



Cisco ICM Software Pre-installation Planning: Estimating System Size

ICM Software Version 5.0

Corporate Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
<http://www.cisco.com>
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 526-4100

Customer Order Number:
Text Part Number: OL-0727-02



THE SPECIFICATIONS AND INFORMATION REGARDING THE PRODUCTS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS MANUAL ARE BELIEVED TO BE ACCURATE BUT ARE PRESENTED WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. USERS MUST TAKE FULL RESPONSIBILITY FOR THEIR APPLICATION OF ANY PRODUCTS.

THE SOFTWARE LICENSE AND LIMITED WARRANTY FOR THE ACCOMPANYING PRODUCT ARE SET FORTH IN THE INFORMATION PACKET THAT SHIPPED WITH THE PRODUCT AND ARE INCORPORATED HEREIN BY THIS REFERENCE. IF YOU ARE UNABLE TO LOCATE THE SOFTWARE LICENSE OR LIMITED WARRANTY, CONTACT YOUR CISCO REPRESENTATIVE FOR A COPY.

The Cisco implementation of TCP header compression is an adaptation of a program developed by the University of California, Berkeley (UCB) as part of UCB's public domain version of the UNIX operating system. All rights reserved. Copyright © 1981, Regents of the University of California.

NOTWITHSTANDING ANY OTHER WARRANTY HEREIN, ALL DOCUMENT FILES AND SOFTWARE OF THESE SUPPLIERS ARE PROVIDED "AS IS" WITH ALL FAULTS. CISCO AND THE ABOVE-NAMED SUPPLIERS DISCLAIM ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THOSE OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OR ARISING FROM A COURSE OF DEALING, USAGE, OR TRADE PRACTICE.

IN NO EVENT SHALL CISCO OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR LOSS OR DAMAGE TO DATA ARISING OUT OF THE USE OR INABILITY TO USE THIS MANUAL, EVEN IF CISCO OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

AccessPath, AtmDirector, Browse with Me, CCIP, CCSI, CD-PAC, *CiscoLink*, the *Cisco Powered* Network logo, Cisco Systems Networking Academy, the Cisco Systems Networking Academy logo, Fast Step, Follow Me Browsing, FormShare, FrameShare, GigaStack, IGX, Internet Quotient, IP/VC, iQ Breakthrough, iQ Expertise, iQ FastTrack, the iQ Logo, iQ Net Readiness Scorecard, MGX, the Networkers logo, *Packet*, RateMUX, ScriptBuilder, ScriptShare, SlideCast, SMARTnet, TransPath, Unity, Voice LAN, Wavelength Router, and WebViewer are trademarks of Cisco Systems, Inc.; Changing the Way We Work, Live, Play, and Learn, Discover All That's Possible, and Empowering the Internet Generation, are service marks of Cisco Systems, Inc.; and Aironet, ASIST, BPX, Catalyst, CCDA, CCDP, CCIE, CCNA, CCNP, Cisco, the Cisco Certified Internetwork Expert logo, Cisco IOS, the Cisco IOS logo, Cisco Systems, Cisco Systems Capital, the Cisco Systems logo, Enterprise/Solver, EtherChannel, EtherSwitch, FastHub, FastSwitch, IOS, IP/TV, LightStream, MICA, Network Registrar, PIX, Post-Routing, Pre-Routing, Registrar, StrataView Plus, Stratm, SwitchProbe, TeleRouter, and VCO are registered trademarks of Cisco Systems, Inc. and/or its affiliates in the U.S. and certain other countries.

All other trademarks mentioned in this document or Web site are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0106R)

Cisco ICM Software Pre-installation Planning: Estimating System Size

Copyright © 1996–2003 Cisco Systems, Inc.

All rights reserved.



About This Guide v

- Objective v
- Audience v
- Organization vi
- Conventions vii
- Other Publications vii
- Obtaining Documentation viii
 - World Wide Web viii
 - Documentation CD-ROM viii
 - Ordering Documentation viii
- Obtaining Technical Assistance viii
 - Cisco Connection Online ix
 - Technical Assistance Center ix
 - Documentation Feedback x

CHAPTER 1

ICM Database Sizing 1-1

- Database Size Considerations 1-2
 - Data Retention 1-2
- The ICM System Sizing Tool 1-3

CHAPTER 2

Planning for ICM Platforms 2-1

- Determining the Number of PCs Required 2-1
- ICM Platform Considerations 2-3
 - Processor Utilization 2-4

- Paging Requirements [2-5](#)
- Logger Expansion [2-5](#)
- Planning for Distributor AWs [2-6](#)
 - Distributors and Admin Sites [2-7](#)
 - Distributor and Client AW Requirements [2-7](#)
- Planning for Historical Data Servers [2-7](#)
 - HDS Advantages [2-9](#)
- Purchasing the Hardware [2-9](#)

INDEX

About This Guide

Objective

This document describes how to perform several pre-installation planning tasks:

- **Enter data into the ICM System Sizing tool.** Work with your Cisco project manager to enter data into the ICM System Sizing tool.
- **Note the specifications provided by the system sizing tool.** Note the estimated central database size, the estimated network bandwidth recommendations, and the suggested system configuration for each ICM node.
- **Evaluate the need for an Historical Database Server (HDS) AW.** As an option, you may want to implement an HDS AW at one or more sites.
- **Determine how many ICM nodes your system needs.** Use the information in this document to determine the number of PCs required. Work with your Cisco ICM project manager to order the PCs.

Audience

This manual is intended for contact center managers, system support personnel, and plant engineers who are planning and preparing contact center sites for an ICM system installation. Readers should be familiar with contact center site planning and preparation issues. They should also have a basic understanding of the ICM system and the components that are installed as part of the system.

**Note**

Before using this guide, you might want to review the *Cisco ICM Software Product Description* for a more general description of ICM features and components.

Organization

The following table describes the information contained in each chapter of this guide.

Chapter	Description
Chapter 1, “ICM Database Sizing”	Describes how to properly size the ICM databases based on the size of the call center enterprise. This chapter covers how to use the ICM System Sizing tool.
Chapter 2, “Planning for ICM Platforms”	Describes how to determine the numbers and types of ICM nodes you will need.

Conventions

This manual uses the following conventions:

Format	Examples
Boldface type is used for user entries, keys, buttons, and folder and submenu names.	Choose Design–Retrieval Arguments from the InfoMaker menu bar.
<p>Italic type indicates one of the following:</p> <ul style="list-style-type: none"> • A newly introduced term • For emphasis • A generic syntax item that you must replace with a specific value • A title of a publication 	<ul style="list-style-type: none"> • <i>A skill group</i> is a collection of agents who share similar skills. • <i>Do not</i> use the numerical naming convention that is used in the predefined templates (for example, persvc01). • IF (<i>condition, true-value, false-value</i>) • For more information, see the <i>Cisco ICM Software Database Schema Handbook</i>.
An arrow (→) indicates an item from a pull-down menu.	The Save command from the File menu is referenced as File→Save .

Other Publications

For more information about Cisco Intelligent Contact Management (ICM) software, see the [Cisco ICM documentation web page](#).

Obtaining Documentation

World Wide Web

You can access the most current Cisco documentation on the World Wide Web at <http://www.cisco.com>, <http://www-china.cisco.com>, or <http://www-europe.cisco.com>.

Documentation CD-ROM

Cisco documentation and additional literature are available in a CD-ROM package, which ships with your product. The Documentation CD-ROM is updated monthly. Therefore, it is probably more current than printed documentation. The CD-ROM package is available as a single unit or as an annual subscription.

Ordering Documentation

Registered CCO users can order the Documentation CD-ROM and other Cisco Product documentation through our online Subscription Services at <http://www.cisco.com/cgi-bin/subcat/kaojump.cgi>.

Nonregistered CCO users can order documentation through a local account representative by calling Cisco's corporate headquarters (California, USA) at 408 526-4000 or, in North America, call 800 553-NETS (6387).

Obtaining Technical Assistance

Cisco provides Cisco Connection Online (CCO) as a starting point for all technical assistance. Warranty or maintenance contract customers can use the Technical Assistance Center. All customers can submit technical feedback on Cisco documentation using the web, e-mail, a self-addressed stamped response card included in many printed docs, or by sending mail to Cisco.

Cisco Connection Online

Cisco continues to revolutionize how business is done on the Internet. Cisco Connection Online is the foundation of a suite of interactive, networked services that provides immediate, open access to Cisco information and resources at anytime, from anywhere in the world. This highly integrated Internet application is a powerful, easy-to-use tool for doing business with Cisco.

CCO's broad range of features and services helps customers and partners to streamline business processes and improve productivity. Through CCO, you will find information about Cisco and our networking solutions, services, and programs. In addition, you can resolve technical issues with online support services, download and test software packages, and order Cisco learning materials and merchandise. Valuable online skill assessment, training, and certification programs are also available.

Customers and partners can self-register on CCO to obtain additional personalized information and services. Registered users may order products, check on the status of an order and view benefits specific to their relationships with Cisco.

You can access CCO in the following ways:

- WWW: www.cisco.com
- Telnet: [cco.cisco.com](telnet://cco.cisco.com)
- Modem using standard connection rates and the following terminal settings: VT100 emulation; 8 data bits; no parity; and 1 stop bit.
 - From North America, call 408 526-8070
 - From Europe, call 33 1 64 46 40 82

You can e-mail questions about using CCO to cco-team@cisco.com.

Technical Assistance Center

The Cisco Technical Assistance Center (TAC) is available to warranty or maintenance contract customers who need technical assistance with a Cisco product that is under warranty or covered by a maintenance contract.

To display the TAC web site that includes links to technical support information and software upgrades and for requesting TAC support, use www.cisco.com/techsupport.

To contact TAC by e-mail, use the address ccbu-csc@cisco.com.

In North America, TAC can be reached at 888 847-8162 or 978 458-4368. For other telephone numbers and TAC e-mail addresses worldwide, consult the following web site: <http://www.cisco.com/public/support/atgtachelp.shtml>.

Documentation Feedback

If you are reading Cisco product documentation on the World Wide Web, you can submit technical comments electronically. Click **Feedback** in the toolbar and select **Documentation**. After you complete the form, click **Submit** to send it to Cisco.

You can e-mail your comments to bug-doc@cisco.com.

To submit your comments by mail, for your convenience many documents contain a response card behind the front cover. Otherwise, you can mail your comments to the following address:

Cisco Systems, Inc.
Document Resource Connection
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate and value your comments.



ICM Database Sizing

The size of your contact center enterprise has a direct impact on ICM system requirements, including database size, network bandwidth requirements between ICM nodes, and processing requirements for ICM nodes. As part of the pre-installation planning process, you need to provide your ICM project manager with information that helps ensure the proper sizing of the ICM system. This information includes:

- Call volume (for example, the number of calls routed per day in the contact center enterprise).
- The size of your call center enterprise (that is, how many routes, services, skill groups, trunk groups, etc., are configured in the system). This requires knowledge of how ICM terms map to those used by the ACD vendor.
- Which historical data you will be saving in the central database.
- How long you will be saving the data (for example, seven, ten, or 30 days).

The *ICM System Size worksheet* will help you to document these facts about your contact center enterprise.



Note

The ICM System Size worksheet is included in *ICM Software Pre-installation Planning: Getting Started* along with the other worksheets used for gathering data about your contact centers. For more specific information about bandwidth requirements in the ICM networks, see *ICM Software Pre-installation Planning: Network and Site Requirements*.

Database Size Considerations

The ICM system stores historical data in a central relational database that resides on the Logger machine. The ICM historical data include call handling, call count, and agent performance statistics for the entire call center enterprise. The ICM central database can be configured to store as much historical data as you want to retain on disk. You are limited only by the amount of disk space you want to purchase for the Logger platform.

When you calculate the disk space you need on the Logger, you may want to plan for future expansion of the call center enterprise. Cisco ICM customer support can add disk space and increase the size of the database after the system is installed. However, if you install a Logger with extra disk space and size the database with expansion in mind, you will be less likely to require additional space in the near future.

Data Retention

Work with your ICM project manager to decide how long you want to keep certain categories of data, including:

- **Route call detail.** These data provide details about routing requests received by the ICM system and how calls were routed (that is, the route chosen for each call). These data are stored in the Route Call Detail table in the central database.
- **Termination call detail.** These data contain information about how each call was handled at a peripheral, including items such as the identifiers for the agent and peripheral that handled the call, ring time, after-call work time, and the identifier for the route where the call was sent.
- **Half-hour historical data.** These data are stored in half-hour intervals in the central database. They include information on specific skill groups, services, trunk groups, routes, and scripts. Every 30 minutes, the ICM system sends a summary of performance data to the central database. The date and time at the start of the 30-minute interval are saved with the data. This allows you to look back at data from previous 30-minute intervals.
- **Five-minute routing client data.** These data include statistics for each routing client for the most recent five-minute interval. A *routing client* is an entity that sends routing requests to the ICM system. For example, a routing

client might be a subsystem within an IXC network or a peripheral performing *Post-Routing*. Typical five-minute routing client data include the maximum delay for ICM system responses to the routing client, or the number of responses to the routing client that exceeded a late threshold.

Some of these data can accumulate very quickly, depending on your call load. By deciding how long to keep these data, you can manage the disk space on the Logger and ensure that data such as Route Call Detail does not occupy too much disk space.

The ICM System Sizing Tool

This section used to describe the ICRDBCFCG tool. This tool has been superseded by ICMDBA, which is described in the *Cisco ICM Software Administrator Guide*.

Planning for ICM Platforms

Once you have the system sizing recommendations, you can work with your ICM project manager to order the appropriate hardware configuration. First, however, you must determine how many ICM nodes you will need.

The number of PCs required in an ICM system depends on the configuration of the Central Controller, PGs, NICs, and other nodes. For example, a duplexed Central Controller configuration requires additional PCs because the CallRouter and Logger are duplicated. Similarly, if you have AT&T Intelligent Call Processing (ICP) network service, you need an extra PC to support the AT&T NIC, which requires a dedicated PC platform.

Determining the Number of PCs Required

[Table 2-1](#) shows how to determine the number of PCs required in your system. The counts of PCs in this example are based on an ICM configuration that has the following characteristics:

- The ICM system has a duplexed, geographically distributed Central Controller (in other words, each central site has a CallRouter and a Logger).
- This is a fairly large ICM installation in which the CallRouter and Logger processes reside on separate nodes. (A CallRouter/Logger combination platform is available for smaller ICM installations. This is sometimes referred to as a “Rogger.”)
- This installation has AT&T network service. For fault tolerance, an AT&T NIC is installed at each central site.

Determining the Number of PCs Required

- One side of the Central Controller (Central Site 1) is located at a call center and consequently has a PG to serve one or more ACDs. The PG is duplexed (two PCs) for fault tolerance.
- This ICM installation has three remote call center sites and two Admin sites.

Table 2-1 Sample PC Requirements

Sites	Node Types							
	CallRtr ¹	Lgr ¹	Call/Lgr	ATT NIC ²	DB Server ³	PG ⁴	AW	NetGwy ⁵
Central Site 1	1	1	–	1	–	2	4	–
Central Site 2 ⁶	1	1	–	1	–	–	4	–
Remote Call Center 1	-----	-----	-----	-----	-----	4	–	–
Remote Call Center 2	-----	-----	-----	-----	-----	2	–	–
Remote Call Center 3	-----	-----	-----	-----	-----	2	3	–
Admin Site 1	-----	-----	-----	-----	-----	-----	1	–
Admin Site 2	-----	-----	-----	-----	-----	-----	1	–
Total Nodes:	2	2	–	2	–	10	13	–
Key:								
----- These PCs are not installed at this type of site.								
– Not selected as an option in this particular configuration.								

1. In smaller ICM systems, the CallRouter and Logger nodes can reside on the same PC (a Call/Lgr node).
2. Only the AT&T and BT NICs require a separate PC. Other types of NICs reside as processes on the CallRouter PC.
3. Required only in Gateway SQL configurations.
4. Only installed at the central site if that site also serves as a call center or you are using the remote ACD option.
5. A Network Gateway node may be required in some NIC configurations. (See *Pre-installation Planning: IXC Access* for more information on Network Gateways.)
6. A second central site is not required in duplexed-collocated Central Controller configurations.

ICM Platform Considerations

The ICM software runs on Intel Pentium machines. The operating system for the ICM software is Microsoft Windows 2000. Your ICM project manager can provide you with a bill of materials (BOM), which contains information on PC configurations and provides examples of supported PC platforms.

The PC specifications for ICM nodes vary depending on the size of the call center application. Very large database routing applications may require the CallRouter and Logger to be equipped with larger RAM configurations. In addition, if large amounts of historical data are to be kept on-line, the Logger may need extra drive storage, RAM, and CPU capability.

The following list identifies the nodes of an ICM system. Your ICM project manager can provide you with complete specifications for these PC platforms.

- **CallRouter.** Windows 2000 server-class PC. Standard and high-end models are available.
- **Logger.** Windows NT or Windows 2000 server-class PC. Standard and high-end models are available.
- **CallRouter/Logger Combination.** Windows 2000 server-class PC. This platform is available for smaller call center networks in which peak busy-hour traffic does not exceed 18,000 calls. This configuration combines the CallRouter and Logger processes on a single, dual-processor server that is sometimes called a “Rogger.”
- **Gateway SQL Database Server.** Windows 2000 server-class PC. This platform is offered for the Gateway SQL external database routing option. Standard and high-performance models are available.
- **ICM Network Gateway.** Windows 2000 Workstation; desktop-class. This optional ICM node serves as an SS7 protocol gateway between the SS7 network and the ICM system.

- **Peripheral Gateway.** Windows 2000 desktop-class PC. The PG is offered in standard and high-end versions. A high-end PG may be required in instances where the PG serves multiple peripherals or runs software such as CTI Server or a third-party software application. Some PGs require specific hardware and software.

**Note**

For more specific information on PG requirements, see *ICM Software Pre-installation Planning: Switch Preparation*.

- **Admin Workstation.** Windows 2000 desktop-class PC. Both standard and high-end AW platforms are available. If an Admin Workstation is going to server as a Distributor AW, it requires the high-end AW platform.
- **Historical Database Server AW.** Windows 2000 desktop-class PC. The Historical Database Server AW option requires the high-end version of the ICM Admin Workstation.
- **Lucent CallVisor.** In some DEFINITY ECS ACD configurations, a Lucent CallVisor PC may be required at the peripheral site. Contact Lucent Technologies if you need to purchase a separate CallVisor PC platform.

Processor Utilization

As a general rule for all ICM nodes, processor utilization should be kept below 60 percent at the maximum expected call load on the system. This is needed in order to smooth out call request “spikes” as well as to allow enough reserve capacity to perform activities such as re-synchronization and background cleanup. Non-ICM software can make up a part of the 60 percent maximum load. The processor utilization figure (60 percent) covers all software running on the platform.

In addition to the utilization requirement, it is necessary that no software on the system run at a priority equal to or higher than the ICM software for more than 100 milliseconds in uninterrupted bursts. In other words, the ICM software needs to run on the system at least as frequently as once every 100 milliseconds. This is usually not a problem unless device drivers or other kernel-level software is installed, or process/thread priorities have changed incorrectly.

Paging Requirements

The most time-critical component of the ICM system, the CallRouter node, must not be delayed due to disk I/O (that is, paging). The only disk I/O that should be occurring on ICM machines is for log file writes and database I/O. The database I/Os occur on Logger and Distributor AW machines. The simple rule is to provide enough main memory so that the entire working sets of critical processes remain in memory. Most customers achieve this with 256 MB of RAM, but larger configurations may require more RAM. The database platforms (Loggers, Distributor AWs, and Gateway SQL machines) should have enough main memory so that all first level index pages are kept in main memory cache.

Logger Expansion

The Logger platform you order may include a combination of internal and external SCSI hard drives. As your call center enterprise grows, your database requirements will typically grow as well. You might have more services, skill groups, and routes in your configuration, and you might be routing more calls each day. This will result in more historical data being stored in the central database.

When your database requirements change, contact Cisco ICM customer support to have the storage capacity of the central database increased. Cisco customer support can allocate more database space after your system is installed by:

- Remotely adding database space (if current disk space allows).
- Installing “hot-plugable” disk drives and configuring the disks while the system is running.



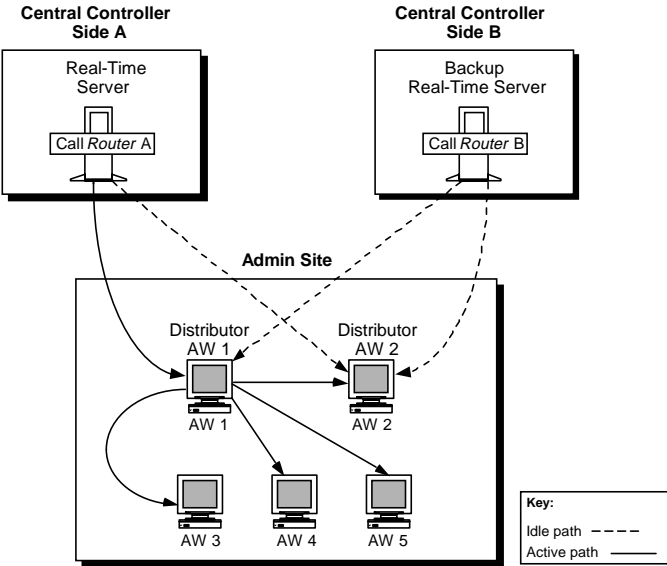
Note

The *ICM Software Administrator Guide* provides information for managing database space once the ICM system is installed and running.

Planning for Distributor AWs

To allow users to monitor current call center activity, the ICM system forwards real-time data to Distributor Admin Workstations at selected sites throughout the call center enterprise. Figure 2-1 illustrates the real-time architecture of the ICM system.

Figure 2-1 Real-Time Data Architecture



Real-time call and agent group status data arrives at the Central Controller from the Peripheral Gateways, which are constantly monitoring activity at each call center. The CallRouter acts as the *real-time server*. The CallRouter for the other side of the Central Controller acts as a back-up real-time server.

The CallRouter is responsible for providing real-time data to one or more *Distributor AWs* at each admin site. Client AWs at the site receive their real-time data through a connection to a *Distributor AW*. These AWs are called *Client AWs* because they do not have the local database and *Distributor* processes required to receive real-time data directly from the CallRouter.

Distributors and Admin Sites

Admin Workstations can be located with one or both sides of the Central Controller, at a call center, or at another site. Any site that contains AWs is referred to as an *admin site*. Each admin site requires at least one Distributor AW. Two Distributor AWs should be used (as shown in [Figure 2-1](#)) to provide fault tolerance in the real-time data distribution architecture.

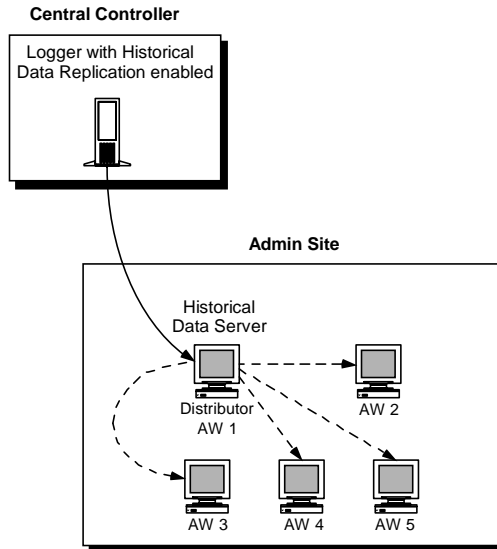
The primary Distributor AW maintains an active connection to the real-time server through which it receives real-time data. The secondary Distributor AW also maintains connections to the real-time server; however, these connections remain idle until needed (for example, in cases where the primary Distributor AW is unavailable for some reason). In sites that have two Distributor AWs, the Client AWs are configured to automatically switch to a secondary Distributor AW if the first distributor becomes non-functional for any reason.

Distributor and Client AW Requirements

There is no set limit to how many Client AWs can be served by a Distributor AW. However, in order to serve multiple Client AWs the Distributor AW must be configured with at least 128 MB of RAM with 64 MB of that RAM dedicated to SQL Server. Cisco offers a high-end ICM Admin Workstation platform for Distributor AWs. Client AWs can run on the standard ICM AW platform.

Planning for Historical Data Servers

In most ICM environments, historical data are stored in the ICM central database in summary five-minute and half-hour intervals. The ICM system also saves call detail records in the central database for each call routed. In some ICM environments, however, historical data may be forwarded to a Distributor AW where they are stored in a special database. The Distributor AW then acts as an Historical Data Server (HDS) for the admin site. Admin Workstations at the site query historical data from the HDS rather than directly from the Logger (see [Figure 2-2](#)).

Figure 2-2 *Historical Data Server Architecture*

To set up an Historical Data Server, you must configure the Logger to perform historical data replication. You must also configure the real-time distributor Admin Workstation to be an HDS. You can then create an HDS database on the real-time distributor.

Information in the real-time feed tells each client Admin Workstation where to obtain historical data. If the real-time distributor is a Historical Data Server, then it instructs its clients to get historical data from it. Otherwise, it instructs its clients to get historical data from the Logger.

Typically, two Distributor AWs at a site are set up as HDS machines. Each has its own HDS database. The same fault-tolerant strategy that applies to the real-time Distributor AW also applies to the HDS. That is, when the primary HDS fails, other Client Admin Workstations at the site automatically switch over to use the backup HDS.

HDS Advantages

Implementing an HDS may have some advantages, depending on your reporting requirements and the number of Admin Workstations you plan to install. Most significantly, the HDS eliminates the performance impact on the central database caused when multiple AWs need to access the central database to generate reports.

In systems that have multiple remote Admin Workstations, the HDS brings ICM historical reporting data closer to the end user. Instead of accessing the central database over a remote connection, AWs can access the local HDS for historical data.

In addition to the potential performance advantages, each HDS can be set up to provide a specific set of database tables. You can also set specific times for retaining data in these tables. These capabilities give you flexibility in setting up reporting capabilities on a site-by-site basis.

The Historical Data Server also provides:

- Greater flexibility in leveraging Internet applications.
- An open interface for data mining and data warehousing applications.
- The ability to host other customer database tables and have them work with the HDS.
- Improved security and data access capabilities.

Your ICM project manager can provide more information on how these capabilities might be used in your call center enterprise.

The HDS Admin Workstation requires a high-end AW platform with a more powerful CPU, greater disk capacity, and more RAM. Cisco can provide the specifications for this platform upon request.

Purchasing the Hardware

Cisco works with a select group of hardware vendors to provide certified hardware platforms and third-party software. A turn-key hardware solution for the ICM system is available on Compaq and Hewlett-Packard platforms

Using a Cisco turn-key platform is the simplest and most cost-effective way to purchase a PC platform for the ICM system. Contact your ICM account team if you are interested in ordering one of the turn-key platforms. Be sure to check with your ICM project manager before ordering the PC hardware.

Cisco's hardware vendors also offer service agreements for supporting the hardware platform. Under a service agreement, hardware support may be provided by support vendors such as Compaq or Xerox Corporation.

C

Call

detail records [2-7](#)

Central database

storage capabilities [1-2](#)

Client AWs [2-6](#)

D

Database

calculating size [1-2](#)

Distributor AW [2-6](#)

at Admin Sites [2-7](#)

H

Historical data retention [1-2](#)

Historical Data Server (HDS) [2-7](#)

I

ICR node requirements [2-3](#)

L

Logger

disk space [1-2](#)

P

PC paging requirements [2-5](#)

PC processor utilization [2-4](#)

PC requirements [2-10](#)
