Regulatory – Experiences ENUM

Presented to: Netherlands ISOC Future of VoIP Event 2005

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Deliverables

- Assessing The Implications Of Numbering In Europe And Determining The Impact Of ENUM.
- Examining the IETF ENUM protocol and assessing how it will enable the convergence of the PSTN and the IP network for VoIP
- Understanding the implication of geographic numbering for VoIP in Europe
- Assessing the impact on interconnection agreements when ENUM is applied
- Predicting timescales for ENUM regulation

Assessing The Implications Of Numbering In Europe And Determining The Impact Of ENUM.

Numbering

Some common issues:

2. Numbering is viewed as a scare national resource (Feature of NRF)

4. Users dial E.164 numbers

5. Use of corporate dial plans

7. Numbering can be allocated based on population demographics

9. Numbering rules can detract from mobility

11. Need for and fear of nomadic numbers

What is ENUM (Simplified)

- Take a phone number

+353-1-506-9888

- Turn it into a domain

8.8.8.9.6.0.5.1.3.5.3.e164.arpa

- Ask the DNS

- Return a list of URI's

mailto:robert.schafer@mci.com

sip:robert.schafer@mci.com

Examining the IETF ENUM protocol and assessing how it will enable the convergence of the PSTN and the IP network for VoIP

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mailto:robert.schafer@mci.com

sip:robert.schafer@mci.com

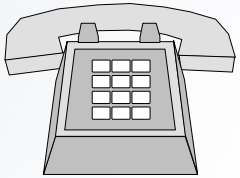
Problem: Address Complexity

http:www.jonathangreene.localisp.net

+1 214 786 4491

email:jonathan.greene@localisp.net

+1 214 891 0495

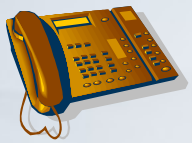


sip:jonathan.greene@mcisip.net

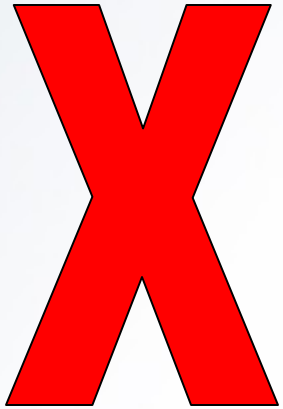
+1 214 890 6143

im:jonathan.greene@messaging.net

Problem: IP Addresses Not Dialable



Over a billion wireless and wireline customer devices with keypads



http:www.jonathangreene.localisp.net

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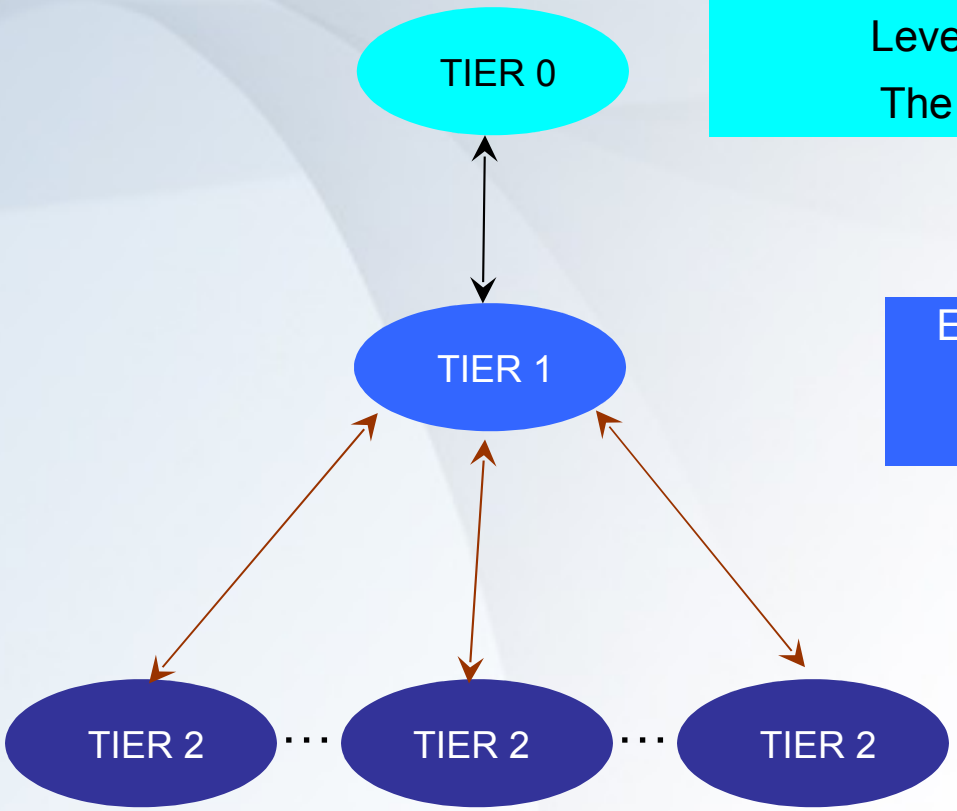
Basic ENUM DNS Architecture



Tier 0 is the Top Level Domain, e164.arpa

The “Global” ENUM Tier

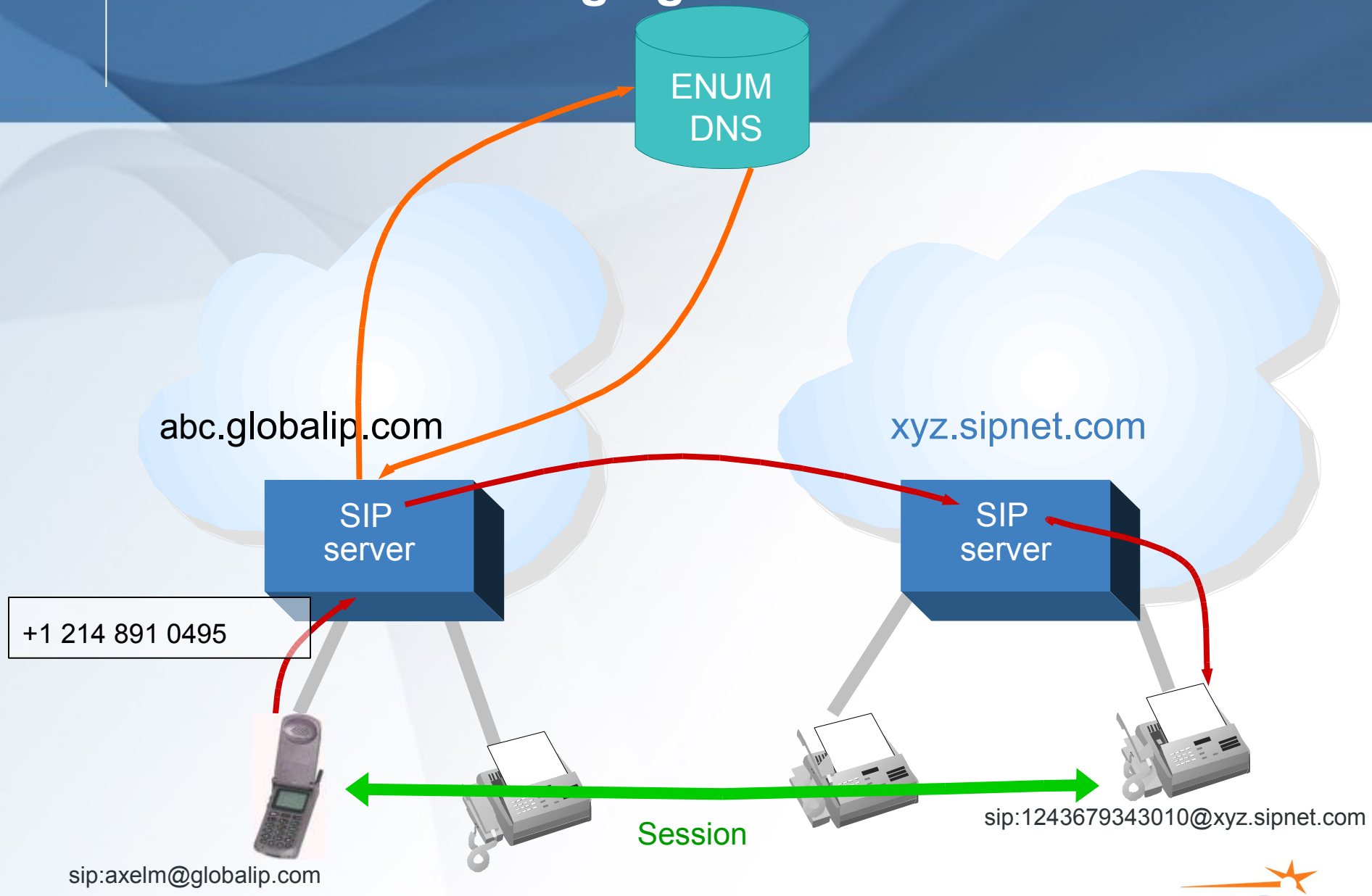
Each Country Code will have its own Tier 1 registry

The “National” ENUM Tier

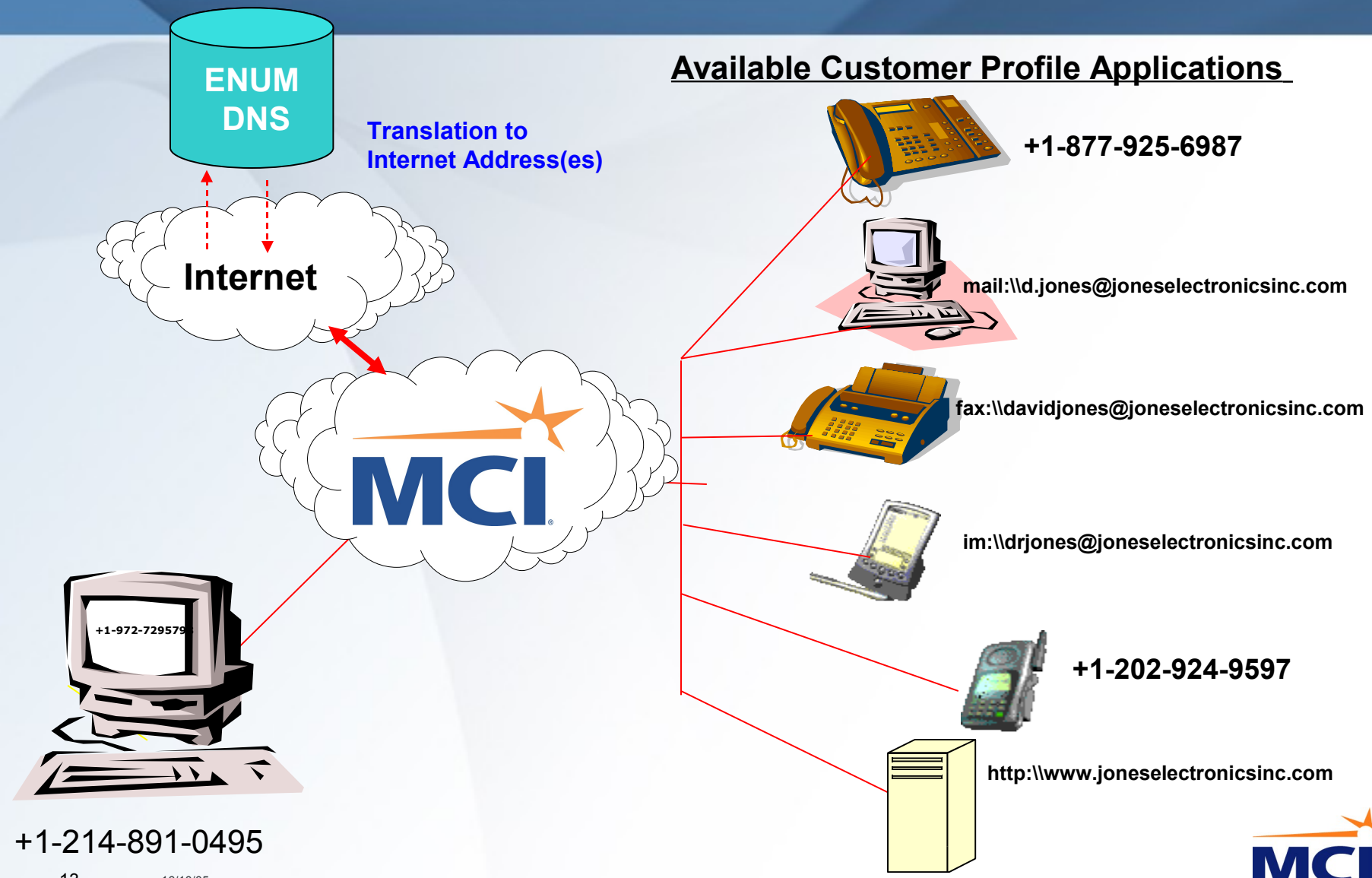
Specific information linked to each telephone number will be stored by service providers at the Tier 2 level

The “Competitive” ENUM Tier

ENUM Value - Bridging VoIP Islands



ENUM Enabled Applications



Common mistakes

- ENUM while facilitating the connection of numbering to the Internet is powered by NAPTR records which functions are far more powerful than that task alone

- ENUM and NAPTRs are far more powerful and operate over and above the simple telephone network addressing we are all accustomed to in the Telephony world. Now we have control to nominate methods of communication

- If Plain Old Telephone numbers ever become obsolete or complementary the NAPTR would provide the required “glue” for seamless convergence

Services powered by ENUM/NAPTR

- NAPTRs can point to various other service types such as:
  - SIP
  - Presence
  - Email
  - MMS
  - SMS
  - EMS
  - Fax
  - H.323
  - Conferencing [Integrated]

Understanding the implication of geographic numbering for VoIP in Europe

Fostering Good Numbering Policy for VoIP

While numbering is important to nations unnecessary regulation can lead to stymied investment opportunities and lack of willingness to deploy new innovative services.

Good numbering policies for VoIP/ENUM:

3. Regulators should allow ubiquitous access for all (national) publicly accessible numbers

5. Pay heed to existing legal requirements including emergency service access
6. Allow competition to develop by only regulating where regulation is needed e.g. introduction of new nomadic number ranges (UK, Ireland, Germany, Austria)
7. Preserving the interests of users while not removing from innovation and potential future markets

Assessing the impact on interconnection agreements when ENUM is applied

Three key issues for Regulation and Interconnection

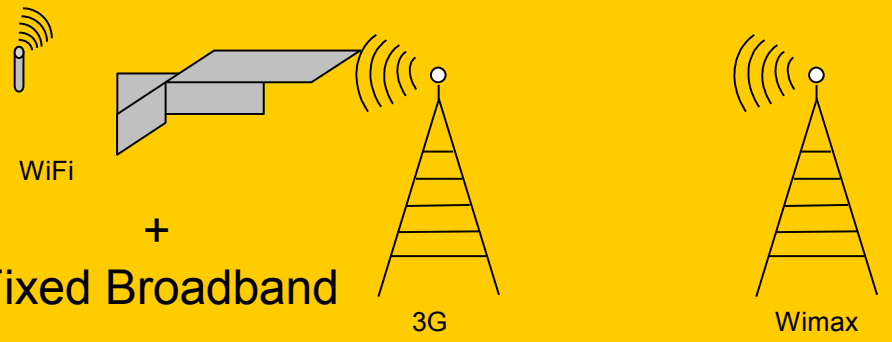
1. Structure of the market
   - Entry from new types of players. How will they interact?
   - Who will be providing the networks and in what way?
   - How will regulation have to change to adapt to the different interconnection requirements?

3. Current regulation: technical compatibility with VoIP

Three key issues for Regulation and Interconnection cont…

1. Theoretical challenge: DIY VoIP (VoIP that you deploy yourself using a software client, no payment, no PSTN breakout)
   - Will it take over? Not yet. Questions for the future:
     - Will there be a clear distinction between VoIP offered as a discrete, premium service and DIY VOIP or will it be a continuum?
     - Would regulation of premium services provide undesirable cost disadvantages resulting in inefficient substitution? Would large-scale substitution towards DIY VoIP have undesirable effects (access to emergencies, powered access)?
     - If you can't regulate the carriers, should you regulate consumers "for their own good"?

Structure of the Market – How will it evolve?
Key Functions: VoIP World

Customer Facing	
Core Network and services	IP Network + Services Key functions and differentiators: global scope MPLS/QoS, security, presence, location, conferencing, managed bandwidth, video
Access	

Applying existing interconnection regulation to VoIP/ENUM

- Two reasons for obsolescence of existing regulation:
  - Technical in difficulty/inapplicability
  - Burdens on new types of Publicly Available Telephone Services

- Which General Conditions will come under strain? Prime candidates:

  - GC1. Obligation to comply with technical standards
  - GC2. Proper and effective functioning of the network
  - GC3. Emergency call numbers
  - GC4. Emergency planning
  - GC5. Special measures for users with disabilities
  - GC6. Allocation, adoption and use of telephone numbers
  - GC7. Number Portability
  - GC8. QoS.

Predicting timescales for ENUM regulation

(Numbering Policy Dependence)

Remarks on Regulation

—There is no pressing need to regulate VOIP or other new information-transmission technologies e.g. ENUM, despite its link to numbering.

—Instead, focus on EFFECTIVE regulation of first mile/last mile bottleneck facilities.

—Allow VOIP and other innovative new technologies to develop and grow outside the constraints of unnecessary and counterproductive regulation.

—Foster global coordination of technology–enabling systems and procedures using least regulatorily-intrusive and most pro-competitive means possible, e.g., ENUM (TElephone NUmber Mapping) and sensible application of data protection/retention rules.

—Re-focus efforts on spectrum management, allocation and trading to extend wireless Internet access.

Questions and Answers