

Number portability

Using ENUM and SIP

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Voice service today

The past but still the present:

- One socket in the wall
- One phone device
- One service provider

Telephone number is “wired” to the socket in the wall. The service, device and address are hardwired to each other by the incumbent telco.

Voice paradigm shift

Today and the future:

- Network access - WiFi in the hotel
- SIP device - my Hitachi WIP500 phone
- PSTN service - my provider is in the Netherlands
- Identity - my address is sip:ag@ag-projects.com

Identity is the only common feature, all items are connected together only at logical level. All converge in the hands of the end users

What changes over time?

Each of the ingredients may change:

- I wish I have the latest and most advanced phone
- I wish I have the fastest Internet access
- I wish I call at the cheapest rates to the PSTN
- I may wish to work abroad, change location

I do not want however to change my address every time!

Number portability today

Current telephone number portability works with limited success and dependent on regulatory in each country

- It takes 3 months to port my number from KPN to Vodafone
- Porting numbers between mobile and fixed operators is still a dream
- Cannot port numbers from one country to another

VoIP Providers depend on SS7 IN database for number portability, is slow expensive and not Internet ready

Name portability on IP

On the Internet you already have portability. Without maybe being aware, everybody is using it, the DNS.

- When you move your web from one hosting provider to another you get a new IP address but you do not change the name of your website
- By simply pointing the website name to the new IP address of the server you are done

Name portability on IP

There is no regulatory, agency or government office that intermediates the changes in the DNS.

- You don't send a fax
- You don't wait for 3 months
- You do it yourself when you want and how you want

Internet is much more cost effective, there are no administrative barriers that hinders the porting process

Number portability on IP

As Voice over IP is just another application over the Internet (observation of Jon Peterson) we can use the same principles that apply for web and e-mail

- SIP maps the phone IP:port to a SIP address
- ENUM maps the E.164 number to a SIP address

SIP with ENUM combine the logic of uniting the identity (from both Internet and PSTN) with the access, the device and the service

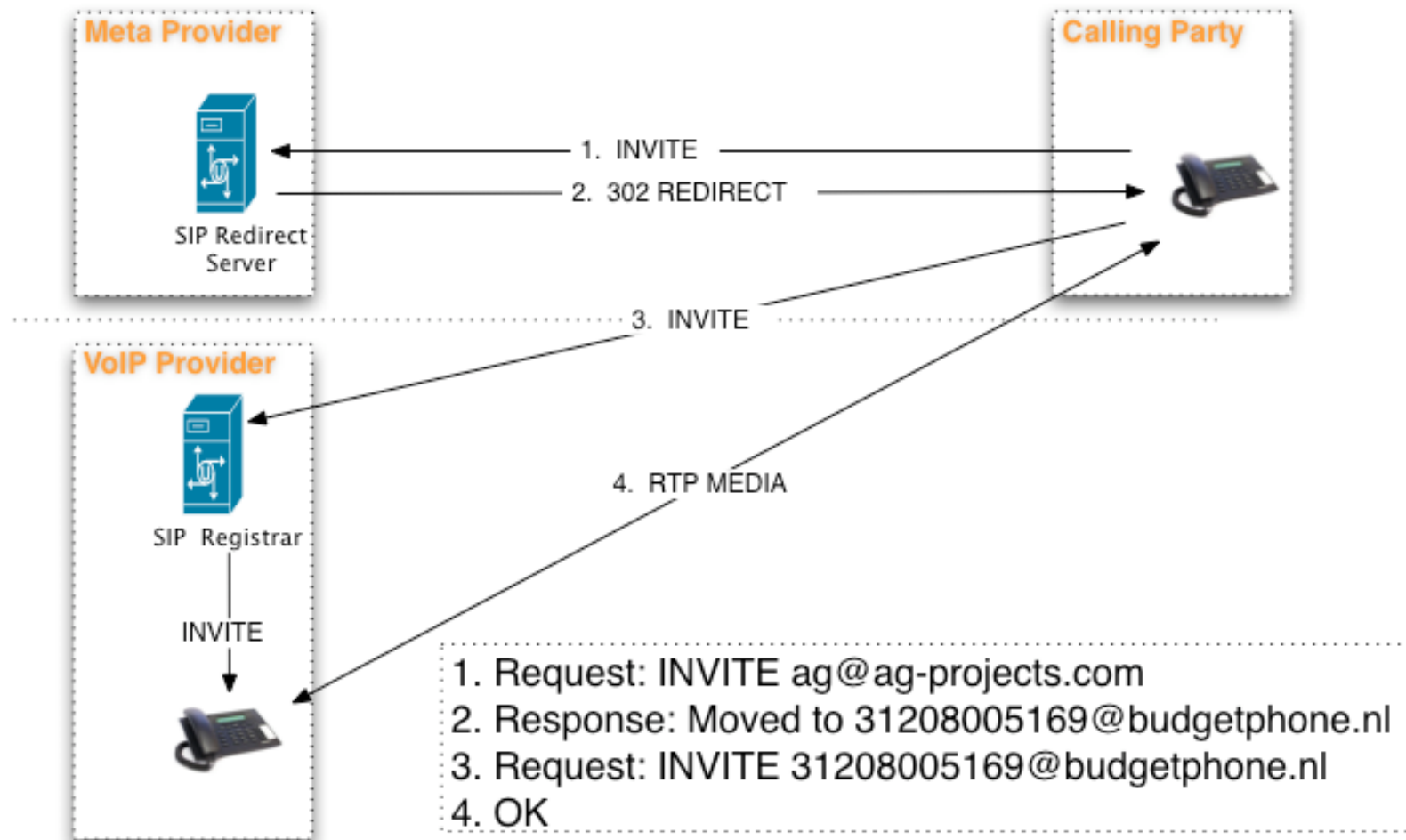
SIP redirect service

- A SIP redirect service redirects all calls unconditional to another SIP address (final destination)
- SIP as a location service supports redirection using 30X response codes (Moved temporary/permanently)
- My SIP address sip:ag@ag-projects.com is merely an alias, it points to sip:31208005169@ag-projects.com

SIP redirect works similar with email forwarding

SIP redirect service

SIP Redirect for Internet number portability



ENUM mappings

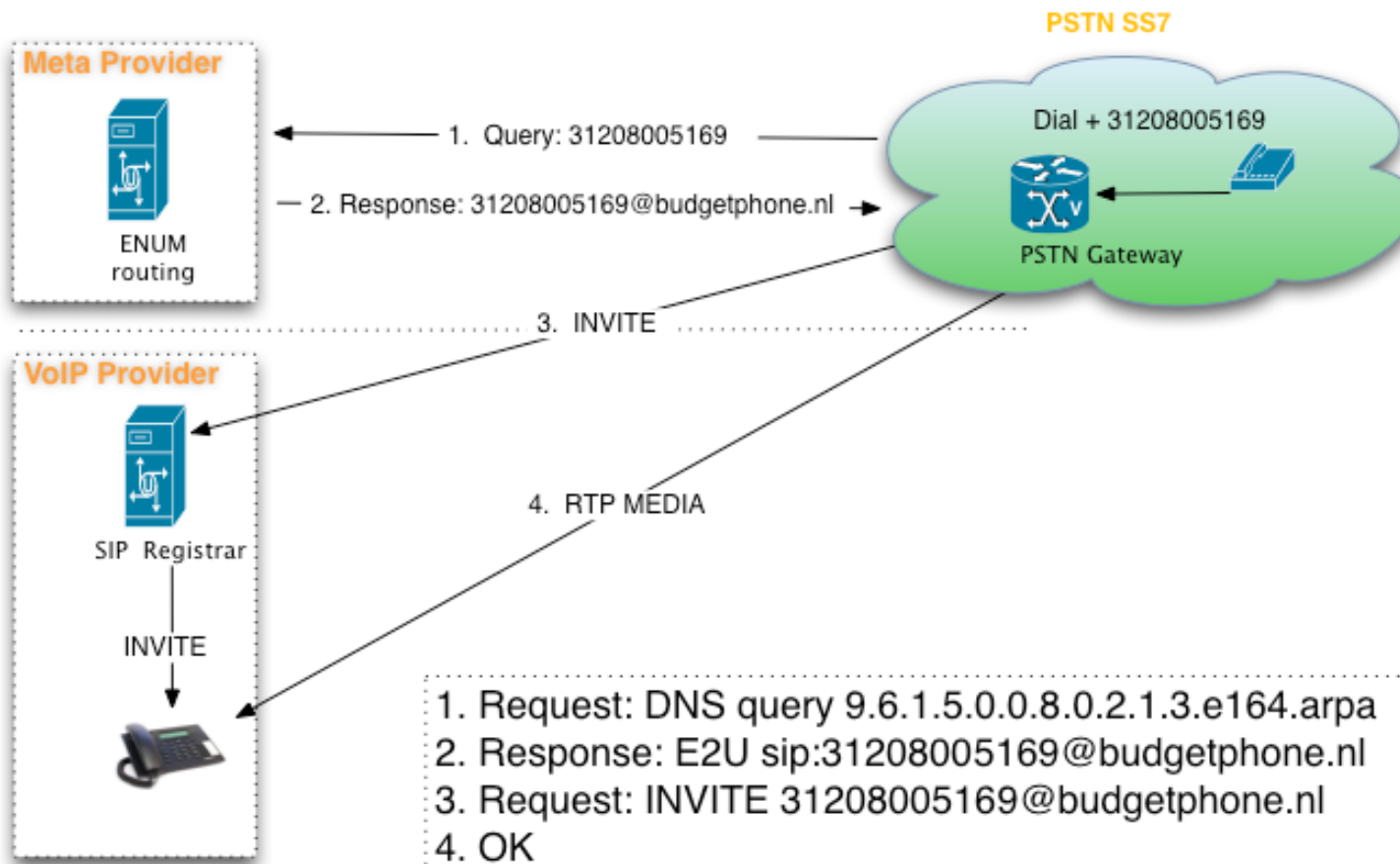
ENUM is an address translation database that maps E.164 numbers into IP addressing schemes

- My ENUM number +31208005169 points to my SIP address sip:31208005169@ag-projects.com
- The ENUM mappings are records hosted in the DNS like any other domain name

Both SIP alias and the ENUM record point to my sip account which I use for telephony, video and IM.

ENUM mappings

ENUM mappings for Internet number portability



VoIP providers today

What most of the VoIP providers today don't do is give their subscribers a public SIP URIs (number@telco.com)

- Majority of VoIP providers allow their users to use only numbers for addressing (new technology with old habits)
- The only way in/out of the VoIP island is the PSTN gateway (like Vonage)

Without ENUM and public SIP URIs users will not be able port their numbers between VoIP providers

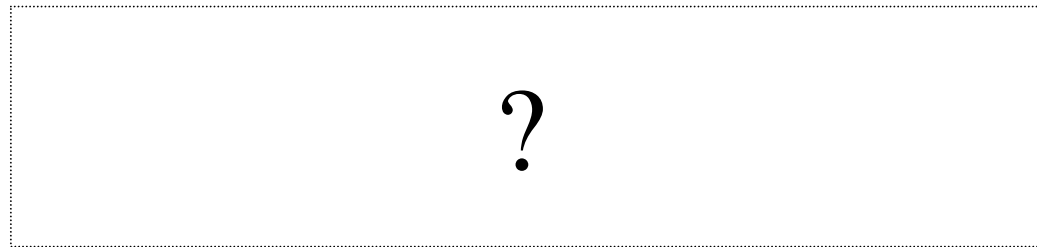
Recipe for number portability

A Meta provider and open garden VoIP providers

- User-ENUM ready national registry (opt in)
- A meta provider for the name translation (Internet domain registration + SIP Redirect service)

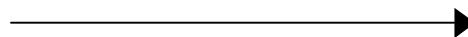
- SIP service provider (public SIP URIs)
- ENUM enabled PSTN operator

What the Users can do



Sip:1234@provider1.com

Sip:5678@provider2.com

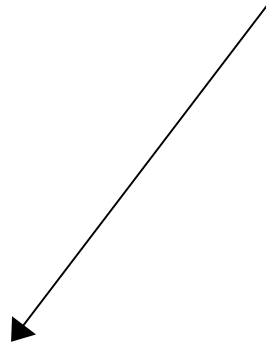


What the Users can do

Meta provider

[firstName@lastName.com](#)

+1-123-456789



Sip:1234@provider1.com

Sip:5678@provider2.com

What the Users can do

Meta provider

[firstName@lastName.com](#)

+1-123-456789

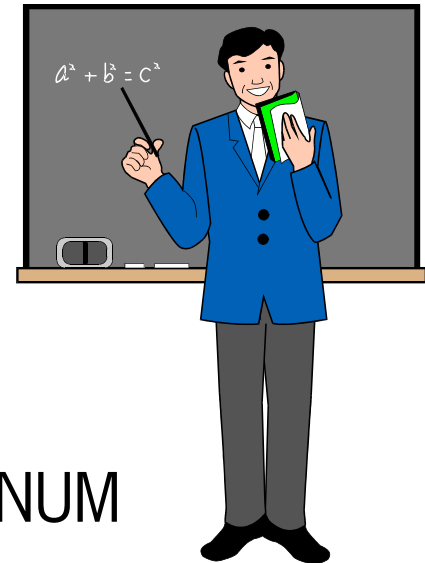


Sip:1234@provider1.com

Sip:5678@provider2.com

What the Regulator should do

- Explain what ENUM is because nobody knows
- Require VoIP Operators to provide SIP URIs
- Require national domain registry to support ENUM
- Require telecoms to have ENUM enabled gateways



What VoIP providers should not do



Today subscribers have a choice. They can bypass your service starting with their dual-mode phone. You cannot compete against your own customers (Richard Stastny)

By the time some providers finish up building their walled-garden, the customers will be safe outside of them.

The advice is: do not build walled gardens! They are short lived, expensive to build products!

What VoIP providers must do

- Provide subscribers with public SIP URIs
Example: sip:18016666269106@sipgate.de
With SIP URIs you can do more than just VoIP!



- Use ENUM lookups in the routing decision

Why? Because you will save money on customer acquisition, and reduce churn. Because you can (still) make money on termination for calls that end up on IP (100% margin).

This is not fiction anymore

Number portability based on DNS is already in production status:

- ENUM.at (Austria)
- EUROVOICE.ro (Romania)

This presentation is available at
<http://ag-projects.com/ENUM/>

Thank you,
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