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voxbone

Enabling Cloud Communications

SIP-T module

Making kamailio SS7 aware

About Voxbone

- Sells DIDs from over 50 countries world wide
- Direct PSTN interconnection in 13 countries
- 5 Geo-Redundant Kamailio clusters
- 150 asterisk 11 machines across 5 datacenters
- 17k simultaneous calls at peak time

About Torrey Searle

- 14 years experience in writing SIP applications
- 7 years VoIP Architect at Voxbone
- Previous jobs include NGN developer at Alcatel and SIP/SIMPLE developer at Indigo Software
- Cited contributor to RFC3428
- Contributor to jain-sip and asterisk

What does the SIPT Module do?

- Modify values in SS7 headers
- Read values in SS7 headers
- Based on parser from libss7

- **NOTE:** use kamailio 4.1.2 or later (bug in previous versions)

Example 1: Fix numbering format

- Get the nature of address indicators to correctly re-format the numbers into E164

```
# get the Calling Nai and add country code if national
if($sipt_calling_party_nai == 3)
{
    $fU = "32" + "$fU";
}

# get the Called Nai and add country code if national
if($sipt_called_party_nai == 3)
{
    $rU = "32" + "$rU";
}
```

Example 2: CPC

- Put the raw cpc code into a header so sip equipment can do proper toll free billing

```
# get the Cpc code and set put it in a custom sip header  
append_hf("X-CPC: $sipt_cpc\r\n");
```

Example 3: Privacy

- Add privacy header if privacy requested in the SS7

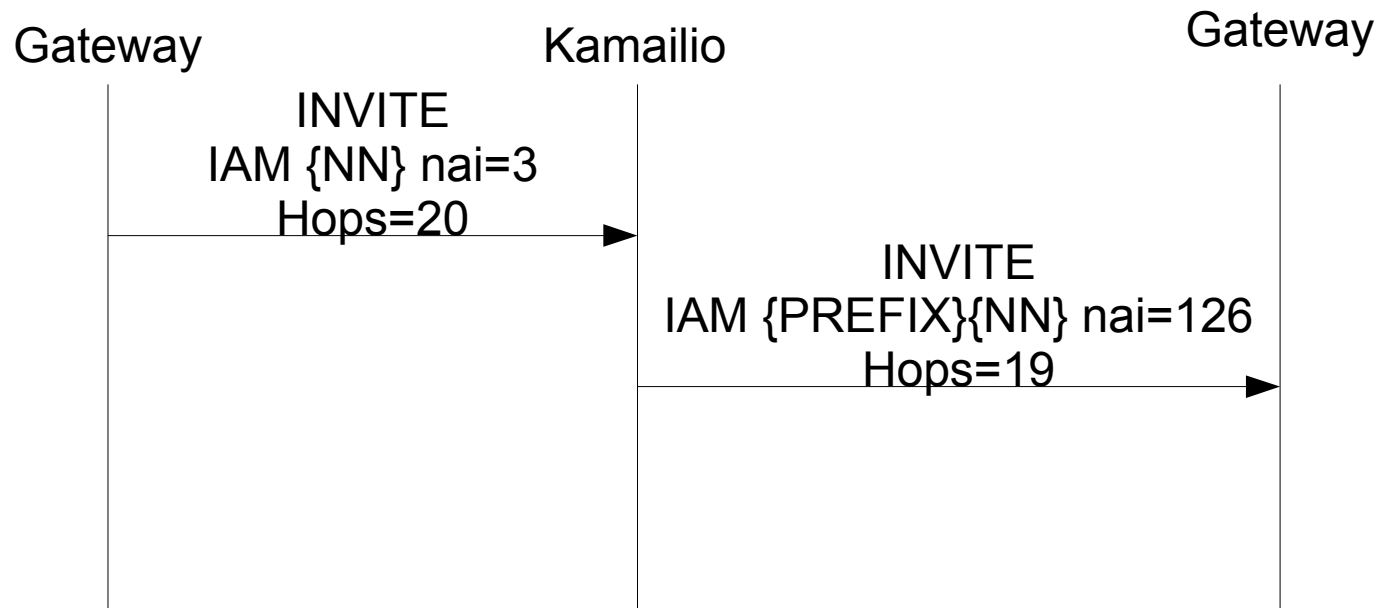
```
# add privacy header if restriction is requested
if($sipt_presentation == 1)
{
    append_hf("Privacy: id\r\n");
    $fn = "Anonymous";
}
```

Voxbone Usecase: LNP

- We need to receive a call from SS7
- We need to recognize the number as ported
- We need to forward the call back to SS7, adding a prefix + setting a special 'porting' nature of address (nai=126)
- Kamailio needs to be able to correctly update the SS7 to set the called party to what we want
- We need to preserve all other headers

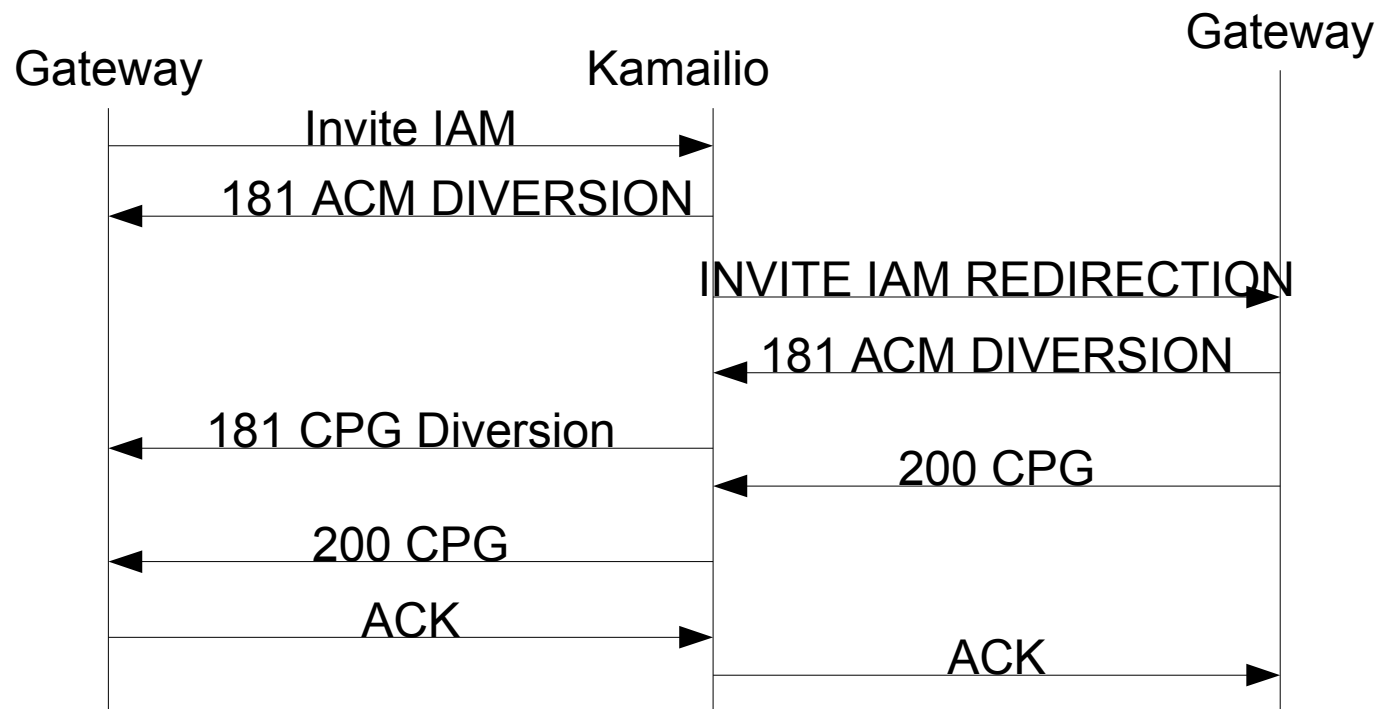
Voxbone Usecase: LNP (cont'd)

- Our solution
 - `sipt_destination(destination, hops, nai)`
 - Updates destination number, nature of address
 - Decrements hop counter



Ideas for the future?

- Backwards Diversion indication
- ACM to CPG conversion



An old bug needs to be fixed!

In tm/t_reply.c t_reply_with_body

```
/* this is ugly hack -- the function caller may
wish to continue with
   * transaction and I unref; however, there is now
only one use from
   * vm/fifo_vm_reply and I'm currently too lazy to
export UNREF; -jiri
*/
UNREF(trans);
```

Ideas for the future?

- Ability to store parsed ss7 information in the sip message?
- Add an SS7 message to a SIP message – need Victor Seva's improved multi-part support
- Modify/Read User-to-User header
- More headers – PATCHES WELCOME!!!! :-)

Thank you. Questions?



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