



IBM Software Group

# WebSphere® Voice Response for AIX®

## *Prerequisite considerations*



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This presentation will describe some of the basic prerequisites you must take into consideration when planning to setup a WebSphere Voice Response system. While not completely necessary, a basic familiarity with the terms associated with telephony and interactive voice response systems will be helpful in understanding how to plan your system.

## Goal

- Provide an overview of the steps necessary to plan a new WebSphere Voice Response version 4.2 system.

The goal of this presentation will be to provide a basic overview of the steps necessary when planning to setup a new WebSphere Voice Response version 4.2 system.

## Areas of consideration

1. Telephony network
2. Server details
  - Hardware and software requirements
3. Scalability



There are three main areas of consideration you must focus on when planning a new WebSphere Voice Response system: the telephony network, workstation details, and system scalability.

## Telephony network

- How will your telephony network interface with your voice processing system?
- Type of switch and how it will be configured?
  - ▶ Digital central office switch (exchange)
  - ▶ Private automated branch exchange (PABX)
  - ▶ Automatic call distributor (ACD) system
  - ▶ Host-controlled digital switch
- Type of digital trunk connection?
  - ▶ T-carrier level 1 (T1) or E-carrier level 1 (E1)

The first step you must consider when planning your WebSphere Voice Response system is how your telephony network will interface with your voice processing system. Since telephony regulations and public networks vary from country to country, WebSphere Voice Response provides a variety of connection facilities. You must consider what type of telephony switch you will use and how it will be configured. You must also decide if you will be using T1 or E1 cabling between your switch and your WebSphere Voice Response machine.

## Telephony network

- Type of signaling protocol?
  - ▶ Channel associated signaling (CAS)
  - ▶ Common channel signaling (CCS)
    - Integrated Services Digital Network (ISDN)
    - Signaling System 7 (SS7)
- Estimate telephony traffic
  - ▶ Number of digital voice trunks and channels necessary
  - ▶ Formula to calculate this in the “General Information and Planning” guide

You must decide between two main types of signaling protocol: channel associated signaling or common channel signaling. Both protocol families have their benefits and restrictions, so you must weigh your options carefully.

With CAS, signaling information is carried in the voice channel or in a channel that is permanently tied to the voice channel. A number of different channel associated signaling protocols are available which each have their own set of telephony capabilities. Your choice is dependent on what subset of protocols your switch or PABX supports, and which protocols provide the functionality that your applications require. Although CAS is widely available in almost every country, there are a few disadvantages to selecting this protocol. For example, because only two or four bits of signaling information are available for each channel, the channel-associated signaling bits can be used only to pass very basic information between WebSphere Voice Response and the switch.

However, using common channel signaling can avoid all of the CAS shortcomings. This is because CCS uses fast messages sent bidirectionally down a single time slot of a trunk. This allows the switch and WebSphere Voice Response to communicate much more efficiently than they can with a CAS trunk. However, there are some disadvantages to CCS. First, the cost of implementing CCS can be more expensive. Second, if your signaling channel is lost you will lose functionality of all the voice channels controlled by that signaling channel.

It is also important to estimate your telephony traffic early on in the process of planning. Doing so will help you determine the number of WebSphere Voice Response machines and the number of channels necessary to handle incoming traffic. The number of voice channels will therefore determine the number of digital voice trunks and, in turn, the number of digital voice adapters necessary. Telephony traffic is measured in units called Erlangs. There is a basic Erlang formula to calculate this number in the WebSphere Voice Response 4.2 “General Information and Planning” guide.

## Telephony voice adapters

- Standard telephony adapters (T1/E1)
  - ▶ Digital Trunk Extended Adapter (DTXA) \*
  - ▶ Digital Trunk Telephony Adapter (DTTA)
- Voice over IP adapters
  - ▶ Digital Trunk Ethernet Adapter (DTEA) \*
  - ▶ Digital Trunk No Adapter (DTNA)

❖ DTXA and DTEA can no longer be purchased

Currently, there are four types of telephony voice adapters supported for use with WebSphere Voice Response: DTXA, DTTA, DTEA, and DTNA. Since DTXA and DTEA can no longer be purchased, you will want to decide between using either a DTTA hardware based standard telephony adapter or a DTNA voice over IP software based adapter.

When considering between a DTTA and a DTNA, these points come into play:

First, a DTTA setup may cost more since you would have to buy hardware adapters. Conversely, you may have to increase your server's RAM and processor since DTNA depends more on system resources due to the fact it's software based.

Second, DTNA will require a gateway unless you're only implementing VoIP calls. The gateway would be used to route standard telephony calls, such as landline or cellular, into the VoIP system. Similarly, a DTTA adapter would require a telephony switch to accept and route calls.

Third, the DTNA adapter does not support fax, echo cancellation, or tromboning between a T1 channel and a VoIP channel.

## Server minimum requirements

### ■ Hardware

#### ▶ Minimum platform based on type of digital voice adapter

- DTTA, DTXA – pSeries® computer model 610 (7028–6C1)
- DTEA -- pSeries computer model 615 (7029–6C3)
- DTNA -- System p5® is a model p5 505 (9115-505) or 52A (9131-52A), and the minimum BladeCenter® is a model JS20 Type 8842
- Full list of supported machine types:

<http://www-01.ibm.com/support/docview.wss?rs=761&uid=swg21253839>

On this next slide, you will see the absolute minimum hardware requirements necessary to run a stand-alone WebSphere Voice Response system. WebSphere Voice Response must be run on a pSeries, system P5, or BladeCenter, depending on the type of digital voice adapter you will use. DTTA, DTXA, and DTEA are all hardware based digital voice adapters and must be purchased separately from WebSphere Voice Response. DTNA is a new software based implementation of the DTEA adapter. DTNA requires no additional hardware installation and uses VoIP by way of SIP which stands for Session Initiation Protocol.

The URL shown on this slide lists the currently supported machine types based on which voice adapter you're using.

## Server minimum requirements

- ▶ RAM 512 MB
- ▶ Storage 4 GB hard disk space
- ▶ Optional hardware
  - Brooktrout fax card – In order to develop applications which send and receive faxes.
  - SS8 Networks Inc SS7 hardware adapter – To take advantage of the features of telephony networks using the SS7 Common Channel Signaling (CCS) protocol.

A minimum of 512 MB of RAM is required in order to run only basic state table voice applications. With this minimum, you would also be limited to only 12 voice channels. Most production machines will want to have at least 2 to 8 GB of RAM in order to adequately handle high volumes of common voice applications. To further determine the amount of RAM you will need based on your voice application complexity, contact your IBM Sales Representative.

4 GB of hard disk space is required in order to install the various software components of WebSphere Voice Response in addition to its companion software. The amount of hard disk space necessary will increase based on the size and complexity of voice applications you create.

If you are planning on installing additional software on your WebSphere Voice Response server, such as voice recognition, you must plan for the increased resource requirements.

## Server minimum requirements

### ■ Software prerequisites

#### ▶ Operating System

- IBM AIX version 5.2 ML2 or higher (32-bit AIX kernel)
- IBM AIX version 5.3 ML2 or higher is supported with WebSphere Voice Response version 4.2 fix level 181 or later
- A 64-bit AIX kernel is supported with WebSphere Voice Response version 4.2 fix level 361 or later

#### ▶ IBM DB2® version 8.1 (provided with WebSphere Voice Response)

- After installation, IBM DB2 should be upgraded to version 8.2 fixpack 16

WebSphere Voice Response must be run on IBM's AIX operating system. Depending on the fix level of WebSphere Voice Response you install, you can run on version 5.2 or 5.3 of AIX. WebSphere Voice Response will run in either a 32-bit or 64-bit AIX kernel. There is no advantage to either. You only need to run in a 64-bit AIX kernel if you have other applications which require it. If you decide to run in a 64-bit AIX kernel you will need to upgrade WebSphere Voice Response to fix level 361 or later.

WebSphere Voice Response ships with DB2 version 8.1.1.40. DB2 is provided only for the storage and management of data used by WebSphere Voice Response, and if it is to be used by other applications, a separate license must be purchased. After installation, IBM DB2 should be upgraded to version 8.2 fixpack 16 due to high vulnerability security issues.

## Optional software

- Possible additional software based on expected application use
  - ▶ IBM VisualAge® C++ Professional for AIX compiler version 6.0
    - If developing custom servers using C/C++ language
  - ▶ AIX Communications Server for AIX 6.1 (version 6.3 if running AIX 5.3)
    - If using 3270 communications
  - ▶ IBM Developer Kit and Runtime for AIX, Java Technology Edition (JDK) 1.4.1 or 1.5
    - If using CCXML, VoiceXML or Java voice applications

Depending on the type of voice applications you want to develop, you may have to install additional software as listed on this slide.

## Scalability

- Single system image (SSI)
  - ▶ Local area network used to connect a cluster of WebSphere Voice Response systems.
  - ▶ Can share all the application data (state tables, custom servers) and all the voice data (voice segments, voice messages).
- IBM's HACMP™ (High Availability Cluster Multi-Processing) software
  - ▶ Reduces the chances of your business being stopped at a single point of failure.
  - ▶ Handles shared external disks between nodes so that when a failure is detected, HACMP allows your network to continue working by using different paths to data and applications.

The scalability of WebSphere Voice Response can be manipulated by creating a single system image, or SSI cluster. By connecting a group of WebSphere Voice Response systems, the cluster can share all the application and voice data.

In addition to improving the scale of WebSphere Voice Response by setting up a SSI cluster, you can use IBM's HACMP software to reduce the chances of your business being stopped at a single point of failure. HACMP handles shared external disks between nodes so that a failure will not bring down your entire environment.

## Further information

- General Information and Planning (GC34-6379)
  - ▶ Planning checklist
- Installation (GC34-6380)
- WebSphere Voice Response documentation is available at  
[http://www-01.ibm.com/software/pervasive/voice\\_response\\_aix/library/](http://www-01.ibm.com/software/pervasive/voice_response_aix/library/)

Further detailed information on the prerequisites can be found in the “General Information and Planning” and the “Installation” guides. If you do not have a copy of these documents, all WebSphere Voice Response manuals can be downloaded from the URL listed.

## Summary

- Described the hardware and software prerequisites



In summary, you should now have a basic understanding of the logistical considerations in addition to the hardware and software prerequisites necessary for setting up a new WebSphere Voice Response system. This concludes the presentation.

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