

## CallManager Call Routing Logic Example (1)

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User's Dial String:

\_\_\_\_\_

CallManager Actions:

### Configured Route Patterns

1111	
1211	
1[23]XX	
131	
1[0-4]XX	
13!	

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117

## CallManager Call Routing Logic Example (2)

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User's Dial String:

<Off Hook>

CallManager Actions:

Provide Dial Tone  
Wait

### Configured Route Patterns

1111	Might Match
1211	Might Match
1[23]XX	Might Match
131	Might Match
1[0-4]XX	Might Match
13!	Might Match

```
Digit analysis: match(fqcn="9195555644", cn="15644",  
                    pss="PA:Line1:Cisco:Local:Long Distance:International", dd="")  
Digit analysis: potentialMatches=PotentialMatchesExist
```

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118

## CallManager Call Routing Logic Example (3)

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User's Dial String:

1

CallManager Actions:

Break Dial Tone  
Wait

### Configured Route Patterns

1111	Might Match
1211	Might Match
1[23]XX	Might Match
131	Might Match
1[0-4]XX	Might Match
13!	Might Match

```
Digit analysis: match(fqcn="9195555644", cn="15644",  
                    pss="PA:Line1:Cisco:Local:Long Distance:International", dd="1")  
Digit analysis: potentialMatches=PotentialMatchesExist
```

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## CallManager Call Routing Logic Example (4)

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User's Dial String:

13

CallManager Actions:

Wait

### Configured Route Patterns

1111	Doesn't Match
1211	Doesn't Match
1[23]XX	Might Match
131	Might Match
1[0-4]XX	Might Match
13!	Might Match

```
Digit analysis: match(fqcn="9195555644", cn="15644",  
                    pss="PA:Line1:Cisco:Local:Long Distance:International", dd="13")  
Digit analysis: potentialMatches=PotentialMatchesExist
```

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## CallManager Call Routing Logic Example (5)

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User's Dial String:

131

CallManager Actions:

Keep Waiting; More  
Digits Might Cause a  
**Different** Pattern to Match

### Configured Route Patterns

1111	Doesn't Match
1211	Doesn't Match
1[23]XX	Might Match
131	Match!
1[0-4]XX	Might Match
13!	Match! and Might Match

```
Digit analysis: match(fqcn="9195555644", cn="15644",  
                    pss="PA:Line1:Cisco:Local:Long Distance:International", dd="131")  
Digit analysis: potentialMatches=PotentialMatchesExist
```

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## CallManager Call Routing Logic Example (6)

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User's Dial String:

1311

CallManager Actions:

Keep Waiting; More  
Digits Might Cause a  
**Different** Pattern to Match

### Configured Route Patterns

1111	Doesn't Match
1211	Doesn't Match
1[23]XX	Match!
131	Doesn't Match
1[0-4]XX	Match!
13!	Match! and Might Match

```
Digit analysis: match(fqcn="9195555644", cn="15644",  
                    pss="PA:Line1:Cisco:Local:Long Distance:International", dd="1311")  
Digit analysis: potentialMatches=PotentialMatchesExist
```

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## CallManager Call Routing Logic Example (7)

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User's Dial String:

1311<timeout>

CallManager Actions:

Extend Call to the **Best**  
Match

### Configured Route Patterns

1111	Doesn't Match
1211	Doesn't Match
1[23]XX	Match!
131	Doesn't Match
1[0-4]XX	Match!
13!	Match!

Can You Tell which Route Pattern Is the Best Match in This Case?

Hint: We Are Being Crafty to Make Sure You Remember Forever ☺

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## CallManager Call Routing Logic Example (8)

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User's Dial String:

1311<Timeout>

Matches 200 Digit Strings

Matches 500 Digit Strings

Matches ∞ Digit Strings, However  
for the Purposes of Closest Match  
Routing in this Case, this Matches  
100 Digit Strings because You  
Only Consider the Number of  
Potential Strings Given the  
Number of Digits Dialed

### Configured Route Patterns

1111	Doesn't Match
1211	Doesn't Match
1[23]XX	Match!
131	Doesn't Match
1[0-4]XX	Match!
13!	Match!

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## Partitions and Calling Search Spaces Analogy

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Rita Wants to Call Dave

To Do So, She Needs to  
Know Dave's Number



Rita

Miami Yellow Pages	
Dave	305 555 5000

Dave Lists His  
Number in a Directory



Dave

305 555 5000



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125

## Partitions and Calling Search Spaces Analogy

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To Look up Numbers,  
Rita Looks through the  
Directories She Owns

If She Doesn't Have  
the Right Directory...

Rita's List of Directories

Dallas White Pages

Outlook Address Book

Little Black Book

...She Can't Place the Call



Rita

Miami Yellow Pages	
Dave	305 555 5000

Dave

305 555 5000



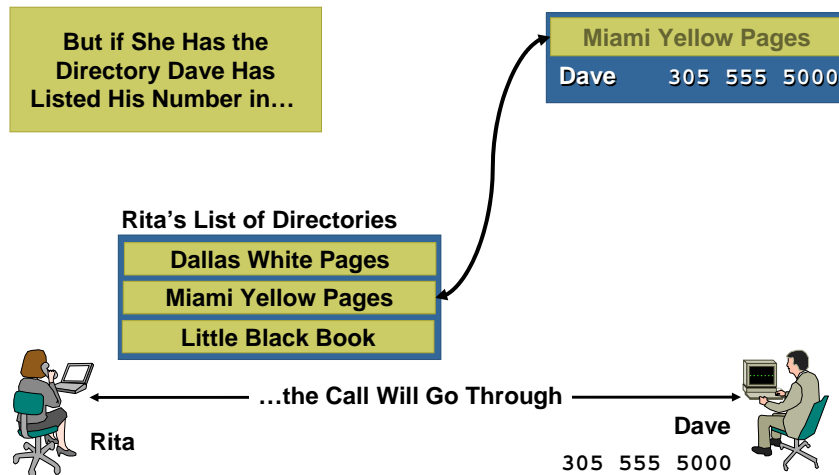
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126

## Partitions and Calling Search Spaces Analogy

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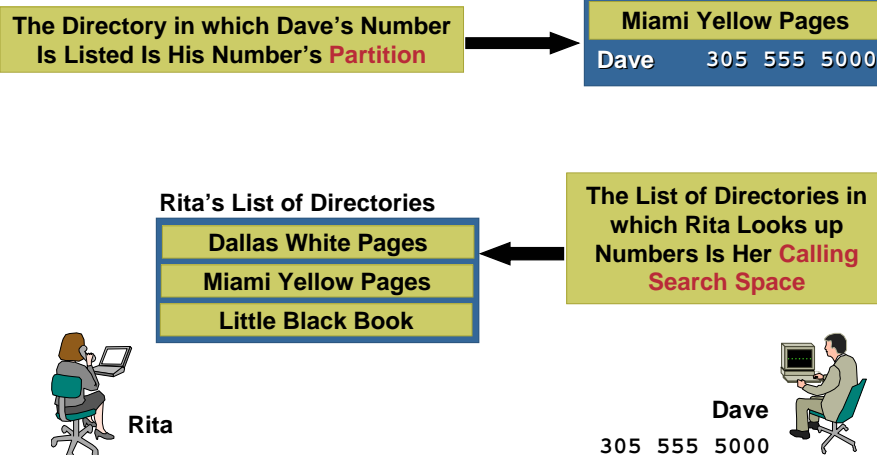
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127

## Partitions and Calling Search Spaces Analogy

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128

## What is Voice over the PSTN (VoPSTN)?

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- A variation on the Centralized Call Processing deployment model, where all inter-site voice goes over the PSTN (not the WAN).
- We are not “promoting it”: merely setting requirements and expectations.
- We do see that it could serve as a “beach head” to win over some customers
- There are several, fundamental limitations
- Relies on AAR configuration

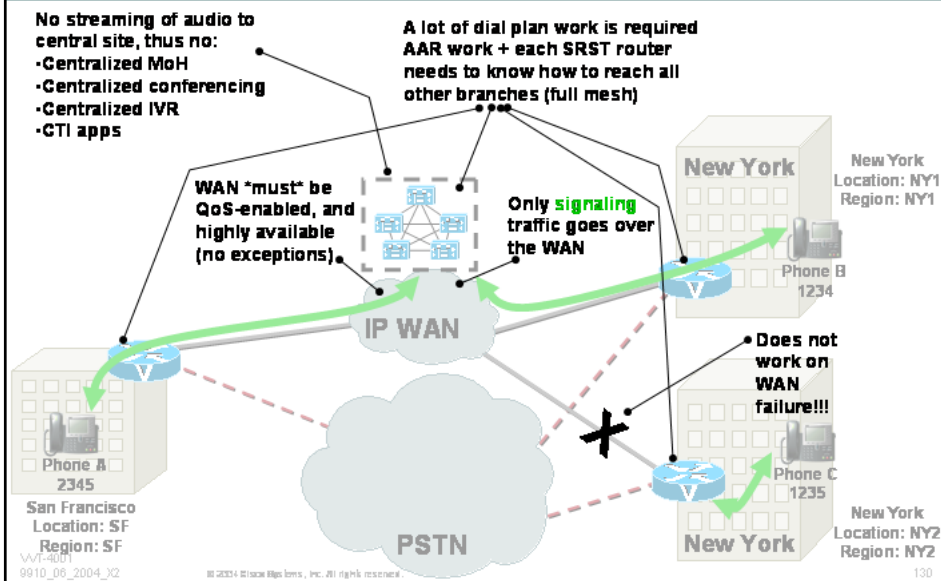
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129

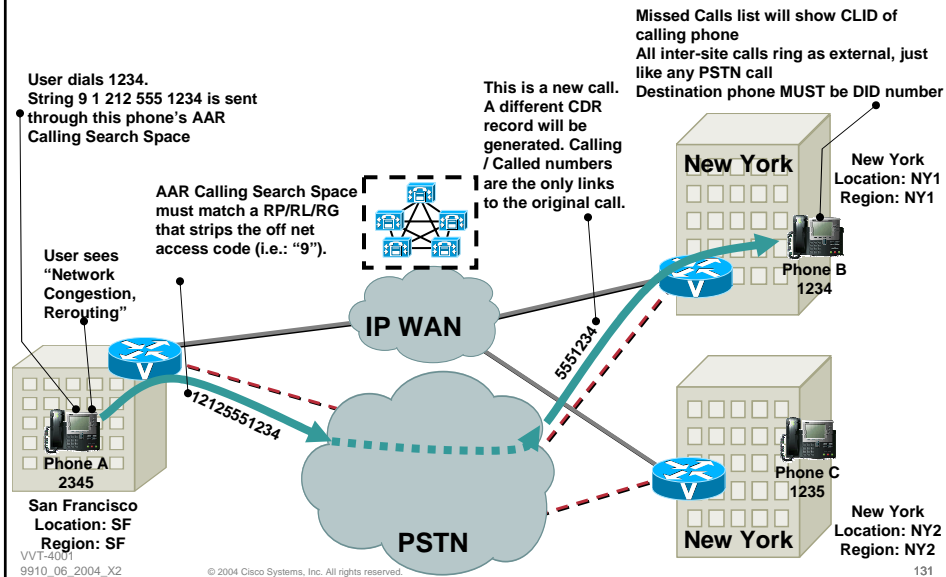
## VoPSTN Using AAR Global Considerations

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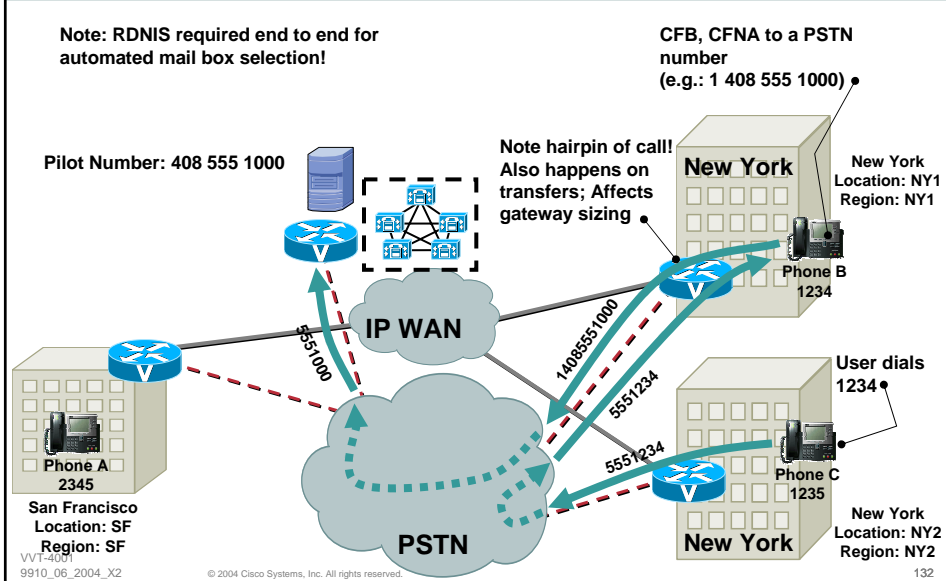
## VoPSTN Using AAR Inter-Site Calls

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## VoPSTN Using AAR Non-Unity Centralized Voicemail

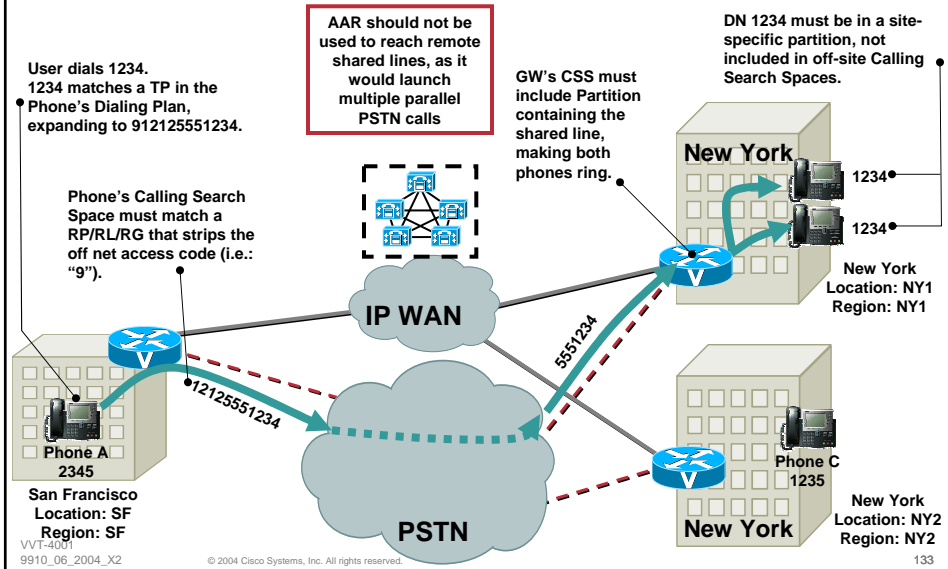
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## VoPSTN Using AAR Shared Lines Considerations

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## VoPSTN using AAR Summary

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- Only accommodates SCCP destinations
- RDNIS required for centralized VMAIL
- Extension mobility not possible
- No difference between PSTN and inter-branch calls (one ring type)
- Two CDR records for every call (minimum). More if CallFwd invoked
- All inter-site calls display Network Congestion, rerouting
- No shared line support across branches
- All destinations must be DID
- Does not work during WAN interruption
- No centralized MoH
- No centralized conferencing
- All transferred calls are hairpinned
- All calls forwarded to outside locations are hairpinned
- If you tailor the WAN for signaling only, no attendant console in remote sites, due to directory access BW
- QoS is REQUIRED on the WAN
- High Availability is required on the WAN: SRST does not make up for a bad link, only a dead one

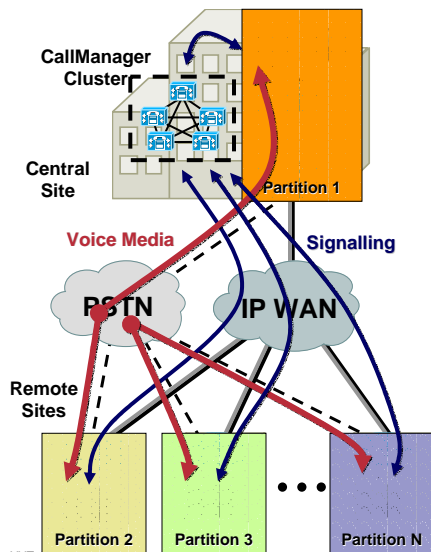
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134

## VoPSTN Using Dial Plan Key Points

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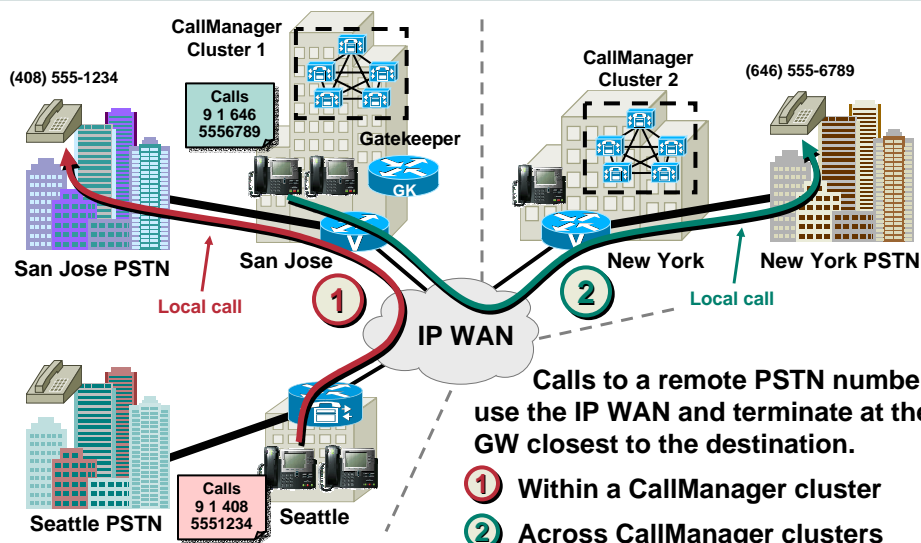
- DN's at each site are placed in different partitions
- Relies on PSTN route patterns to call other sites
- For CallManager, all calls are external calls
- No "on-net" features across sites (e.g.: CallBack)
- No easy migration to full-blown VoIP

**NOTE:** Abbreviated dialing possible with translation rules on branch GW's

135

## Tail-End Hop-Off (TEHO) What is it?

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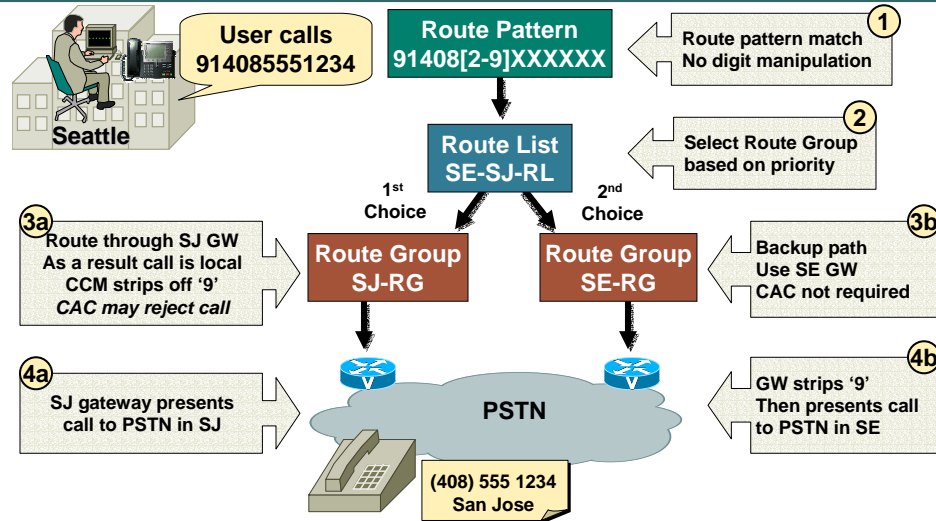
Calls to a remote PSTN number use the IP WAN and terminate at the GW closest to the destination.

- 1 Within a CallManager cluster
- 2 Across CallManager clusters

136

## Tail-End Hop-Off (TEHO) Intra-cluster: Seattle to San Jose

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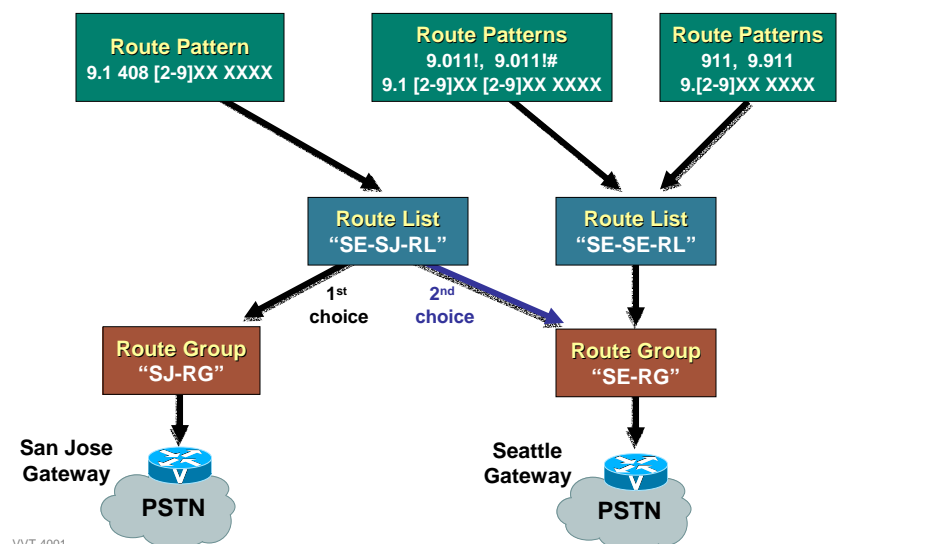
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137

## Tail-End Hop-Off (TEHO) Intra-cluster: Route Patterns for Seattle

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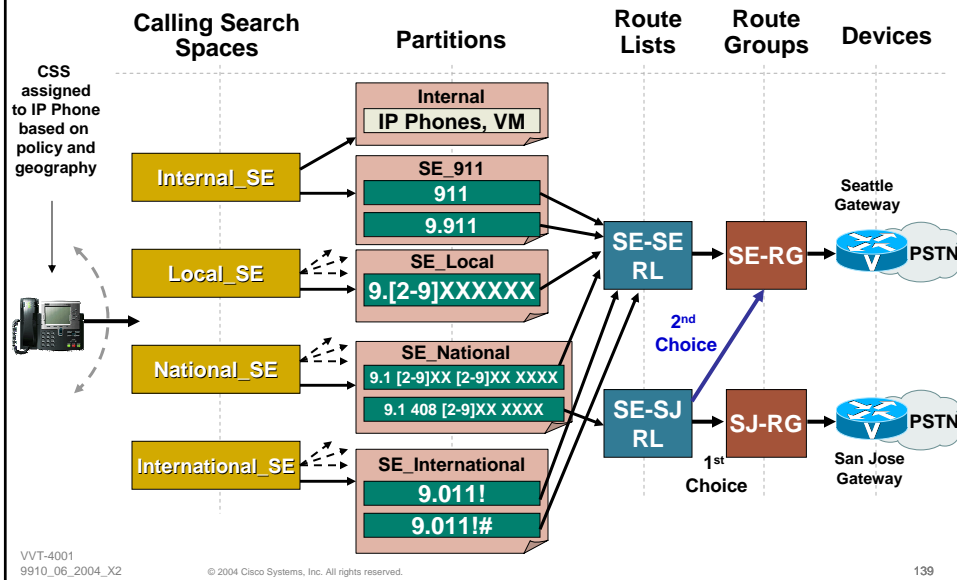
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138

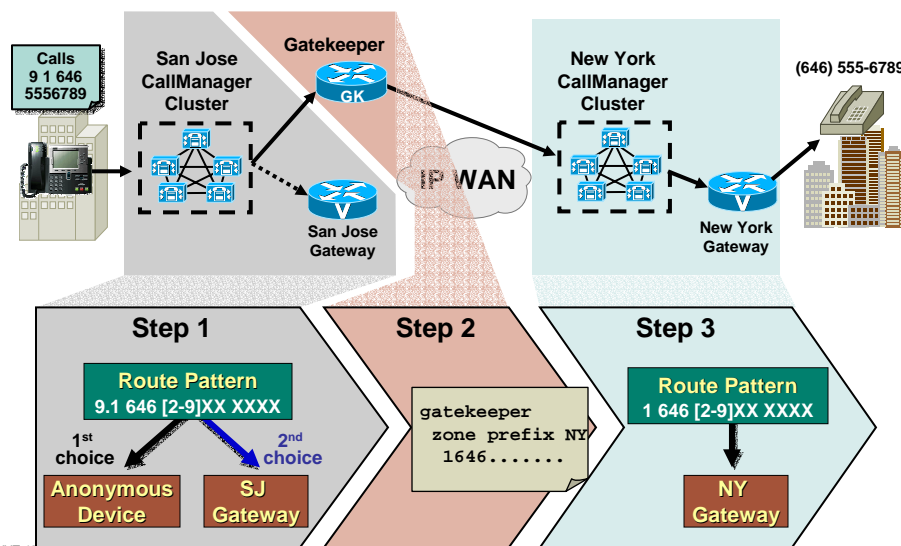
## Tail-End Hop-Off (TEHO) Intra-cluster: Composite Dial Plan for Seattle

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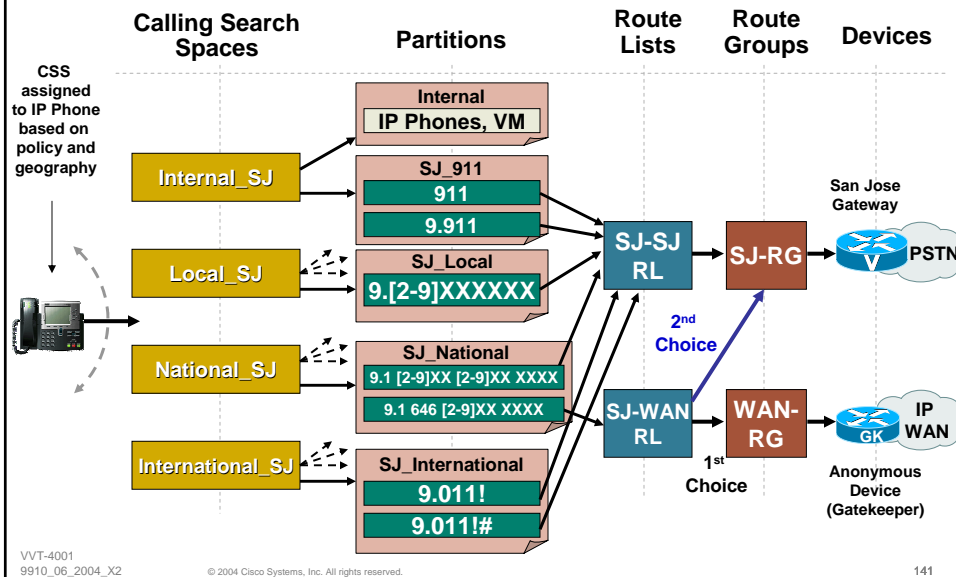
## Tail-End Hop-Off (TEHO) Inter-cluster: San Jose to New York

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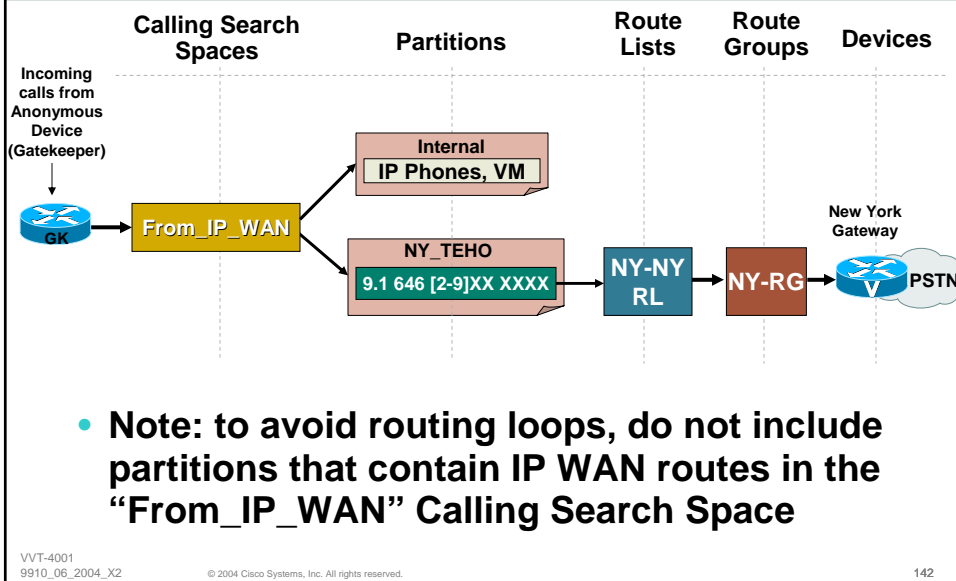
## Tail-End Hop-Off (TEHO) Inter-cluster: Composite Dial Plan for San Jose

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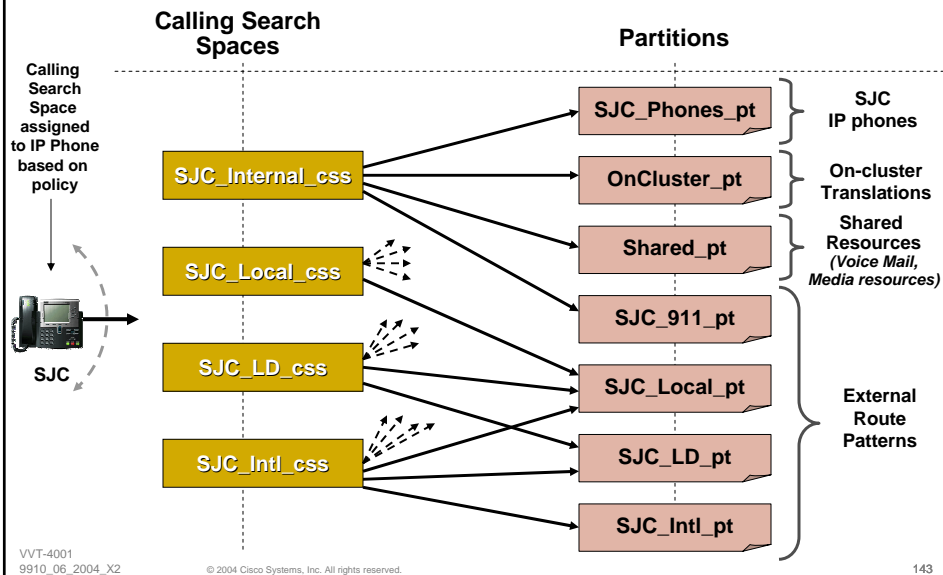
## Tail-End Hop-Off (TEHO) Inter-cluster: Dial Plan for New York

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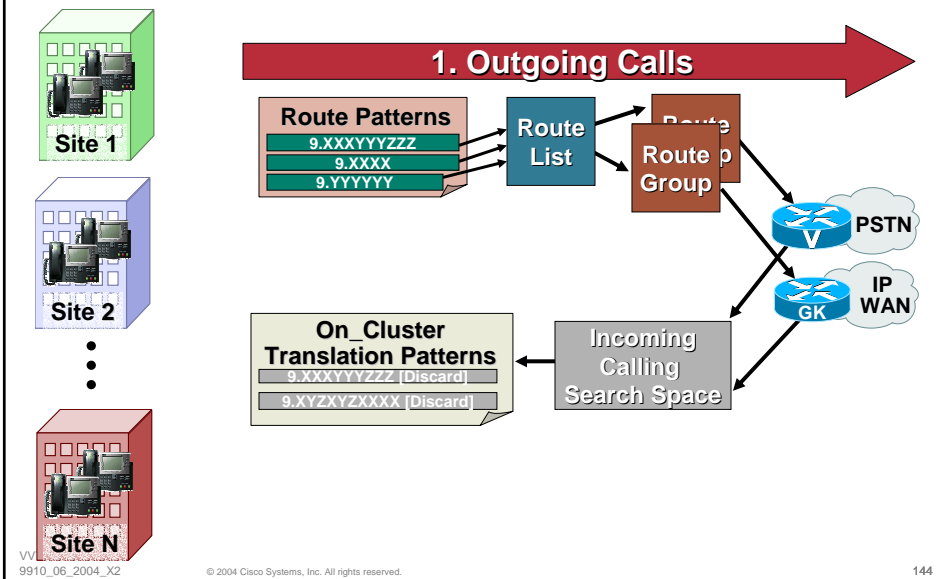
## VLOD with Partitioned Addressing View of Partitions/Calling Search Spaces

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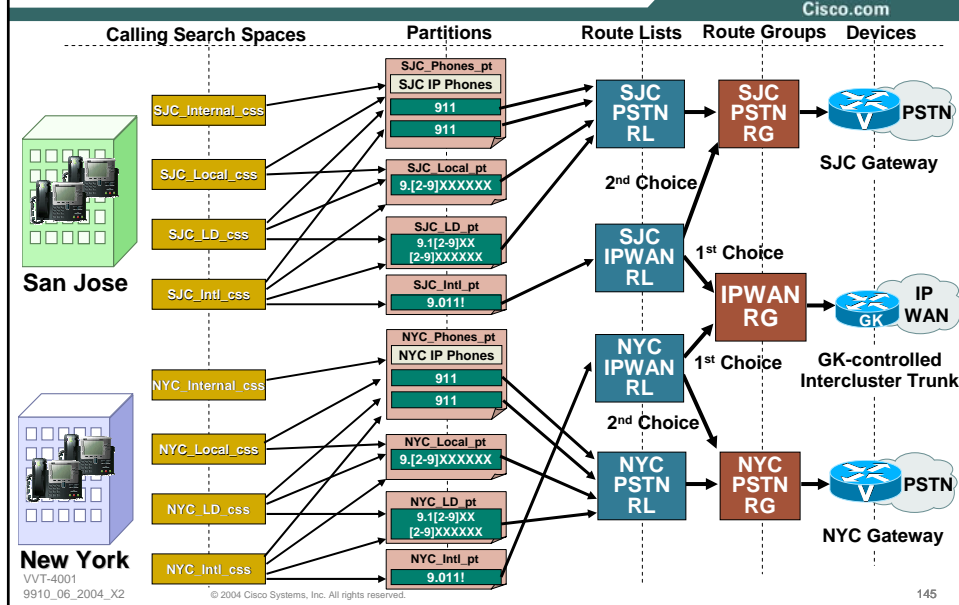


## VLOD with Partitioned Addressing Outgoing PSTN/ Gatekeeper Calls

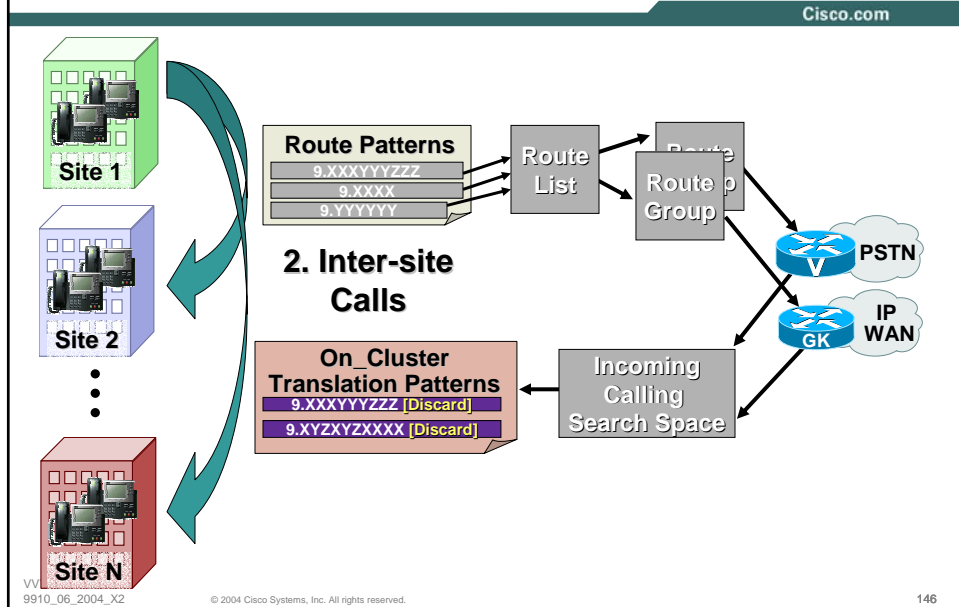
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## VLOD with Partitioned Addressing Outgoing PSTN/ Gatekeeper Calls

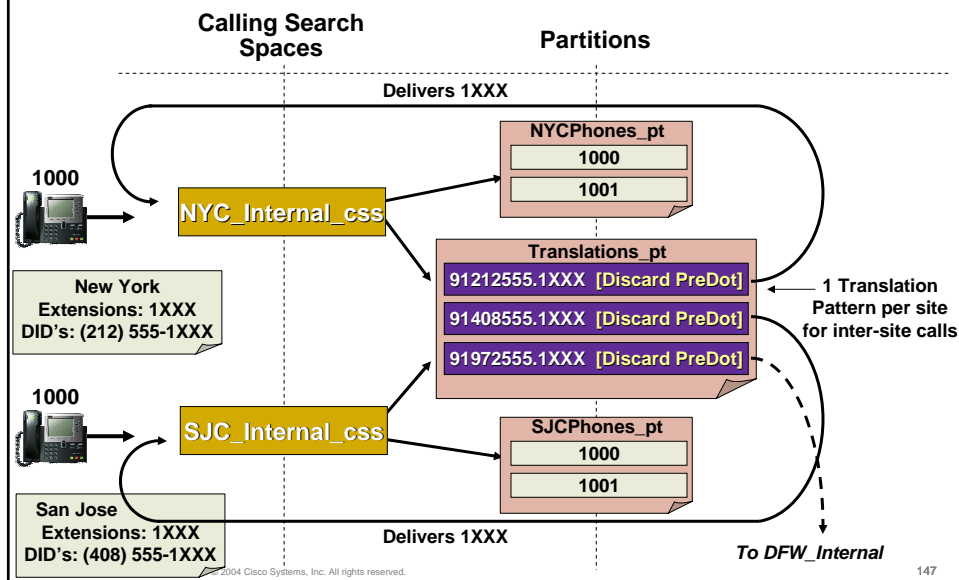


## VLOD with Partitioned Addressing Inter-site Calls within a Cluster



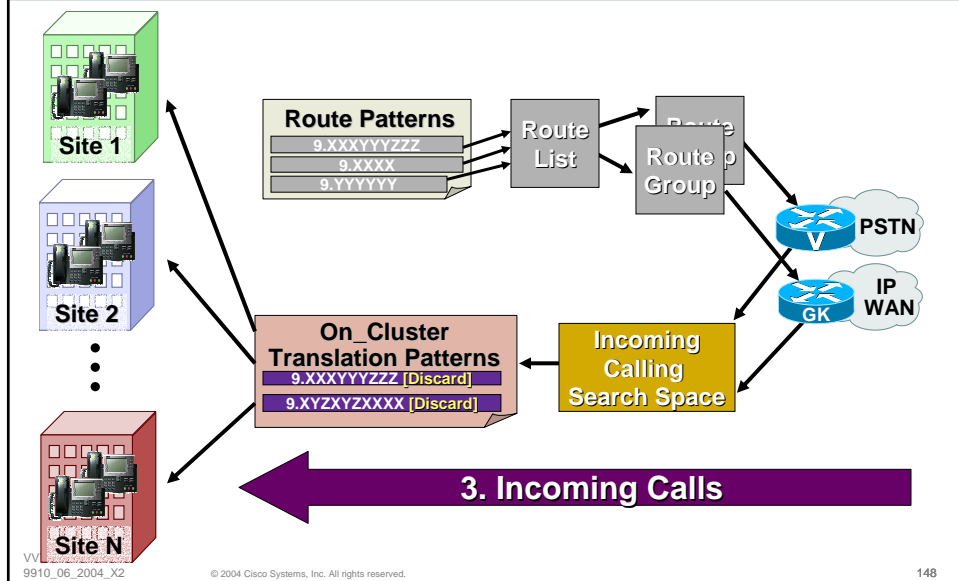
## VLOD with Partitioned Addressing Inter-site Calls within a Cluster

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## VLOD with Partitioned Addressing Incoming PSTN/Gatekeeper Calls

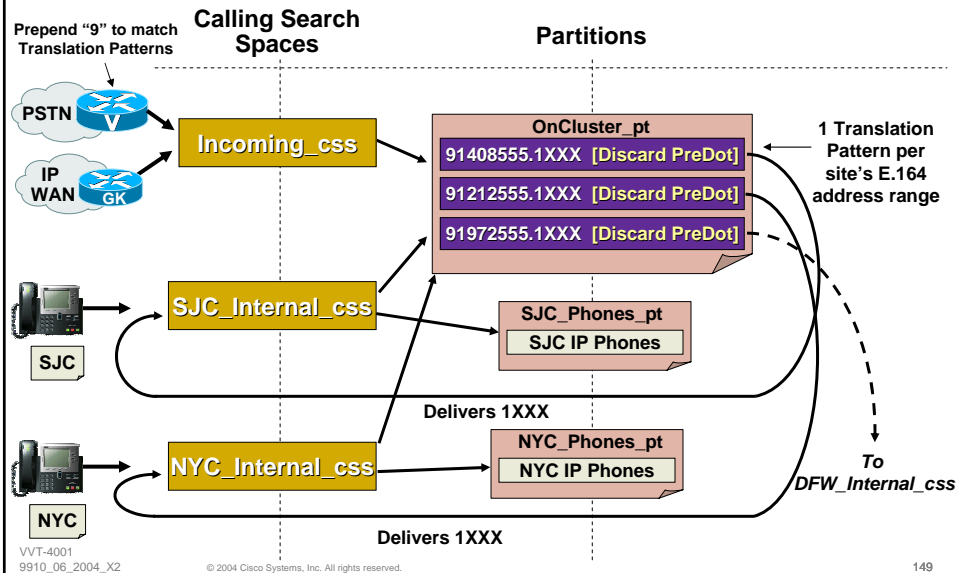
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## VLOD with Partitioned Addressing Incoming PSTN/Gatekeeper Calls

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## VLOD with Partitioned Addressing Gatekeeper Configuration

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```
gatekeeper
zone local US cisco.com 10.9.11.1
zone local EU cisco.com 10.20.1.1
no zone subnet US default enable
no zone subnet EU default enable
zone subnet US 10.9.11.2/32 enable
zone subnet US 10.9.11.3/32 enable
zone subnet EU 10.20.1.2/32 enable
zone subnet EU 10.20.1.3/32 enable
zone prefix US 14085551...
zone prefix US 12125551...
zone prefix US 19725551...
zone prefix EU 442077881...
zone prefix EU 33144551...
zone prefix EU 390266771...
gw-type-prefix 1* default-technology
bandwidth interzone zone US 256
bandwidth interzone zone EU 256
arq reject-unknown-prefix
no shutdown
```

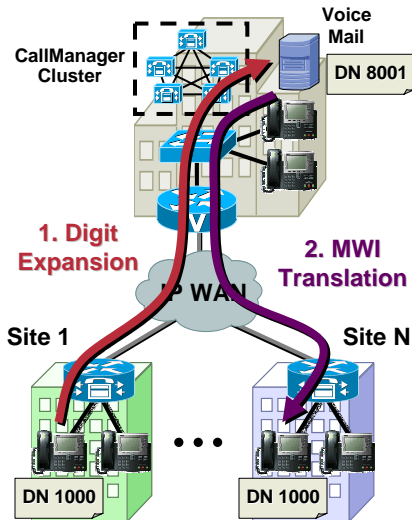
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150

## VLOD with Partitioned Addressing Voice Mail Integration

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- Both SCCP- (*Unity*) and SMDI-based Voice Mail systems can be used
- Voice Mail boxes need a unique DN
- Need to “expand” DNs when accessing VM
- MWI messages from VM system need to be “translated” to match appropriate DN/partition

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151

## VLOD with Partitioned Addressing Voice Mail Integration: Digit Expansion

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### Voice Mail Profile Configuration

[Add a New Voice Mail Profile](#)  
[Back to Find/List Voice Mail Profiles](#)

Voice Mail Profile: Site1-VMProfile

Status: Ready

[Copy](#) [Update](#) [Delete](#) [Restart Devices](#) [Cancel Changes](#)

Voice Mail Profile Name\* Site1-VMProfile

Description VM Profile for Site 1 users

Voice Mail Pilot \*\* 8001/VM\_Translation (Choose <None> to use default)

Voice Mail Box Mask 408555XXXX

☐ Make this the default Voice Mail Profile for the system

\* indicates required item

\*\* The Voice Mail Pilot is comprised of the Voice Mail Pilot Number and it's corresponding Calling Search Space Name (<Voice Mail Pilot Number>/<Calling Search Space>).

- Use the “Voice Mail Box Mask” field in each VM Profile to uniquely identify the Voice Mail boxes (e.g., using the full E.164 number)

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152

# VLOD with Partitioned Addressing Voice Mail Integration: MWI Translation

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