



Voice

Hardware Specification

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This publication, *Voice Hardware Specification*, is designed to assist candidates in their preparation for the Cisco Systems' Voice Certification Exam.

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Voice Lab Rack Specifications

The INE Lab Racks are built to support all the features and technologies used in the actual CCIE lab exam.

For Voice Lab racks, the major hardware components are: one console-port access server; four routers with FastEthernet and T1/E1 interfaces; one Catalyst 3560 switch (which functions exactly like the Catalyst 3750 switch with regards to the real lab); one Catalyst 3550 switch; and, six Cisco IP telephones.

Each Lab Rack also has associated with it seven computer systems. Five of them are Cisco products, the sixth is a Windows XP test system, and the seventh is a Windows Active Directory server.

The INE implementation of the voice racks includes additional infrastructure, not visible to you nor configurable by you, to connect the servers and VPN link to the lab racks.

The physical topology of the Voice Lab Rack remains the same throughout the entire INE workbook series. Therefore, once your Lab Rack has been physically cabled to meet this specification, there is no need to change the physical cabling in order to complete each lab and scenerio in the Voice workbooks.

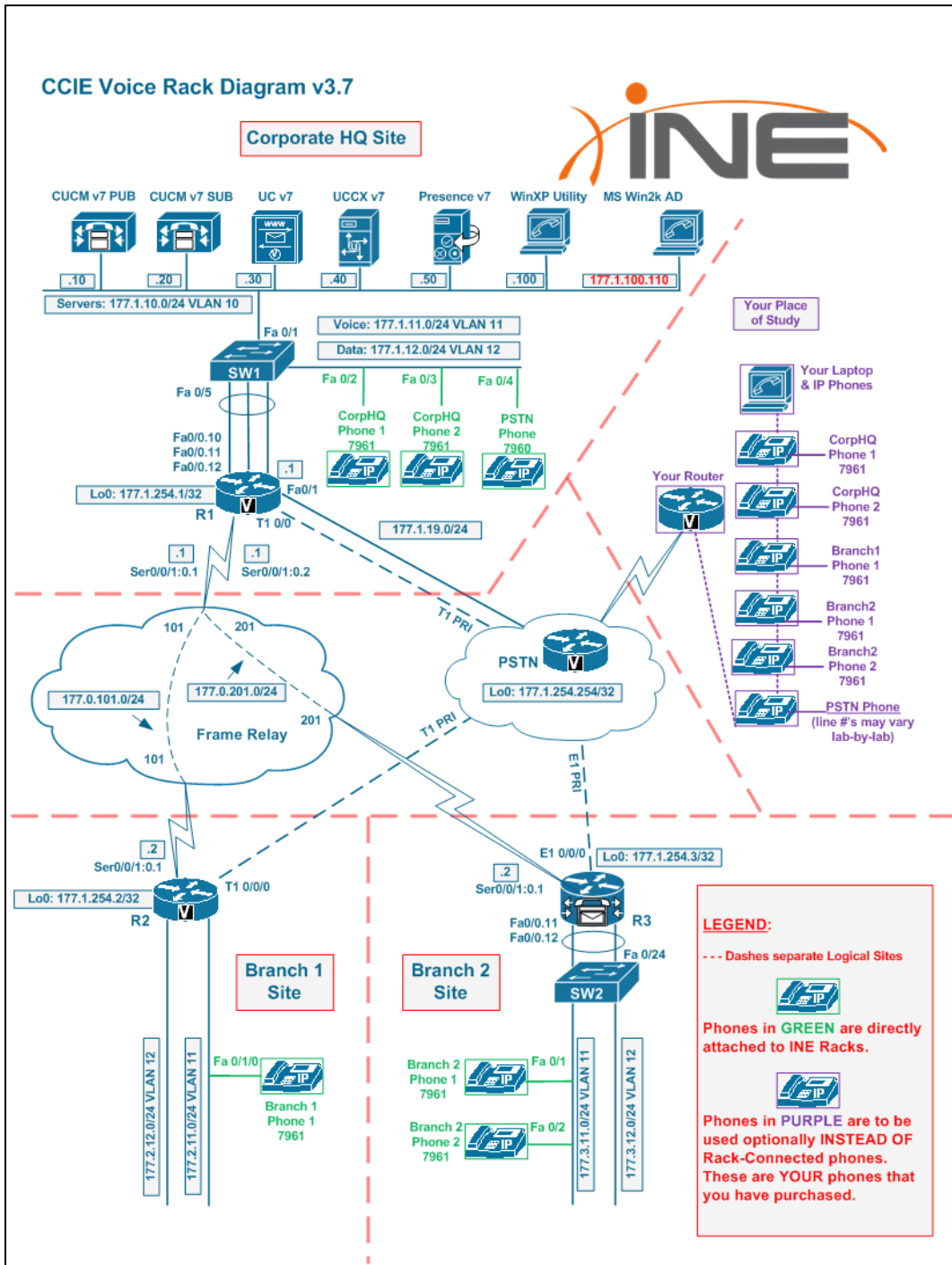
The specific devices used in the design of the INE Lab Racks are:

Device	Platform	DRAM	Flash	NVRAM	Installed modules
R1	2811	256 MB	1 GB	239 KB	(Qty 1) VWIC-2MFT-T1 (Qty 1) PVDM2-16
R2	2811	256 MB	1 GB	239 KB	(Qty 1) VWIC-2MFT-T1 (Qty 1) HWIC-4ESW (Qty 1) ILPM-4 (Qty 1) PVDM2-16
R3	2811	256 MB	1 GB	239 KB	(Qty 2) VWIC-2MFT-E1 (Qty 1) PVDM2-32 (Qty 1) AIM-CUE
PSTN	3725	256 MB	128 MB	55 KB	(Qty 2) VWIC-2MFT-T1 (Qty 1) VWIC-2MFT-E1 (Qty 1) NM-HDV (Qty 2) PVDM-12
SW1	3560-24-PS	Default	Default	Default	—
SW2	3550-24-PWR	Default	Default	Default	—
CorpHQ Phone 1	7961	—	—	—	—
CorpHQ Phone 2	7961	—	—	—	—
Branch 1 Phone 1	7961	—	—	—	—
Branch 2 Phone 1	7961	—	—	—	—
Branch 2 Phone 2	7961	—	—	—	—
PSTN Phone	7960	—	—	—	—

The generic devices used in Voice Lab Racks include the following:

Device	Software Version	Software Feature Set	Interfaces
R1	12.4(22)T5	Advanced Enterprise K9 w/ Int Voice/Video, IPIP GW, TDMIP GW	(Qty 2) FastEthernet (Qty 2) Channelized/Clear T1/PRI ports
R2	12.4(22)T5	Advanced Enterprise K9 w/ Int Voice/Video, IPIP GW, TDMIP GW	(Qty 2) FastEthernet (Qty 4) FastEthernet-Switch (Qty 2) Channelized/Clear T1/PRI ports
R3	12.4(22)T5	Advanced Enterprise K9 w/ Int Voice/Video, IPIP GW, TDMIP GW	(Qty 2) FastEthernet (Qty 2) Channelized/Clear E1/PRI ports
PSTN	12.4(15)T13	Advanced Enterprise K9 w/ Int Voice/Video, IPIP GW, TDMIP GW	(Qty 2) FastEthernet (Qty 4) Channelized/Clear T1/PRI ports (Qty 2) Channelized/Clear E1/PRI ports
SW1	12.2(44)SE	Advanced IP Services	(Qty 24) FastEthernet (Qty 2) GigabitEthernet
SW2	12.2(25)SEE4	IP Services	(Qty 24) FastEthernet (Qty 2) GigabitEthernet
CorpHQ Phone 1 7961	SCCP 8.4.2	—	—
CorpHQ Phone 2 7961	SIP 8.4.2	—	—
Branch 1 Phone 1 7961	SCCP 8.4.2	—	—
Branch 2 Phone 1 7961	SCCP 8.4.2	—	—
Branch 2 Phone 2 7961	SIP 8.4.2	—	—
PSTN Phone 7960	SCCP	—	—

Voice Lab Rack Physical Cabling



NOTE

For the IP phones at your location, you may substitute 7962, 7965, or 7970 phones at will for any of the phones listed.

Ethernet Interface Connections

Local Device	Local Interface	Remote Device	Remote Interface
PSTN	Fa0/0	VPN UPLINK	--
PSTN	Fa0/1	R1	Fa0/1
R1	Fa0/0	SW1	Fa0/5
R1	Fa0/1	PSTN	Fa0/1
R2	Fa0/1/0	Branch 1 Phone 1 7961	10/100 SW
R2	Fa0/1/3	Classroom phone*	--
R3	Fa0/0	SW2	Fa0/24
SW1	Fa0/1	SERVER UPLINK	--
SW1	Fa0/2	CorpHQ Phone 1 7961	10/100 SW
SW1	Fa0/3	CorpHQ Phone 2 7961	10/100 SW
SW1	Fa0/4	PSTN Phone 7960	10/100 SW
SW1	Fa0/5	R1	Fa0/0
SW1	Fa0/10	Classroom phone*	--
SW2	Fa0/1	Branch 2 Phone 1 7961	10/100 SW
SW2	Fa0/2	Branch 2 Phone 2 7961	10/100 SW
SW2	Fa0/10	Classroom phone*	--
SW2	Fa0/24	R3	Fa0/0

* INE Live Boot Camp use **only** – not for use in remote rack rental

T1/E1 Interface Connections

Local Device	Local Interface	Remote Device	Remote Interface	Purpose
PSTN	E1 0/2	R3	E1 0/0/0	Voice PRI
PSTN	E1 0/3	R3	E1 0/0/1	Data FR
PSTN	T1 0/0	R1	T1 0/0/0	Voice PRI
PSTN	T1 0/1	R1	T1 0/0/1	Data FR
PSTN	T1 0/4	R2	T1 0/0/0	Voice PRI
PSTN	T1 0/5	R2	T1 0/0/1	Data FR
R1	T1 0/0/0	PSTN	T1 0/0	Voice PRI
R1	T1 0/0/1	PSTN	T1 0/1	Data FR
R2	T1 0/0/0	PSTN	T1 0/4	Voice PRI
R2	T1 0/0/1	PSTN	T1 0/5	Data FR
R3	E1 0/0/0	PSTN	E1 0/2	Voice PRI
R3	E1 0/0/1	PSTN	E1 0/3	Data FR

In addition to the hardware listed in the preceding pages, there are seven computers associated with each Voice Lab Racks. Five of them are Cisco products, the sixth is the XP Test PC (just as you will have in the actual CCIE Voice Lab exam), and the seventh is the Active Directory server. The five Cisco products are:

- Cisco Unified Communications Manager Publisher server
- Cisco Unified Communications Manager Subscriber server
- Cisco Unity Connection server
- Cisco Unified Contact Center server
- Cisco Unified Presence server

The sixth server is the Test PC is a Windows XP system with the following software installed:

- Cisco Unified Personal Communicator (CUPC)
- Cisco Real-Time Monitoring Tool (RTMT)
- Filezilla FTP Server with CUE Licenses for both CUCM and CME

NOTE

The Test PC system is needed to run the CUPC application to test Presence, to run RTMT for troubleshooting and to run an FTP server for changing CUE licenses, among other tasks. This is exactly the same as the Test PC that you will have in the real lab exam, setup in the same fashion and for the same reasons.

The seventh server is a Windows Active Directory server that you do not have desktop RDP access to. Instead you have access to this device solely via LDAP queries.