

# *Solution Troubleshooting for Unified Contact Center Enterprise (UCCE)*

Daniel Wang

Collaboration CSE

Email, Video, IM –[dawang@cisco.com](mailto:dawang@cisco.com)

# Agenda

- UCCE Solution Overview
- Call Flows
- Problem Isolation methodology
- End to End Analysis (Tips)
- Example Scenarios
- Review of UCCE Server Processes(Sub-Components)
- Q / A

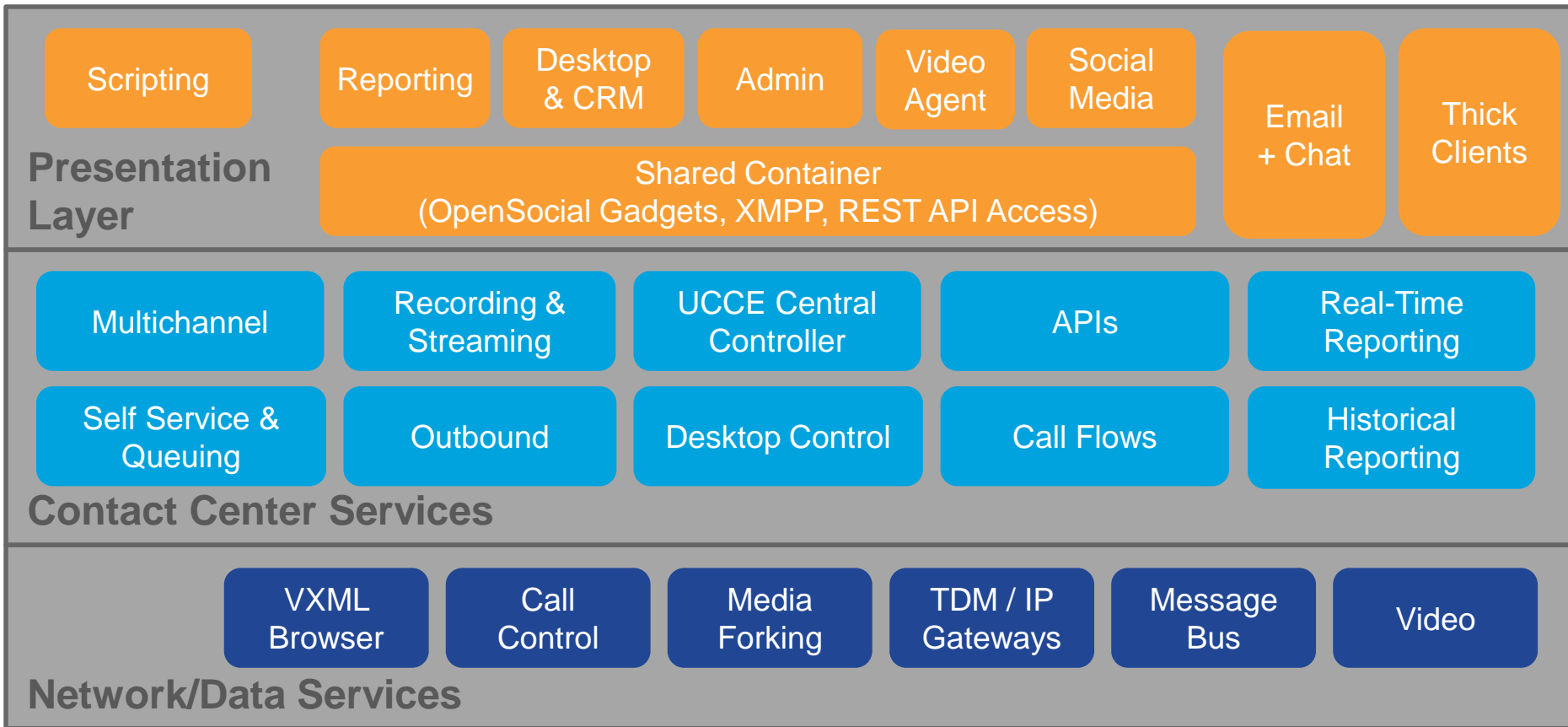
# UCCE Solution Overview

“Know your enemy and know yourself and you can fight a hundred battles without disaster.”

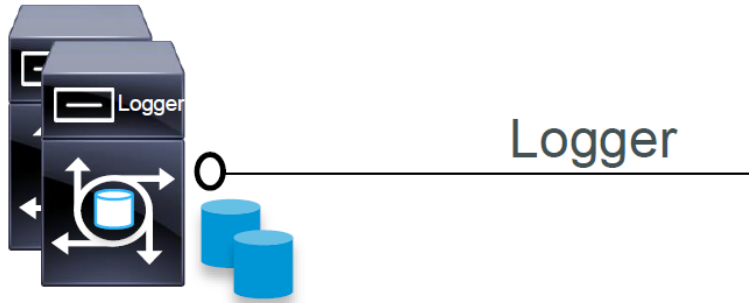
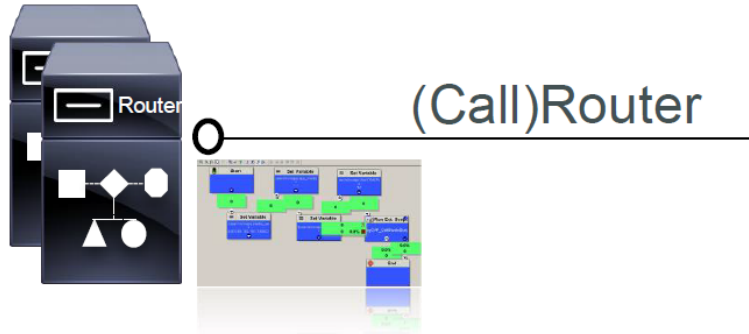


Sun Tzu  
Chinese military general, strategist and philosopher

# UCCE Architecture



# Central Controller

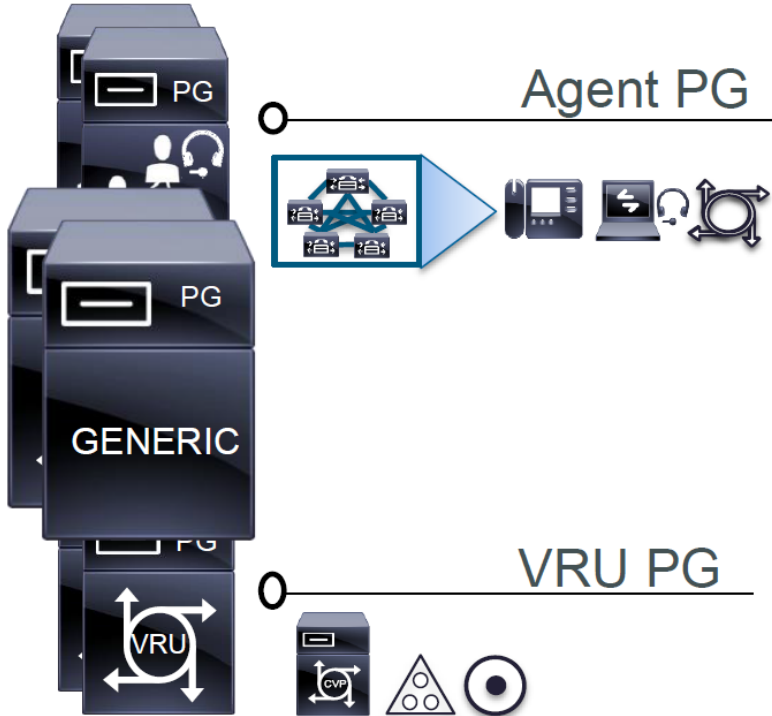


- The “Brains” of The Solution
- Executes Routing Scripts after receiving route requests from routing clients like CVP or UCM
- Authenticates Configuration Changes via real-time feed
- Receives Real-Time Statistics From Peripheral Gateways
  
- Stores All of UCCE’s Configuration Information (Agents, Skills, Scripts, etc.)
- Stores (some) Historical Data – Default 2 Weeks
- Provides SNMP/Syslog Event Management, Filtering, and Alerting

# Peripheral Gateways (PG)

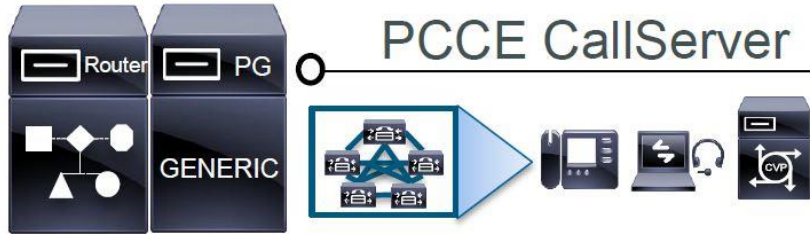
Routing

Desktop Control

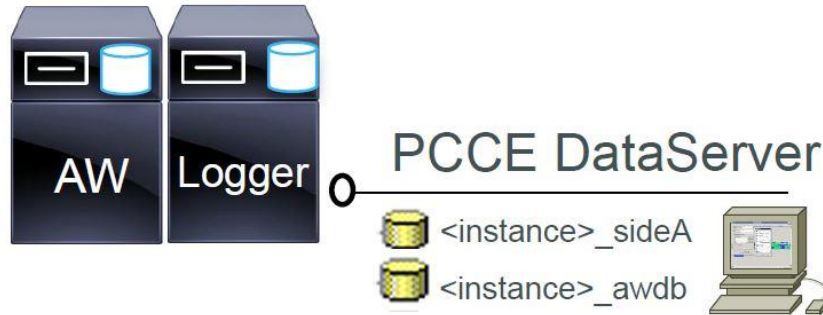


- Connects To Cisco Unified Communications Manager (UCM) for Physical and logical device observation and control via JTAPI protocol
- Request Broker Between UCCE Router and UCM
- Runs CTI Server Processes For Agent Operations
- Hosts CTIOS and Cisco Agent Desktop (CAD) Services
- Provides Real-Time Statistics Up To The UCCE Router
- Connects To Cisco Voice Portal (CVP IVR) or IPIVR via GED-125 protocol
- Logical device observation and control: IVR port groups, ports, and trunks

# Packaged CCE



- (Call)Router and Generic PG all-in-one
- Simplified Architecture
- Easier to deploy thanks to Virtualization techniques
- Configuration Limits enforced!!

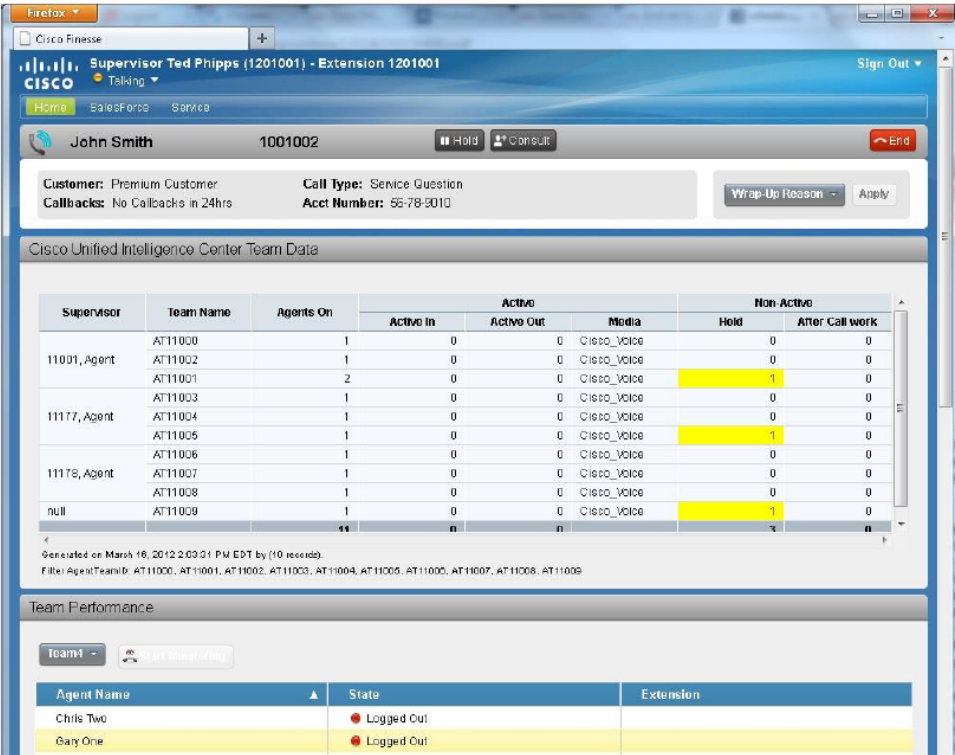


- All databases in one Virtual Machine
- New Web UI gradually replacing Configuration Manager
- Extended retention period for historical data compared with Logger
- Live Data



# Agent Desktop - Finesse

Desktop  
& CRM



Supervisor Ted Phipps (1201001) - Extension 1201001

John Smith 1001002

Customer: Premium Customer Call Type: Service Question  
Callbacks: No Callbacks in 24hrs Acct Number: 55-78-9010

Cisco Unified Intelligence Center Team Data

Supervisor	Team Name	Agents On	Active			Non-Active	
			Active In	Active Out	Media	Hold	After Call work
11001, Agent	AT11000	1	0	0	Cisco_Voice	0	0
	AT11002	1	0	0	Cisco_Voice	0	0
	AT11001	2	0	0	Cisco_Voice	1	0
11177, Agent	AT11003	1	0	0	Cisco_Voice	0	0
	AT11004	1	0	0	Cisco_Voice	0	0
	AT11005	1	0	0	Cisco_Voice	1	0
11178, Agent	AT11006	1	0	0	Cisco_Voice	0	0
	AT11007	1	0	0	Cisco_Voice	0	0
	AT11008	1	0	0	Cisco_Voice	0	0
null	AT11009	1	0	0	Cisco_Voice	1	0

Generated on March 18, 2012 2:03:31 PM EDT by (10 records)  
Filter: AgentTeamID: AT11000, AT11001, AT11002, AT11003, AT11004, AT11005, AT11006, AT11007, AT11008, AT11009

Team Performance

Agent Name	State	Extension
Chris Two	Logged Out	
Gary One	Logged Out	

- Can coexist with CTIOS and CAD
- GED-188 to communicate with CTISvr
- Browser-based desktop for easy management & upgrades
- User Centric Design
- Flexible and Expandable with OpenSocial-based gadgets
- Developer friendly Web API
- Cisco DevNet to showcase gadgets built by Cisco Development Partners

Cisco live!

# Peripherals – UCM and CVP

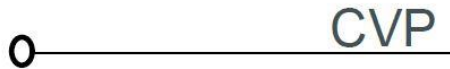
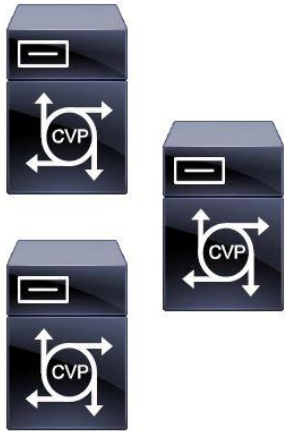
Self Service &  
Queuing

Video

Call  
Control

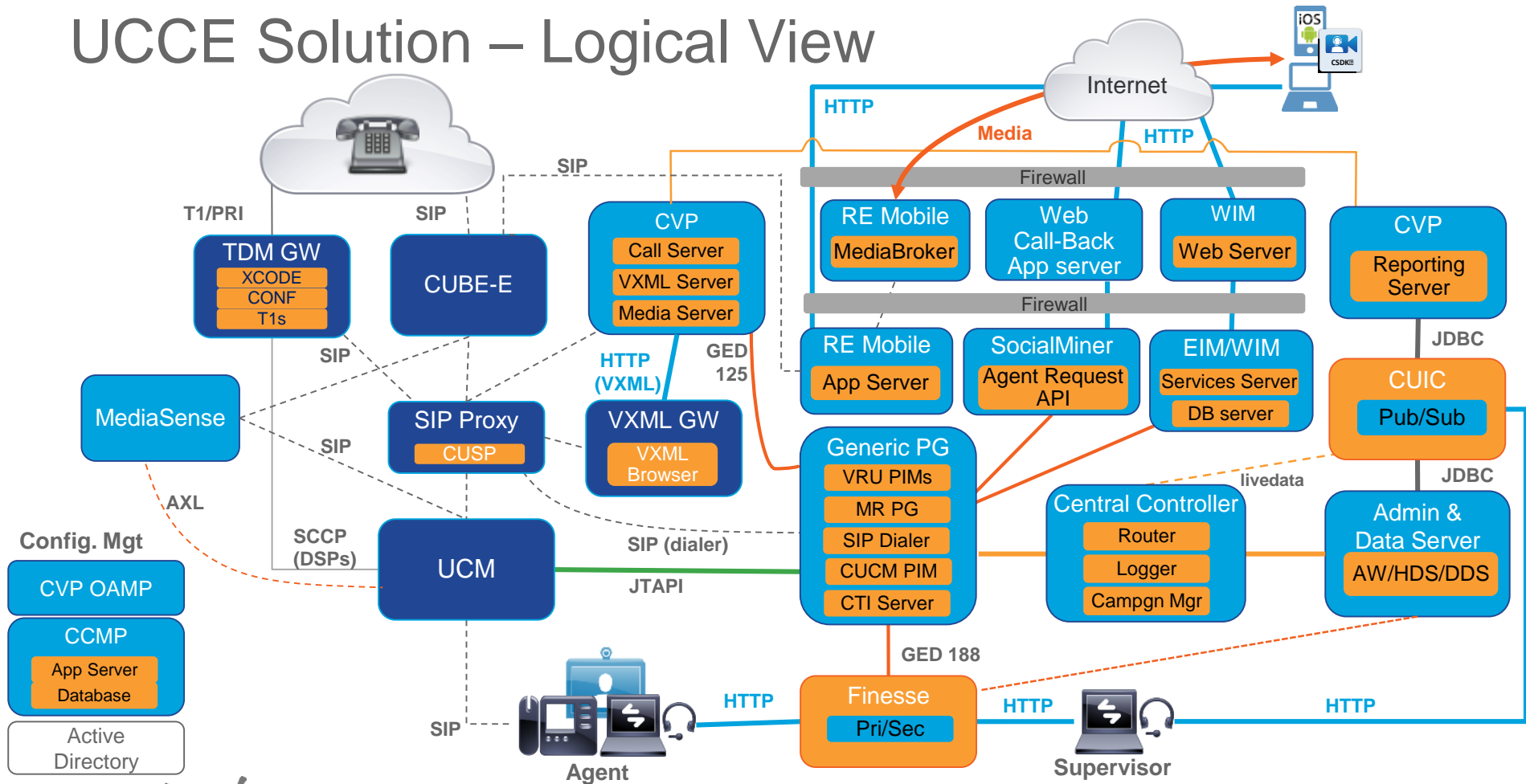


- Distributed Voice/Video Stream Routing and Termination
- Agent Phones (hard/soft)
- Up to 8 node cluster or 16 node mega-cluster

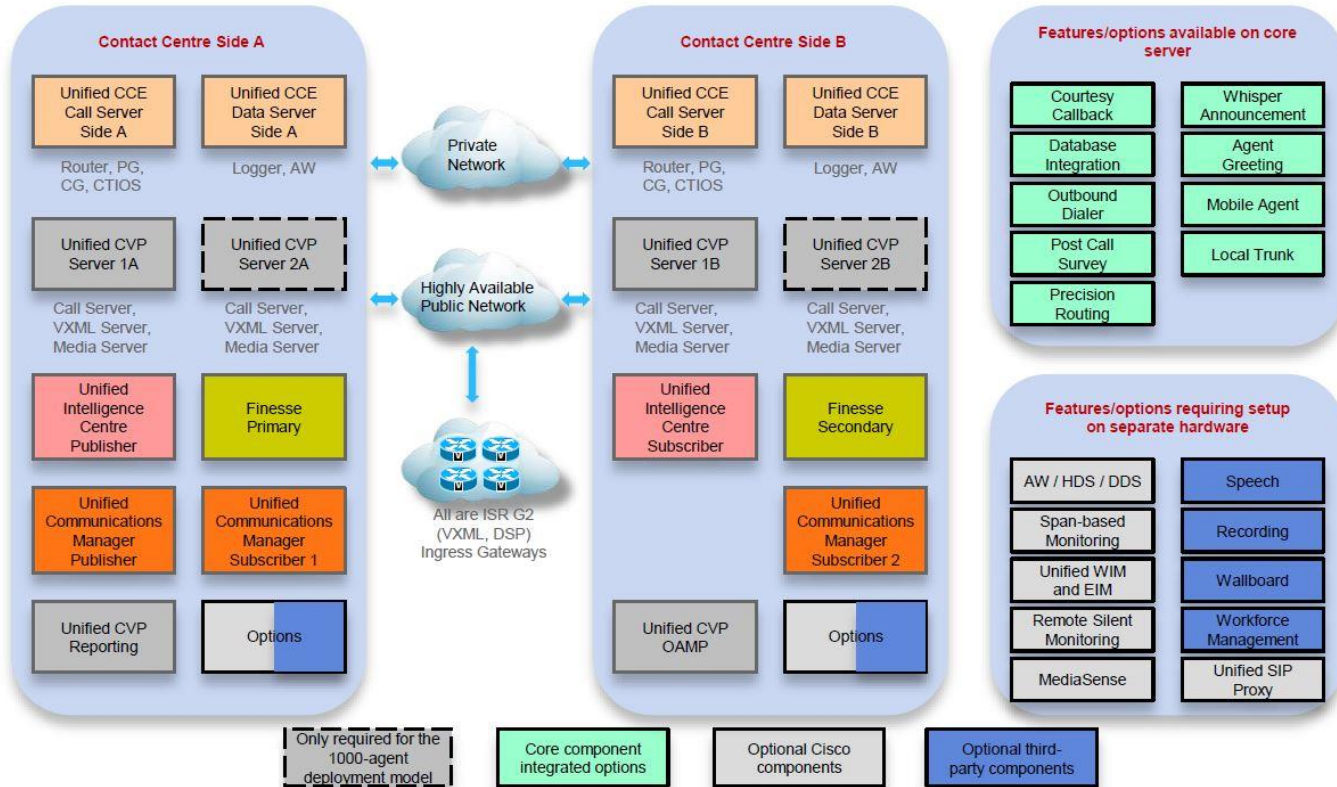


- IP-Based Open-Standards Interactive Voice Response System
- Best-in-class industry call Speech and Video self-service
- Deployed As Stand-Alone or Integrated
- Call control and termination
- VXML Application execution

# UCCE Solution – Logical View



# 500 and 1000 Seat High Level Topology



- Referenced model High Density B200 M4 (UCS-UC-B200M4) blade is easy to deploy
- Supports Tested Reference Configuration (TRC) and spec based hardware

# Call Flow

# Objectives

## CVP LOGS

```
CALLGUID = 998FDA000001000000000009280A0A0A, DLGID = 25 [SIP_LEG] -  
Processing ,, [ICM_TEMPORARY_CONNECT],  
topic=CISCO.CVP.GED125.MSG, dialogueId=25, sendSeqNo=1,  
label=9990200000, correlationId=1020,  
callguid=998FDA000001000000000009280A0A0A, rckey=213, rcdays=150805,  
rcseq=0, CallContext:, user.microapp.ToExtVXML[0]: application=CVPMenu,,  
LEGID = 623E9322-529511E3-9A38C1FE-3DA10ECE, DNIS = 40100, ANI = 2002
```

## ROUTER LOGS

```
(25 26 1020 : 0 0) Dialog sending VRUQueueService to VRU (serv=-1, rt=0)
```

```
(25 26 1020 : 0 0) RequestInstr: CID=(150805,213), CallState=1
```

# Objectives

## CVP LOGS

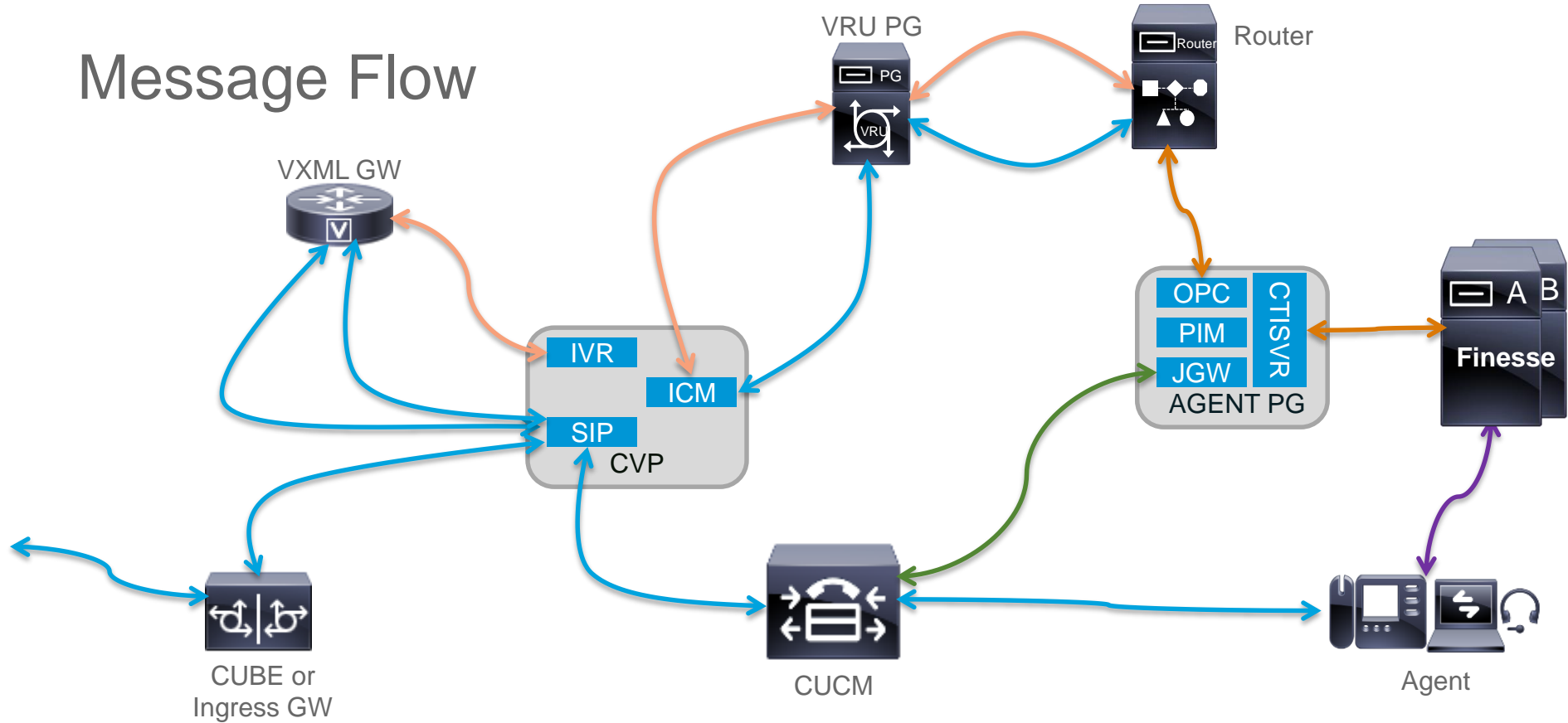
CALLGUID = **998FDA00000100000000009280A0A0A**, **DLGID = 25** [SIP\_LEG] -  
Processing ,, [ICM\_TEMPORARY\_CONNECT],  
topic=CISCO.CVP.GED125.MSG, **dialogueId=25**, sendSeqNo=1,  
**label=999020000**, **correlationId=1020**  
callguid=998FDA00000100000000009280A0A0A, **rckey=213**, **rcday=150805**  
rcseq=0, CallContext:, user.microapp.ToExtVXML[0]: application=CVPMenu,,  
LEGID = 623E9322-529511E3-9A38C1FE-3DA10ECE, DNIS = **40100**, ANI = **2002**

## ROUTER LOGS

**25** **26** **1020**: 0 0) Dialog sending VRUQueueService to VRU (serv=-1, rt=0)

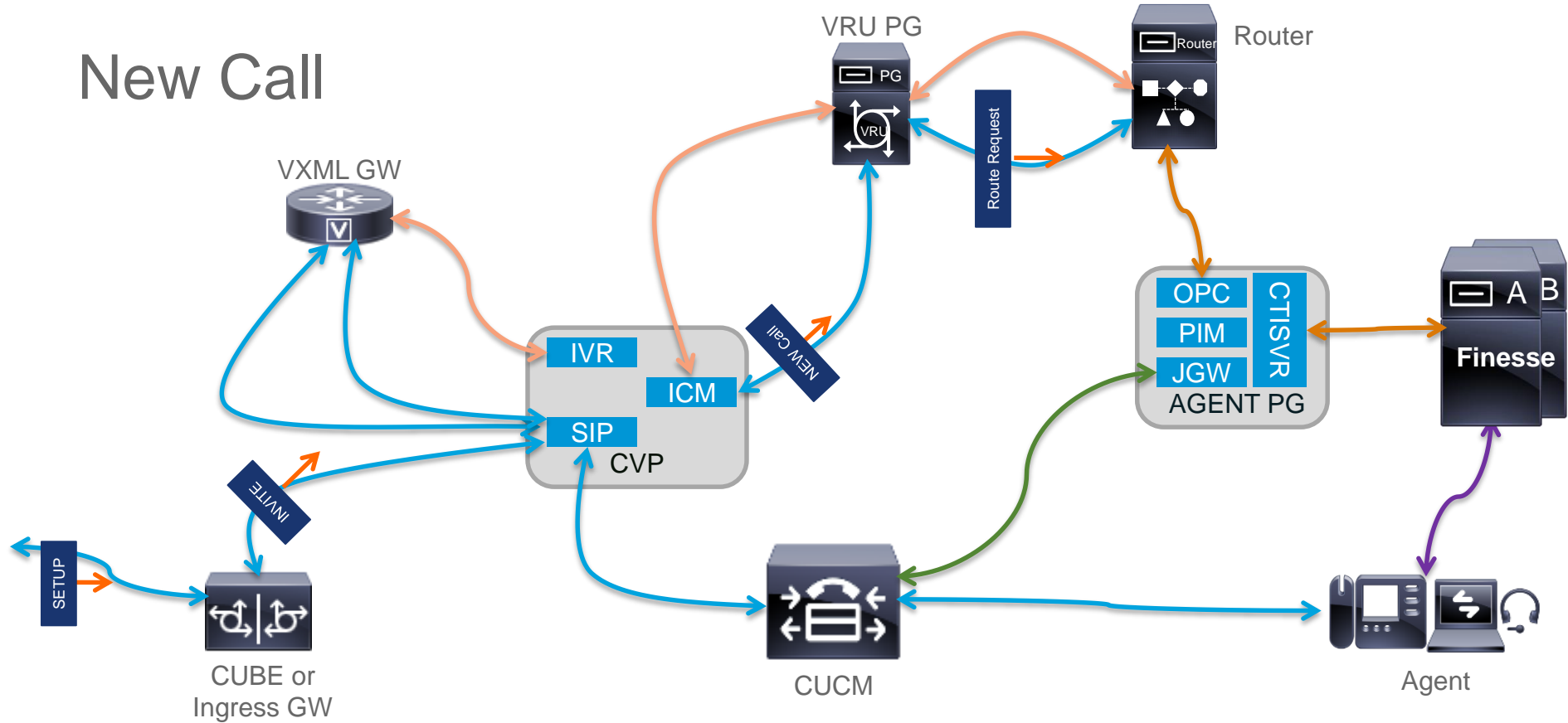
**25 26 1020** : 0 0) RequestInstr: CID=**150805,213**, CallState=1

# Message Flow

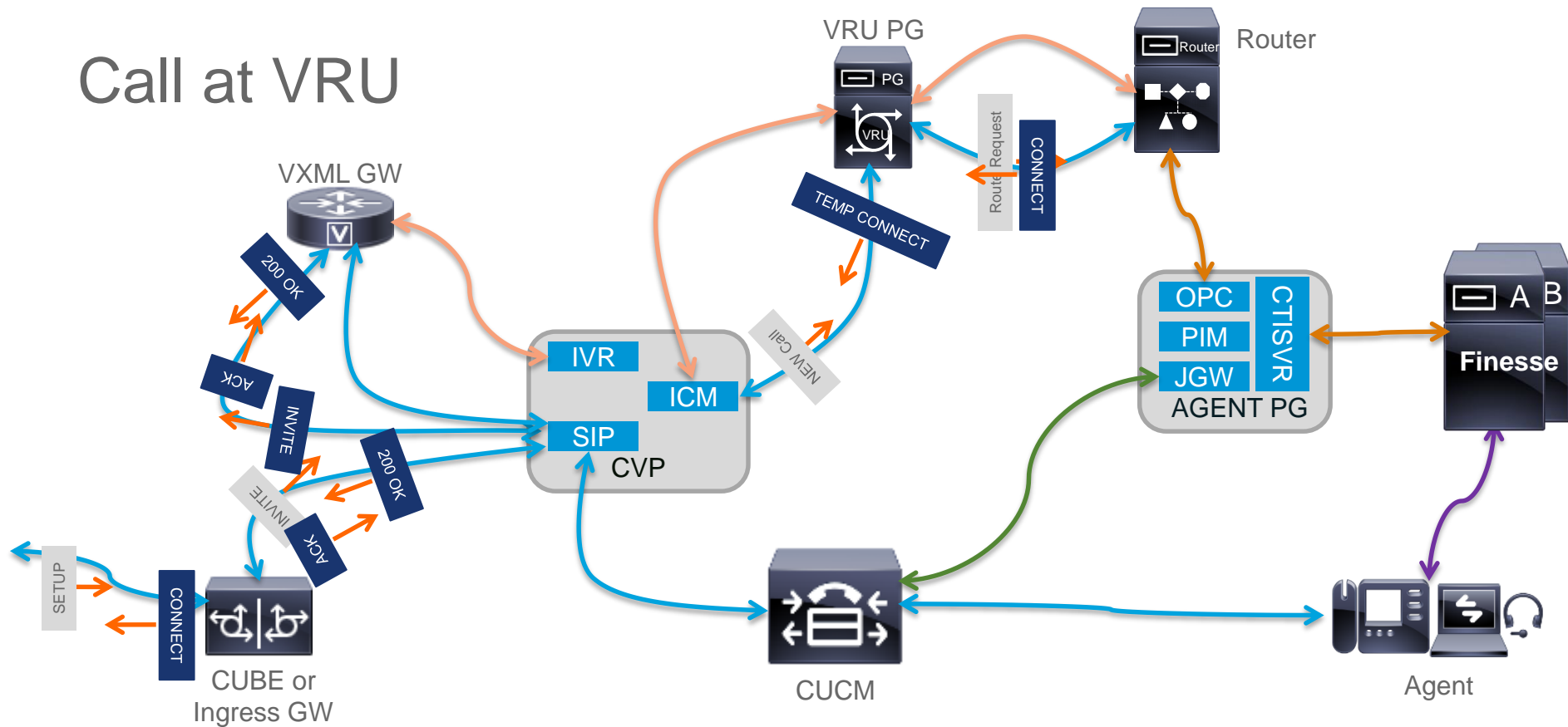




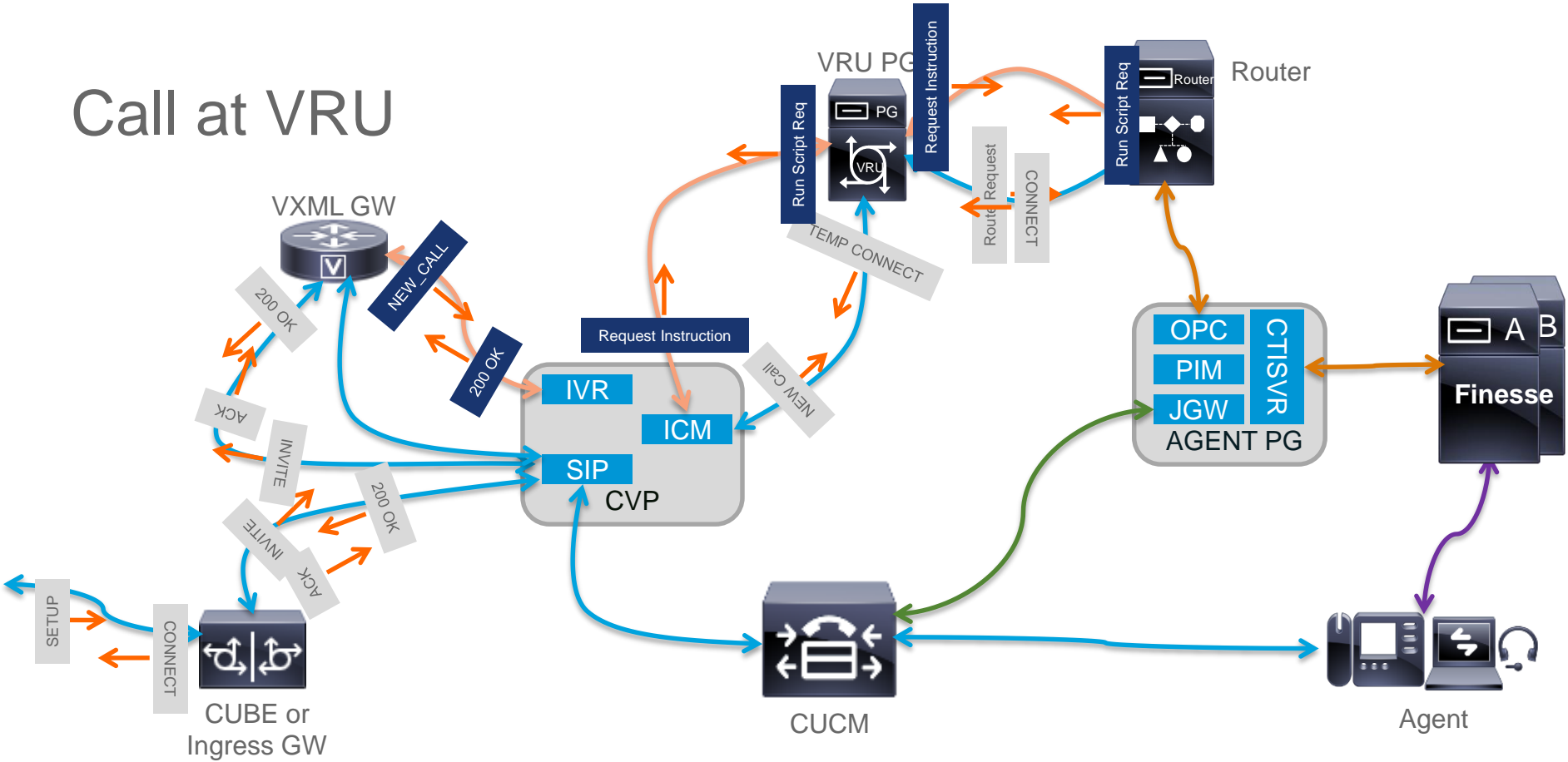
# New Call



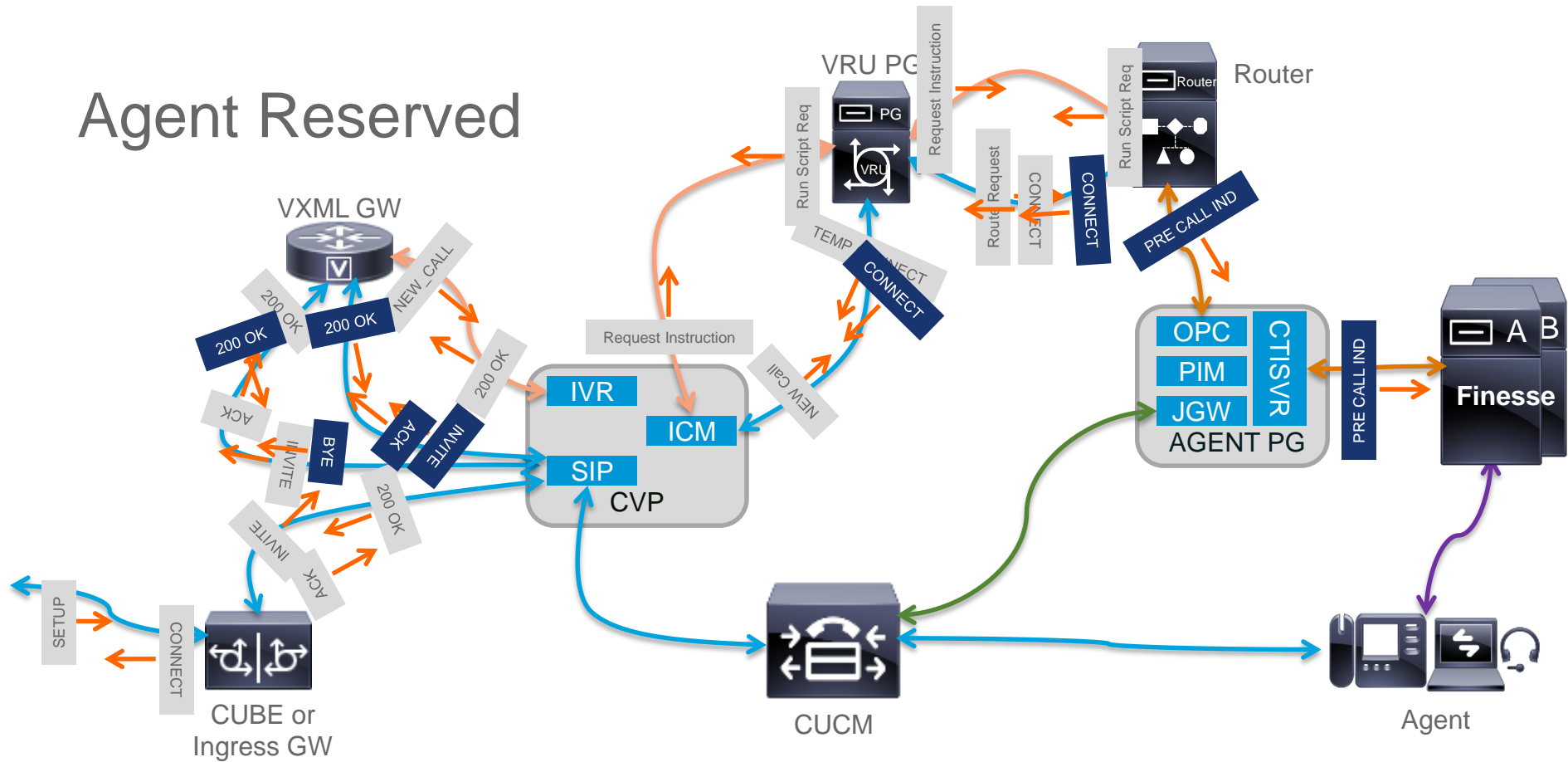
# Call at VRU



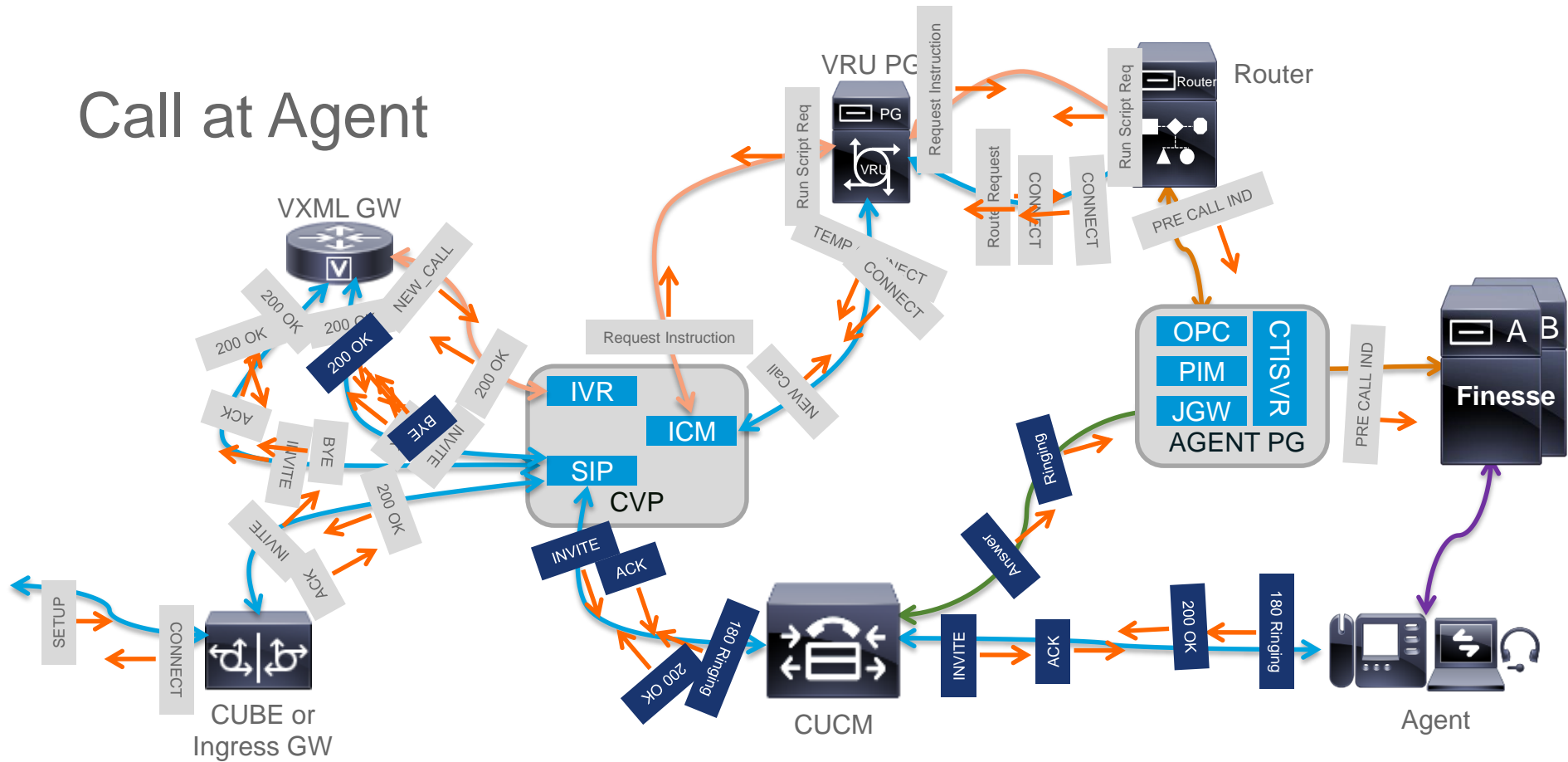
# Call at VRU



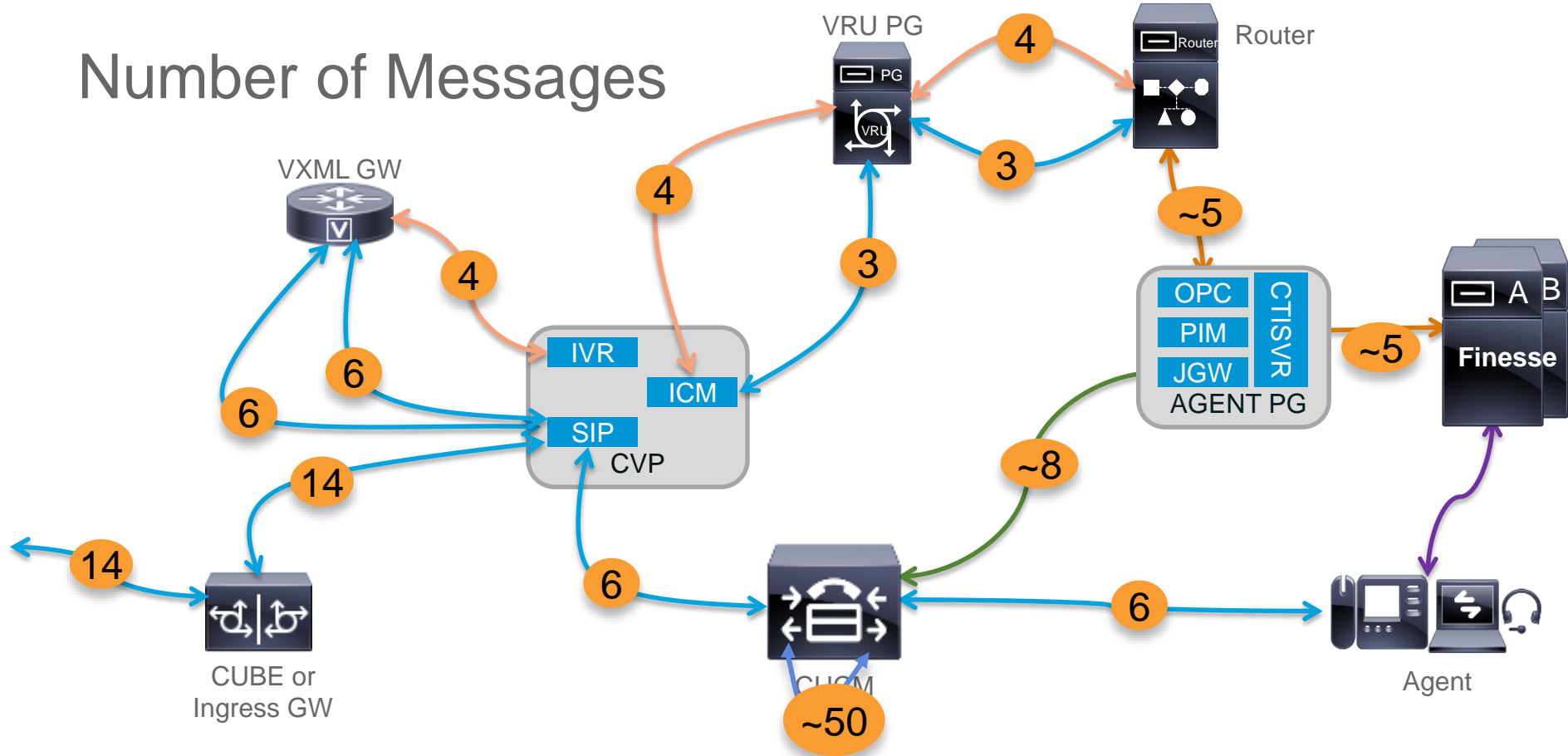
# Agent Reserved



# Call at Agent



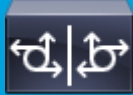
# Number of Messages



# Call IDs

## Ingress Gateway

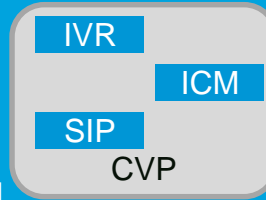
ISDN Call Reference  
SIP Call ID  
CCAPI ID  
Cisco-GUID



CUBE or  
Ingress GW

## CVP

GUID  
Inbound  
VXML Leg  
Ring Back Leg  
Agent leg  
SIP Dialog ID  
VRU Dialog ID



## VRU PG

SIP Dialog ID  
VRU Dialog ID  
Router call Key



## Router

SIP Dialog ID  
CORR ID  
VRU Dialog ID  
Router Call Key



## Agent PG

JGW – myCID, Call ID  
PIM, OPC – Call ID  
CTISvr, – Call ID



## CUCM

SIP Call ID  
Call CI  
Global Call ID  
Call Handler



CUCM

## VXML Gateway

SIP Leg ID  
CVP GUID  
CCAPI ID

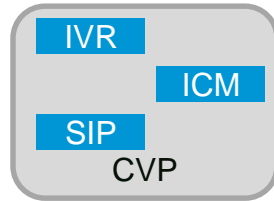
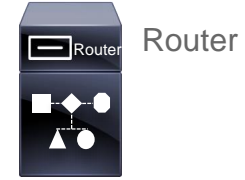


VXML GW

## VXML Server

Application Reference

# Call IDs



CUBE or  
Ingress GW



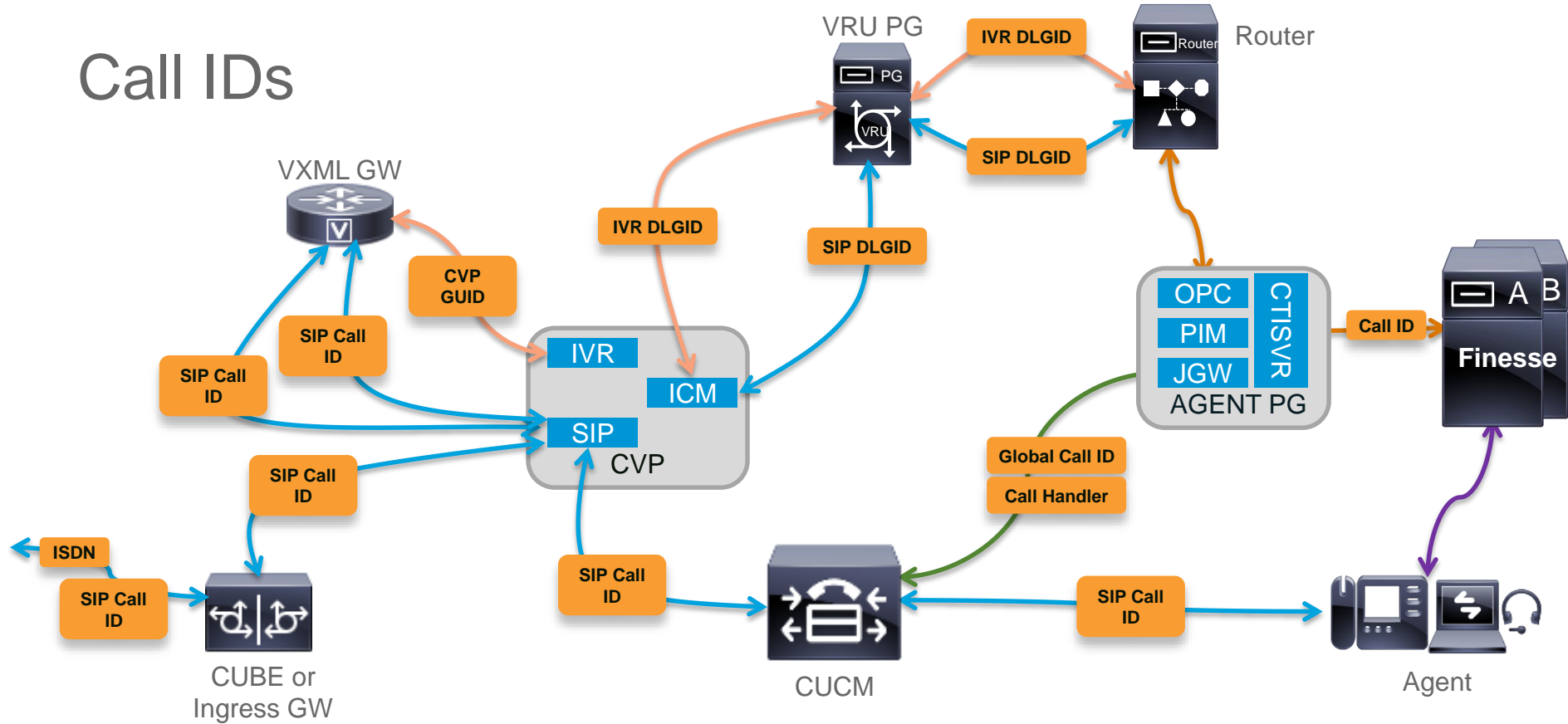
CUCM



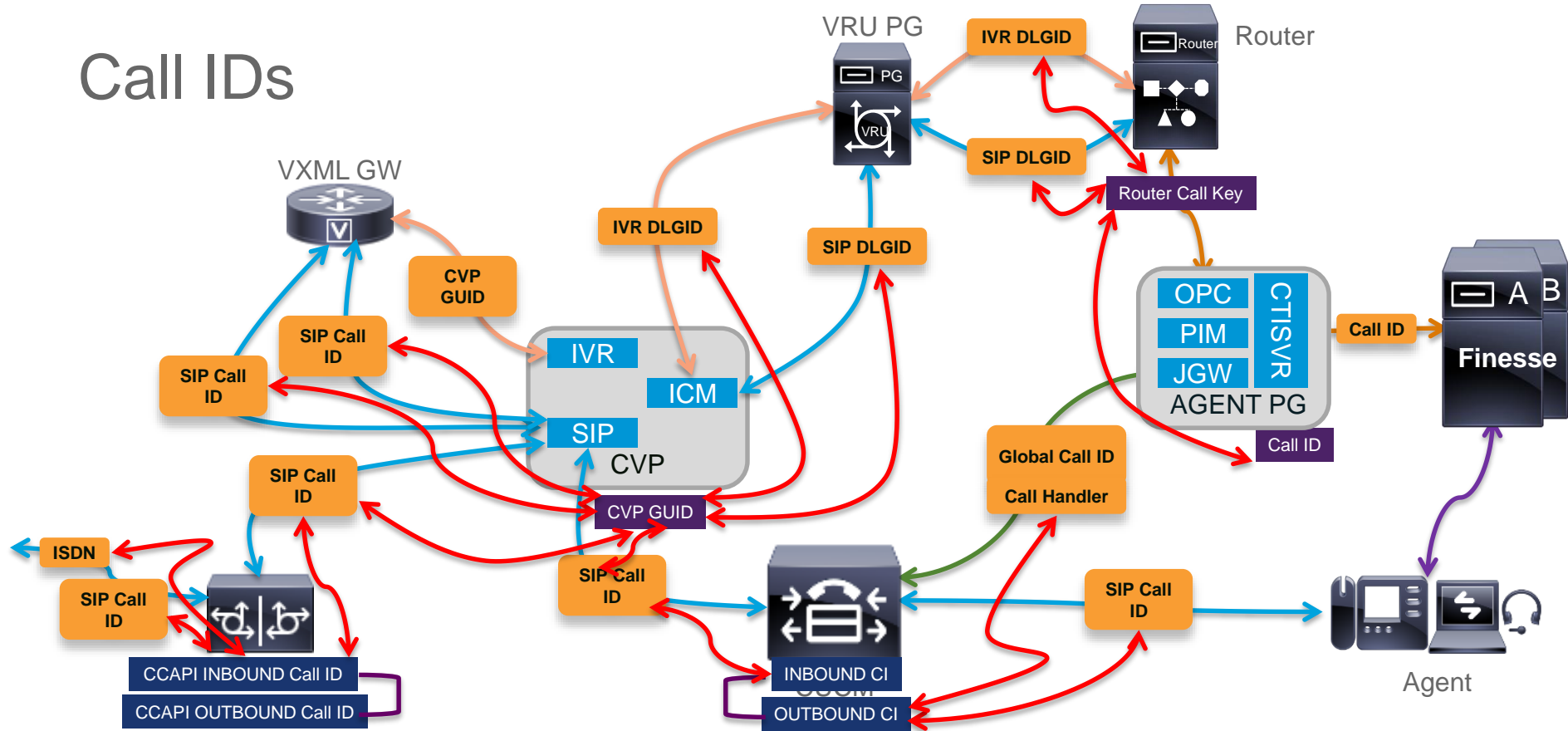
Agent



# Call IDs



# Call IDs





CUBE or  
Ingress GW

# How do the messages look like?

```
INVITE sip:40100@10.10.10.150:5060 SIP/2.0
Via: SIP/2.0/TCP 10.10.10.40:5060;branch=z9hG4bK6f4f5da88f
From: <sip:2002@10.10.10.40>;tag=220~91972d7b-50a4-446b-82c6-e555985e005c-20739807
To: <sip:40100@10.10.10.150>
Date: Fri, 22 Nov 2013 10:26:53 GMT
Call-ID: 998fda00-28f1316d-5c-280a0a0a@10.10.10.40
User-Agent: Cisco-CUCM10.0
CSeq: 101 INVITE
Cisco-Guid: 2576341504-0000065536-0000000009-0671746570
Session-Expires: 1800
P-Asserted-Identity: <sip:2002@10.10.10.40>
Remote-Party-ID: <sip:2002@10.10.10.40>;party=calling;screen=yes;privacy=off
```

SIP Call ID

CISCO-GUID

```
//-1/998FDA000000/CCAPI/cc_api_call_setup_ind_common:
```

```
Interface=0xC041A51C, Call Info(
  Calling Number=sip:2002@10.10.10.40,
  Called Number=sip:40100@10.10.10.150:5060
Incoming Dial-peer=40101,
  , Call Id=6681
```

```
004087: Nov 22 10:12:10.307: //6681/998FDA000000/CCAPI/ccIFCallSetupRequestPrivate:
  Called Number=40100
```

CCAPI INBOUND Call ID

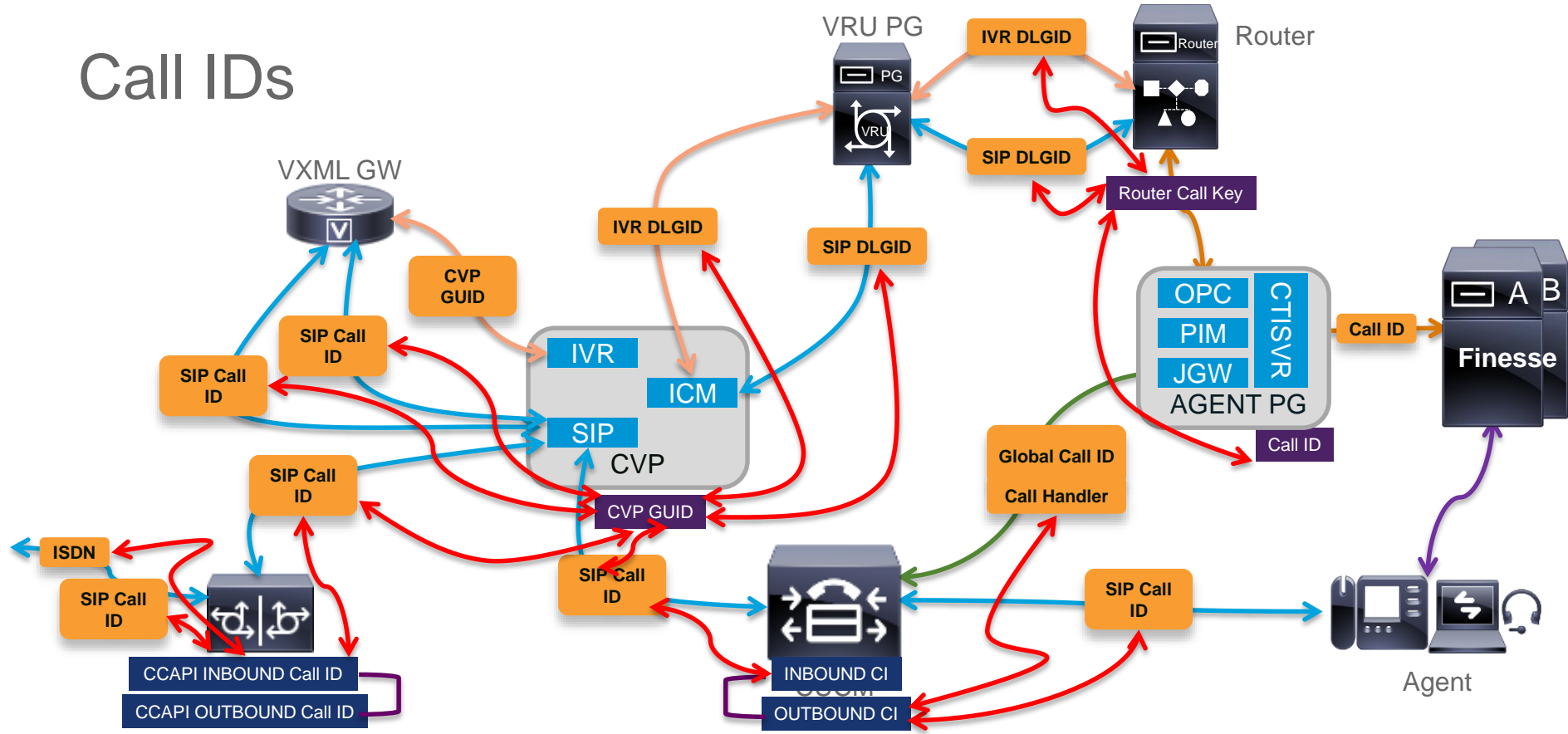
```
## Outgoing CCAPI ID
```

```
Outgoing Dial-peer=40100,
```

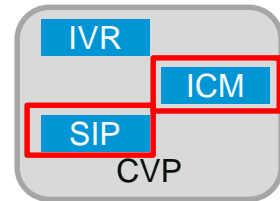
```
004094: Nov 22 10:12:10.307: //6682/998FDA000000/CCAPI/ccIFCallSetupRequestPrivate:
  SPI Call Setup Request Is Success; Interface Type=3, FlowMode=1
```

CCAPI OUTBOUND Call ID

# Call IDs



# How do the messages look like?



Found an incoming CISCO-GUID hdr : **2576341504-0000065536-0000000009-0671746570**, Generated a new CVP-ID hdr :

**998FDA00000100000000009280A0A0A**

CISCO-GUID

CVP GUID

**CALLGUID = 998FDA00000100000000009280A0A0A** **LEGID = 623E9322-529511E3-9A38C1FE-3DA10ECE** - [INBOUND]:  
ReqURI (DN) sip:**40100**@10.10.10.20:5060 FromURI sip:**2002**@10.10.10.40

**CALLGUID = 998FDA00000100000000009280A0A0A**, **DLGID = 25** [SIP\_LEG] - Publishing ,, [ICM\_NEW\_CALL],  
topic=CISCO.CVP.GED125.MSG, dialogueId=25, sendSeqNo=1, trunkGroupId=100, trunkNumber=0, serviceId=1, dialedNumber=40100, uui=,  
callguid=998FDA00000100000000009280A0A0A, rckey=, rcday=, rcseq=, location=, locationpkid=, pstntrunkgroupid=10.10.10.150 ,  
pstntrunkgroupchannelnum=2147483647, sipheader=, CallContext:, user.media.id: 998FDA00000100000000009280A0A0A, user.cvp\_server\_info:  
10.10.10.20,, LEGID = 623E9322-529511E3-9A38C1FE-3DA10ECE, DNIS = 40100, ANI = 2002

SIP Call ID

SIP DLGID

CALLGUID = 998FDA00000100000000009280A0A0A, DLGID = 25 [SIP\_LEG] - Processing ,, [ICM\_TEMPORARY\_CONNECT],  
topic=CISCO.CVP.GED125.MSG, dialogueId=25, sendSeqNo=1, **label=9990200000**, **correlationId=1020**,  
callguid=998FDA00000100000000009280A0A0A, **rckey=213**, **rcday=150805**, rcseq=0, CallContext:, user.microapp.ToExtVXML[0]:  
application=CVPMenu,, LEGID = 623E9322-529511E3-9A38C1FE-3DA10ECE, DNIS = 40100, ANI = 2002

**CALLGUID = 998FDA00000100000000009280A0A0A** **LEGID = 998FDA00000100000000009280A0A0A-138511601388821** -  
[OUTBOUND]: INVITE TO <sip:**99902000001020**@10.10.10.150:5060;transport=tcp> FROM 2002 <sip:2002@10.10.10.20:5060> EXPIRES[60]  
100REL[Unsupported]

CVP GUID (VRU)

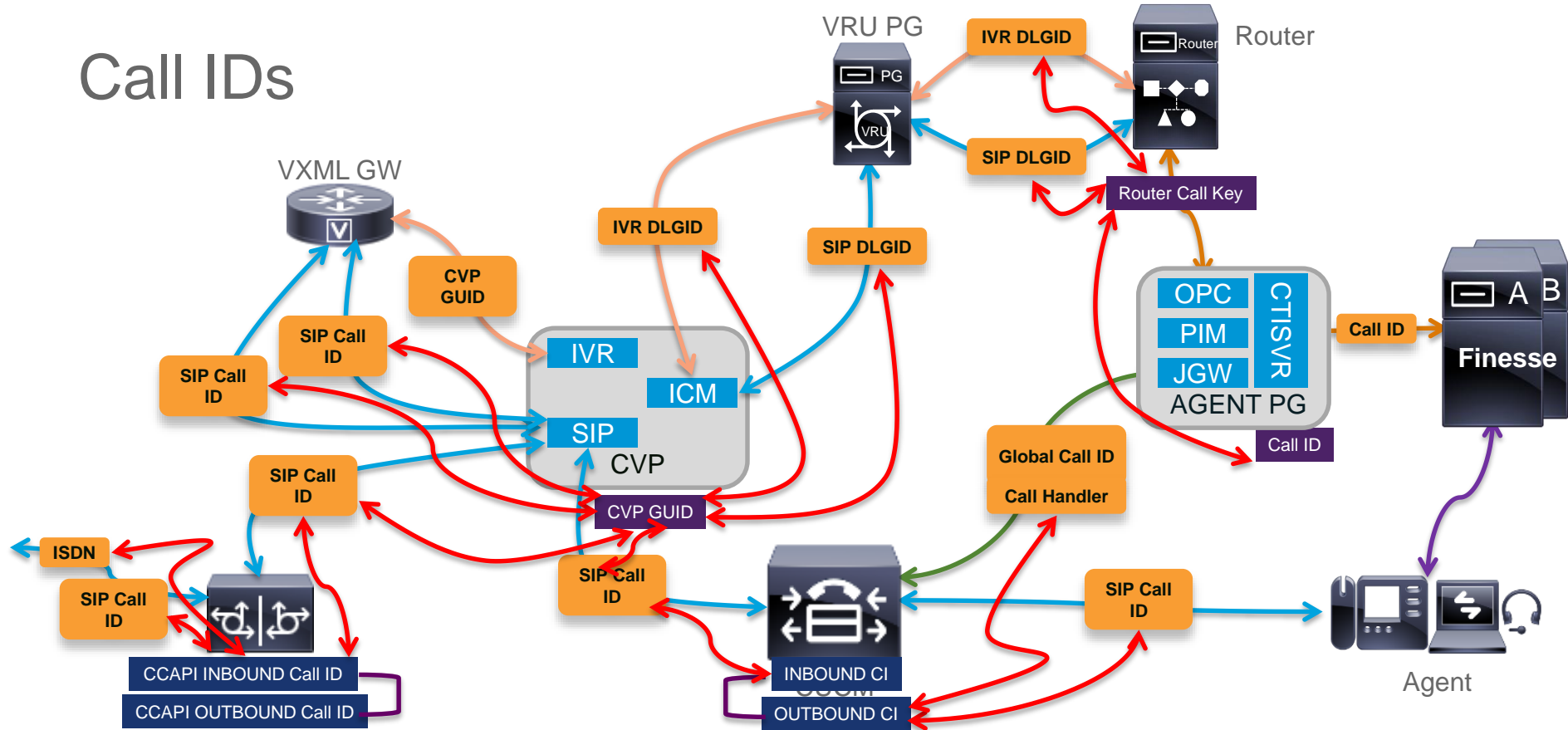
VBServlet:service: **HTTP Request from 10.10.10.150**: { RECOVERY\_VXML=flash:recovery.vxml, CALL\_DNIS=99902000001020, CALL\_UUI=,  
**MSG\_TYPE=CALL\_NEW**, ERROR\_CODE=NONE(0), CALL\_ID=998FDA00000100000000009280A0A0A, CLIENT\_TYPE=IOS,  
CALL\_ANI=sip:2002@10.10.10.20:5060 }

CALLGUID = 998FDA00000100000000009280A0A0A, **DLGID = 26** [IVR\_LEG] - Publishing ,, [ICM\_REQUEST\_INSTRUCTION],  
topic=CISCO.CVP.GED125.MSG, dialogueId=26, sendSeqNo=1, trunkGroupId=200, trunkNumber=0, serviceId=2, uui=, **correlationId=1020**,  
location=, locationpkid=, pstntrunkgroupid=, pstntrunkgroupchannelnum=2147483647, sipheader=, LEGID =, DNIS = 99902000001020, ANI =  
sip:2002@10.10.10.20:5060

IVR DLGID



# Call IDs



# How do the messages look like?

VRU PG



SIP DLGID

Router Call Key

VRU->PG:**NEW\_CALL**(154 bytes):**DID=25** SendSeq#=1 TrkGrpID=100 TrkNum=0 SrvID=1 DN=40100 **ANI=2002 DNIS=40100**  
CallGUID=998FDA000001000000000009280A0A0A PstnTrkGrpID=10.10.10.150 PstnTrkGrpChann#=2147483647  
ECCVar:0=998FDA000001000000000009280A0A0A ECCVar:29=10.10.10.20

PG->VRU:**TEMPORARY\_CONNECT**(128 bytes):DID=25 SendSeq#=1 **Label=9990200000 CorrID=1020 RCK=213 RCKDay=150805** RCKSeq#=0  
CallGUID=998FDA000001000000000009280A0A0A

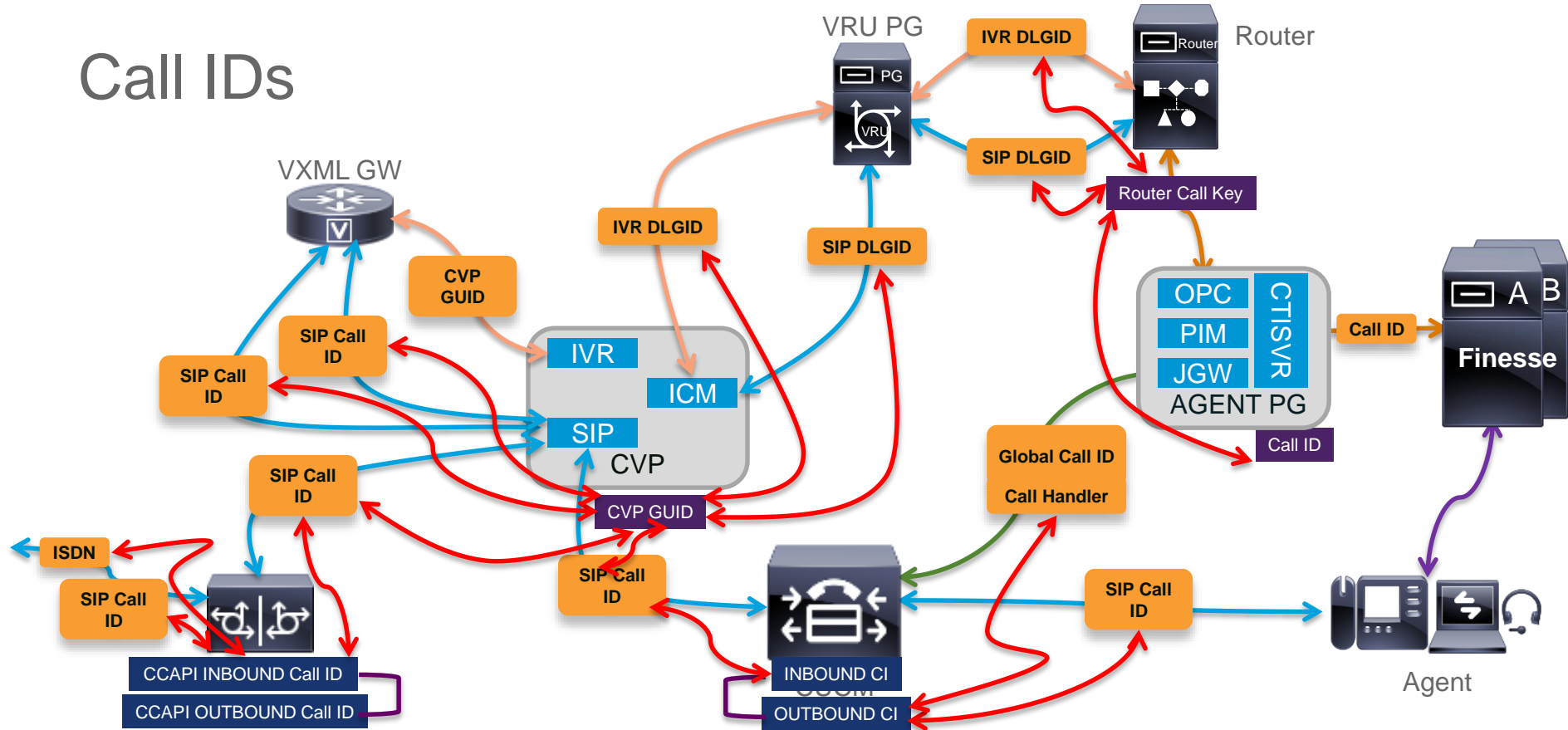
VRU->PG:**REQUEST\_INSTRUCTION**(105 bytes):**DID=26** SendSeq#=1 TrkGrpID=200 TrkNum=0 SrvID=2 ANI=sip:2002@10.10.10.20:5060  
DNIS=9990200000 CorrID=1020 CallGUID=998FDA000001000000000009280A0A0A

PG->VRU:**RUN\_SCRIPT\_REQ**(137 bytes):**DID=26** SendSeq#=1 InvID=1 **ScriptID=GS,Server,V** ScriptConfig= ANI=2002 CED= RCK=213  
RCKDay=150805 RCKSeq#=1 CallGUID=998FDA000001000000000009280A0A0A

PG->VRU:**CONNECT**(126 bytes):DID=25 SendSeqNo=2 LabelType=1 **Label=2001** TransferHint=0 RCK=213 RCKDay=150805 RCKSeq#=0  
CallGUID=998FDA000001000000000009280A0A0A

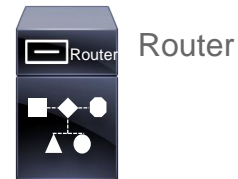
IVR DLGID

# Call IDs





# How do the messages look like?



Router

SIP DLGID

Router Call Key

SetTraceLevel

Component:

Router A/tr

Level:

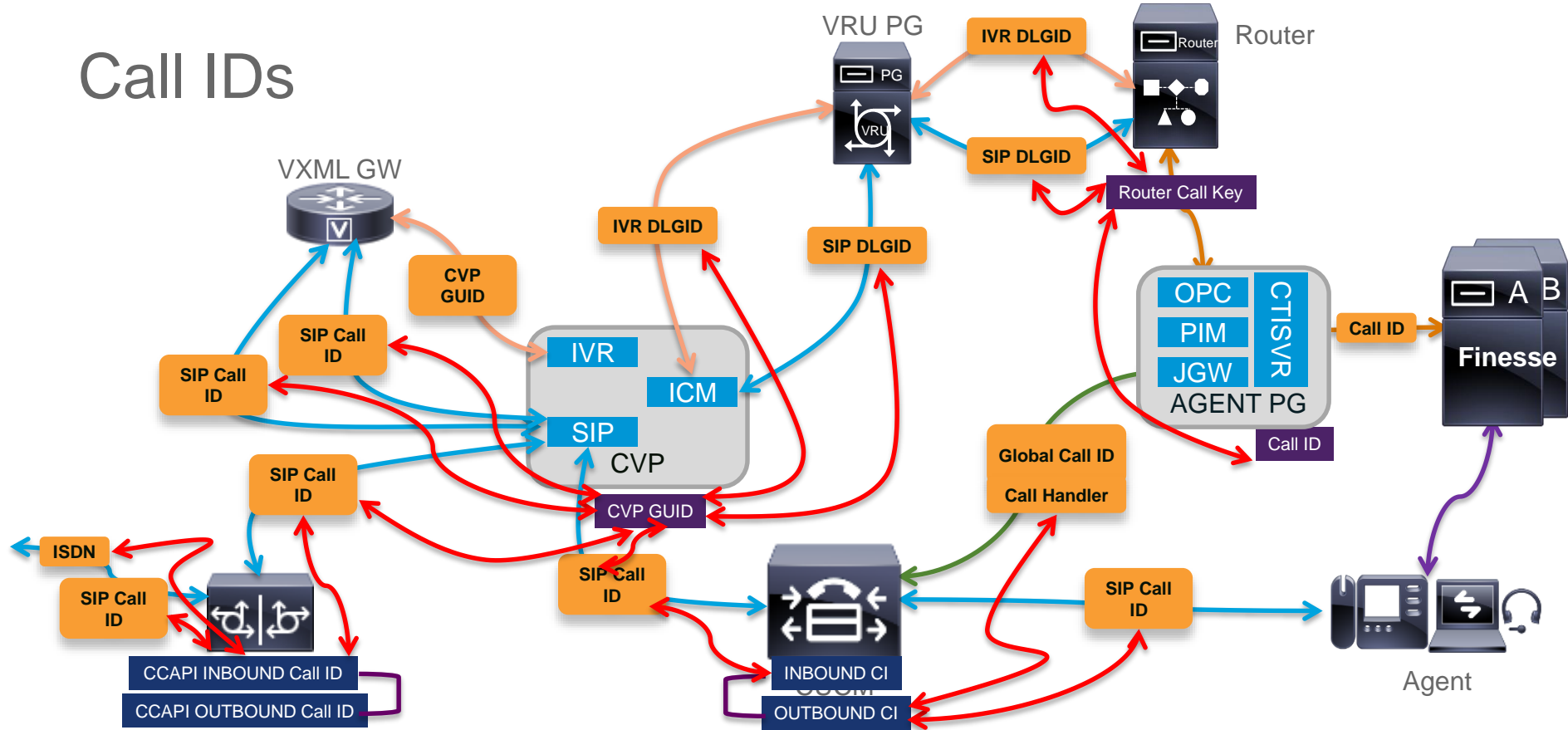
1

(25 x 0 : 0 0) NewCall: **CID=(150805,213)**, DN=40100, ANI=2002, CED=, RCID=5001, MRDID=1, CallAtVRU=1, OpCode=0 RCKSeqNum=0, NIC\_DN=40100  
CallType(5009, 26): Init CT\_SL\_Timer: Threshold(20 + 2).  
(25 x 0 : 0 0) Correlation id for dialog is (1020).  
(25 x 1020 : 0 0) TransferToVRU: **Label=9990200000, CorID=1020**, VRUID=5000, RCID=5001  
(25 26 1020 : 0 0) Dialog sending VRUQueueService to VRU (serv=-1, rt=0)  
(25 26 1020 : 0 0) RequestInstr: **CID=(150805,213)**, CallState=1  
(25 26 1020 : 0 0) **RouteComplete:**  
Route: DN=40100, ANI=2002, CED=, **Label=2001**  
Route: **CID=(150805,213)**, Labels=1  
(25 26 1020 : 0 0) **DeviceTargetPreCall\_V12: CID=(150805,213)**, PerID=5000, **SGSTID=5059, AGSTID=5054**  
NetworkCallFlags=0, InvokeID=26, GREET=  
DN=40100, ANI=2002, CED=, CustDBProvidedDigits=, RouteID=5014, NetworkTargetID=0

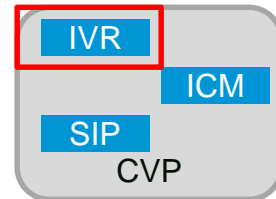
IVR DLGID

Correlation ID

# Call IDs



# How do the messages look like?



Found an incoming CISCO-GUID hdr : **2576341504-0000065536-0000000009-0671746570**, Generated a new CVP-ID hdr :

**998FDA000001000000000009280A0A0A** ←

CVP GUID

**CALLGUID = 998FDA000001000000000009280A0A0A** **LEGID = 623E9322-529511E3-9A38C1FE-3DA10ECE** - [INBOUND]: ReqURI (DN) sip:**40100**@10.10.10.20:5060 FromURI sip:**2002**@10.10.10.40

**CALLGUID = 998FDA000001000000000009280A0A0A**, **DLGID = 25 [SIP\_LEG]** - Publishing ,, [ICM\_NEW\_CALL], topic=CISCO.CVP.GED125.MSG, dialogueId=25, sendSeqNo=1, trunkGroupId=100, trunkNumber=0, serviceId=1, dialedNumber=40100, uui=, callguid=998FDA000001000000000009280A0A0A, rkey=, rcday=, rcseq=, location=, locationpkid=, pstntrunkgroupid=10.10.10.150 , pstntrunkgroupchannelnum=2147483647, sipheader=, CallContext:, user.media.id: 998FDA000001000000000009280A0A0A, user.cvp\_server\_info: 10.10.10.20,, LEGID = 623E9322-529511E3-9A38C1FE-3DA10ECE, DNIS = 40100, ANI = 2002

CALLGUID = 998FDA000001000000000009280A0A0A, DLGID = 25 [SIP\_LEG] - Processing ,, [ICM\_TEMPORARY\_CONNECT], topic=CISCO.CVP.GED125.MSG, dialogueId=25, sendSeqNo=1, **label=9990200000**, **correlationId=1020**, callguid=998FDA000001000000000009280A0A0A, **rkey=213**, **rcday=150805**, rcseq=0, CallContext:, user.microapp.ToExtVXML[0]: application=CVPMenu,, LEGID = 623E9322-529511E3-9A38C1FE-3DA10ECE, DNIS = 40100, ANI = 2002

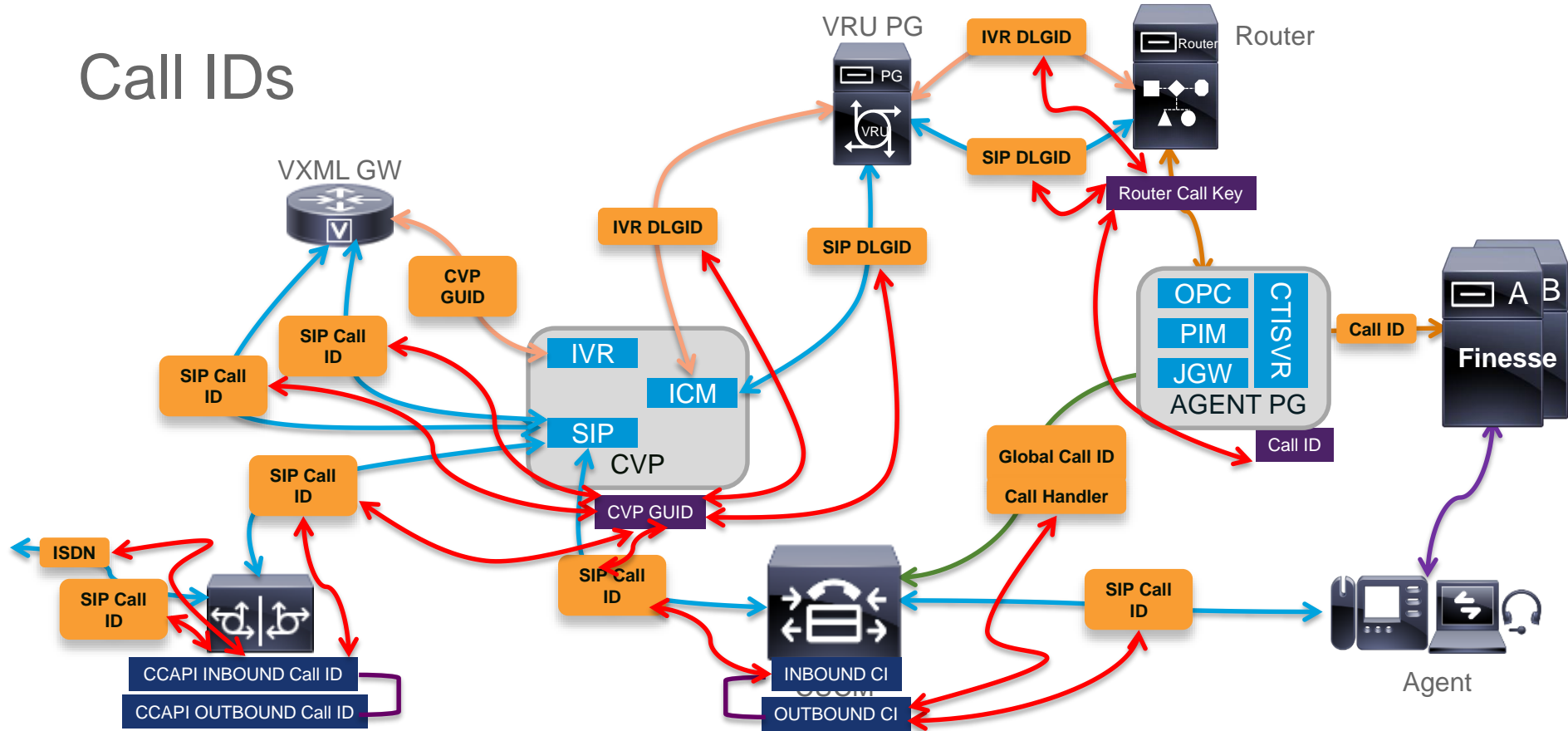
**CALLGUID = 998FDA000001000000000009280A0A0A** **LEGID = 998FDA000001000000000009280A0A0A-138511601388821** - [OUTBOUND]: INVITE TO <sip:**99902000001020**@10.10.10.150:5060;transport=tcp> FROM 2002 <sip:2002@10.10.10.20:5060> EXPIRES[60] 100REL[Unsupported]

VBServlet:service: **HTTP Request from 10.10.10.150**: { RECOVERY\_VXML=flash:recovery.vxml, CALL\_DNIS=99902000001020, CALL\_UUI=, **MSG\_TYPE=CALL\_NEW**, ERROR\_CODE=NONE(0), CALL\_ID=998FDA000001000000000009280A0A0A, CLIENT\_TYPE=IOS, CALL\_ANI=sip:2002@10.10.10.20:5060 }

CALLGUID = 998FDA000001000000000009280A0A0A, **DLGID = 26 [IVR\_LEG]** - Publishing ,, [ICM\_REQUEST\_INSTRUCTION], topic=CISCO.CVP.GED125.MSG, dialogueId=26, sendSeqNo=1, trunkGroupId=200, trunkNumber=0, serviceId=2, uui=, **correlationId=1020**, location=, locationpkid=, pstntrunkgroupid=, pstntrunkgroupchannelnum=2147483647, sipheader=, LEGID = , DNIS = 99902000001020, ANI = sip:2002@10.10.10.20:5060

VRU LEGID

# Call IDs



# How do the messages look like?



1020?

CVP GUID

VRU LEGID

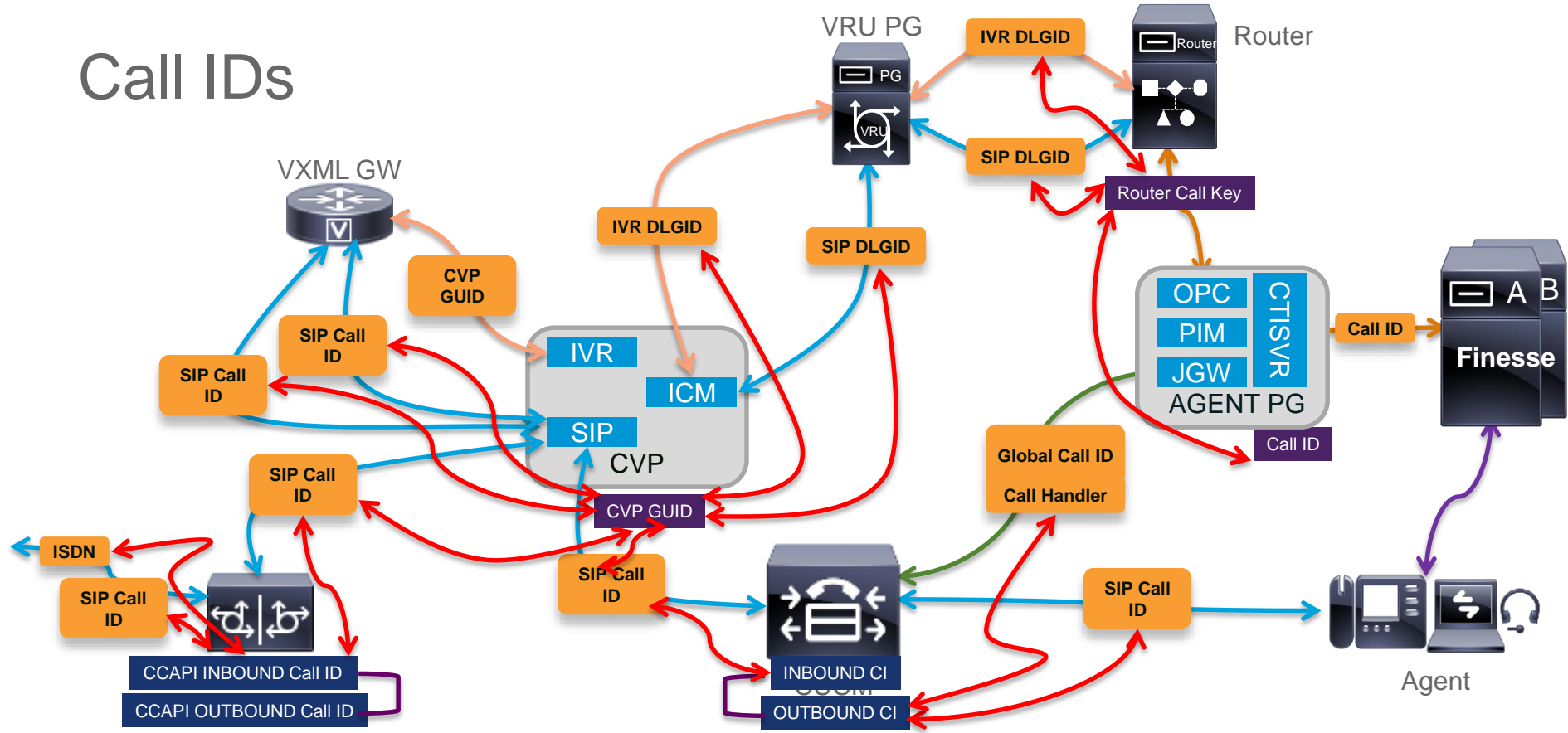
```
INVITE sip:99902000001020@10.10.10.150:5060;transport=tcp SIP/2.0
Via: SIP/2.0/TCP 10.10.10.20:5060;branch=z9hG4bKSIIsQ4wuxiPtjyFXoQFVg~~2599
To: <sip:99902000001020@10.10.10.150:5060>;transport=tcp>
From: 2002 <sip:2002@10.10.10.20:5060>;tag=ds3c4d95db
Call-ID: 998FDA000001000000000009280A0A0A-138511601388821@10.10.10.20
Expires: 60
User-Agent: CVP 10.0 (1) Build-481
Call-Info: <sip:10.10.10.150:5060>;purpose=x-cisco-origIP
Remote-Party-ID: <sip:2002@10.10.10.150>;party=calling;screen=yes;privacy=off
Cisco-Guid: 2576341504-0000065536-0000000009-0671746570
Cisco-Gucid: 998FDA000001000000000009280A0A0A
App-Info: <10.10.10.20:8000:8443>

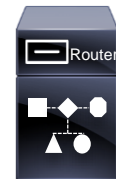
GET
/cvp/VBServlet?MSG_TYPE=CALL_NEW&CALL_DNIS=99902000001020&CALL_UUI=&CALL_ANI=sip:2002@10.10.10.20:5060&RECOVERY_VXML=flash:recovery
.vxml&CLIENT_TYPE=IOS&CALL_ID=998FDA000001000000000009280A0A0A&ERROR_CODE=0 HTTP/1.1

GET
/cvp/VBServlet?MSG_TYPE=CALL_RESULT&CALL_ID=998FDA000001000000000009280A0A0A&CALL_SEQ_NUM=1&ERROR_CODE=0&CALLED=0

GET /cvp/VBServlet?MSG_TYPE=CALL_RESULT&CALL_ID=998FDA000001000000000009280A0A0A&CALL_SEQ_NUM=2&ERROR_CODE=1
```

# Call IDs



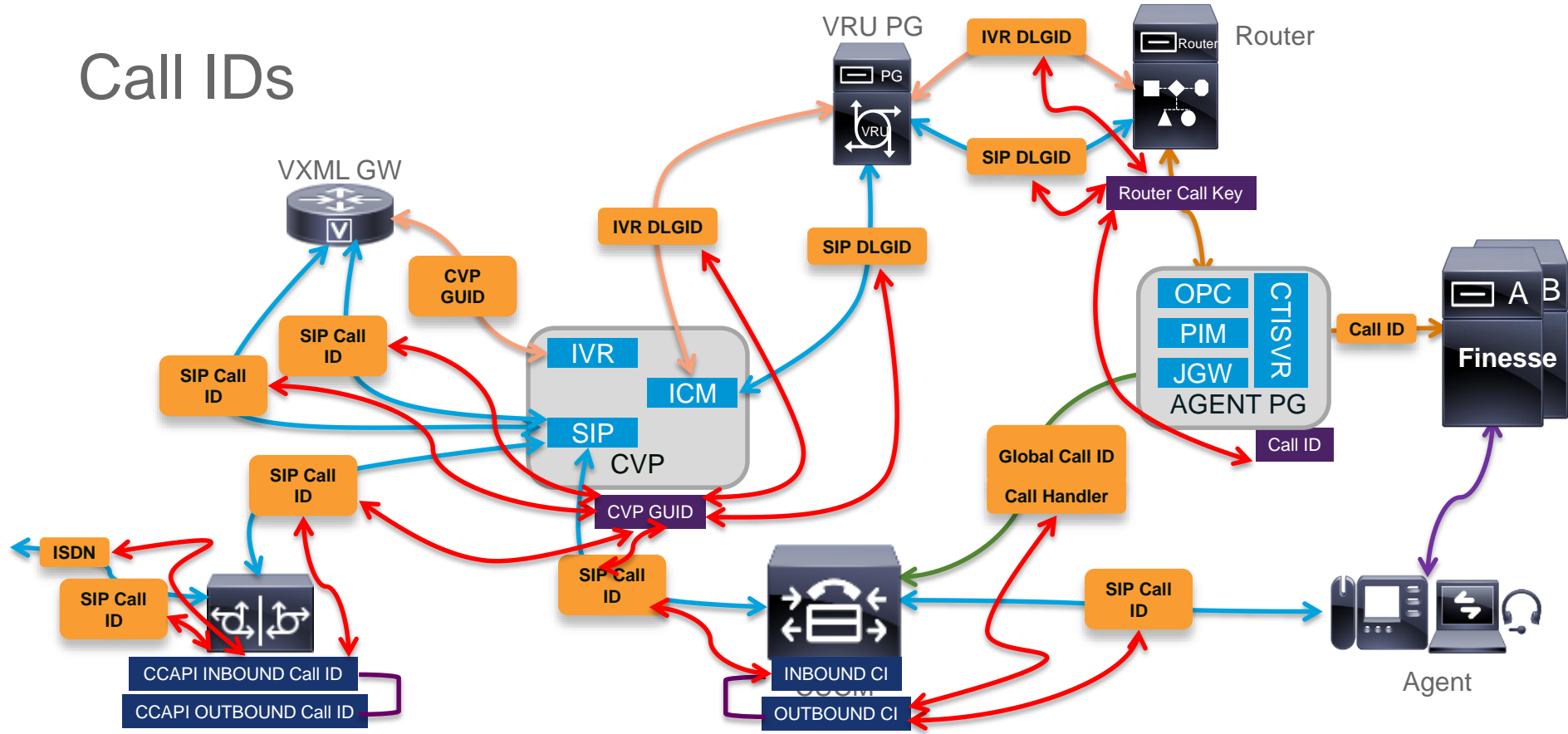


# How do the messages look like?

Router Call Key

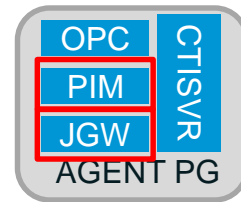
(25 x 0 : 0 0) **NewCall: CID=(150805,213), DN=40100, ANI=2002, CED=, RCID=5001, MRDID=1, CallAtVRU=1, OpCode=0 RCKSeqNum=0, NIC\_DN=40100**  
CallType(5009, 26): Init CT\_SL\_Timer: Threshold(20 + 2).  
(25 x 0 : 0 0) Correlation id for dialog is (1020).  
(25 x 1020 : 0 0) TransferToVRU: **Label=9990200000, CorID=1020, VRUID=5000, RCID=5001**  
(25 26 1020 : 0 0) Dialog sending VRUQueueService to VRU (serv=-1, rt=0)  
(25 26 1020 : 0 0) RequestInstr: **CID=(150805,213), CallState=1**  
(25 26 1020 : 0 0) **RouteComplete:**  
Route: DN=40100, ANI=2002, CED=, **Label=2001**  
Route: **CID=(150805,213), Labels=1**  
(25 26 1020 : 0 0) **DeviceTargetPreCall\_V12: CID=(150805,213), PerlID=5000, SGSTID=5059, AGSTID=5054**  
NetworkCallFlags=0, InvokeID=26, GREET=  
DN=40100, ANI=2002, CED=, CustDBProvidedDigits=, RouteID=5014, NetworkTargetID=0

# Call IDs





# How do the messages look like?



Router Call Key

## Agent PG- PIM

DeviceTargetPreCallInd: PreLock: **RTRCallKey=150805.213** NTID: 0 dialed number=40100 CED= **ASTID=5054**, AG=, CustomerDefinitionID=1, AW=0

05:27:56:555 pg1a-pim1 Trace: CSTA DELIVERED, TelephonyDriver::Offered: SENT TO OPC

**CallID = 17171230** DeviceID = 2002

Alerting =

Calling = 2002

Called = 2001

Call ID

## Agent PG - JGW

new **MyCID: 10**

CallActiveEv **CID: 17171230**

ConnCreatedEv **CID: 17171230 (394014/1) Addr: 2001 CurCalling: 2002**

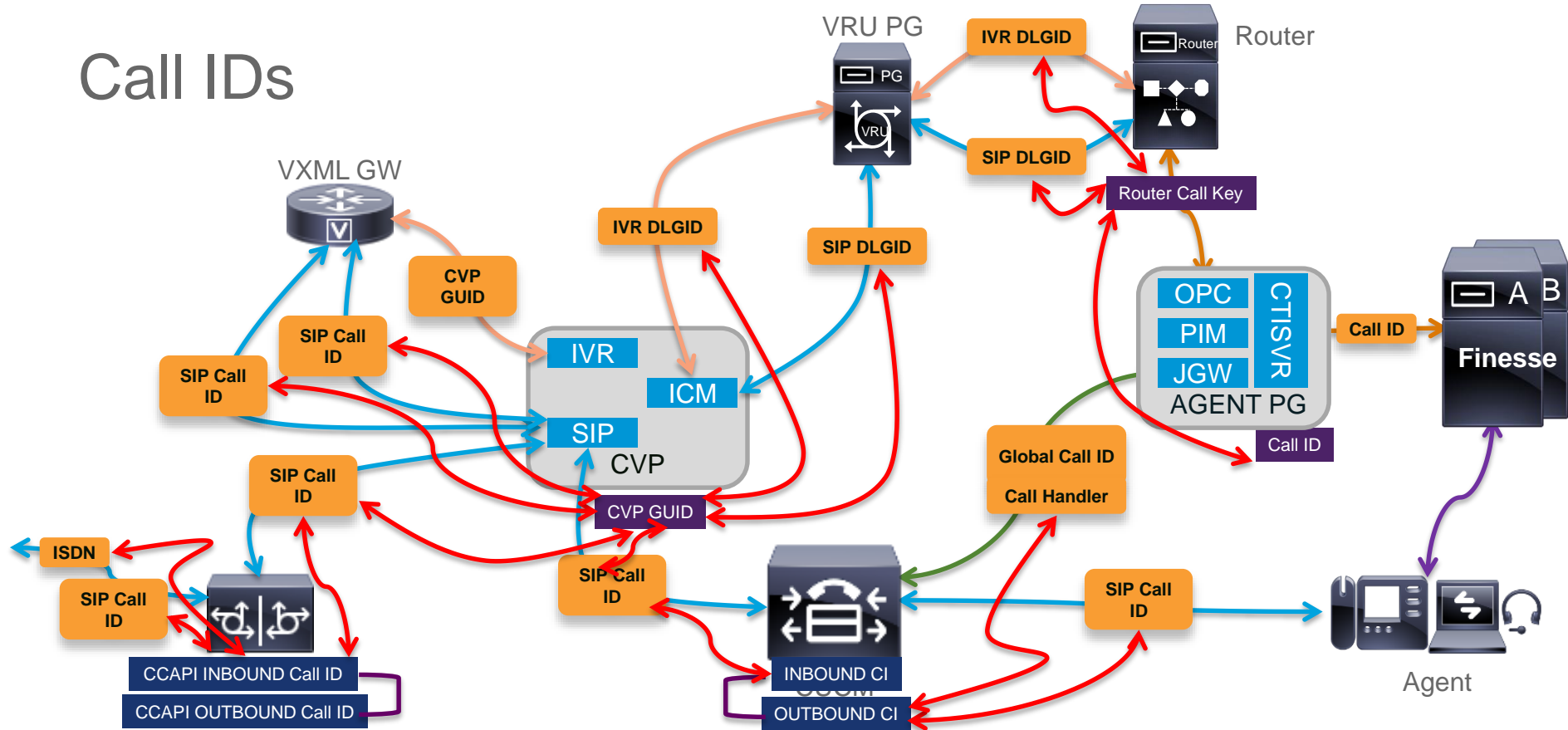
handleConnCreated::new MyDestMyConnection() MyConn: GenID: 19 **IDVal: 20739809** Dev: 2001/0 Ext: 2001

DevTgStr: Addr: 2001 State: INPROGRESS CCState: OFFERED prevCCState: UNKNOWN loggedIn: Y

ConnInProgressEv CID: 17171230 Addr: 2001

Call Handler

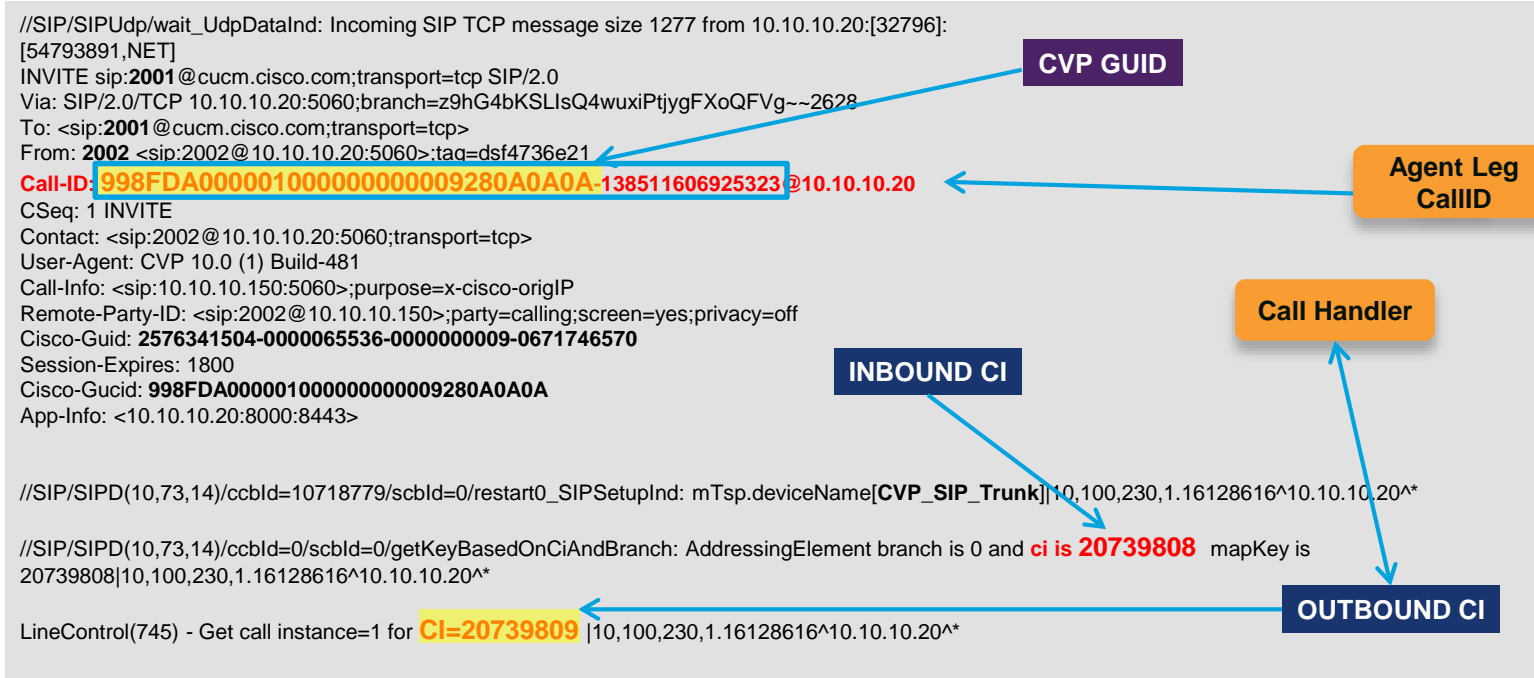
# Call IDs



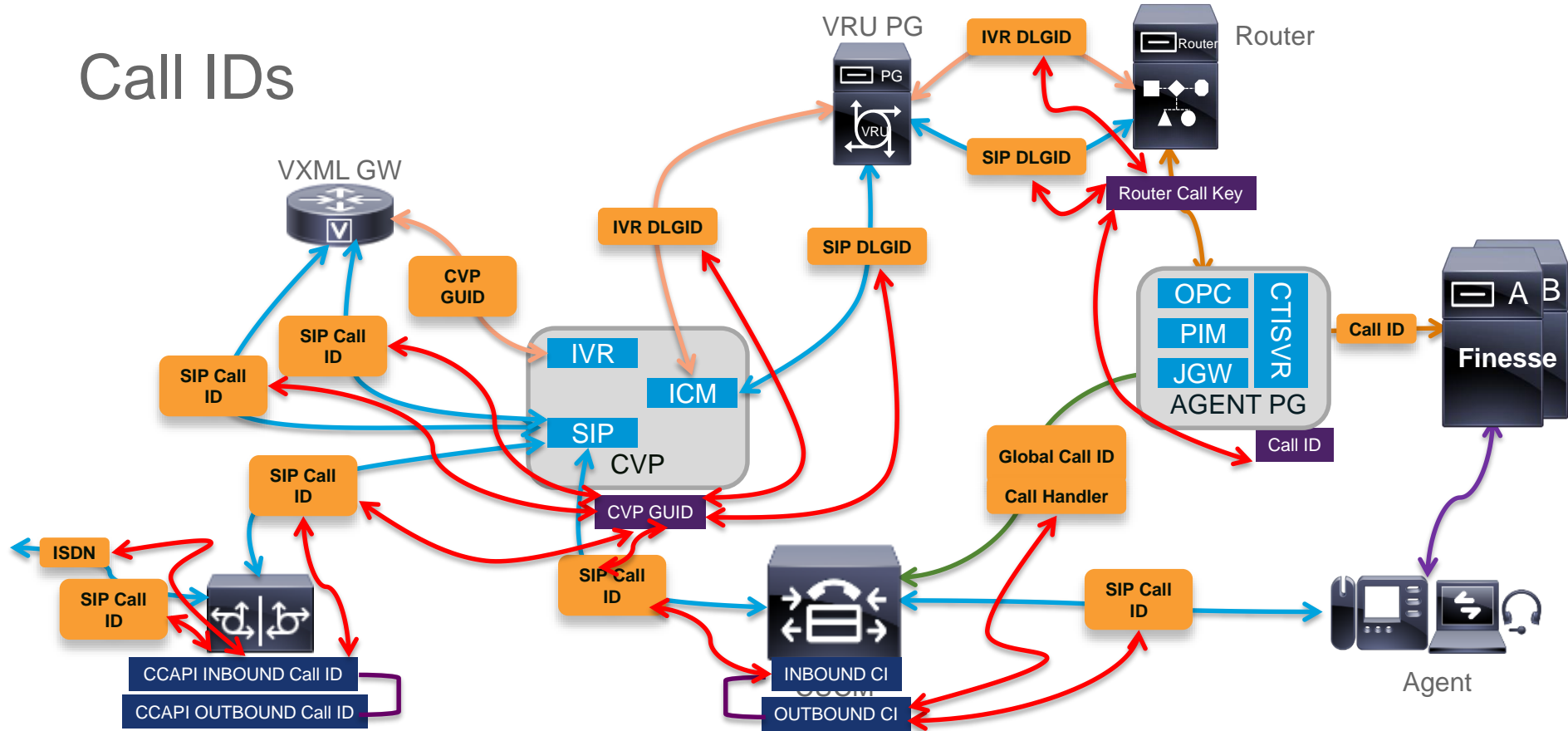
# How do the messages look like?



CUCCM



# Call IDs



# Finesse client log

The screenshot displays the Cisco Finesse client interface for Agent John Doe (2001) - Extension 2001. The interface includes a top navigation bar with the Cisco logo, agent name, status (Ready), and a timer (03:09). A 'Sign Out' button is visible in the top right. Below the navigation bar, there are two buttons: 'Home' and 'Manage Call'. A central banner indicates 'Ready for Incoming Calls'. At the bottom, a copyright notice for Cisco Systems, Inc. is present, along with a notification that says 'Logs successfully sent!' with a question mark icon.

Agent John Doe (2001) - Extension 2001

Ready 03:09

Sign Out

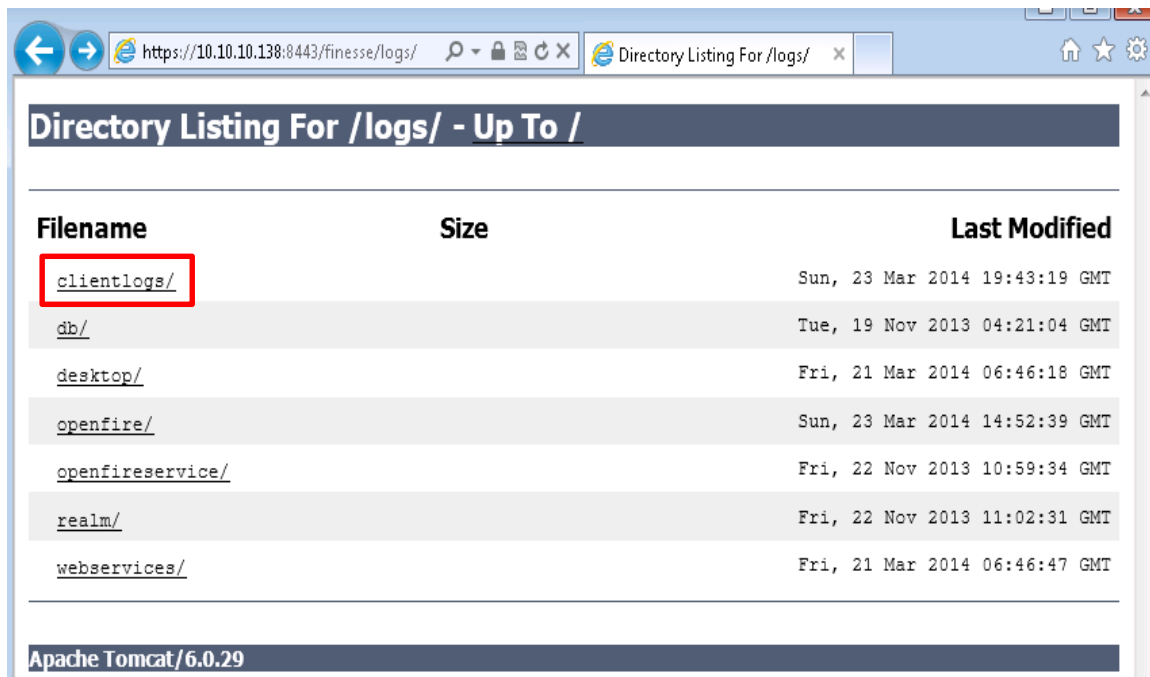
Home Manage Call

Ready for Incoming Calls

© 2010-2014 Cisco Systems, Inc. All rights reserved. Cisco Finesse v10.5(1)

Logs successfully sent!

# Finesse client log



Directory Listing For /logs/ - Up To /

Filename	Size	Last Modified
<a href="#">clientlogs/</a>		Sun, 23 Mar 2014 19:43:19 GMT
<a href="#">db/</a>		Tue, 19 Nov 2013 04:21:04 GMT
<a href="#">desktop/</a>		Fri, 21 Mar 2014 06:46:18 GMT
<a href="#">openfire/</a>		Sun, 23 Mar 2014 14:52:39 GMT
<a href="#">openfireservice/</a>		Fri, 22 Nov 2013 10:59:34 GMT
<a href="#">realm/</a>		Fri, 22 Nov 2013 11:02:31 GMT
<a href="#">webservices/</a>		Fri, 21 Mar 2014 06:46:47 GMT

Apache Tomcat/6.0.29

# How do the messages look like?



Agent

CallControl : \_processCall(): Process the dialog with id: **17171230**, to extension: **40100**, from extension: **2002**, call state: ALERTING, callType: PREROUTE\_ACD\_IN

Header : [ClientServices] MasterPublisher.\_parseAndPublishXMLEvent() - Received XML event on node '/finesse/api/User/2001': <Update>

```
<data>
  <user>
    <dialogs>/finesse/api/User/2001/Dialogs</dialogs>
    <extension>2001</extension>
    <firstName>John</firstName>
    <lastName>Doe</lastName>
    <loginId>2001</loginId>
    <loginName>JDoe</loginName>
    <pendingState></pendingState>
    <roles>
      <role>Agent</role>
    </roles>
    <settings>
      <wrapUpOnIncoming>OPTIONAL</wrapUpOnIncoming>
    </settings>
    <state>TALKING</state>
    <stateChangeTime>2015-03-12T08:13:00.758Z</stateChangeTime>
    <teamId>5000</teamId>
    <teamName>BXB</teamName>
    <uri>/finesse/api/User/2001</uri>
  </user>
</data>
<event>PUT</event>
<requestId></requestId>
<source>/finesse/api/User/2001</source>
</Update>
```

Call ID

# Call IDs Summary

**Ingress GW** : Cisco-Guid: 2576341504-0000065536-0000000009-0671746570

**CVP** : CISCO-GUID = 2576341504-0000065536-0000000009-0671746570

CVP-ID = 998FDA00000100000000009280A0A0A = CALLGUID

LEGID=998FDA00000100000000009280A0A0A-138511601388821 → VRU Leg

LEGID = 998FDA00000100000000009280A0A0A-138511606925323 → Agent Leg

DLGID = 25 = → SIP Dialog ID, DLGID = 26 → VRU Dialog ID

**Router** : DID = 25 → SIP Dialog ID, DID = 26 → VRU Dialog ID

CID=(150805,213) → Router Call Key Day,Router Call Key

**VXML GW** : Call-ID: 998FDA00000100000000009280A0A0A-138511601388821 → VRU Leg

**Agent pim** : RTRCallKey=150805.213 → Router Call Key Day.Router Call Key

CallID = 17171230 → Call ID

**JGW** : CID: 17171230 → Call ID

IDVal: 20739809 → Call Handler

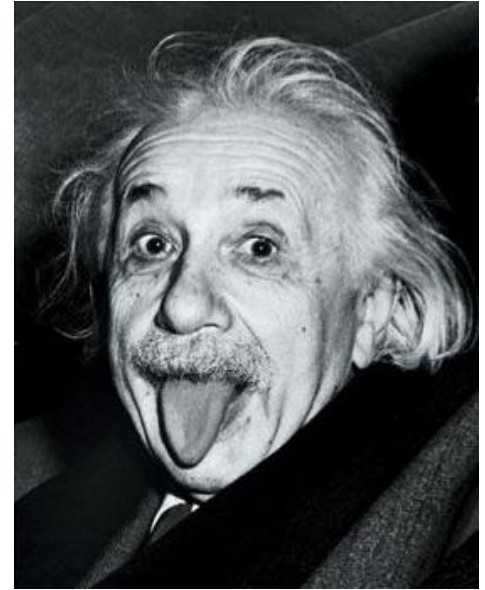
**CUCM** : Call-ID: 998FDA00000100000000009280A0A0A-138511606925323 → Agent Leg

CI=20739809 → Call Handler (Outbound CI)

**Finesse** : dialog with id: 17171230 → Call ID



“If you can't explain it simply, you don't understand it well enough”

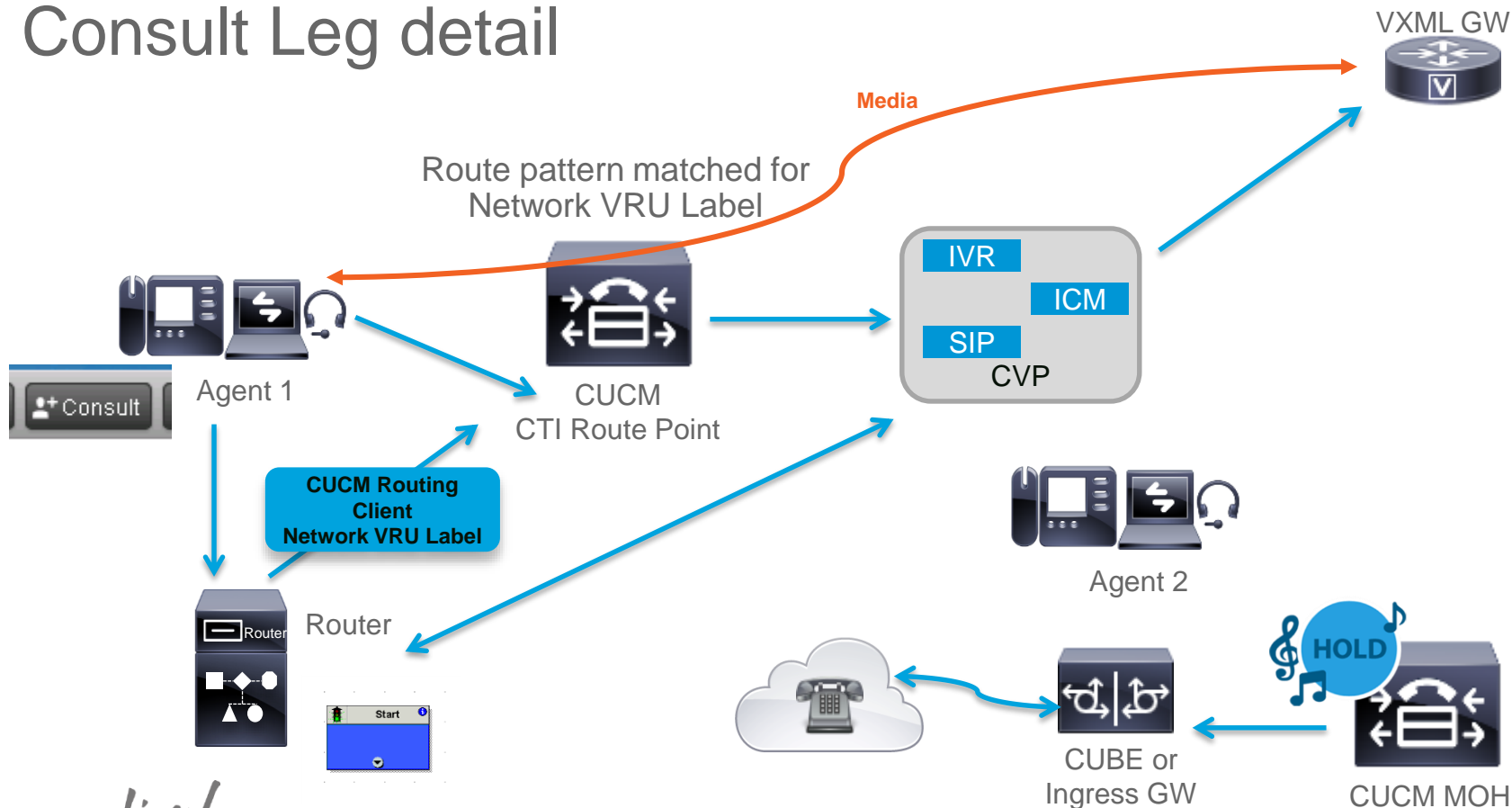


# Consultative Transfer Call Flow

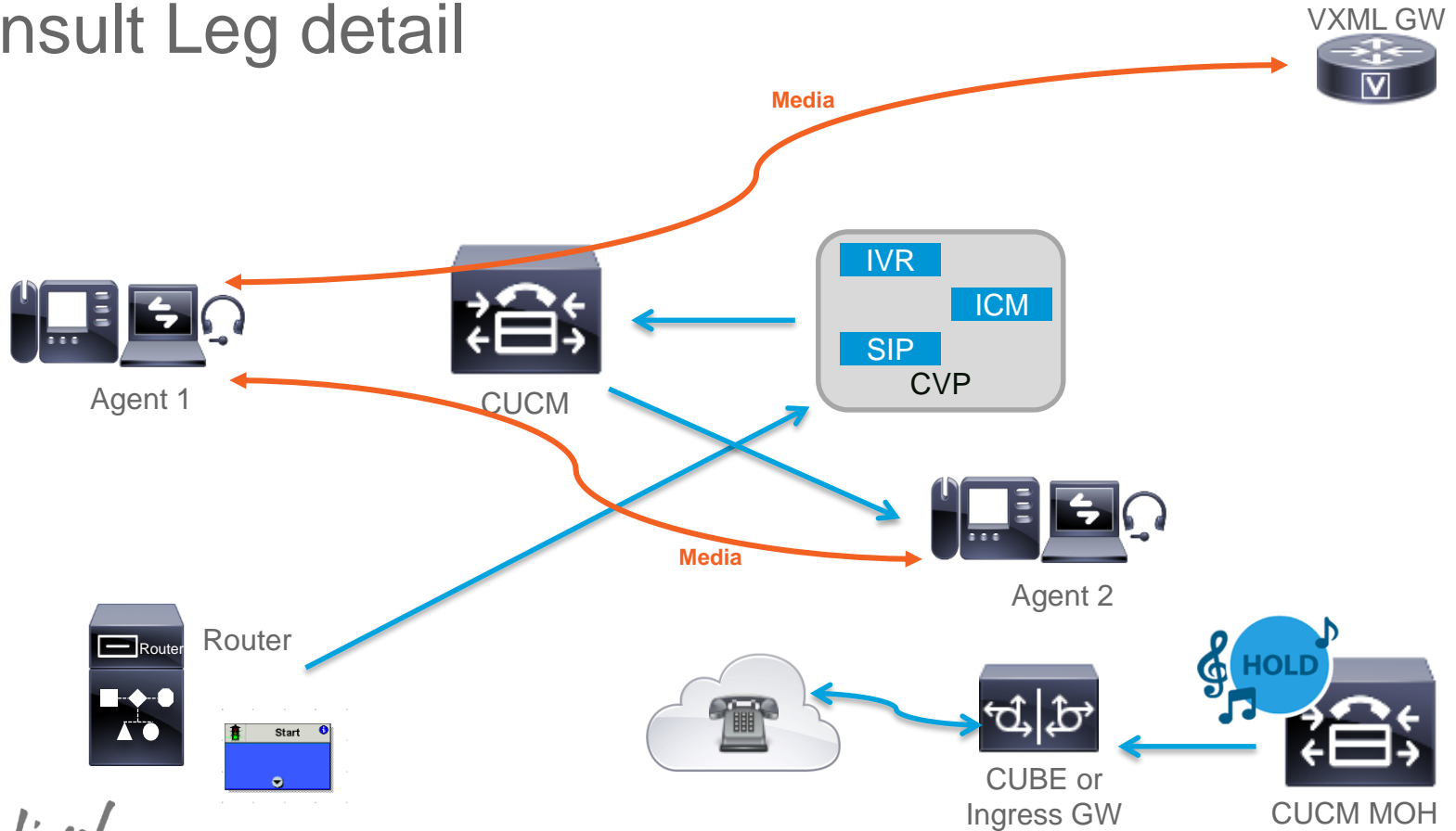
# Consultative transfer call flow

- Caller already connected to the Agent1
- Agent realises that customer needs to be transferred to another department
- **All Call context must be preserved!!!**
- It is a consultative transfer so it will have two parts
  1. **Consult leg:** Agent1 calls Service Number for Department2. Agent1 could be showed self service menus and Queued in order to reach Agent2 at Department2. Agent1 talks to Agent2.
  2. **Final transfer leg:** Agent1 completes the transfer and Agent2 is finally connected to Caller. Caller could also be conferenced in before Agent 1 disconnects.
- Caller will be on hold for the duration of the Consult leg

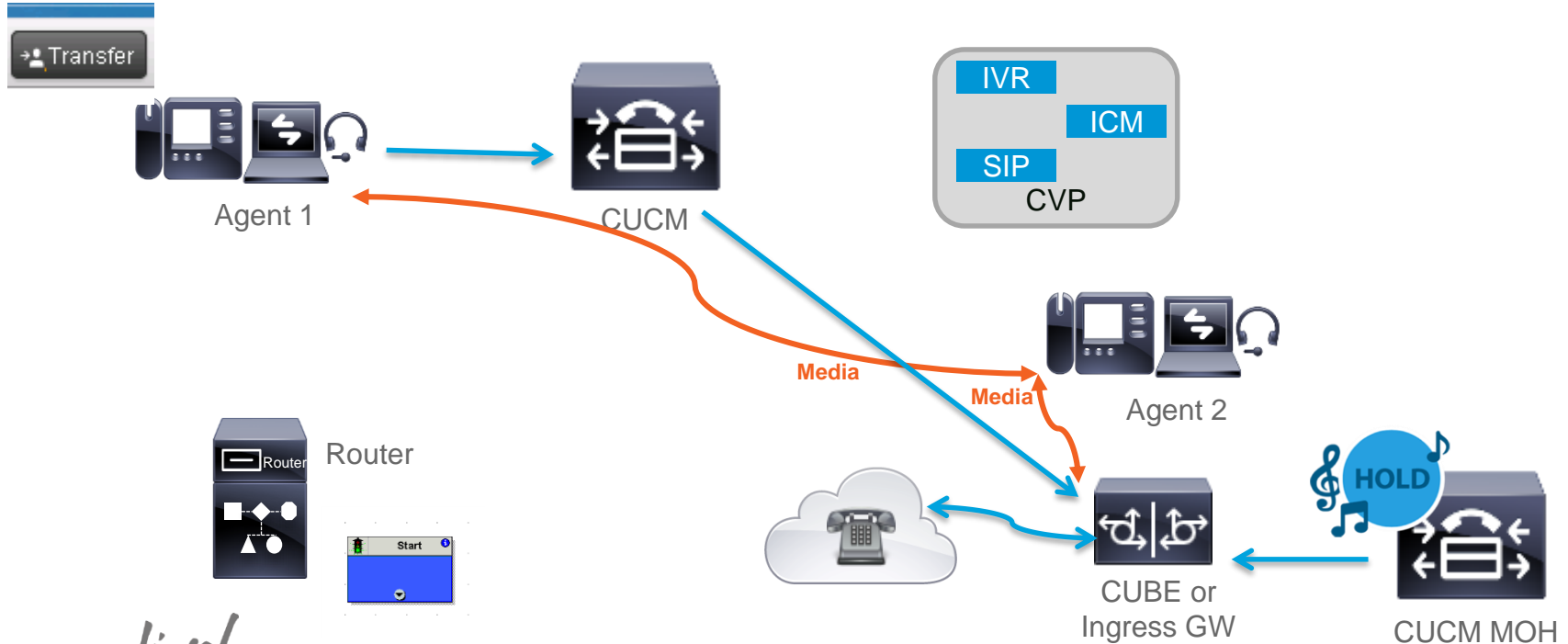
# Consult Leg detail



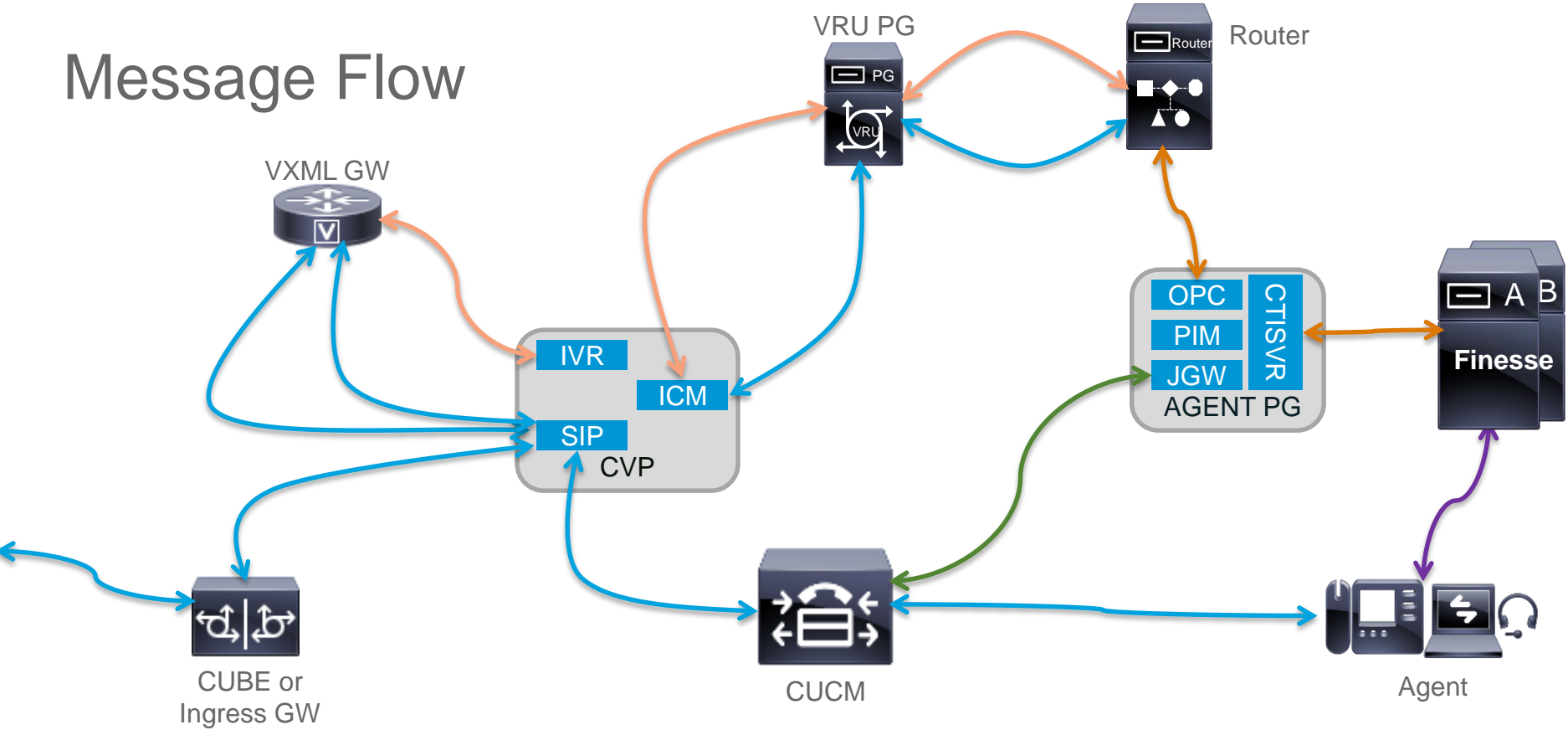
# Consult Leg detail



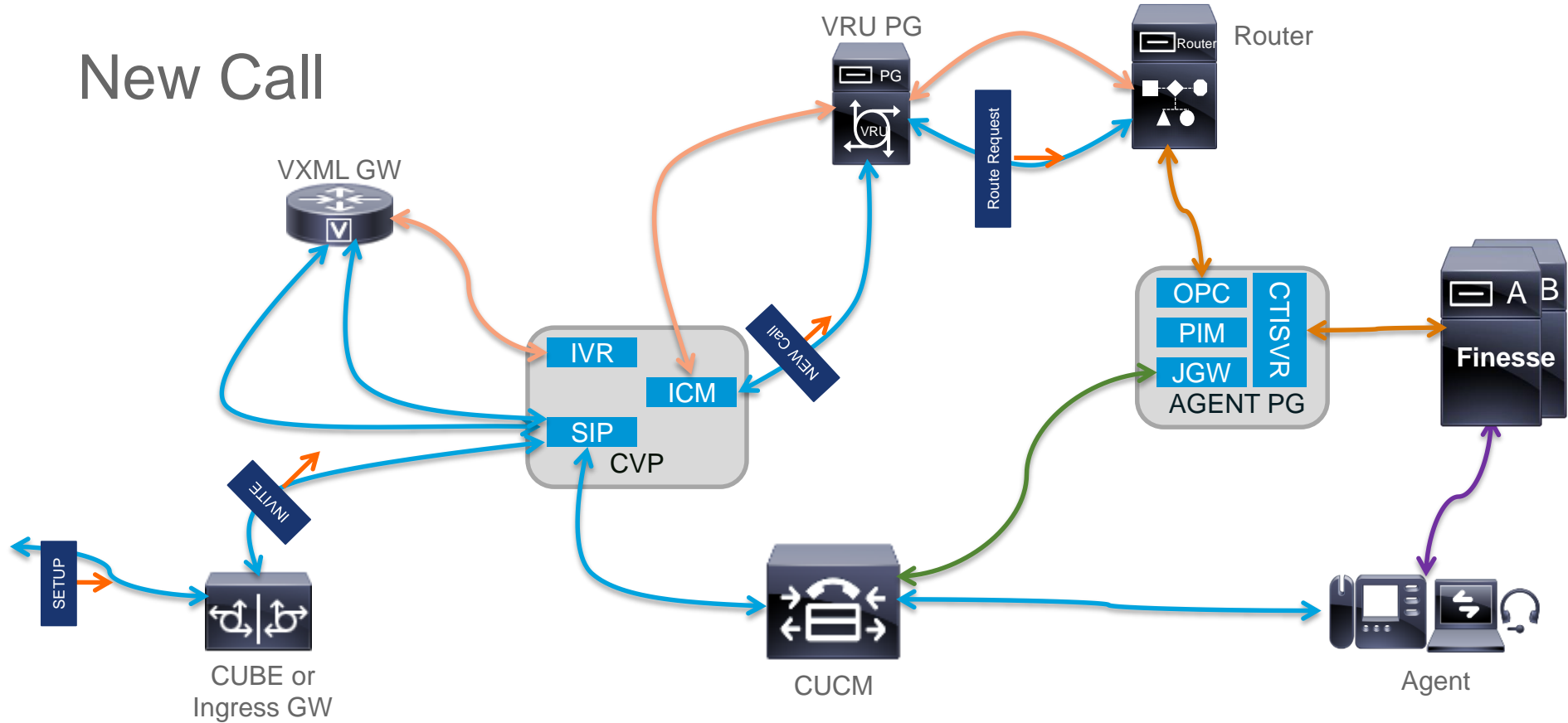
# Final transfer Leg detail



# Message Flow

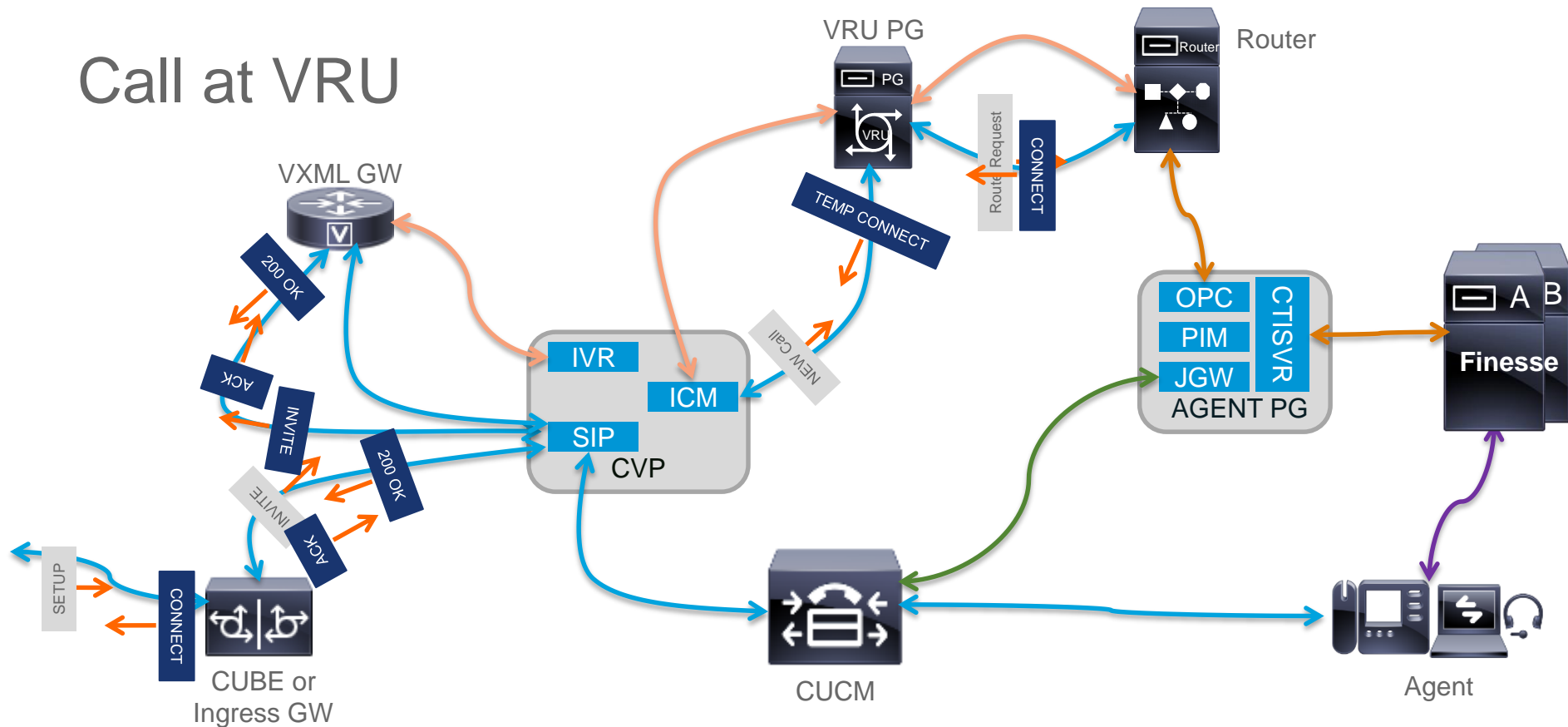


# New Call

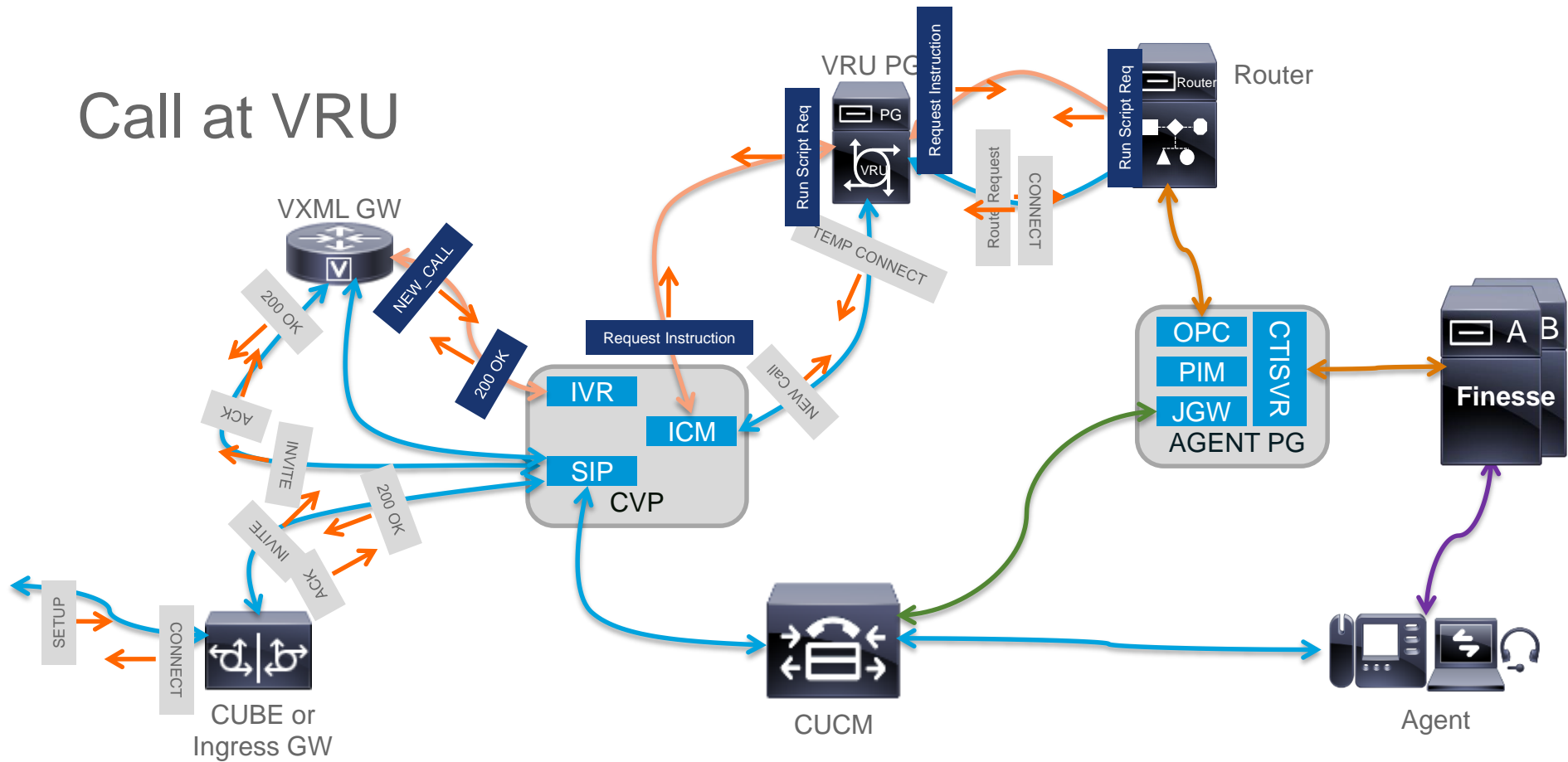




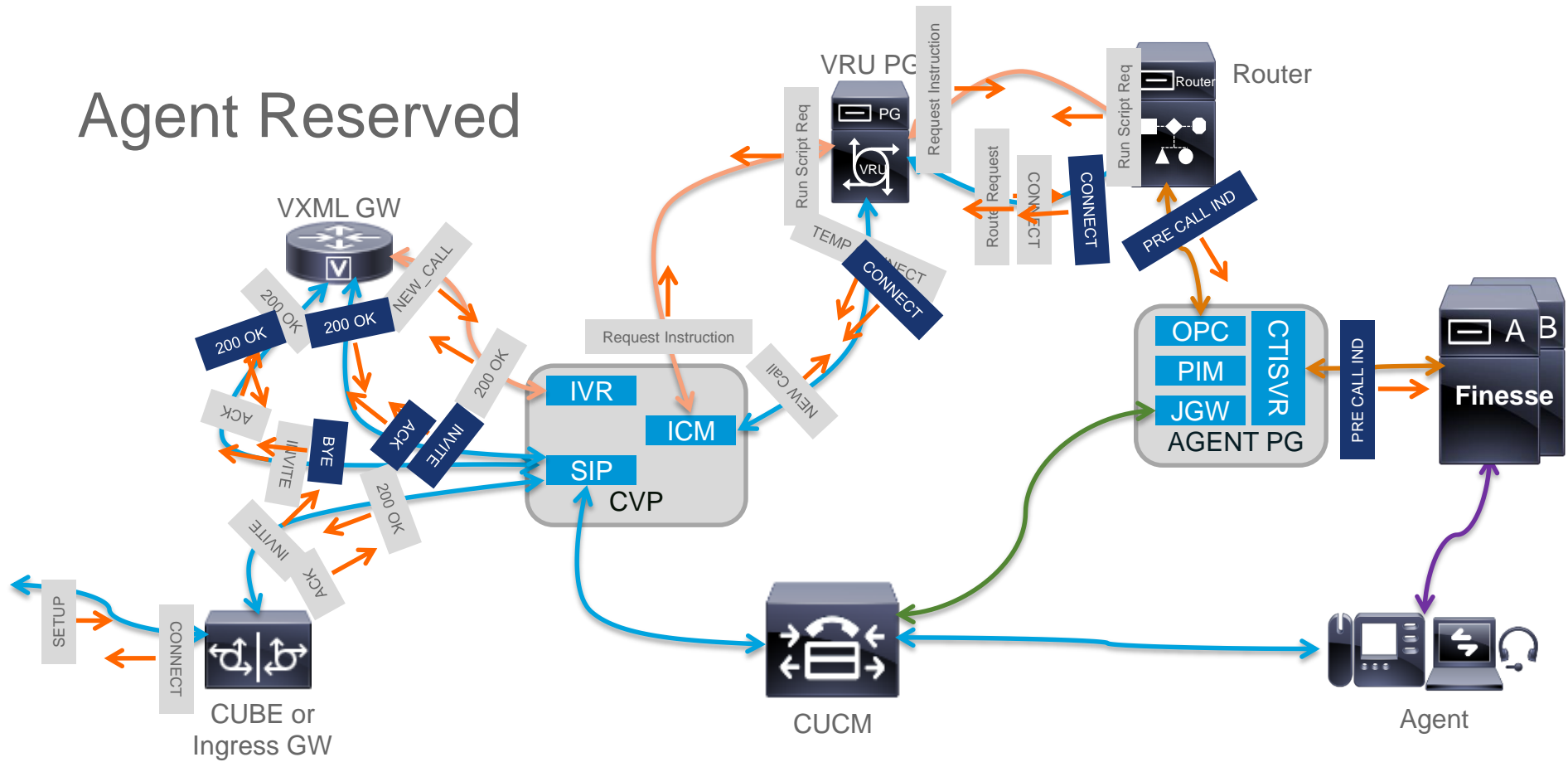
# Call at VRU



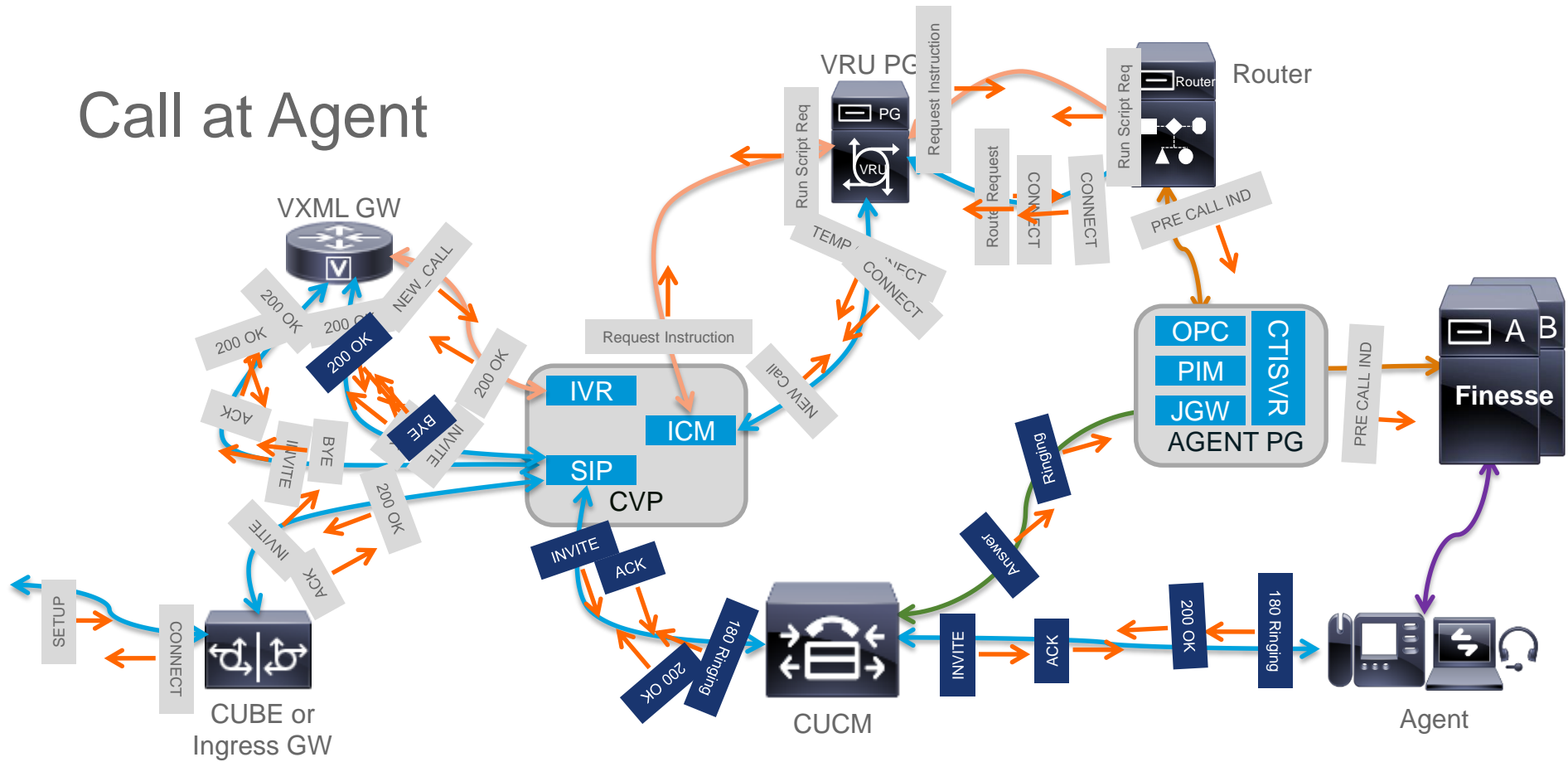
# Call at VRU



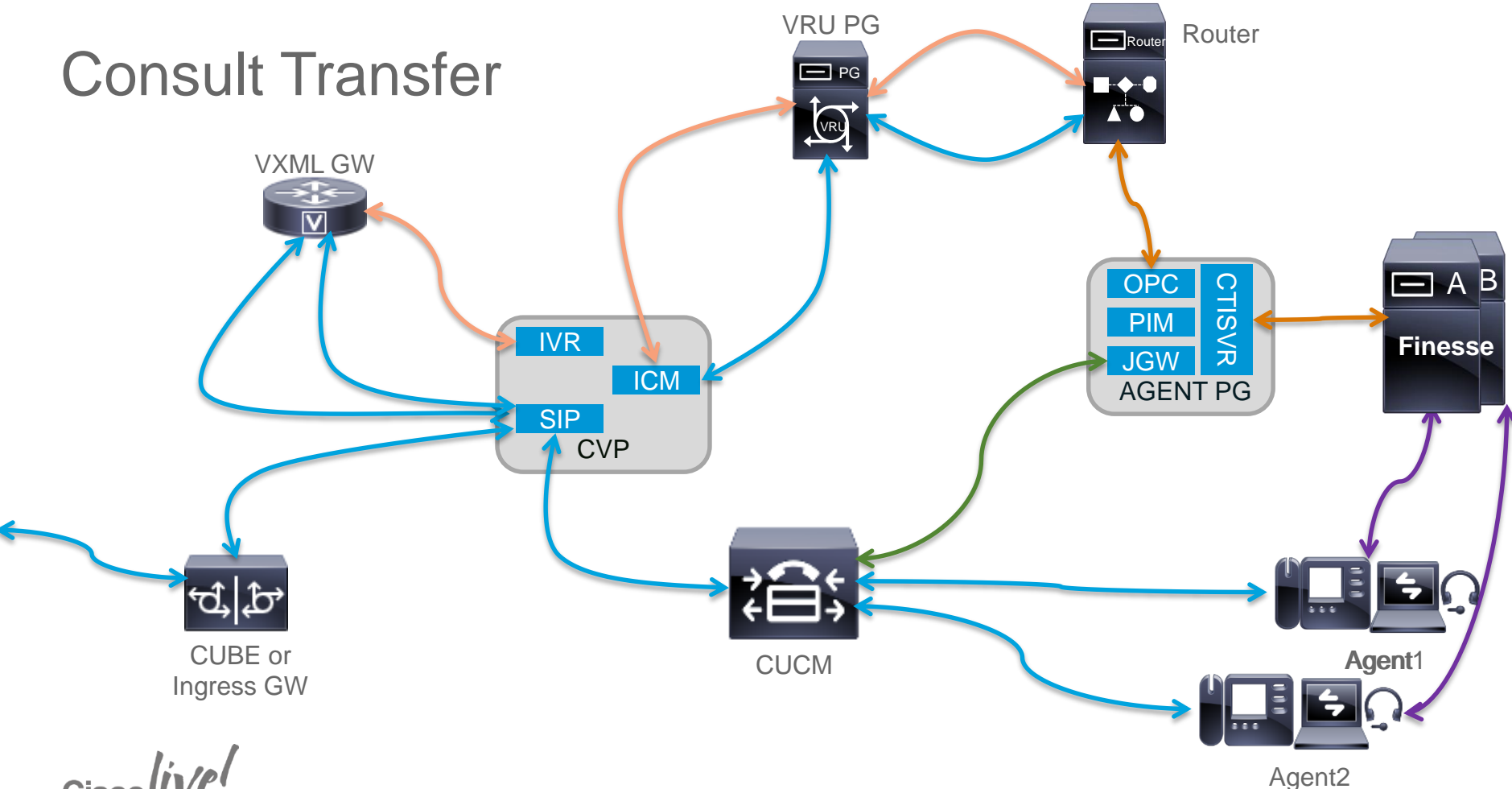
# Agent Reserved



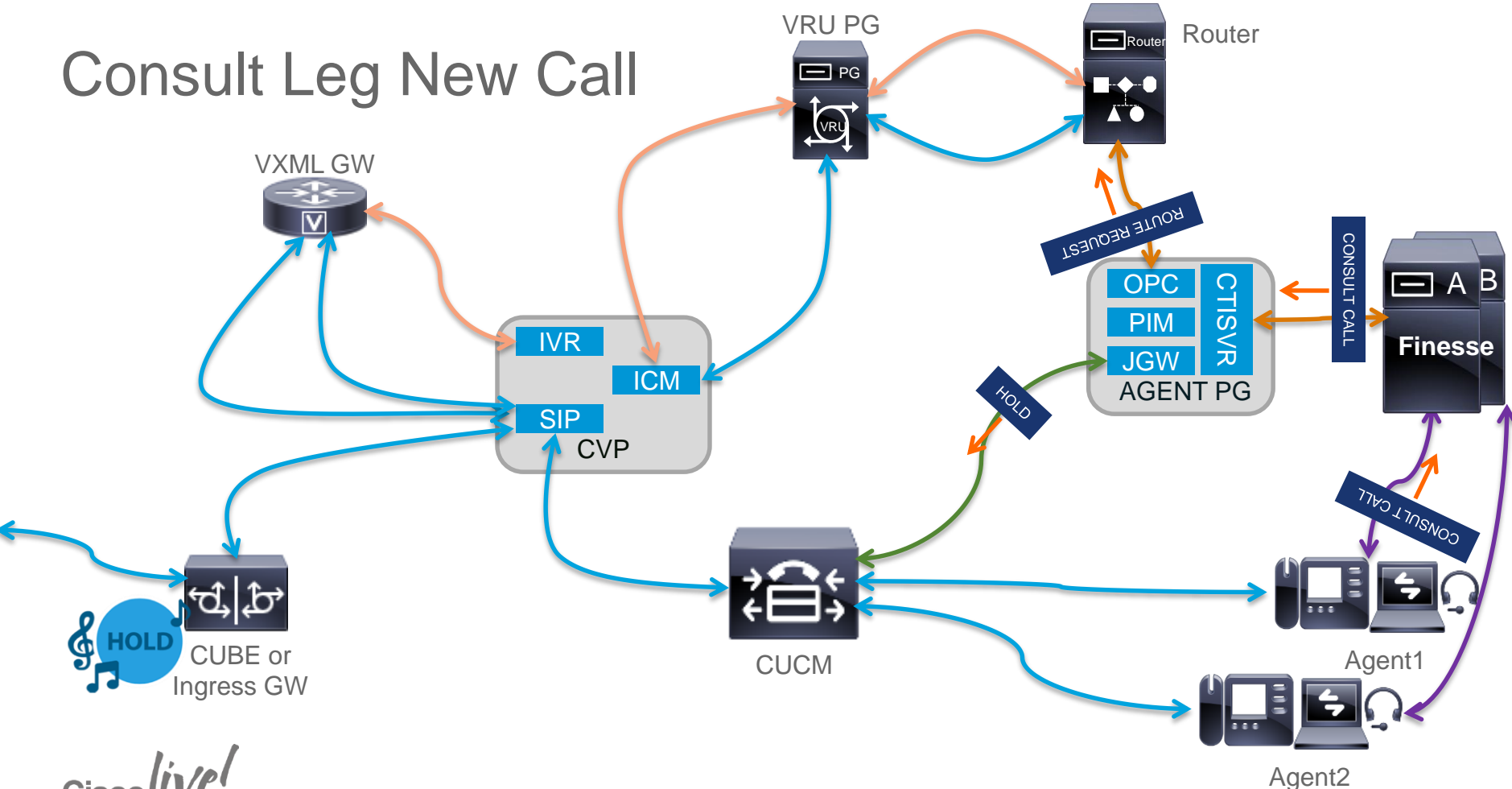
# Call at Agent



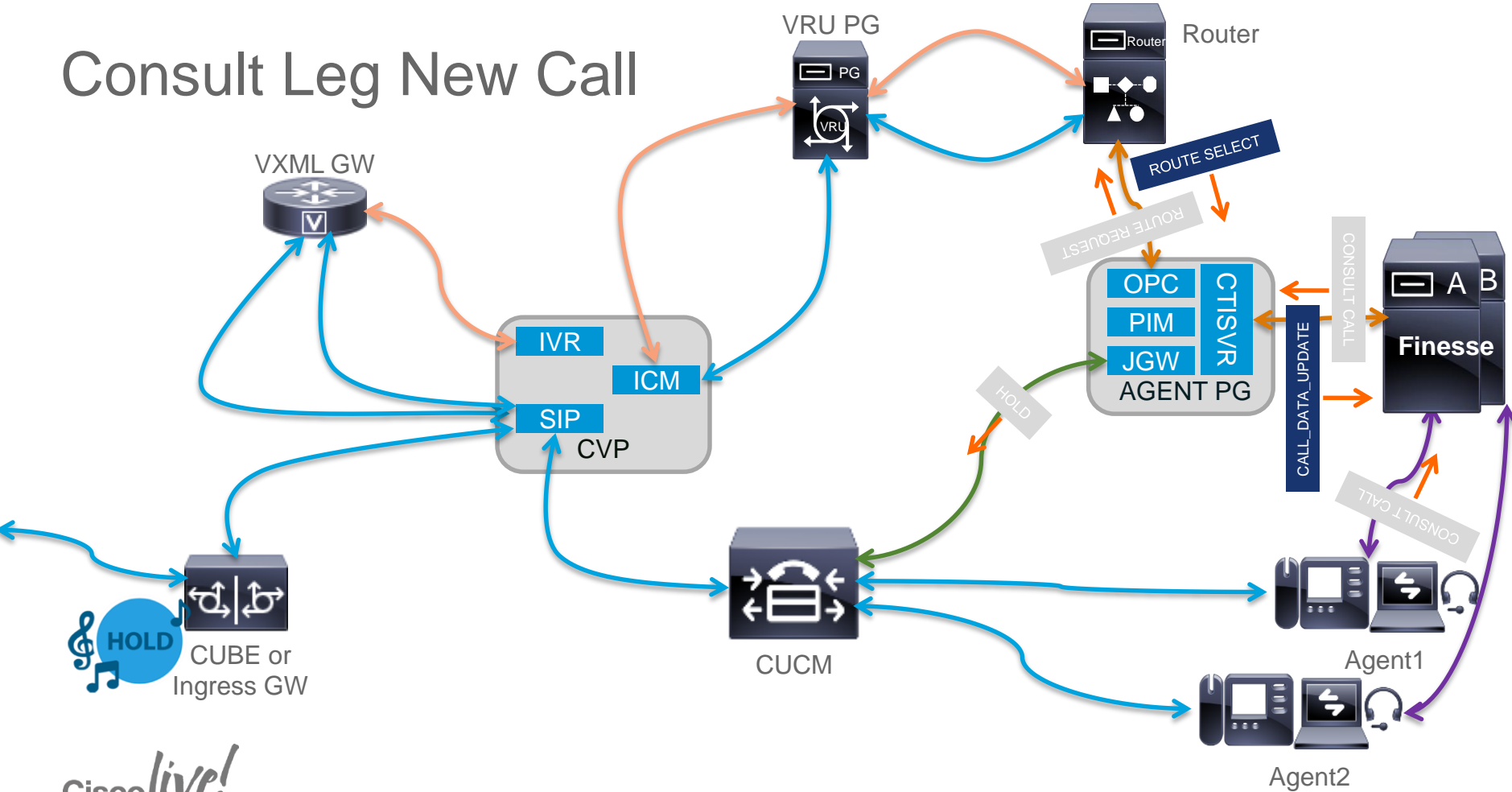
# Consult Transfer



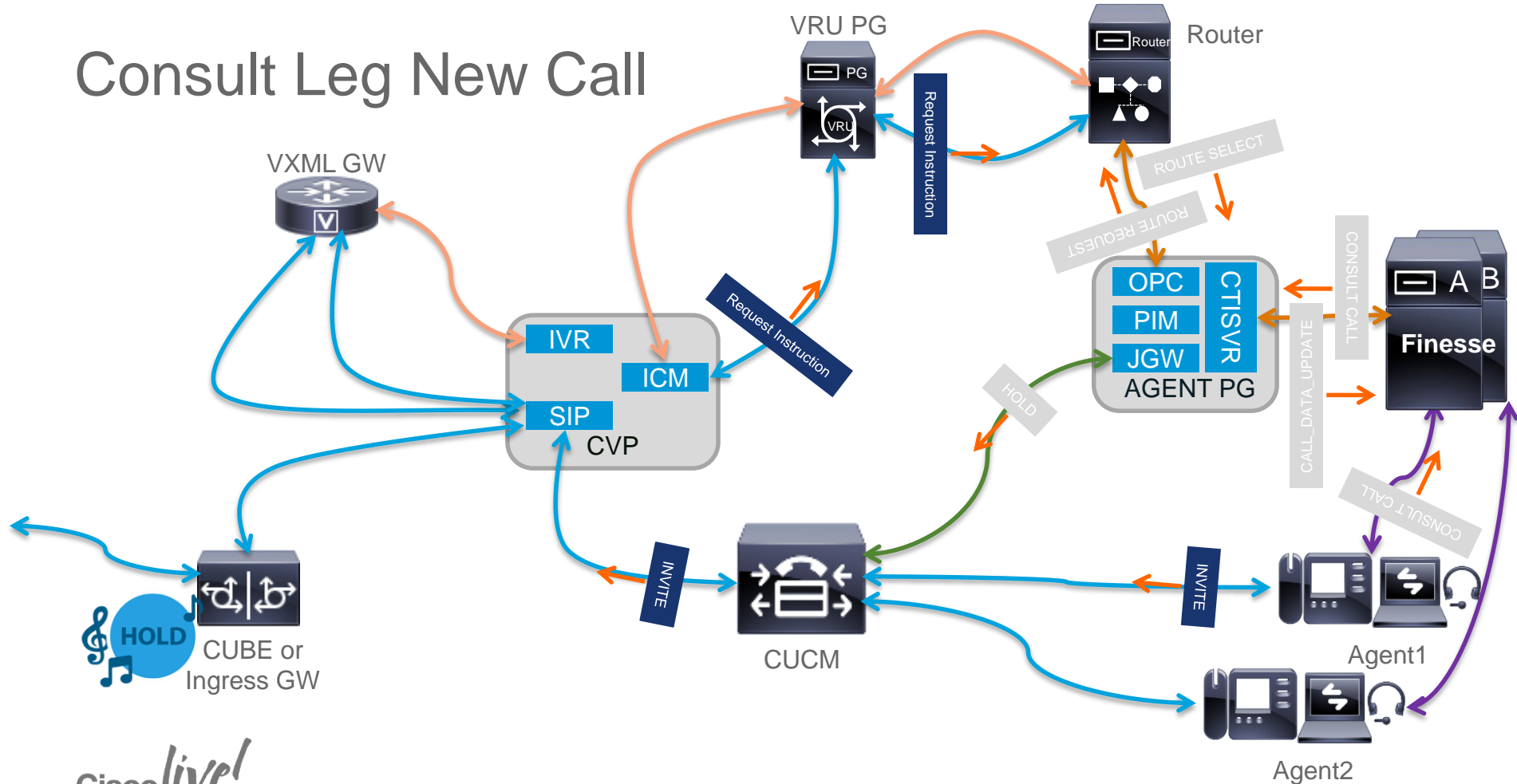
# Consult Leg New Call



# Consult Leg New Call

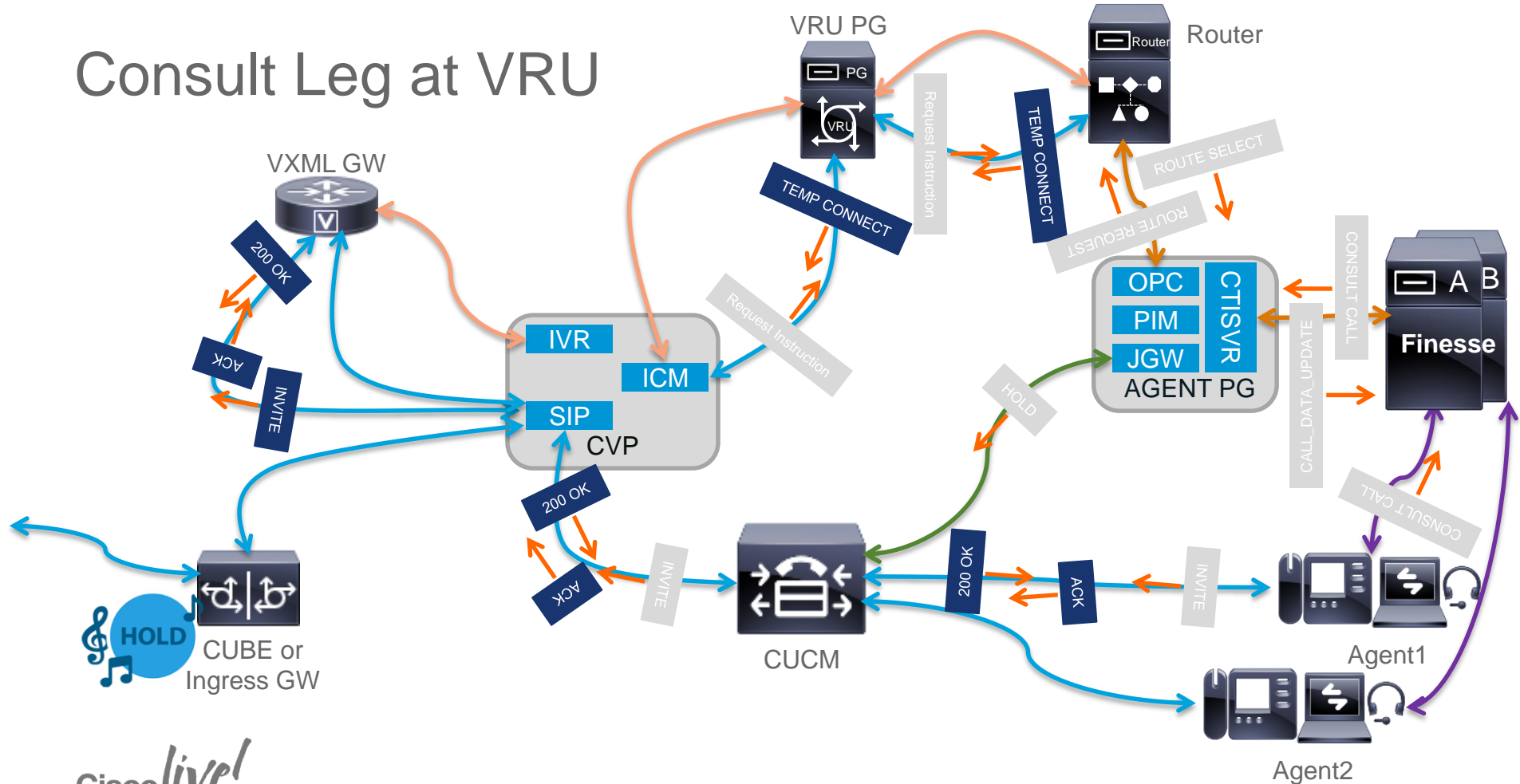


# Consult Leg New Call

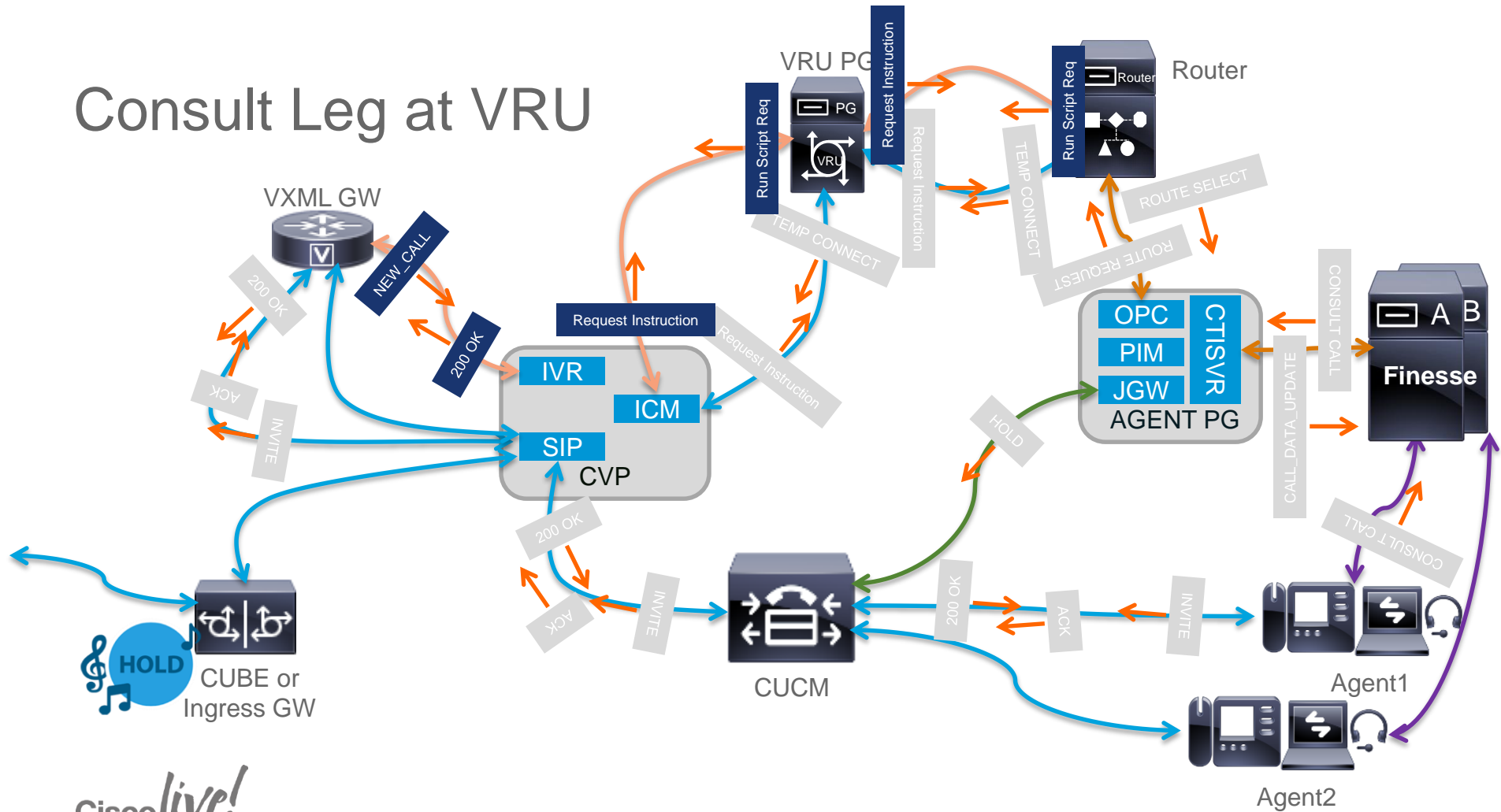




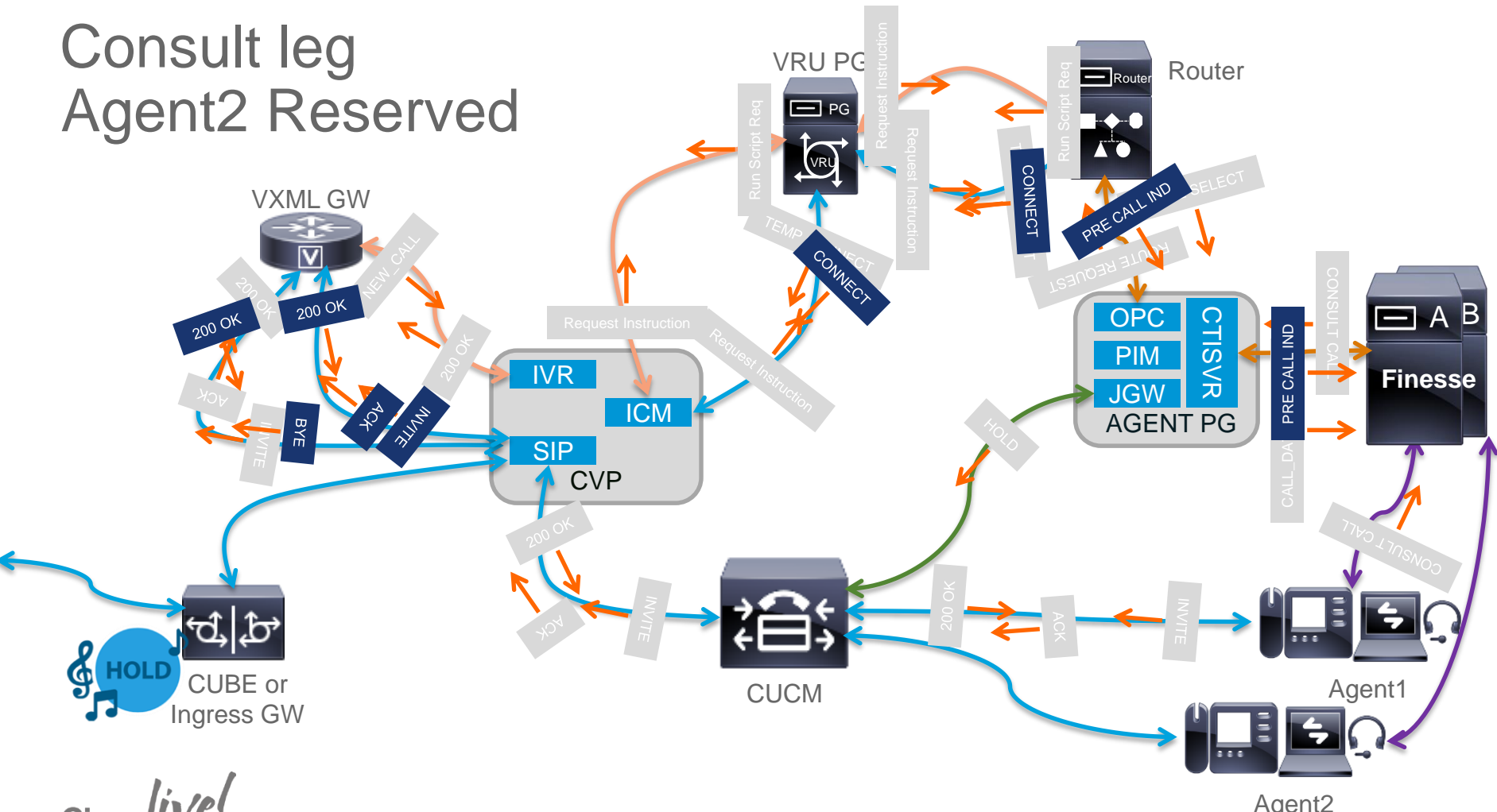
# Consult Leg at VRU



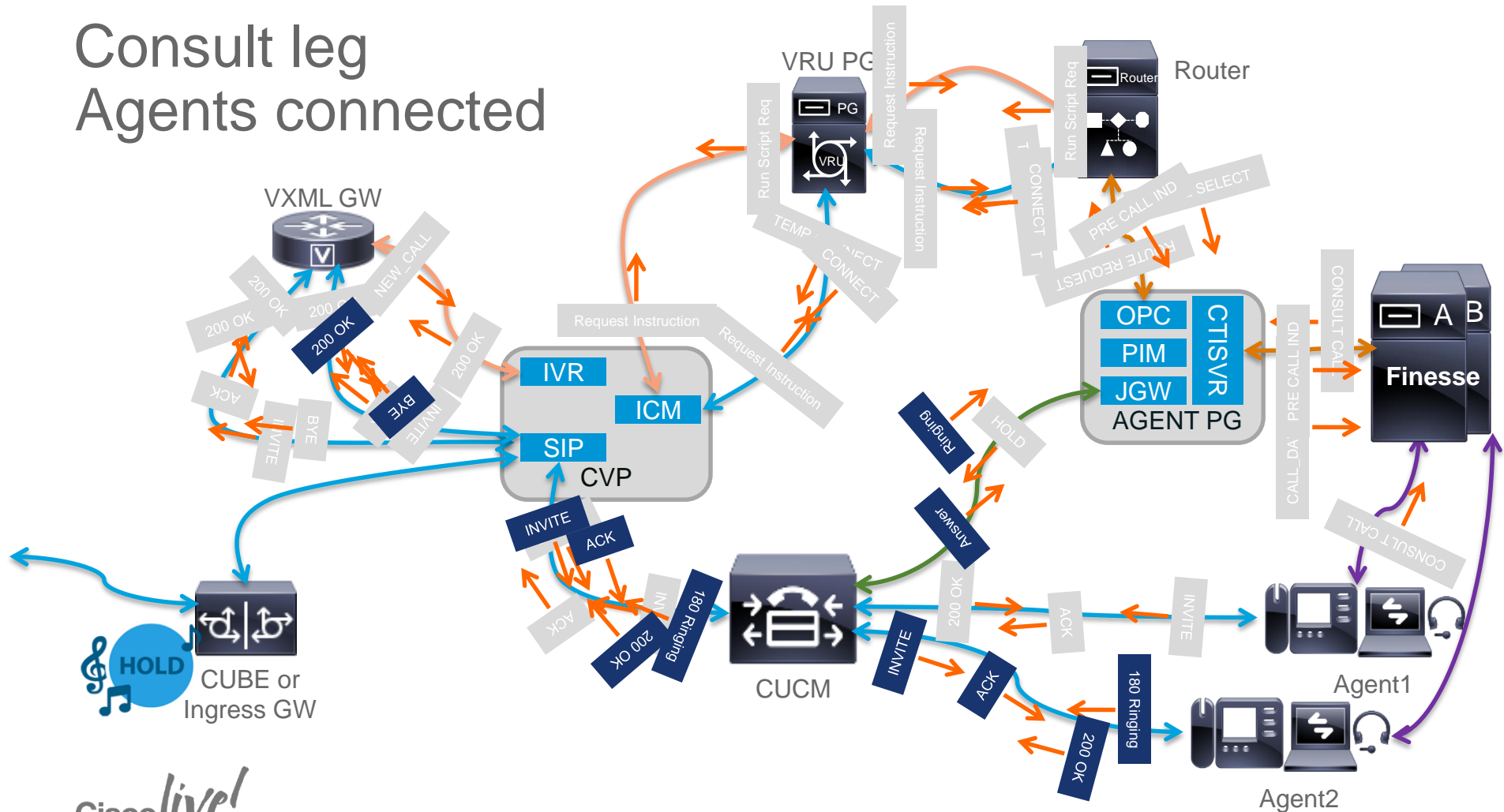
# Consult Leg at VRU



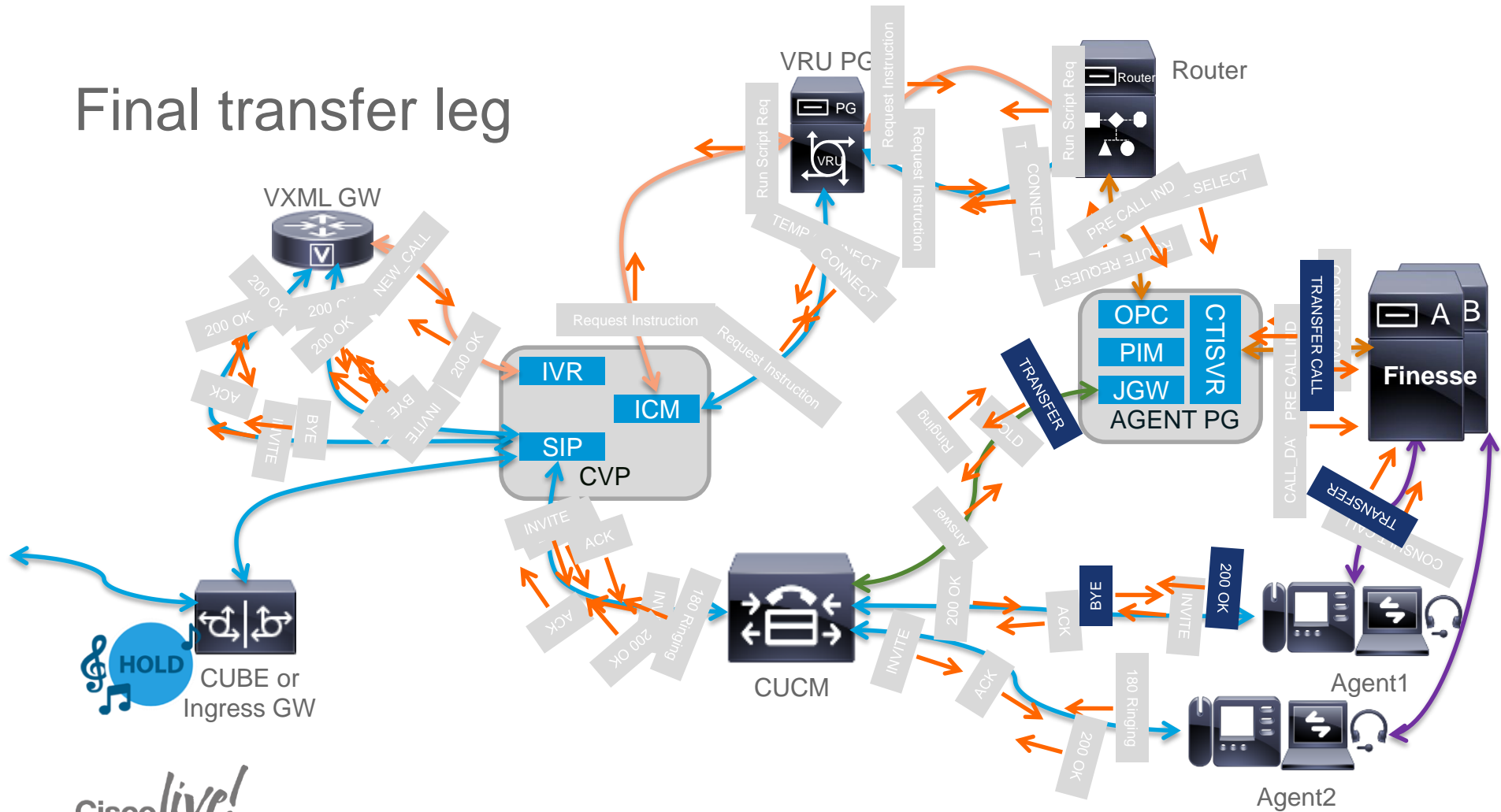
# Consult leg Agent2 Reserved



# Consult leg Agents connected



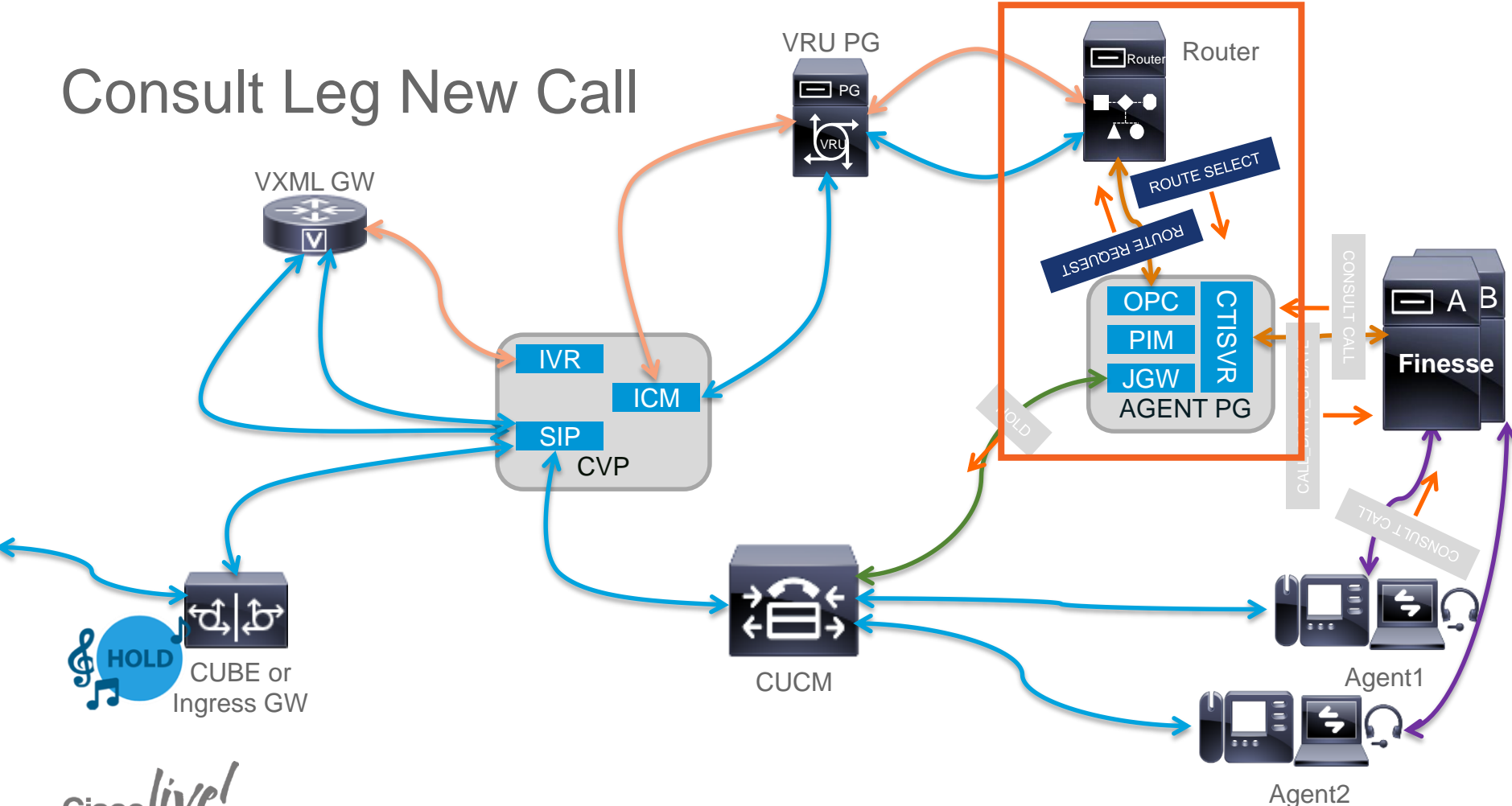
# Final transfer leg



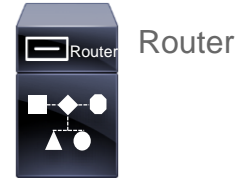
# Objectives

- Understand how the initial call and the New consult leg are linked
- That allows us to preserve Call Context and report cradle to grave on the complete call as one
  
- **Question:**
  - **How many Correlation IDs will we see in the router logs?**

# Consult Leg New Call



# How do the messages look like?



Initial Call

(106 x 0 : 0 0) NewCall: **CID=(151369,210)**, DN=1205000, ANI=1231001, CED=, RCID=5001, MRDID=1, CallAtVRU=1, OpCode=0.  
(106 x 1071 : 0 0) TransferToVRU: **Label=7777777777**, CorID=1071, VRUID=5000, RCID=5001.  
(106 107 1071 : 0 0) RequestInstr: **CID=(151369,210)**, CallState=1.  
(106 107 1071 : 0 0) RouteComplete.:  
Route: DN=1205000, ANI=1231001, CED=, **Label=2001** .  
Route: **CID=(151369,210)**, Labels=1.  
(106 107 1071 : 0 0) DeviceTargetPreCall\_V12: **CID=(151369,210)**, PerID=5000, SGSTID=5040, AGSTID=5037  
(106 107 1071 : 0 0) Connect: **CID=(151369,210)**, EventSelect=0, ServiceType=0, RCID=5001, **Label(s)=2001**.

Router Call Key

Consultative Leg

(65542 x 0 : 0 0) NewCall: **CID=(151369,210)**, DN=5100, ANI=2001, CED=5100, RCID=5000, MRDID=1, CallAtVRU=0, OpCode=0.  
(65542 x 1072 : 0 0) TransferToVRU: **Label=8881111000**, CorID=1072, VRUID=5000, RCID=5000.  
(65542 3 1072 : 0 0) RequestInstr: **CID=(151369,210)**, CallState=1.  
(3 3 1073 : 0 0) TransferToVRU: **Label=7777777777**, CorID=1073, VRUID=5000, RCID=5003.  
(3 4 1073 : 0 0) RequestInstr: **CID=(151369,210)**, CallState=1.  
(3 4 1073 : 0 0) RouteComplete.:  
Route: DN=5100, ANI=2001, CED=, **Label=2002** .  
Route: **CID=(151369,210)**, Labels=1.  
(3 4 1073 : 0 0) DeviceTargetPreCall\_V12: **CID=(151369,210)**, PerID=5000, SGSTID=5040, AGSTID=5038  
NetworkCallFlags=0, InvokeID=81, GREET=.  
(3 4 1073 : 0 0) Connect: **CID=(151369,210)**, EventSelect=0, ServiceType=0, RCID=5003, **Label(s)=2002**.

Correlation ID

RoutingCrossRefID

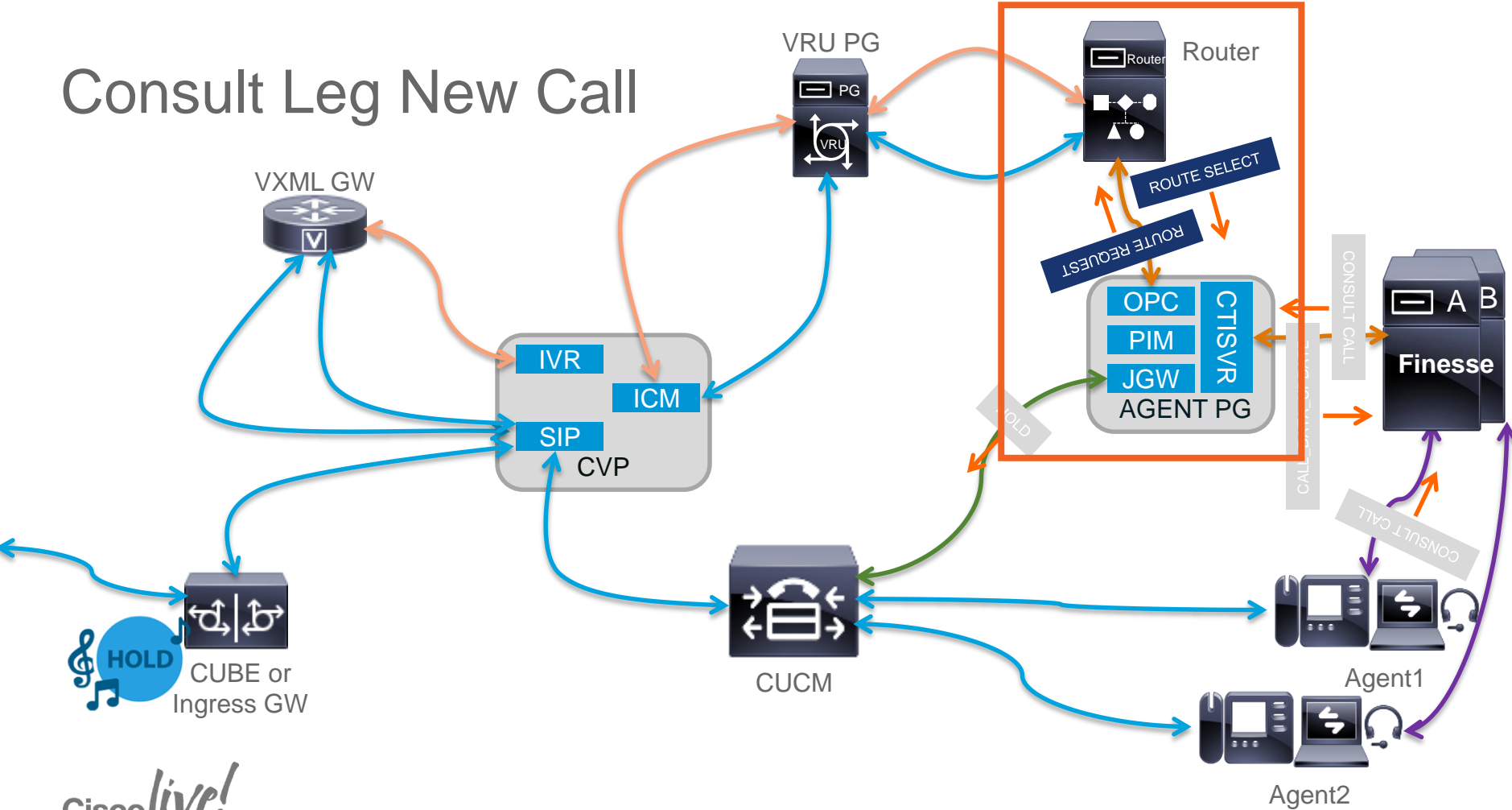


IVR DLGID

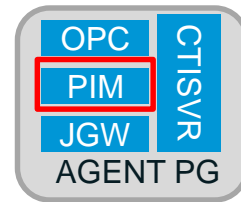
SIP DLGID



# Consult Leg New Call



# How do the messages look like?



Router Call Key

## Agent PG- PIM

**CSTA ROUTE REQUEST**, TelephonyDriver::RequestPostRoute: by PIM for the DNP SENT TO OPC

CallID = 2130706440 DeviceID = 2001 DeviceType = Static

**RoutingCrossRefID = 65542**

CurrentRoute = 5100

CallingDevice = 2001

RequestType = 51

AG =

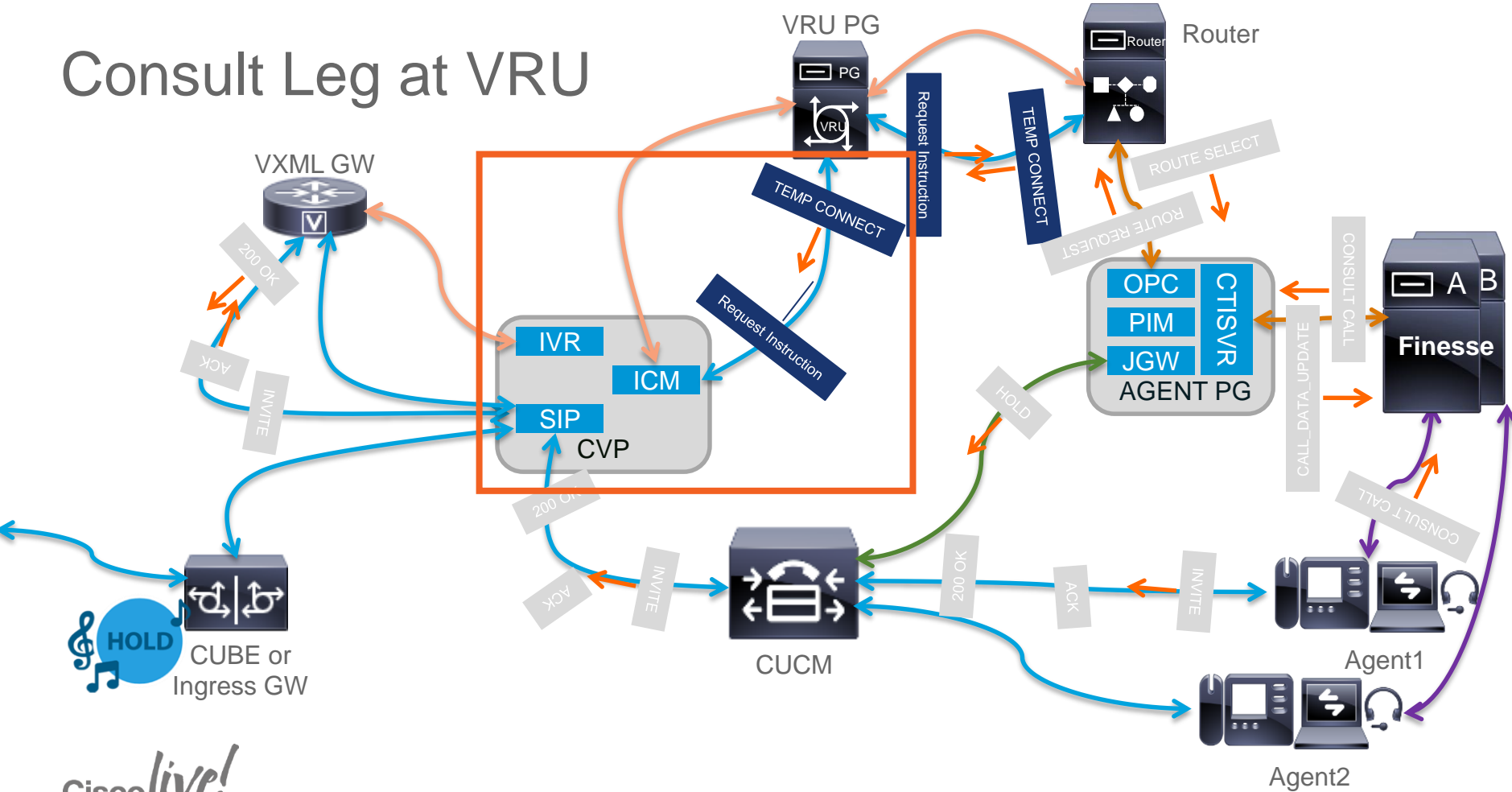
CustomerID = -1

PreferredASTID = -1.

RoutingCrossRefID

**ProcessCSTARouteSelect: crossRefID=65542, RTRCallKey=151369.210, label 88811110001072**  
callID=2130706440.

# Consult Leg at VRU



# How do the messages look like?

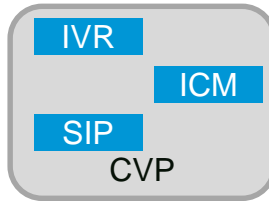
Found an incoming CISCO-GUID hdr : **2673409024-0000065536-0000000009-1007986880**, Generated a new CVP-ID hdr : **9F58FC000001000000000093C14A8C0**

CALLGUID = **9F58FC000001000000000093C14A8C0** LEGID = **9f58fc00-57710f41-4d-3c14a8c0** [INBOUND]: ReqURI (DN) sip:**88811110001072**@192.168.20.130:5060 FromURI sip:**2001**@192.168.20.60 Video:true m\_needs\_postcallsurvey:false

CALLGUID = **9F58FC000001000000000093C14A8C0**, **DLGID = 3** [SIP\_LEG\_PRERTE\_CORRID] - Publishing ,, [ICM\_REQUEST\_INSTRUCTION], dialogueId=3, sendSeqNo=1, trunkGroupId=200, trunkNumber=0, serviceId=2, uri=**correlationId=1072**, location=Brussels, locationpkid=6d96a009-da3b-00d2-fea1-53c0d0bff71c, pstntrunkgroupid=192.168.20.60 , pstntrunkgroupchanfelnun=2147483647, sipheader=,, LEGID = 9f58fc00-57710f41-4d-3c14a8c0, DNIS = 88811110001072, ANI = 2001

CALLGUID = **9F58FC000001000000000093C14A8C0**, DLGID = 3 [SIP\_LEG\_PRERTE\_CORRID] - Processing ,, [ICM\_TEMPORARY\_CONNECT], dialogueId=3, sendSeqNo=1, **label=777777777**, **correlationId=1073**, callguid=9F58FC000001000000000093C14A8C0, **rckey=210**, **rcday=151369**, rcseq=4, **location=Brussels**, locationpkid=6d96a009-da3b-00d2-fea1-53c0d0bff71c, CallContext:, user.microapp.metadata: N|000|01|00|00|008565|GS,Server,V, user.microapp.error\_code: 0, user.microapp.caller\_input: complete, user.cvp\_server\_info: 192.168.20.30, **user.media.id: 73D6118000010000000000190519A8C0**, user.microapp.ToExtVXML[0]: application=HelloWorld,, LEGID = 9f58fc00-57710f41-4d-3c14a8c0, DNIS = 88811110001072, ANI = 2001

**9F58FC000001000000000093C14A8C0** is associated with other guid: **73D6118000010000000000190519A8C0**



CISCO-GUID

CVP GUID

SIP Call ID

SIP DLGID

CVP GUID (original call)

Correlation IDs

\*CVP links both CVP GUIDs  
\*Consult leg could be in a separate CallServer and you would still see this line in the logs

# Problem Isolation

# Problem isolation

What kind of questions TAC asks when you open a Case?

- Is this a new installation or upgrade?
- Has this ever worked before?
- Call flow / topology?
- Versions
- What changes have you made?
- Which agents / numbers / locations are affected?
- Do you hear a male or female voice for the Error Prompt?

Critical\_error->GW 9292 dialpeer    VXML Application default error message

# What do we need to know?

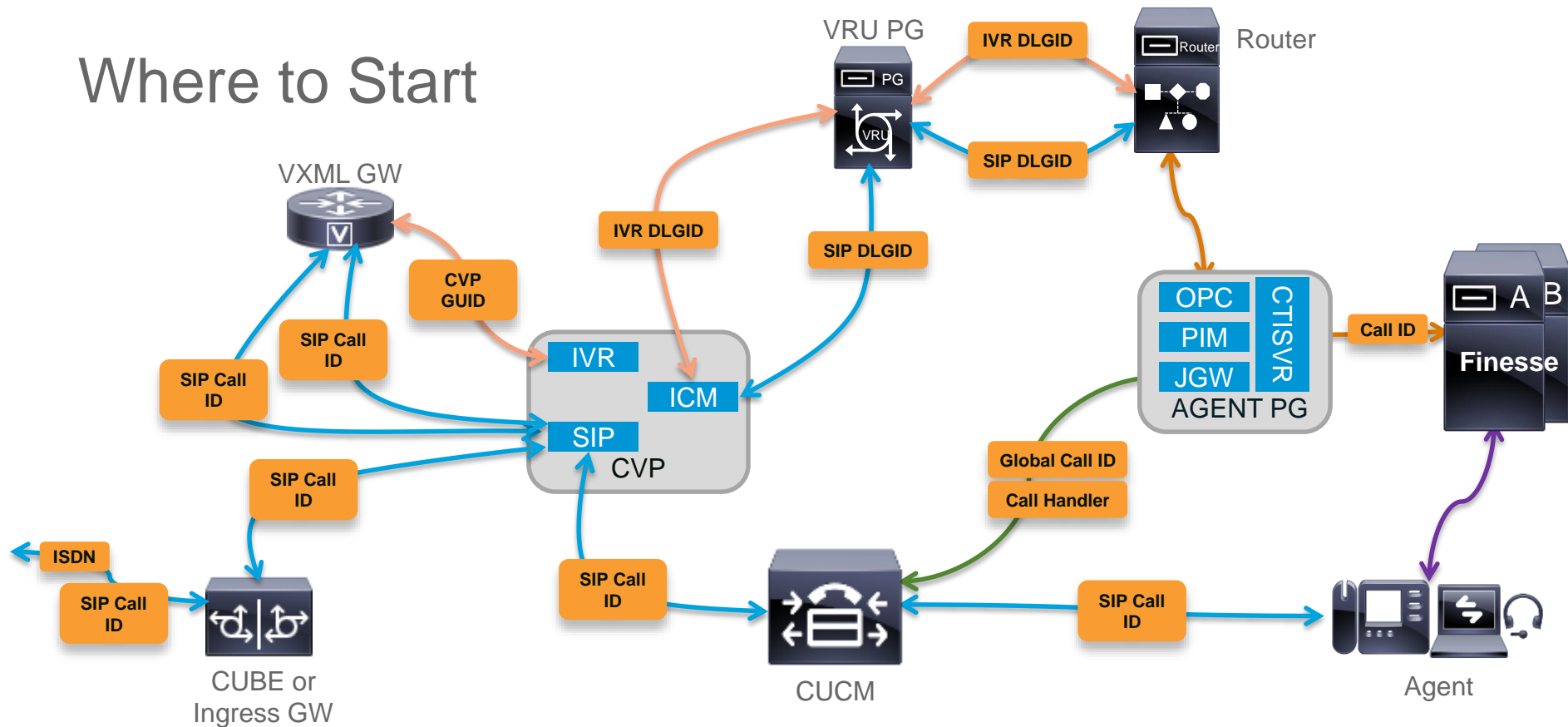
- Business Impact
  - Contact Center is impacted but which part of the business?
  - That can also help us locate the problem and mitigate quick
- Engagement
  - Who is involved and why, in case information is needed
- Time Saver
  - Provide the Call IDs, ANI, DNIS, Timestamps, steps done to reproduce the issue, symptoms experienced (for caller and agent), output from TCD and RCD tables
  - Additional Information – Is proxy used, is LocationBasedCAC used?

# Problem isolation methodology

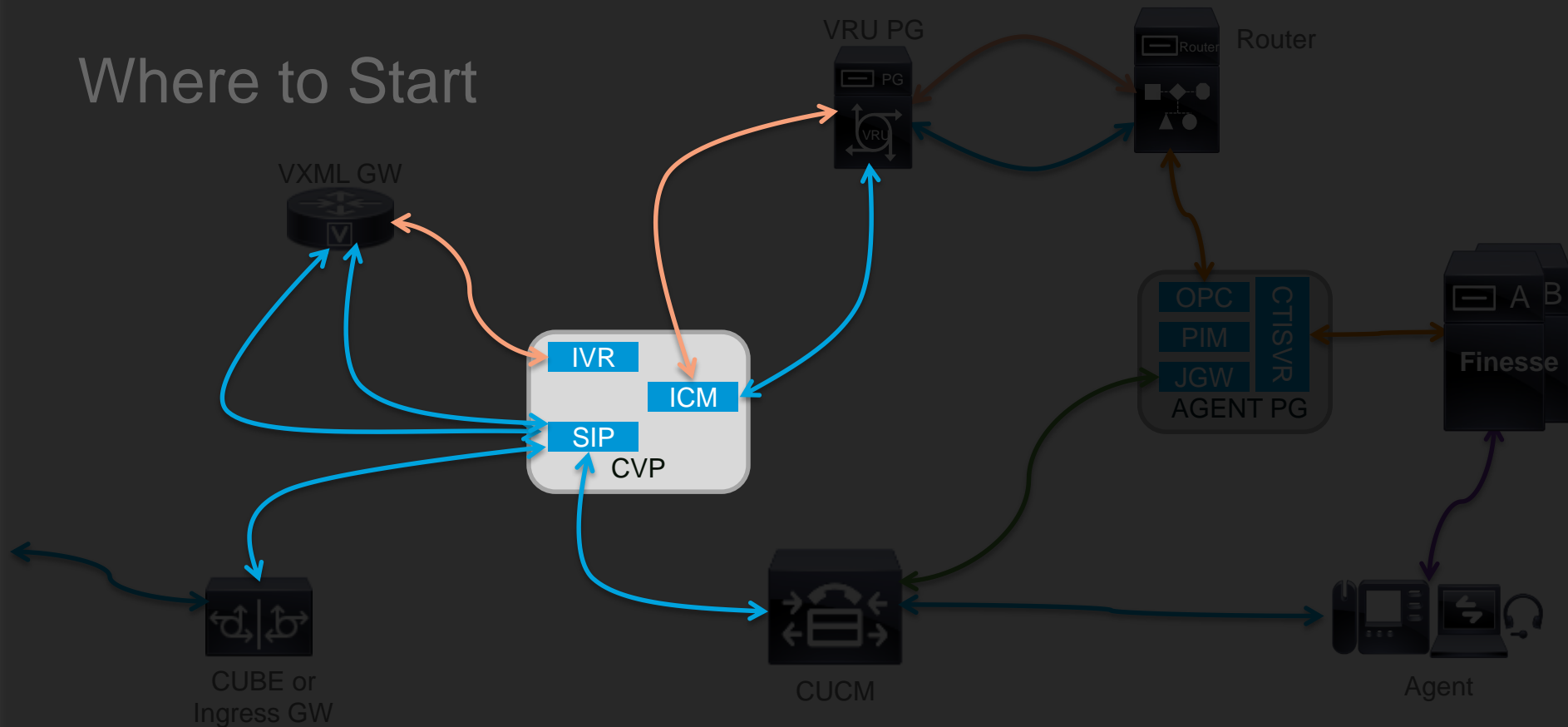
- Identify the stage where the problem is reported
  - Call fails at the beginning
  - Call fails at VRU
  - Call fails at Agent
  - Call fails at Hold/Resume
  - Call fails at Transfer



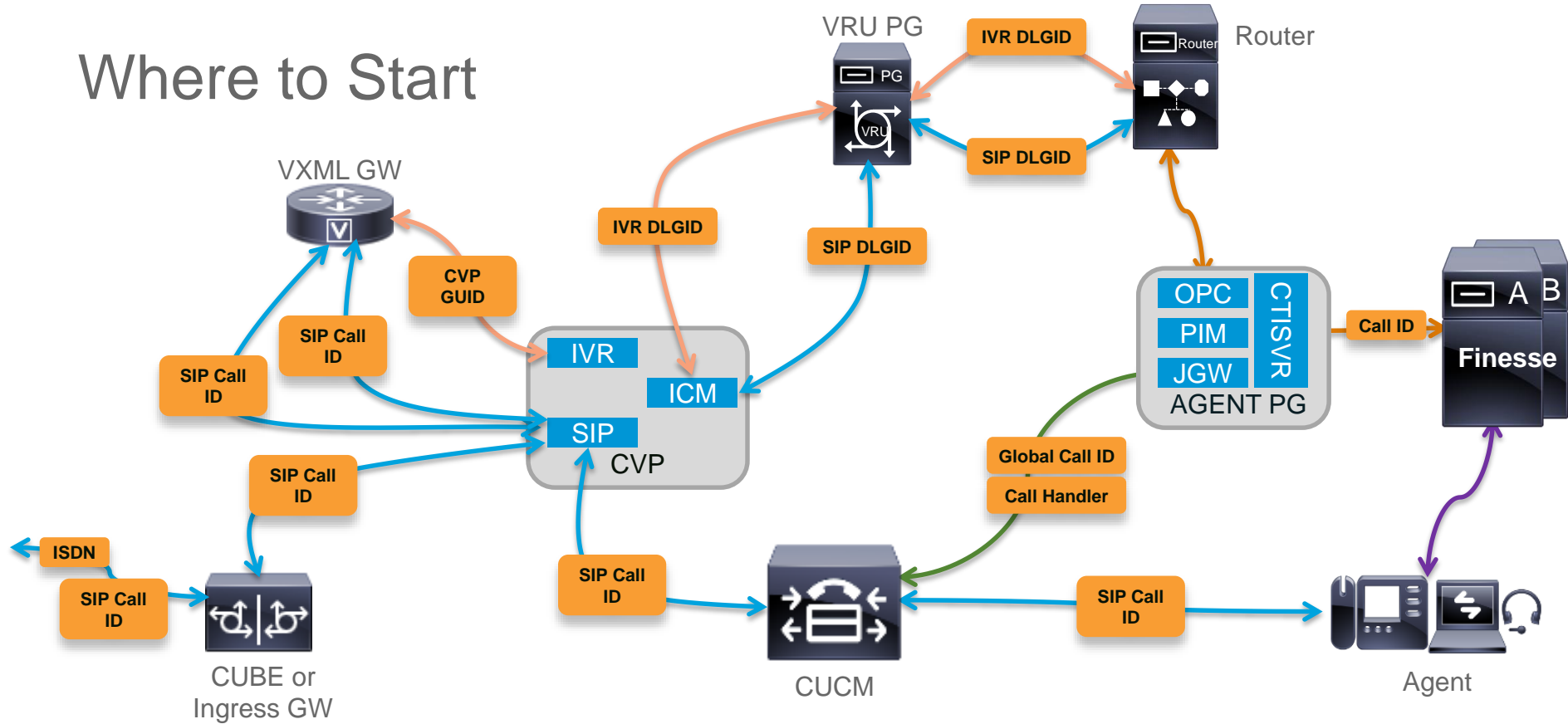
# Where to Start



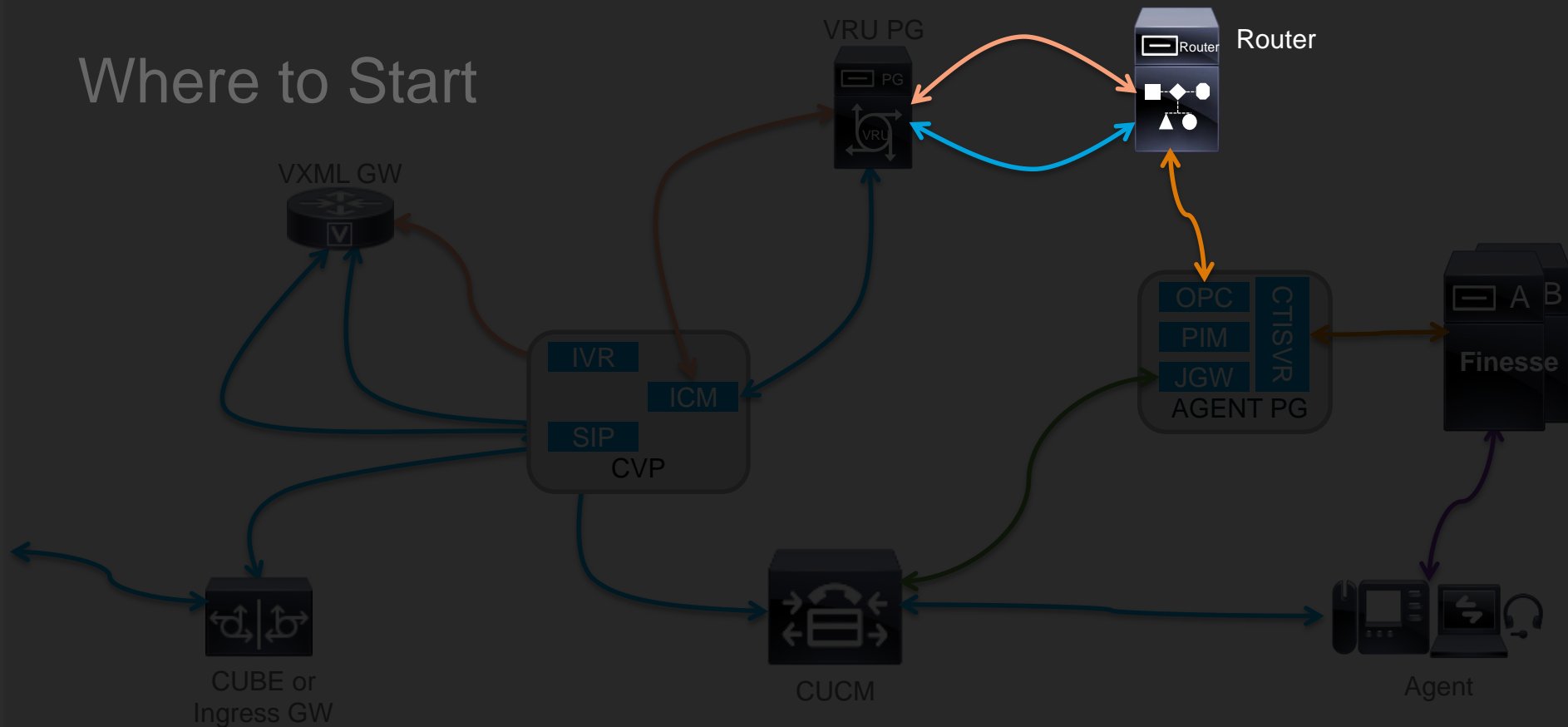
# Where to Start



# Where to Start



# Where to Start



# Where to Start

- Call Failure Symptom
- Hub Point
  - Router, CVP
  - CUCM for Transfer
- Check TCD/RCD how far call has progressed

# Call Failure symptom

## Call fails to establish:

- Not reach Ingress GW
- Ingress GW fails find route
- CUSP fails find route
- No dialed Number defined
- No Call Type associated
- No Script Scheduled
- No label for Routing Client
- No Route for VRU label
- VXML Gateway not Configured Properly

## SendToVRU fails:

- Wrong MAX DNIS Len
- Wrong URL provided
- File doesn't exist
- Wrong Codec negotiated or Wrong File Codec
- VXML Application doesn't exist

## Xfer to Agent Fails:

- No Agent label for Routing Client (Agent targeting Rules)
- No Route for Agent on CVP/CUSP
- CSS/Partition Issue
- CUCM-CTI connectivity issue

# Call Analysis – Router (TCD/RCD)

## Route Call Detail

## Single Call Scenario

RecoveryKey	DialedNumberID	RouterCallKeyDay	RouterCallKey	RouterID	DateTime	RequestType	RoutingClientID	ANI	ScriptID	FinalObjectID	CallTypeID	VruScripts	Label	TargetLabel	DialedNumberString
6899158676019	5019	150805	213	5014	22/11/2013 5:27	6	5001	2002	5018	7	5009	2	2001	2001	40100

## Termination Call Detail

RecoveryKey	AgentSkillTargetID	SkillGroupSkillTargetID	PeripheralID	RouterCallKeyDay	RouterCallKey	DateTime	PeripheralCallType	DigitsDialed	PeripheralCallKey	CallDisposition	Duration	DNIS	ANI	CallDispositionFlag	CallTypeID	CallGUID
6899158676047	NULL	NULL	5001	150805	213	22/11/2013 5:27	1	40100	26	13	56	9.99E+09	2002	1	5009	998FDA00000100000000009280A0A0A
6899158676049	5054	5059	5000	150805	213	22/11/2013 5:28	2	40100	17171230	13	44	2001	2002	1	5009	NULL
6899158676048	NULL	NULL	5001	150805	213	22/11/2013 5:28	1	40100	25	13	74	40100	2002	1	5009	998FDA00000100000000009280A0A0A

## Route Call Detail

## Transfer Call Scenario

RecoveryKey	DialedNumberID	RouterCallKeyDay	RouterCallKey	RouterID	DateTime	RequestType	RoutingClientID	ANI	ScriptID	FinalObjectID	CallTypeID	VruScripts	Label	TargetLabel	DialedNumberString
6641241131084	5632	150775	1224	5045	10/23/13 9:21 AM	6	5004	417286661	8025	3639	5217	3	409129	409129	402704
6641241131112	6118	150775	1224	5050	10/23/13 9:23 AM	2	5000	409129	8035	3639	5244	3	409080	409080	407116

## Termination Call Detail

RecoveryKey	AgentSkillTargetID	SkillGroupSkillTargetID	PeripheralID	RouterID	RouterCallKeyDay	RouterCallKey	DateTime	PeripheralCallType	DigitsDialed	PeripheralCallKey	CallDisposition	Duration	DNIS	ANI	CallDispositionFlag	CallTypeID	CallGUID
6641244605648	NULL	NULL	5004	NULL	150775	1224	10/23/13 9:21 AM	1	402704	285702	13	24	NULL	4.17E+08	1	5217	0A9E7A923A9F11E39B6230F70DC48A00
6641244605735	NULL	NULL	5001	NULL	150775	1224	10/23/13 9:23 AM	1	402704	104038	13	61	NULL	409129	1	5244	63E08100000100000001F2A5120E130A
6641244605775	NULL	NULL	5000	5045	150775	1224	10/23/13 9:23 AM	2	402704	117854792	29	151	4E+05	4.17E+08	1	5217	NULL
6641244605776	5322	5159	5000	NULL	150775	1224	10/23/13 9:23 AM	12	NULL	101176384	4	98	4E+05	409129	2	-1	NULL
6641244605784	5322	5159	5000	NULL	150775	1224	10/23/13 9:23 AM	13	402704	117854792	14	7	4E+05	4.17E+08	1	-1	NULL
6641244605815	NULL	NULL	5001	NULL	150775	1224	10/23/13 9:24 AM	1	402704	104037	52	130	NULL	409129	1	5244	63E08100000100000001F2A5120E130A
6641244605816	NULL	NULL	5004	NULL	150775	1224	10/23/13 9:24 AM	1	402704	285701	52	213	NULL	4.17E+08	1	5217	0A9E7A923A9F11E39B6230F70DC48A00
6641244605817	5306	5164	5000	5050	150775	1224	10/23/13 9:24 AM	2	407116	67403466	13	124	4E+05	409129	1	5244	NULL

# Call Stages

## When did it happen?

## Where to look...

On call arrival

Call not visible to CallServer yet. Check Gateway for dial-peer or call setup errors, using 'show dial-peer' commands.

**IOS:** "debug isdn q931"  
"debug voip ccapi error"

Call seems to get but then gets disconnected. (gets to ICM)

Check DN, Calltype & Script  
Look for SendToVRU & RunExternalScript errors. Check static routes and dial-peer configuration on gateways.

**IOS:** "debug isdn q931"  
"debug voip ccapi error"

**CVP:** CallServer logs

**ICM:** rtrtrace Route Requests, Network VRU Tracing



# Call Stages

## When did it happen?

## Where to look...

After hearing a few prompts (IVR treatment)

Check if URL for prompts or VXML application is constructed correctly.

Look for ICM script exits, VXML application errors and capacity issues.

**IOS:** debug http client error  
debug vxml application error  
debug rtsp error, debug mrccp error

**CVP:** CallServer, VXMLServer logs

**ICM:** *rttrace Network VRU tracing*

Caller was in queue (during ICM agent selection)

Verify agent label, static routes & sip trunk.

**IOS:** debug rtsp error

**CVP:** CallServer, VXMLServer logs

**ICM:** *rttrace Queuing. CUCM PG (pim, jtapi)*

**UCM:** CallManager, CTIManager *Detailed logs*

# Call Stages

## When did it happen?

## Where to look...

Call sent to Agent but then got disconnected

Verify sip trunk, bandwidth/network issues.

**IOS:** debug voip ccapi error  
debug voip ccsip error  
debug voip rtsp error

**CVP:** CallServer logs

**ICM:** CUCM PG – jtapi, pim

**UCM:** SDL/SDI 'Detailed' logs.

Call failure during transfer or conference

Verify warm transfer configuration, sip trunks, codec issues.

**IOS:** debug voip ccapi error  
debug voip ccsip error  
debug voip rtsp error

**CVP:** CallServer logs

**ICM:** CUCM PG – jtapi, pim

**UCM:** SDL/SDI 'Detailed' logs.

# End To End Analysis

# Tips

- Start With CVP Logs
- Search for “new call with guid”
- Find the CALLGUID
- Search all lines which includes “CALLGUID = x” (replace x with CALLGUID you found above)
- Compare the “is” with “should be” (understand the call flow)

# “New call with guid”

Open CVP Logs

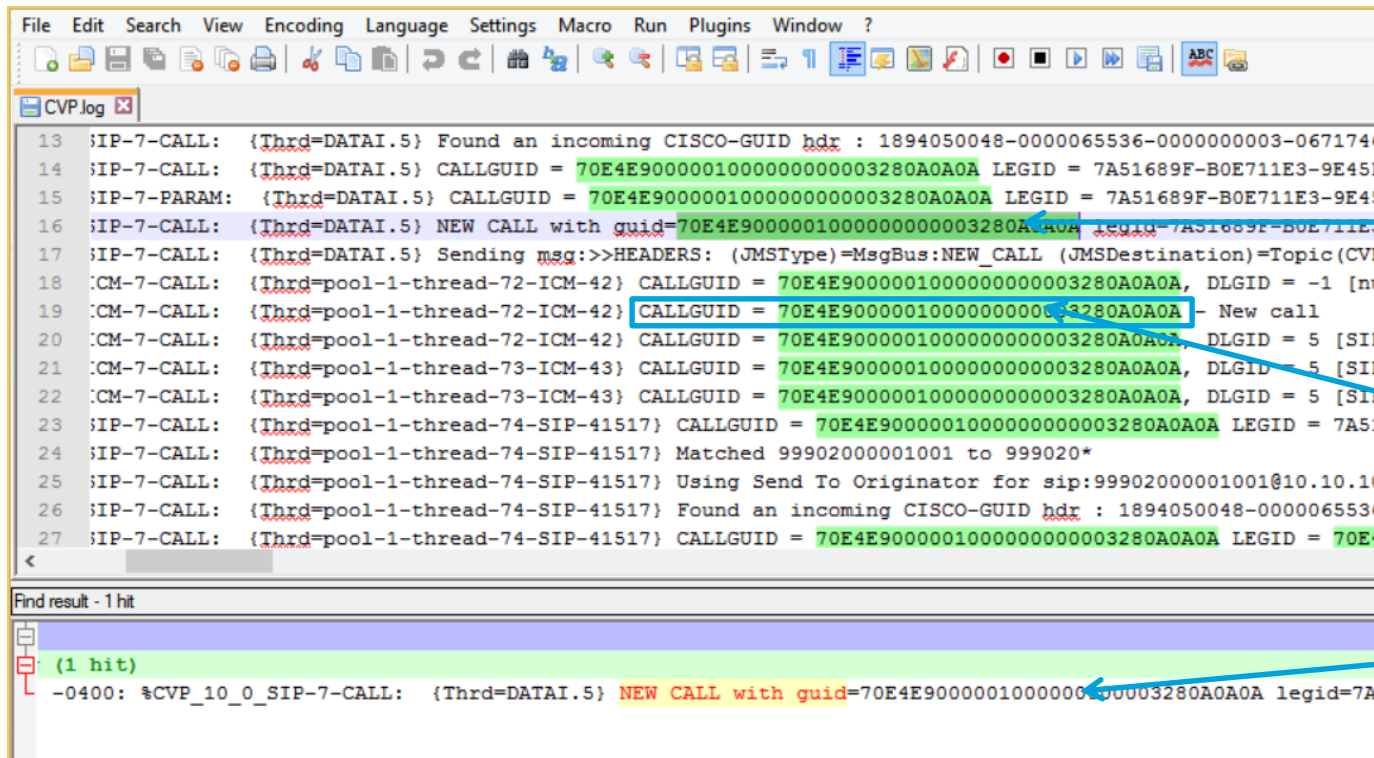
Find “New Call with guid”

Find All in All Opened Documents

All Lines having “new call with guid” will be listed

The screenshot shows an IDE window with a file named 'CVP.log' open. The text in the editor includes several lines of log entries, such as 'SIP-7-CALL: {Thrd=pool-1-thread-7}' and 'CM-7-CALL: {Thrd=pool-1-thread-7}'. A 'Find' dialog box is overlaid on the editor. The 'Find what' field contains the text 'new call with guid'. The 'Find All in All Opened Documents' button is highlighted. Below the editor, a 'Find result - 1 hit' panel shows a single result: '(1 hit)' followed by a log line: '-0400 %CVP\_10\_0\_SIP-7-CALL: {Thrd=DATAI.5} NEW CALL with guid=70E4E9000001000000000003280A0A0A legid=7A51689F-B01'. The text 'NEW CALL with guid' in the log line is highlighted in red.

# Find CallGUID



```
File Edit Search View Encoding Language Settings Macro Run Plugins Window ?
CVP.log
13 SIP-7-CALL: {Thrd=DATAI.5} Found an incoming CISCO-GUID hdr : 1894050048-0000065536-0000000003-067174
14 SIP-7-CALL: {Thrd=DATAI.5} CALLGUID = 70E4E9000001000000000003280A0A0A LEGID = 7A51689F-BOE711E3-9E45
15 SIP-7-PARAM: {Thrd=DATAI.5} CALLGUID = 70E4E9000001000000000003280A0A0A LEGID = 7A51689F-BOE711E3-9E45
16 SIP-7-CALL: {Thrd=DATAI.5} NEW CALL with guid=70E4E9000001000000000003280A0A0A legid=7A51689F-BOE711E3-9E45
17 SIP-7-CALL: {Thrd=DATAI.5} Sending msg:>>HEADERS: (JMSType)=MsgBus:NEW_CALL (JMSDestination)=Topic(CVP
18 CM-7-CALL: {Thrd=pool-1-thread-72-ICM-42} CALLGUID = 70E4E9000001000000000003280A0A0A, DLGID = -1 [n
19 CM-7-CALL: {Thrd=pool-1-thread-72-ICM-42} CALLGUID = 70E4E9000001000000000003280A0A0A - New call
20 CM-7-CALL: {Thrd=pool-1-thread-72-ICM-42} CALLGUID = 70E4E9000001000000000003280A0A0A, DLGID = 5 [SI
21 CM-7-CALL: {Thrd=pool-1-thread-73-ICM-43} CALLGUID = 70E4E9000001000000000003280A0A0A, DLGID = 5 [SI
22 CM-7-CALL: {Thrd=pool-1-thread-73-ICM-43} CALLGUID = 70E4E9000001000000000003280A0A0A, DLGID = 5 [SI
23 SIP-7-CALL: {Thrd=pool-1-thread-74-SIP-41517} CALLGUID = 70E4E9000001000000000003280A0A0A LEGID = 7A5:
24 SIP-7-CALL: {Thrd=pool-1-thread-74-SIP-41517} Matched 99902000001001 to 999020*
25 SIP-7-CALL: {Thrd=pool-1-thread-74-SIP-41517} Using Send To Originator for sip:99902000001001@10.10.10
26 SIP-7-CALL: {Thrd=pool-1-thread-74-SIP-41517} Found an incoming CISCO-GUID hdr : 1894050048-0000065536
27 SIP-7-CALL: {Thrd=pool-1-thread-74-SIP-41517} CALLGUID = 70E4E9000001000000000003280A0A0A LEGID = 70E

Find result - 1 hit
(1 hit)
-0400: %CVP_10_0_SIP-7-CALL: {Thrd=DATAI.5} NEW CALL with guid=70E4E90000010000000003280A0A0A legid=7A
```

Highlight the CALLGUID

Copy CALLGUID = X

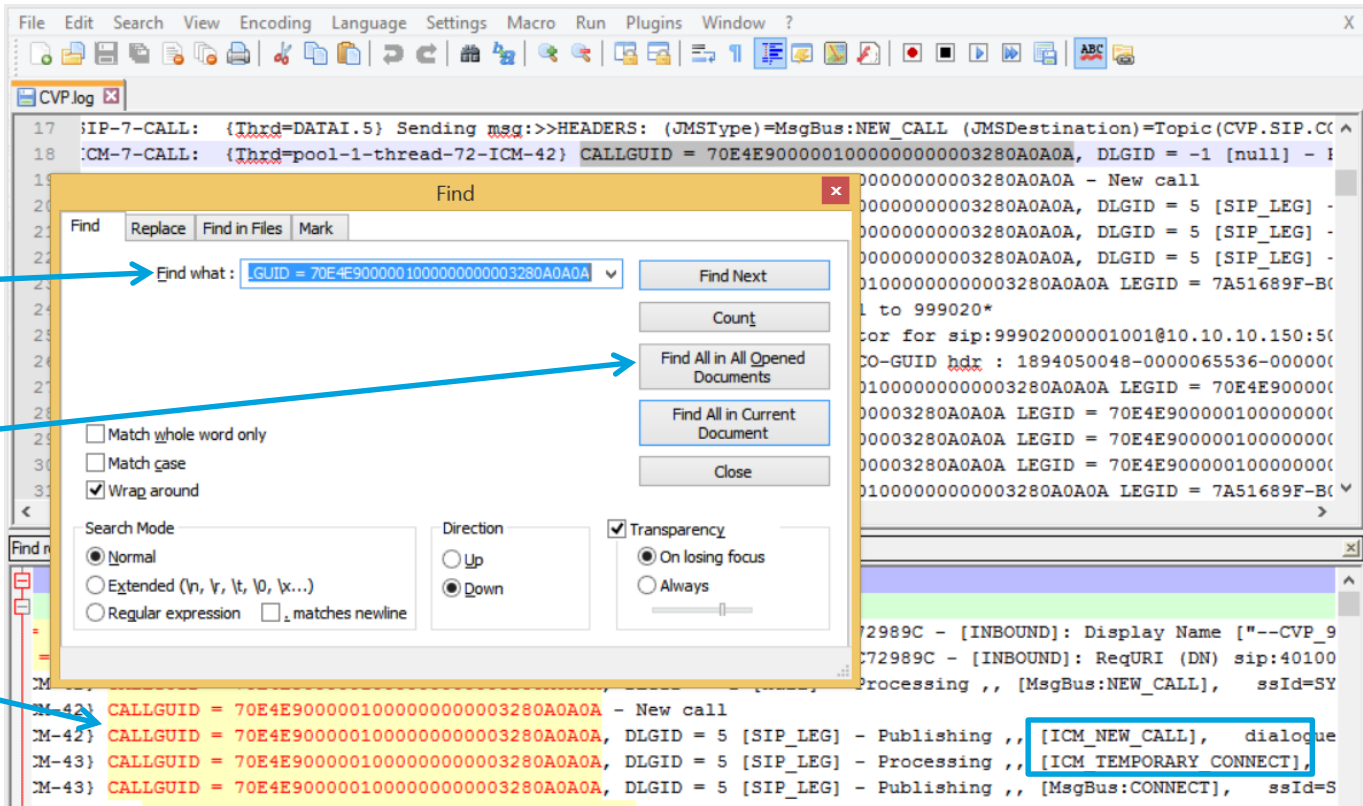
Clicking on this will take you to the line

# Find Lines with "CALLGUID = x"

Find "CallGUID = x"

Find All in all Opened Documents

All Lines having "CallGUID = x" will be listed



# Compare “IS” with “Should Be”

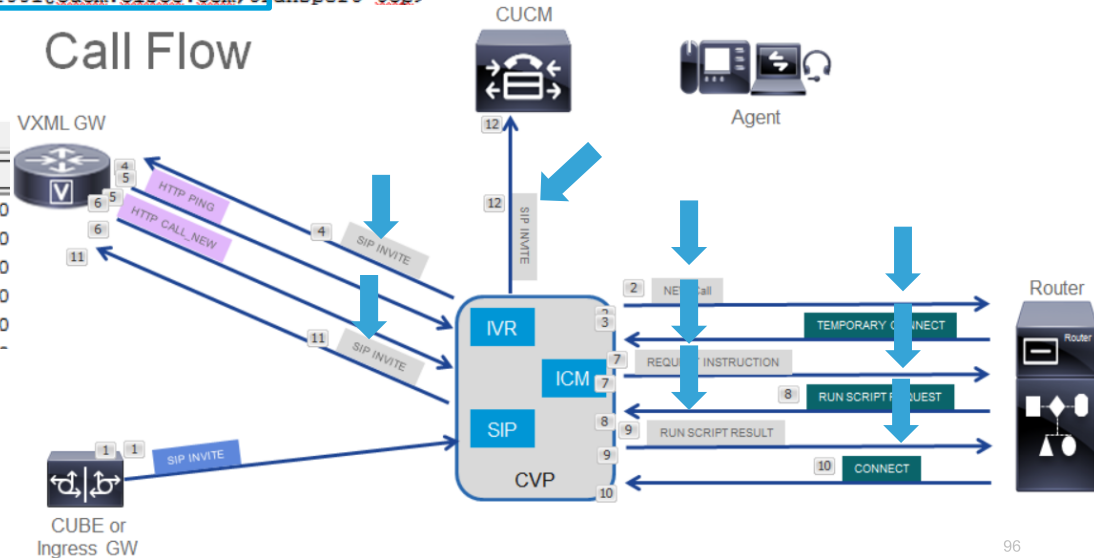
```

CVP.log x new 1 x
1
2 [ICM NEW CALL] dialogueId=5, sendSeqNo=1, trunkGroupId=100, trunkNumber=0,
3 [ICM TEMPORARY CONNECT] dialogueId=5, sendSeqNo=1, label=9990200000, correlat
4 0A0A0A-13954608048945 - [OUTBOUND]: INVITE TO <sip:99902000001001@10.10.10.150:5060;t
5 [ICM REQUEST INSTRUCTION] dialogueId=6, sendSeqNo=1, trunkGroupId=200, trunk
6 [ICM RUN SCRIPT REQ] dialogueId=6, sendSeqNo=1, invokedId=1, scriptId=GS, Ser
7 [ICM RUN SCRIPT RESULT] dialogueId=6, sendSeqNo=2, invokedId=1, resultCode=t
8 [ICM CONNECT] dialogueId=5, sendSeqNo=2, labelType=NORMAL, label=2001, tra
9 0A0A0A-13954608338796 - [OUTBOUND]: INVITE TO <sip:91919191@10.10.10.150:5060;transpo
10 0A0A0A-13954608338796 - [RING-OUT]: Notifying that ringtone is established 200 OK with
11 0A0A0A-13954608341447 - [OUTBOUND]: INVITE TO <sip:2001@cucm.cisco.com;transport=tc>
  
```

Find result - 113 hits

Line 14:	351:	10.10.10.20:	Mar 22 2014	00:00:04.878	-0400
Line 15:	352:	10.10.10.20:	Mar 22 2014	00:00:04.878	-0400
Line 18:	262:	10.10.10.20:	Mar 22 2014	00:00:04.878	-0400
Line 19:	263:	10.10.10.20:	Mar 22 2014	00:00:04.878	-0400
Line 20:	264:	10.10.10.20:	Mar 22 2014	00:00:04.878	-0400

## Call Flow





# Example Fail Scenarios

# Scenario-1

13:47:40:660 ra-rtr Trace: (1 x 0 : 0 0) NewCall: CID=(150763,338), DN=8031, ANI=5009, CED=, RCID=5004, MRDID=1, CallAtVRU=1, OpCode=0

13:47:40:660 ra-rtr Unable to map dialed number CVPPG2\_3.8031 (ID 5009), CED "", ANI "5009" to a call type.

13:47:40:661 ra-rtr Trace: (1 x 0 : 0 0) Unable to map dialed number CVPPG2\_3.8031 (ID 5009), CED "", ANI "5009" to a call type.

13:47:40:661 ra-rtr No default label available for dialed number CVPPG2\_3.8031 (ID 5009).

13:47:40:661 ra-rtr Trace: (1 x 0 : 0 0) No default label available for dialed number CVPPG2\_3.8031 (ID 5009).

13:47:40:661 ra-rtr Trace: (1 x 0 : 0 0) Deleting Dialog.

# Scenario-1

13:47:40:660 ra-rtr Trace: (1 x 0 : 0 0) NewCall: CID=(150763,338), DN=8031, ANI=5009, CED=, RCID=5004, MRDID=1, CallAtVRU=1, OpCode=0

13:47:40:660 ra-rtr **Unable to map dialed number** CVPPG2\_3.8031 (ID 5009), CED "", ANI "5009" **to a call type.**

13:47:40:661 ra-rtr Trace: (1 x 0 : 0 0) Unable to map dialed number CVPPG2\_3.8031 (ID 5009), CED "", ANI "5009" to a call type.

13:47:40:661 ra-rtr No default label available for dialed number CVPPG2\_3.8031 (ID 5009).

13:47:40:661 ra-rtr Trace: (1 x 0 : 0 0) No default label available for dialed number CVPPG2\_3.8031 (ID 5009).

13:47:40:661 ra-rtr Trace: (1 x 0 : 0 0) Deleting Dialog.

# Scenario-2

CALLGUID = F177950F1000013A0ECE85280A4244A9, DLGID = 763765 [SIP\_LEG] - Processing ,, [ICM\_TEMPORARY\_CONNECT], dialogueId=763765, sendSeqNo=1, label=1234567890, correlationId=8907, callguid=F177950F1000013A0ECE85280A4244A9, rckey=211, rcdays=150429, rcseq=0, CallContext:, user.microapp.UseVXMLParams: N, user.microapp.app\_media\_lib: .., user.microapp.media\_server: http://10.66.68.169:7000/CVP, user.microapp.ToExtVXML[0]: application=HelloWorld,, LEGID = tmywxhkiresfmot, DNIS = 2003, ANI = 1231234

Static route matched 12345678908907 to StaticRoute: patterns like 1234567890> will route to 10.66.75.241

CALLGUID = F177950F1000013A0ECE85280A4244A9 LEGID = F177950F1000013A0ECE85280A4244A9-135267087694378764 - [OUTBOUND] - DsSipInvitation - <sip:12345678908907@10.66.75.241;transport=tcp>;tag=F2E952A4-961 - 1 REJECTED WITH 404 - Not Found Reason: Q.850;cause=1.

# Scenario-2

No dp configured?  
No Service configured?

CALLGUID = F177950F1000013A0ECE85280A4244A9, DLGID = 763765 [SIP\_LEG] - Processing ,,  
[ICM\_TEMPORARY\_CONNECT], dialogueId=763765, sendSeqNo=1, label=1234567890,  
correlationId=8907, callguid=F177950F1000013A0ECE85280A4244A9, rckey=211, rcdays=150429,  
rcseq=0, CallContext:, user.microapp.UseVXMLParams: N, user.microapp.app\_media\_lib: ..,  
user.microapp.media\_server: http://10.66.68.169:7000/CVP, user.microapp.ToExtVXML[0]:  
application=HelloWorld,, LEGID = tmywxhkiresfmot, DNIS = 2003, ANI = 1231234

**Static route matched 12345678908907 to StaticRoute: patterns like 1234567890> will route to 10.66.75.241**

CALLGUID = F177950F1000013A0ECE85280A4244A9 LEGID =  
F177950F1000013A0ECE85280A4244A9-135267087694378764 - [OUTBOUND] - DsSipInvitation -  
<sip:12345678908907@10.66.75.241;transport=tcp>;tag=F2E952A4-961 - 1 **REJECTED WITH 404 -  
Not Found Reason: Q.850;cause=1.**

# Scenario-3

14:38:40.660 -0500: %CVP\_9\_0\_ICM-7-CALL: {Thrd=pool-1-thread-277-ICM-100} CALLGUID = 9C869F0000010000000000A608C6C90A, DLGID = 22 [SIP\_LEG] - Processing ,, [ICM\_TEMPORARY\_CONNECT], dialogueId=22, sendSeqNo=1, label=88888888833, correlationId=37, callguid=9C869F0000010000000000A608C6C90A, rckey=352, rcdays=150763, rcseq=0, CallContext:, user.microapp.input\_type: D, user.microapp.locale: en\_us, user.cvp\_server\_info: 10.201.198.13, user.microapp.media\_server: 10.201.198.13, user.media.id: 9C869F0000010000000000A608C6C90A,, LEGID = 4ACC72D0-311E11E3-8271D158-284AA2C7, DNIS = 8031, ANI = 5009

14:38:40.956 -0500: %CVP\_9\_0\_ICM-7-CALL: {Thrd=pool-1-thread-284-ICM-102} CALLGUID = 9C869F0000010000000000A608C6C90A, DLGID = 23 [IVR\_LEG] - Publishing ,, [ICM\_REQUEST\_INSTRUCTION], dialogueId=23, sendSeqNo=1, trunkGroupId=200, trunkNumber=0, serviceId=2, uui=, correlationId=337, location=, locationpkid=, pstntrunkgroupid=, pstntrunkgroupchannelnum=2147483647, sipheader=,, LEGID = , DNIS = 8888888883337, ANI = sip:5009@10.201.198.13:5060

14:38:08:737 ra-rtr Trace: (22 x 37 : 0 0) TransferToVRU: Label=88888888833, CorID=37, VRUID=5001, RCID=5004

14:38:08:737 ra-rtr Trace: (22 x 37 : 0 0) TransferConnect sent. Dialog pending.

14:38:09:053 ra-rtr Trace: Dialog (23) has a correlation id (337 337) that is unknown.

14:05:21:819 ra-rtr Trace: Router sending dialog fail reason (11) for dialog (23).

# Scenario-3

14:38:40.660 -0500: %CVP\_9\_0\_ICM-7-CALL: {Thrd=pool-1-thread-277-ICM-100} CALLGUID = 9C869F0000010000000000A608C6C90A, DLGID = 22 [SIP\_LEG] - Processing ,, [ICM\_TEMPORARY\_CONNECT], dialogueId=22, sendSeqNo=1, label=8888888833, correlationId=37, callguid=9C869F0000010000000000A608C6C90A, rkey=352, rcdays=150763, rcseq=0, CallContext:, user.microapp.input\_type: D, user.microapp.locale: en\_us, user.cvp\_server\_info: 10.201.198.13, user.microapp.media\_server: 10.201.198.13, user.media.id: 9C869F0000010000000000A608C6C90A,, LEGID = 4ACC72D0-311E11E3-8271D158-284AA2C7, DNIS = 8031, ANI = 5009

14:38:40.956 -0500: %CVP\_9\_0\_ICM-7-CALL: {Thrd=pool-1-thread-284-ICM-102} CALLGUID = 9C869F0000010000000000A608C6C90A, DLGID = 23 [IVR\_LEG] - Publishing ,, [ICM\_REQUEST\_INSTRUCTION], dialogueId=23, sendSeqNo=1, trunkGroupId=200, trunkNumber=0, serviceId=2, uui=, correlationId=337, location=, locationpkid=, pstntrunkgroupid=, pstntrunkgroupchannelnum=2147483647, sipheader=,, LEGID = , DNIS = 888888883337, ANI = sip:5009@10.201.198.13:5060

14:38:08:737 ra-rtr Trace: (22 x 37 : 0 0) TransferToVRU: Label=8888888833, CorID=37, VRUID=5001, RCID=5004

14:38:08:737 ra-rtr Trace: (22 x 37 : 0 0) TransferConnect sent. Dialog pending.

14:38:09:053 ra-rtr Trace: Dialog (23) has a correlation id (337 337) that is unknown.

14:05:21:819 ra-rtr Trace: **Router sending dialog fail reason (11) for dialog (23).**

# Scenario-3

Network VRU Label: 11 digit  
Max DNIS Length: 10

14:38:40.660 -0500: %CVP\_9\_0\_ICM-7-CALL: {Thrd=pool-1-thread-277-ICM-100} CALLGUID = 9C869F0000010000000000A608C6C90A, DLGID = 22 [SIP\_LEG] - Processing ,, [ICM\_TEMPORARY\_CONNECT], dialogueId=22, sendSeqNo=1, label=**88888888833**, **correlationId=37**, callguid=9C869F0000010000000000A608C6C90A, rckey=352, rcdays=150763, rcseq=0, CallContext:, user.microapp.input\_type: D, user.microapp.locale: en\_us, user.cvp\_server\_info: 10.201.198.13, user.microapp.media\_server: 10.201.198.13, user.media.id: 9C869F0000010000000000A608C6C90A,, LEGID = 4ACC72D0-311E11E3-8271D158-284AA2C7, DNIS = 8031, ANI = 5009

14:38:40.956 -0500: %CVP\_9\_0\_ICM-7-CALL: {Thrd=pool-1-thread-284-ICM-102} CALLGUID = 9C869F0000010000000000A608C6C90A, DLGID = 23 [IVR\_LEG] - Publishing ,, [ICM\_REQUEST\_INSTRUCTION], dialogueId=23, sendSeqNo=1, trunkGroupId=200, trunkNumber=0, serviceId=2, uui=, **correlationId=337**, location=, locationpkid=, pstntrunkgroupid=, pstntrunkgroupchannelnum=2147483647, sipheader=,, LEGID = , DNIS = 8888888883337, ANI = sip:5009@10.201.198.13:5060

14:38:08:737 ra-rtr Trace: (22 x 37 : 0 0) TransferToVRU: Label=88888888833, CorID=37, VRUID=5001, RCID=5004

14:38:08:737 ra-rtr Trace: (22 x 37 : 0 0) TransferConnect sent. Dialog pending.

14:38:09:053 ra-rtr Trace: **Dialog (23) has a correlation id (337 337) that is unknown.**

14:05:21:819 ra-rtr Trace: **Router sending dialog fail reason (11) for dialog (23).**



# Review of UCCE Server Processes (Sub-Components)

# UCCE Sub-Components, Central Controller - Router

## **appgw: Application Gateway**

Optional process that allows the Router to connect to a 3<sup>rd</sup> party application for supplemental routing decisions.

## **dbagent: Database Agent**

Responsible for configuration transaction dialogue with Administration Servers. Allows the Router to validate its access to the Logger database and controls DB related communication between the Router and Logger.

## **rtsvr: Real-Time Server**

Establishes connection with Administration Servers to supply real-time feed for configuration transactions and provides statistical information for calls, agents, skills, etc. to the administrator

## **testsync: TestSync**

Provides an interface/connection for UCCE test and debugging tools.

## **ccagent: Central Controller Agent**

Establishes communication with all configured Peripheral Gateways

## **dbworker: Database Worker**

Optional process that allows the Router to communicate with an external database for supplemental routing decisions via DB Lookup scripting node.

## **mds: Message Delivery Service**

The most critical Central Controller process. All processes must register with this service. Provides essential synchronization services to all Central Controller processes and peer-to-peer communications.

## **router: Router**

The “brain” of the Contact Center. Executes routing scripts, response to route requests, provides full Contact Center statistics, etc.

# UCCE Sub-Components, Central Controller - Logger

## **configlogger: Configuration Logger**

Responsible for storing UCCE configuration data into the local SQL database..

## **cw2kfeed: CiscoWorks 2000**

Optional process when syslog event feed is enabled. Acquires event from the CSFS process and formats them for syslog protocol and sends to a configured syslog collector.

## **recovery: Recovery**

Recovers and synchronizes historical data with the peer/partner Logger. Also responsible for bulk copy activity of historical data from TMP tables to actual historical tables.

## **baimport: Blended Agent Import**

Optional process but plays a critical role when enabled. Imports the contact lists for Outbound Option and updates the Outbound database.

**Cisco** *live!*

## **csfs: Customer Support Forwarding Service**

Processes alarms and events for the UCCE components. Distributes alarms and events via EMS to support SNMP and syslog.

## **histlogger: Historical Logger**

Responsible for storing UCCE (TMP) historical data into the local SQL database.

## **replication: Replication**

Replicates historical data from the Logger to the Historical Data Server(s). If you do not have an HDS in your UCCE environment, you will not see this process running.

## **campaignmanager: Campaign Manager**

Side A only optional process but plays a critical role when enabled. Provides customer records for every Dialer in operation. Also determines when/how customers are dialed..

# UCCE Sub-Components, Peripheral Gateway (PG)

## **ctiosServerNode: CTI Object Server**

Manages connections from CTI clients and their real-time events. Brokers events between CTI Server and agents.

## **jtapigw: Jtapi Gateway**

Provides a direct connection through the local Jtapi client to the CTI Manager service on the CallManager. Runs active on the same side as the active EAPIM.

## **opc-cce: Open Peripheral Controller**

The “brain” of the Peripheral Gateway. Provides peer-to-peer sub-component activity states. Provides real-time statistics to the Central Controller for routing decisions. Generates 15 or 30 minute call and agent statistics for Central Controller historical data transactions.

## **badialer\_ip: Blended Agent Dialer**

Dialer process that implements dialing algorithm and places calls to customers.



## **ctisvr: CTI Server**

Processes GED-188 messages between CTI OS and OPC. In legacy environments, CTI Server manages direct connections to CTI desktops.

## **mds: Message Delivery Service**

The Most critical Peripheral Gateway process. All processes must register with this service. Provides essential synchronization services to all Peripheral Gateway processes and peer-to-peer communications.

## **pgagent: Peripheral Gateway Agent**

Establishes and maintains an active real-time feed to the Central Controller's ccagent process.

## **\*pim: Peripheral Interface Manager**

Provides a direct TCP connection to a UCCE peripheral such as: VRU, PBX, or Multi-Media routing client.

## **testsync: TestSync**

Provides an interface/connection for UCCE test and debugging tools.

# UCCE Sub-Components, Administration Server

## **configlogger: Configuration Logger**

Responsible for storing UCCE configuration data into the local SQL database.

## **rtdist: Real-Time Distributor**

Establishes the real-time feed from the Route's real-time server sub-component and distributes to other Administration Servers via the real-time client.

## **replication: Replication**

Receives historical data from the Logger and inserts historical records into the local HDS DB. Also responsible for maintaining data (purge) thresholds.

## **cmsnode: Confirmation Management System Node**

Optional service that manages configuration data for the ConAPI interface. Critical when using Cisco Unified Management Portal(CCMP).

## **rtclient: Real-Time Client**

Establishes the real-time feed to the Administration Clients so that configuration updates call script monitoring are possible as Administration Clients do not directly connect to the Central Controller.

## **updateaw: Update AW**

Updates the local configuration database (AWDB) with configuration data from the Central Controller.

## **cms\_jserver: CMS Server**

Optional service that works with the CMS Node to provide interfaces for ConAPI.

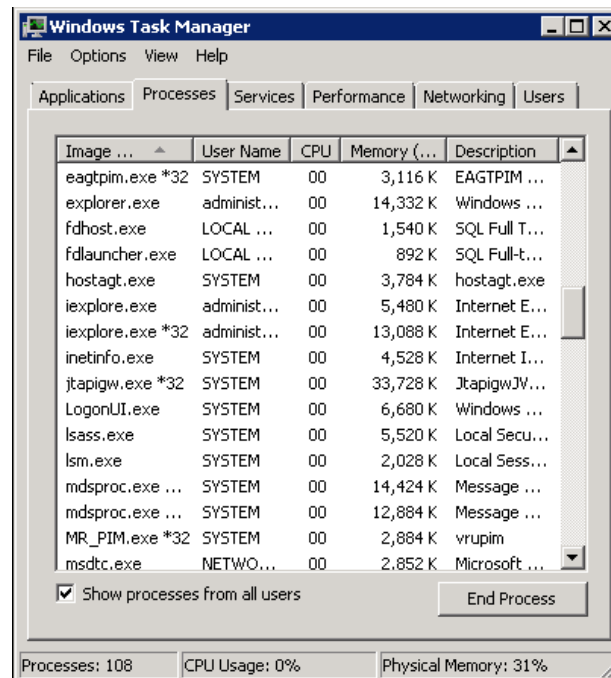
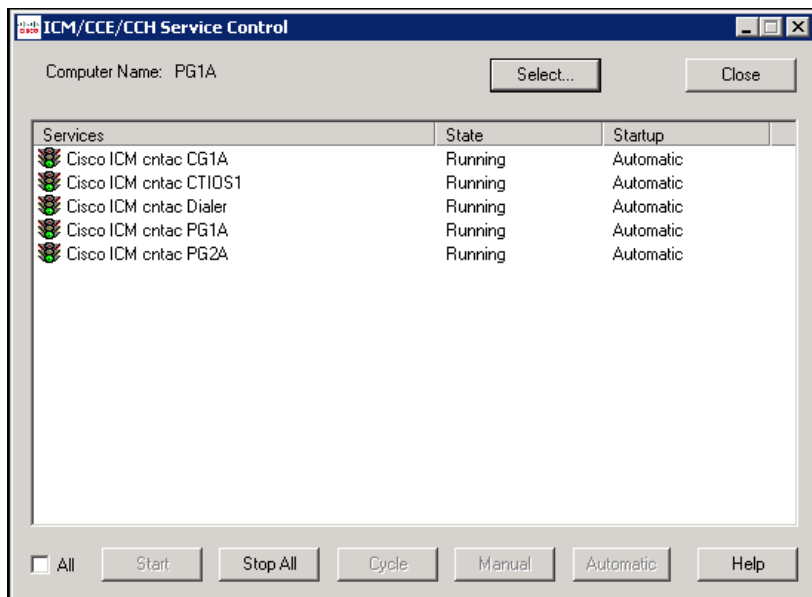
# Node Managers, “I’m Watching You, Processes...”

## nodeman: Node Manager

One per component. Monitors the health of each sub-component and will either kill or restart a sub-component should it detect an error.

## nmm: Node Manager Manager

One per node manager. Monitors the health of each node manager and will either kill or restart a node manager should it detect an error.



# Questions?

*Thank you*