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SIP Server Deployment Guide

Shared Call Appearance

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SIP Server supports Shared Call Appearance (SCA) that enables a group of SIP phones to receive inbound calls directed to a single destination (shared line); that way, any phone from this group can answer the call, barge-in to the active call, or retrieve the call placed on hold. The shared line has sub-lines called appearances. Each shared line has one or more appearances; each appearance can handle one call at a time. The current status of each call (appearance) is displayed on each phone in the SCA group that includes outbound calls made from any phone in this group, which appear as they are placed from the same origination device.

There are several standards which enable implementation of SCA within the SIP protocol. Genesys SIP Server implemented the BroadWorks SCA standard that supports barge-in and is supported by leading phone manufacturers. Refer to your SIP phone documentation for information about SCA standards supported by your phone.

These are common scenarios where SCA can be used:

- Executive/Assistant—The call appearances on the executive's phone also appear on the assistant's phone. The assistant may answer incoming calls to the executive and then place the call on hold for the executive to pick up. The assistant can always see the state of all calls on the executive's device.
- Key System Emulation—Multiple lines are shared across two or more phones. A call answered on one phone can be put on hold and picked up on another phone. Another phone can be added/joined/bridged to an existing appearance resulting in a conference call.
- Single Line Extension—Several phones are formed in to a group to which incoming calls arrive. When one device answers, the other phone are informed. If another phone in the group goes off hook, it is immediately bridged or joined in with the call.
- Changing devices—A user is on a call on one phone and wishes to change phones and continue the call on another phone. The user places the call on hold, notes the appearance number of the call, then walks to another phone. Users are able to identify the same appearance number on the other phone, pick up the call, and continue the conversation.

Note: This feature may also be referred to as Bridged Line Appearance (BLA) or Shared Line Appearance (SLA).

User Experience

- Incoming calls to a Shared Call Appearance ring on all the associated phones.
- The status of every call is shown on all phones associated with the Shared Call Appearance.
- Calls are always associated with a “line appearance”. Incoming calls will be assigned the lowest numbered idle line appearance. All phones associated with the Shared Call Appearance should have the same number of “line appearances” configured, typically with each line appearance having a dedicated “line key” button.
- A user may seize (go off hook) a particular line appearance if it is idle by pressing the corresponding line key button. For example, pressing the second line key will seize (go off hook) the second line appearance when it is idle.
- Held calls may be retrieved by any phone associated with the Shared Call Appearance.
- An active call on a phone associated with the Shared Call Appearance may be joined at any time by another phone associated with the Shared Call Appearance. This is sometimes referred to as a “barge-in”. The parties are then conferenced together.

- Each phone associated with the Shared Call Appearance might have only one active call at a time, and other calls will be held.
- Outgoing calls from any line appearance of the Shared Call Appearance will present an outgoing caller ID with the identity of the Shared Call Appearance. (A phone could have other lines not associated with the SCA, and these are not impacted, they would present a different caller ID).

Note: According to the BroadWorks SCA standard, one DN cannot be a member of multiple shared lines. If, for example, an executive assistant needs to share lines with two executives, two independent shared lines must be configured on the assistant's phone. All of them are displayed at the screen and operable.

Sample Call Flow

A sample call flow for a Shared Call Appearance scenario is as follows:

1. Two phones are configured with a Shared Call Appearance of 7000 and all are idle. In this example, they are referred to as Phone A and B, and both are configured to show two line appearances.
2. An incoming call to 7000 rings on both phones using the first line appearance.
3. A user at Phone A answers the call. Phone B reflects the call is active on another phone on the first line appearance.
4. A second incoming call to 7000 rings on both phones on the second line appearance.
5. The user at Phone A places the first call on hold. Phone B reflects the initial call is held on the first line appearance.
6. The user at Phone A answers the second call. Phone B reflects the second call is active on another phone on the second line appearance.
7. The user at Phone B retrieves the held call from the first line appearance. Phone A reflects the call is now active on another phone on the first line appearance.

Shared Call Appearances are configured using two types of DNs:

- Primary shared line DN—The Address of Record (AoR), such as 7000 in the example above.
- Secondary DN—Other DN associated with the Primary shared line DN.

SCA and Other Feature Interaction

- Call Recording can be set for a particular shared line DN, Primary and/or Secondary DN.
- Call Monitoring can be set for a particular shared line DN, Primary and/or Secondary DN. However, neither Primary nor Secondary DN can monitor other DNs. If, during monitoring, a call placed on hold is retrieved by another shared line DN, the monitoring will be dropped.
- Greetings can be set for a particular shared line DN, Primary and/or Secondary DN.
- Greetings and Barge-In—A shared line user can barge-in to an established call with two parties while a greeting is in progress, after which all three parties will be connected.
- Hunt Groups—A shared line DN cannot be a member of a Hunt Group.

- **Routing**—Only routing to a Primary shared line DN is supported (and all phones will ring). Routing to a Secondary DN directly is not supported. A shared line DN can make a call to a Routing Point using one of the shared line appearances—the same way as for any call.
- **Call Pickup**—An inbound SCA call cannot be picked up by a DN rather than a shared line DN. However, if an inbound call is ringing on a regular non-shared line DN, it can be picked up by a shared line DN.
- **Call Park/Retrieve**—Shared line users can park a call, and the call can be retrieved from any phone (shared line or regular phones) using the Primary shared line number. There can be only one parked call per shared line at a time. Shared line users can retrieve calls that were parked by regular phones.
- **Dial Plan**—For inbound calls, SIP Server applies dial plans to resolve call destinations. If a destination is the Primary shared line DN, a call delivered to the SCA number is treated as a regular SCA call, i.e. is ringing on Primary and Secondary DNs. No more dial plan rules are applied after that. For outbound calls, shared line DNs dial plans are applied—for example, if a Secondary DN makes an outbound call, the dial plan configured for that Secondary DN is applied.

SCA Messaging

SCA related data is transported using the Call-Info and Line-Seize Event Packages. They are used in shared line call-related messages (INVITE, 180 Ringing, SUBSCRIBE, and so on).

SIP Server reports T-Library events separately for each Primary and each Secondary DN. No events are generated for a shared line itself.

Feature Configuration

To enable Shared Call Appearance, complete the following steps.

1. Configure a Primary shared line DN.

In the DN object:

1. Create a DN of type Extension with the number where all incoming calls will be delivered.
2. In the Annex -> TServer section, set the following options:
 - **shared-line**—Set this option to `true`.
 - **shared-line-capacity**—(Optional) Set this option to specify a number of shared line appearances, which limits the maximum number of simultaneous calls per shared line.
 - **authenticate-requests**—Set this option to `register` for enabling an authentication procedure on DN registration.
 - **password**—Set this option to a valid password to be used for authentication of the Primary shared line DN.

2. Configure Secondary shared line DNs.

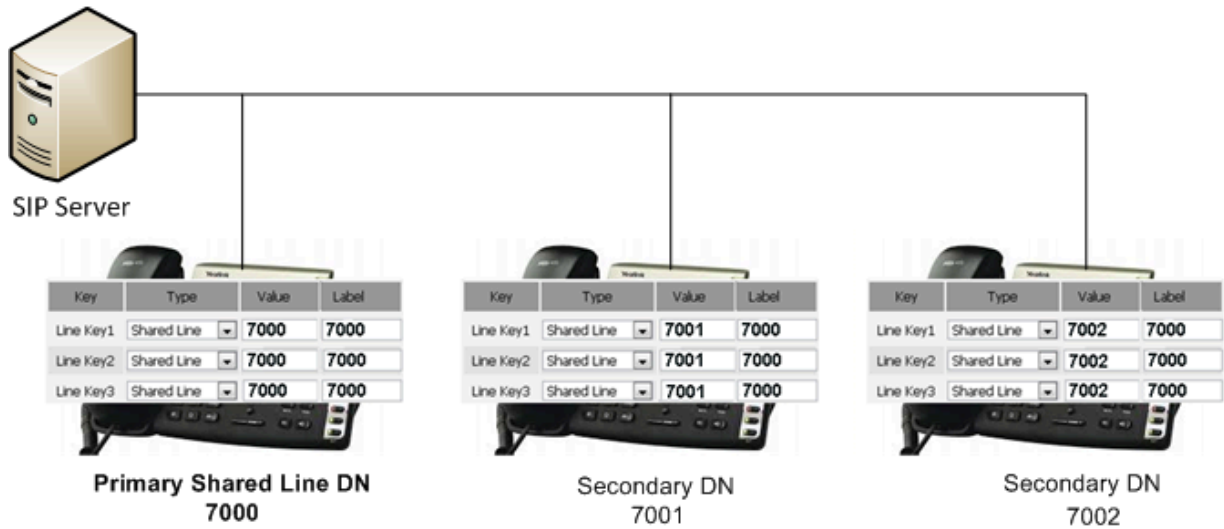
1. In the DN object:
 - Create a DN of type Extension with the number to be used as a Secondary DN.
 - In the Annex -> TServer section, set the following options:
 - `shared-line-number`—Set this option to the value of the Primary DN.
2. On the SIP phone that supports SCA specify the following properties (the exact property names vary):
 - `DN number`—Must be set to the same value as the DN number in the DN object for a Secondary DN.
 - `Line type`—Must be set to Shared Line, BroadSoft SCA, or equivalent.
 - `Authentication username`—Must be set to the same value as the Primary DN.
 - `Authentication password`—Must be set to the same value as the password option configured for the Primary DN.
3. Repeat the above steps for each Secondary DN to be used as a shared line user.

Important

Starting with SIP Server version 8.1.101.75, Shared Call Appearance is supported in Business Continuity deployments. See the [SIP Server High-Availability Deployment Guide](#) for details.

Configuration Example

In the configuration example, the Primary shared line DN is 7000. The Secondary DNs are 7001 and 7002.



1. DN object configuration:
 - DN number: **7000**
 - **shared-line=true**
 - **authenticate-requests=register**
 - **password=1234**
 - **shared-line-capacity=3** (optional)
2. Phone configuration:
 - DN number: **7000**
 - Line type: Shared Line (SCA)
 - Display name/Label: **7000**
 - Authentication username: **7000**
 - Authentication password: **1234**

1. DN object configuration:
 - DN number: **7001**
 - **shared-line-number=7000**
2. Phone configuration:
 - DN number: **7001**
 - Line type: Shared Line (SCA)
 - Display name/Label: **7000**
 - Authentication username: **7000**
 - Authentication password: **1234**

1. DN object configuration:
 - DN number: **7002**
 - **shared-line-number=7000**
2. Phone configuration:
 - DN number: **7002**
 - Line type: Shared Line (SCA)
 - Display name/Label: **7000**
 - Authentication username: **7000**
 - Authentication password: **1234**

How Configuration Changes Take Effect

If a regular DN (neither Primary nor Secondary shared line DN) is changed to be a Primary or Secondary DN in the Genesys configuration, SIP Server does the following:

- Continues processing DN's existing calls as non-shared line DN calls.
- Delivers and processes new inbound calls as SCA calls. Outbound calls from this DN can be barged-in or retrieved by other shared line users.
- Does not send NOTIFY messages with appearance statuses to this DN until it subscribes to SCA statuses. To force the DN to subscribe, it must be reconfigured as a BroadWorks SCA DN. Until then, it is not able to barge-in or retrieve calls served by other shared line users.

If a Primary or Secondary DN is changed to be a non-shared line DN, SIP Server does the following:

- Continues processing of existing calls for this DN.
- Processes new inbound/outbound calls as non-shared line calls.

- Stops sending NOTIFY messages with appearances statuses to this DN.

DN-Level Configuration Options

shared-line

Default Value: false

Valid Values: true, false

Changes Take Effect: For the next call

Indicates if this DN is used as a Primary shared line number.

shared-line-capacity

Default Value: 2147483646

Valid Values: Integer in the range 1-2147483646

Changes Take Effect: For the next call

Specifies the maximum number of line appearances (or simultaneous calls) for a Primary shared line DN. These calls are distributed among shared line users and one user can handle only one call at a time. This option can be configured only for a Primary shared line DN (`shared-line=true`). The default value means that the number of simultaneous calls is (almost) unlimited.

shared-line-number

Default Value: No default value

Valid Values: Primary shared line DN

Changes Take Effect: For the next call

Specifies the Primary shared line DN to be used by the Secondary shared line DN to receive incoming calls and make outgoing calls.

Feature Limitations

- Only 1pcc operations are supported.
- One DN cannot be a member of multiple shared lines.
- Calls to Secondary DNs are not supported. Customers may choose to disable calls to Secondary DN numbers through a dial plan.
- Private Hold SCA Broadsoft functionality is not supported.
- Agent login to SCA DNs (Primary or Secondary) is not supported.
- Multi-site scenarios with the `direct-notoken` ISCC transaction type to a shared line destination DN is not supported. (No EventRinging reporting if the call is answered by a Secondary DN.)
- TRouteCall to a Secondary DN is not supported. See [SCA and Other Feature Interaction](#).
- ICON version 8.1.400.08 or earlier might not report redirect scenarios for SCA calls correctly.
- In inbound call scenarios, no 3pcc requests can be processed before a call is answered by a shared line

user.

- SCA DNs (Primary or Secondary) cannot be located behind the softswitch.
- Semi-attended transfers and Mute transfers to the shared line are not supported.