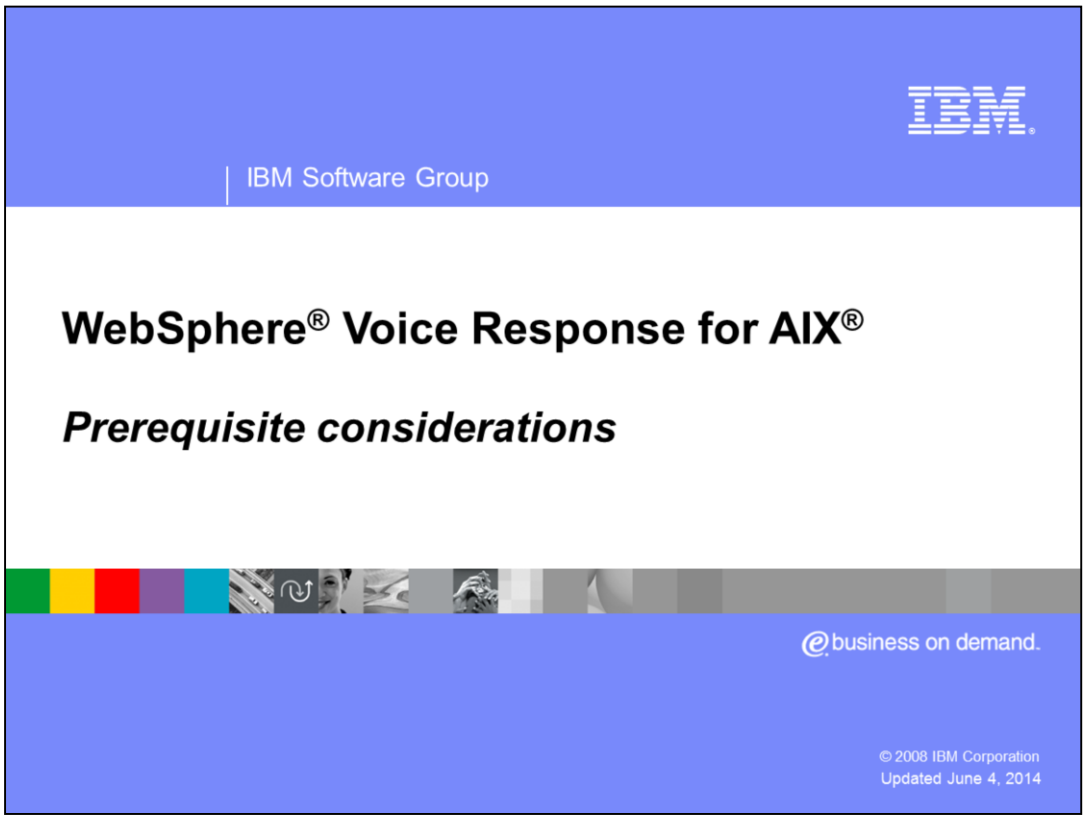
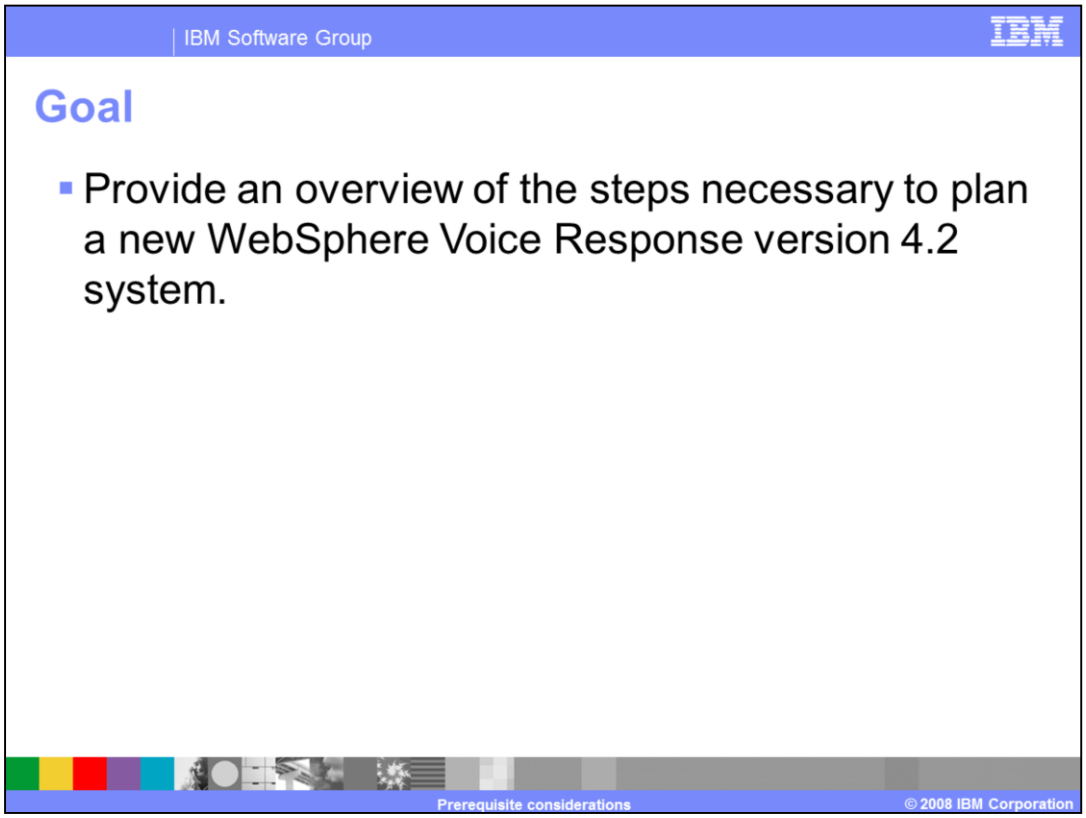
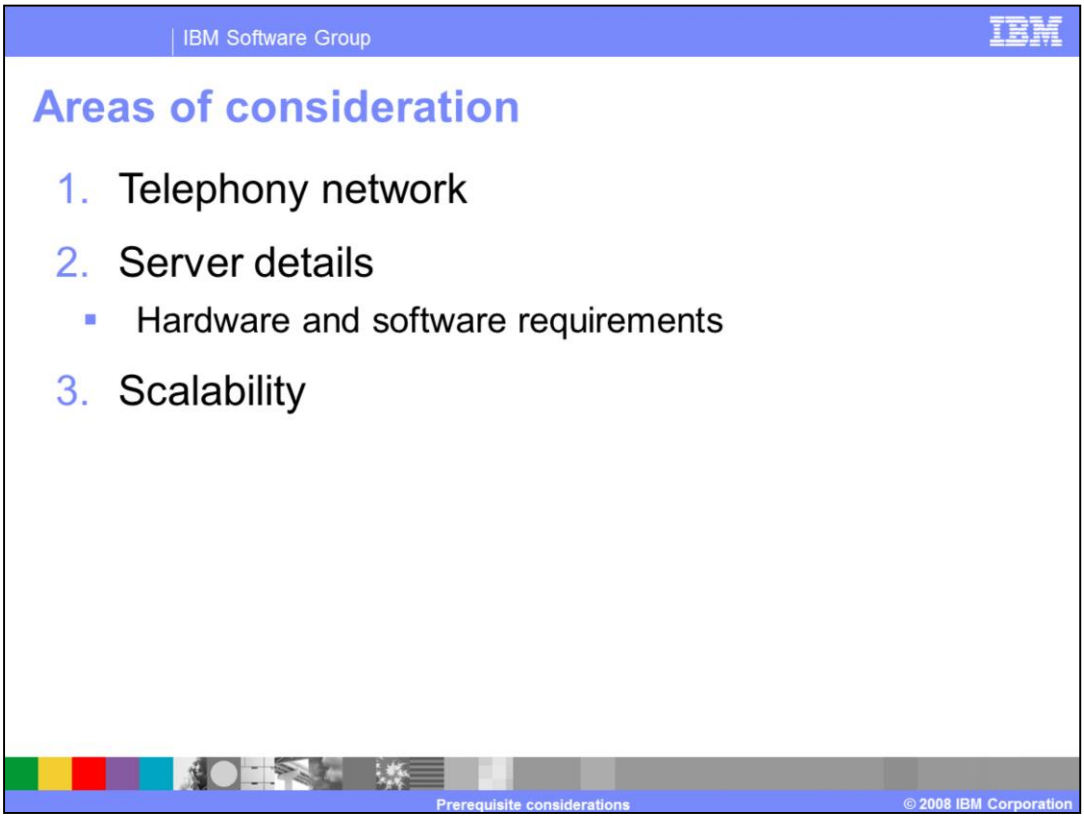


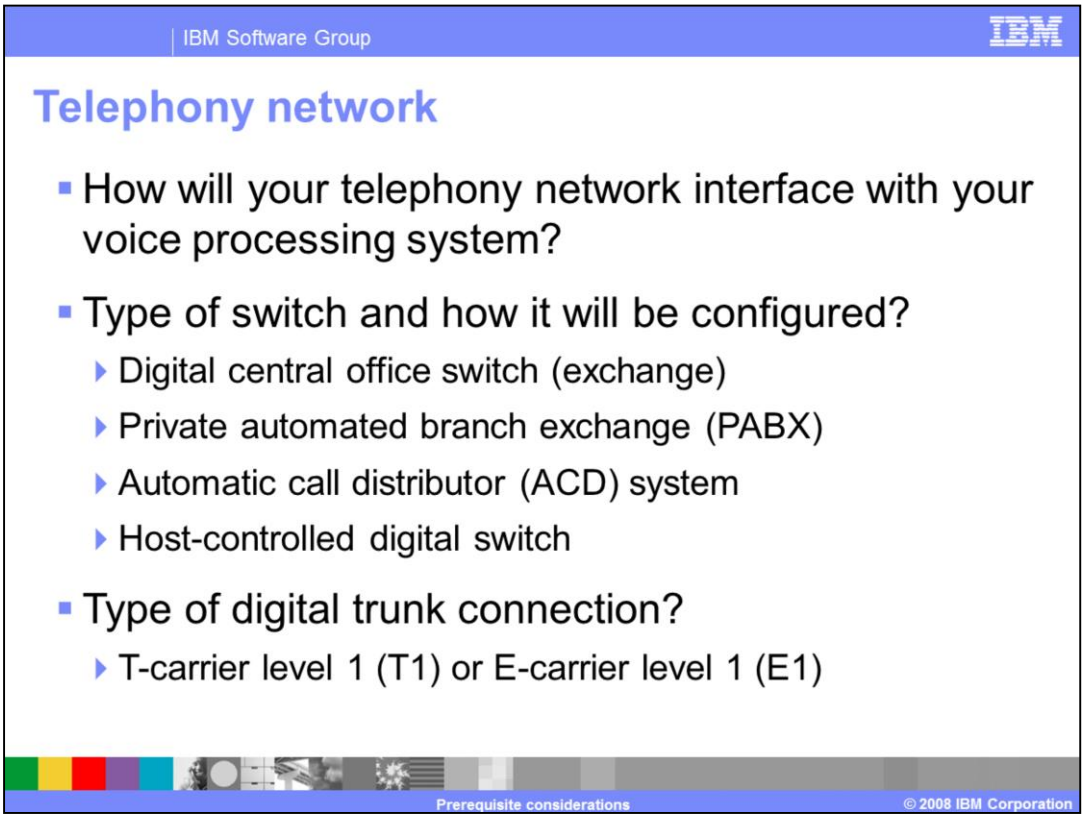
This presentation will describe some of the basic prerequisites you must take into consideration when planning to setup a WebSphere Voice Response system. While not completely necessary, a basic familiarity with the terms associated with telephony and interactive voice response systems will be helpful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



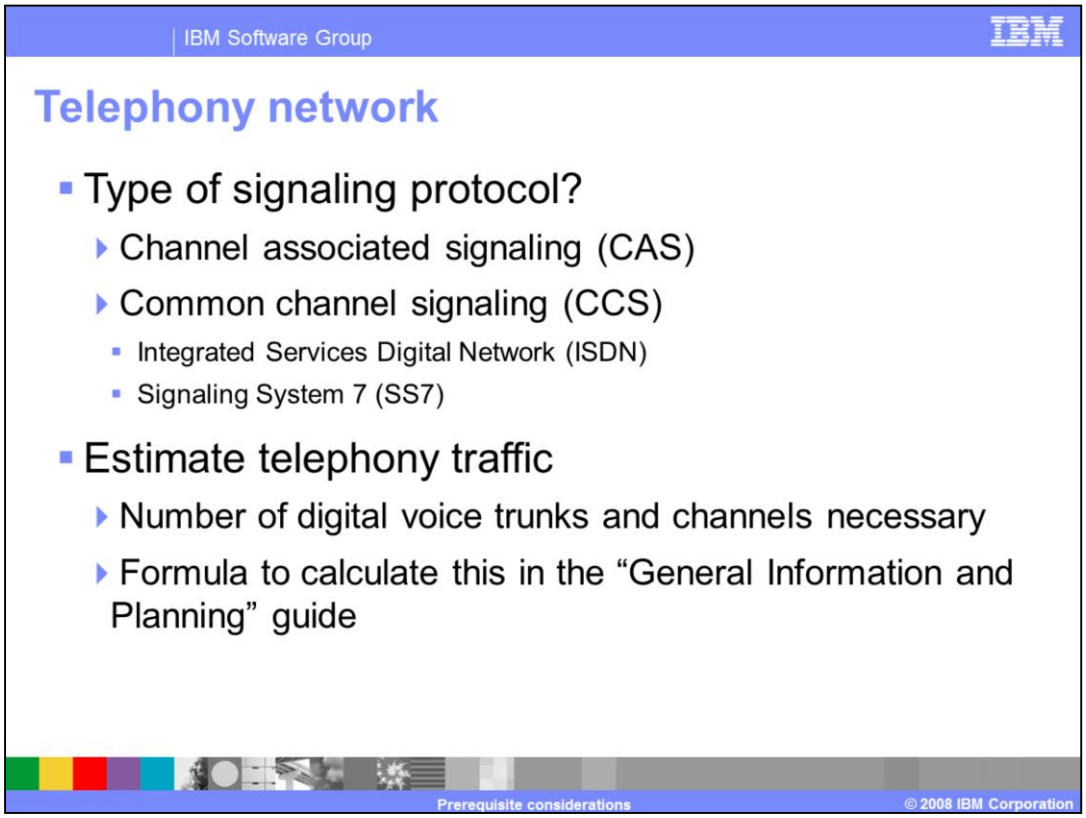
The goal of this presentation will be to provide a basic overview of the steps necessary when planning to setup a new WebSphere Voice Response version 4.2 system.



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.



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.

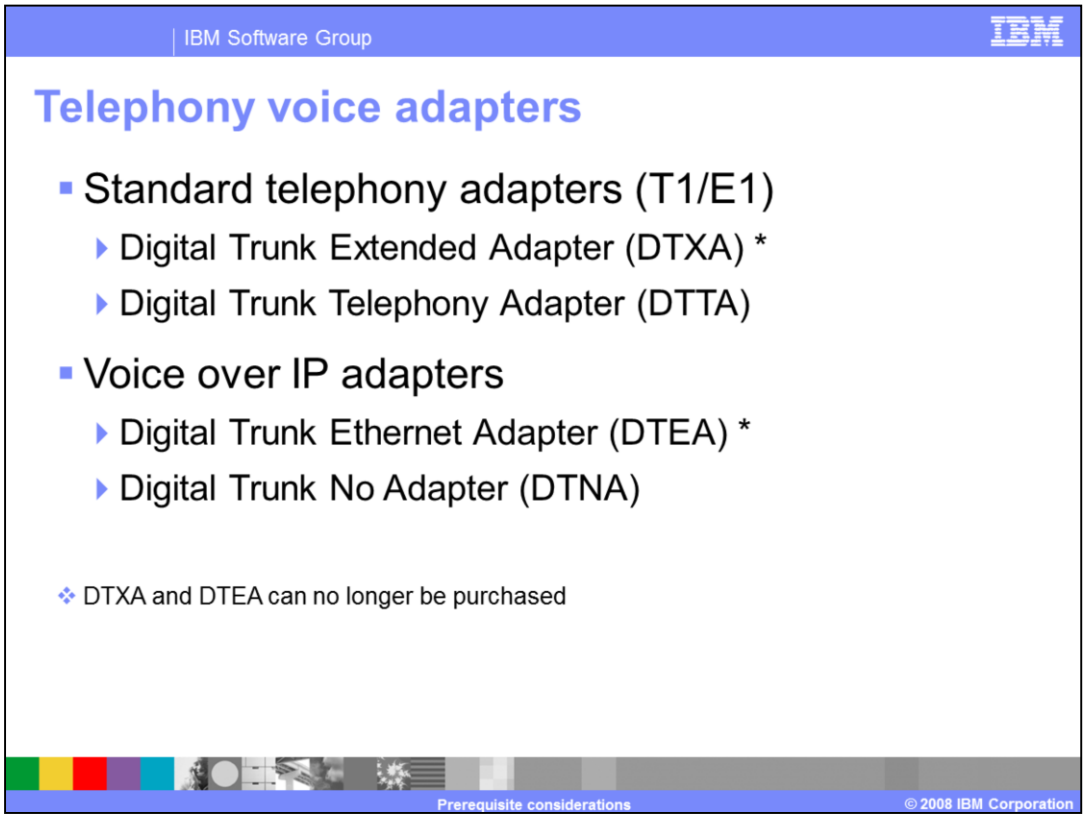


You must decide between two main types of signaling protocol: channel associated signaling or common channel signaling. Both protocol families have their benefits and restrictions, so you must weigh your options carefully.

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.



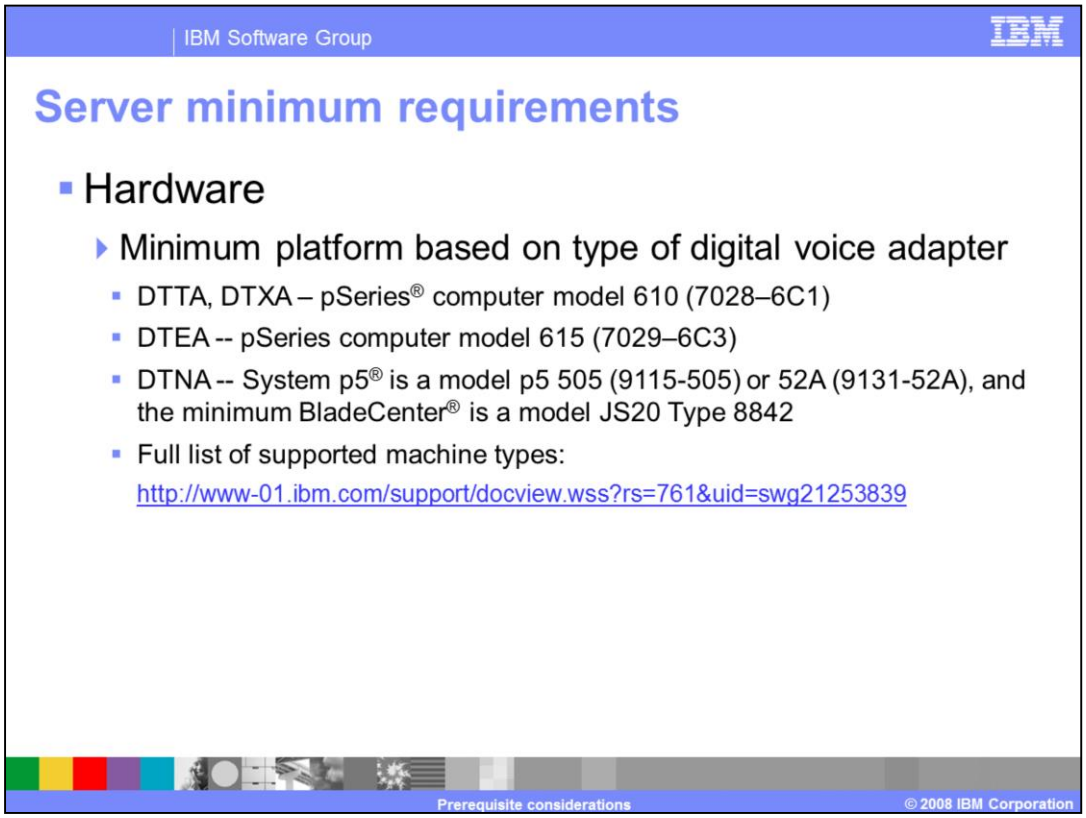
Currently, there are four types of telephony voice adapters supported for use with WebSphere Voice Response: DTXA, DTTA, DTEA, and DTNA. Since DTXA and DTEA can no longer be purchased, you will want to decide between using either a DTTA hardware based standard telephony adapter or a DTNA voice over IP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

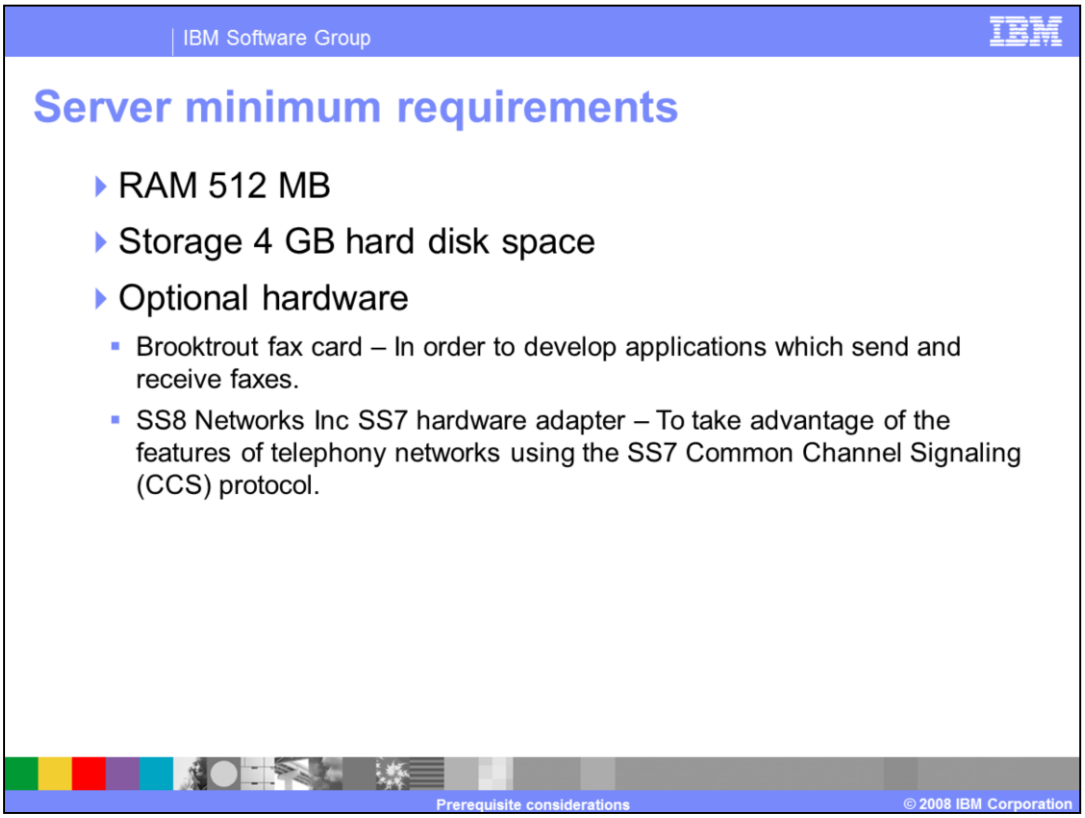
Second, DTNA will require a gateway unless you're only implementing VoIP calls. The gateway would be used to route standard telephony calls, such as landline or cellular, into the VoIP system. Similarly, a DTTA adapter would require a telephony switch to accept and route calls.

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



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.

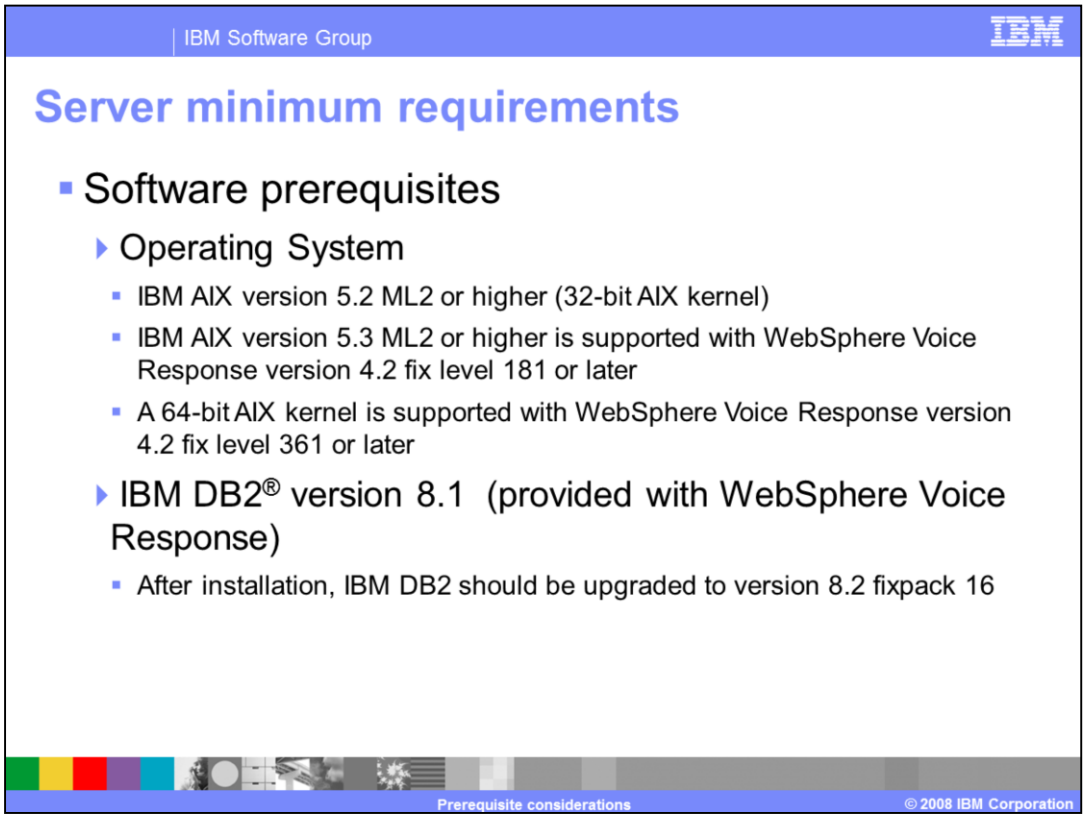
The URL shown on this slide lists the currently supported machine types based on which voice adapter you're using.



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.

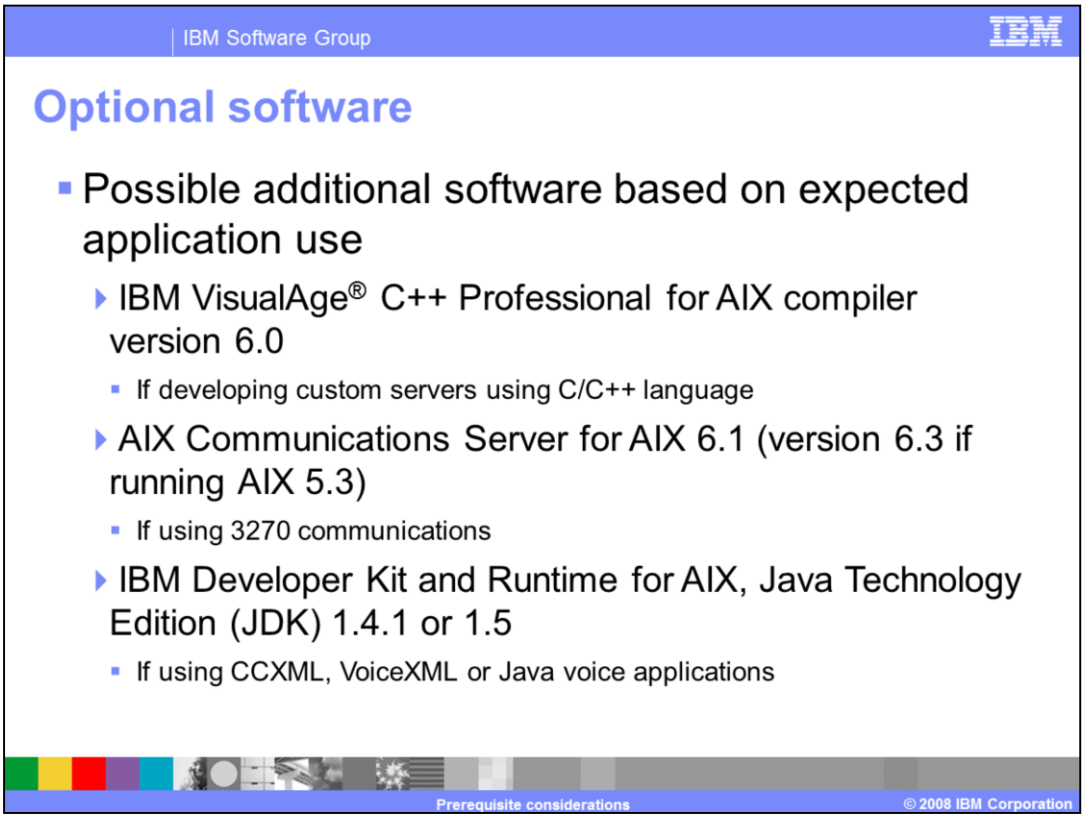
4 GB of hard disk space is required in order to install the various software components of WebSphere Voice Response in addition to it's companion software. The amount of hard disk space necessary will increase based on the size and complexity of voice applications you create.

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.

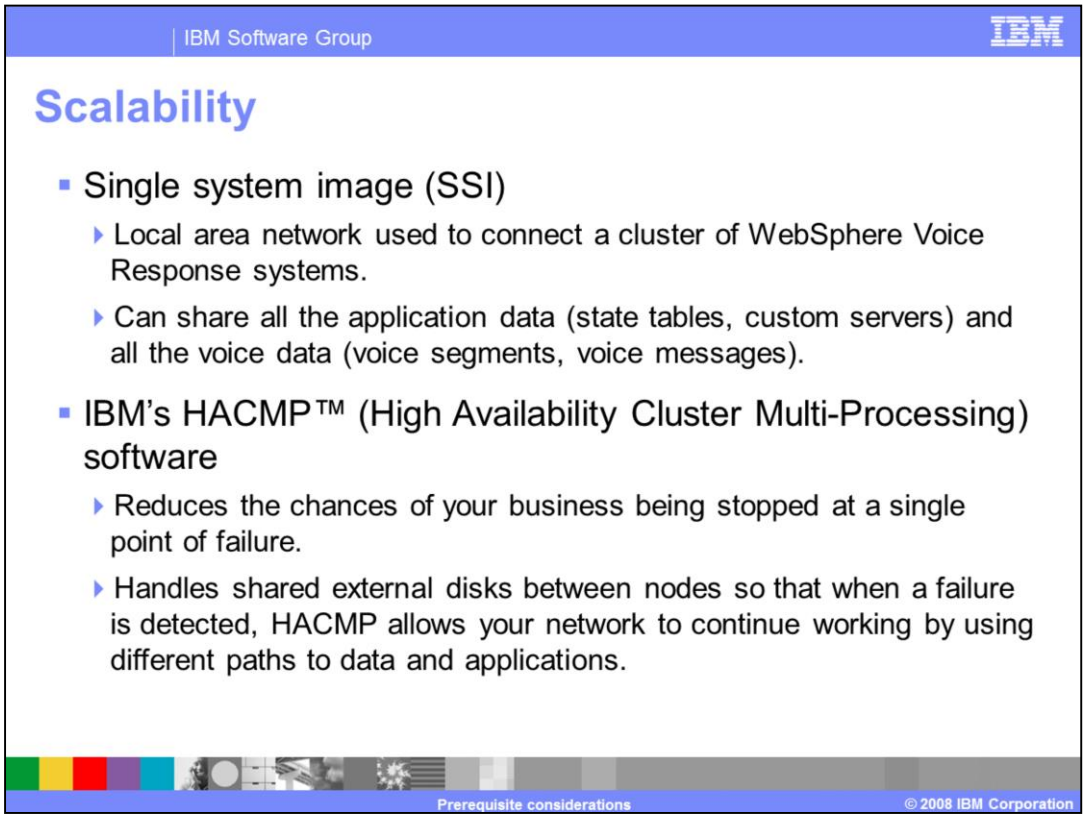


WebSphere Voice Response must be run on IBM's AIX operating system. Depending on the fix level of WebSphere Voice Response you install, you can run on version 5.2 or 5.3 of AIX. WebSphere Voice Response will run in either a 32-bit or 64-bit AIX kernel. There is no advantage to either. You only need to 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.

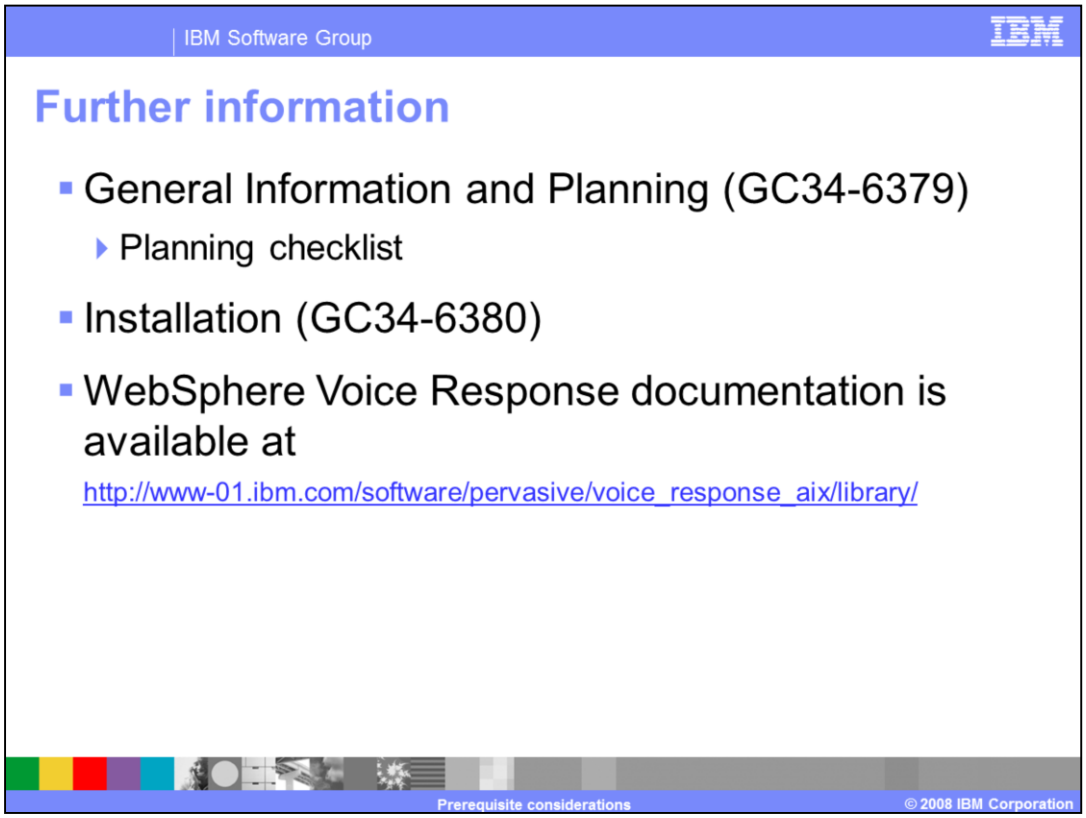


Depending on the type of voice applications you want to develop, you may have to install additional software as listed on this slide.

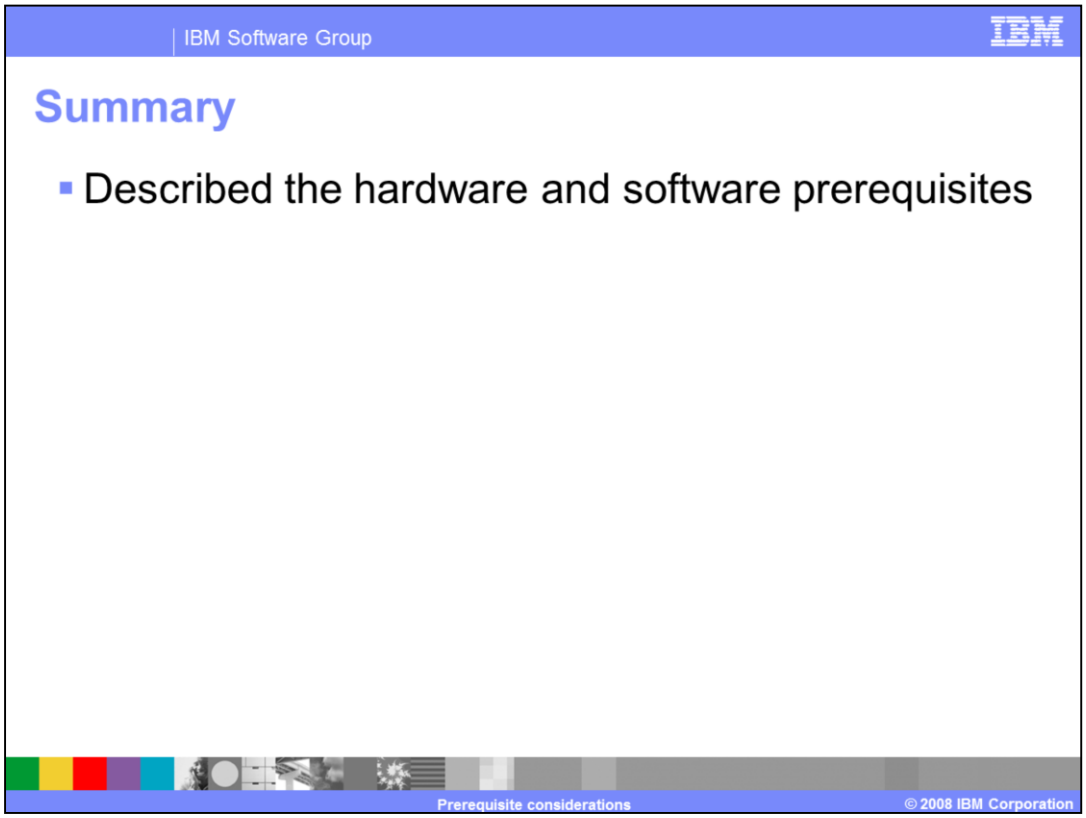


The scalability of WebSphere Voice Response can be manipulated by creating a single system image, or SSI cluster. By connecting a group of WebSphere Voice Response systems, the cluster can share all the application and voice data.

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 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.



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.

Trademarks, copyrights, and disclaimers

The following terms are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both:

AIX BladeCenter DB2 HACMP IBM pSeries System p
System p5 VisualAge WebSphere

A current list of other IBM trademarks is available on the Web at http://www.ibm.com/legal/copytrade.shtml

Java, JDK, and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both.

Product data has been reviewed for accuracy as of the date of initial publication. Product data is subject to change without notice. This document could include technical inaccuracies or typographical errors. IBM may make improvements or changes in the products or programs described herein at any time without notice. Any statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only. References in this document to IBM products, programs, or services does not imply that IBM intends to make such products, programs or services available in all countries in which IBM operates or does business. Any reference to an IBM Program Product in this document is not intended to state or imply that only that program product may be used. Any functionally equivalent program, that does not infringe IBM's intellectual property rights, may be used instead.

Information is provided "AS IS" without warranty of any kind. THE INFORMATION PROVIDED IN THIS DOCUMENT IS DISTRIBUTED "AS IS" WITHOUT ANY WARRANTY, EITHER EXPRESS OR IMPLIED. IBM EXPRESSLY DISCLAIMS ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NONINFRINGEMENT. IBM shall have no responsibility to update this information. IBM products are warranted, if at all, according to the terms and conditions of the agreements (for example, IBM Customer Agreement, Statement of Limited Warranty, International Program License Agreement, etc.) under which they are provided. Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products in connection with this publication and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products.

IBM makes no representations or warranties, express or implied, regarding non-IBM products and services.

The provision of the information contained herein is not intended to, and does not, grant any right or license under any IBM patents or copyrights. Inquiries regarding patent or copyright licenses should be made, in writing, to:

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
U.S.A.

Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. All customer examples described are presented as illustrations of how those customers have used IBM products and the results they may have achieved. The actual throughput or performance that any user will experience will vary depending upon considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput or performance improvements equivalent to the ratios stated here.