Appendix 2-D: General Preimplementation Considerations Checklist

This appendix offers a baseline of core design requirements, outside of the phone features, that you should address in your network design. This appendix is also available at http://www.ciscopress.com/1587200880.

Design Considerations

In addition to phone features, be sure that your design represents all of the following mentioned considerations:

- LAN infrastructure
- WAN infrastructure
- Call processing
- Feature list
- Call admission control
- Gateway selection (MGCP/H.323)
- Fax support
- Modem support
- Transcoding and MTP
- Conferencing
- Dial plan
- Emergency services and backups
- Security
- Manageability
- Corporate directory integration
- Calling restrictions
- Billing/accounting

- NightService
- Operator console
- Other Cisco applications: IP IVR, Unity voice mail, Unity unified messaging, IP ICD, PA
- Third-party applications

If You Have Legacy PBXs

❑ Are there free analog or digital interfaces to which the Gateway can be connected?

❑ What is the make and model of the PBX?

❑ Does the PBX have any free interfaces?

❑ What are those interfaces? E&M; FXO; E1 Q.931 PRI?

❑ Do your digital interfaces support network-side ISDN Q.931?

❑ Do you have an operator/receptionist/hardware console on the PBX?

Call Flow

❑ Are all calls presented to the operator/receptionist?

❑ How many operators are there?

- ❑ If there are no operators, are incoming calls presented directly to phones?

- ❑ How many discard digits instructions (DDIs) exist?

- ❑ How many digits are presented to you from the PSTN on your DDI range?

- ❑ What is the average call volume through your receptionist/operator?

- ❑ Roughly, what is the total number of calls incoming and outgoing per day/week?

Sites

- ❑ How many sites exist?

- ❑ What design would best fit this situation?
    - ❑ Single site
    - ❑ Single site campus (that is, 100-Mbps LES links)
    - ❑ Centralized CallManager design (WAN clustering)
    - ❑ Centralized CallManager design (WAN)
    - ❑ Distributed CallManager design

User Population

- ❑ What is the total number of users?

- ❑ What is the total number per site?

- ❑ What is the call flow from these sites to the PSTN?

- ❑ What is the call flow from the PSTN into these sites?

- ❑ Is conferencing a consideration?

- ❑ How much WAN bandwidth exists between the sites?

  (Note: Data + (number of voice calls * bandwidth per call) = Should not exceed 75 percent of link capacity)

- ❑ Are these self-managed offices?

- ❑ Is there anyone else in your building?

- ❑ Do you lease office space to anyone else?

- ❑ Do these people need to use your phone system?

- ❑ Is there a need to connect fax machines to Gateways?

- ❑ How many potential ports? Check the MCEBU website for modem/fax.

- ❑ Have you considered your current IP addressing scheme? Public or private?

❑ What applications (such as video) are planned for the future?

❑ Do you have an existing directory for users?

❑ Is the directory standards-compliant, such as LDAP v3?

❑ Are you planning to move to Active Directory, or do you use Active Directory today?

LAN

❑ Provide a detailed network plan showing full LAN and WAN infrastructure.

❑ Is your infrastructure LAN switched?

❑ Is this 10/100? Gigabit?

❑ Copper or fibre?

❑ What type of wiring do you have? CAT 5? CAT 5e (mandatory)?

❑ Are all pairs terminated at user desks?

- ❑ Have you turned on QoS?
- ❑ Is your infrastructure based on Cisco Catalyst?
- ❑ Are your switches able to provide line power?
- ❑ How many users are already connected to your switched network?
- ❑ Is Layer 3 routing used?
- ❑ Are VLANs with inter-VLAN routing using Layer 3?
- ❑ Is redundancy and resiliency built into your LAN?
- ❑ Have you used redundant power supplies?
- ❑ Do you use UPSs for your LAN infrastructure?
- ❑ What is the volume of data traffic currently on the LAN?
- ❑ What applications are you using on the LAN?

❑ Does any site have Ethernet distance limitations?

❑ Do you utilize DHCP and DNS services on your network?

❑ Can additional options be provisioned?

WAN

❑ Please provide a detailed network plan showing full LAN and WAN infrastructure.

- ❑ What is the bandwidth going between the sites within the WAN?

- ❑ What is the total number of calls between sites, including MoH streams, conferencing streams, call transfers, and so on?

- ❑ Depending on the bandwidth in the WAN, which codec are you going to select for calls between remote sites and the central site?

- ❑ What Gateways are you using within your existing network?

- ❑ How much memory do you have in these routers?

- ❑ Are there free slots within your routers?

- ❑ Are your routers capable of voice?

- ❑ Has QoS been turned on?

- ❑ Are existing voice solutions running within the network that you could leverage?

- ❑ How many calls do you currently make between sites?

- ❑ Do you have data-on-call capacity and busy hour calls?

- ❑ Do you have call accounting information?

Analog Connectivity

- ❑ How many fax machines will be used at each site?

- ❑ How many analog conference phones do you need to connect? (Leverage 7935 if possible.)

- ❑ Is there a need to connect DECT (Digital Cordless) handsets for warehouses, for example?

- ❑ Do these DECT handsets want call pickup? (You might have to position VG200.)

- ❑ Are wireless phones an option, subject to site survey?

- ❑ How many modems are used and where? How many ports are used?

- ❑ Do you plan to use the ATA186 as a low-end Fax Gateway?

Digital Connectivity

- ❑ Are you going to allow users to break out from their local sites?

- ❑ Do you have existing Gateways at these sites that are capable of voice?

- ❑ Do you want to receive incoming calls at these remote sites locally as well?

- ❑ What do you envision the call volume in and out of that remote site would be?

- ❑ Are you looking at BRI, fractional PRI, or full PRI? (This decision influences your choice of Gateway.)

- ❑ If you are ordering a PRI, IOS Gateways support, full or fractional PRIs, how many digits do you want to deliver on the PRI? (DE30+ does not support fractional PRI.)

- ❑ Have you ordered Euro ISDN? Digital Access Signaling System (DASS) is not supported natively on our Gateways. (You will need a converter if this is the case.)

- ❑ Which does the PBX support?
  - ❑ Q.SIG
  - ❑ DPNSS

Dial Plan

- ❑ How many digits is your dial plan?

- ❑ Is there a unified dial plan across your sites?

- ❑ Are there overlapping dial plans? How many digits?

- ❑ What are the DDI ranges, and how many digits will the provider present?

- ❑ Do users on the system have calling restrictions? (If yes, break these down per user groups.)

- ❑ Can callers break out from other remote sites?

NOTE Cisco TAC does not officially support an NANP edited dial plan, such as the UK dial plan. (The UK dial plan can cause reporting issues to the Administration and Reporting Tool [ART].)

You can find an example of a simple table for a dial plan at http://www.cisco.com/warp/public/788/AVVID/dp_isdn_gateway.html.

Third-Party Special Features

- ❑ Do you need billing and call accounting?

- ❑ How advanced does the billing system need to be? (That is, do you want to bill by department, number of unanswered calls, and so on?)

- ❑ Do you need simple call accounting and billing?

- ❑ Do you need automatic call distributor (ACD) type functionality to route calls to skills-based people?

- ❑ Do you need advanced hunt groups?

- ❑ Do you need a hardware console?

- ❑ Do you need conferencing with a large number of people?
- ❑ How often is conferencing done between sites?
- ❑ How often does conferencing occur between users on a site?
- ❑ Is conferencing performed at remote sites?
- ❑ Do you think users use ad-hoc conferencing?
- ❑ What type of phones do you currently have? Manager handsets?

Features

Assess the features you need:

- ❑ Manager/secretary?
- ❑ Call forward per phone?
- ❑ Queuing of calls?
- ❑ Do users typically use speed dials? How many does each user typically have?
- ❑ How many system speed dials are in use?
- ❑ Do you need hotdesking today? Is this per site—extension mobility?

- ❑ Conferencing: Provide details of conferencing both between and internal to your sites.

- ❑ Are you planning to use SoftPhones?
- ❑ Which users would typically use SoftPhones?

- ❑ Is there a need for web services to phones (such as to access the intranet for company information)?
- ❑ Are users expecting music on hold?
- ❑ How many people do you envisage being on hold at any one time?

- ❑ Do remote sites have music on hold or tone on hold capability?

- ❑ Do you require an automated attendant?

- ❑ Do you use IVR products?

- ❑ Are you thinking about implementing IVR applications such as database queries for information retrieval?

- ❑ Do you need overhead paging services?

- ❑ How do you use night service?

❑ Do you use night bell?

❑ Are call park and call pickup facilities used? Describe their use within the organization.

Voice Mail

❑ Are existing voice mail packages in use?

❑ Is this a PBX-included voice mail?

❑ Is this centralized or networked voice mail?

❑ What protocol/signaling does your voice mail package use to talk to your PBX?

❑ Do you plan to use unified messaging?

❑ How many line appearances will you require for each phone?

❑ Do you use Outlook?

❑ Do you use Exchange?

- ❑ Which version of Exchange do you use?
- ❑ What is PBX Model, including software version?
- ❑ Does PBX have analog or digital cards for voice mail connectivity?
- ❑ What type of integration exists between customer's legacy voice mail and PBX?
- ❑ What advanced features are supported?
- ❑ Is CallManager required to interoperate with legacy PBX?
- ❑ Is legacy PBX or voice mail networked to other PBXs/voice mail systems?
- ❑ How many users are on each PBX?
- ❑ Other application details?

- ❑ What is the customer's CallManager migration plan?

- ❑ What is the customer's voice mail cutover date?