Gateway Options

Cisco offers a large range of voice gateway models, to cover a large range of requirements. Many of these have been qualified for use with CVP, but not all. It is important to always check the latest CVP 3.1 Bill of Materials for the list of currently supported gateway models. This document can be found at:


Gateways are used in CVP for conversion of TDM to IP, and for executing VoiceXML instructions. The following sections help you determine which gateways to incorporate into your design.

This chapter covers the following topics:

- PSTN Gateway, page 12-1
- VoiceXML Gateway with DTMF or ASR/TTS, page 12-2
- VoiceXML & PSTN Gateway with DTMF or ASR/TTS, page 12-2
- TDM Interfaces, page 12-2

PSTN Gateway

In this deployment, the voice gateway is used as the PSTN-to-H.323 voice gateway. The voice gateway is responsible for converting TDM speech to IP and for recognizing DTMF digits and converting them to H.245 signals.

In a centralized CVP deployment, you can separate the VoiceXML functionality from the ingress gateway to provide a separate PSTN ingress layer. The separate PSTN layer and VoiceXML farm enables the deployment to support a large number of VoiceXML sessions and PSTN interfaces. For example, the Cisco AS5400XM can accept a DS3 connection, providing support for up to 648 DSOs. However, a gateway that is handling that many ingress calls cannot also support as many VoiceXML sessions. In such cases, the VoiceXML sessions should be offloaded to a separate farm of VXML-only gateways.

In a distributed CVP deployment, gateways which reside at the branch office must be dual-use gateways. When the CVP Call Server receives a call from a branch-based ingress gateway, and is asked by the ICM to transfer that call to a VXML gateway, it must be careful to return the call to the same branch office in order to avoid establishing a media stream from one branch to another. It does this by always forcing the VRU leg to go back to the same gateway from which it received the call initially. (For more information, see the SetTransferLabel and SetExcludeIP VBAdmin commands in the CVP 3.1 Configuration and Administration Guide.)
VoiceXML Gateway with DTMF or ASR/TTS

A standalone VoiceXML gateway is a voice gateway with no PSTN interfaces. The VoiceXML gateway allows customers to interact with the IOS VoiceXML Browser via DTMF tones or ASR/TTS. Because the gateway does not have PSTN interfaces, voice traffic is sent via Real-Time Transport Protocol (RTP) to the gateway, and DTMF tones are sent via out-of-band H.245 messages.

A voice gateway deployment using VoiceXML with DTMF or ASR/TTS, but no PSTN, enables you to increase the scale of the deployment and support hundreds of VoiceXML sessions per voice gateway.

In a centralized CVP Deployment, you could use a VoiceXML farm. For example, if you want to support 300 to 10,000 or more VoiceXML sessions, the recommended voice gateway is the Cisco AS5350XM. The standalone AS5350XM can support many DTMF or ASR/TTS VoiceXML sessions per voice gateway. In addition, Cisco recommends that you stack the AS5350XM gateways to support large VoiceXML IVR farms.

In a distributed CVP Deployment, consider providing an extra layer of redundancy at the branch office. You can deploy a separate PSTN gateway and a VoiceXML gateway to provide an extra layer of redundancy. In addition, for a centralized Cisco CallManager deployment, you must provide support for Survivable Remote Site Telephony (SRST). The Cisco 3800, 3700, and 2800 Series routers are the best choice for the voice gateway because they support SRST.

VoiceXML & PSTN Gateway with DTMF or ASR/TTS

The most popular voice gateway is the combination VoiceXML and PSTN Interface Gateway. In addition, for a centralized Cisco CallManager deployment, you must provide support for Survivable Remote Site Telephony (SRST). The Cisco 3800, 3700, and 2800 Series routers are the best choice for the voice gateway because they support SRST.

TDM Interfaces

Cisco AS5400 Series Universal Gateways offer unparalleled capacity in only two rack units (2RU) and provide universal port data, voice, and fax services on any port at any time. High density (up to one CT3), low power consumption (7.2 A at 48 VDC per CT3), and universal port digital signal processors (DSPs) make the Cisco AS5400 Series Universal Gateways ideal for many network deployment architectures, especially co-location environments and many points of presence (POPs).

The Cisco AS5350 Universal Gateway is the only one-rack-unit (1RU) gateway that supports 2-, 4-, or 8-port T1/7-port E1 configurations and provides universal port data, voice, and fax services on any port at any time. The Cisco AS5350 Universal Gateway offers high performance and high reliability in a compact, modular design. This cost-effective platform is ideally suited for internet service providers (ISPs) and enterprise companies that require innovative universal services.

The Cisco 2600, 2800, 3700, and 3800 Series Routers support the widest range of packet telephony-based voice interfaces and signaling protocols within the industry, providing connectivity support for more than 90 percent of the world's private branch exchanges (PBXs) and public switched
telephone network (PSTN) connection points. Signaling support includes T1/E1 Primary Rate Interface (PRI), T1 channel associated signaling (CAS), E1-R2, T1/E1 QSIG Protocol, T1 Feature Group D (FGD), Basic Rate Interface (BRI), foreign exchange office (FXO), E&M, and foreign exchange station (FXS). The Cisco 2600, 2800, 3700 and 3800 Series Routers can be configured to support from two to 540 voice channels.

For the most current information about the various digital (T1/E1) and analog interfaces supported by the various voice gateways, refer to the latest product documentation available at the following sites:

- Cisco 2600 Series
- Cisco 2800 Series
- Cisco 3700 Series
- Cisco 3800 Series
- Cisco AS5300
- Cisco AS5400HPX