

Shared Call Appearance

Using OpenSIPS and asterisk
to deliver
Shared Call Appearance
telephony feature

Architecture

OpenSIPS requirements :

- OpenSIPS presence server (with pua capabilities)
- OpenSIPS B2B engine (b2b_entities & b2b_logic)

Architecture

OpenSIPS presence component server:

- presence server for 'call-info' event
 - presence & presence_callinfo modules
- presence user user agent
 - pua module

Architecture

OpenSIPS b2b component server:

- b2b server
 - b2b_entities & b2b_logic modules
- sca engine with pua capabilities
 - b2b_sca module

OpenSIPS presence server

Presence Event Package: call-info

Notify Bodies: none

Notify Header: Call-Info

OpenSIPS presence server

SUBSCRIBE sip:osas_shared@192.168.2.2:5080 SIP/2.0

Via: SIP/2.0/UDP 192.168.2.92:5060;branch=z9hG4bK-945b8f57

From: <sip:osas_shared@192.168.2.2>;tag=7b1c08fa656b391d

To: <sip:osas_shared@192.168.2.2>

Call-ID: 7fd7e7fe-b7f745e9@192.168.2.92

CSeq: 32099 SUBSCRIBE

Max-Forwards: 70

Contact: <sip:osas_shared@192.168.2.92:5060>

Expires: 3600

Event: call-info

User-Agent: Cisco/SPA525G-7.5.7

Content-Length: 0

OpenSIPS presence server

SIP/2.0 200 OK

Via: SIP/2.0/UDP 192.168.2.92:5060;branch=z9hG4bK-945b8f57

From: <sip:osas_shared@192.168.2.2>;tag=7b1c08fa656b391d

To: <sip:osas_shared@192.168.2.2>;tag=9e1149ff80628d54495a525996fb270d-84bd

Call-ID: 7fd7e7fe-b7f745e9@192.168.2.92

CSeq: 32099 SUBSCRIBE

Expires: 3600

Contact: <sip:192.168.2.2:5080>

Server: OpenSIPS (2.2-dev (x86_64/linux))

Content-Length: 0

OpenSIPS presence server

NOTIFY sip:osas_shared@192.168.2.92:5060 SIP/2.0

Via: SIP/2.0/UDP 192.168.2.2:5080;branch=z9hG4bK480f.5609c381.0

To: <sip:osas_shared@192.168.2.2>;tag=7b1c08fa656b391d

From: <sip:osas_shared@192.168.2.2>;tag=9e1149ff80628d54495a525996fb270d-84bd

CSeq: 1 NOTIFY

Call-ID: 7fd7e7fe-b7f745e9@192.168.2.92

Max-Forwards: 70

Content-Length: 0

User-Agent: OpenSIPS (2.2-dev (x86_64/linux))

Call-Info: <sip:osas_shared@192.168.2.2>;appearance-index=*;appearance-state=idle

Event: call-info

Contact: <sip:192.168.2.2:5080>

Subscription-State: active;expires=3600

OpenSIPS presence server

SIP/2.0 200 OK

To: <sip:osas_shared@192.168.2.2>;tag=7b1c08fa656b391d

From: <sip:osas_shared@192.168.2.2>;tag=9e1149ff80628d54495a525996fb270d-84bd

Call-ID: 7fd7e7fe-b7f745e9@192.168.2.92

CSeq: 1 NOTIFY

Via: SIP/2.0/UDP 192.168.2.2:5080;branch=z9hG4bK480f.5609c381.0

Server: Cisco/SPA525G-7.5.7

Content-Length: 0

OpenSIPS presence server

Notify Header: Call-Info

Parameters:

- appearance-uri: SIP URI
- appearance-index: '*' or digit
- appearance-state:
 - idle
 - alerting
 - active
 - held
 - held-private

OpenSIPS SCA engine

Built on top of b2b_logic 'top hiding' scenario.

Generates call-info PUBLISH requests using pua API.

Performs call bridging.

Simple SCA example

Two identical subscribers: osas_shared

Proxy server: OpenSIPS

Media server: asterisk

Simple SCA example

Step 1:

- user registration
- user subscription

Simple SCA example

Step 2:

- incoming call from asterisk to opensips
- call forking to both registered subscribers

```
$avp(watchers_avp_spec) = "sip:osas_shared@192.168.2.2"; # Set the watchers
$var(shared_line_entity) = 0; # Incoming call from asterisk is a 'shared' call
$var(appearance_name_addr) = $fu; # Set the appearance-ruri param
# Initiate the call

if (!sca_init_request("$var(shared_line_entity)")) {
    send_reply("403", "Internal server Error (SCA)");
    exit;
}
```

Simple SCA example

INVITE sip:osas_shared@192.168.2.93:5060 SIP/2.0

Via: SIP/2.0/UDP 192.168.2.2:5080;branch=z9hG4bK7613.f38add74.0

To: sip:osas_shared@192.168.2.93:5060

From: "Ovidiu Sas (c)" <sip:4164542289@192.168.2.2>;tag=75fee0d86423c8993cd3585e45f56644

CSeq: 103 INVITE

Call-ID: bk2bk.380.1073803

Max-Forwards: 70

Content-Length: 290

User-Agent: OpenSIPS (2.2-dev (x86_64/linux))

Content-Type: application/sdp

Supported: replaces, timer

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE, REFER, SUBSCRIBE, NOTIFY, INFO, PUBLISH

Call-Info: <sip:192.168.2.2>;appearance-index=1

Contact: <sip:192.168.2.2:5080>

Simple SCA example

PUBLISH sip:osas_shared@192.168.2.2:5080 SIP/2.0

Via: SIP/2.0/UDP 192.168.2.2:5080;branch=z9hG4bKaa27.bc38e915.0

To: sip:osas_shared@192.168.2.2:5080

From: <sip:osas_shared@192.168.2.2:5080>;tag=a444f41e88cb40d57950da905b4bc351-1319

CSeq: 10 PUBLISH

Call-ID: 4f4ade3a451bf7d2-5500@192.168.2.2

Max-Forwards: 70

Content-Length: 0

User-Agent: OpenSIPS (2.2-dev (x86_64/linux))

Event: call-info

Expires: 301

**Call-Info: <sip:192.168.2.2>;appearance-uri=""Ovidiu Sas (c)\"
<sip:4164542289@192.168.2.2>";appearance-index=1;appearance-
state=alerting,<sip:127.0.0.1>;appearance-index=*;appearance-state=idle**

Simple SCA example

NOTIFY sip:osas_shared@192.168.2.92:5060 SIP/2.0

Via: SIP/2.0/UDP 192.168.2.2:5080;branch=z9hG4bK180f.280e81f1.0

To: <sip:osas_shared@192.168.2.2>;tag=7b1c08fa656b391d

From: <sip:osas_shared@192.168.2.2>;tag=9e1149ff80628d54495a525996fb270d-84bd

CSeq: 2 NOTIFY

Call-ID: 7fd7e7fe-b7f745e9@192.168.2.92

Max-Forwards: 70

Content-Length: 0

User-Agent: OpenSIPS (2.2-dev (x86_64/linux))

**Call-Info: <sip:192.168.2.2>;appearance-uri=""Ovidiu Sas (c)\"
<sip:4164542289@192.168.2.2>";appearance-index=1;appearance-
state=alerting,<sip:127.0.0.1>;appearance-index=*;appearance-state=idle**

Event: call-info

Contact: <sip:192.168.2.2:5080>

Subscription-State: active;expires=3567

Simple SCA example

Step 3:

- call answered by one of the subscribers

Simple SCA example

PUBLISH sip:osas_shared@192.168.2.2:5080 SIP/2.0

Via: SIP/2.0/UDP 192.168.2.2:5080;branch=z9hG4bKba27.3e026894.0

To: sip:osas_shared@192.168.2.2:5080

From: <sip:osas_shared@192.168.2.2:5080>;tag=a444f41e88cb40d57950da905b4bc351-6d96

CSeq: 10 PUBLISH

Call-ID: 4f4ade3a451bf7d3-5500@192.168.2.2

Max-Forwards: 70

Content-Length: 0

User-Agent: OpenSIPS (2.2-dev (x86_64/linux))

Event: call-info

Expires: 36001

SIP-If-Match: a.1441310291.5500.9334.0

**Call-Info: <sip:192.168.2.2>;appearance-uri="\Ovidiu Sas (c)"
<sip:4164542289@192.168.2.2>;appearance-index=1;appearance-
state=active,<sip:127.0.0.1>;appearance-index=*;appearance-state=idle**

Simple SCA example

NOTIFY sip:osas_shared@192.168.2.92:5060 SIP/2.0

Via: SIP/2.0/UDP 192.168.2.2:5080;branch=z9hG4bK280f.fbdfe776.0

To: <sip:osas_shared@192.168.2.2>;tag=7b1c08fa656b391d

From: <sip:osas_shared@192.168.2.2>;tag=9e1149ff80628d54495a525996fb270d-84bd

CSeq: 3 NOTIFY

Call-ID: 7fd7e7fe-b7f745e9@192.168.2.92

Max-Forwards: 70

Content-Length: 0

User-Agent: OpenSIPS (2.2-dev (x86_64/linux))

**Call-Info: <sip:192.168.2.2>;appearance-uri=""Ovidiu Sas (c)\"
<sip:4164542289@192.168.2.2>";appearance-index=1;appearance-
state=active,<sip:127.0.0.1>;appearance-index=*;appearance-state=idle**

Event: call-info

Contact: <sip:192.168.2.2:5080>

Subscription-State: active;expires=3563

Simple SCA example

Step 4:

- hold initiated by the subscriber

Simple SCA example

PUBLISH sip:osas_shared@192.168.2.2:5080 SIP/2.0

Via: SIP/2.0/UDP 192.168.2.2:5080;branch=z9hG4bK8a27.f20a1c66.0

To: sip:osas_shared@192.168.2.2:5080

From: <sip:osas_shared@192.168.2.2:5080>;tag=a444f41e88cb40d57950da905b4bc351-1439

CSeq: 10 PUBLISH

Call-ID: 4f4ade3a451bf7d4-5500@192.168.2.2

Max-Forwards: 70

Content-Length: 0

User-Agent: OpenSIPS (2.2-dev (x86_64/linux))

Event: call-info

Expires: 36001

SIP-If-Match: a.1441310291.5500.9334.0

**Call-Info: <sip:192.168.2.2>;appearance-uri="\Ovidiu Sas (c)"
<sip:4164542289@192.168.2.2>;appearance-index=1;appearance-
state=held,<sip:127.0.0.1>;appearance-index=*;appearance-state=idle**

Simple SCA example

NOTIFY sip:osas_shared@192.168.2.92:5060 SIP/2.0

Via: SIP/2.0/UDP 192.168.2.2:5080;branch=z9hG4bKf70f.a8a3e123.0

To: <sip:osas_shared@192.168.2.2>;tag=7b1c08fa656b391d

From: <sip:osas_shared@192.168.2.2>;tag=9e1149ff80628d54495a525996fb270d-84bd

CSeq: 4 NOTIFY

Call-ID: 7fd7e7fe-b7f745e9@192.168.2.92

Max-Forwards: 70

Content-Length: 0

User-Agent: OpenSIPS (2.2-dev (x86_64/linux))

**Call-Info: <sip:192.168.2.2>;appearance-uri=""Ovidiu Sas (c)\"
<sip:4164542289@192.168.2.2>";appearance-index=1;appearance-
state=held,<sip:127.0.0.1>;appearance-index=*;appearance-state=idle**

Event: call-info

Contact: <sip:192.168.2.2:5080>

Subscription-State: active;expires=3559

Simple SCA example

Step 5:

- incoming call pick-up by the other subscriber

Simple SCA example

INVITE sip:192.168.2.2:5080 SIP/2.0

Via: SIP/2.0/UDP 192.168.2.93:5060;branch=z9hG4bK-1c4f34

From: <sip:osas_shared@192.168.2.2>;tag=d7e01c8adc43c6c4o0

To: <sip:osas_shared@192.168.2.2>

Call-ID: 9f09ac82-7f4ab72c@192.168.2.93

CSeq: 101 INVITE

Max-Forwards: 70

Contact: <sip:osas_shared@192.168.2.93:5060>

Expires: 240

User-Agent: Cisco/SPA525G-7.5.7

Call-Info: <sip:192.168.2.2:5080>;appearance-index=1

Content-Length: 304

Allow: ACK, BYE, CANCEL, INFO, INVITE, NOTIFY, OPTIONS, REFER, UPDATE

Supported: replaces

Simple SCA example

Step 6:

- call bridging
- old call disconnected

```
if ($rU==NULL && is_method("INVITE") && $fU==$tU && is_present_hf("Call-Info")) {  
    # The incoming call is an 'appearance' call  
    $var(shared_line_to_bridge) = "osas_shared";  
    if (!sca_bridge_request("$var(shared_line_to_bridge)")) send_reply("403", "Internal SCA Error");  
    exit;  
}
```

Simple SCA example

PUBLISH sip:osas_shared@192.168.2.2:5080 SIP/2.0

Via: SIP/2.0/UDP 192.168.2.2:5080;branch=z9hG4bK9a27.4b90d6e5.0

To: sip:osas_shared@192.168.2.2:5080

From: <sip:osas_shared@192.168.2.2:5080>;tag=a444f41e88cb40d57950da905b4bc351-6ab6

CSeq: 10 PUBLISH

Call-ID: 4f4ade3a451bf7d5-5500@192.168.2.2

Max-Forwards: 70

Content-Length: 0

User-Agent: OpenSIPS (2.2-dev (x86_64/linux))

Event: call-info

Expires: 36001

SIP-If-Match: a.1441310291.5500.9334.0

**Call-Info: <sip:192.168.2.2>;appearance-uri="\Ovidiu Sas (c)"
<sip:4164542289@192.168.2.2>;appearance-index=1;appearance-
state=active,<sip:127.0.0.1>;appearance-index=*;appearance-state=idle**

Simple SCA example

NOTIFY sip:osas_shared@192.168.2.92:5060 SIP/2.0

Via: SIP/2.0/UDP 192.168.2.2:5080;branch=z9hG4bK080f.09060086.0

To: <sip:osas_shared@192.168.2.2>;tag=7b1c08fa656b391d

From: <sip:osas_shared@192.168.2.2>;tag=9e1149ff80628d54495a525996fb270d-84bd

CSeq: 5 NOTIFY

Call-ID: 7fd7e7fe-b7f745e9@192.168.2.92

Max-Forwards: 70

Content-Length: 0

User-Agent: OpenSIPS (2.2-dev (x86_64/linux))

**Call-Info: <sip:192.168.2.2>;appearance-uri=""Ovidiu Sas (c)\"
<sip:4164542289@192.168.2.2>";appearance-index=1;appearance-
state=active,<sip:127.0.0.1>;appearance-index=*;appearance-state=idle**

Event: call-info

Contact: <sip:192.168.2.2:5080>

Subscription-State: active;expires=3551

SCA considerations

- no support for NAT
- SDP untouched:
 - no coherence in SDP version field
 - asterisk must be configured with:
 - ignoresdpversion=yes

SCA considerations

v=0

o=- 6290 **6291** IN IP4 192.168.2.92

s=-

c=IN IP4 0.0.0.0

t=0 0

m=audio 16424 RTP/AVP 0 8 101

a=rtpmap:0 PCMU/8000

a=rtpmap:8 PCMA/8000

a=rtpmap:101 telephone-event/8000

a=fmtp:101 0-15

a=ptime:20

a=sendonly

SCA considerations

v=0

o=- 5959 **5959** IN IP4 192.168.2.93

s=-

c=IN IP4 192.168.2.93

t=0 0

m=audio 16408 RTP/AVP 0 8 101

a=rtpmap:0 PCMU/8000

a=rtpmap:8 PCMA/8000

a=rtpmap:101 telephone-event/8000

a=fmtp:101 0-15

a=ptime:20

a=sendrecv

SCA considerations

new RFC 7463 (March 2015)

- Event: dialog;shared
- Content-Type: application/dialog-info+xml
- Industry support: ???

SCA Q&A

Thank You!

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