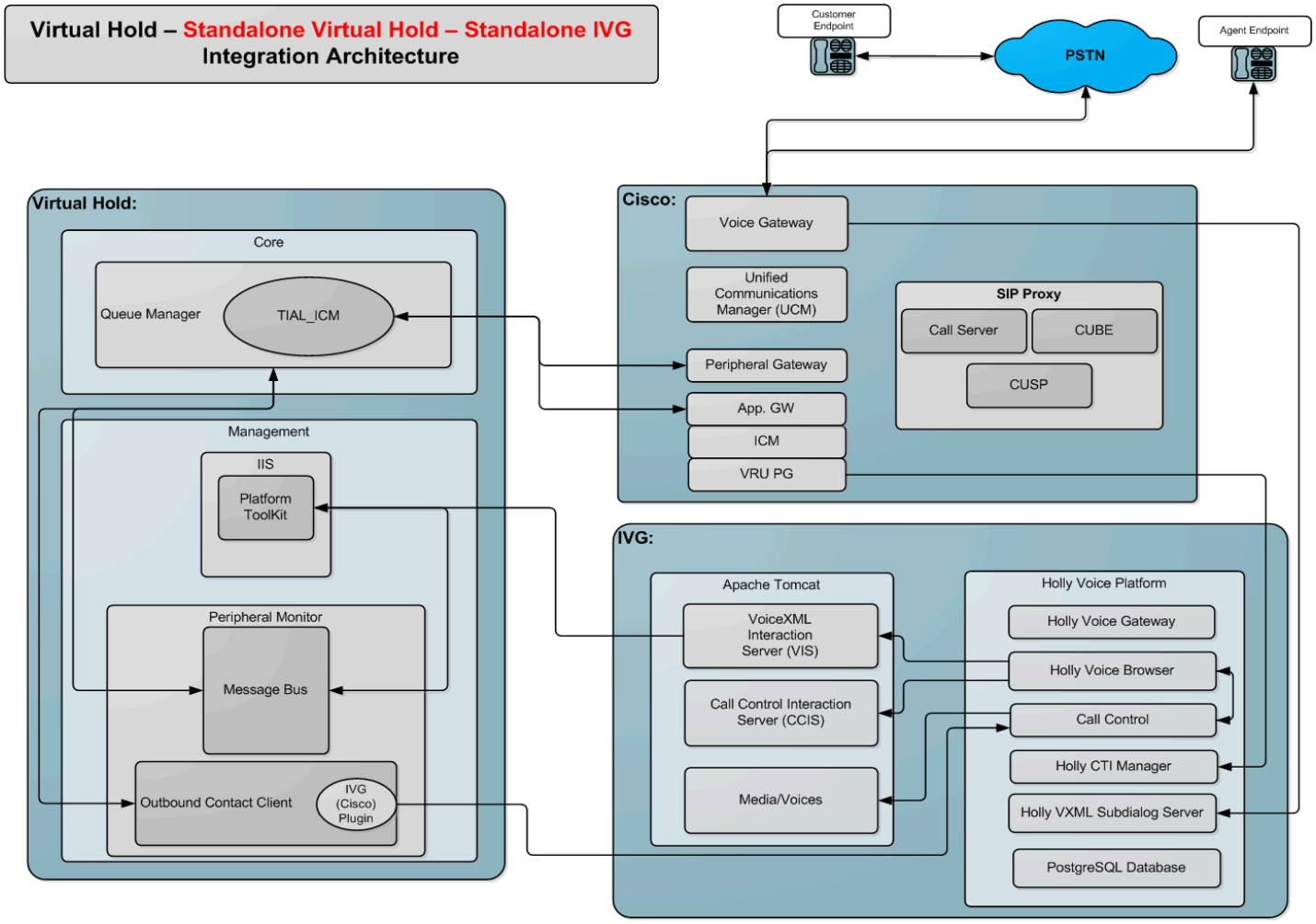
The following figures detail integration models for IVG, Virtual Hold, and Cisco UCCE.

Standalone Virtual Hold and Single IVG

This integration consists of the following:

- Standalone Virtual Hold environment
- Single IVG
- Local PostgreSQL Database
- CTI Manager on IVG connected to a Cisco VRU Peripheral Gateway PIM
- Tomcat local on the IVG
- VIS published to Tomcat
- Call Control Interaction Server (CCIS) (CCXML) published to Tomcat

Click image to open in a new tab.



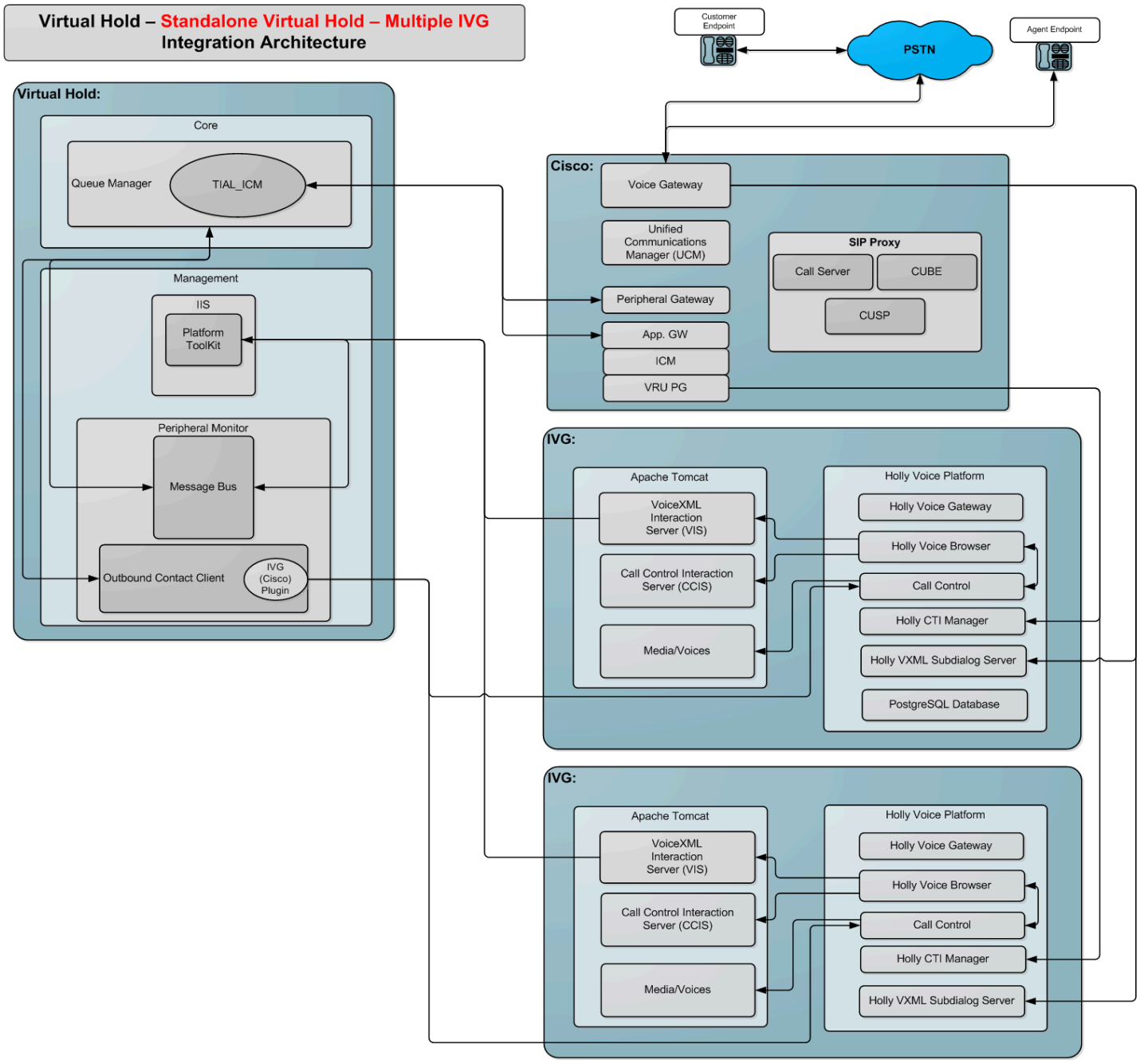
Return to top.

Standalone Virtual Hold and Multiple IVG

This integration consists of the following:

- Standalone Virtual Hold environment
- Multi IVG (N+1)
- PostgreSQL local on the first IVG; remote to all other IVGs
- CTI Manager per IVG connected to a Cisco VRU Peripheral Gateway PIM
- Tomcat local on each IVG
- VIS published to each Tomcat
- Call Control Interaction Server (CCIS) (CCXML) published to each Tomcat

Click image to open in a new tab.



Return to top.

High Availability Virtual Hold and Multiple IVG

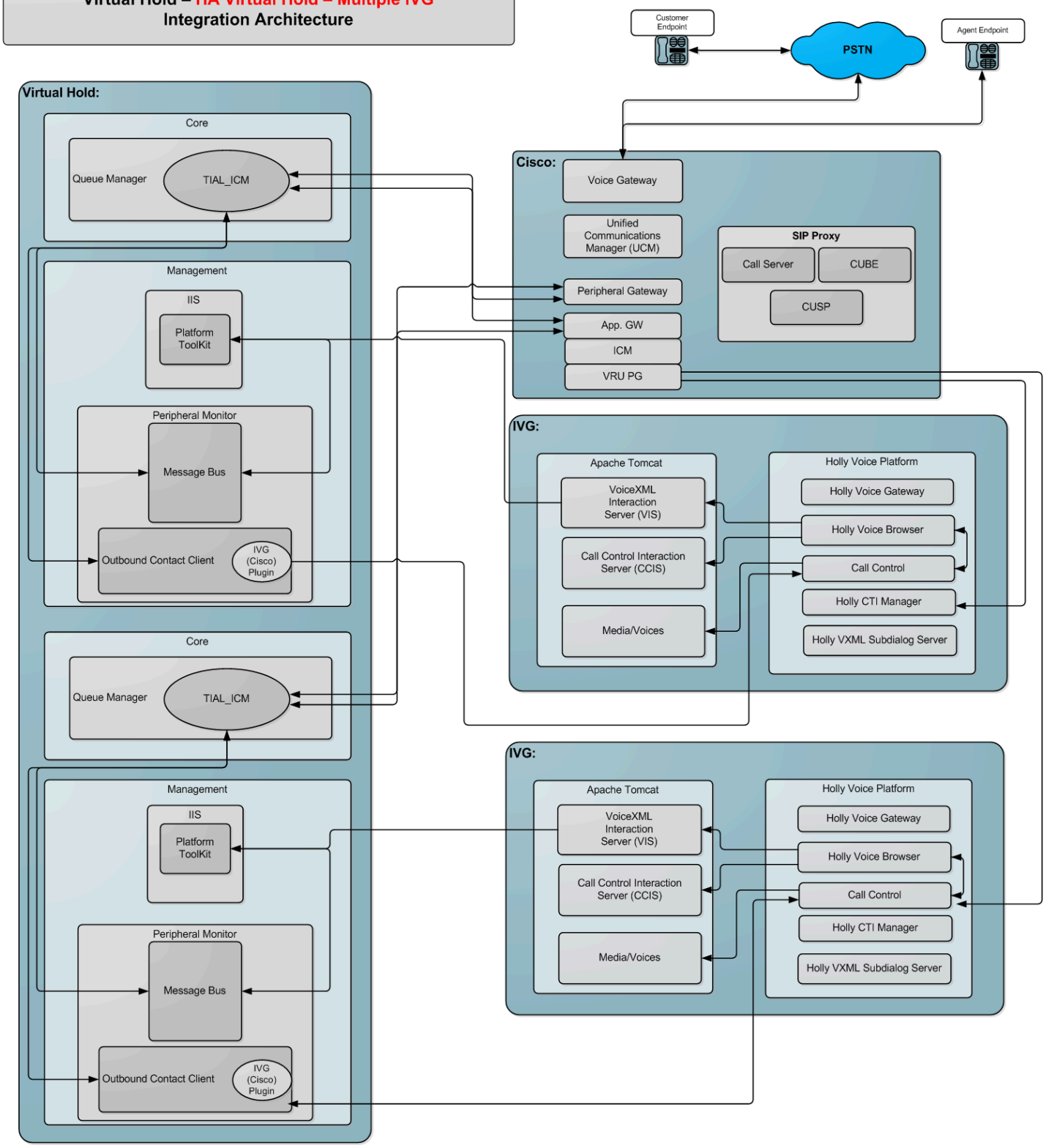
This integration consists of the following:

- High Availability Virtual Hold environment

- Multi IVG (N+1)
- PostgreSQL remote from all IVGs
- CTI Manager per IVG connected to a Cisco VRU Peripheral Gateway PIM
- Tomcat local on each IVG
- VIS published to each Tomcat
- Call Control Interaction Server (CCIS) (CCXML) published to each Tomcat

Click image to open in a new tab.

Virtual Hold – HA Virtual Hold – Multiple IVG Integration Architecture



Return to top.