



When Alexander Graham Bell create the phone in 1876, the US President, Rutheford Hayes said ... “This is a great invent but, who will use it ?”

OpenSER for Secure and Performant VoIP Environments

OpenSer Summit 2006 hosted at



- Introduction
- SIP services in distributed environments
- Hosted SIP services and applications
- 4G and fix-mobile convergence
- Peering with heterogeneous networks
- ENUM in carrier grade
- Q&A

INTRODUCTION



- **OpenSER is not just an Open Source implementation of a SIP Server, but a powerful tool in SIP service creation. Via a strong synchronization with both industry and IETF world, OpenSER delivers last-minute technologies for production environments. Various solutions - from carrier grade to SMB - rely on the dynamism and flexibility of the project and its ability to cover a wide range of scenarios like Hosted Platforms, residential and business ITSPs, Convergence & Trunking and Service Distribution. Learn more NOW !!**

SIP Services in Distributed Environments

Bogdan-Andrei Iancu

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Distributed ?!



- **Distributed environment – a large concept**
 - as physical places (locations)
 - as number of physical entities (servers)
 - as number of virtual entities (services)
 - a combination of any of above
- **Linking entities usually means troubles! (a lot)**
- **Key question:**

If it is so complicated, why do I need it?

- **Why?**
Simple: distributed customers!
- **Again...Why?**
Simple: mainly is about QoS and resources
- **Distribute == duplicate ?!**
Simple: NO

Try to have a single point of logic and multiple points of resources!

- **Why?**
Resource limitations and user population
- **What to scale?**
Primary it's about resources (services),
but also about logic (routing).
- **What does it imply?**
Load balancing -> Availability detection ->
Intelligent routing

- **Why?**
 - Server failover is not enough**
- **Location failover address large area disasters (power outage, criminal acts, etc)**
- **What challenges to face?**
 - multi-point synchronization
 - failure detection and auto-switching
 - integration with external systems / triggers

Requires flexibility and complexity

- All scenarios related to distribution are based on high-level routing logic.
- In real life we have combinations of the basic scenarios \Rightarrow more complexity

Yes, all this are possible with OpenSER

Last minute technologies +

powerful routing logic

can deliver solutions for all service scenarios!

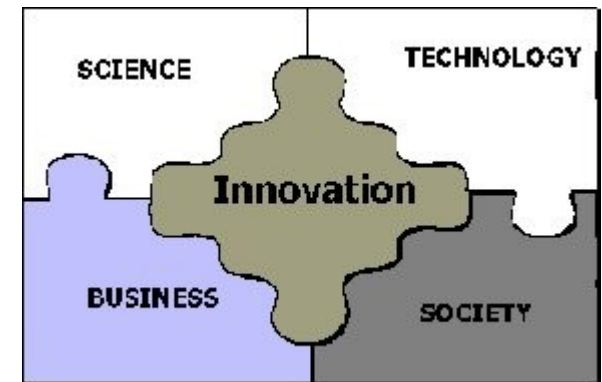
Hosted SIP Services and Applications

Xavier Casajoana

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- **Innovation is the activity of people and organizations to change themselves and the environment. It means breaking routines and dominant ways of thinking, introducing new things and behaviours, launching new standards.**
- **PRODUCT INNOVATION**
 - New goods or services put on sale
- **PROCESS INNOVATION**
 - **Changes the way a given good is produced**
 - **Changes in the supply chain**
- **BEHAVIOURAL INNOVATION**
 - When an organizational routine is replaced by new ones



TELECOM 'OLD' MODEL



Customer Acquisition

Service Deployment

Product Development

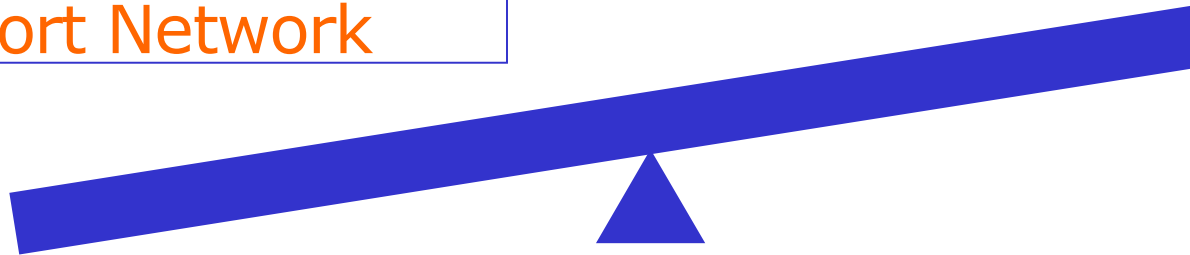
OSS & BSS

Switching

Transport Network

Few market share

Voice and access
margins decline



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HOSTED MODEL



Customer Subscription

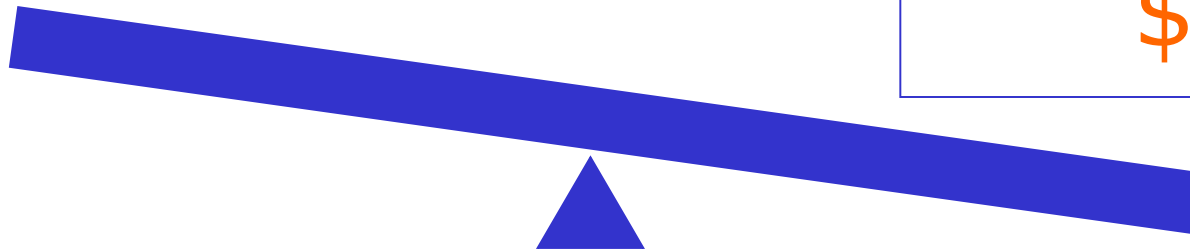
Hosted Applications

SIP Development

Outsourced SDP

Internet

Application
\$\$\$



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HOSTED SIP & OpenSER



- Today's VoIP based new service providers can provide voice services to their customers through the Internet or some other managed IP networks for a couple of **K€** investment, and in many cases with much or better features than the old POTs.
- Multivendor relationship and interoperability, SIP protocol, Open Standards, **Open Source**, standard computing hardware, web development paradigms, are the technology drivers to achieve such **cost reduction** and **service creation** facility.
- As a consequence, sector barriers has been down and actual competitive landscape is 'disrupted' into a new value chain where services are produced and deployed within significant innovation changes, known as :

Hosted SIP Communication Services

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HOSTED SIP SERVICES



- Any programmer should create new applications
- Web-based subscription process support
- Open programming standards and protocols
- Quick response to customer needs
- Even allow customers to create new services
- Most intelligence into the net service layer
- Try & buy sales model
- SIP Application Servers to host the services
- Outsourced Service Delivery Platform for SP
- Hosted Applications for end customers
- Quick service development and 'evolopment'

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- **INNOVATION through Applications**
- **Maximize ROI**
- **Minimum Time-to-market**
- **Loyalty Customer Acquisition**
- **Forget technology 'tips and taps'**



SIP Development & Application Hosting

4G and fix-mobile convergence

James Tagg

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- Mobile Internet Telephony
- ‘Free Calls from Your Mobile Phone’
 - (or at least very cheap!)
- Fixed-line VoIP startups have created huge value
 - SKYPE sold to eBay for \$2 billion, and is adding 150,000 customers per day.
 - Vonage recently floated at a valuation of c. \$1.8B.
- Mobile VoIP is next.

We are a new breed of mobile operator

'Fat pipe' operator MVIO etc...

Old Mobile Operator

80% Expensive Voice

15% Expensive Text

5% Fun & Service

The future of Mobile

New Mobile Operator

Access Fee

Free/ Cheap Voice

Free/ Cheap Text

Fun & Service

SKYPE meets Virgin Mobile

What is this new style of operator called? MVIO,
MISP...

How do I get Truphone?



Step 1



Text "Tru" to
12345

SMS sent to
your phone

Step 2

Click on link



Website opens

Step 3

Simple "yes,
yes, yes"
options on
website



And you're
done

Step 4 (optional)



Visit truphone.com to
update profile and options

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Integrated Operator Service

- Integrated Voice
- Integrated SMS
- Provisioning
- Roaming

Community Service

- Sharing
- IM
- Presence

SME Business

- Email
- Management

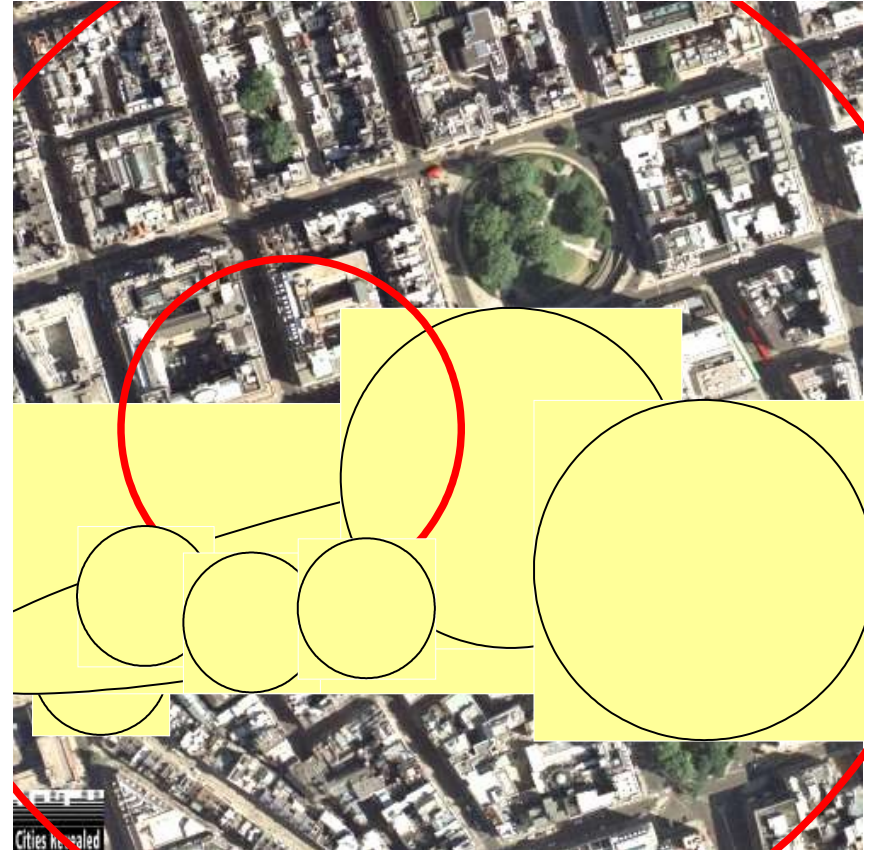
Future

- Video
- Content
- Search



Cellular network using public and private Wi-Fi.

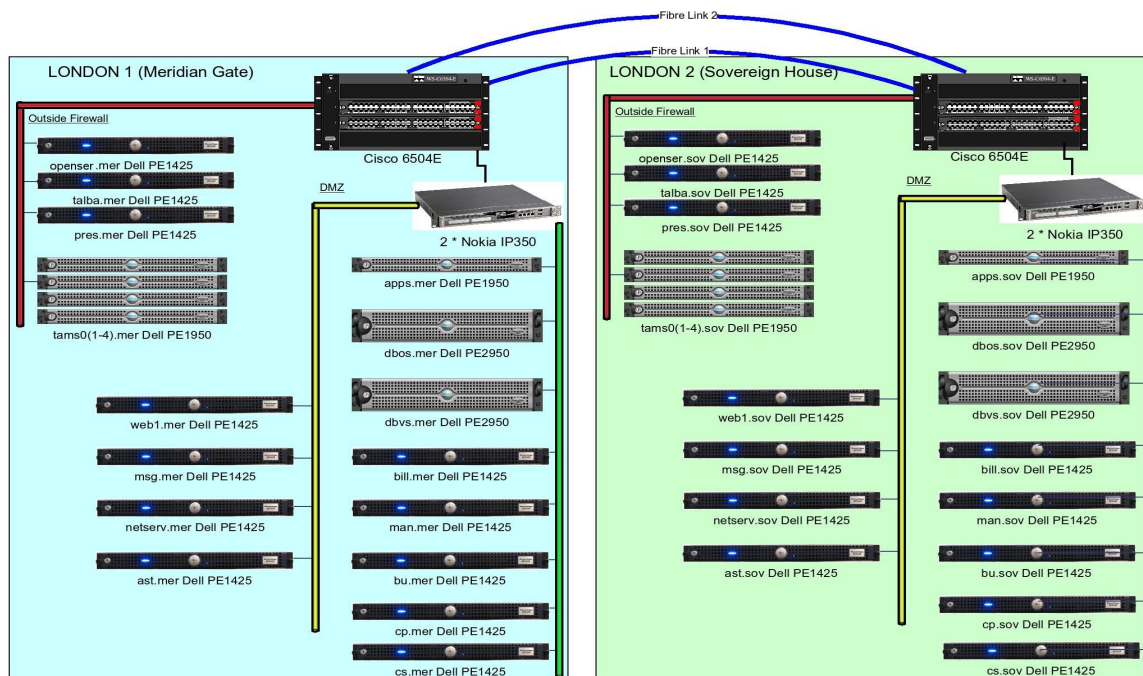
- **β 1 - Now**
 - Standard home Wi-Fi
 - Standard office Wi-Fi
- **β 2 - September**
 - Hotspot capability through
 - Single sign on deals (cloud)
 - International Roaming
 - Screen scrape logon
 - Wi-Fi sharing, Network Effect
 - Friends trust relationship
 - Member trust relationship
 - Commercial hotspot enabler



Network highlights



- Multi-currency billing implemented
- UK and US tariff plans implemented, with free destinations
- High priority: US gateway (Cingular are blocking our texts)
- Work underway on Googletalk interoperability
- Construction started on new high availability network



Mobile VoIP has arrived

Welcome

Download

More info

Share

Shop

Help

My account

Get Truphone

[Read more ->>](#)

1 2 3 4 5

Will it work on my phone?

Lorem ipsum dolor sit nonummy nibh euismod tincidunt ut laoreet. Lorem ipsum dolor sit nonummy nibh euismod tincidunt ut laoreet. Lorem ipsum dolor sit nonummy nibh euismod tincidunt ut laoreet. [Click here ->>](#)

Get Truphone now.

We think you are in

It's 100% easy, 100% free
Just text "tru" to 75245

[Why this is safe.](#)

[We hate spam too - read our privacy policy](#)

About the beta/developer preview Truphone is stable, but still a beta.

Please [read this list of known issues](#) and [contribute feedback](#)

Thank you

We're hiring

Lorem ipsum dolor sit nonummy nibh euismod tincidunt ut laoreet. Lorem ipsum dolor sit nonummy nibh euismod tincidunt ut laoreet. Lorem ipsum dolor sit nonummy nibh euismod tincidunt ut laoreet. [Click here ->>](#)

All about Truphone

- Where can I use it?
- What does it cost?
- How does it work?
- How does it really work? (geeks only)
- Five reasons to get Truphone
- Is it true we also make cheese?

Where can I use Truphone WiFi hotspot locator

Truphone works wherever there is Wi-Fi. As well as your home and workplace, use our Wi-Fi Finder to locate hotspots near you.

[Read more... or enter your postcode here ->>](#)



Tell me more

[Where](#)
How it works
What is it
How do we make money from this?
What phones
How do I use it
What does it cost
What does it do
Why is it safe

My account

My profile
Top-up credit
Call history
Call diverts etc
Voicemail
My texts

Download

Which handset
How to do it
No mobile coverage?
Text numbers

Share

Tell a friend

Help

FAQs
How does it work
Business users
Security advice
Setting up WiFi

Shop

Handsets
Routers
Clothing

About us

Partners
Technology
Jobs
Privacy

Blogs etc..

Technical blog
Forum
News

Making a big noise at VON



- **Focused message**
 - stop talking to a PC
 - mobile VoIP has arrived
- **Used consumer marketing techniques to draw attention to the stand**
- **“The busiest stand at the show”**
- **James Body – Room 8
Wed 8 November**



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Peering Heterogeneous Networks

Daniel-Constantin Mierla

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- ***Case study – Instant Messaging***
- Wikipedia: http://en.wikipedia.org/wiki/Instant_messaging
 - many IM networks with significant user base
 - AOL/AIM – over 50mil active users
 - MSN – over 29mil active users
 - Yahoo – over 21mil active users
 - XMPP (Jabber & Gtalk) – estimation of over 20mil active users
 - other networks have millions of active users: ICQ, IRC, Gadu-Gadu, Skype ...
- They cannot be isolated or ignored
- IM & presence is more mature in these networks

Peering IM & Presence



- **IM has a very important role in day-by-day communication, in business or home environments**
- **presence status leads the communication momentum**
- **ignoring IM & presence in SIP-based networks will end in an incomplete service**
- **better and larger number of IM&presence applications for other networks was a disadvantage of SIP/SIMPLE**
- **transparent peering between servers would be the ideal solution at this moment**
- **alternative: smart applications in client side => they cannot run on embedded or small systems**

- **Gatewaying with landlines**
 - the primary challenge of VoIP
 - contributed to its success
- **A bit of luck**
 - common layer in IP networks for voice and video:
 - media stream carried by RTP
- **Signaling layer**
 - different concepts
 - design incompatibilities

- **Addressing space**
 - most reliable is DNS via NAPTR and SRV extensions
 - proprietary protocols and closed networks may not adopt a common addressing space like ENUM
 - several attempts to standardise addressing issues in SIP, e.g., ISN
- **Proprietary protocols**
 - reverse engineering to implement applications supporting basics of the protocol
 - restrictions to opened connection numbers from same IP
 - lack of server-to-server communication protocol
- **Protocol design incompatibilities**
 - client-to-server vs peer-to-peer
- **Security**

Doing it with OpenSER...



- Work started long time ago with SMS and Jabber gateways
- SIMPLE/IM-to-SMS and SIMPLE/IM-to-Jabber-to-(ICQ,Yahoo,MSN,...)
- **NEW** SIMPLE-to-XMPP(Jabber/GTalk)
 - transparent gatewaying
 - flexible addressing mechanism
 - presence and voice support coming soon
 - good interoperability as both were designed for IP and standardised by IETF
- Peering with other networks and services can be done via scripting, executing external applications

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ENUM in carrier grade

Klaus Darilion

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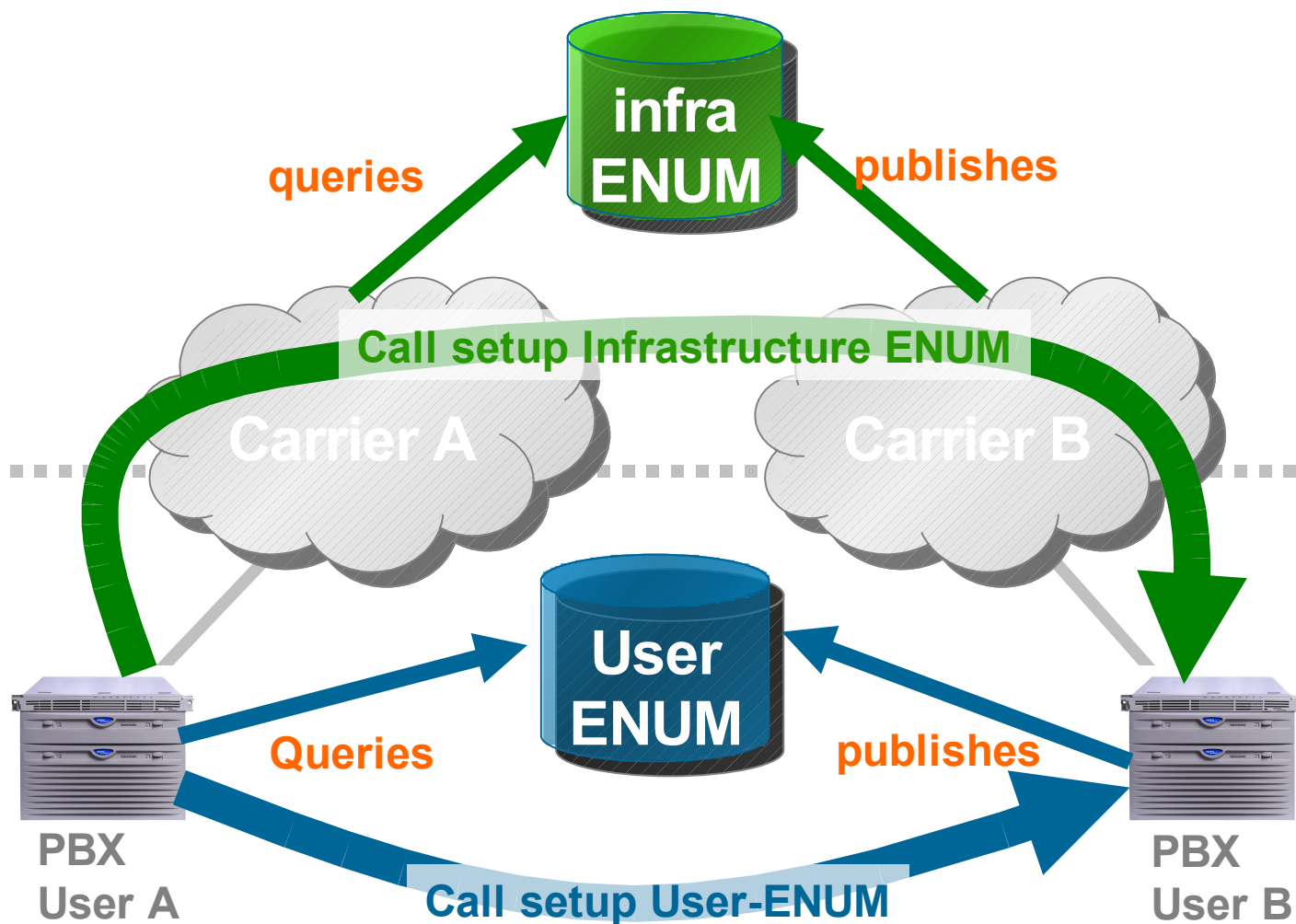
- Recap user ENUM
- Requirements for carriers
- Infrastructure ENUM
- Implementing infrastructure ENUM

- **Recap User-ENUM:**
 - From phone numbers to internet addresses
 - Under control of the end customer, „opt-in“
 - Assumption: destinations "freely" reachable
 - One domain per number
 - Validation on registration
 - Recurring re-validation
 - +43 in operation since december 2004
 - +43 780-numbers (dedicated ENUM number range) available from may 2005

- **Requirements from the Carriers view:**

- Under full control of the carrier
- Carrier stays in the call flow
- Number ranges possible
- Number portability
- Minimal provisional expense
- For all E.164 numbers

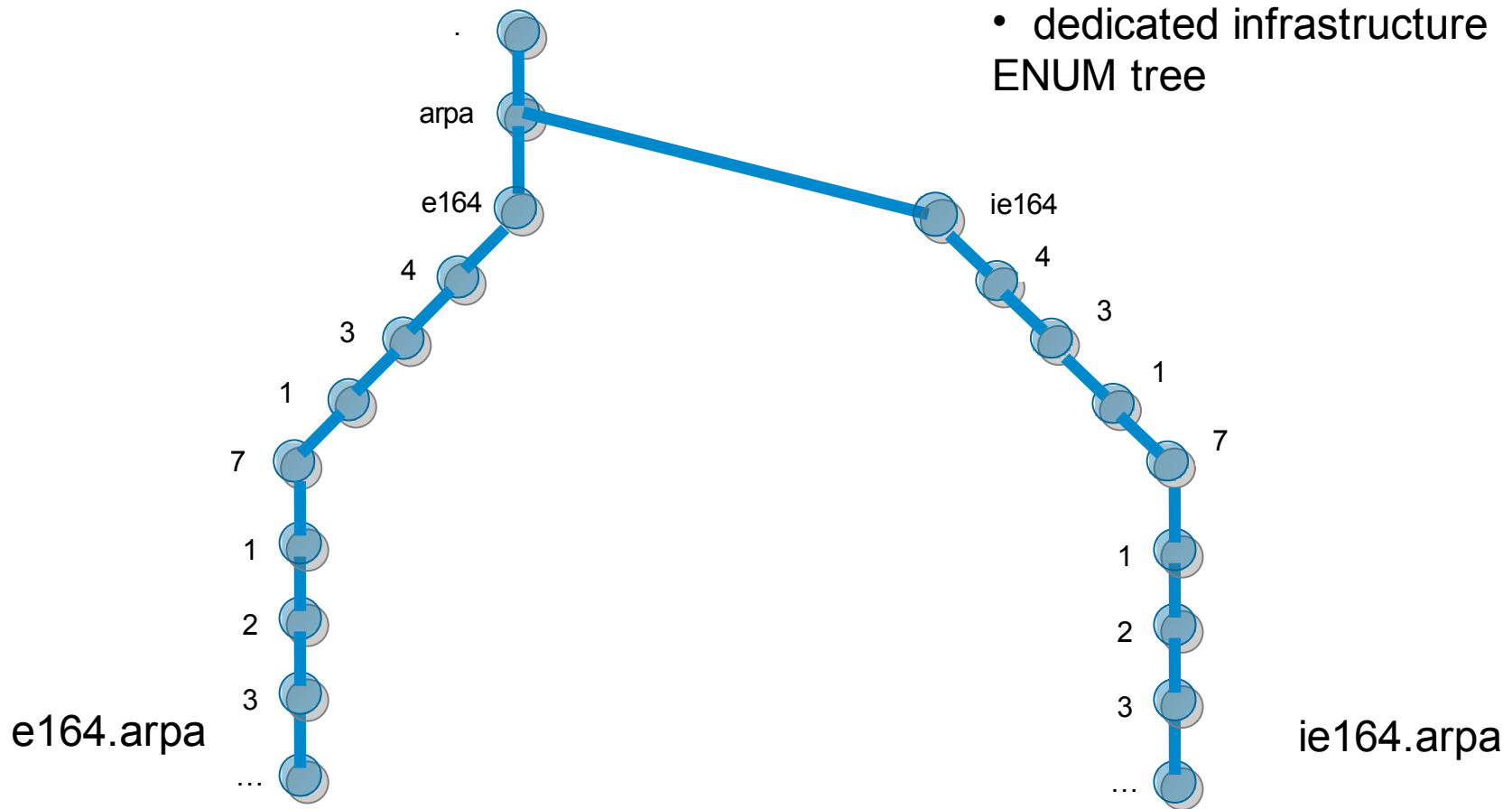
ENUM at a glance



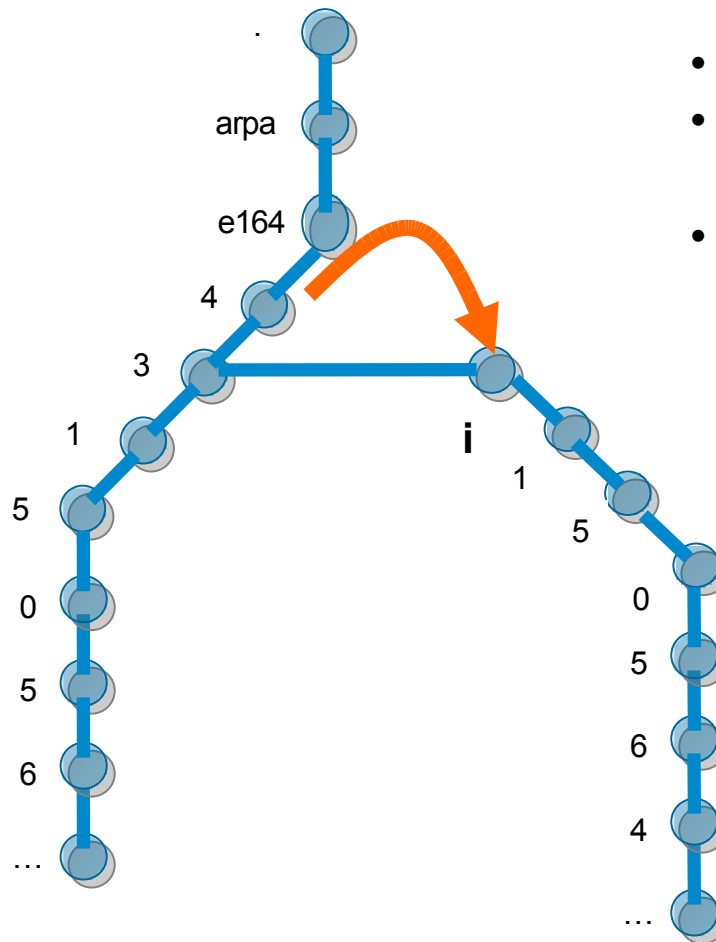
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"Long Term" Solution



"Interims" Solution



- Split below cc
- used in Austria
....0.5.0.5.1.i.3.4.e164.arpa
- Easy to change to other location

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- **ENUM-Lookup in a different tree (easy)**
- **„Early peering policy detection“ (not so easy)**
 - Carrier may choose an open peering policy
 - Or a closed policy where a peering agreement and authentication is needed
 - →Carrier need to determine the policy BEFORE Call-Setup otherwise the user might experience timeouts
- **Recommended reading: „peering federations“**
 - [draft-lendl-domain-policy-ddds-02.txt](#)
 - [draft-lendl-speermint-federations-03.txt](#)
 - [draft-ietf-speermint-requirements-01.txt](#)

- **Modules for OpenSER:**
 - ENUM lookup supports "long term" and "interims" solution
 - Peering Federations (domainpolicy)
 - details at Openser summit Wednesday 15:00
- **Available as part of the distribution**
- **Documentation, HOWTOs and more information on OpenSER and ENUM is available on www.enum.at**

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