

From phone numbers to global identifiers

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Agenda

- VoIP & numbering
- +883 history
- Ongoing ENUM trial

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- **VoIP & numbering**
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VoIP & numbering disruption

- New momentum, new players
 - low cost of entry
 - worldwide customer base
 - computerization (voice 2.0, cloud communication)
- Initial focus on lower prices, now on value added services

VoIP & numbering disruption

- No geographical boundaries
- Nomadic usage
- Sub allocations
- Separation of in & out

- Technology is far beyond regulation

VoIP regulations

- ECS (electronic communication Services) licenses
- Services not necessary bidirectional anymore (eg Netherlands)
- Emergency calls
- Lawful intercept
- Directory services

Numbering regulations

- Number portability with central databases
- Sub allocation against number exhaustion
- Nomadic & international use
- New number ranges

Phone numbers for VoIP applications

- New ranges (Europe & Asia), eg:
 - Austria > 0720
 - France > 03
 - Germany > 032
 - Ireland > 076
 - Japan > 050
 - Netherlands > 085
 - Singapore > 03
- ENUM specific ranges (Austria > 0780)

Geographic phone numbers for VoIP ?

- Geo numbers for both VoIP & PSTN
 - USA, Canada, ...
- Geo numbers not allowed for VoIP
 - Malaysia, Korea
- Geo numbers & VoIP numbers for VoIP
 - France, Netherlands, Germany, ...
 - But with restrictions

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+883 history

- +881 and +882
 - No suballocations
 - Only for managed networks (no Internet)
- Aug 06: Voxbone initiates talks with ITU
- June 07: +883 approved, Voxbone assigned +883 5100
- Jan 08: iNum launch

What is iNum (+883 5100) ?

- International phone number, with CC +883
- No geographical boundaries
- Unique identifier for VoIP users worldwide
- Reachable for free from the community
- Reachable for a fee outside community

iNum status

- 100 million numbers in total
- ~ 20 million numbers assigned
- 100+ participating service providers
- Involvement of universities and NGOs
- Reachability from VoIP networks
- Reachability from PSTN networks

Why phone numbers ?

- Carriers & users hold onto past
- Numbers make PSTN work with VoIP
- Numbers can make the past work with the future
- ALL successful VoIP services involve phone numbers
- Old numbers can learn new tricks

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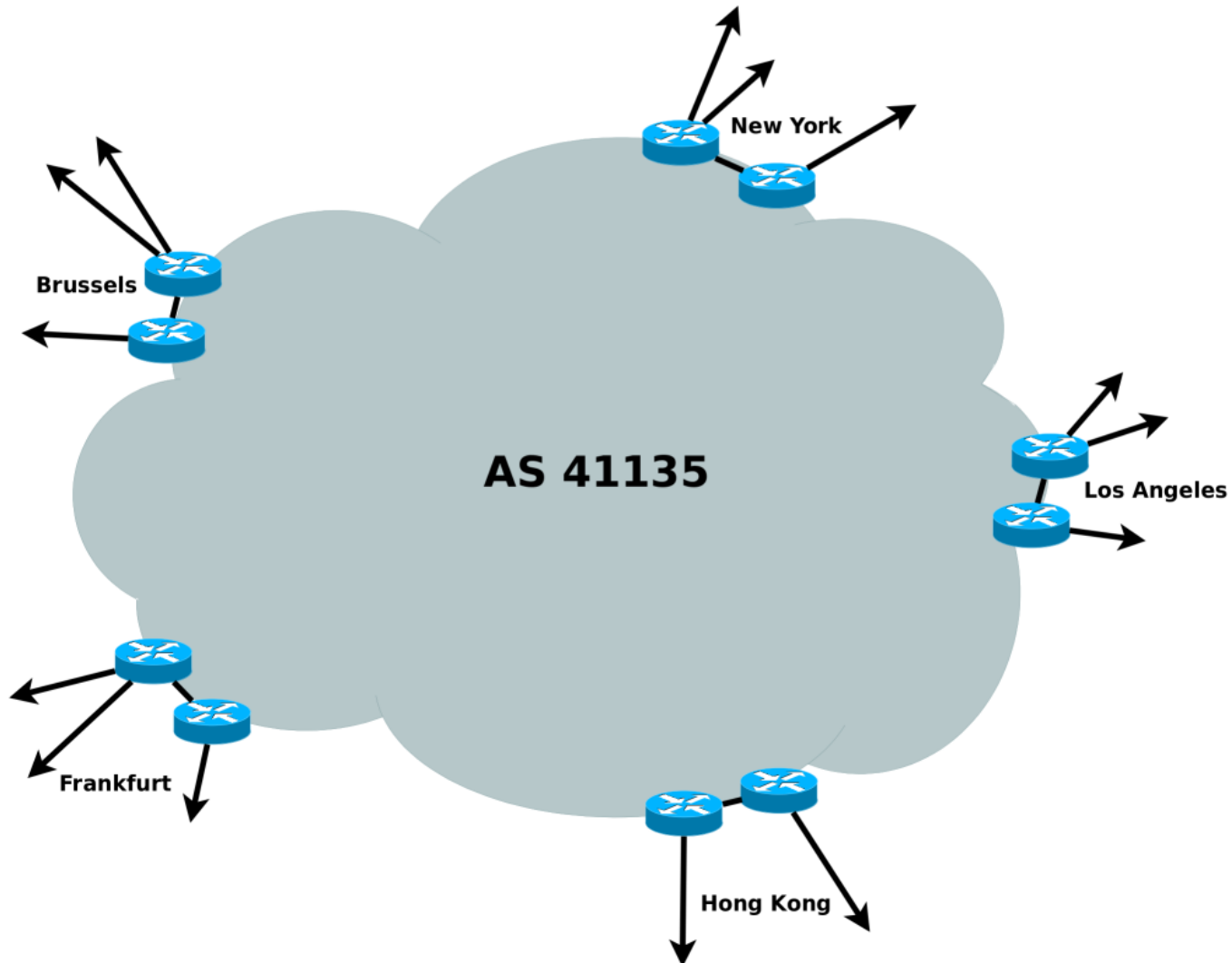
ENUM +883 history

- March 09: request for delegation of 0.0.1.5.3.8.8.e164.arpa
- ITU interim procedures for shared CC: <http://www.itu.int/en/ITU-T/inr/enum/Pages/procedures02.aspx>
- Exception required as +883 5100 was not a complete CC
- July 10: delegation completed
- Sept 10: trial started

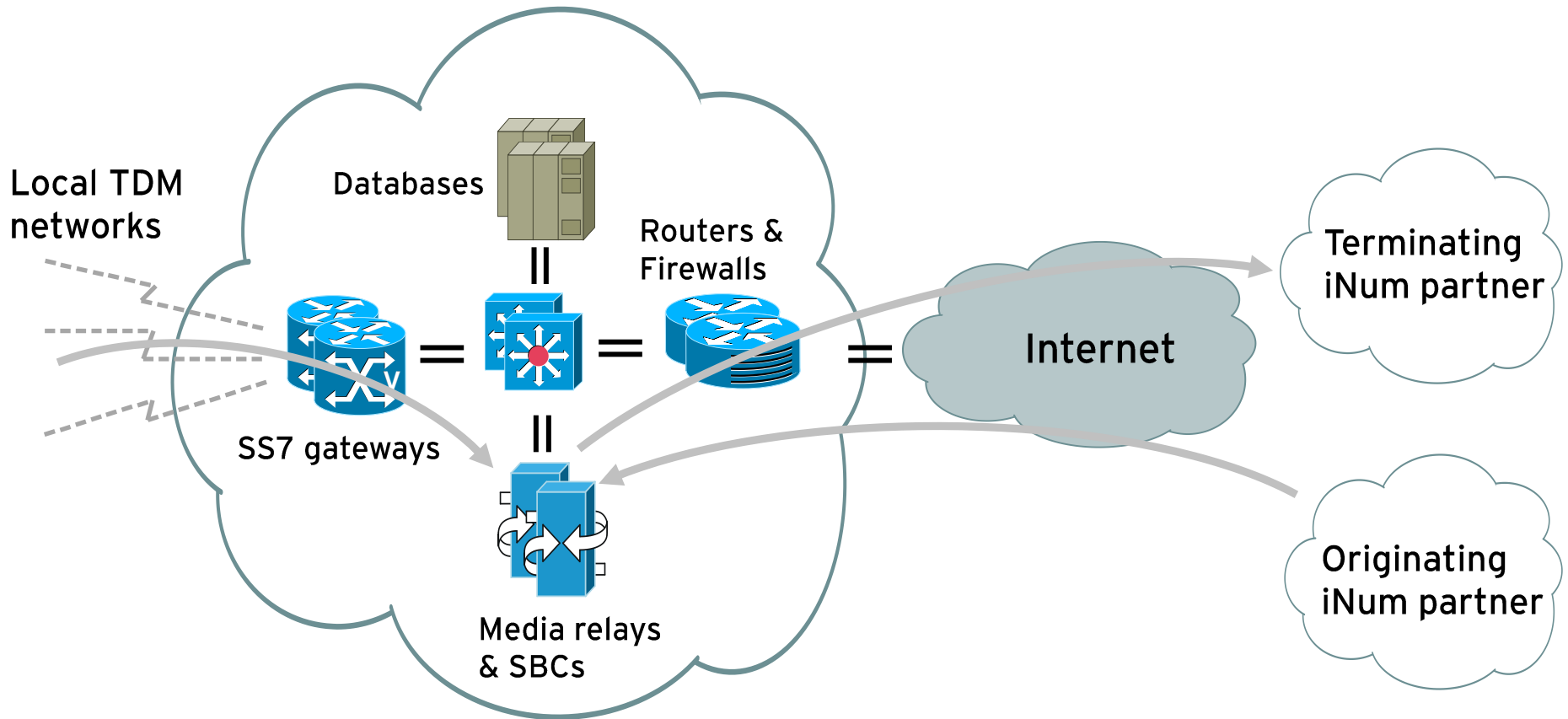
ENUM +883 current trial

- From private to public +883 reachability
- With anti-spam
- Only for service providers

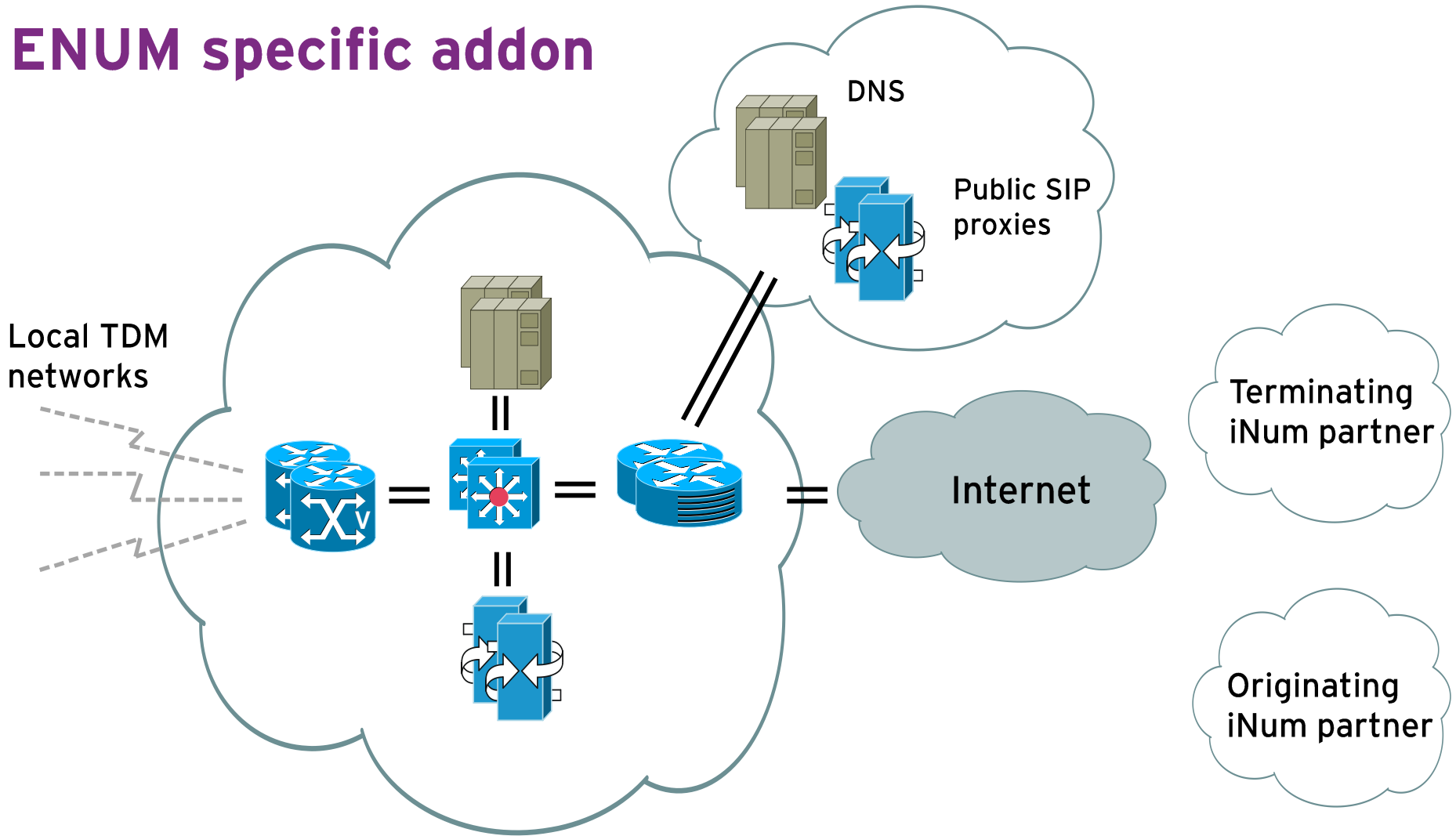
Core IP backbone



Core iNum architecture



ENUM specific addon



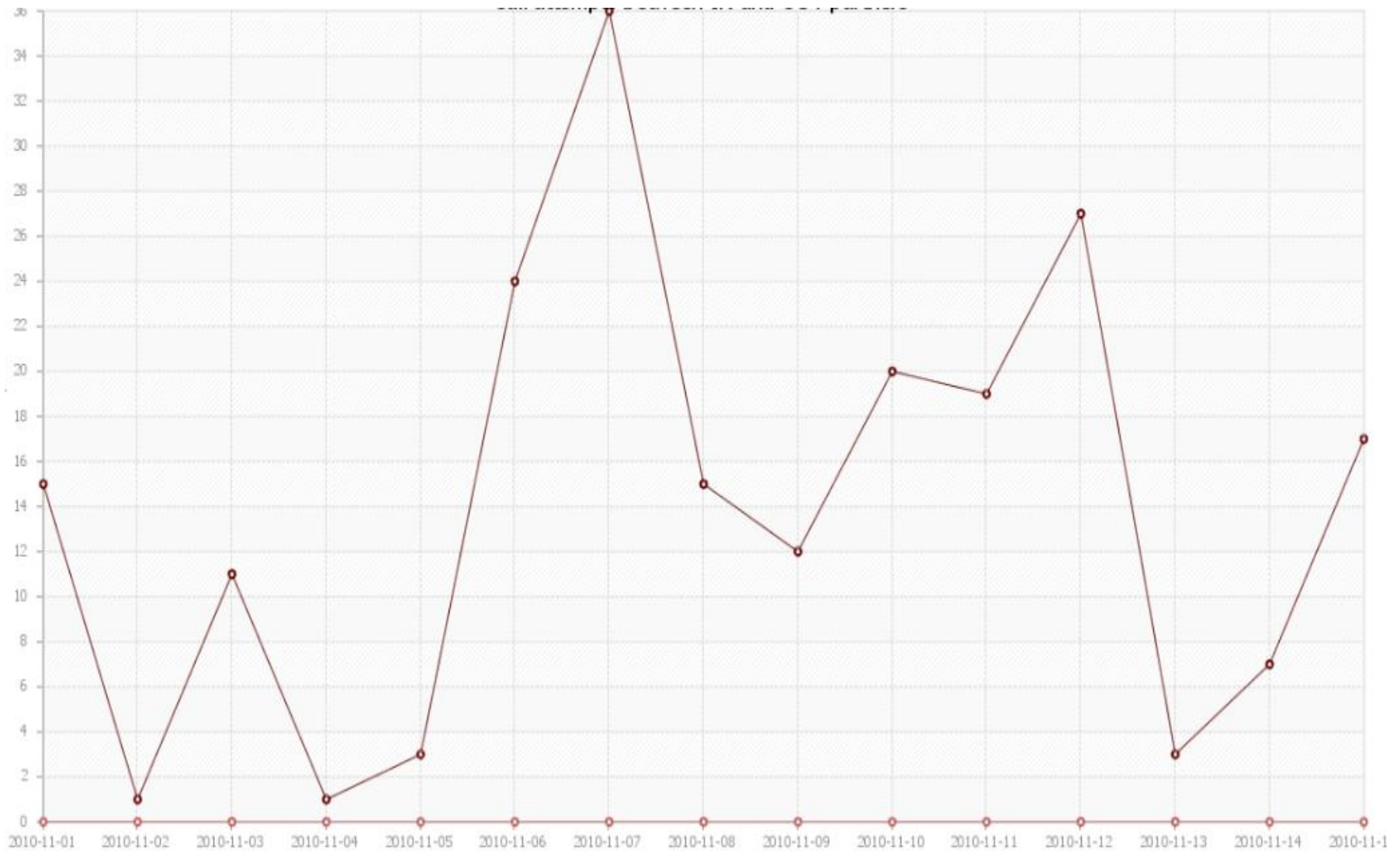
Call flow

- DNS query returns SIP URI
- SIP URI always the same (= public SIP proxies)
- Public SIP proxies:
 - public front end for iNum architecture
 - Anti-spam

Anti-spam

- Very strong during trial
- IVR with DTMF authentication, allows for 100 calls
- Blacklist options for iNum partners
- Global whitelist
- Managed via web portal

ENUM call attempts



Potential issues

- No needs from endusers
- No killer services
- Requests for full e.164 delegation
 - No control
 - No interconnect revenues

Benefits & purpose

- Additional routing mechanism
- Playground for service providers
- Innovate around phone numbers
- Innovate around business models

Feedback / questions ?