
TOMORROW starts here.
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Design & Deployment of UCCE

BRKCCT-2662

Michael Oldham

NCE

Cisco live!

This session covers the fundamentals of designing and deploying a Cisco Unified Contact Centre Enterprise solution. This session will look into design and deployment best practices. A requirements specification of a large contact centre will be used to highlight the design process. Topics include choosing a deployment model, planning for high availability, sizing systems, and estimating bandwidth for the Contact Centre. This is an intermediate to advanced level session intended for network planners, design engineers, administrators and technical staff.

Agenda

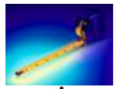
- PDIOO
- Kick off
- Requirements

- Design
  - Architecture
  - Components
  - Sizing
  - Call Flow
  - Redundancy
  - Virtualisation
  - Network
  - Customisation
  - Statistics
  - Lab
  - Dial Plan

- Backups
- Testing

PDIOO

- Customer Requirements
- Cisco Hardware and 3rd Party SW Quote
- Prelim. Network Design
- Project Plan
- Project Kickoff
- Sign off



- Design Workshop
- Site Survey
- High Level design
- Detailed Design Specification
- Application Detailed Design Specification
- HW and SW Orders
- Implementation Plan
- Test Plan
- Sign off

- Site Preparation
- Network Installation
- Unified Contact Center Installation
- Implementation Testing
- Sign off

- Support Handoff
- Project Close
- Day 2 Support
- TAC Handoff




Kick Off

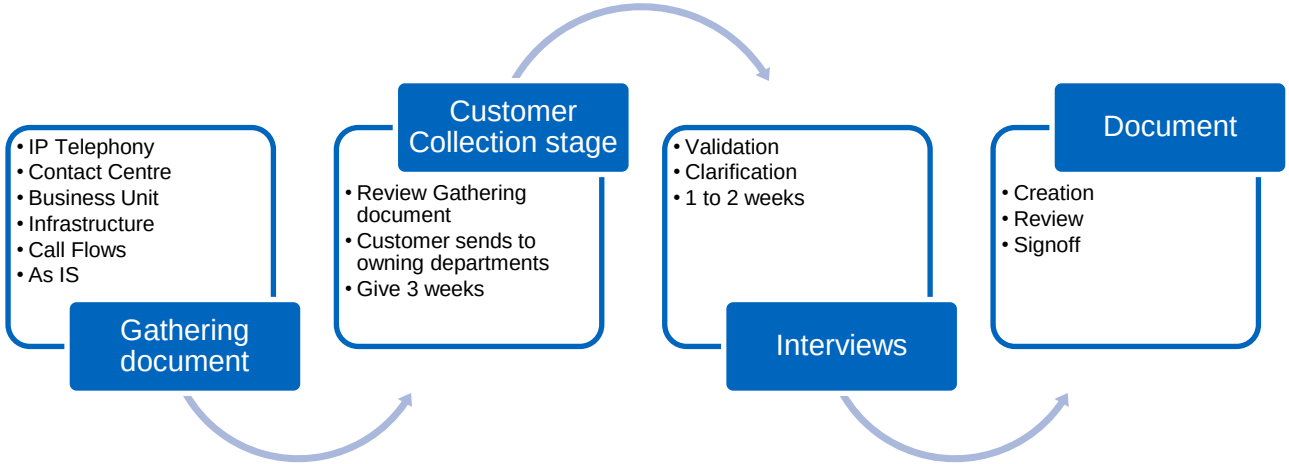
Kick Off

- Introduce the Cisco and Customer team
- Define the structure of the team
- Discuss the approach using a high level project plan
- Bill Of Materials
- Review Deliverables and their format
- Statement of work
- Any designs/RFP responses
- High level timelines and milestones
- Discuss processes such as review cycles, escalation, change control plan

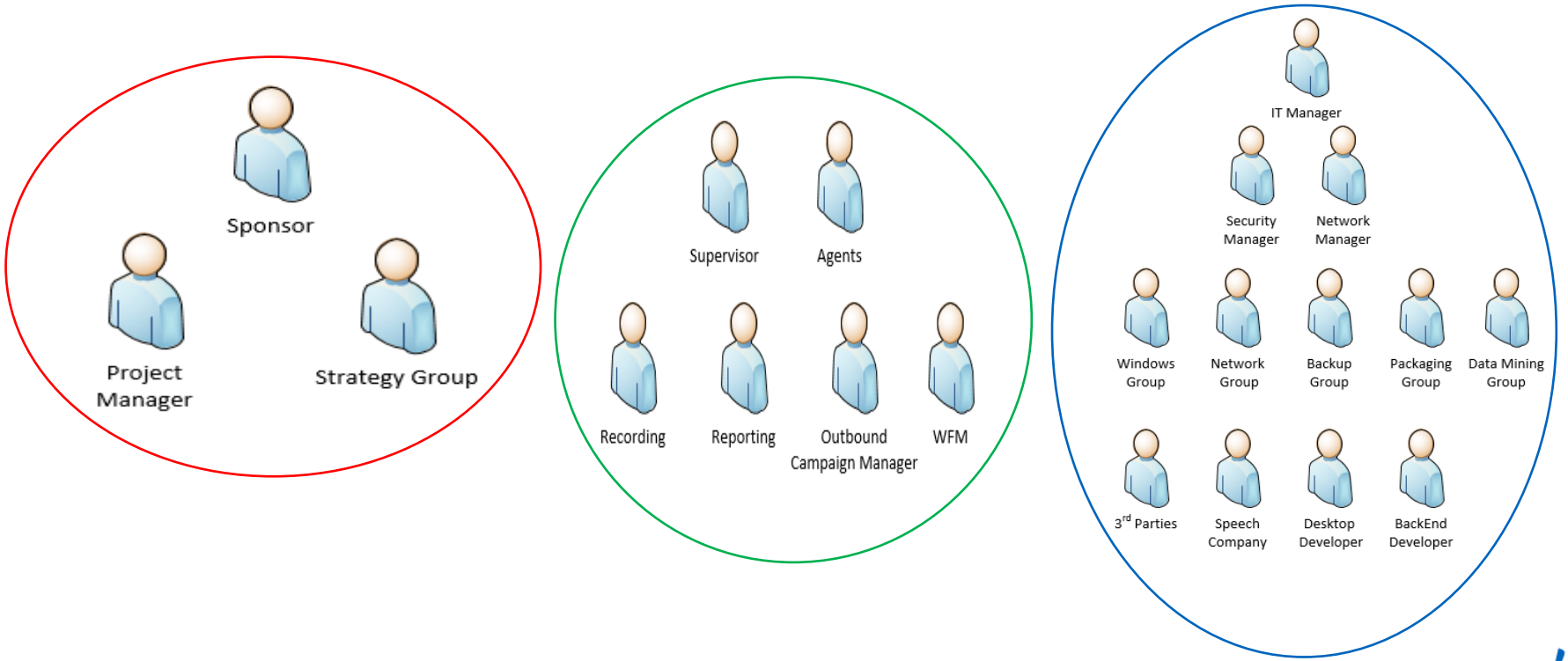



Requirements

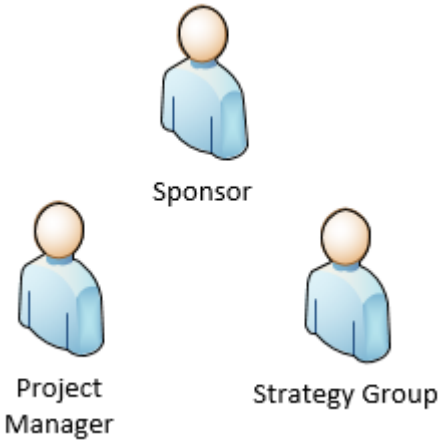
Requirements Process



ACME Requirements - Who will be interviewed?

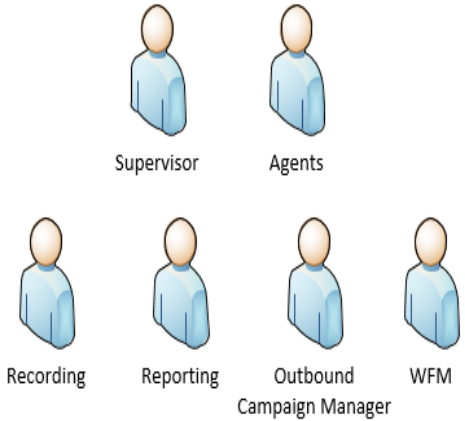


ACME Requirements - Business Needs



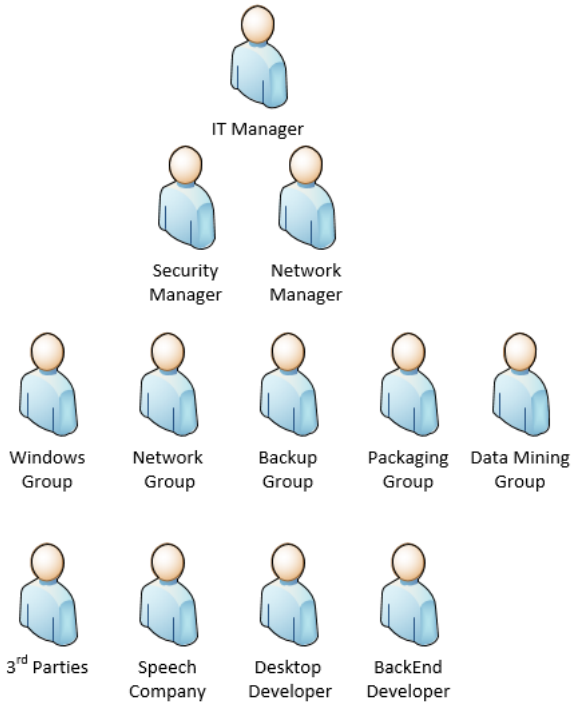
- Success Criteria
- Customer and Products
- Timelines
- Growth
- Organisation Structure
- Project Methodology
- Day2 support

ACME Requirements - Contact Centre Needs



- SLA, barge-in, monitor
- Wrapup, Reason / Not ready codes
- Recording full , on demand ,tags
- Statistics, real time , historical
- Call Flow, Menu Tree
- Languages
- Business Hours,Holidays
- Sites,Timezones
- Campaign strategy

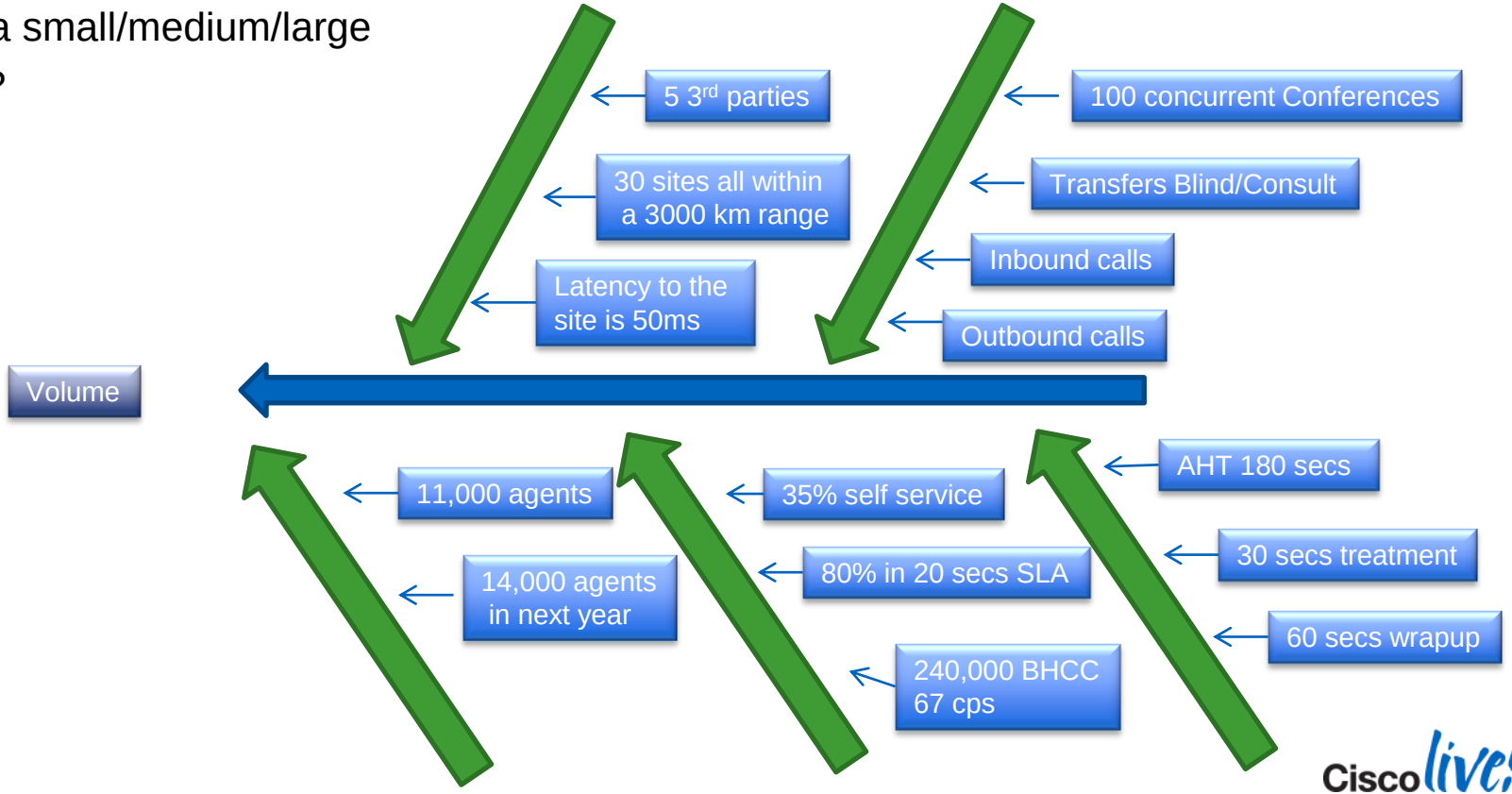
ACME Requirements
Information Technology Needs



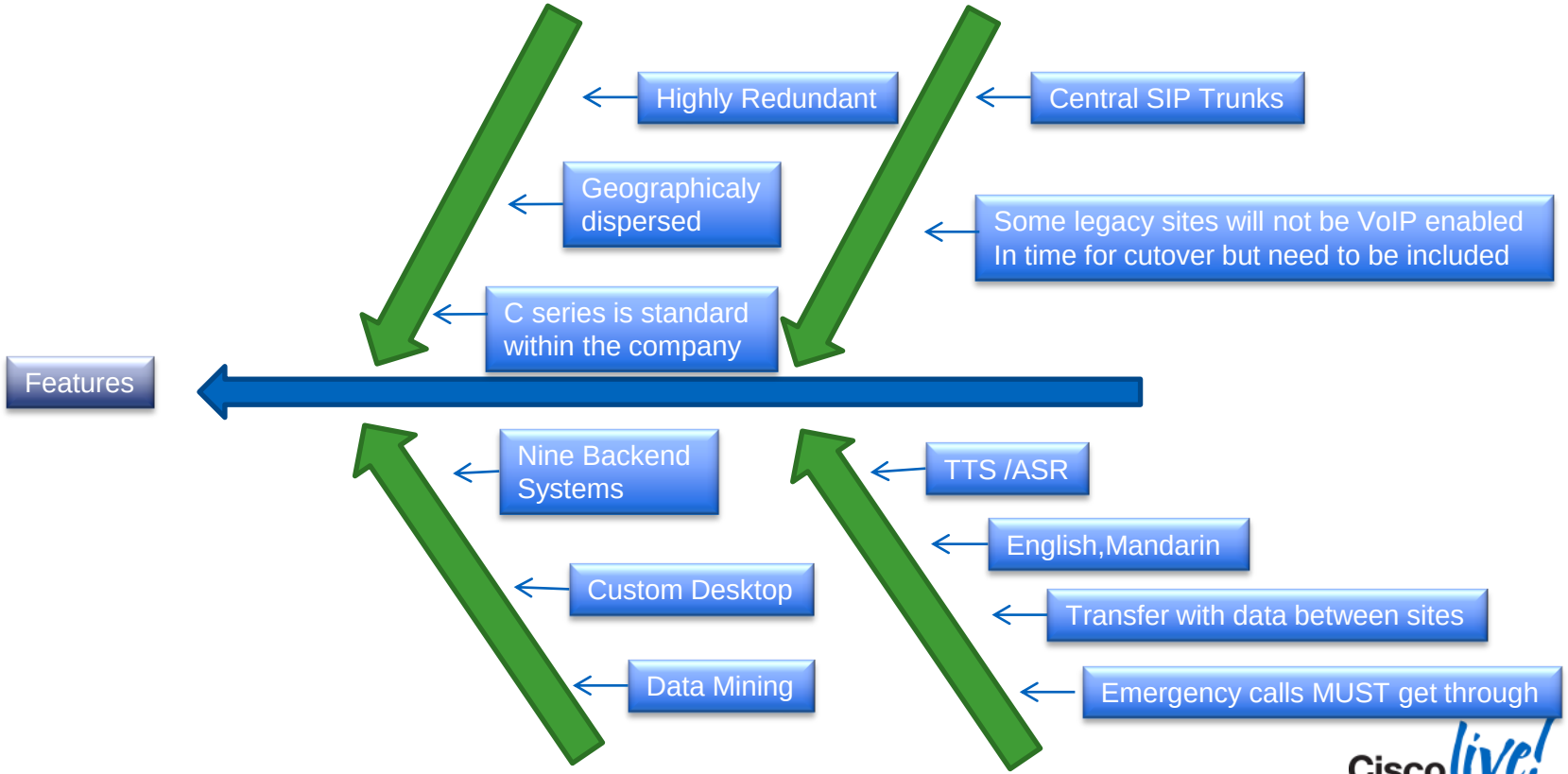
- Security policy (DMZ,firewalls, virus ,encryption)
- Conferencing, Transfers
- Dial Plan,External numbers
- Bandwidth, QOS
- Desktop and OS
- Front End, Backend systems
- Backup Policy
- Existing Legacy Systems
- AD level

ACME Requirements - Sizing for ACME

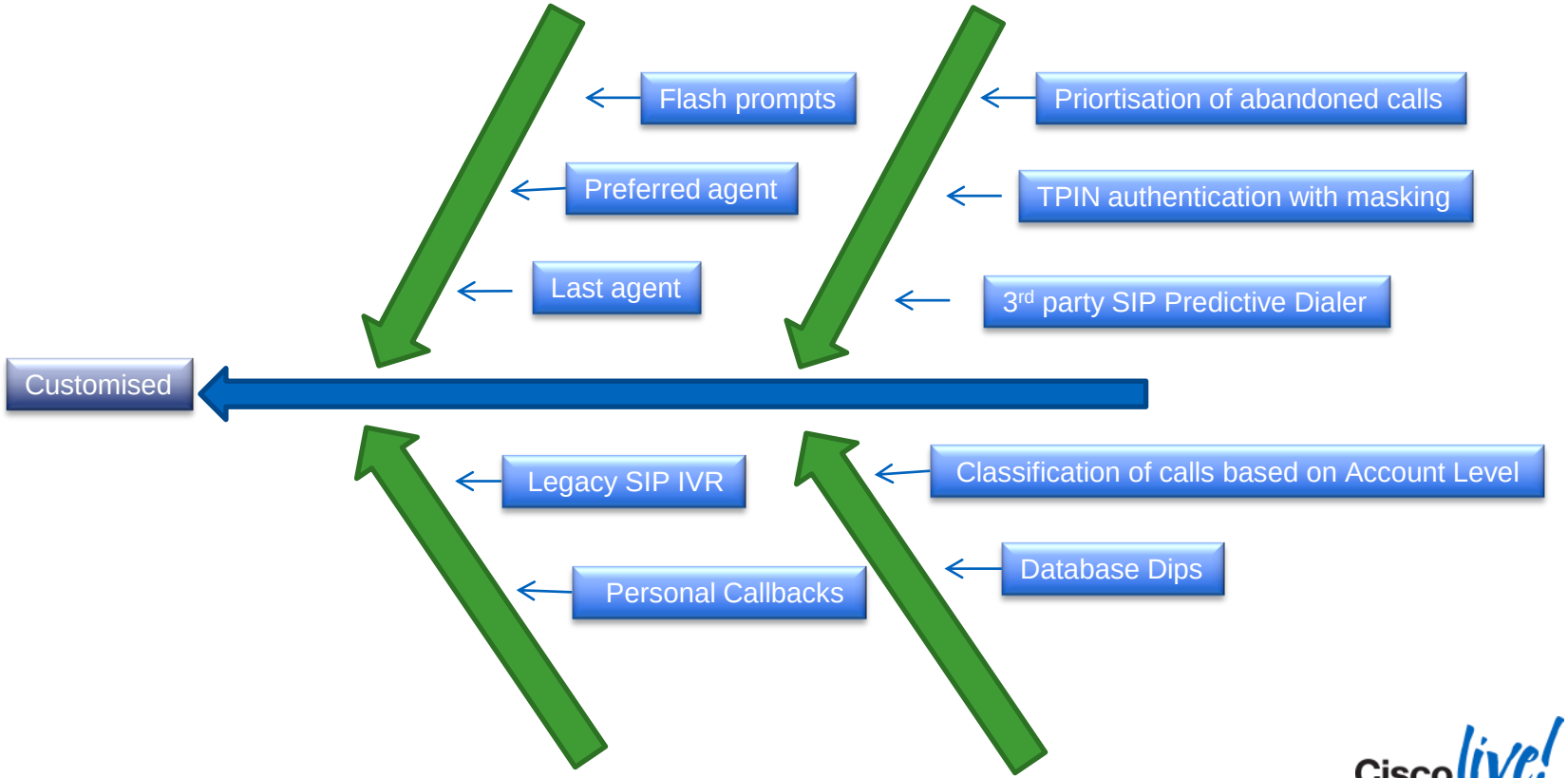
Is this a small/medium/large centre?



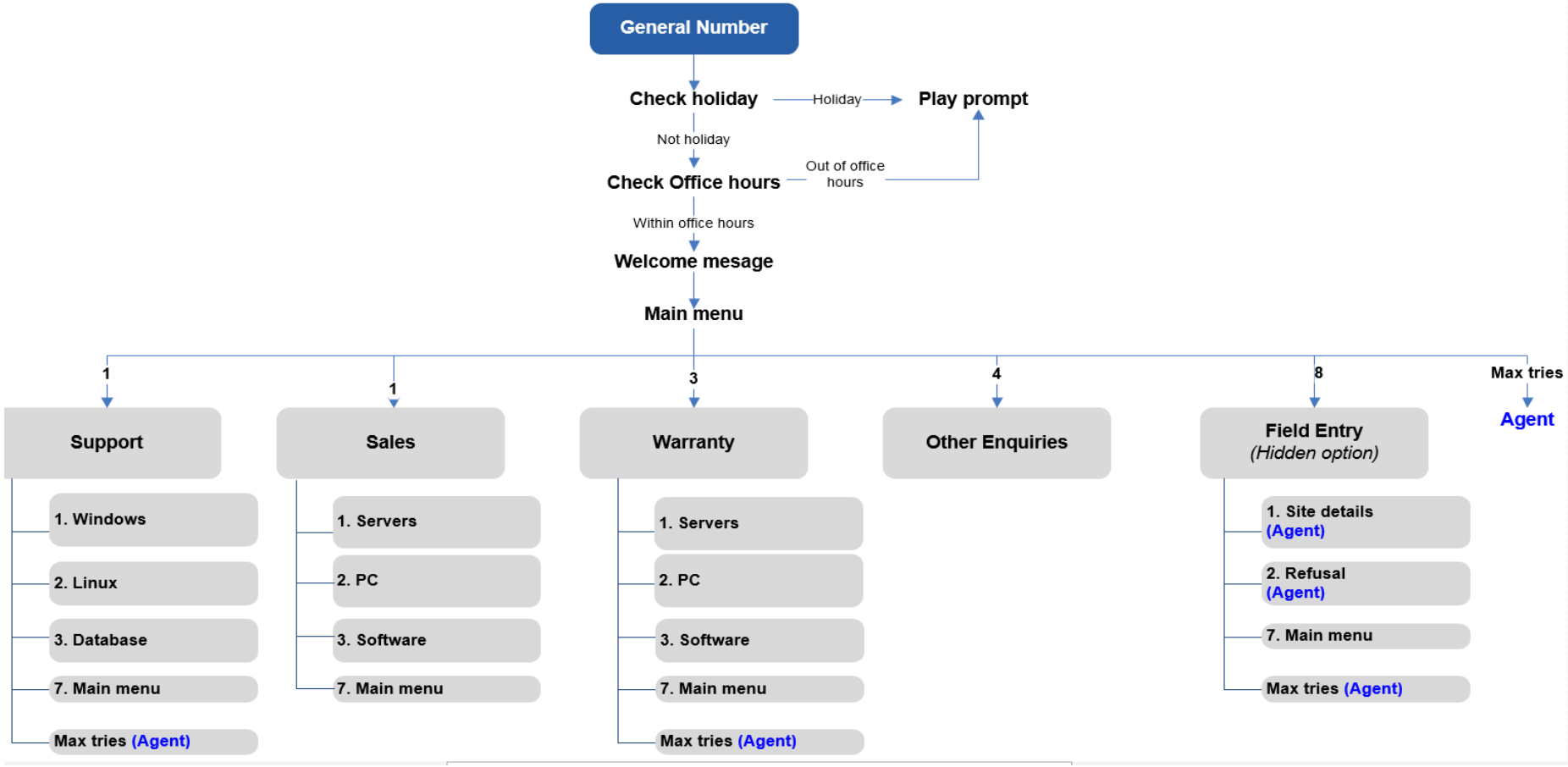
ACME Requirements – Infrastructure features



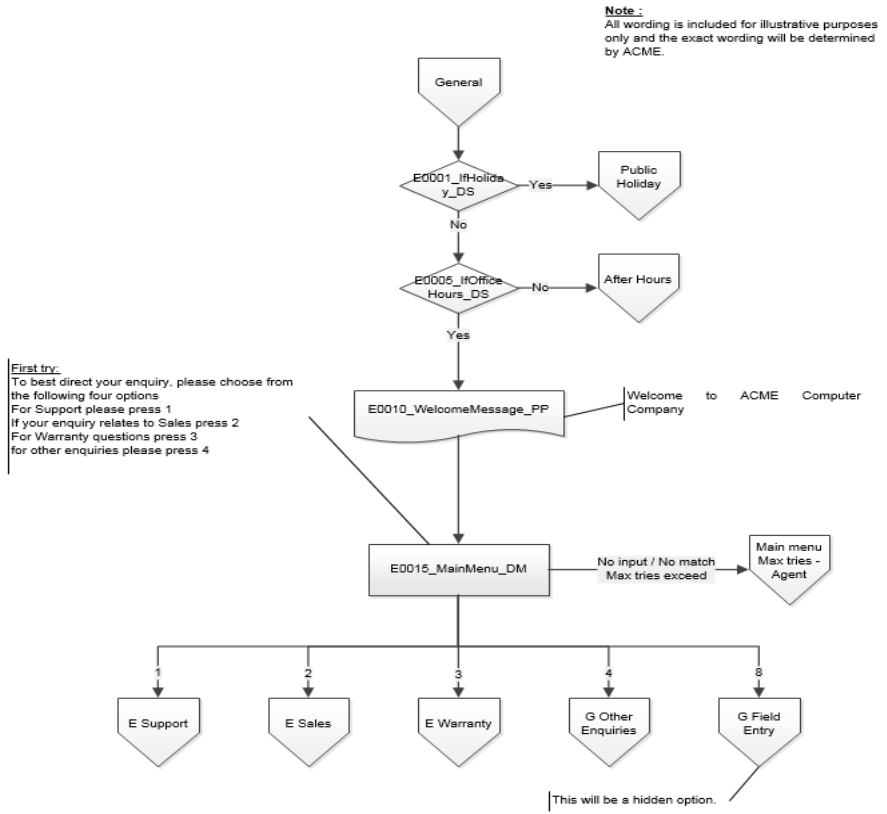
ACME Requirements – Looking for Customisation



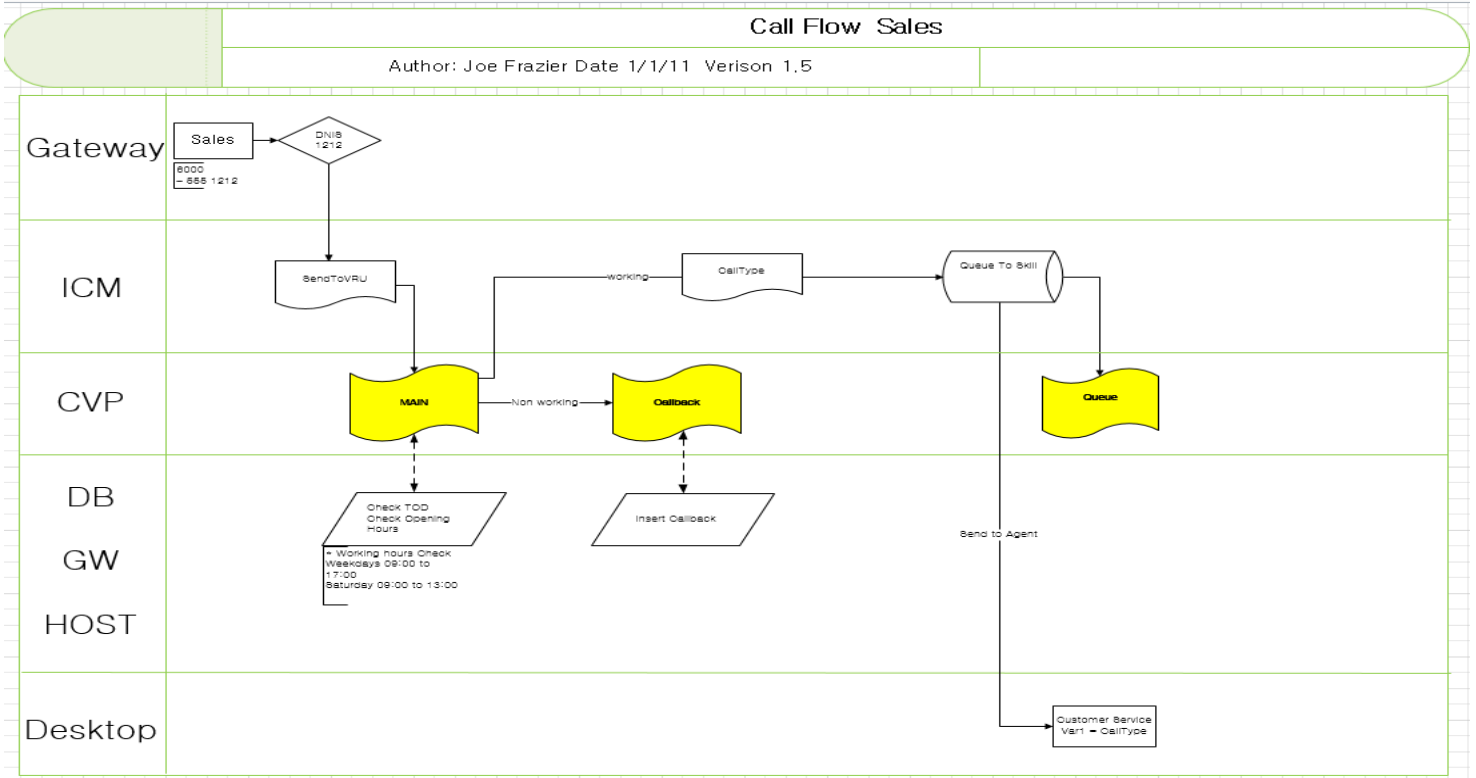
Application Requirements – IVR Call Tree for ACME



Application Requirements – ICM Call Flow for ACME

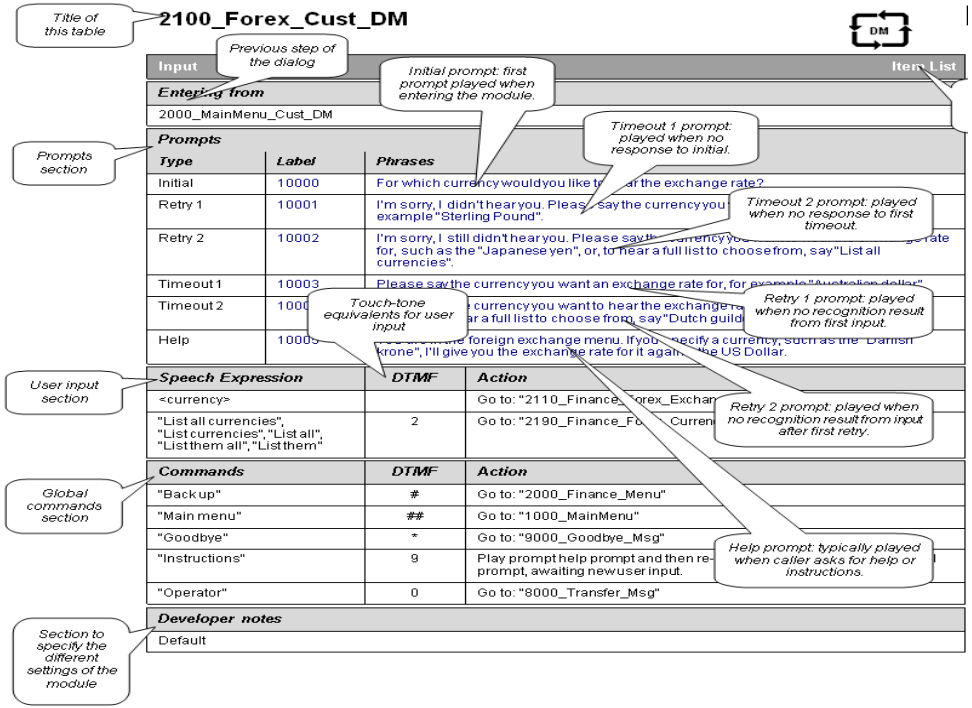


Application Requirements – ICM Call Flow for ACME

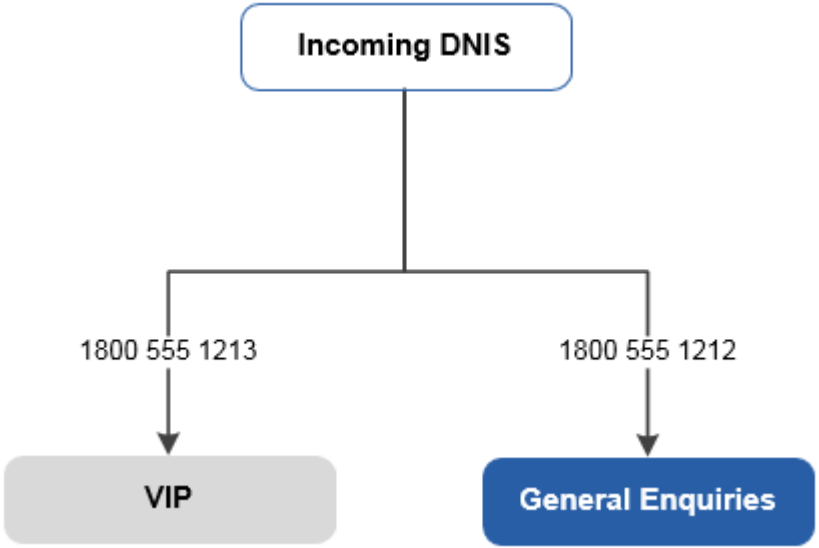


Application Requirements – User Interface

A document that contains the detailed explanation of each node that has been mentioned in the call flow. Typically used in Speech flows.



Application Requirements – DNIS Routing



ACME Requirements - Document

Supervisor Requirements

Ref. No.	Description
[REQ-43]	There will be 5 to 20 agents per supervisor.
[REQ-44]	Supervisors will have the ability to Hot desk
[REQ-45]	Supervisors may use auto answer or manual answer

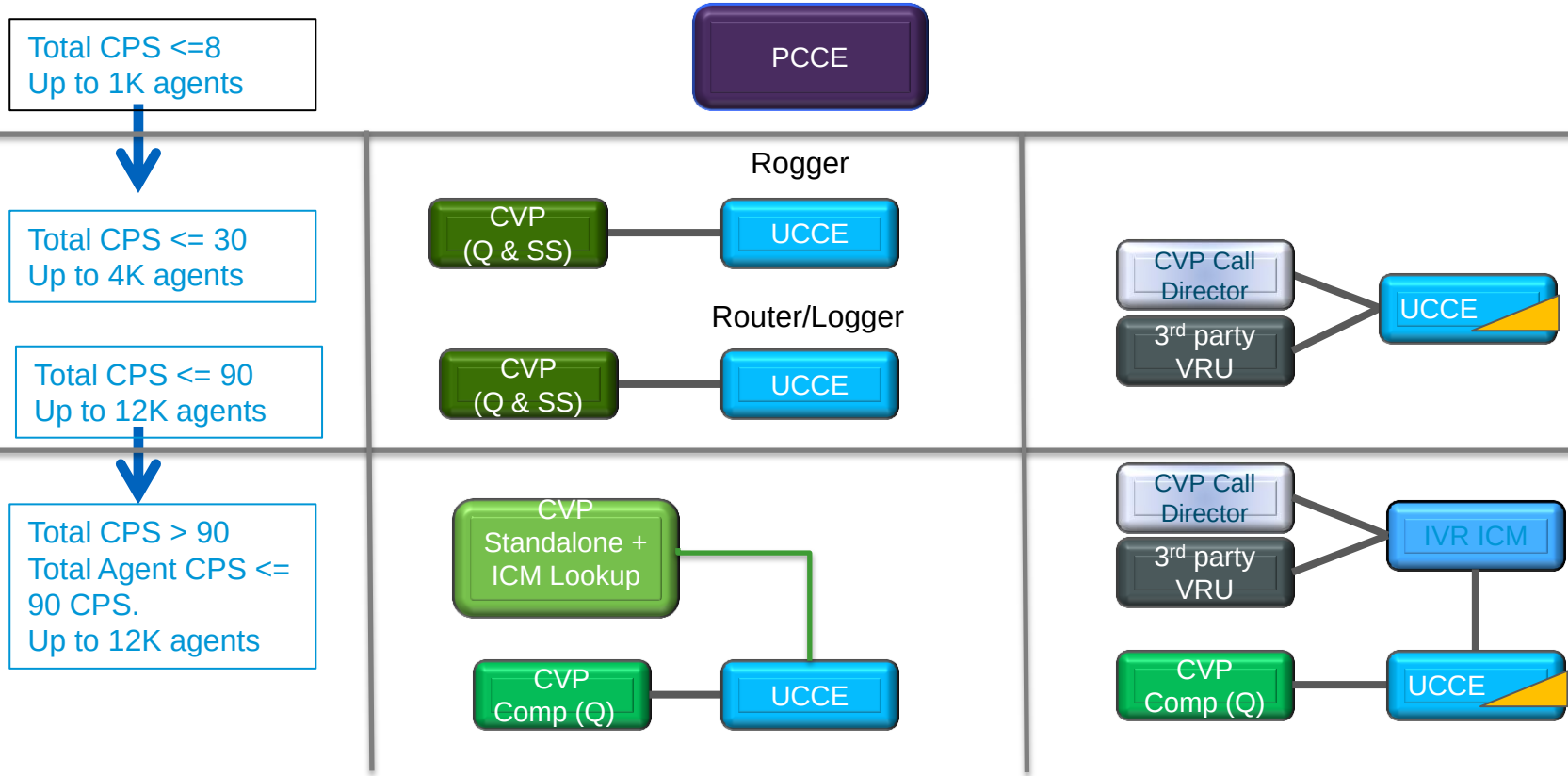
Discussed but not in scope

Ref. No.	Description
[REQ-203]	Syslog is not required




Design - Architecture

Enterprise Reference Design Models



Question Time

Which reference design fits?

1. PCCE
2. Rogger
3. Router/Logger

How many instances of the reference design?

- One
- Two
- Three

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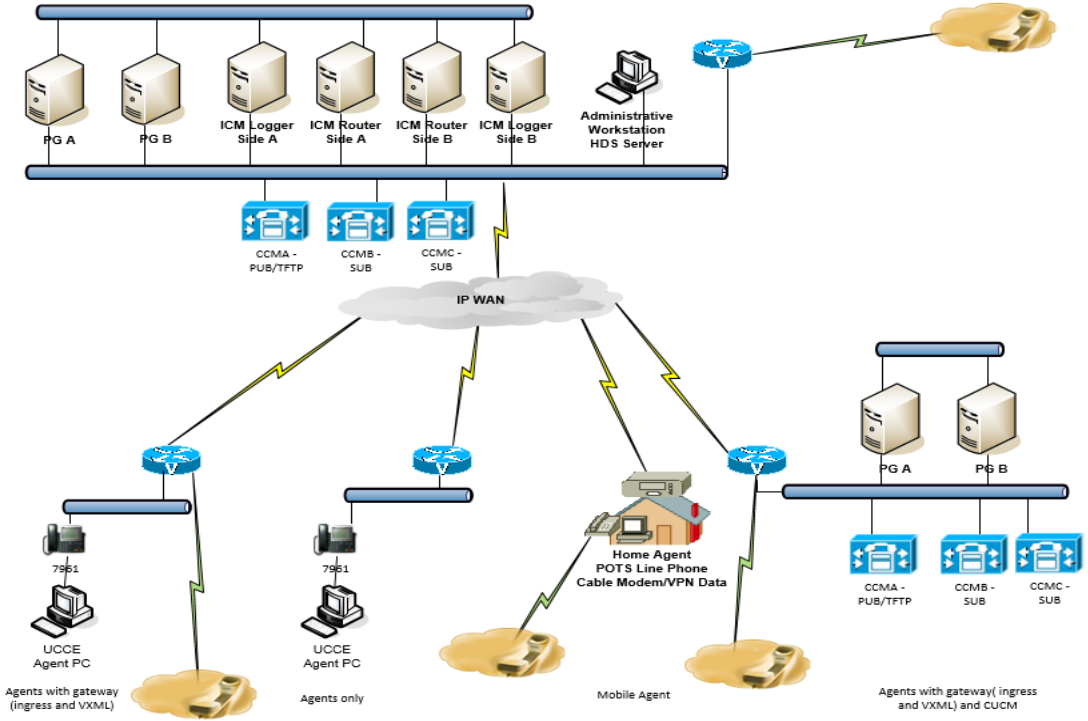
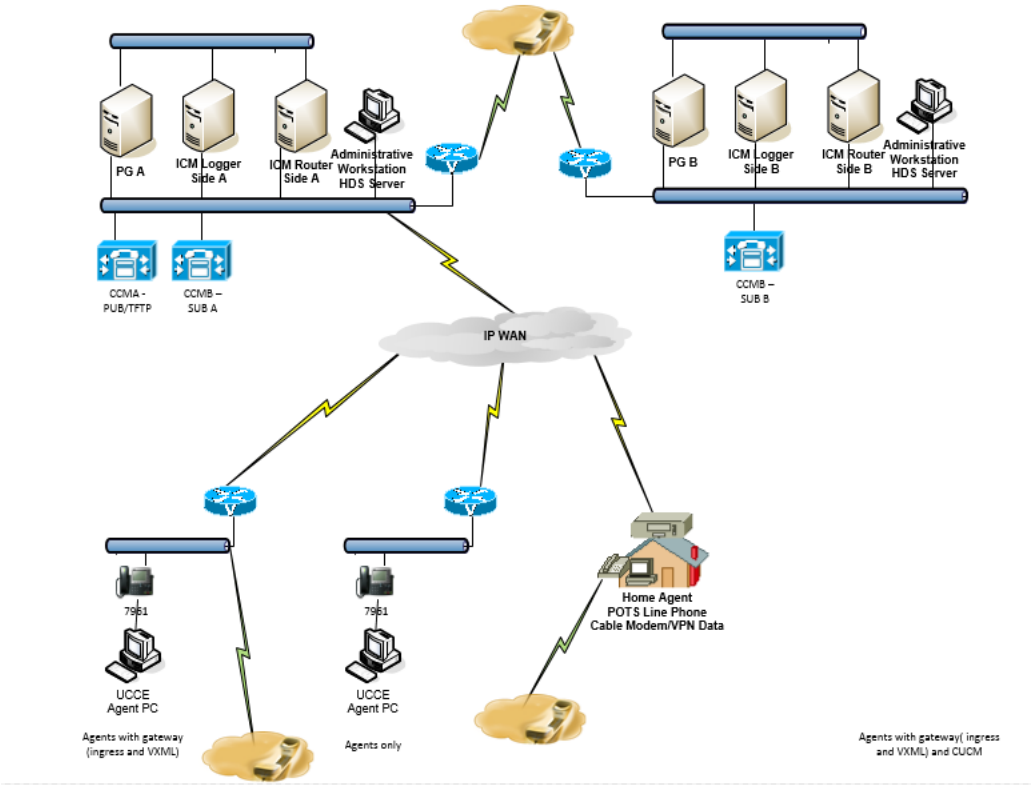
UCCE Topology – Centralised Data Centre

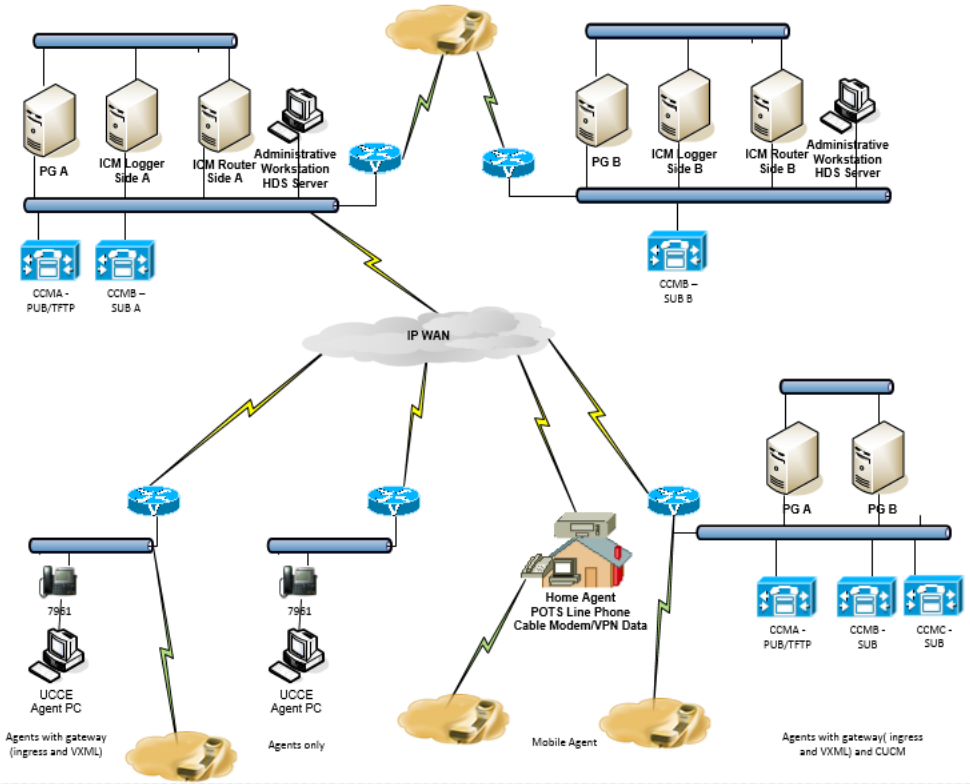


UCCE Topology – Geographic Data Centre



UCCE Topology

Geographic Data Centre with distributed UCM clusters



Question Time

Which topology fits?

1. Centralised Data Centre

1. Geographically Split Data Centre

1. Geographically Split Data Centre with distributed clusters

Question Time

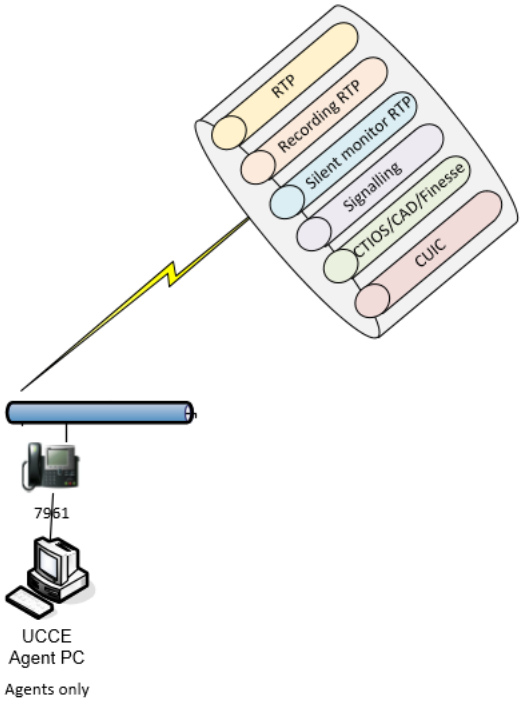
Which topology fits?

1. Centralised Data Centre

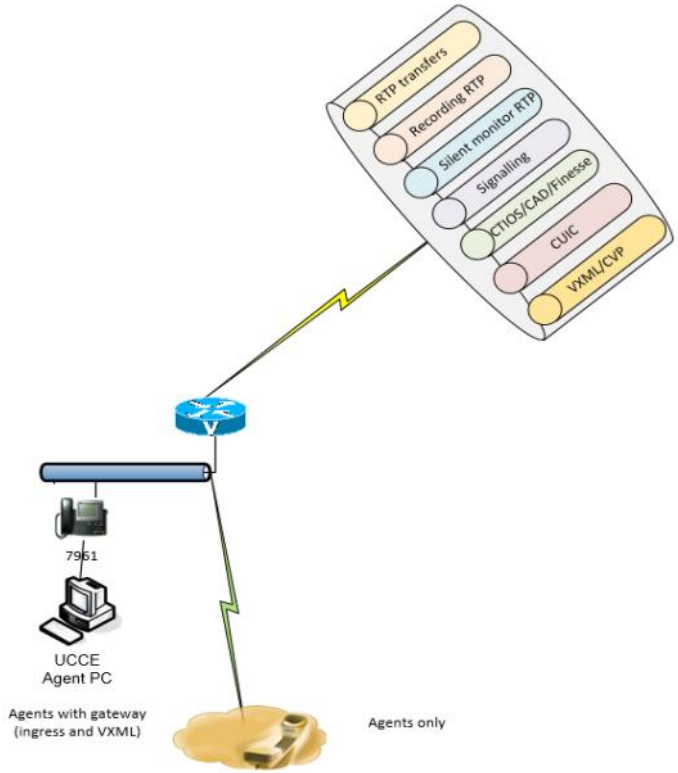
2. Geographically Split Data Centre

3. Geographically Split Data Centre with distributed clusters

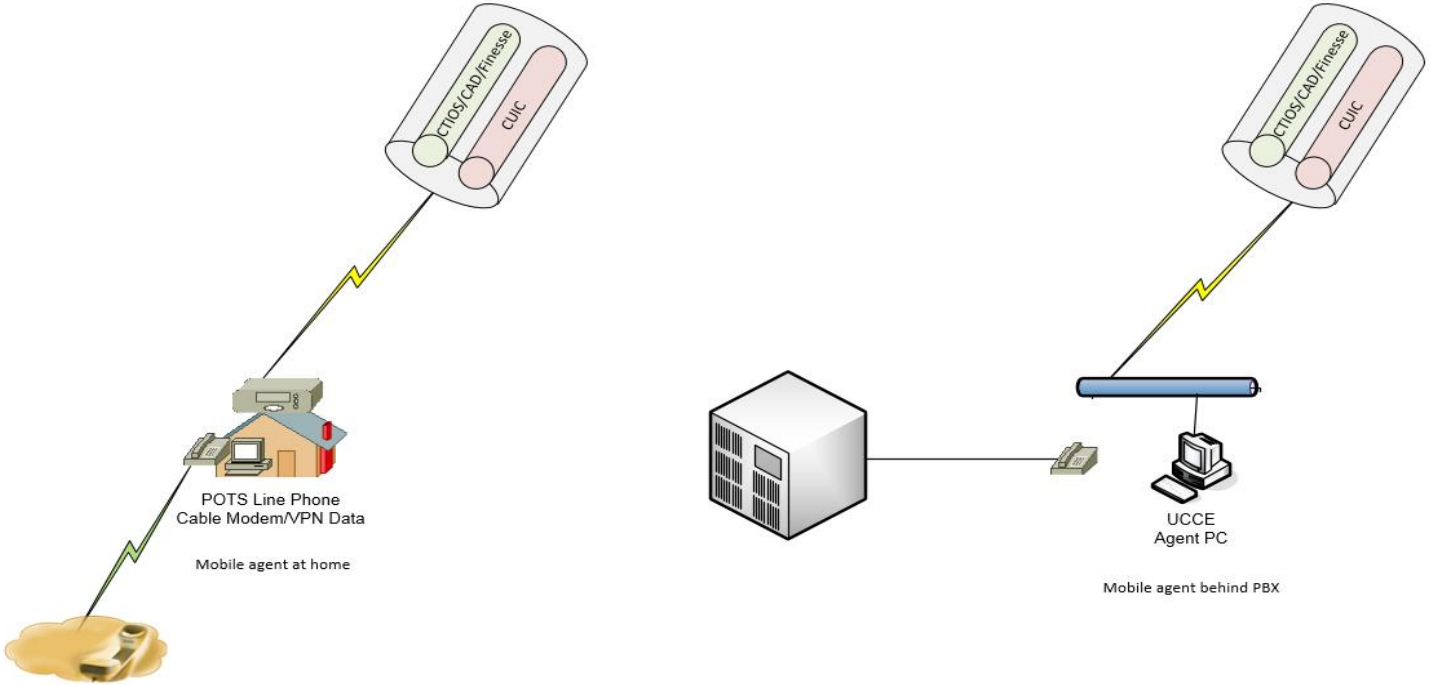
Agent Sites – Phone and PC



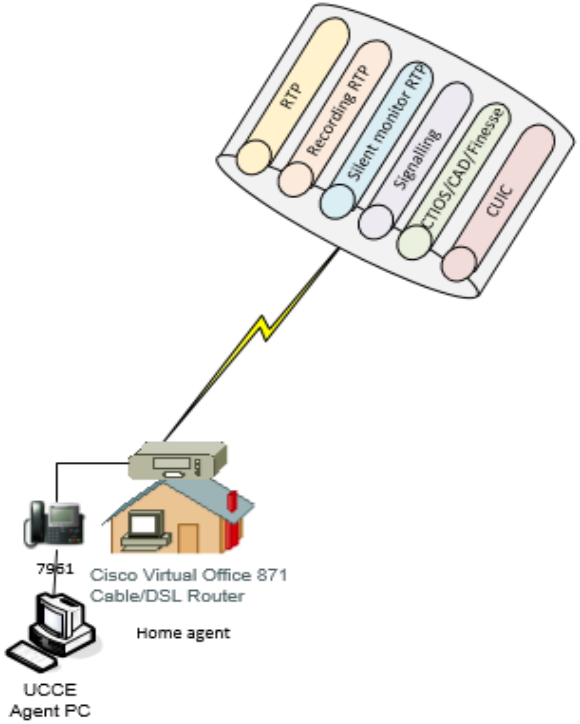
Agent Sites
Phone, PC and local gateway



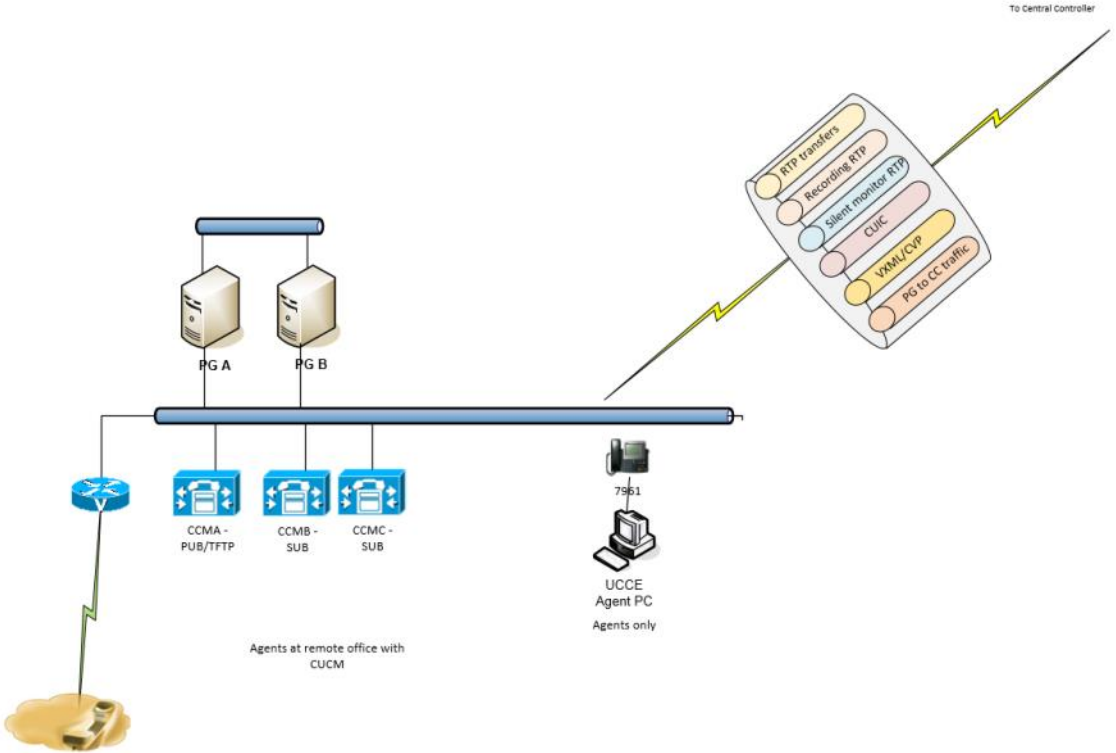
Agent sites – Mobile Agent



Agent sites – Home Agent



Agent at Remote Office with CUCM



Question Time

Which site topology fits?

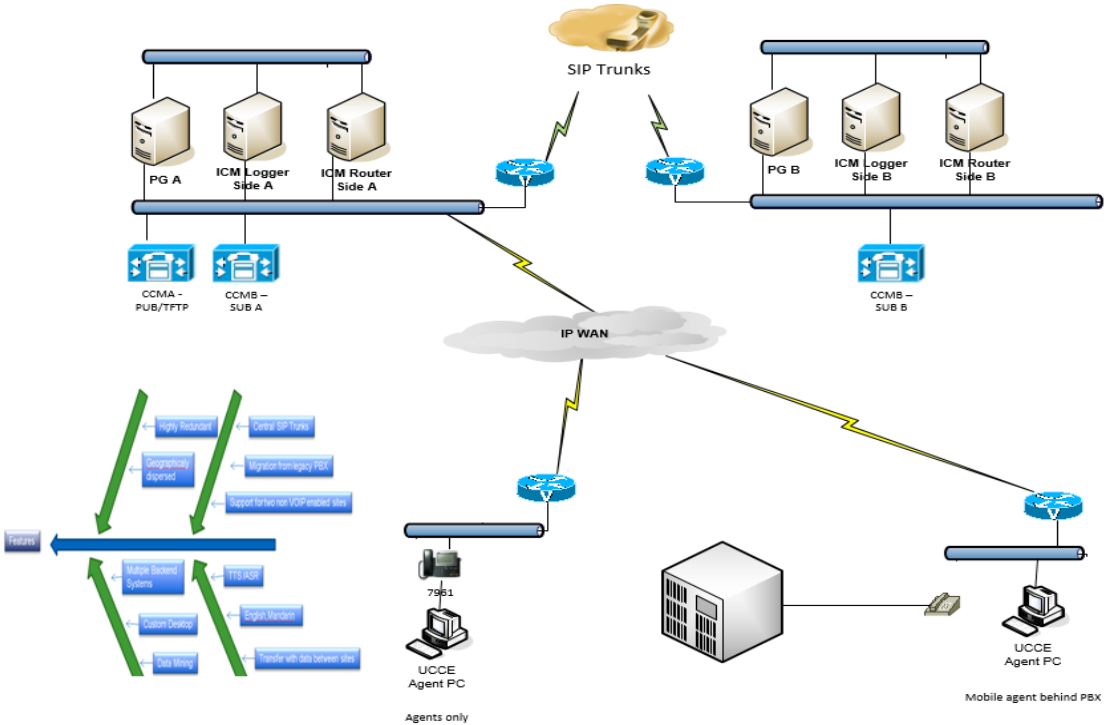
1. Agent with ip phone
2. Agent with iphone with local gateway
3. Mobile agent at home
4. Mobile agent behind PBX
5. Home Agent
6. Agent with ip phone with local gateway and local CUCM cluster

Question Time

Which site topology fits?

1. Agent with ip phone
2. Agent with iphone with local gateway
3. Mobile agent at home
4. Mobile agent behind PBX
5. Home Agent
6. Agent with ip phone with local gateway and local CUCM cluster

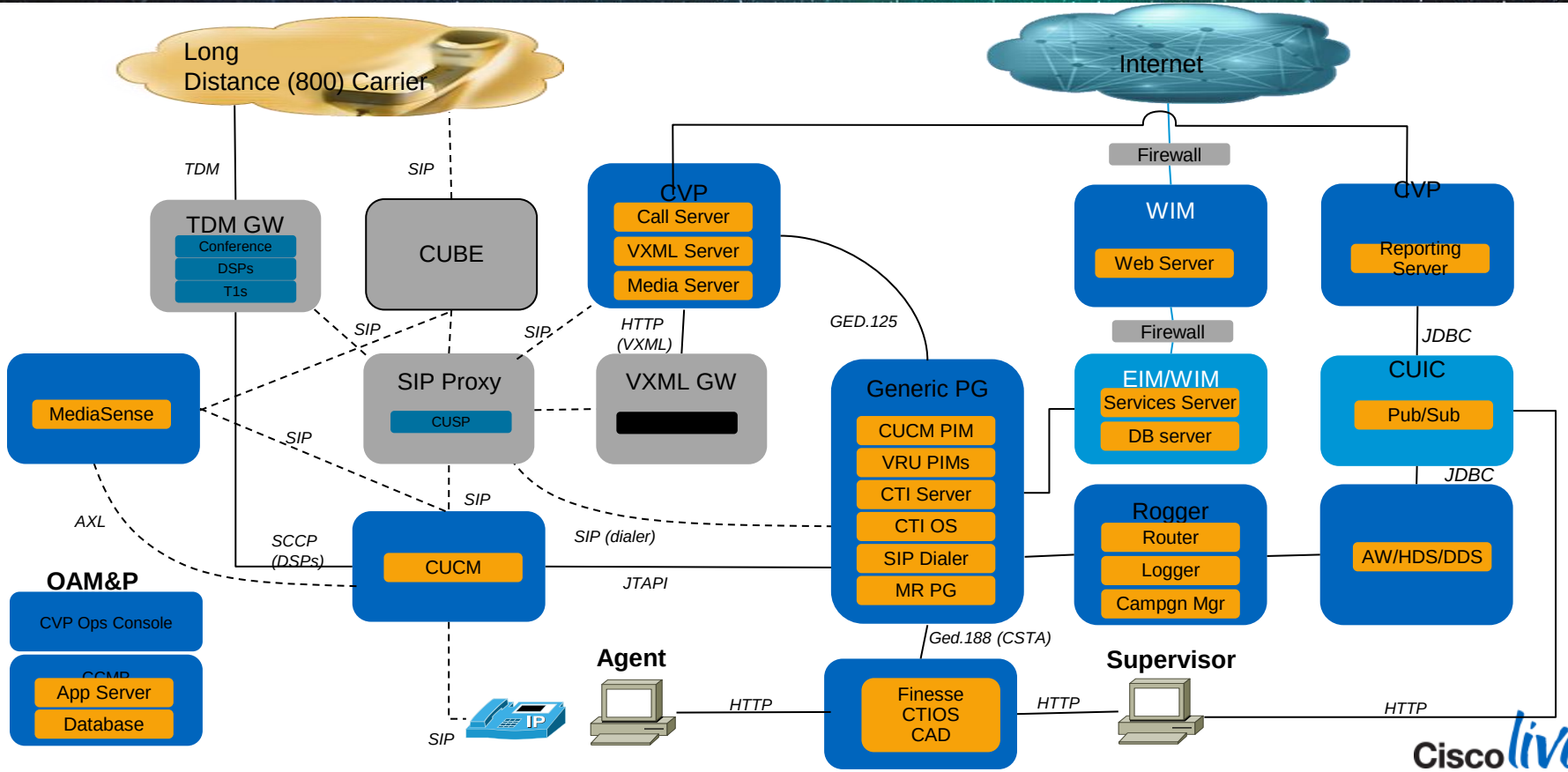
Design Geographically Redundant with Agent Site Choice



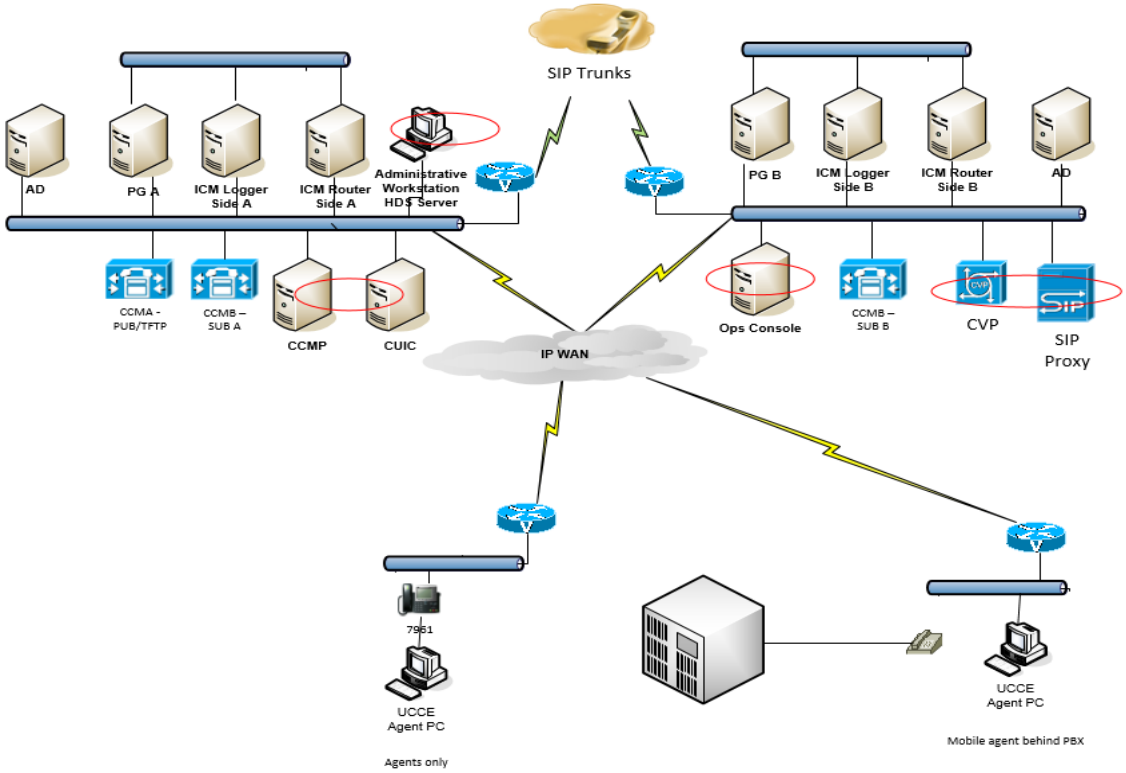



Design - Components

Data Centre: Logical View



Design with Components



What UCS
"B-Series"

- Half-width blade server form factor
- Best for
  - – - Medium to high server count & concentration
  - – - Existing or planned data centre
  - - "Ready, willing, able" to support servers, VMware, storage
  - - Operational "maturity"
- Requires SAN storage for UC/CC applications
- Leverages UC Fabric Interconnect switches for LAN and SAN connectivity

What UCS
“C-Series”

- Rack server form factor
- Best for
  - Low to medium server count
  - Ready to move off an appliance model (server/VMware admin)
  - Preference for rack server form factor
  - Interim migration step for data centre solution

What UCS should be chosen?

- C series
- B series

Choose Your Versions - Component Compatibility

Unified CCE 9.0(x) Product Sets

Unified CM	IVR (IP-IVR and CVP)	PG/CAD/CTI OS Server (See Note 7, 8, 9, 10)	CTI OS Desktop (See Note 7)	Unified Intelligence Center	Unified EIM/WIM	Siebel CRM	RSM	Unified CCMP	MediaSense	SocialMiner	Finesse
9.1(1) 9.1(2)	IP-IVR 9.0(x) 8.5(x) CVP 9.0(1) 8.5(x)	PG 9.0(2) and higher CAD 9.0(1a) CTIOS Server 9.0(x)	9.0(x) 8.5(x) 8.0(x)	9.1(x) 9.0(x) 8.5(4)	EIM WIM 9.0(1) EIM 4.3(2) EIM WIM 4.4(1)	CRM for Siebel 8.0 8.1	9.1(1) 9.0(1)	9.x	9.0(1)	9.0(1)	9.x. Finesse 9.1 requires CCE 9.0(2) and higher.

http://docwiki.cisco.com/wiki/Unified_CCE_Software_Compatibility_Matrix_for_9.0%28x%29

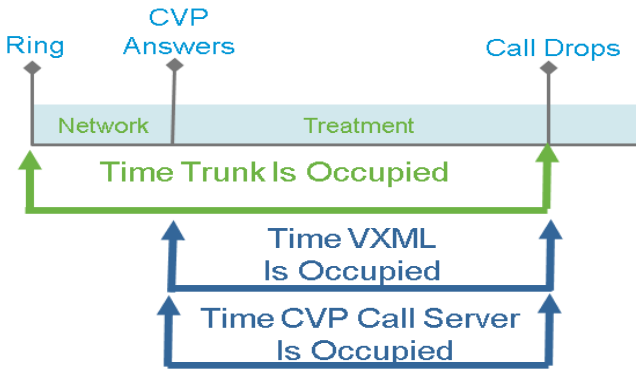
Hardware and System Software Specification for Cisco Unified Customer Voice Portal (Unified CVP) Release 9.0(1)



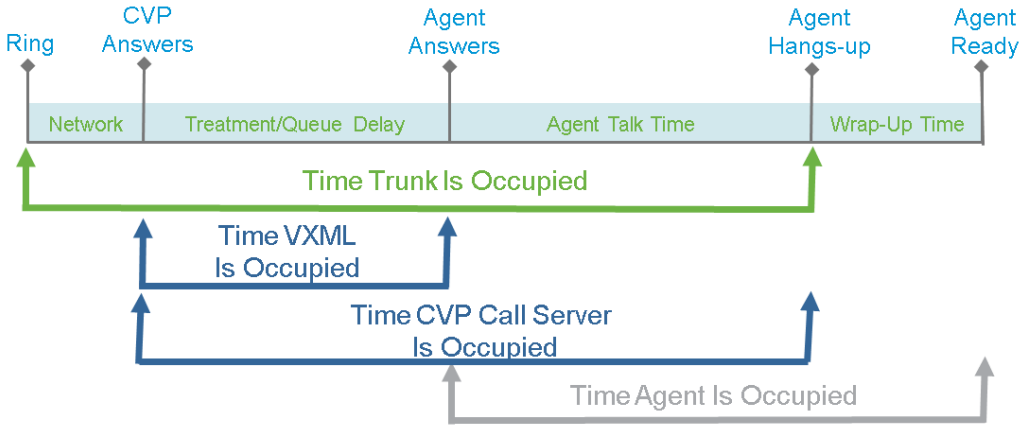

Design - Sizing

Design – Sizing Call Flows

Self Service



Call To Agent after Self Service



UCCE 8.0 and above the max supported "CTI Server All-Event Feed" connections is "7". However, if doing a "CTI OS" deployment the us

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Design – Sizing Tool

http://tools.cisco.com/cucst

UCCE Inbound	Inputs	Defaults
Number of Incoming Calls Per Hour	120,000	0
Service Level Goals	80.00%	90%
Target Answer Time (sec)	20	30
Call Blocking Probability At VGW	1%	1.00%
Call Blocking Probability At VRU	0.10%	0.10%
Average Number Of Agents Per Supervisor	9	9

http://tools.cisco.com/cucst

	% Total Calls	Avg Treatment Time - VRU (sec)	Avg Call Talk Time (sec)	Avg Warp-Up Time (sec)	Wait Before Abandon Tolerance (sec)	% Transfer	After Transfer Talk Time	% Conference	% Calls Silent Monitor (UCM)	% Calls Recorded by UCM (BIB)	% Calls Recorded by CUBE	% Calls with Post Call Survey	Avg Treatment Time for Post Call Survey (sec)	% Calls with Courtesy Call Back	% Calls with Whisper Announcements	AHT for Whisper Announcements (sec)	% Calls with Agent Greeting	AHT for Agent Greeting (sec)
Default	100%	60	180	60	150	10%	60	5%	0%	0%	0%	0%	120	0%	0%	30	0%	5
Callflow 1	35%	30	0	0	150	0%	60	0%	0%	0%	0%	0%	120	0%	0%	30	0%	5
Callflow 2	65%	30	180	60	120	5%	43	3%	0%	0%	0%	0%	100	0%	0%	24	0%	4

Results

VRU Theoretical Ports per Traffic Type		
	Queue	282
	Call Treatment	1098
	Outbound	0
	Total	1380
GW Theoretical Ports per Traffic Type		
	Inbound (Queue+Treatment+Talk Time)	5174
	Mobile Agents	0
	Outbound	0
	Total	5174
Agents & Supervisors		
Inbound		
	Local	5738
	Mobile	0
	Nailed Up	0
	Call by Call	0
Outbound		
	Local	0
	Mobile	0
	Nailed Up	0
	Call by Call	0
Outbound Dialer Ports		0
Total Agents		5164
Total Supervisors		574
Total Agents & Supervisors		5738

Results

CVP Equipment			
Component	**Platform**	**Utilization**	**Quantity**
CVP Servers	Call/VXML Server	94.33%	14
Required RPT Servers	Reporting Server	32.57%	1

Unified Contact Center Enterprise Equipment			
UCCE Component	**Platform**	**Utilization**	**Quantity**
Router	VM Router 8000 agents	71.73%	2
Router	VM Router 12000 agents	47.82%	2
Logger	VM Logger 8000 agents	71.73%	2
Logger	VM Logger 12000 agents	47.82%	2
AW/HDS	VM HDS-DDS	23.21%	1
AW/HDS	VM AW-HDS-DDS for 12000 agents	17.85%	1
Agent PG	Agent PG CTIOS 2,000 agents	95.63%	6

Gateways	
Gateway Group 1: Cisco 3945E	11

Unified Communications Manager	
VM Type	VM - UCM_10000
Subscribers	12
TFTPs VMs	4
Publisher Servers	2

Comments

* Would probably add more reporting servers as per CVP SRND.
* The number of HDS is best increased for redundancy
* Best to have a separate DDS for storage and 3rd party access of TCD's.
* Would have a separate VRU PG pair

Note: Ensure E1 gateway is chosen

Design – 3rd Party CTI All-Event

UCCE 8.0 and above the max supported "CTI Server All-Event Feed" connections is "7". However, if doing a "CTI OS" deployment the usable connection reduces to "5" for external applications.

“2” connections to CTIOS All-events

```
C:\Users\Administrator.SPROUT>procmon sprt cg1b ctisvr
05:11:14 Trace: EMT Creating Mutex Global\IMTConnect_DisconnectLock
>>>>clients
 Session   Time  Ver Flags    ClientID         AgentID  AgentExt
Signature        Host
       2 02:48:17 15   AUX    CTIOSServer
CTIOSServer       (10.48.36.132:60446)
       5 02:47:46 14   AUX    ClientID                          CAD Enterprise
S  (10.48.36.131:61026)
       6 02:47:43 14   AUX    10.48.36.131 Acm                  10.48.36.131
Acm  (10.48.36.131:61035)
       8 02:37:25 9          Administrator
Administrator     (10.48.36.137:4844)
      19 01:55:32 15   AUX    CTIOSServer
CTIOSServer       (10.48.36.131:62783)
      40 00:02:22 14   AUX    ClientID                          CAD Enterprise
S  (10.48.36.132:51834)
>>>>
```

DSP Calculation

www.cisco.com/web/applicat/dsprecal/dsp_calc.html

DSP Calculator

Router: 3945E IOS: 15.1(3)T

Voice Codecs

Voice IP Services	Low Complexity	Medium Complexity	High Complexity	
Transcoding				
Universal Transcoding				
Voice Conferencing	G.711	G.729	G.722	iLBC
8-Party	100			
16-Party				
32-Party				
64-Party				

Secure IP Services	Low Complexity	Medium Complexity	High Complexity	
Secure Transcoding				
Secure Universal Transcoding				
Secure Voice Conferencing	G.711	G.729	G.722	iLBC
8-Party				

Requirement:

100 conference channels

Router: 3945E

IOS: 15.1(3)T

DSP Modules Required:

PVDM3-256: 1

PVDM3-16: 1

DSP Module Allocation:

Router Slot 0: 266 Voice (98%) 6 Available (2%)

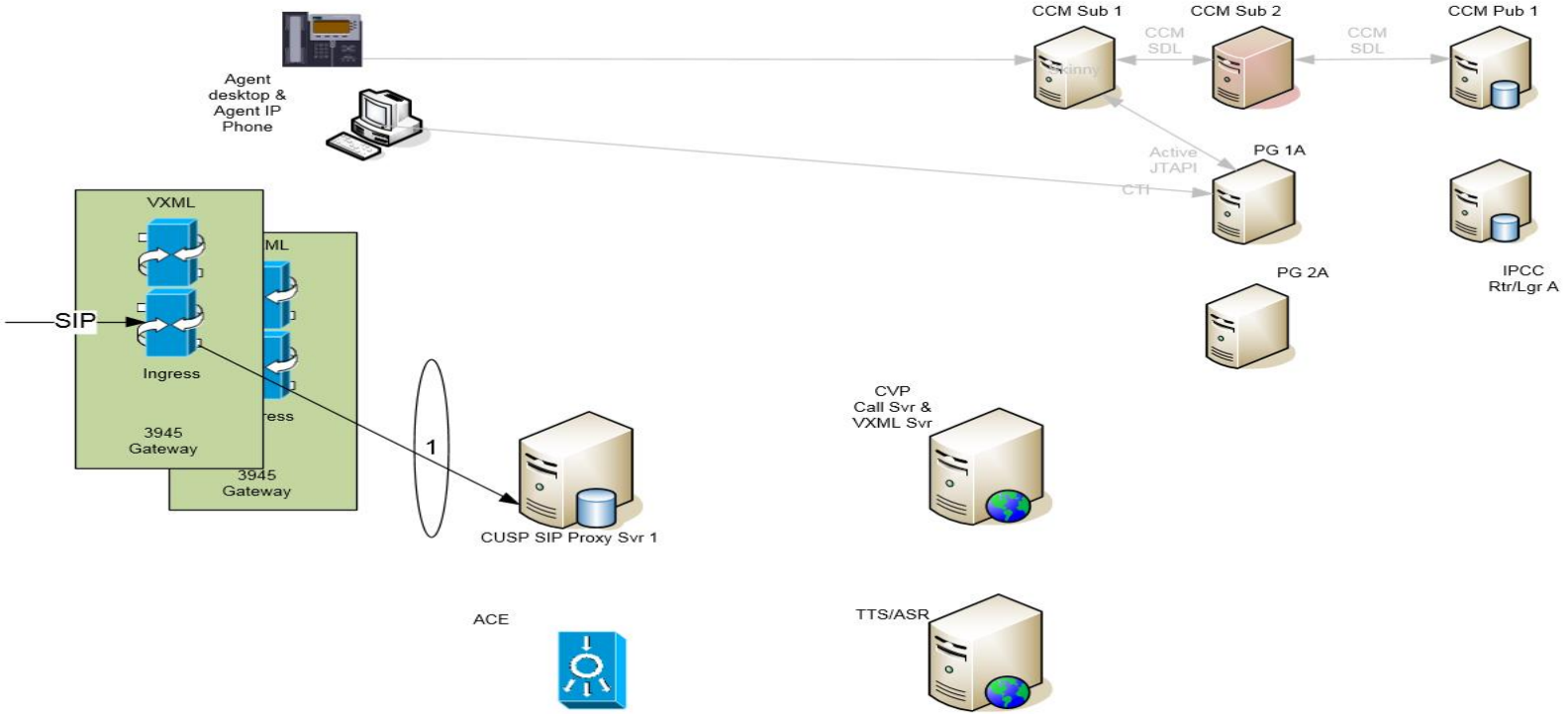
PVDM Slot 0/0: PVDM3-256 PVDM Slot 0/1: PVDM3-16

Conference 8 Party G.711: 100

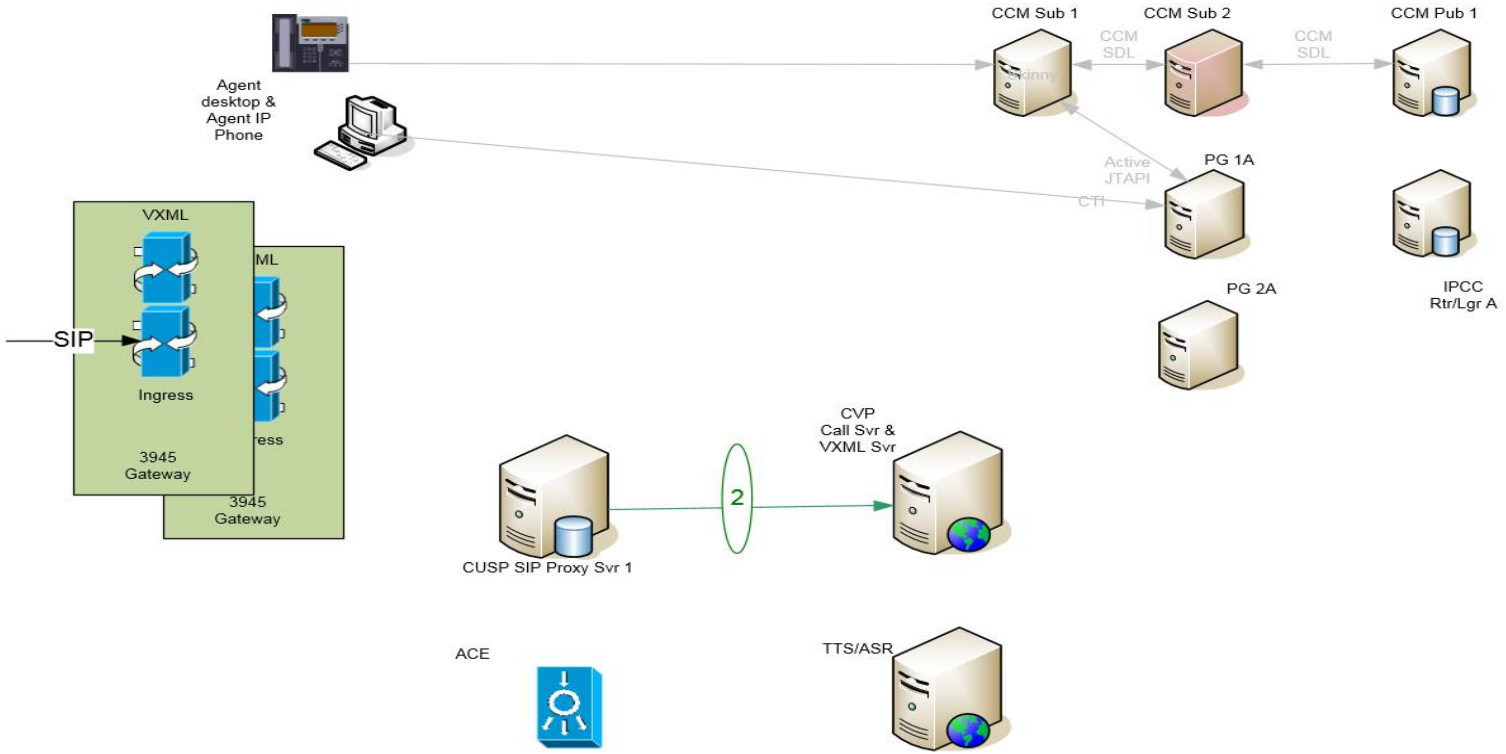



Design – Infrastructure Call Flow

Call Flow
Call arrives. Contacting a SIP Proxy

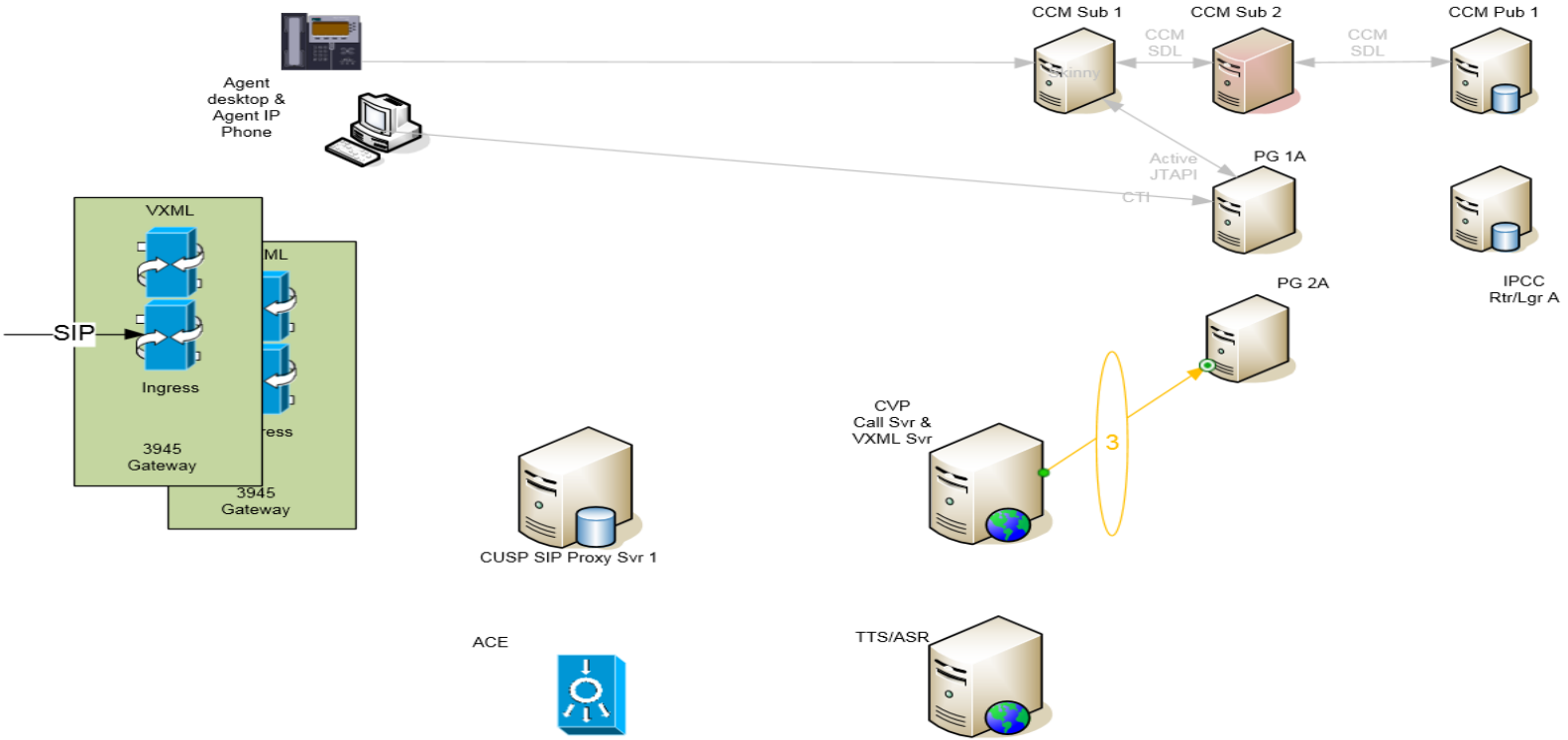


Call Flow – Contacting the CVP Server

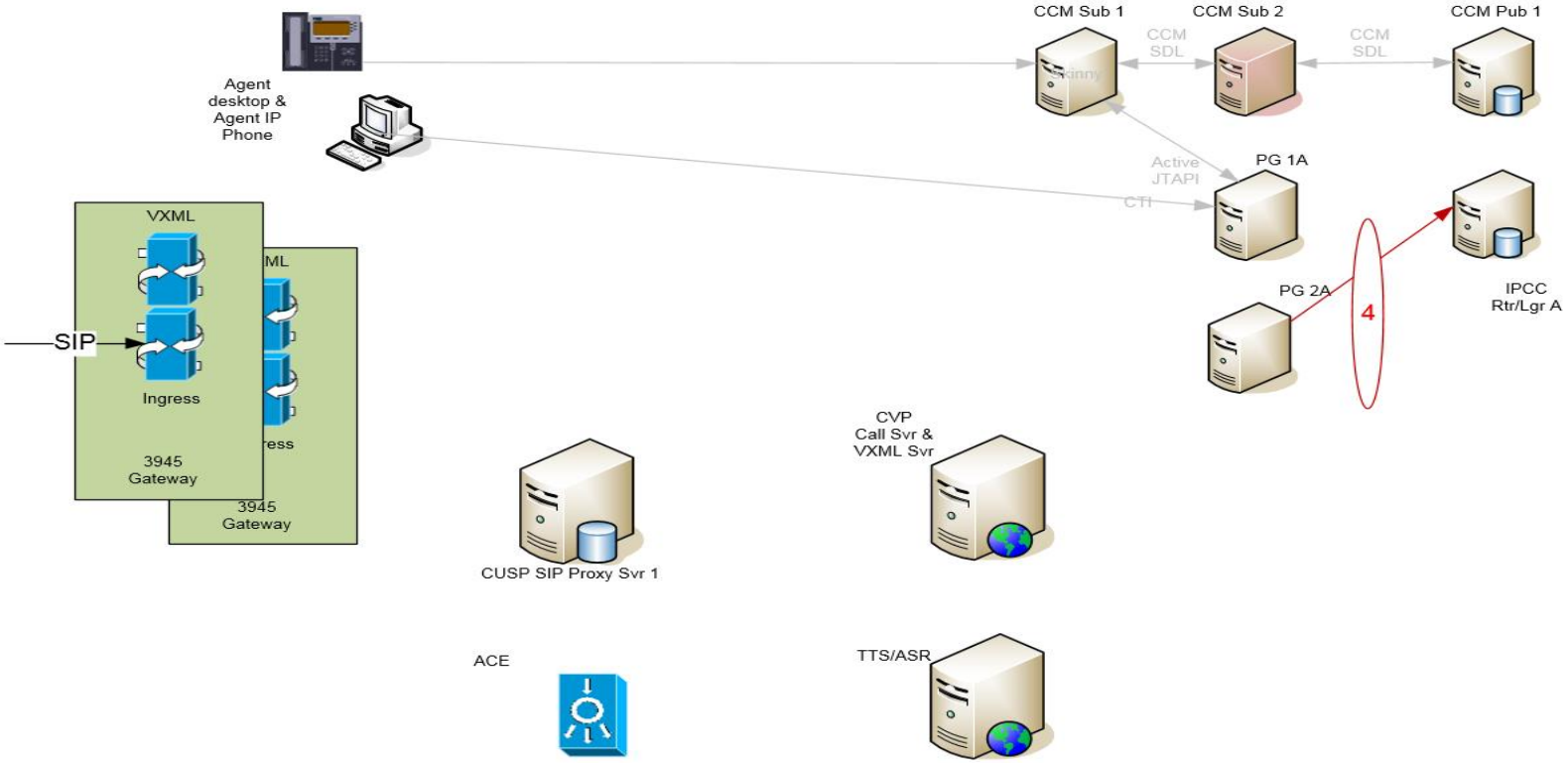


Call Flow

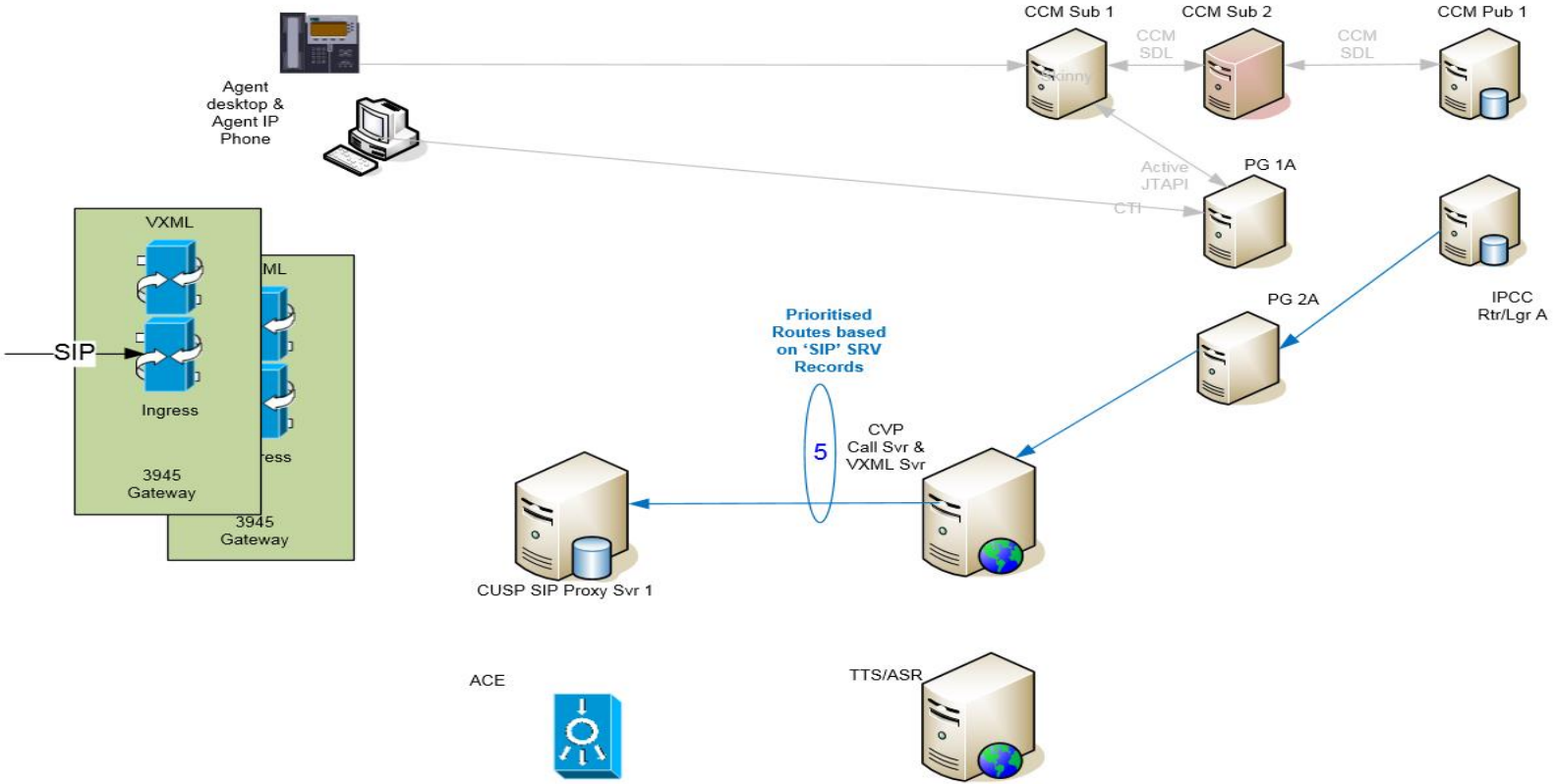
Passing the request to the PG



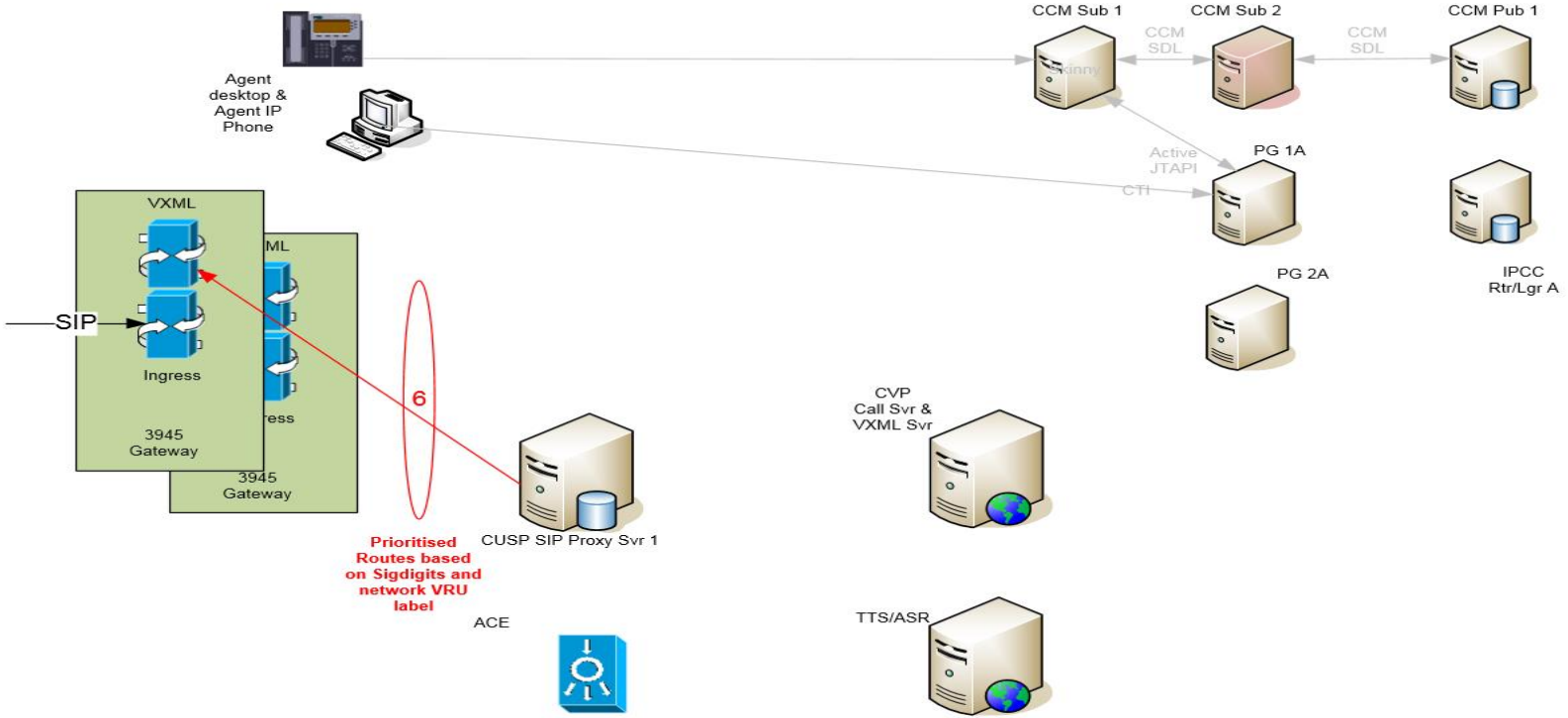
Call Flow- Contacting the Router



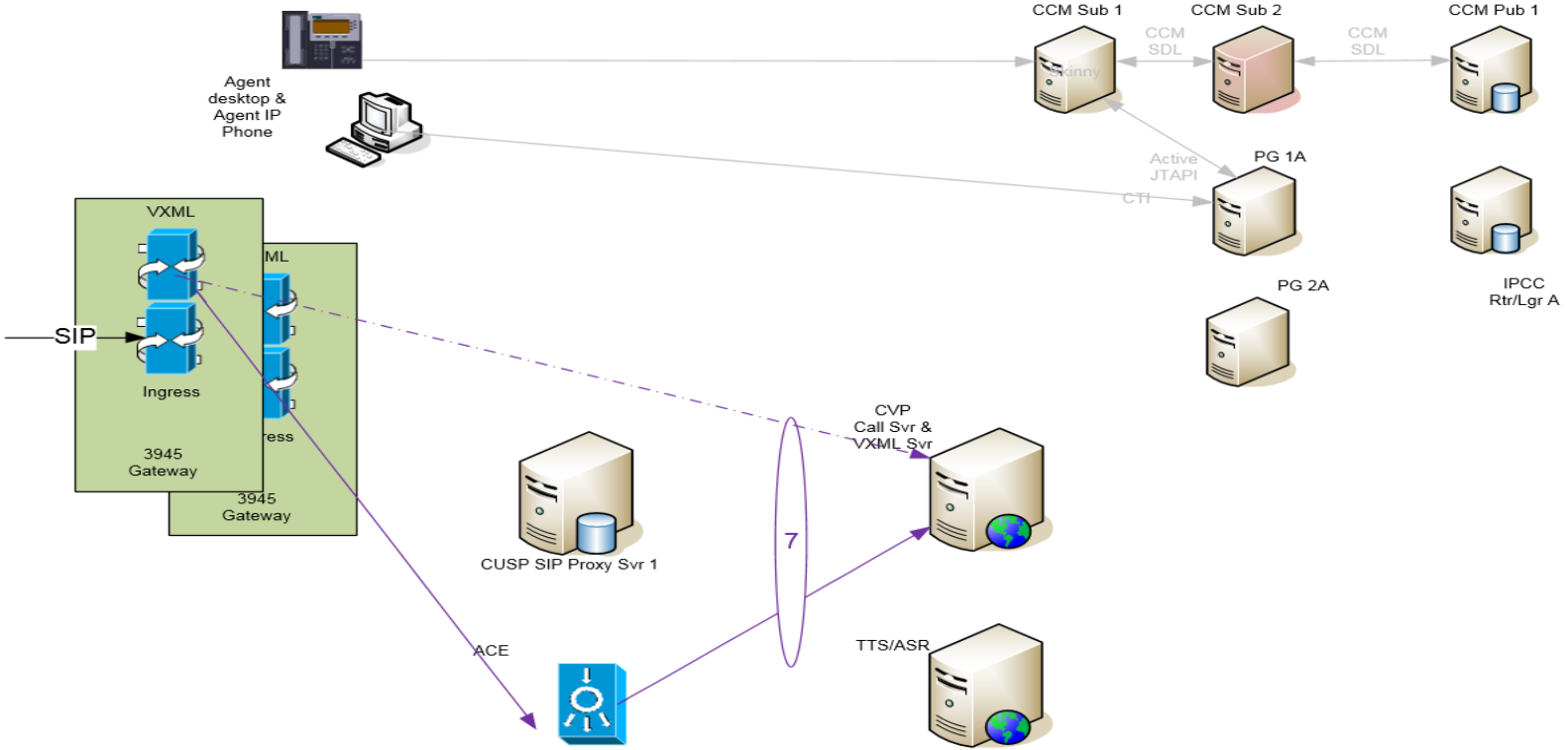
Call Flow - SentToVRU



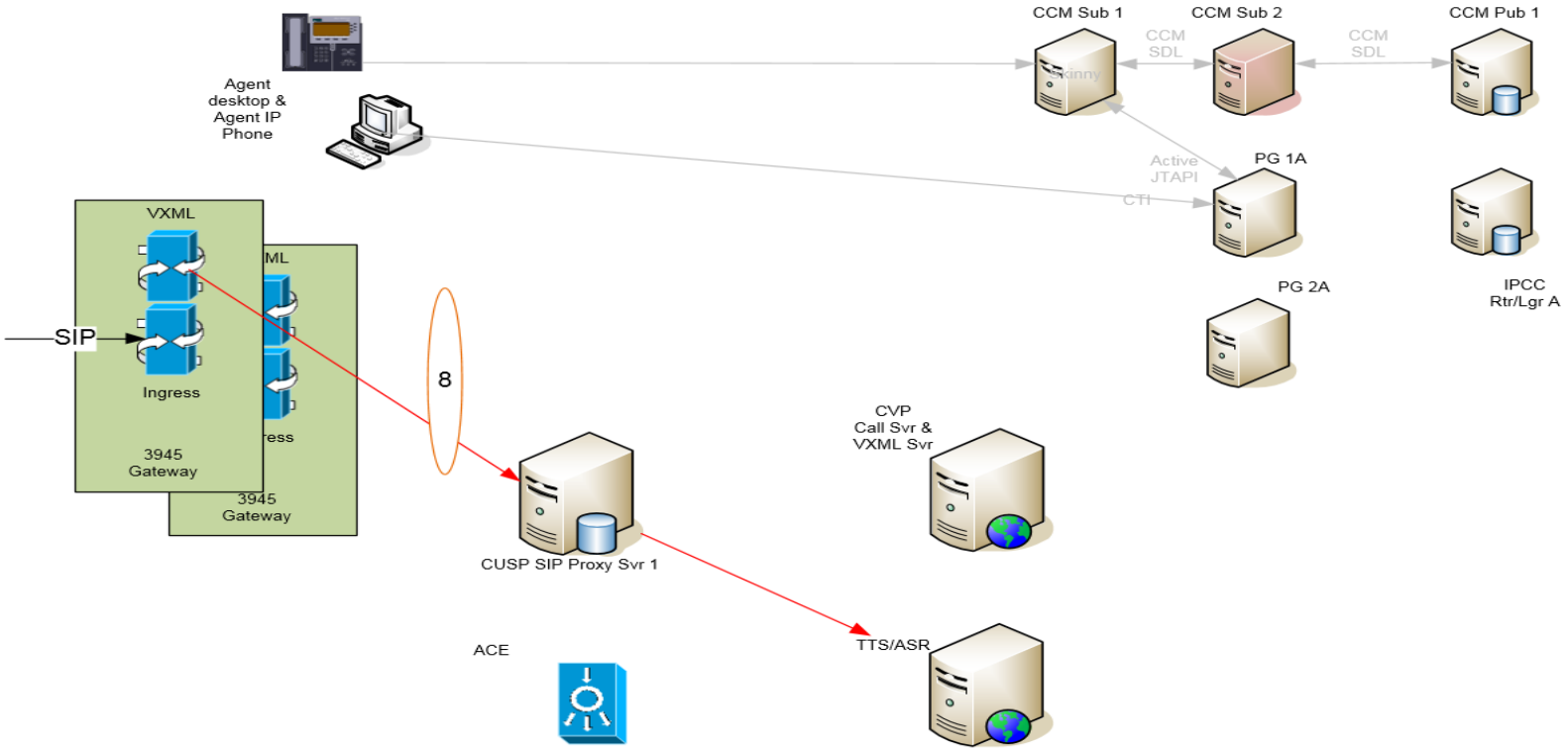
Call Flow – Contacting the VRU leg



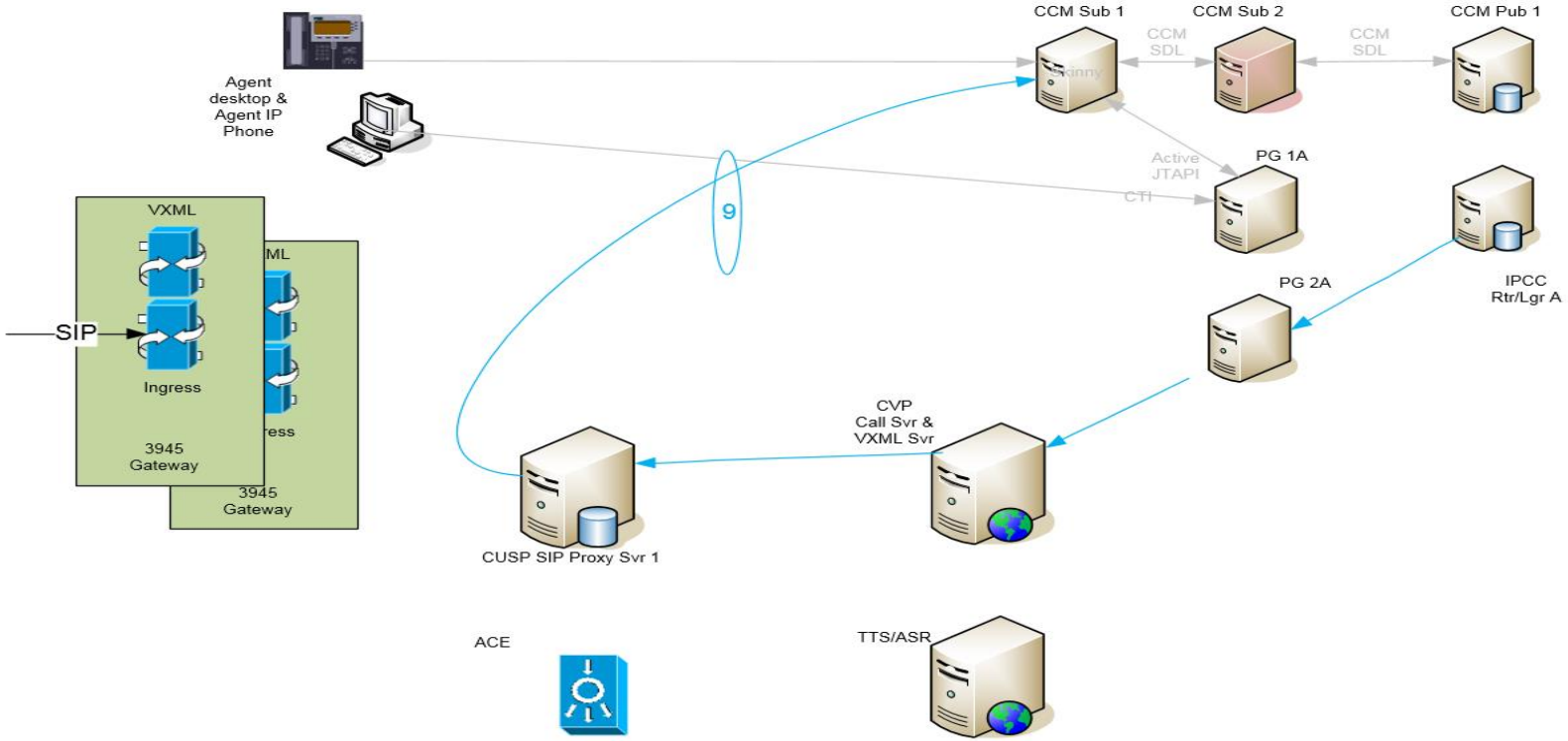
Call Flow
Finding an available VXML server



Call Flow
Finding an available mrcp v2 TTS/ASR



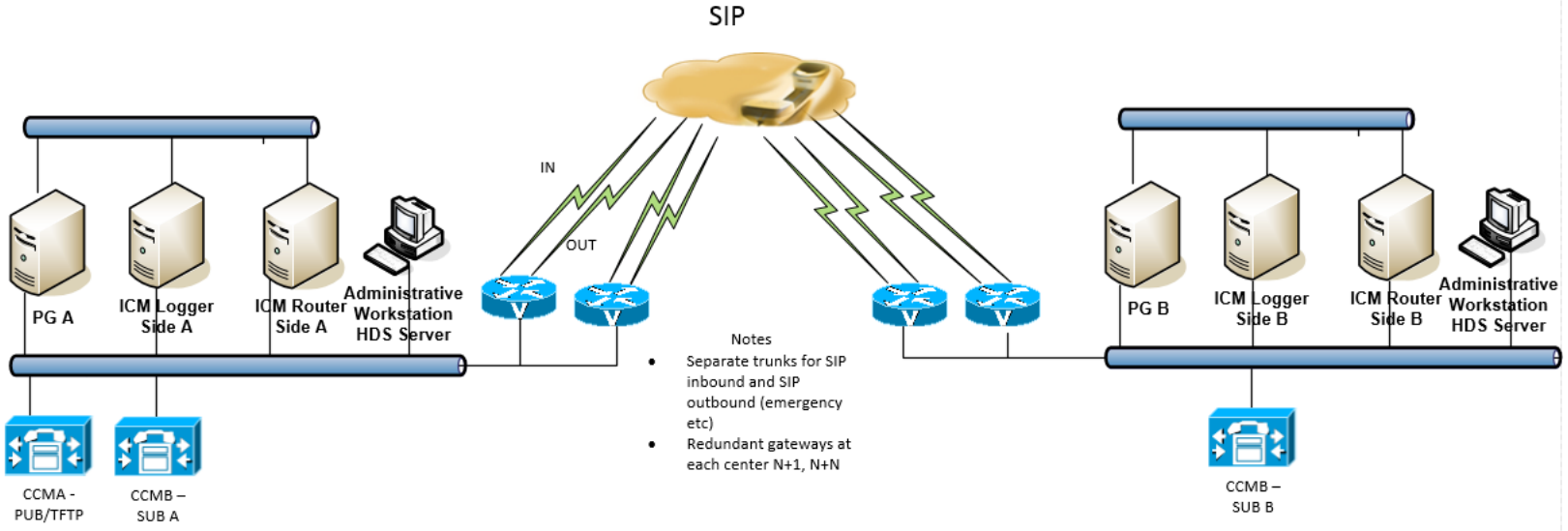
Call Flow
Finding an available Call Manager subscriber





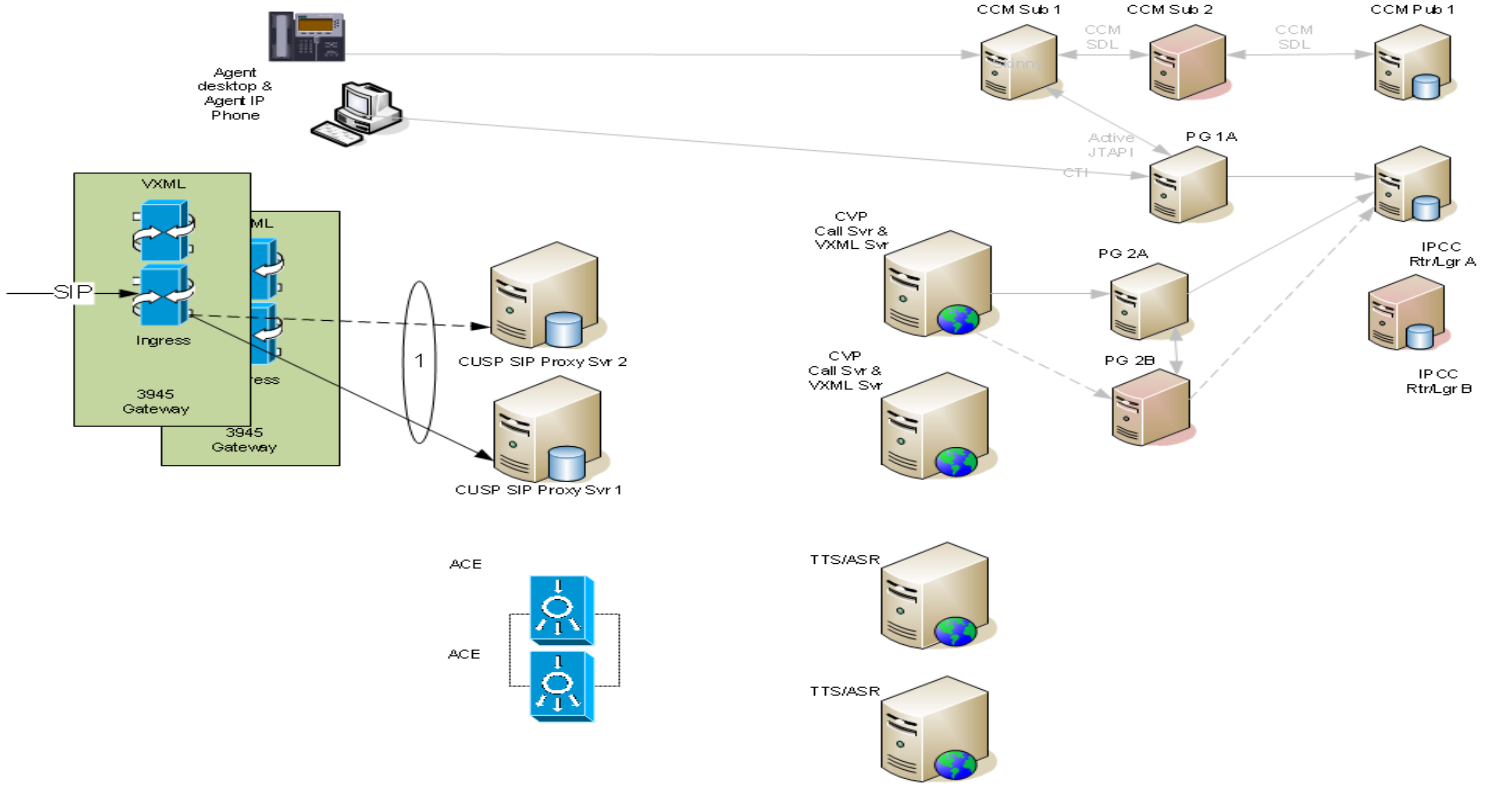

Design - Redundancy

Call Flow – Inbound and Outbound

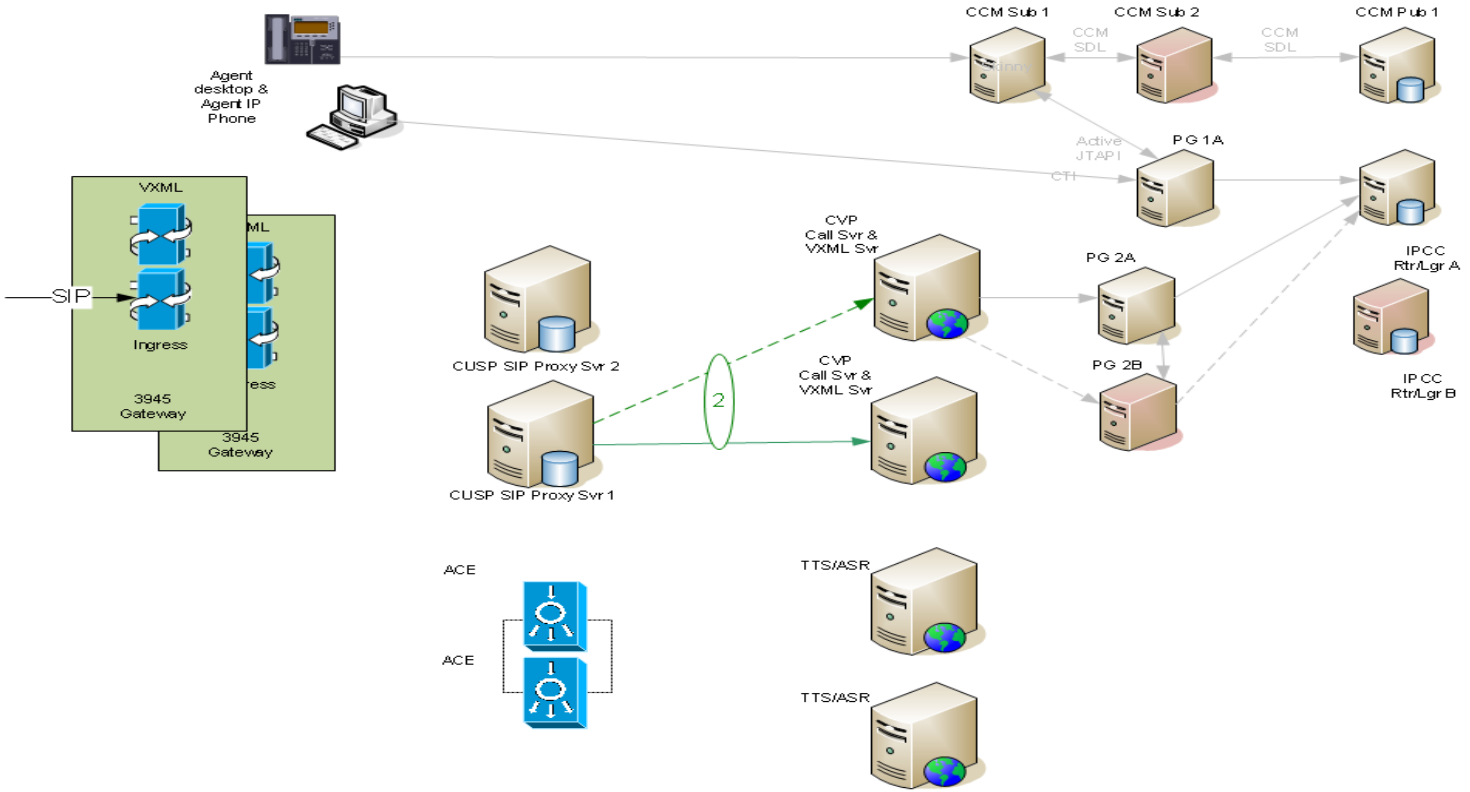


Call Flow - Call Arrives

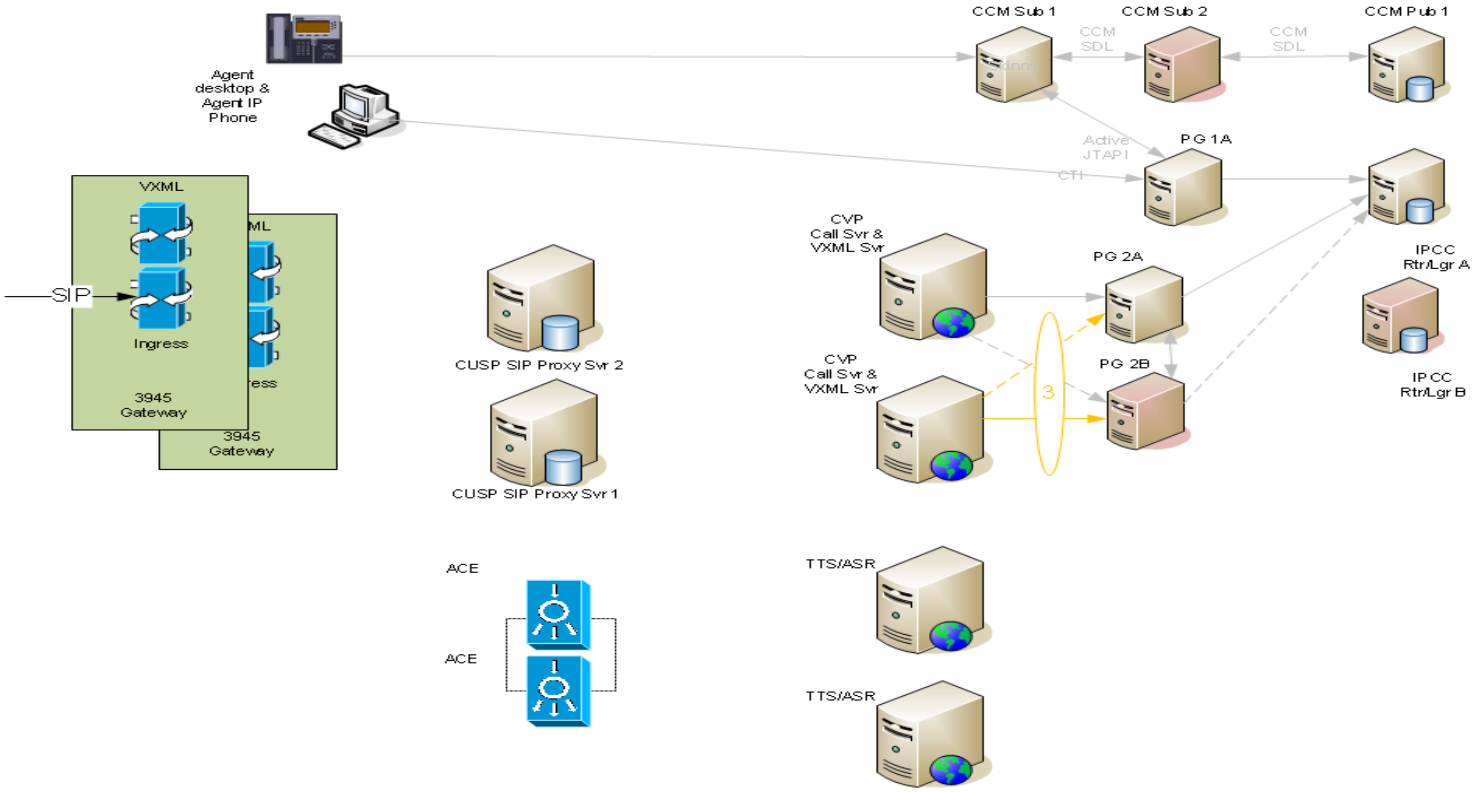
Finding an available CVP server



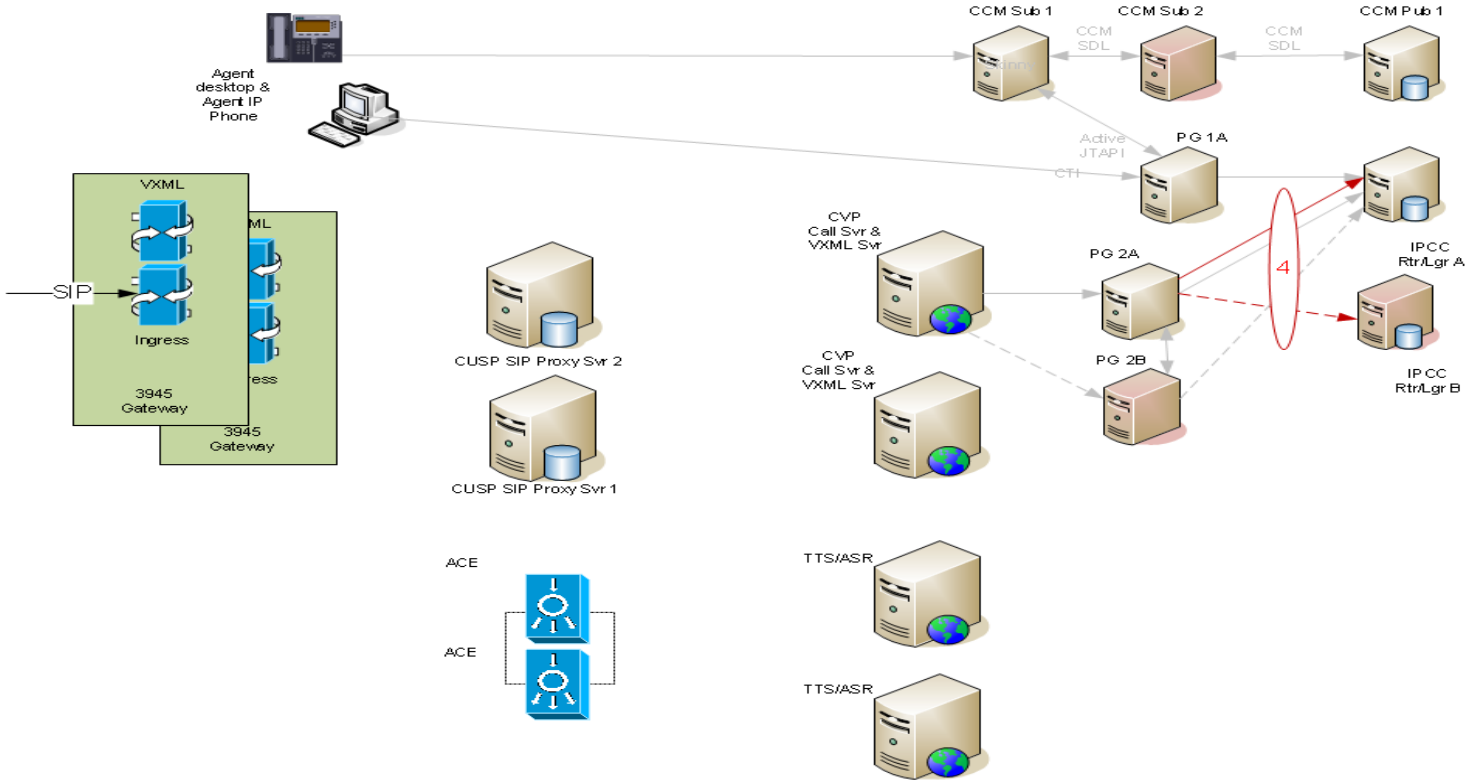
Call Flow – Contacting the Available CVP Server



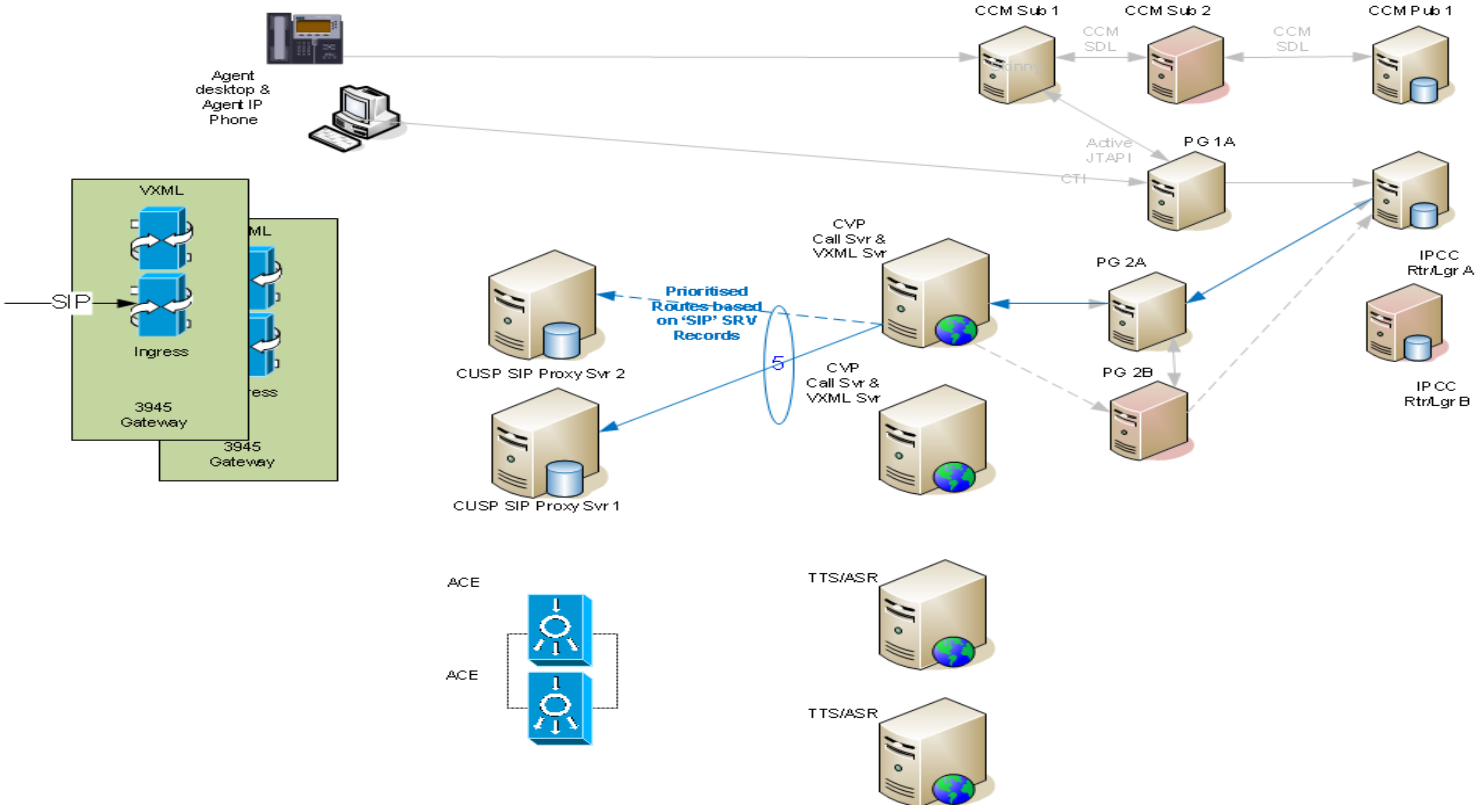
Call Flow
Finding an available routing pim



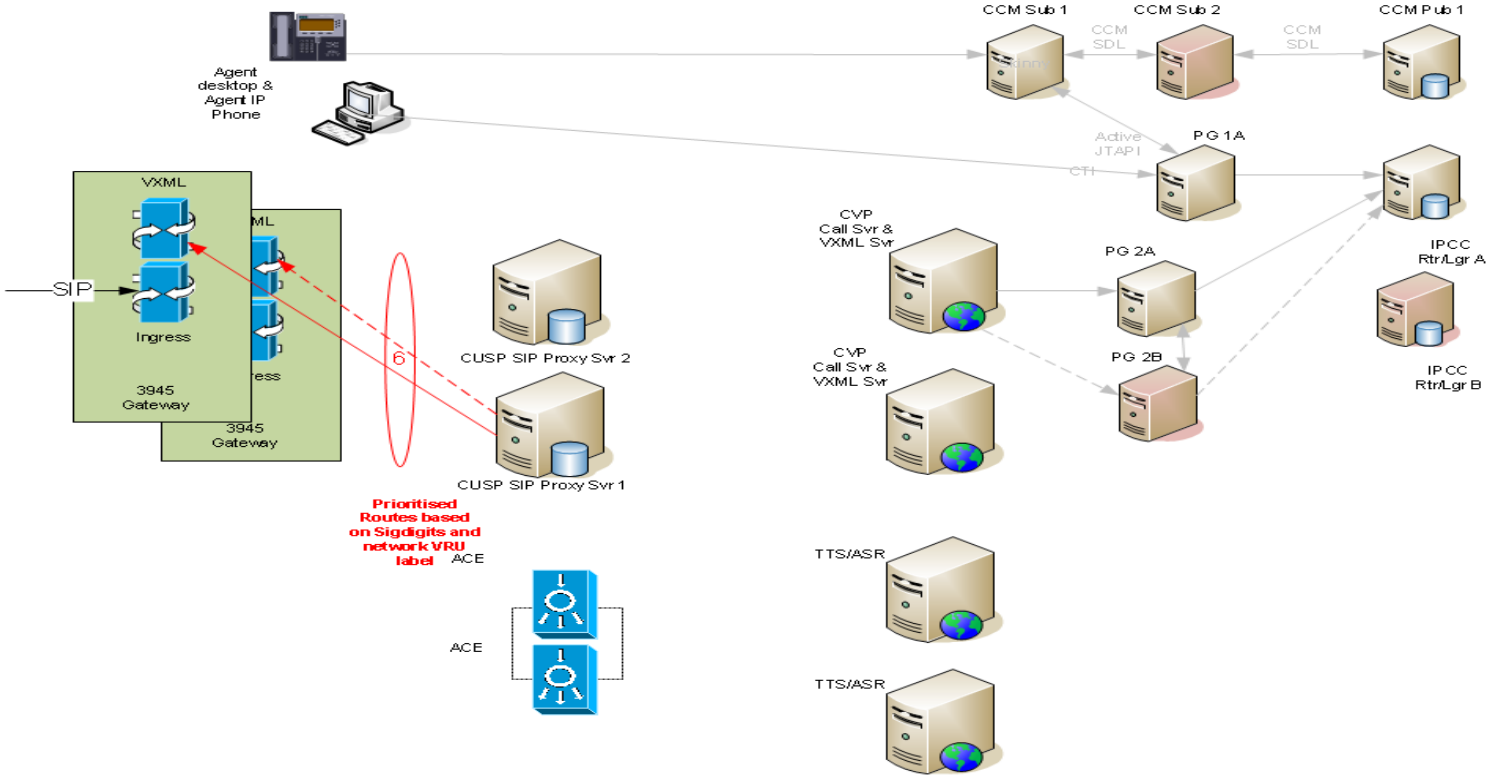
Call Flow
Contacting the available router



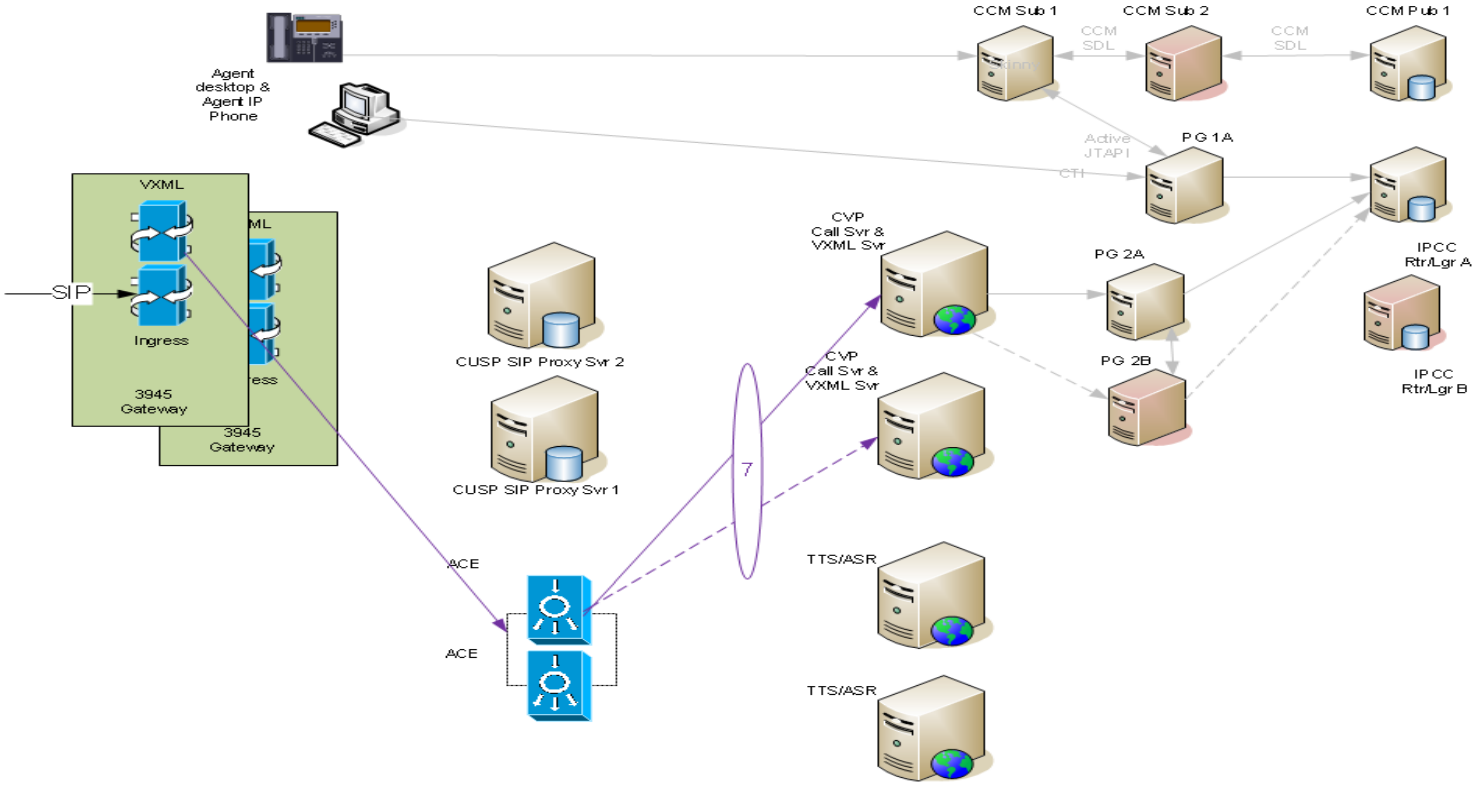
Call Flow
Finding an available VRU leg



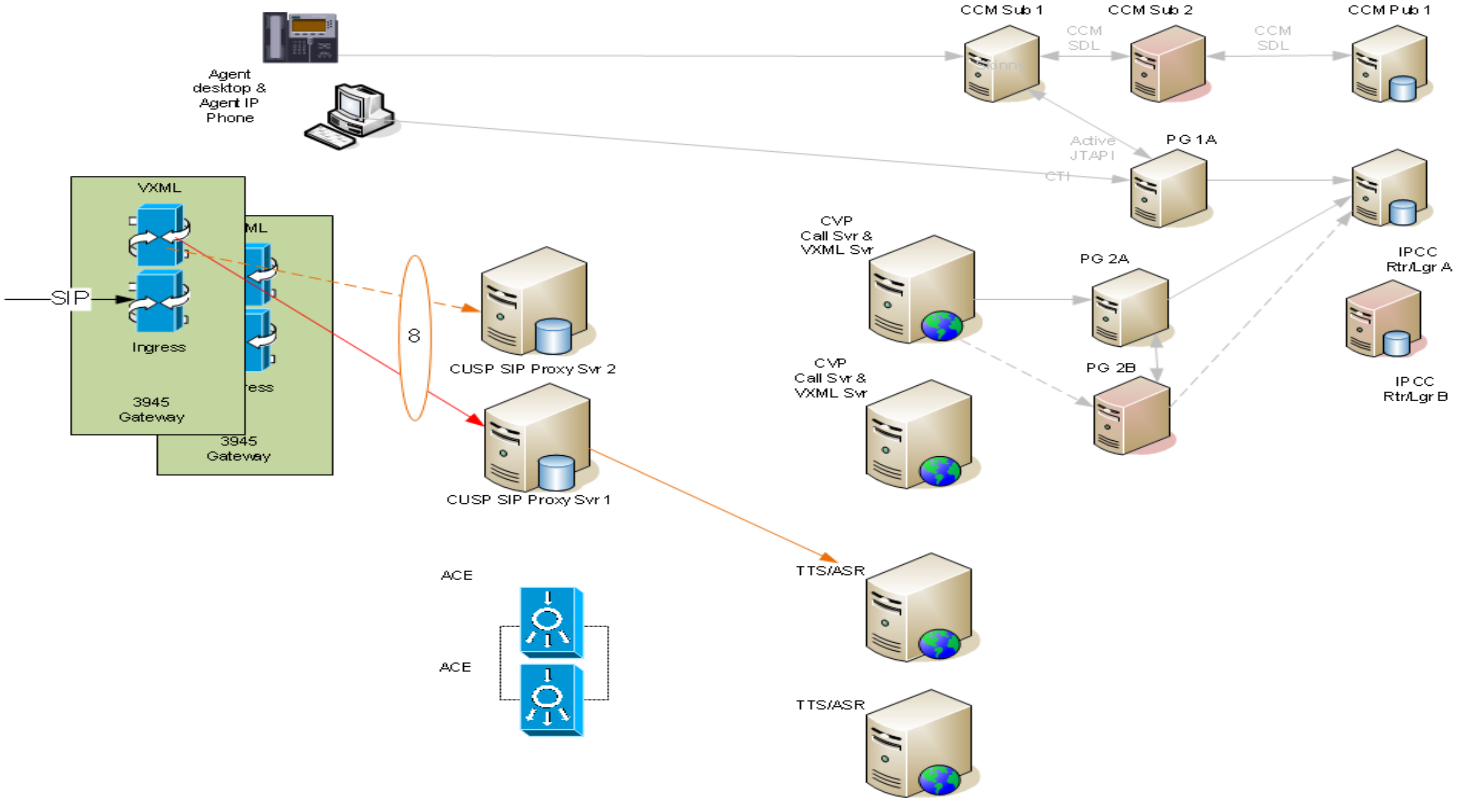
Call Flow – Contacting the VRU Leg



Call Flow
Finding an available VXML server

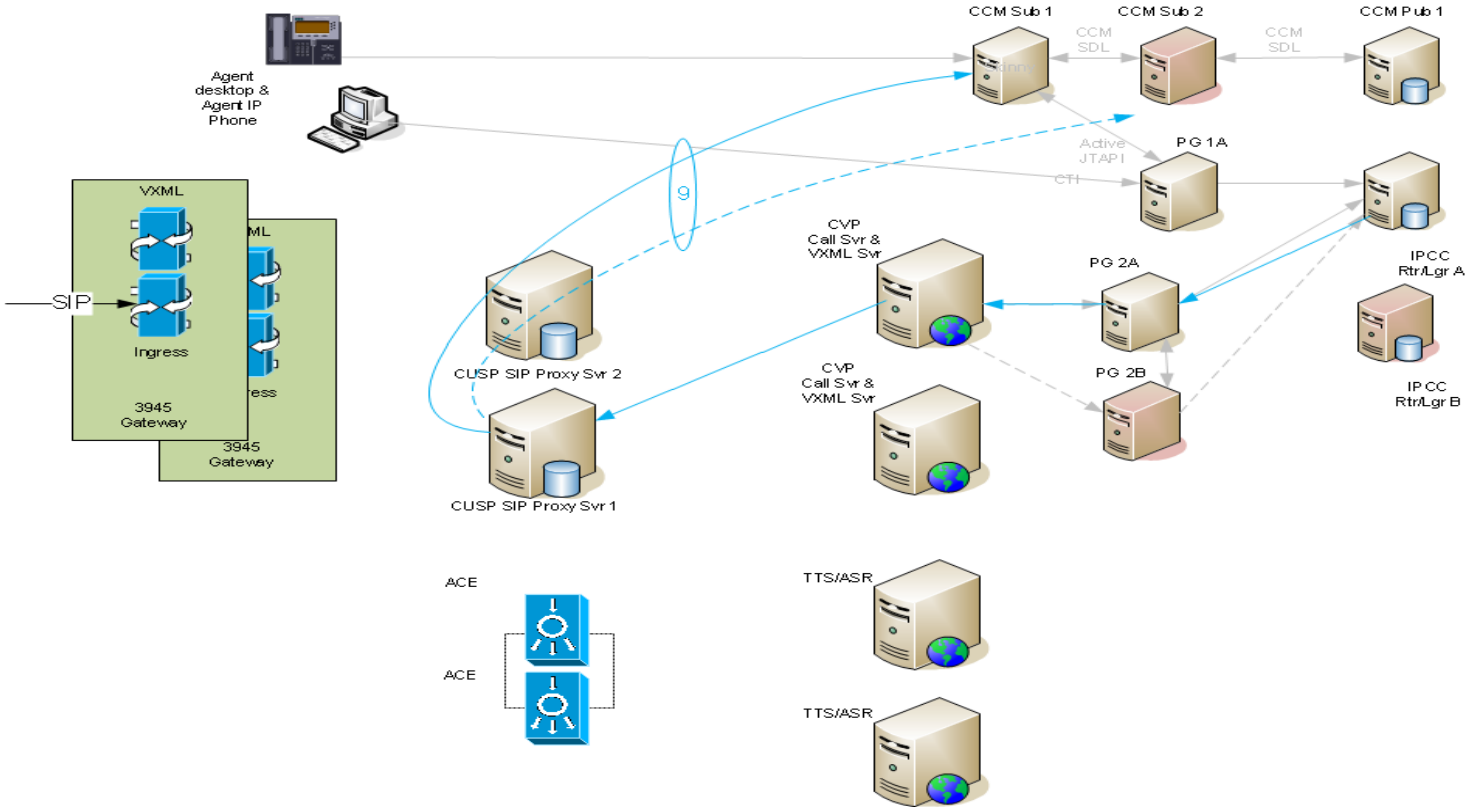


Call Flow – Finding an Available TTS/ASR

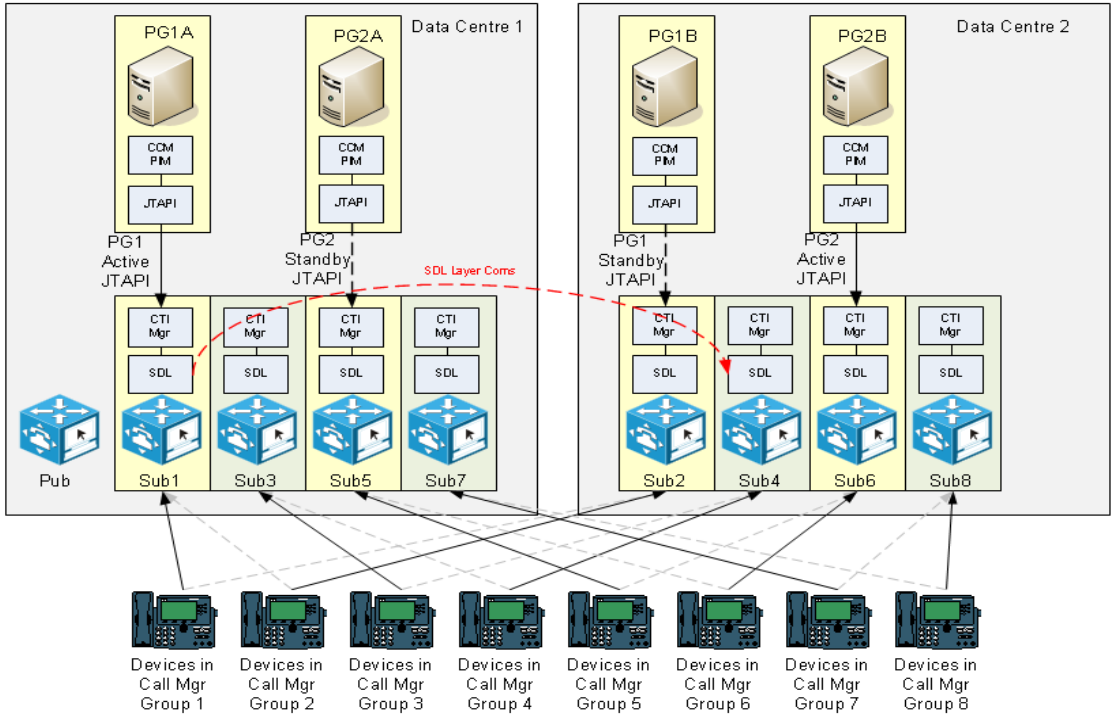


Call Flow

Finding an available Call Manager subscriber

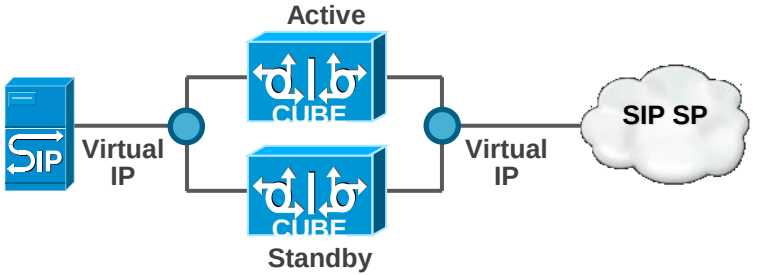


CUCM Redundancy

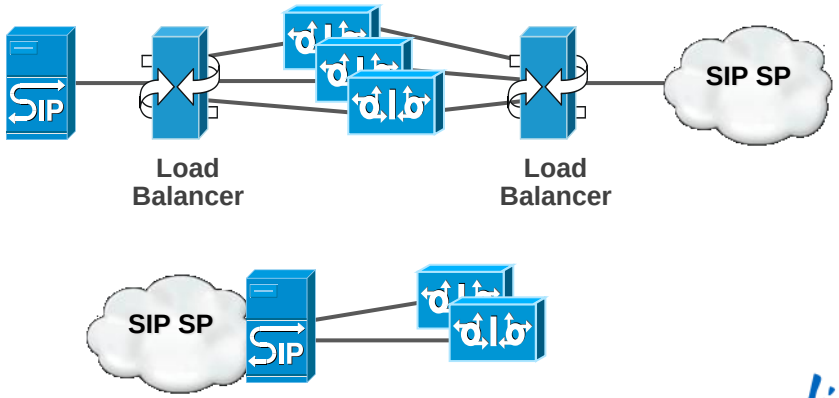


CUBE Local Redundancy

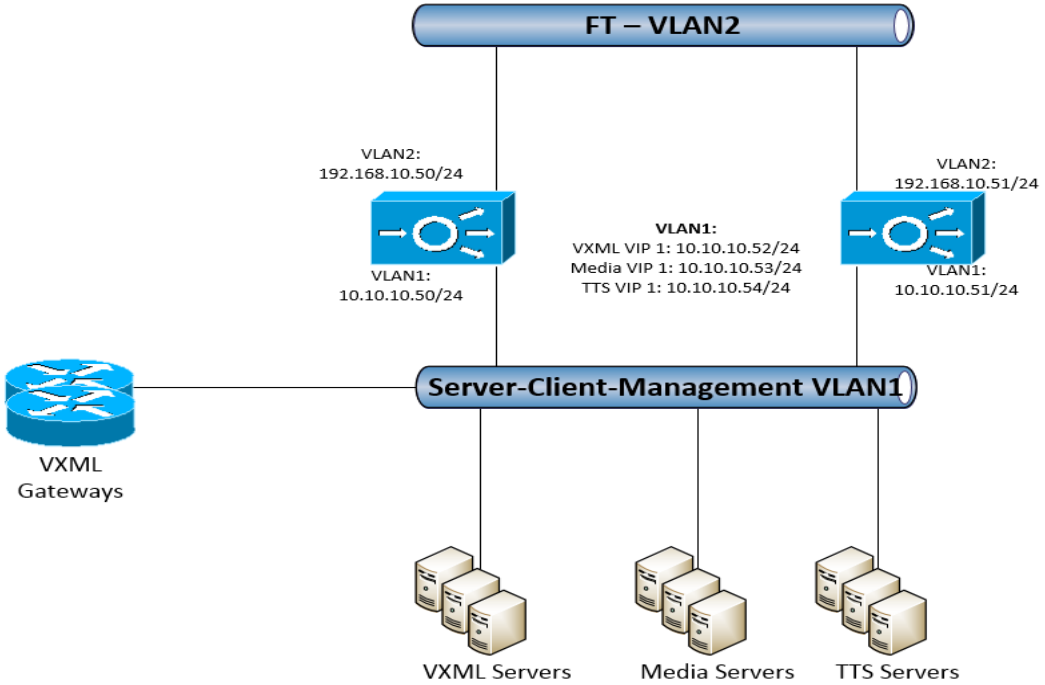
- **L2 Box-to-Box redundancy**
  - ISR G2 (Stateful failover)
  - SIP SP sees one VIP address



- **Clustering with load balancing**
  - All platforms
  - Load balancing by
    - SP call agent
    - SIP proxy/load balancer
  - Local and geographical redundancy



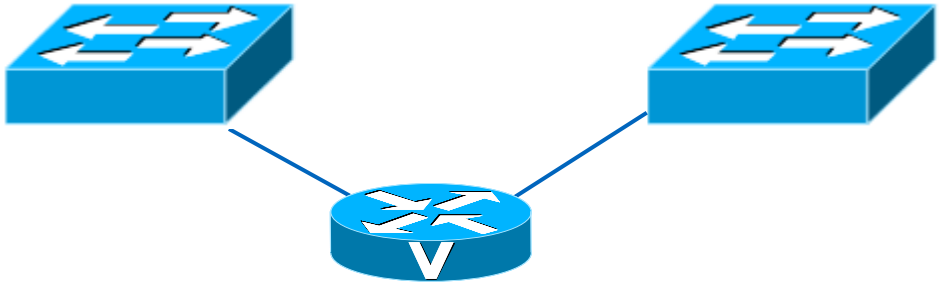
ACE Local Redundancy



Network Equipment Redundancy

Requirement: Network equipment to be dual attached to redundant upstream infrastructure.

Method 1 – Use Loopback as the central point



```
voice service voip
sip
bind control source-interface Loopback0
bind media source-interface Loopback0
```

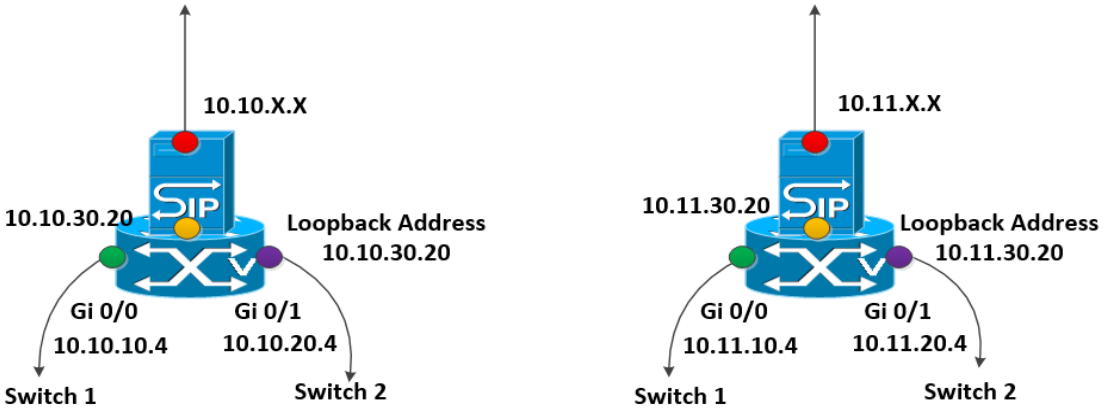
The IP routers for the network must provide redundant routes to this loopback interface and correctly propagate those routes to the rest of the routers in both data centres.

Method 2 – Provide a port channel to VSS or VPC.

.

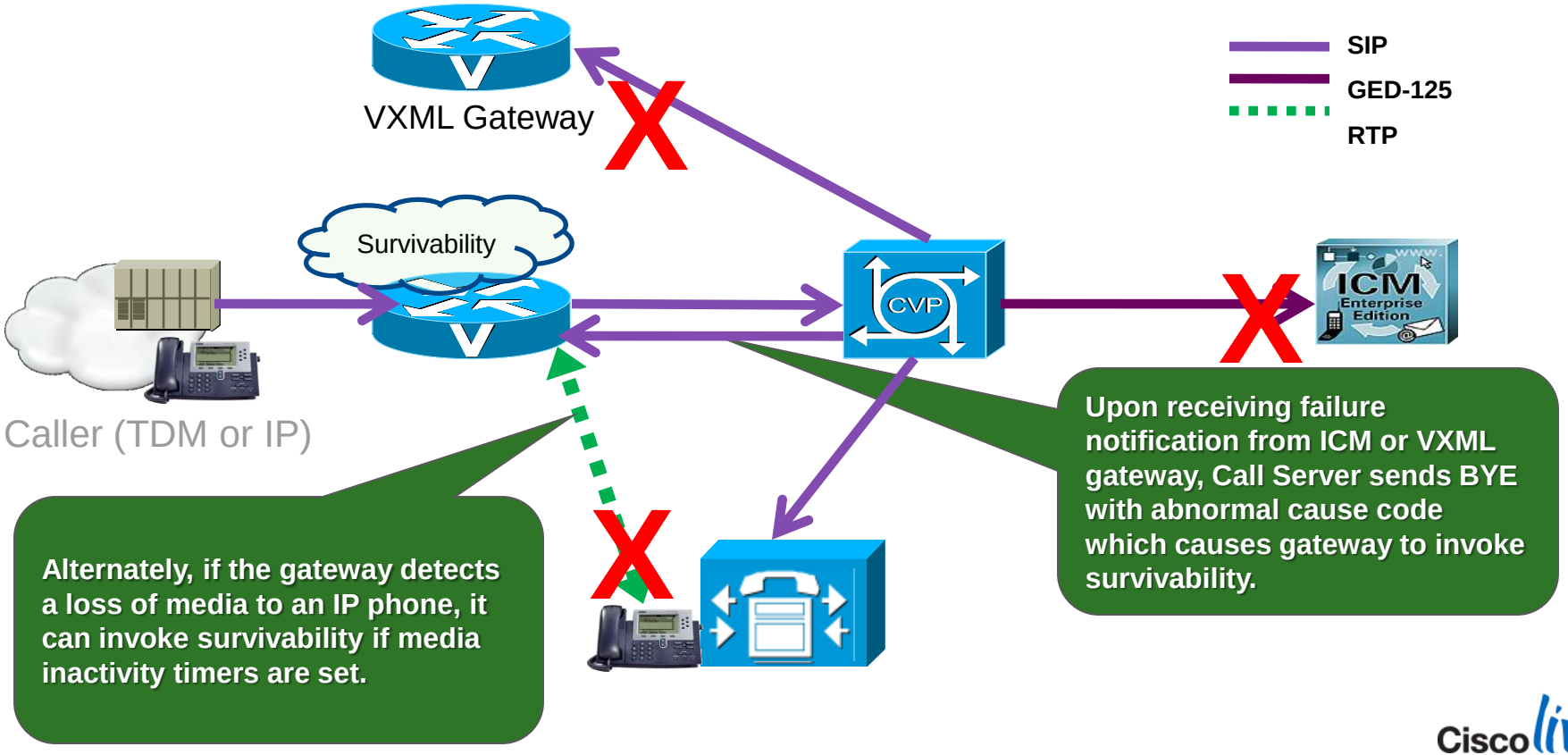
CUSP Local Redundancy

Cisco Unified SIP Proxy Dual attached interfaces



- CUSP Service Module Interface to External Link
- CUSP Service Module Interface to router would be same as Loopback Address
- Gi 0/0 Router Interface
- Gi 0/1 Router Interface

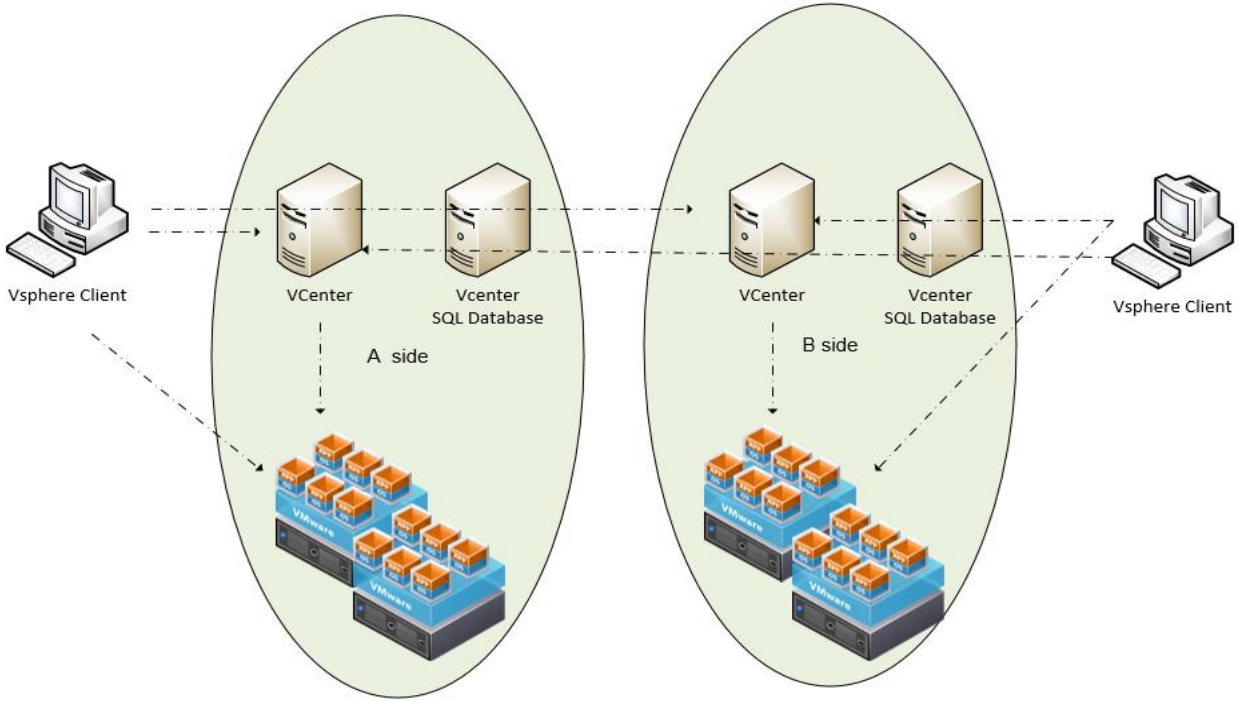
CVP Survivability






Design - Virtualisation

VMware Architecture



Unified CCE Component VM Co-residency

Unified CCE Component Co-residency	Contact Center Tier 1 Applications	Contact Center Tier 2 Applications	Contact Center Tier 3 Applications	Unified Communications Applications	Third Party Applications
Contact Center Tier 1 Applications: Logger, Rogger, HDS (any)	♦	♦	♦	*1	
Contact Center Tier 2 Applications: Router, Peripheral Gateway (PG), CVP Call + VXML Server, CVP Reporting Server, CUIC, CCMP	♦	♦	♦	♦	
Contact Center Tier 3 Applications: ADS/AW (any non-HDS), Admin Client, Windows AD DC, CVP Ops/OAMP Server, CVP Media Server, SocialMiner	♦	♦	♦	♦	♦
Unified Communications Applications: Communications Manager, Contact Center Express, IPIVR, CUP, Unity, Unity Connection, MediaSense, and other UC apps per the UC on UCS supported apps page	*1	♦	♦	♦	*2

Could we put an Exony VM on the same blade that also had a VRU PG VM on it ?

Virtual Machine Layout and Placement Logic

UCS-C240M3S Chassis			
ESXi Server	Component	#vCPU	RAM (GB)
ESXi Server A-1	Router A	4	8
	Domain Controller A	2	4
	Agent PG 1A (CTIOS, MR PG, SIP Dialer)	2	6
	UCM_1 Subscriber-1	2	6
	CVP Call+VXML Srv 1	4	4
	UCM_1 TFTP-1	2	6
ESXi Server A-2	Logger A	4	8
	Agent PG 2A (CTIOS, MR PG, SIP Dialer)	2	6
	UCM_2 Subscriber-1	2	6
	CVP Call+VXML Srv 3	4	4

Place the primary and secondary call processing subscribers on separate servers, chassis or sites

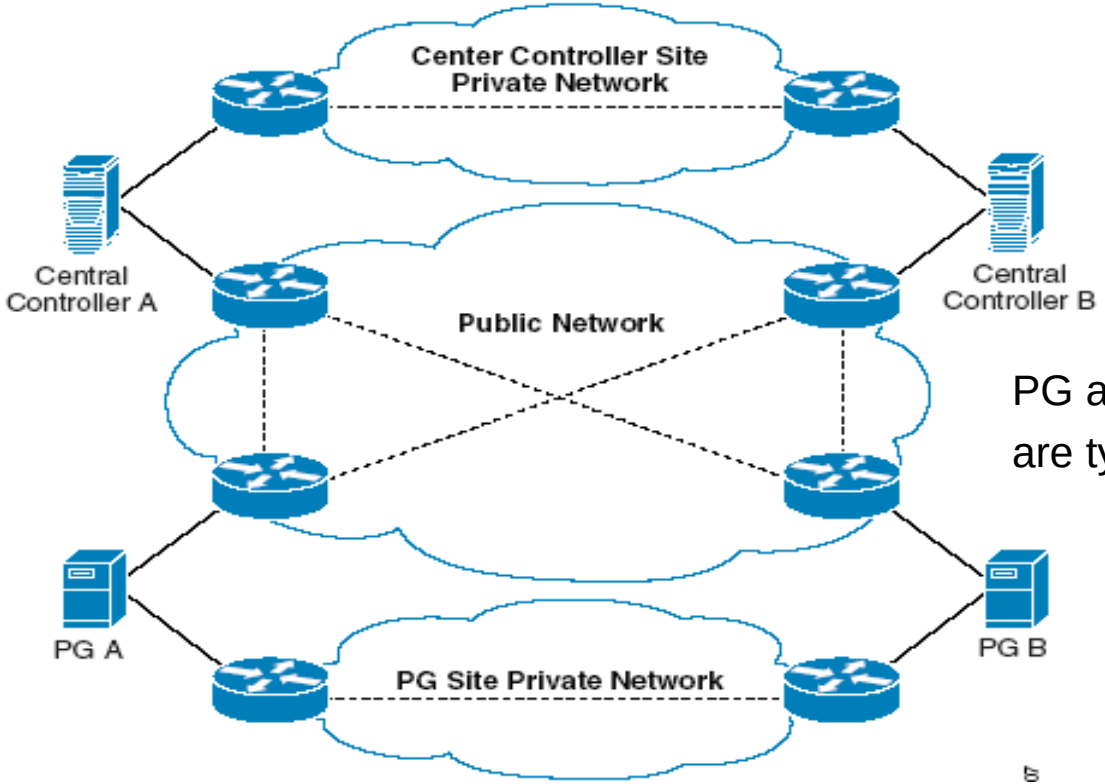
PG1A not on the same server as PG2A

UCS-C240M3S Chassis			
ESXi Server	Component	#vCPU	RAM (GB)
ESXi Server B-1	Router B	4	8
	Domain Controller B	2	4
	Agent PG 1B (CTIOS, MR PG, SIP Dialer)	2	6
	UCM_1 Subscriber-2	2	6
	CVP Call+VXML Srv 2	4	4
	UCM_1 TFTP-2	2	6
ESXi Server B-2	Logger B	4	8
	Agent PG 2B (CTIOS, MR PG, SIP Dialer)	2	6
	UCM_2 Subscriber-2	2	6
	CVP Call+VXML Srv 4	4	4



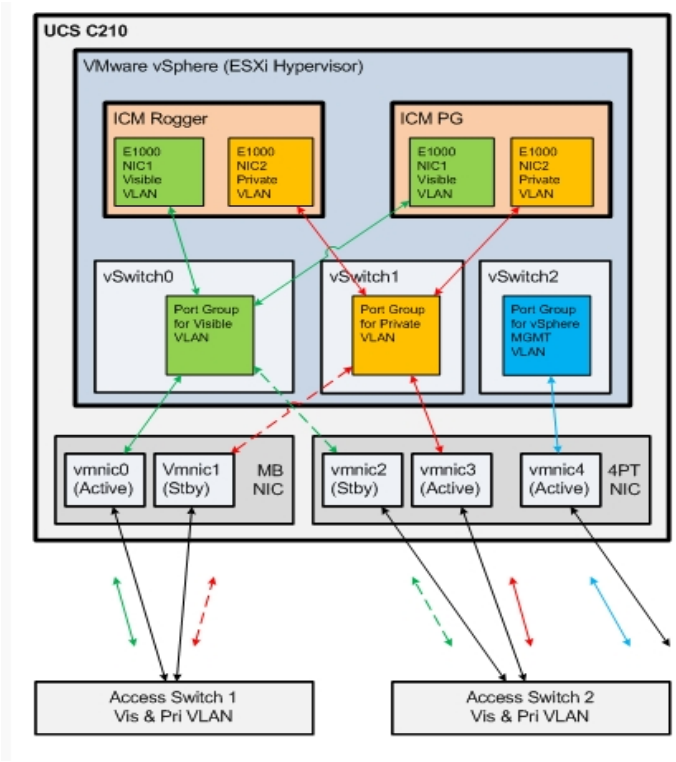

Design - Network

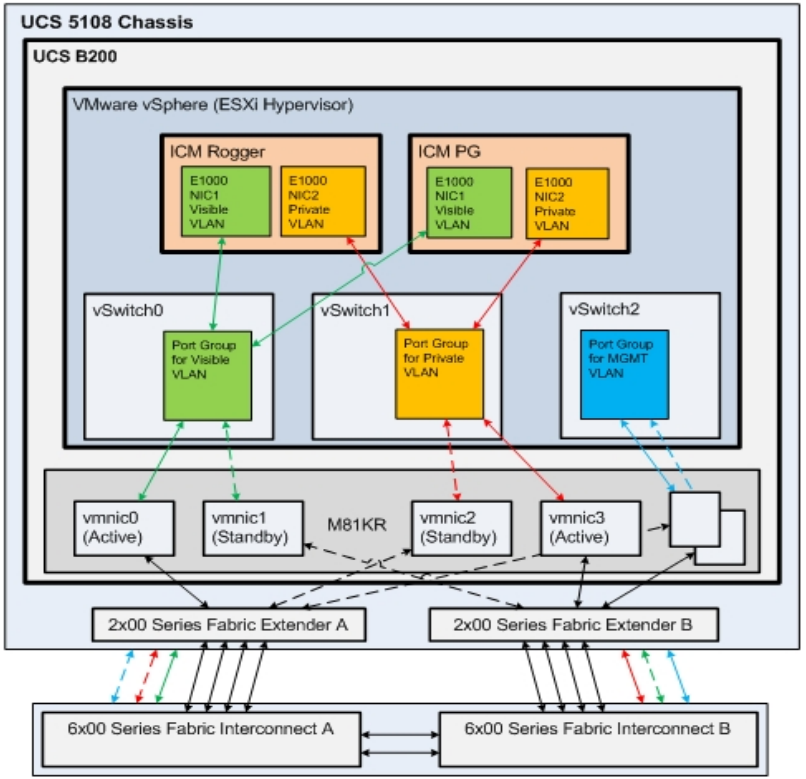
Network - Private and Public



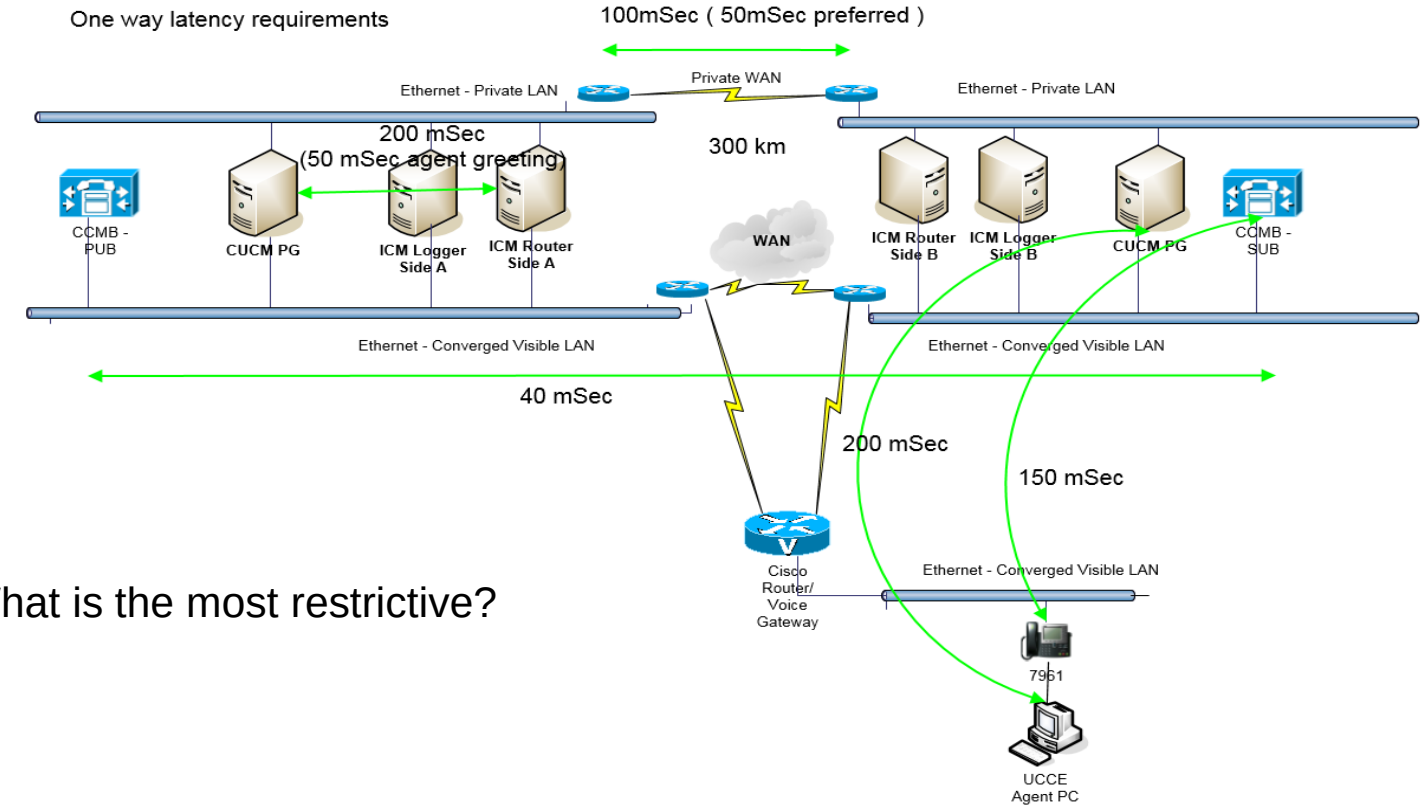
PG and CC private links are typically one physical link

UCCE Vmware Private and Public Network Topology





Network - Latency



What is the most restrictive?

Private Link

Component	Effective BHCA	Multiplication Factor	Recom- mended Link (bps)	Multiplic ation Factor	Recommend ed Queue (bps)	
Router + Logger	120,000.00	* 30	3,600,000.00	* 0.8	**2,880,000.00**	**Total Router + Logger High-Priority Queue Size**
Unified CM PG	120000	* 100	12,000,000.00	* 0.9	10,800,000.00	Add these numbers together and put the total in the shaded box below to get the PG High-Priority
Unified IP IVR PG	N/A	* 60		* 0.9		
Unified CVP PG	160800	* 120	19,296,000.00	* 0.9	17,366,400.00	
Unified IP IVR or Unified CVP Variables	160800	* ((Number of Variables * Average Variable Length) / 40)	3,216,000.00	* 0.9	2,894,400.00	
		Total Link Size	**38,112,000.00**		**33,940,800.00**	**Total PG High-Priority Queue Size**

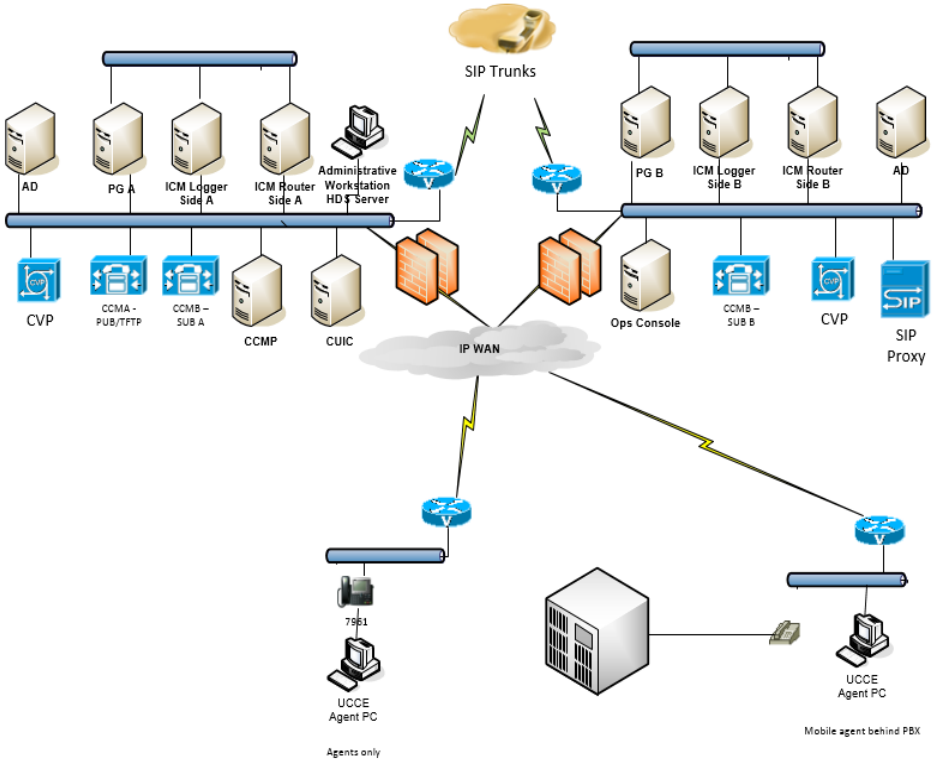
Public Link Bandwidth

Component	Comment	Tool
VRU PG	Communicates with the CC possibly over the WAN	http://tools.cisco.com/s2slv2/ViewDocument?docName=EXT-AS-100901
Agent PG	Communicates with the CC possibly over the WAN	http://tools.cisco.com/s2slv2/ViewDocument?docName=EXT-AS-100897
CTI to CTIOS	Communicates possibly over the WAN	UCCE SRND
CTIOS Server to Agent	Communicates is over the site WAN	http://www.cisco.com/en/US/docs/voice_ip_comm/cust_contact/contact_center/ctios/bandwidth_calculator/guide/cticalc.zip.html
VXML Documents	For Branch models communicates is over the site WAN	CVP SRND
Media Files	For Branch models communicates is over the site WAN	CVP SRND

Public Link Bandwidth continued

Component	Comment	Tool
CVP SIP Signalling	For Branch models communicates is over the site WAN	CVP SRND
CCMP	Communicates over the WAN for quad deployment	UCCE SRND
ICCS/Database/CTI	Communicates over the WAN	CUCM SRND
RTP	Overflow between UCCE systems using ICM to ICM gateway	CUCM SRND See VoIP Bandwidth Reference Slide
Sip Signalling	between UCCE systems using ICM to ICM gateway	CUCM SRND

Firewalls – Where are They?



Since users are the main threat suggest

- IP ACL's from DC subnet to DC subnet
- Port ACL's from the site to DC

See

- Securing Cisco Unified Contact Centre Enterprise
- Cisco Unified CVP port utilisation

- OPS console uses dynamic ports

Fill Out Host Template for Deployment

- Watch length of hostnames - maximum length is 15 in windows 2008
- Avoid Special characters
- Use of hostnames in setup allows for future changes in ip address's.
- Use of hosts file to reduce need for DNS

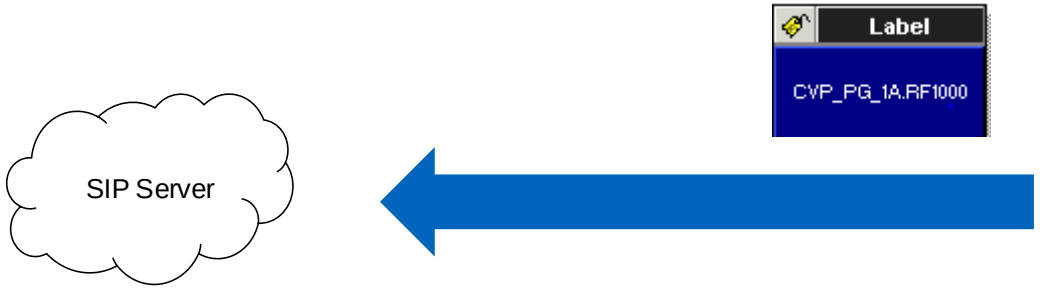
Server		Host Name	NIC Information	
7	UCCE (RouterA & LoggerA)	RGRA (Visible) GEOCISCORTRA	IP Add	X.X.X.X
			Mask	X.X.X.X
			DR/GW	X.X.X.X
			DNS1	X.X.X.X
			DNS2	X.X.X.X
			WINS1	X.X.X.X
			WINS2	X.X.X.X
		RGRA-h (Visible, High) GEOCISCORTRAH	IP Add	X.X.X.X
			Mask	X.X.X.X
		RGRA-p (Private) GEOCISCORTRAP	IP Add	X.X.X.X
			Mask	X.X.X.X
		RGRA-ph (Private, High) GEOCISCORTRAPH	IP Add	X.X.X.X
			Mask	X.X.X.X

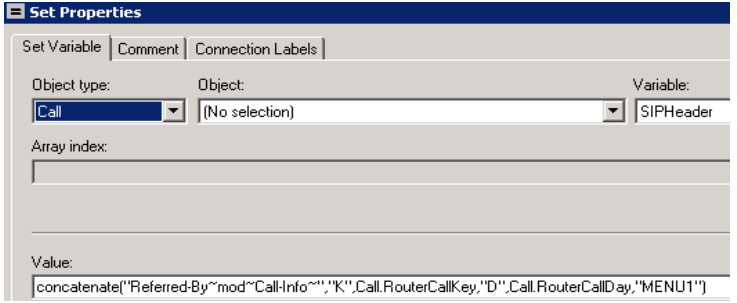



Design - Customisation

Customisation Design
Integration with external SIP server

Passing of Headers from ICM script allows sending information to the SIP server






```
Referred-By: <sip:CVP@10.67.59.14:5060>;call-info=K203D150809MENU1
```

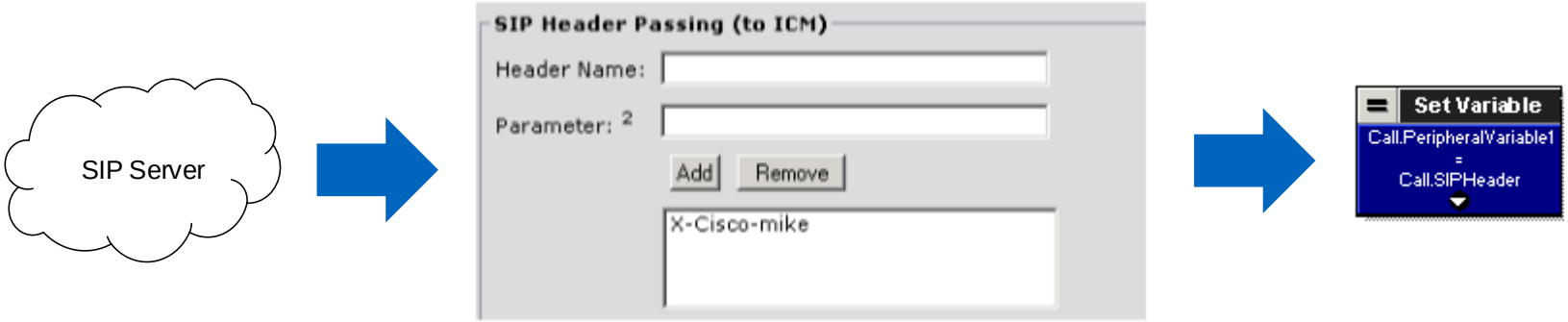
Why do you think the RouterCallKey and RouterCallDay is a good idea to pass to the SIP server?

The model is like this:
header_name~mod~parameter_name~new_value

Maximum is 200 characters

Customisation Design
Integration with external SIP server

Passing information in SIP headers to ICM allows getting information from the SIP Server






Design – Reporting

Reporting Decision

- CUIC Stock Reports

Report Template Reference Guide For Cisco Unified Intelligence Center, Release 9.0(2)

- Reports from the forum

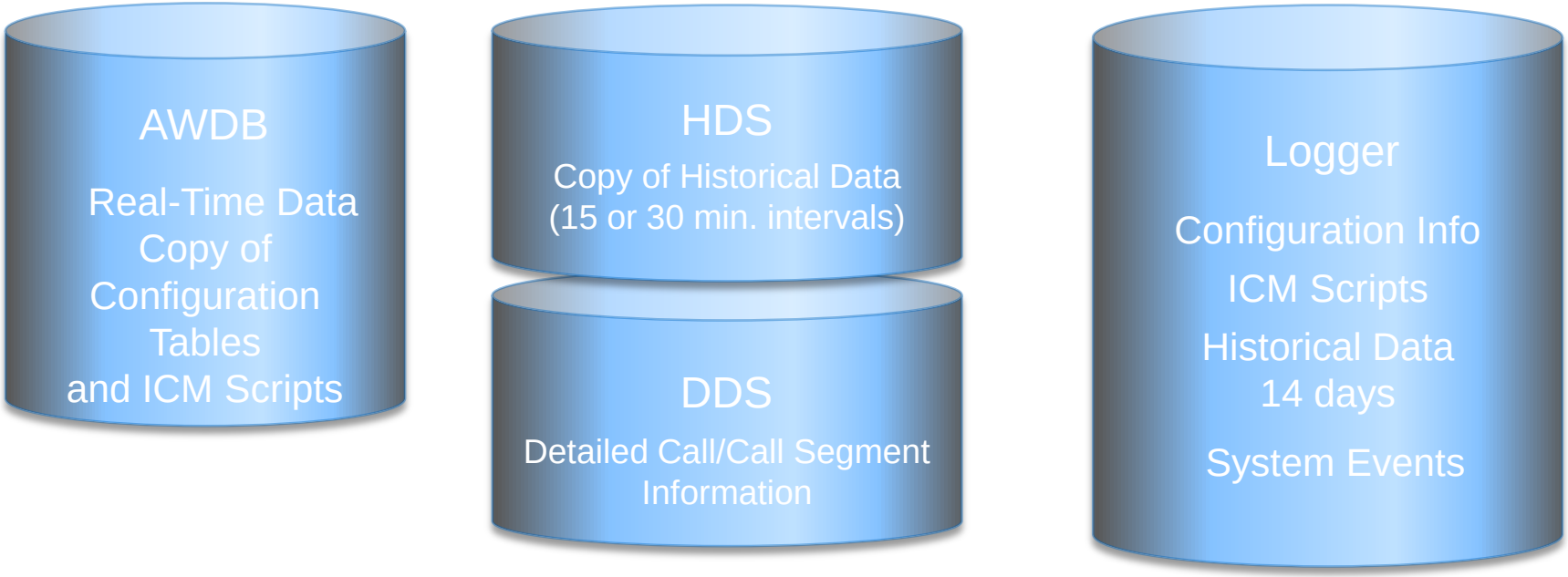
  http://developer.cisco.com/web/ccr/documentation

- CUIC Custom Stock Reports

- Third Party reporting System – Exony

- Build your own reporting system

Sources of Statistics - UCCE

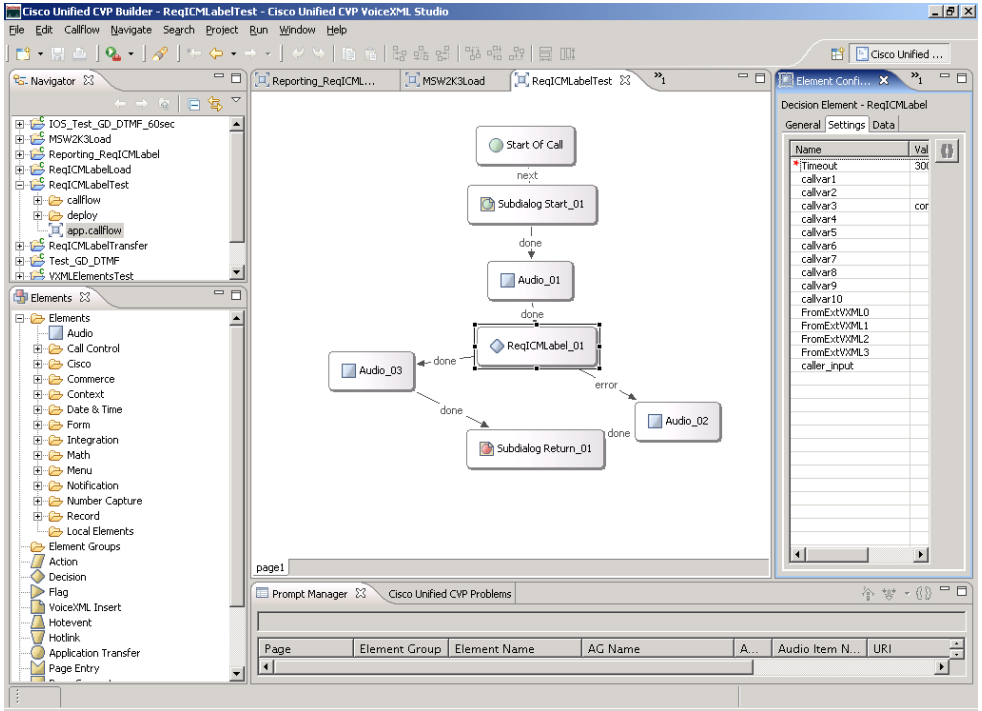


Do not go here

* Located at each side

Sources of Statistics - CVP

Requirement: Need to know menu usage

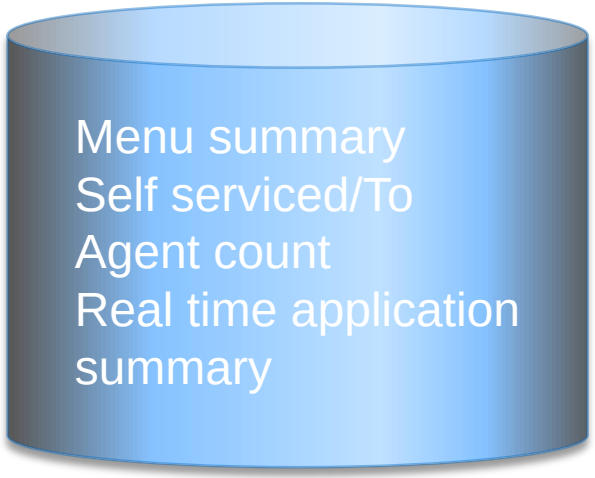


* Records cut at end of call
* Each CVP server will point to one CVP reporting server

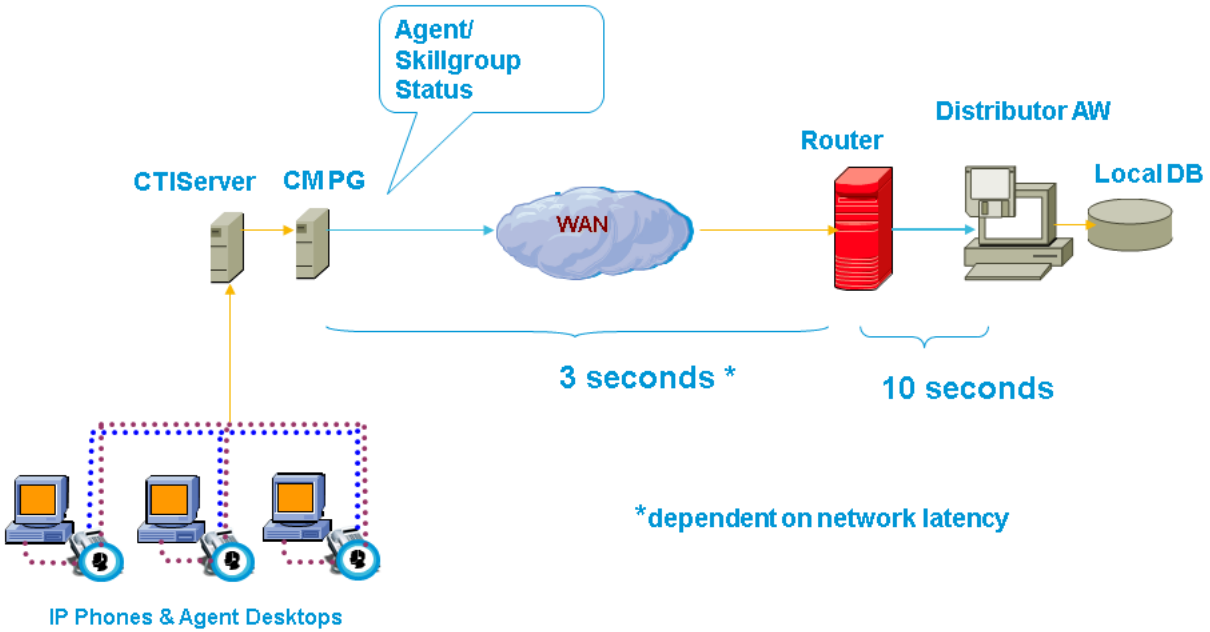
Custom Database

Session variables in VXML Application written to DB at end of application

Session variables in VXML Application written to DB at start of application

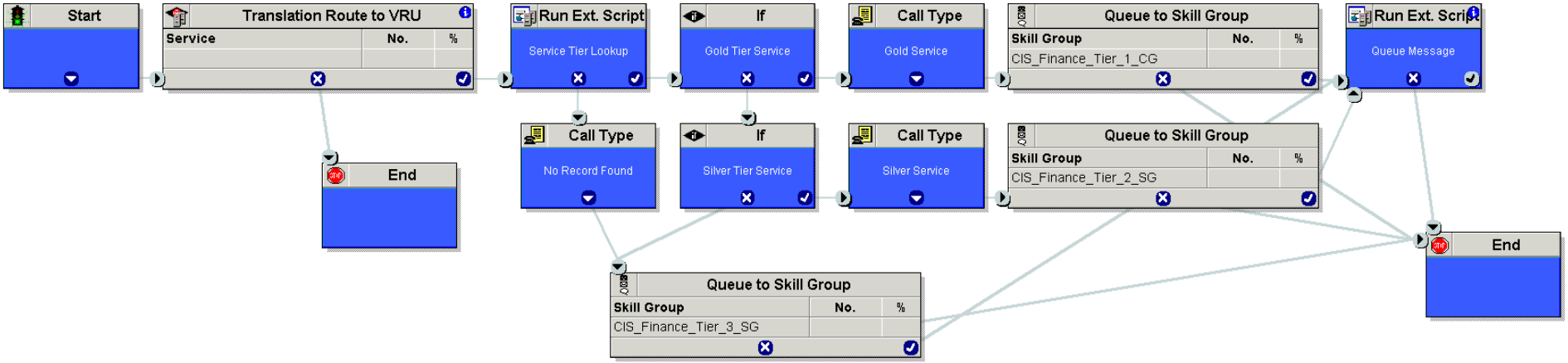


Real Time



Mapping to Significant Business Metrics

Requirement: Need to know the SLA and count of Gold versus Silver customer calls



Design: Use calltypes to get the metrics required




Design - Lab

LAB

The uses of a lab:

- Development
- Regression testing of patches
- New functionality testing
- Upgrade testing

What model to use:

- Exact duplicate of production
- Exact duplicate of production with virtual machines compressed by ½
- Exact duplicate of production with no redundancy and virtual machines compressed by ½




Design – Dial Plan

CUCM Dial Plan Design

Extension Range From	Extension Range To	DID Range From	DID Range To	Usage	Comment
50000	59999			Agent Extension (Non DID)	
60000	69999	11120000	11120099	Agent DID Line	
70000	79999			Agent Extension (Non DID)	To CUCM Cluster2
80000	80099			Route Points	For IP Phone transfers
82000	82099			Hunt Groups	
83000	83099			Call Park	
84000	84099			Voicemail	
97780	NA			UCCE CVP VRU Label	
0				0 to get an outside line	

Dial Plan Service Design

PSTN Number Mapping

1800/1300 Number	Dialed Number	Dialed Number Presented to GW	Purpose
1300 803 5151	0311110000	111110000	Sales
1300 555 1234	0311110001	111110001	Service

Gateway #1 Number Mapping

Dialed Number Range From	DID Number Range To	DN Mapping Range From	DN Mapping Range To	Usage
111110000	111110099	901**40000**	901**40099**	UCCE Pilot DNIS

Dial Plan DID Design

PSTN Number Mapping

DID Number	Dialed Number Presented to GW
0311116000	111160000

Gateway #1 Number Mapping

DID Range From	DID Range To	DN Mapping Range From	DN Mapping Range To	Usage
111160000	111160099	613111160000	613111160099	DID Numbers

CUCM Translation

Translation Pattern	Called Party Transformations
6131111.60000	PreDot

UCCE Dialled Number Design

Dialed Number Range From	Dialed Number Range To	Usage	Comment
40000	40099	UCCE Pilot DNIS	
80000	80099	UCCE Dialed Number Plan (DNP)	Used by CTIOS desktop for transfer to Skill Group capability

SIP CUSP Design

SIP Digits – each device is given a SIP Digit device identifier

CVP Gateway	SIP Digit
GW#1	901
GW#2	902
CUCM	909

SIP CUSP Dial Plan Design

SIP CUSP to GW

Number Range	Target Preference 1	Target Preference 2	Comments
90991919191 90992929292 90997780	GW#2	GW#1	CUCM originated Ringing Errors VRU Leg
90291919191 90292929292 90297780	GW#2	GW#1	GW2 originated Ringing Errors VRU Leg
90191919191 90192929292 90197780	GW#1	GW#2	GW1 originated Ringing Errors VRU Leg
0*	GW#1	GW#2	Outside call

SIP CUSP to CVP

Number Range	Target Preference 1	Target Preference 2
9014….	CVP1	CVP2
9024….	CVP2	CVP1
9094…	CVP1	CVP2

SIP CUSP to CUCM

Number Range	Target Preference 1	Target Preference 2
9015….	CUCM1	CUCM2
9025….	CUCM2	CUCM1




Backups

Backups

VM Backup Method	Backup Type	UCCE	UC applications
VMware Clone/Copy	Full – Application Consistent Backup with VM Power Off		Supported
Cisco DRS	Config Data Only Backup with VM running	NA but used by UCM / other UC apps in the UCCE solution	Supported
UCCE Config Data Export (ICMDBA, CVP Op Console Tool)	Config Data Only Backup with VM running		NA
UCCE 3rd party SQL Backup Tool	Database Backup Only; not entire VM and in maintenance windows/ low traffic hours only	Allowed with customer self-manage 	NA
VMware vDR/vDP or 3rd party VM Backup Tool (EMC Avamar, etc.) **w/o** backup agent	Full – Crash Consistent Backup with VM Running	Allowed & Guided support like UC Spec-based support policy (not guaranteed)	Allowed & Guided support like UC Spec-based support policy (not guaranteed)
3rd party tool with Backup Agent co-resident / Snapshot	Full – Application Consistent with VM running		Not supported




Testing

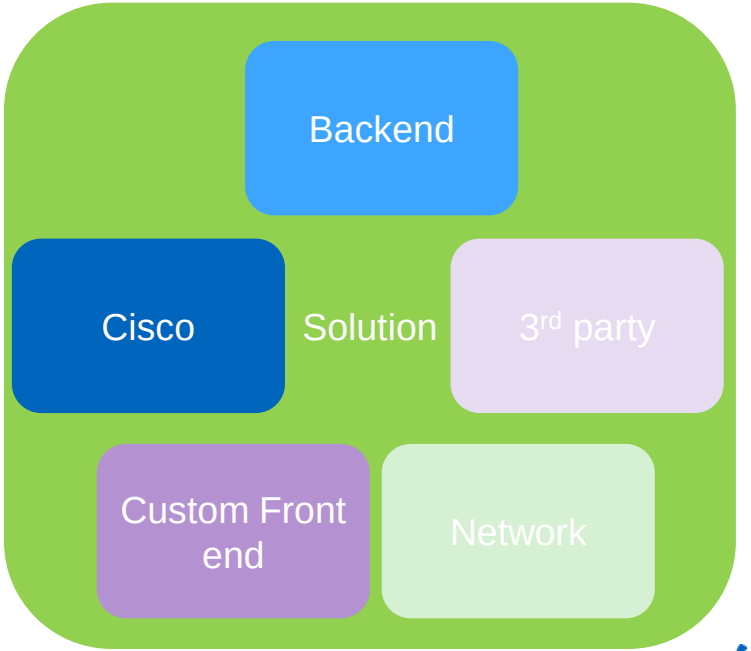
Types of Testing

Functional

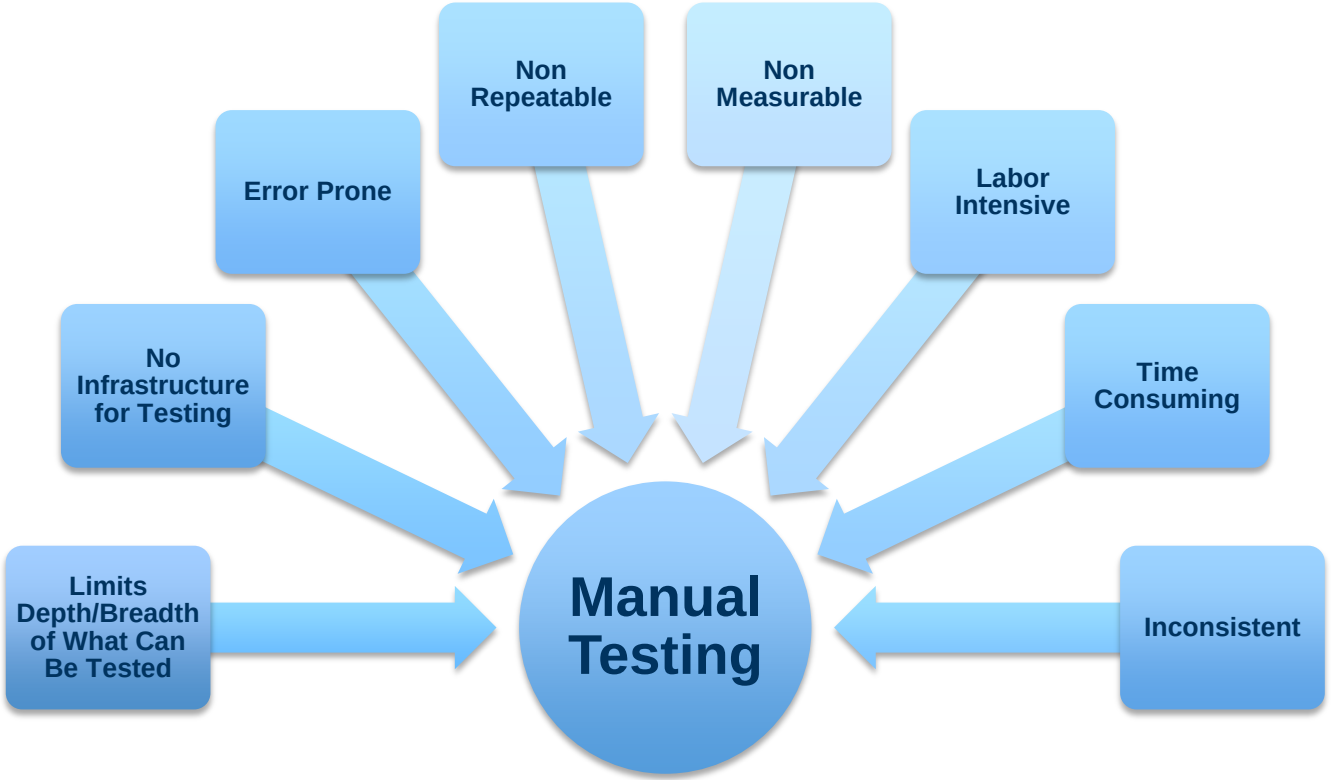
- IVR call flow
- Failover scenarios
- Agent and Supervisor Scenarios
- Reports
- Recording
- WFM
- Management
- ASR/TTS
- Dialer

Volume

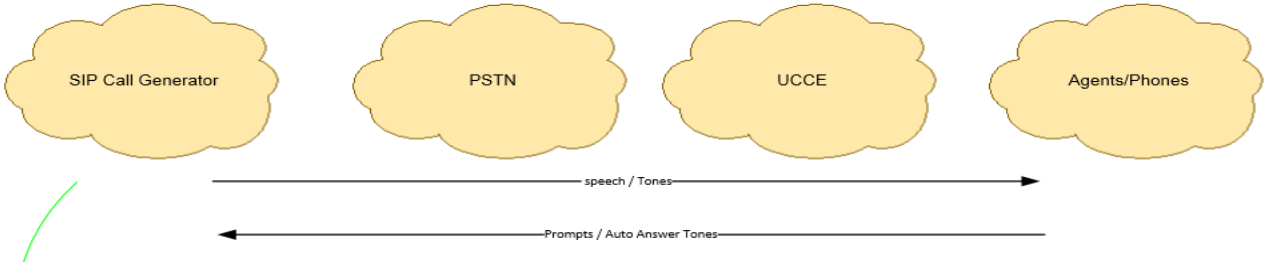
- Simple call flow to check end to end.



Why Automatic Testing



Automated Volume Testing



- Cloud Based
- Premise Based SIP
- Premise Based TDM using onsite gateways

- SIP
- E1/T1

- CTIOS Emulated with tone generators
- Real Auto Answer
- Real Auto Answer with tone generators

			Step	Description	Expect To Hear	Reply With	Reply Type	Min / Max Pause Time	Minor/ Major	Min Conf %	PSST		
			0	Time to Connect			DTMF	0/30	5/10	50	0		
			1	Welcome message	Welcome to share trader.		DTMF	0/0	3/5	50	0.4		
			2	Prompt account number	Whats your account number?	760002#	DTMF	0/1	3/7	50	1		
			3	Main menu	Thanks, to get a market price, say the stock name, index or commodity. For other transactions say, login.	Login	Speech	0/0	4/7	50	1		
			4	Selection confirmation	I think you want to login, is that right.	Yes	Speech	0/0	4/7	50	1		
			5	Prompt password	I'll need your pass number or password. If it's all numbers, go ahead and key it in, otherwise just spell it.	1673579#	DTMF	0/0	4/7	50	1		
			6	Request prices	Thanks. Main menu. Which would you like? You can say prices; place a trade, watch list, review orders, portfolio, or market news. At any time you can say more information.	Prices	Speech	0/0	4/7	50	1		
			7	Prompt stock name	Okay, just say the stock name.	A B C Company	Speech	0/0	4/7	50	1		
			8	Return stock info	A B C Company, last traded at 42 dollars and 69 cents, down 1 dollar		DTMF	0/0	4/7	50	1		

* Courtesy of Cyara




Q & A

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