

MVA

Microsoft
Virtual
Academy



Module4

Voice Applications

MVA Jump Start

Module Overview

- Call Park Service
- Managing Calls to Unassigned Numbers
- PSTN Conferencing
- Overview of Response Group Services
- Implementing Response Group Services

Lesson 1: Call Park Service

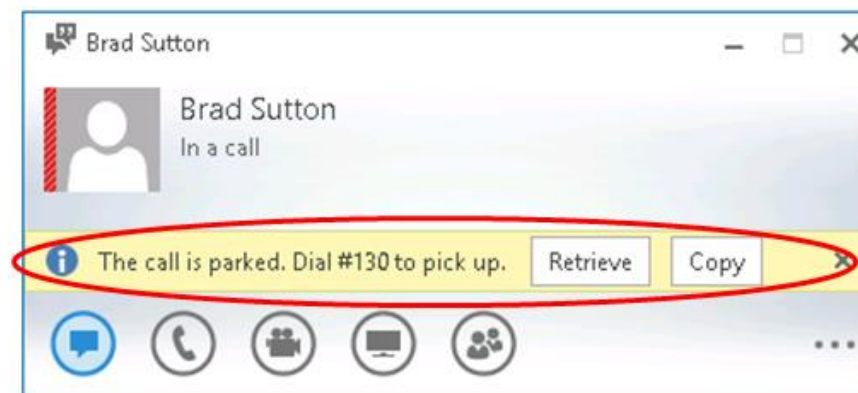
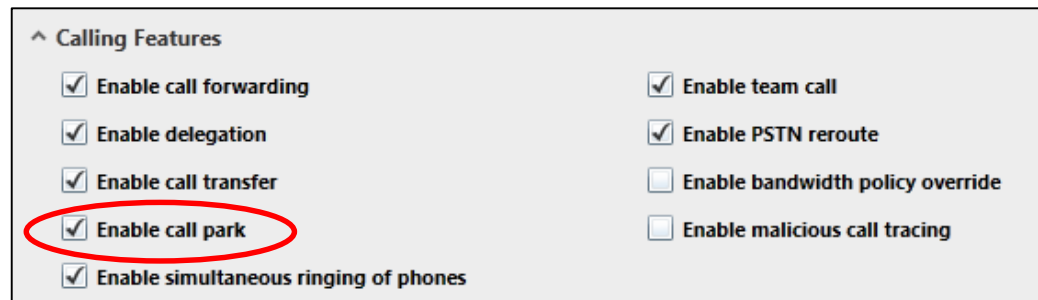
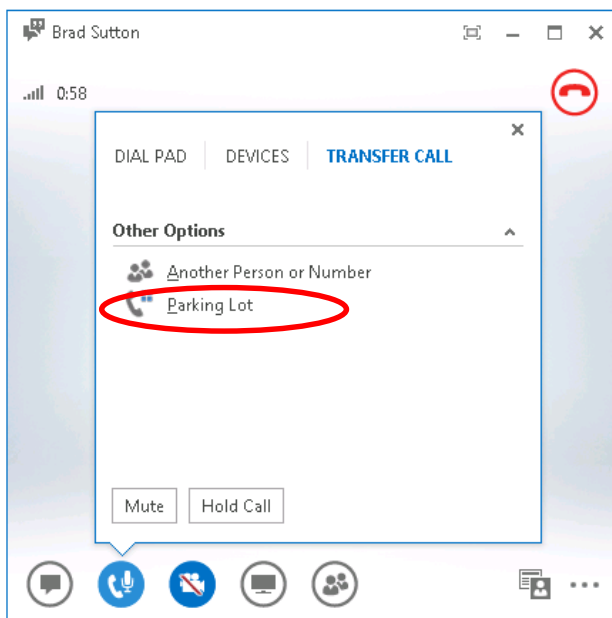
- Call Park - Features
- Lync Call Parking
- Lync Call Retrieval
- Call Park Ringback
- Deploying Call Park Services
- Defining Call Park Ranges
- Call Park Management
- Park and Retrieve Call Flow

Call Park - Features

- Call Park and Retrieve
 - Orbit (number) returned when call is parked
 - Parked user is listening to Music on Hold (MoH)
 - Call can be retrieved from PBX phone dialing orbit
 - Safe-retrieve: only retrieve my parked call
- Ringback
 - Calls not retrieved are transferred to person who parked the call (after timeout)
- Transfer to fallback destination
 - Calls not retrieved and ringback failed are forwarded to configurable target (receptionist, response group, etc.)
- Supported clients
 - Lync 2013, Lync 2010, Lync 2010 Attendant console, Tanjay, Aries to park calls (sadly mobile is excluded today)
 - Any client to retrieve a parked call

Lync Call Parking

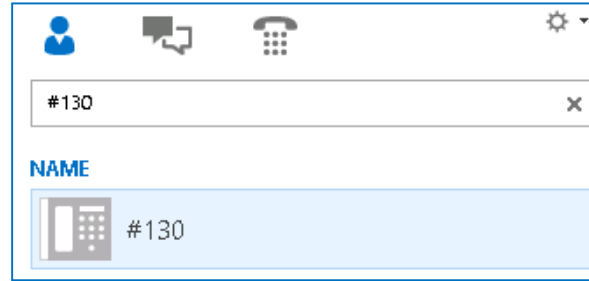
- A call can be parked if the user is enabled for Call Park functionality



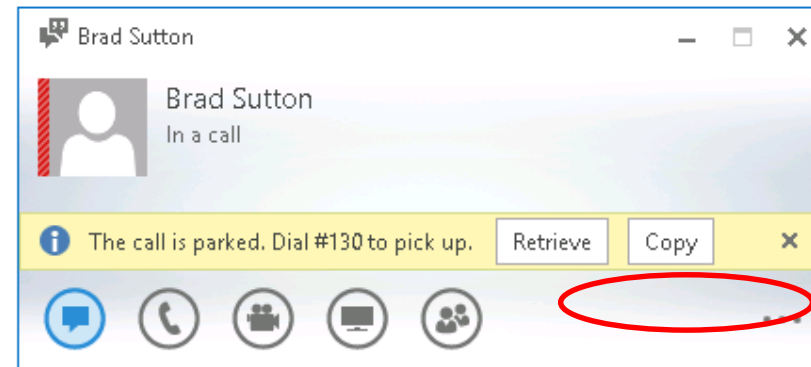
- An available orbit is automatically offered to the user parking the call

Lync Call Retrieval

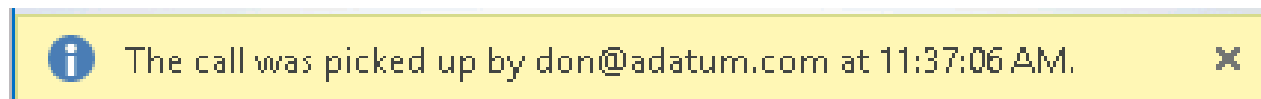
- Dial the orbit like any other extension



- Click Retrieve button (performs a safe retrieve) or copy the link into an IM message
 - Unique ID to identify the call



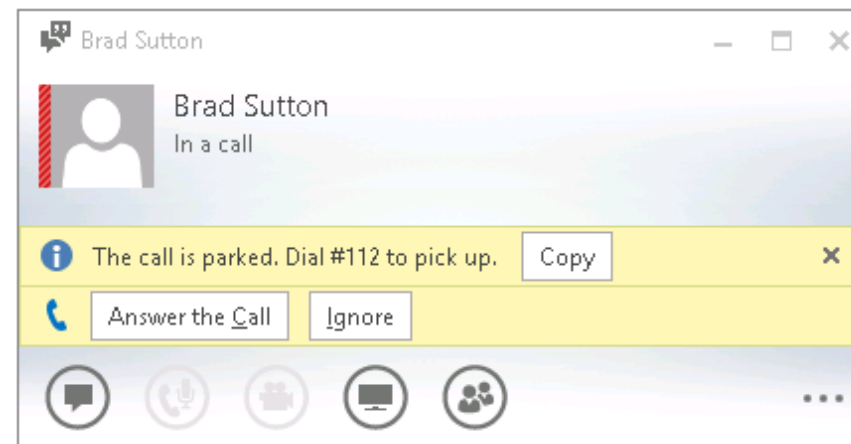
- Parker receives notification of who retrieved the call



Call Park Ringback

After pre-configured timeout (CallPickupTimeoutThreshold)

- Call rings back
- User can click the **Answer the Call** button
- Call can be ignored
- Call cannot be redirected
- Call is not forwarded to voice mail



Deploying Call Park Services

- Call Park services are installed when a server is enabled for Enterprise Voice

Features and functionality	
Instant messaging (IM) and presence:	Enabled
Conferencing:	Enabled
PSTN conferencing:	Enabled
Enterprise Voice:	Enabled

- Enable Call Park for the End User in the Voice Policy (disabled by default)

Edit Voice Policy - Global

OK Cancel

Scope: Global

Name: *
Global

Description:

^ Calling Features

<input checked="" type="checkbox"/> Enable call forwarding	<input checked="" type="checkbox"/> Enable team call
<input checked="" type="checkbox"/> Enable delegation	<input checked="" type="checkbox"/> Enable PSTN reroute
<input checked="" type="checkbox"/> Enable call transfer	<input type="checkbox"/> Enable bandwidth policy override
<input checked="" type="checkbox"/> Enable call park	<input type="checkbox"/> Enable malicious call tracing
<input checked="" type="checkbox"/> Enable simultaneous ringing of phones	

Defining Call Park Ranges

- Configure orbit range and destination pool (global scope)
- Orbit Range should be Globally Unique
 - May not include DID numbers
- Ranges can be configured in Lync Control Panel
 - Must start with # or *, or 1-9.
 - 0 is not allowed as a starting character
 - Must be the same length (max. 9 characters)
 - Should not exceed 10,000 orbits per range
 - Should not exceed 50,000 orbits per pool
 - Exclude Call Park orbits from Normalization
 - Option to use #100 to #200
- A Single Pool can have multiple orbits

Edit Call Park Number Range - CallPark on SE01

Commit Cancel

Name: *

CallPark on SE01

Number range: *

100 - 199 ?

FQDN of destination server: *

se01.tailspin.local

Number range: *

#100 - #199 ?

Number range: *

*105000 - *105999 ?

Call Park Management

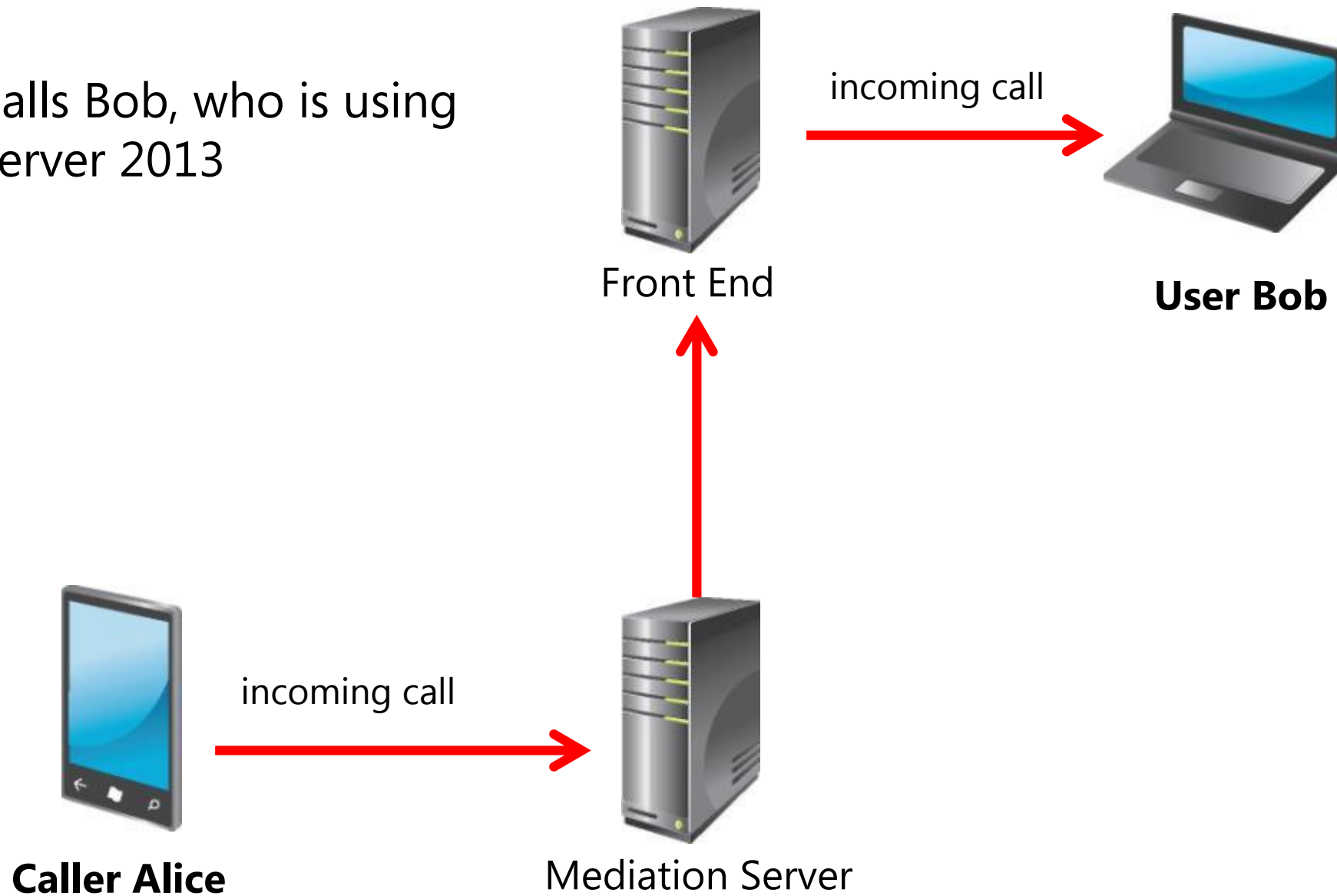
- Optional settings can be changed for:
 - Music on Hold can be enabled or disabled (service scope) **True**
 - Set-CsCallParkServiceMusicOnHoldFile (pool level setting) to change music
 - Ringback attempts (1-10) (site/global scope) **2**
 - Ringback timeout (10-600s) (site/global scope) **00:01:30**
 - Fallback destination (site/global scope) **\$Null**
- All configuration through PowerShell except Orbit range

```
New-CsCpsConfiguration -Identity site:<sitename to apply settings>
[-CallPickupTimeoutThreshold <hh:mm:ss>] -[EnableMusicOnHold <$true | $false>]
[-MaxCallPickupAttempts <number of rings>]
[-OnTimeoutURI sip:<sip URI for routing unanswered call>]
```

Park and Retrieve Call Flow

Step 1:

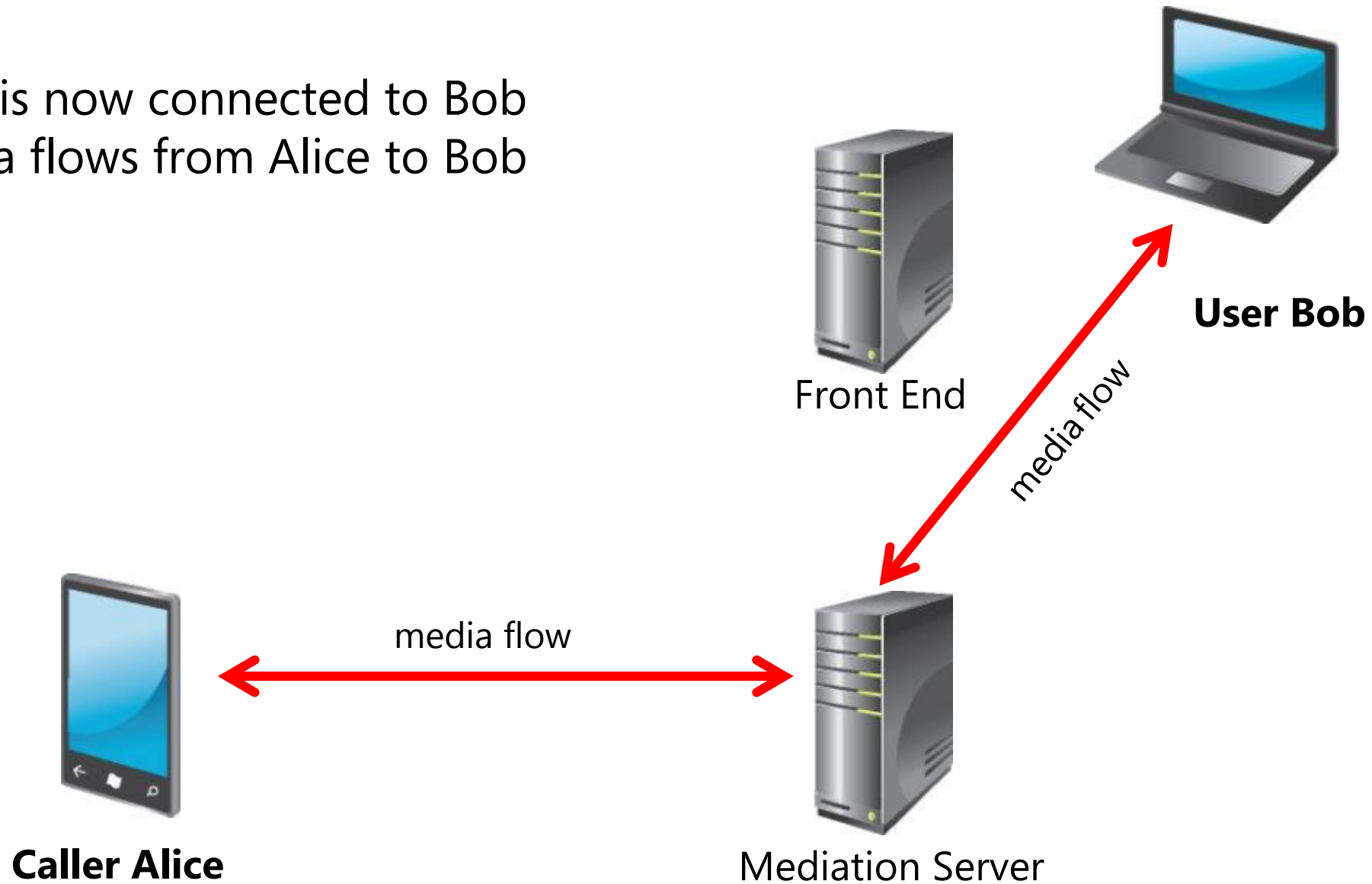
- Alice calls Bob, who is using Lync Server 2013



Park and Retrieve Call Flow (2 of 7)

Step 2:

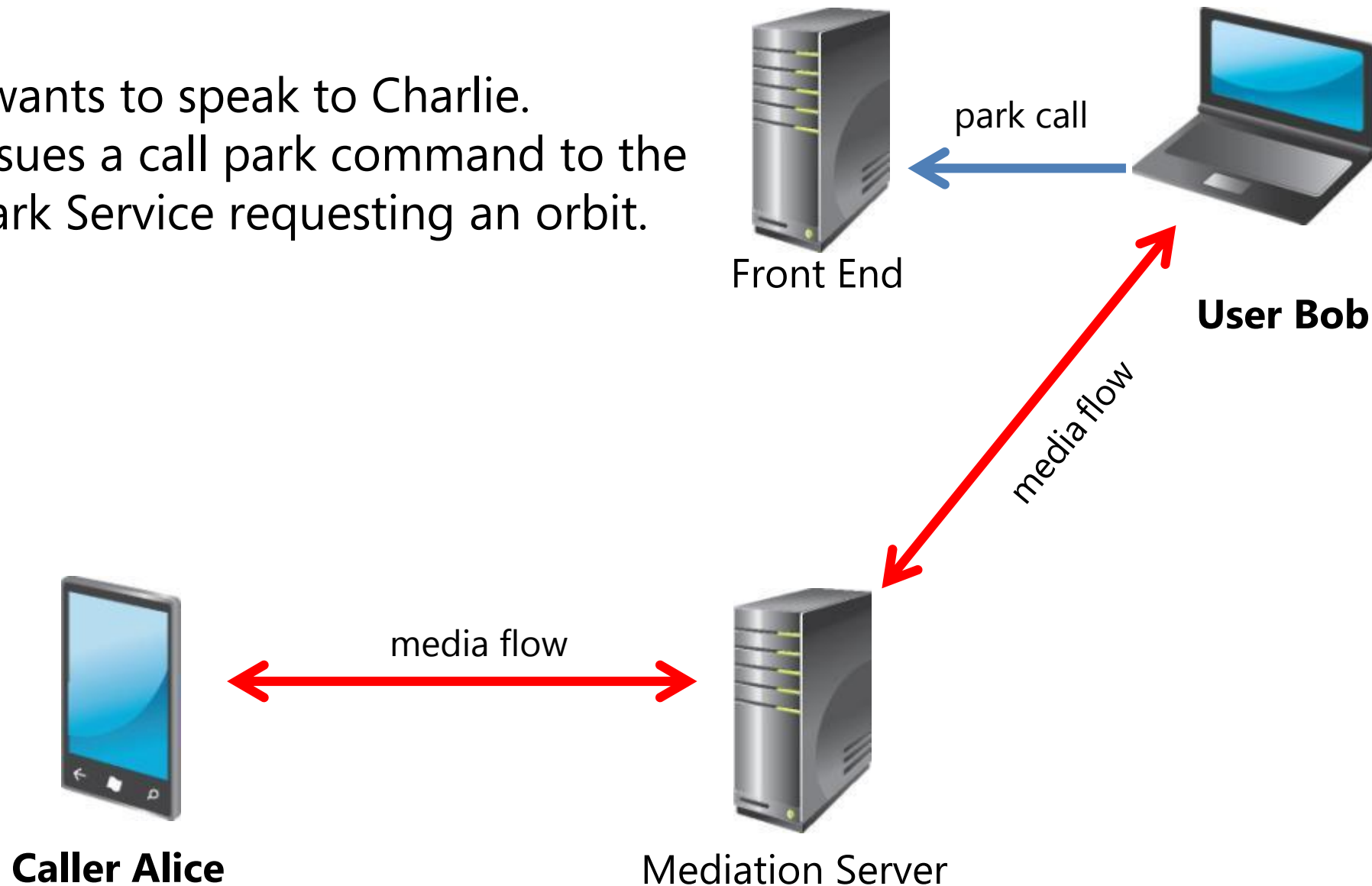
- Alice is now connected to Bob
- Media flows from Alice to Bob



Park and Retrieve Call Flow (3 of 7)

Step 3:

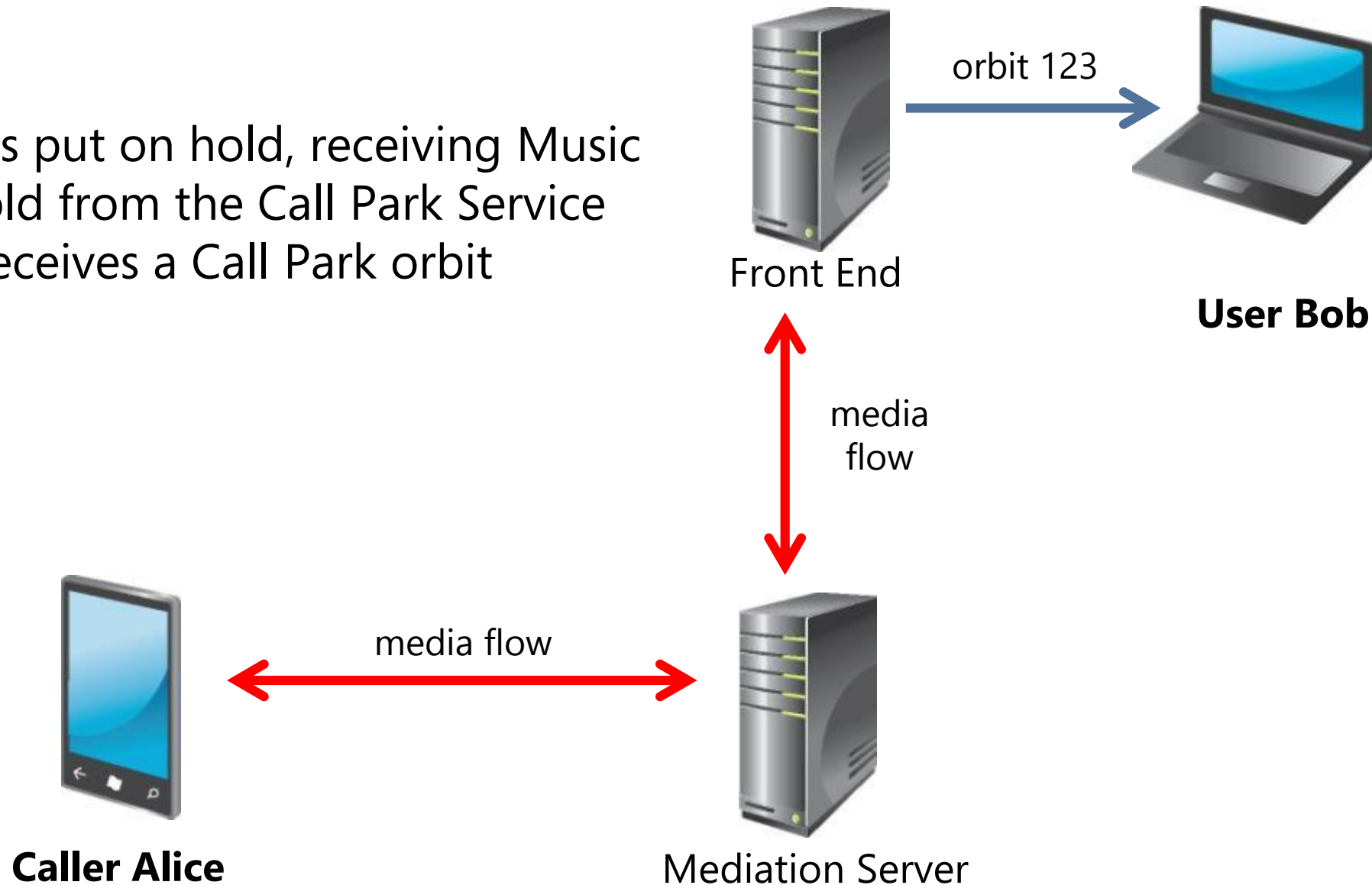
- Alice wants to speak to Charlie.
- Bob issues a call park command to the Call Park Service requesting an orbit.



Park and Retrieve Call Flow (4 of 7)

Step 4:

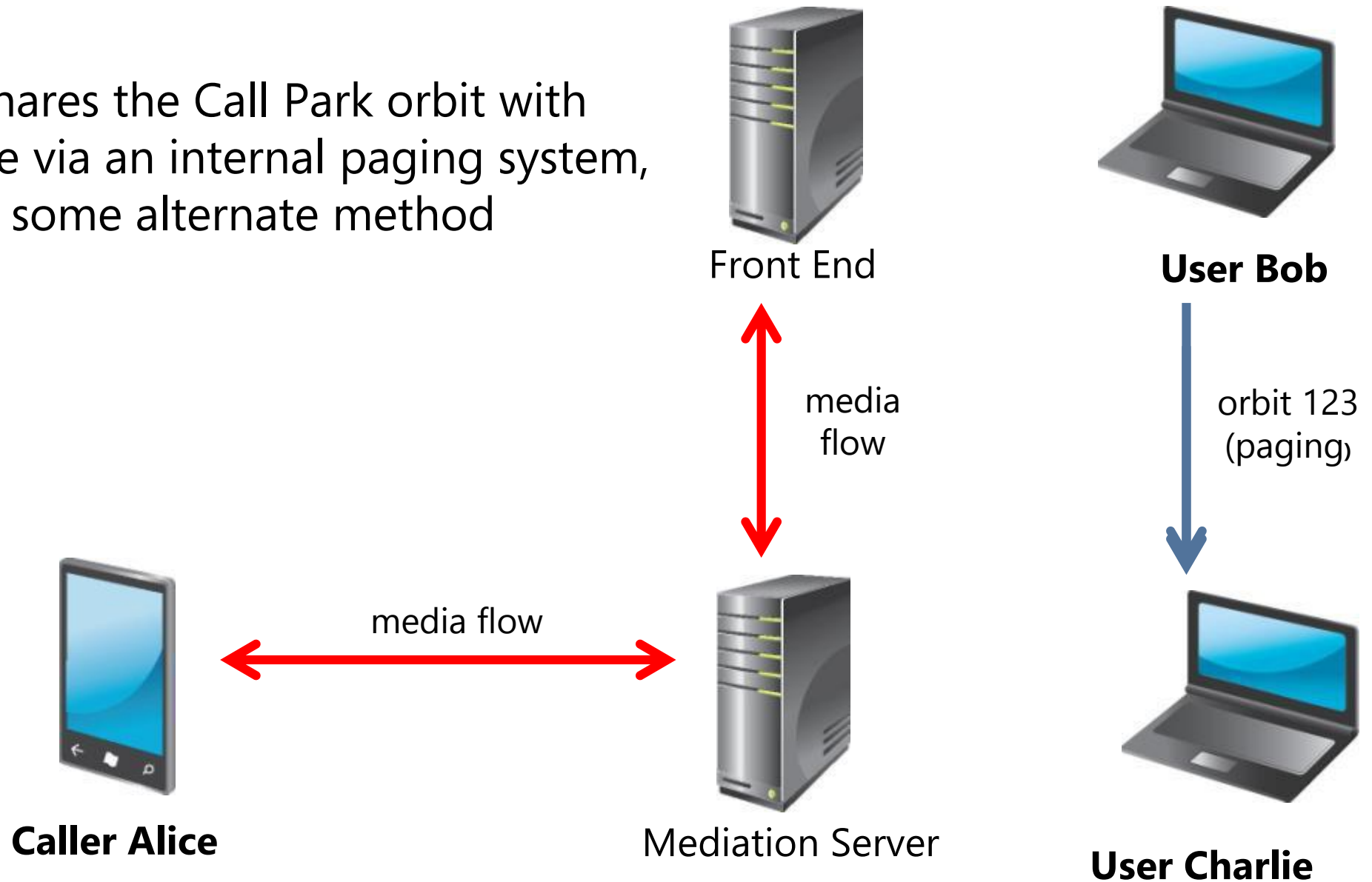
- Alice is put on hold, receiving Music on Hold from the Call Park Service
- Bob receives a Call Park orbit



Park and Retrieve Call Flow (5 of 7)

Step 5:

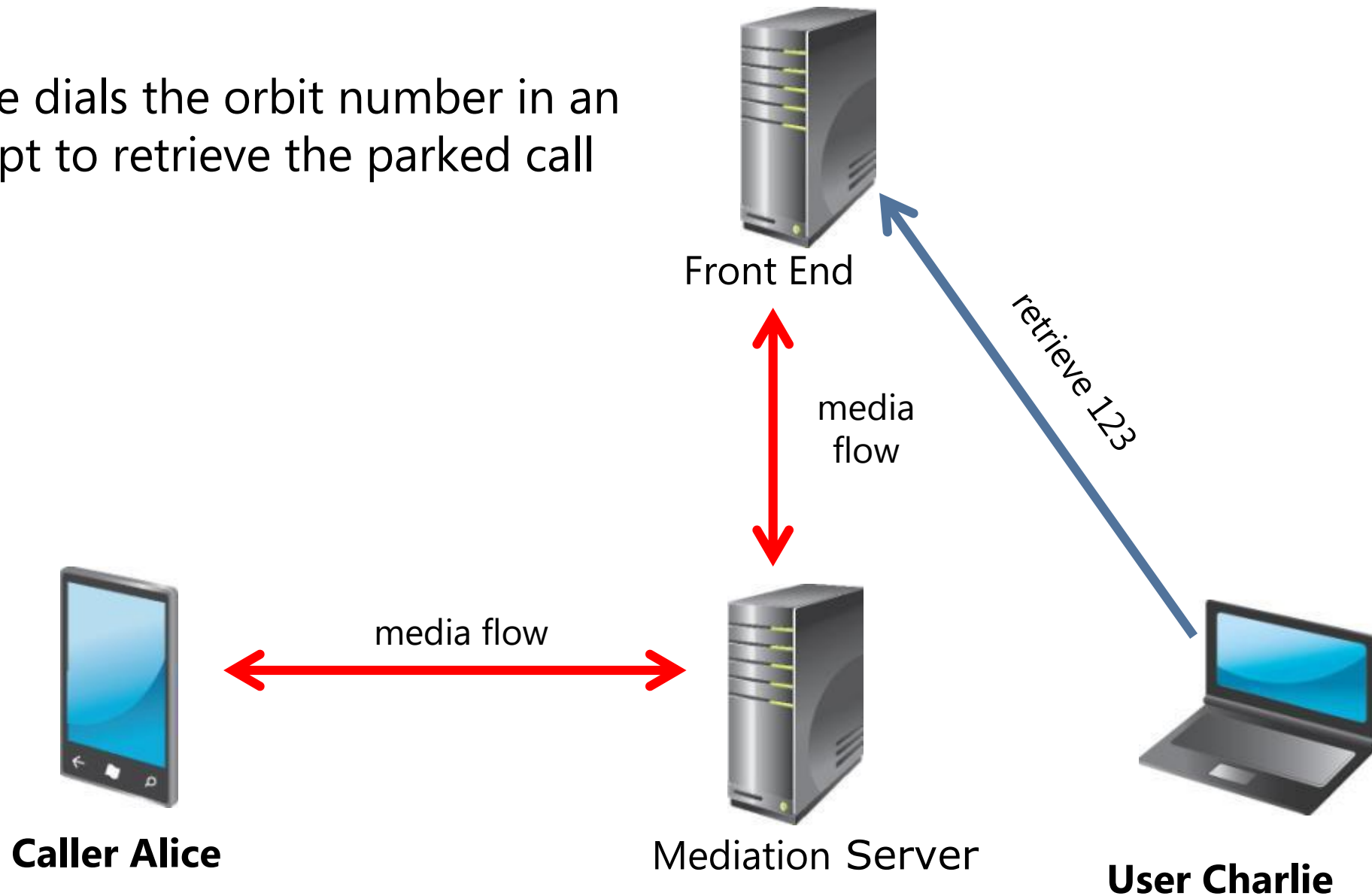
- Bob shares the Call Park orbit with Charlie via an internal paging system, IM, or some alternate method



Park and Retrieve Call Flow (6 of 7)

Step 6:

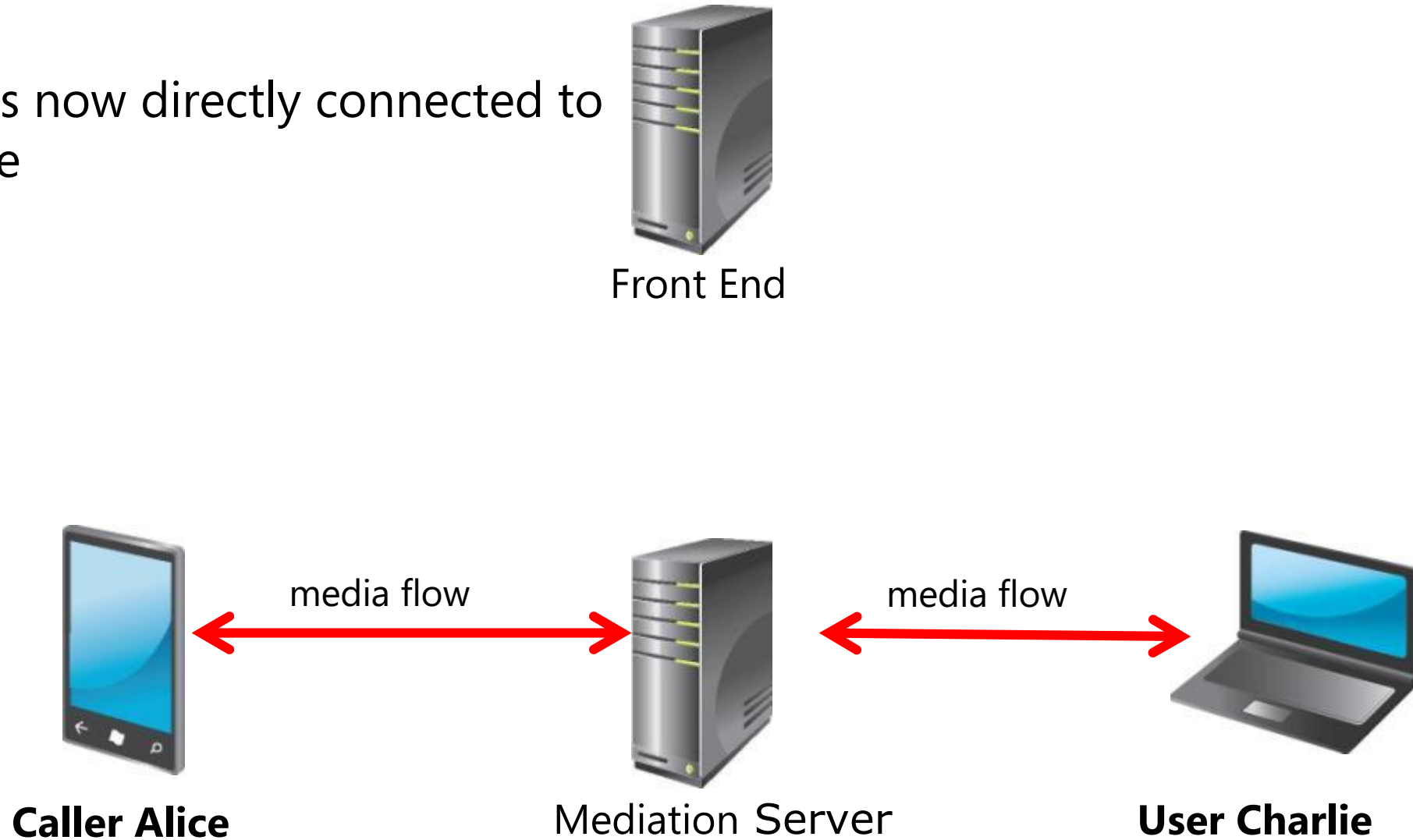
- Charlie dials the orbit number in an attempt to retrieve the parked call



Park and Retrieve Call Flow (7 of 7)

Step 7:

- Alice is now directly connected to Charlie



Lesson 2: Managing Calls to Unassigned Numbers

- Purpose of the Unassigned Number Feature
- Announcement Service
- Deploying the Unassigned Number Feature
- Unassigned Number Call Flow

Purpose of the Unassigned Number Feature

- Handles incoming calls to numbers valid to the organization but not assigned to users or (desk)phones
- Avoids busy tones or error messages if the user misdials
- Anytime you want a pre-determined message or action to occur when a number is dialed (internall/externally)
- Incoming calls can be transferred to predetermined:
 - Phone Numbers
 - SIP URI's
 - Voice Mail
 - Announcement service

Announcement Service

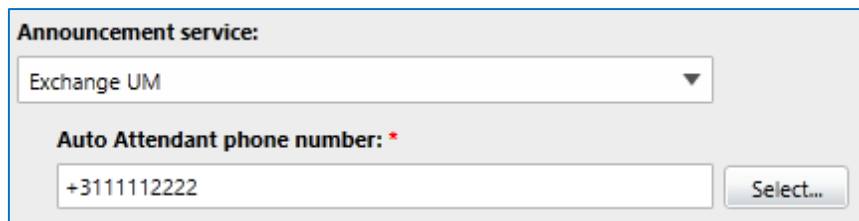
- Create an Announcement through Windows PowerShell

```
New-CsAnnouncement -Identity ApplicationServer:se01.tailspin.local -Name  
"Number Does Not Exist"  
-TextToSpeechPrompt "Welcome to Tailspin, the number you dialed does not  
exist. You will be forwarded to the operator" -Language "en-US" -  
TargetUri "sip:brad@tailspin.com"
```

- **TextToSpeechPrompt** A text-to-speech (TTS) prompt.
- **TargetURI** The Uniform Resource Identifier (URI) to which the caller will be transferred after the announcement has been played.
- At least one Announcement should exist before you can create a number range

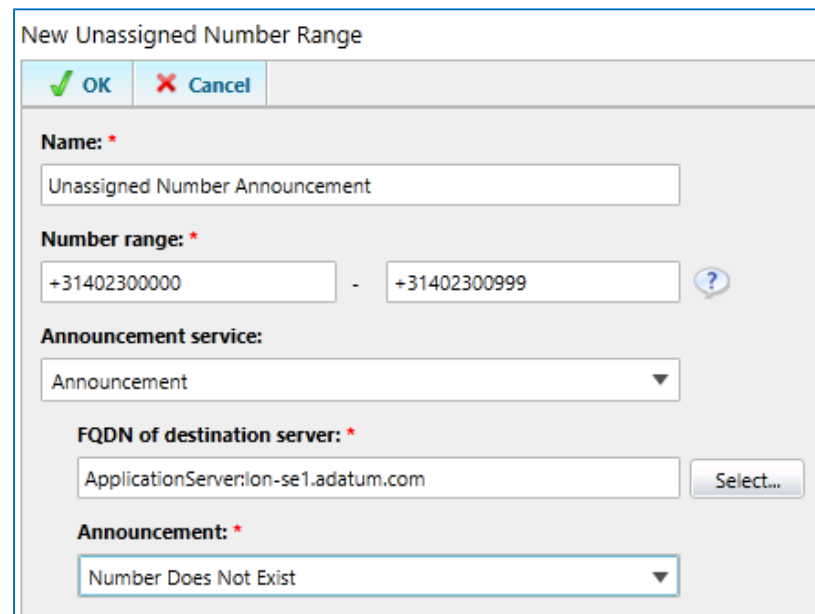
Deploying the Unassigned Number Feature

- Create an unassigned number range from the Lync Control Panel
 - Range may overlap with existing DID, numbers in use automatically excluded
 - Destination server is the end point and plays the announcement, plan locally, preferably in the same site
 - Select the previously created Announcement -or - choose to forward the call to an Exchange Auto Attendant



Announcement service:
Exchange UM

Auto Attendant phone number: *
+3111112222



New Unassigned Number Range

Name: *
Unassigned Number Announcement

Number range: *
+31402300000 - +31402300999

Announcement service:
Announcement

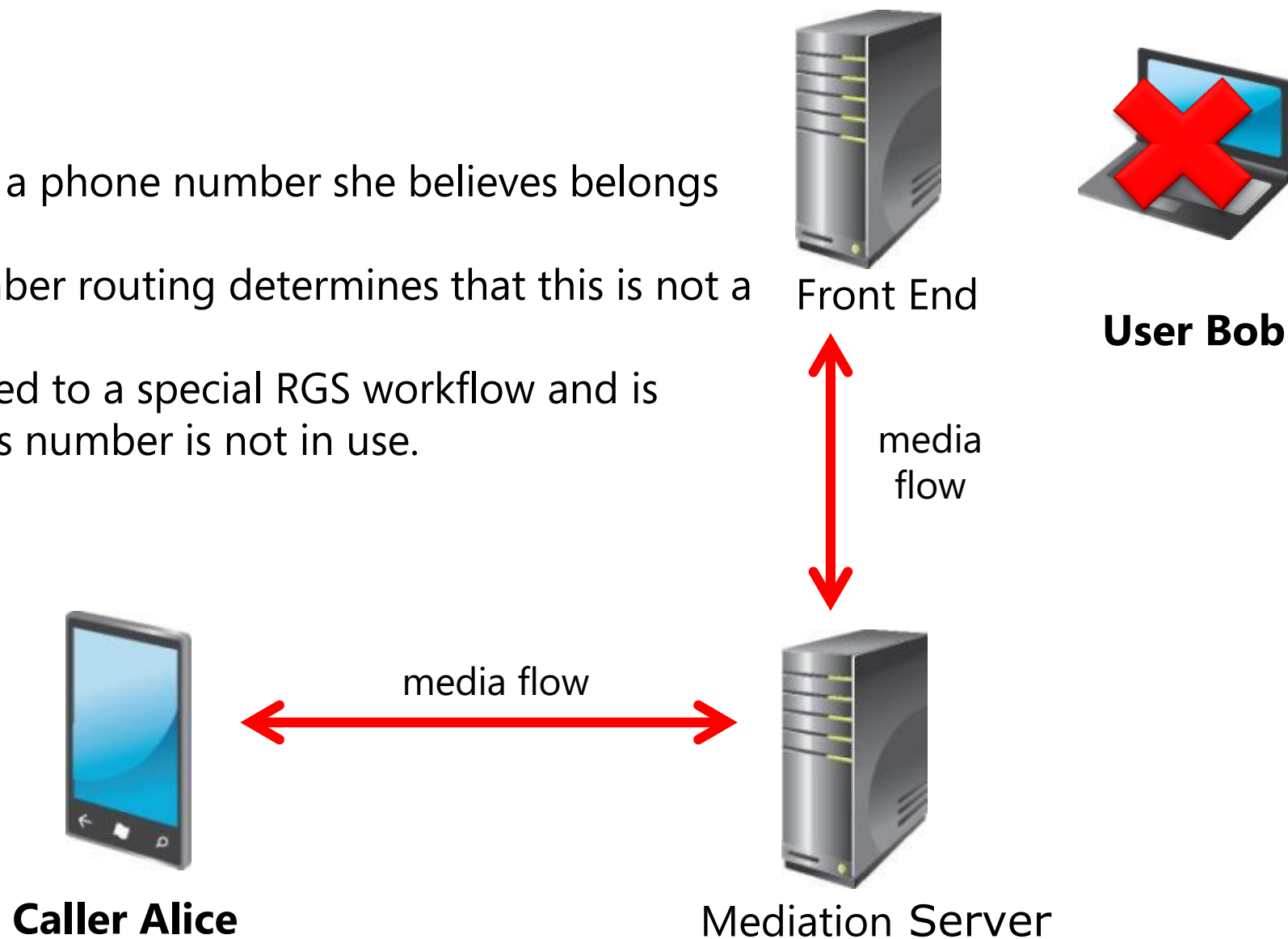
FQDN of destination server: *
ApplicationServerlon-se1.adatum.com

Announcement: *
Number Does Not Exist

Unassigned Number Call Flow (1 of 3)

Step 1:

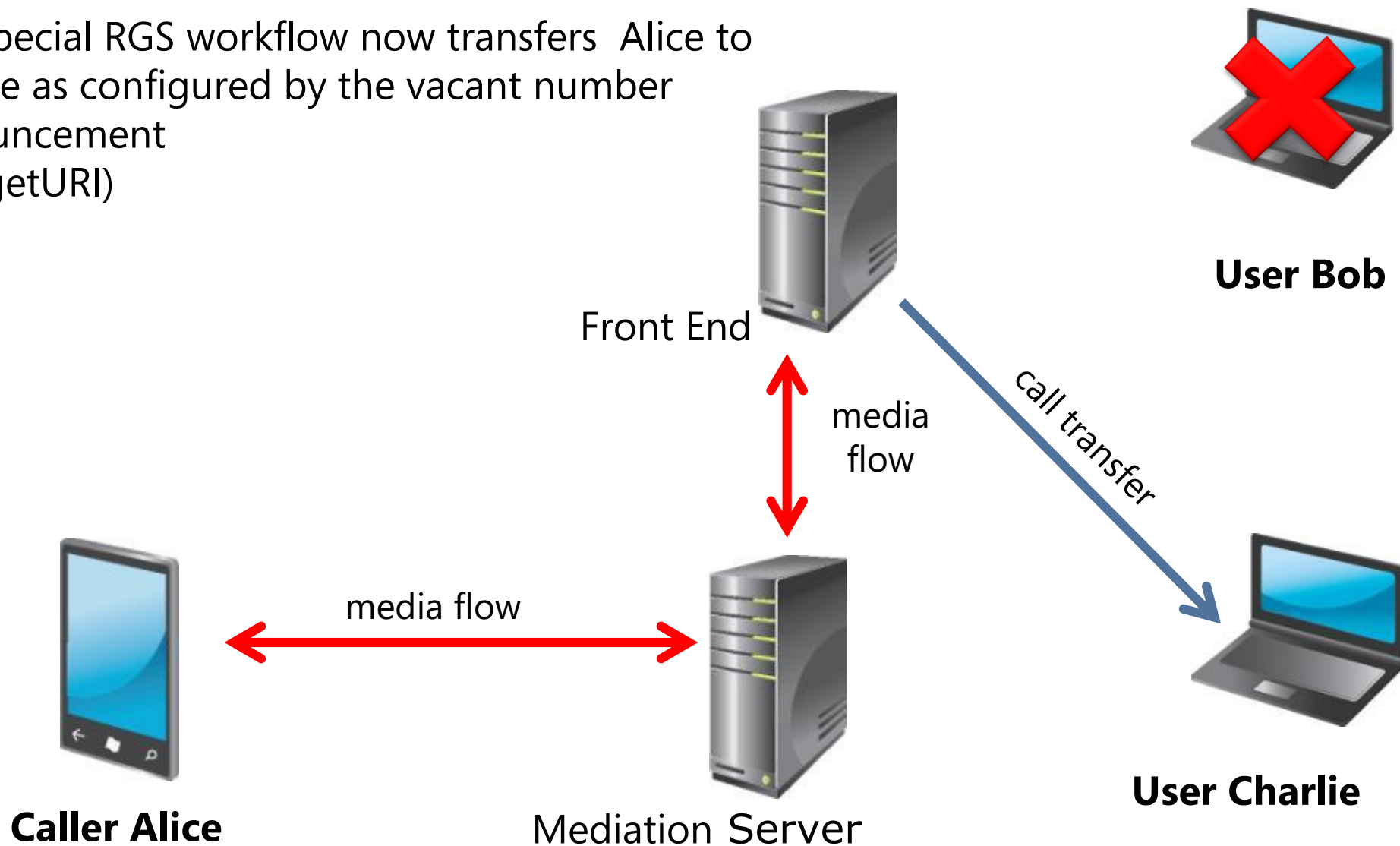
- Alice has dialed a phone number she believes belongs to Bob.
- The vacant number routing determines that this is not a valid number.
- Alice is connected to a special RGS workflow and is notified that this number is not in use.



Unassigned Number Call Flow (2 of 3)

Step 2:

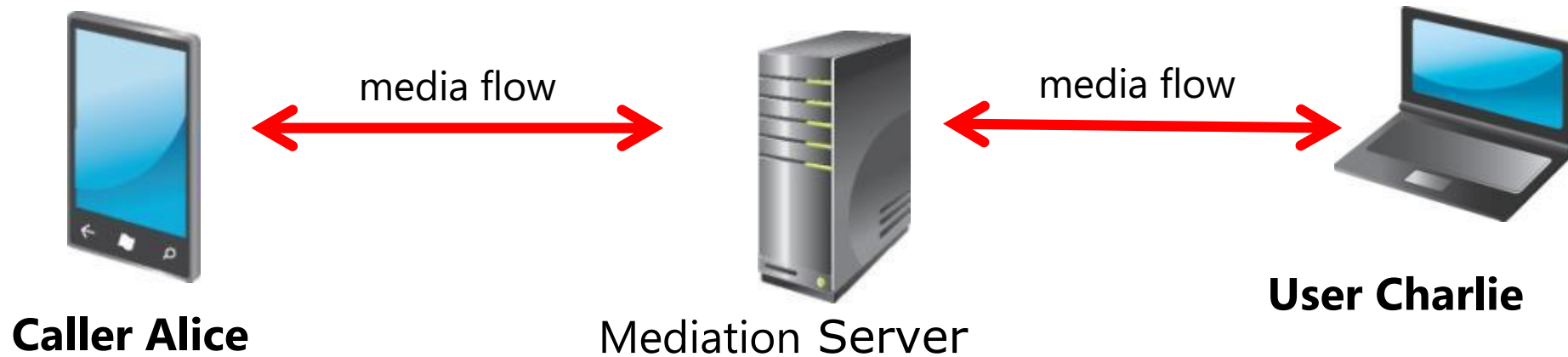
- The special RGS workflow now transfers Alice to Charlie as configured by the vacant number announcement (-TargetURI)



Unassigned Number Call Flow (3 of 3)

Step 3:

- Alice is now connected in a voice call to Charlie



Lesson 3: PSTN Conferencing

- Meeting Types Background
- PSTN Conferencing Features
- DTMF Commands
- Entry/Exit Announcements
- Important UX Settings - Join Experience
- Deploying PSTN Conferencing Services (1 of 2)
- Deploying PSTN Conferencing Services (2 of 2)
- Audio Conferencing Architecture
- Multi-Language Support

Meeting Types Background

- **85% - Reservation less calls**

- Weekly Staff meetings, project meetings or ad-hoc
- Typically 25 or fewer participants, average of 3-5 attendees per meeting
- Majority of attendees is internal
- Frequently contains external attendees
- Web Attached

Target for Lync

- **< 10% - Operator-assisted calls**

- Biweekly/monthly
- Roll call, polling and other large meeting features
- 25-100 attendees
- Managed event
- Web attached

ACP – Domain
(Audio Conferencing Provider)

- **5% - Externally focused calls**

- With transcription, high touch, max features, large audiences
- 100+ participants
- Quarterly or less frequent
- Web attached

Based on Gartner Study

PSTN Conferencing Features

- Meeting Feature to handle small / mid-size meetings
 - DTMF controls
 - Entry and Exit announcements
- Simple join experience
 - Lobby support for restricted meetings
 - Unauthorized users to wait in the lobby to be admitted
 - Name recording for unauthenticated users
 - Integrates seamless with Lync meetings
- Scheduling through familiar Lync interface
- Access Security by PIN & Phone Number authentication
- Meeting prompts and guidance in a language of choice

Commands

- *1 Automated help
- *3 Private roll-call
- *6 Mute/unmute self
- *7 Lock/unlock (leaders only)
- *4 Toggle silent mode (leaders only)
- *9 Entry/exit announcements on/off (leaders only)
- *8 Open lobby (leaders only)

Admin customizable

- Each command can be configured as * / # + 0-9
- Each command can be disabled (unset key mapping)
- Exposed through PowerShell

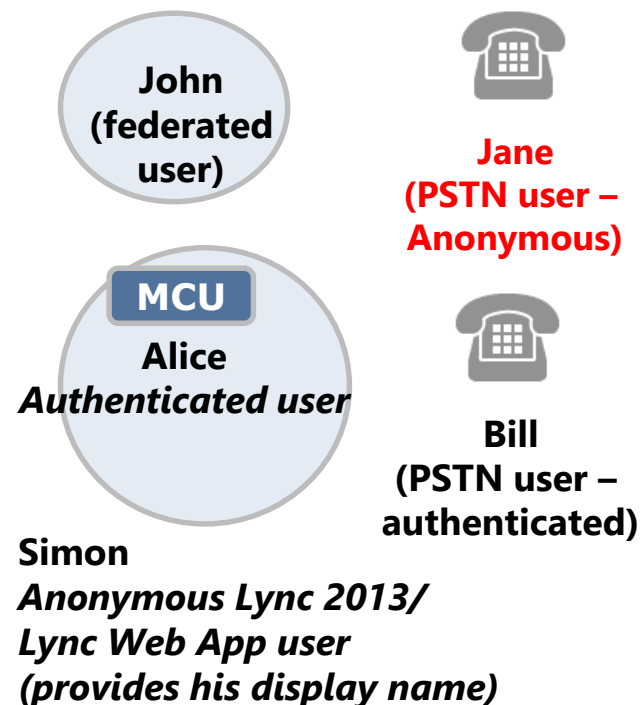
End user discoverable

- Shown on the Dial-in Conferencing web page
- Discoverable in conference by issuing Help command (*1)

Entry/Exit Announcements

- Entry/exit announcements with names
 - Announcements are made when participants join and leave
 - Batching reduces number of announcements
 - Anonymous PSTN users are prompted to record name
 - Authenticated user names are announced by text-to-speech (TTS)
 - Users can skip name recording and join as “unknown participant”

User Type	How name is played with announcements and TTS on (default)
Federated user	TTS of display name
PSTN authenticated	TTS of display name
PSTN anonymous	Recorded name
Lync 2013 authenticated	TTS of display name
Lync 2013/ Lync Web App anonymous	TTS of name provided by user



Entry / Exit Announcements (2 of 2)

Controlled by

- **Admin** - Entry/exit announcements configuration

- Off
- Beep
- Name, TTS for known users or Recording for unauthenticated users

```
Set-CsDialInConferencingConfiguration  
-Identity site:Redmond  
-EntryExitAnnouncementsType "ToneOnly"
```

- **Organizer**

- Turn announcements on/off at scheduled time for non-default meetings

These people don't have to wait in the lobby:

People I invite from my company ▼

Callers get in directly

Announce when people enter or leave

- **Presenter**

- Turn announcements on/off during the meeting

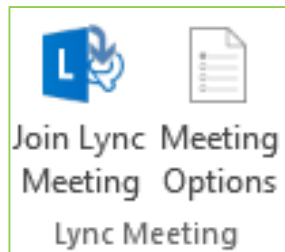
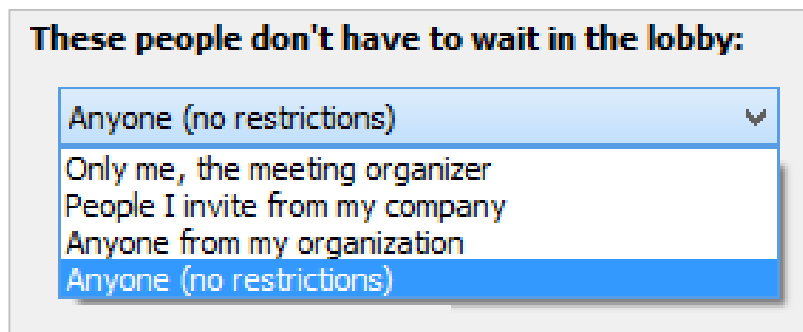
In Conference DTMF Controls

DTMF Feature

*9 Enable or disable announcements for participants entering and exiting the conference

Important UX Settings - Join Experience

- Settings related to the join user experience
- Default meeting policy (set by administrator, can be changed by user)
- Lobby bypass for PSTN users (set by user)



Meeting Policy	Phone, Anonymous	Phone authenticated (phone number + PIN)	
		Invited	Not Invited
Organizer Only (Locked)	Lobby (MOH)	Lobby (MOH), unless organizer	Lobby (MOH)
People I Invite	Lobby (MOH), unless PSTN Lobby Bypass turned on	IN	Lobby (MOH)
People from my company	IN, unless PSTN Lobby Bypass turned off	IN	IN
Everyone	IN, unless no authenticated user have joined yet	IN	IN

Deploying PSTN Conferencing Services (1 of 2)

- Plan additional Direct Inward Dialing (DID) numbers and PSTN trunk capacity for (regional) PSTN access numbers
- Consider Toll Free numbers
- Deploy PSTN gateways or configure SIP trunking
- Configure access numbers globally or per site
 - Assign access numbers to conference regions
 - Define primary and additional languages (maximum 4)
- Configure dial plans with a valid dial-in conferencing region
 - Dial in conferencing regions associate a dial plan with one or more dial in access numbers

Deploying PSTN Conferencing Services (2 of 2)

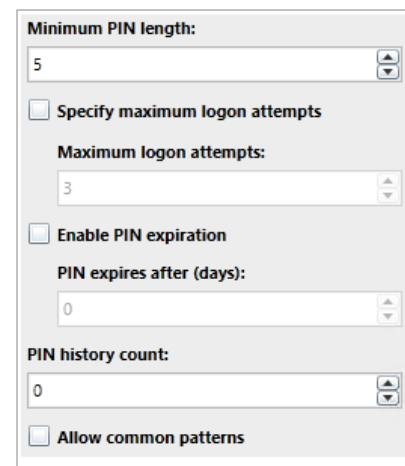
- Configure PIN security settings (complexity, expiration, etc.)
- Generate PIN and send welcome email using PowerShell script (Set-CsPinSendCAWelcomeMail.ps1) and CSV

```
Set-CsClientPin -Identity "tailspin\holly" -Pin 18723834
```

- Enable user for PSTN dial-in (conferencing policy)

Optional

- Configure DTMF commands globally or per site
- Manage access numbers per conference region (PowerSsShell cmdlet only)



Minimum PIN length: 5

Specify maximum logon attempts

Maximum logon attempts: 3

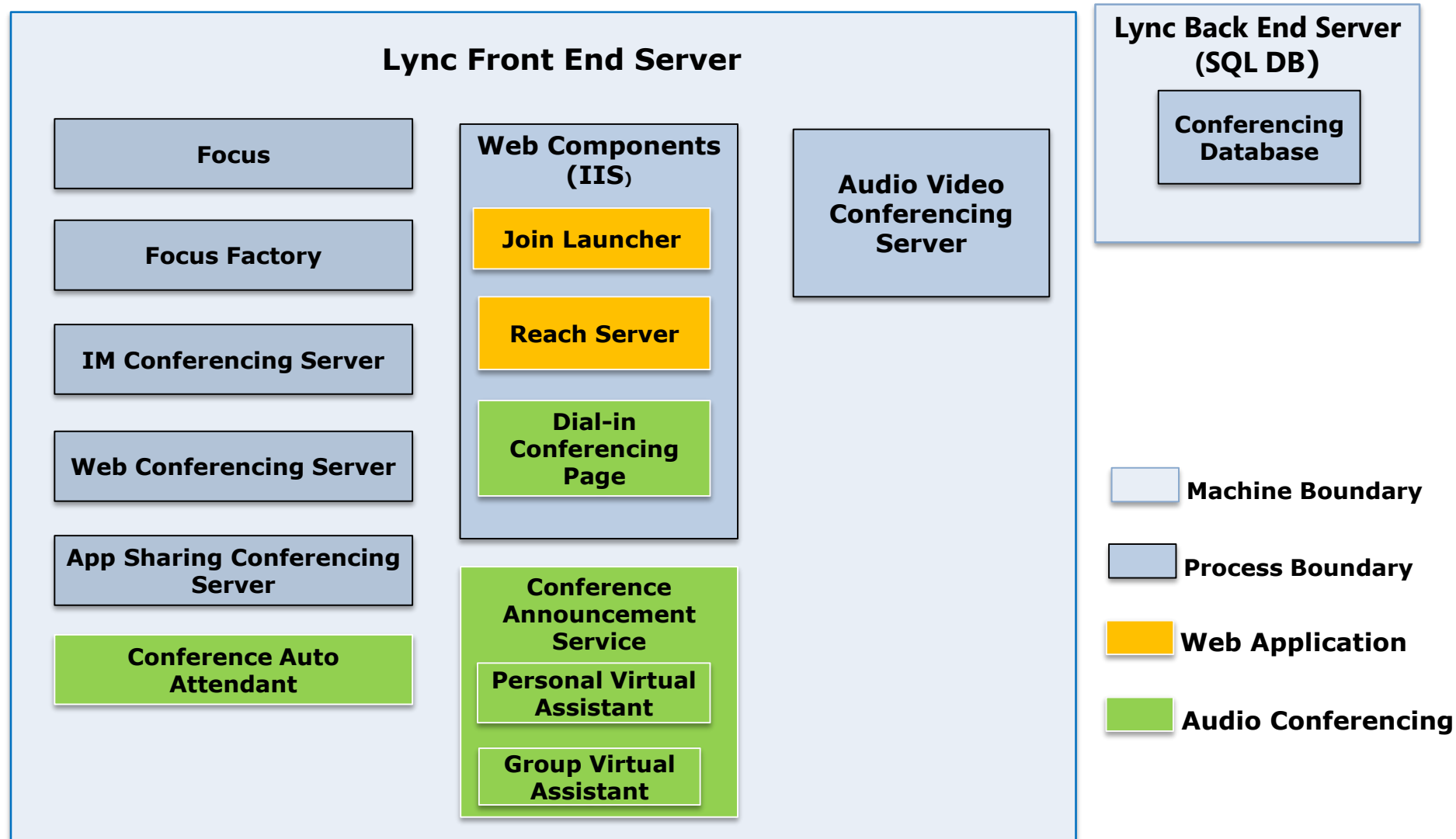
Enable PIN expiration

PIN expires after (days): 0

PIN history count: 0

Allow common patterns

Audio Conferencing Architecture



Multi-Language Support

Caller 1 joins and requests English



Caller 2 joins and requests English



Caller 3 joins and requests German



Voice Applications

Conference Announcement Service

English

Group Virtual Assistant (C1/C2)

Personal Virtual Assistant (C1)

Personal Virtual Assistant (C2)

German

Group Virtual Assistant (C3)

Personal Virtual Assistant (C3)

Lesson 4: Overview of Response Group Services

- Typical PBX deployments
- Positioning Lync Response Groups
- Feature Overview
- Response Group Management
- Managed and Unmanaged Response Groups

Typical PBX deployments

Basic PBX features (Basic Hunt Group)

Add-on ACD solution
Fully featured
Additional licensing
costs

Dedicated ACD
High scale
High additional costs

- Basic hunt groups
- Agent sign-in/out
- Various hunting methods

- MoH
- Business hours
- Basic CDRs

- Supervisor
- Live views
- Advanced CDRs

- High scale
- High availability
- Advanced CDRs
- Interop with LoB apps

Departmental solutions

**Internal
Help
desks,
Small
Call
Centers**

Large Call Centers

Positioning Lync Response Groups

Basic PBX features

(Basic Hunt Group)

Add-on ACD solution

Fully featured
Additional licensing
costs

Dedicated ACD

High scale
High additional costs

Response Group Service

- Hunt groups and basic IVRs
- Integration with Lync presence
- Agent anonymity
- Announcements (unassigned numbers)
- Speech recognition and TTS
- Music on hold
- Basic CDRs

- Supervisor
- Live views
- Advanced CDRs

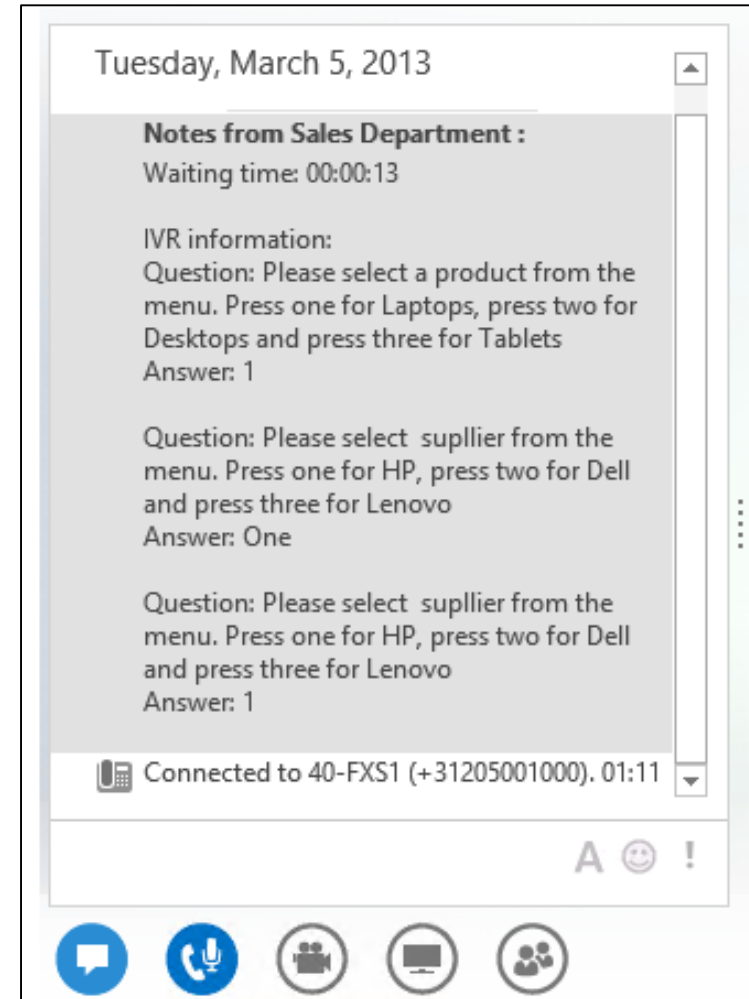
- High scale
- High availability
- Advanced CDRs
- Interop with LoB apps

Internal
Help
desks,
Small
Call
Centers

Large Call Centers

Feature Overview

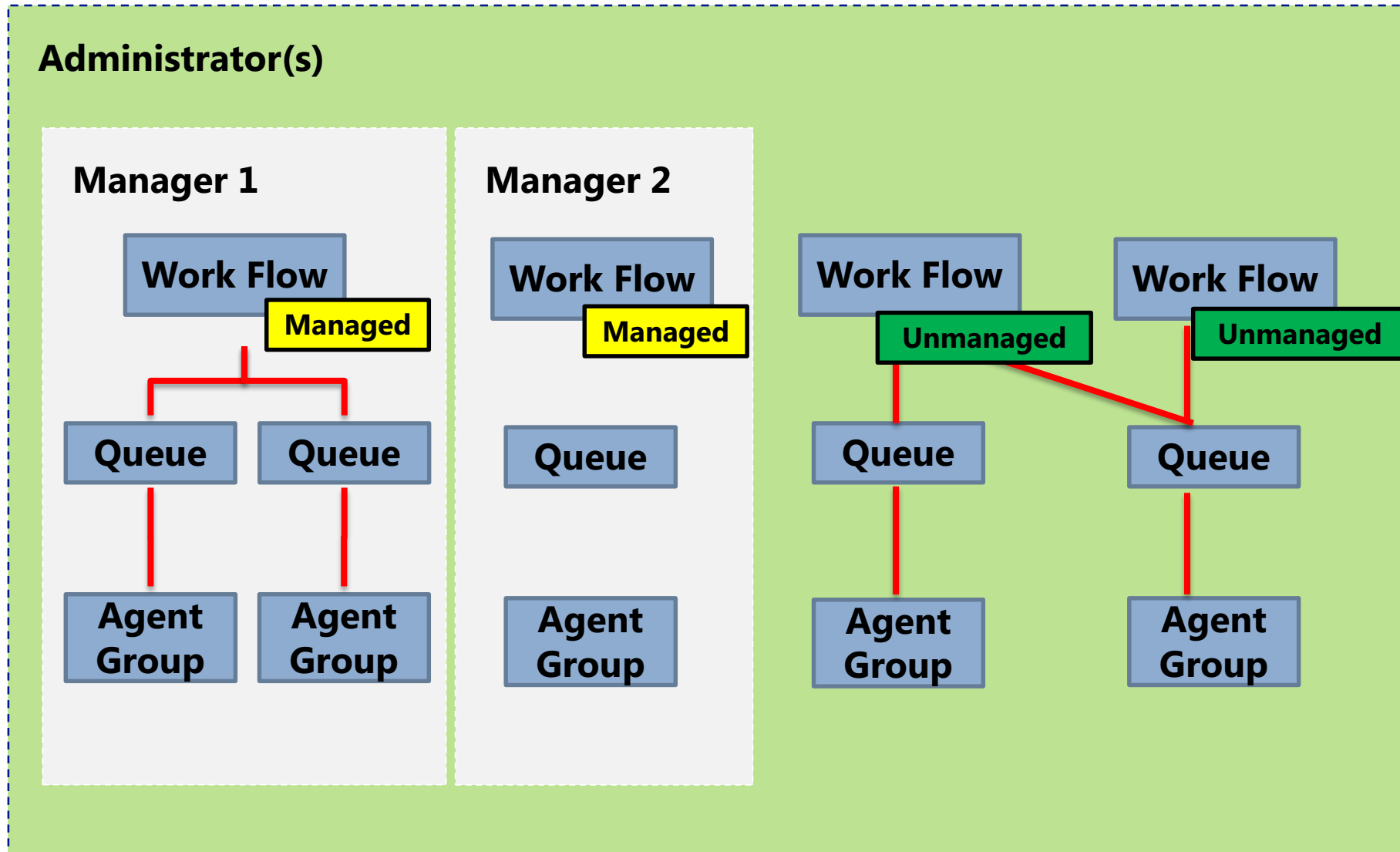
- IVR – Interactive Voice Response
- Call Queuing
- Routing
- Agent Side user experience
- Infrastructure



Response Group Management

- An Administrator can delegate the management of response groups to a Response Group Manager
 - The Manager role improves the scalability of a response group deployment by decentralizing the management of the response groups from the administrator
- The scope of a Response Group Manager is at a workflow level
 - A Manager cannot see or modify response groups for which he is not a Manager

Managed and Unmanaged Response Groups and Queue Sharing



Lesson 5: Implementing Response Group Services

- Response Group Building Blocks
- Formal vs. Informal User Groups
- Configuring Queues
- Configuring Workflows
- Sample RGS Scenario - Operator
- Deploying Response Groups
- RGS Call Flow and Agent Anonymity

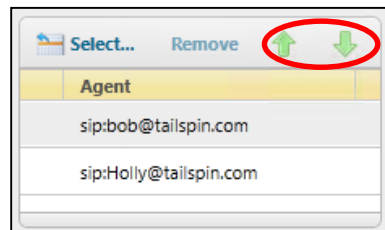
Response Group Building Blocks

Agents

- Target for incoming calls
- Enterprise Voice User(s)
- Not a specific RGS Object
- Member of one or more Groups

Groups

- Ordered list of agents or Exchange Distribution Groups
- Membership can be formal or informal
- Uses predefined routing methods
- Added to one or more queues



Bob Kelly
Available

User 1 answered the last call



Amr Zaki
Available

User 2 is the 3rd longest idle



Brad Sutton
Busy

User 3 is the 2nd longest idle



Don Funk
Available

User 4 is the longest idle

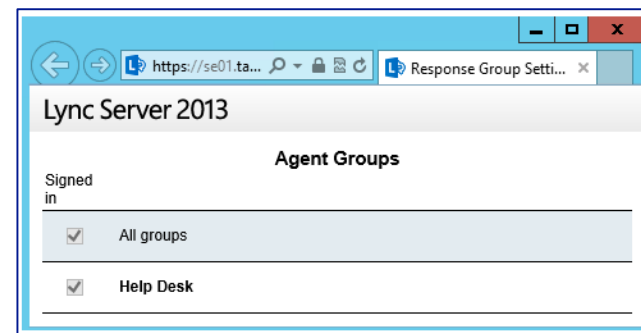
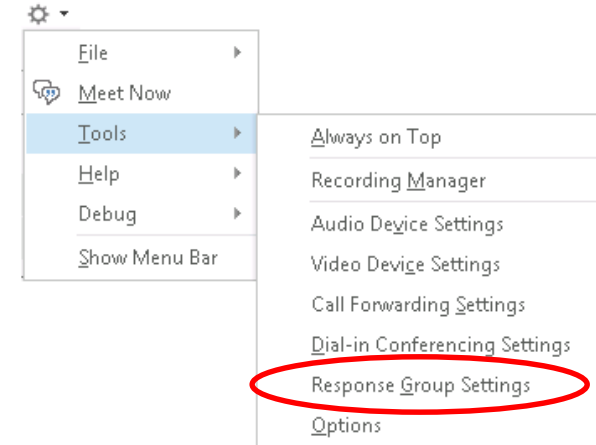
Routing Method

- **Attendant Ring** - 1, 2, 3 all at the same time
- **Parallel Ring** - 1, 2, and 4 at the same time (as 3 is in a call)
- **Longest Idle** - Ring 4, wait 30 seconds, Ring 2, wait 30 seconds, Ring 1 etc.
- **Round Robin** - Ring 2, wait 30 seconds, Ring 4, wait 30 seconds, Ring 1 etc.
- **Serial** - Always Ring 1, wait 30 seconds, Ring 2, wait 30 seconds, Ring 4 etc.

Formal vs. Informal User Groups

- Informal User Group membership
 - User signs in to the Lync client
 - User is automatically available as an active agent

- Formal User Group membership
 - User signs in to the Lync client
 - User must sign in again to become an active agent



Configuring Queues

Queues

- Holds call until agent pickup
- Serviced by one or many groups
 - Follows each group's routing sequence in order listed (think escalation)
- Various configuration options
 - Queue Overflow Action
 - Queue Timeout Action
 - Custom Prompts
- Target for a Workflow

Edit Queue - Helpdesk

Name: *
Helpdesk

Description:

Groups

Name	Participation policy	Routing method
Help Desk	Informal	Longest idle

Enable queue time-out

Time-out period (seconds):
20

Forward to voice mail

SIP address:

Enable queue overflow

Maximum number of calls:
10

Forward the call:
Newest call

Call action:
Disconnect

Configuring Workflows

The screenshot displays the Lync Server 2013 Response Group Configuration Tool in a web browser. The browser address bar shows `https://se01.tailspin.local//RgsConfig/`. The tool interface is titled "Lync Server 2013" and "Response Group Configuration Tool".

Manage an Existing Workflow

Under Action, click Edit or Delete to manage the corresponding

Active	Workflow Name	Template
Yes	Helpdesk	Hunt Group

Create a New Workflow

The response group templates help you to design a new workflow template that you want to use.

Hunt Group
Simple routing to a hunt group you define and additional settings.

Interactive
In addition to Hunt Group settings, you can specify up to two answers.

Hunt Group Configuration (Step 1)

Activate and Name the Workflow

- Activate the workflow
If you do not activate the workflow now, you can do so later by using the Response Group configuration tool.
- Enable for federation
- Enable agent anonymity
If you enable agent anonymity, some call modalities will be disabled. For details, see help.

Enter the address of the group that will receive the calls:

SIP:
Example: sales@contoso.com

Display name:
Example: Contoso Sales

Telephone number:
Example: +14255550165

Display number:
Example: +1 (425) 555 01 65

Description:
Example: Group that receives sales calls. The description is published in a Lync contact card.

Workflow Type:
 Unmanaged Managed

Managers: SIP:
Example: manager@contoso.com

Step 2: Select a Language

The language that you select will be used for all text-to-speech or speech recognition conversions.

Sample RGS Scenario - Operator

Enable queue time-out

Time-out period (seconds):
20

Forward to another queue
Backup Operators

Enable queue overflow

Maximum number of calls:
10

Forward the call:
Newest call

Call action:
Forward to another queue
Backup Operators

← Classic Operator

← Operator with Fallback

Operator with FallBack
And After-hours Service →

Outside of business hours, process call as follows (after the message has played, if you have configured one).

Disconnect call

Forward to voice mail

SIP:

Example: bob@contoso.com

Forward to SIP URI

SIP: x

Example: bob@contoso.com

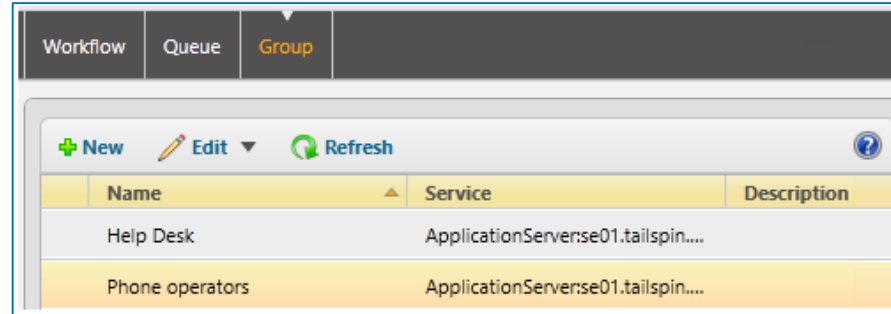
Forward to telephone number

SIP:

Example: +14255550165@contoso.com

Deploying Response Groups

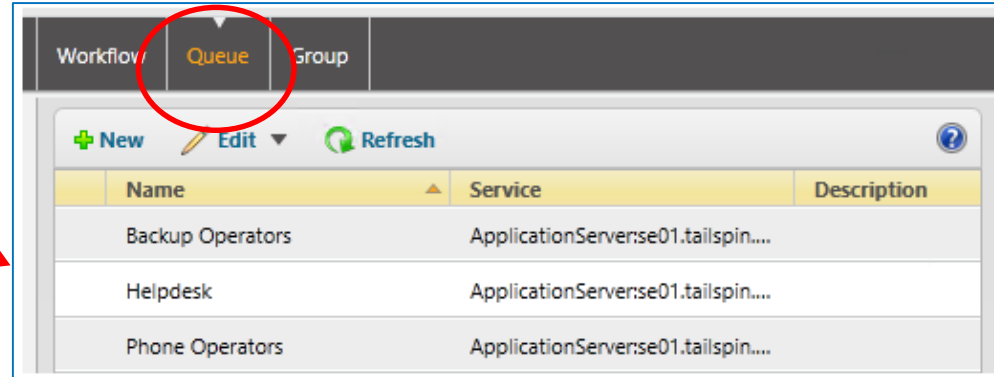
Define agent groups
(Lync Control Panel)



A screenshot of the Lync Control Panel interface showing the 'Group' view. The top navigation bar has 'Workflow', 'Queue', and 'Group' tabs, with 'Group' selected. Below the navigation bar are buttons for '+ New', 'Edit', and 'Refresh'. A table lists agent groups:

Name	Service	Description
Help Desk	ApplicationServerse01.tailspin....	
Phone operators	ApplicationServerse01.tailspin....	

Define agent groups
(Lync Control Panel)



A screenshot of the Lync Control Panel interface showing the 'Queue' view. The top navigation bar has 'Workflow', 'Queue', and 'Group' tabs, with 'Queue' selected and circled in red. Below the navigation bar are buttons for '+ New', 'Edit', and 'Refresh'. A table lists queues:

Name	Service	Description
Backup Operators	ApplicationServerse01.tailspin....	
Helpdesk	ApplicationServerse01.tailspin....	
Phone Operators	ApplicationServerse01.tailspin....	

Define the workflow
(RGS Web Page)

Create a New Workflow

The response group templates help you to design a new workflow. Each template has a defined set of features. To create a new workflow, click Create beside the template that you want to use.

Hunt Group

Simple routing to a hunt group you define and additional settings such as welcome message, availability, and music on hold.

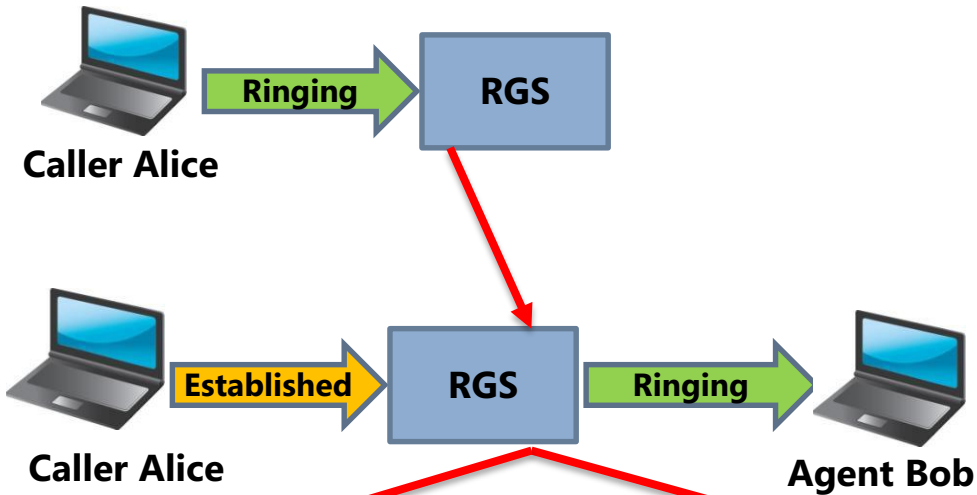
Create

Interactive

In addition to Hunt Group settings, you can specify up to two levels of questions that callers will hear. Each question can have up to four possible answers

Create

RGS Call Flow and Agent Anonymity

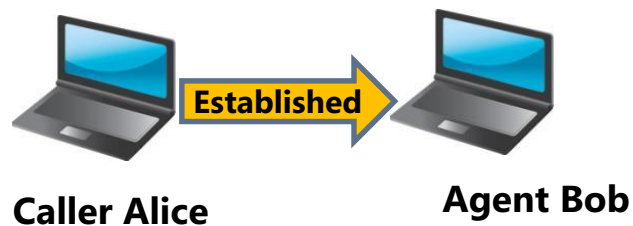


Alice calls a Response group
Call flows differ depending on
Agent anonymization
Initial call is always targeted at
the Response Group

- RGS alerts one or more agents

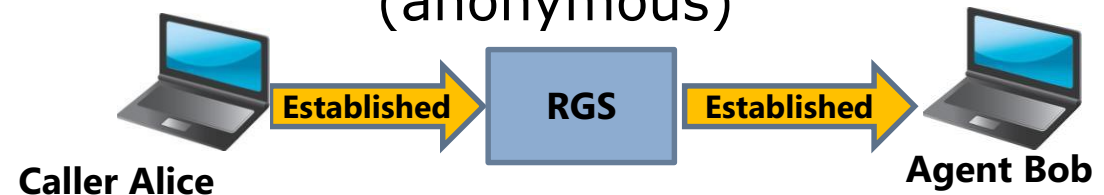
No agent anonymization

Agent answers
Alice connects directly
RGS no longer part of
the call

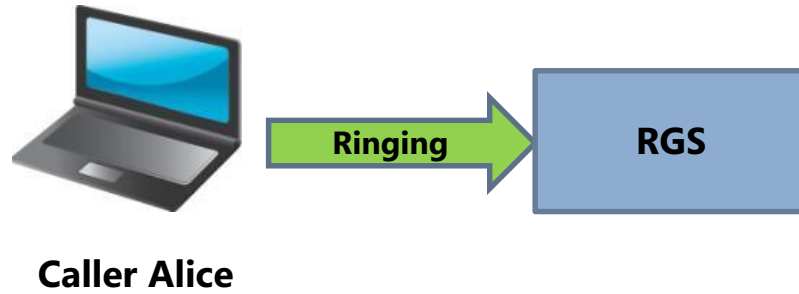


Agent anonymization

Agent answers
Alice remains
connected through
RGS
Agent is hidden
(anonymous)

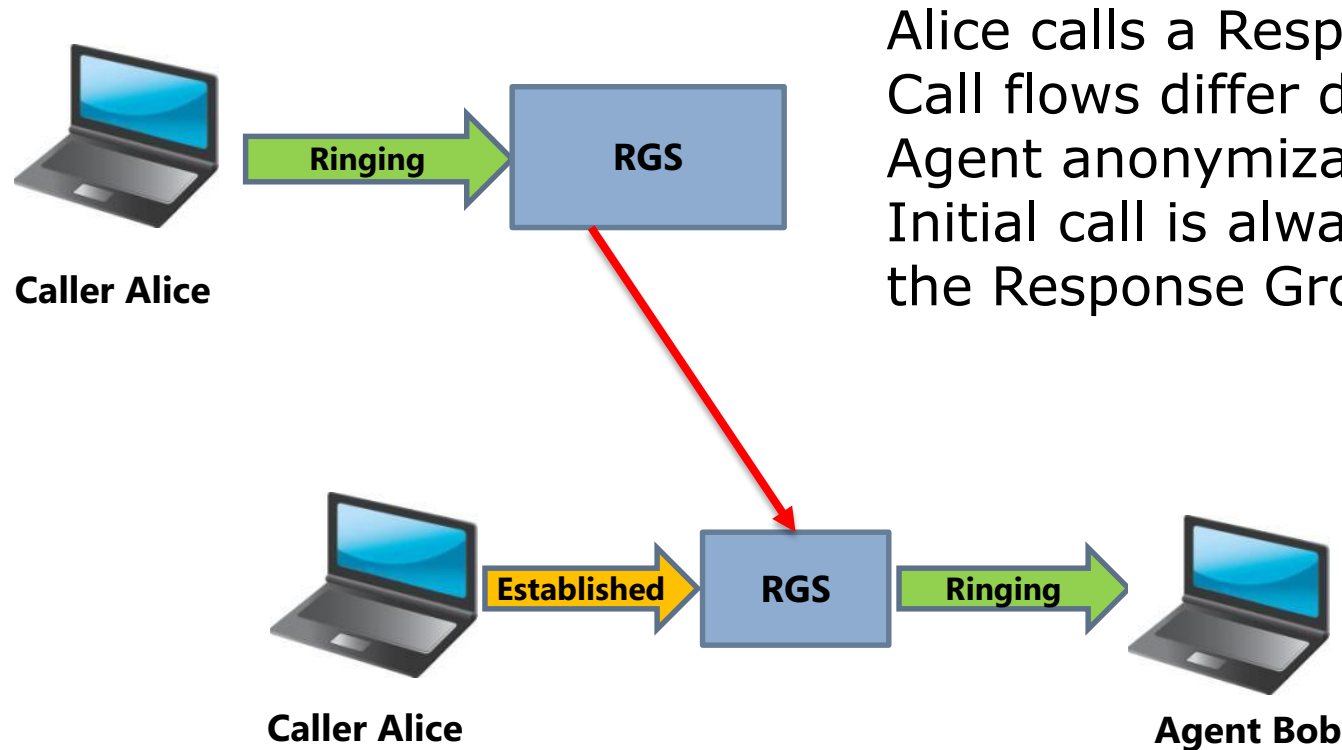


RGS Call Flow and Agent Anonymity (1 of 4)



Alice calls a Response group
Call flows differ depending on
Agent anonymization
Initial call is always targeted at
the Response Group

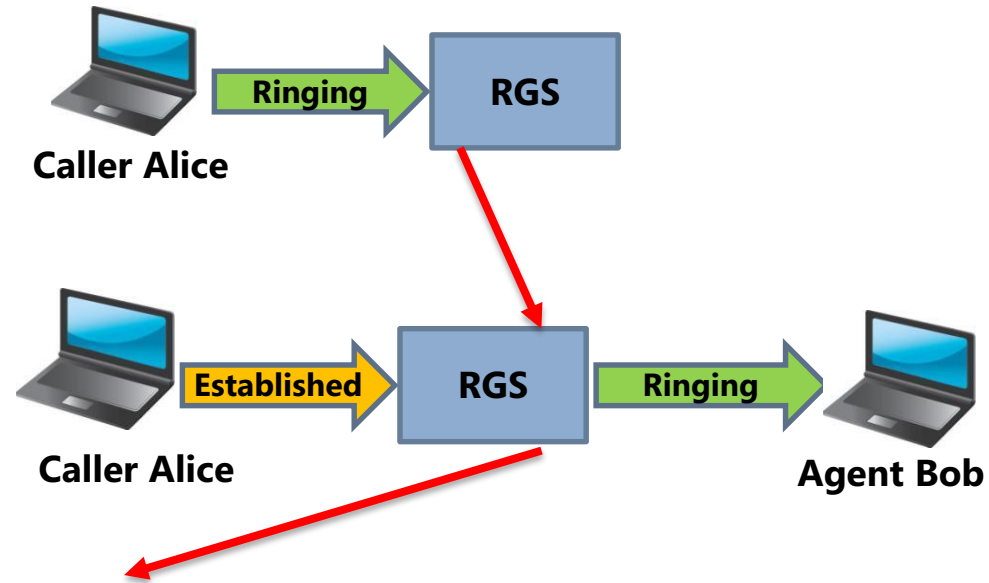
RGS Call Flow and Agent Anonymity (2 of 4)



Alice calls a Response group
Call flows differ depending on
Agent anonymization
Initial call is always targeted at
the Response Group

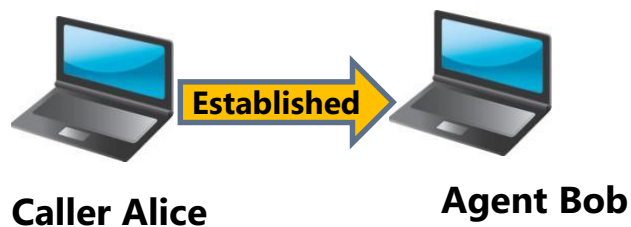
- **RGS alerts one or more agents**

RGS Call Flow and Agent Anonymity (3 of 4)



No agent anonymization

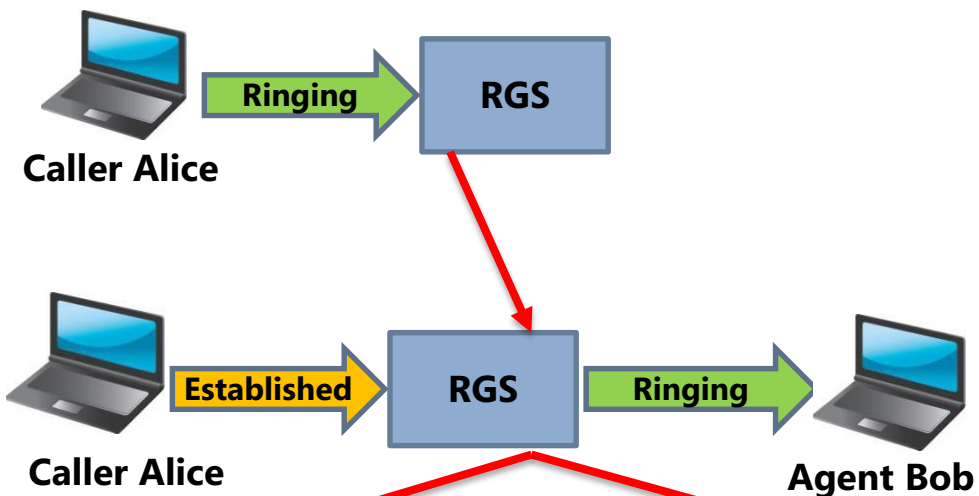
Agent answers
Alice connects directly
RGS no longer part of
the call



Alice calls a Response group
Call flows differ depending on
Agent anonymization
Initial call is always targeted at
the Response Group

- **RGS alerts one or more agents**

RGS Call Flow and Agent Anonymity (4 of 4)

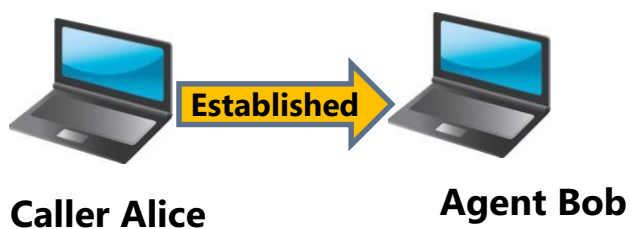


Alice calls a Response group
Call flows differ depending on
Agent anonymization
Initial call is always targeted at
the Response Group

- RGS alerts one or more agents

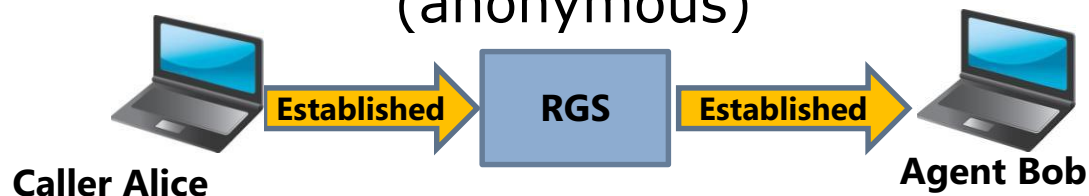
No agent anonymization

Agent answers
Alice connects directly
RGS no longer part of
the call



Agent anonymization

Agent answers
Alice remains
connected through
RGS
Agent is hidden
(anonymous)



Module Review and Takeaways

- Review Question(s)
- Real-world Issues and Scenarios
- Tools



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