



Australian Government
**Australian Communications
and Media Authority**

Australia's regulator for broadcasting, the internet, radiocommunications and telecommunications

www.acma.gov.au

ENUM – A regulator's perspective

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Presentation outline

- ENUM overview
- ENUM concept
- Types of ENUM
- Role of ACMA
- Australian ENUM trial



ENUM overview

- ENUM is a communications protocol developed by the IETF and defined in RFC3761
- ENUM is described by the ITU as:
“a Domain Name System (DNS)-based architecture and protocols for mapping a telephone number to a Uniform Resource Identifier (URI) which can be used to contact a resource associated with that number.”
- ENUM is an enabler of convergence between the PSTN and the Internet



ENUM concept

- Software and devices can query DNS to check if a particular phone number is registered as an ENUM domain name
- If found, all associated communications addresses are returned to the software or device
- Software or device can then use this information to initiate a call, email, etc.
- If no ENUM domain is found, call can be routed over PSTN
- This is “User ENUM”



Types of ENUM

- User ENUM
- Infrastructure ENUM
- Private ENUM



User ENUM

- Original intention of ENUM, current focus of Australian trial
- One number, many URIs
- End-user must opt-in
- End-user controls resource mapping (NAPTR records)
- Enables other end-users to look up contact URIs that are linked with this number



Infrastructure ENUM

- One number, one URI (sip, h323, etc.)
- Provider opts-in, not end user
- Soft-switches rather than end-users perform the DNS lookup
- Standardisation is still ongoing



Private ENUM

- Private ENUM services exist outside of the e164.arpa. domain
 - XConnect (www.xconnect.com)
 - NetNumber (www.enum.com)
 - NeuStar (www.enum.org)
- Limited reach
- Scalability issues may arise as the number of private ENUM services increases
 - Which ENUM service should I use?
 - How to interconnect between services?



Role of ACMA

- Why is ACMA involved?
- What is ACMA to learn from this experience?



Role of ACMA

- ENUM domain corresponding to Australia's country code, 61, needs to be delegated to Tier 1 Registry
 - Australian ENUM domain: .1.6.e164.arpa.
- Delegation of ENUM domain corresponding to country code not made without approval of ITU member state
- Delegation must be authorised by DCITA & ACMA so that organisations interested in trialling ENUM can register Australian phone numbers in ENUM



Australian ENUM trial

- Development of ENUM domain registry
- Trial of ENUM started in Australia in June 2005
- Trial extended for an additional 12 months in April 2006
- Trial conducted in stages depending on types of phone numbers used:
 - Phase 1: New number range specific to ENUM
(059x xxx xxx)
 - Phases 2 & 3: Existing geographic & mobile numbers
- Trial will progress to stage 2/3 shortly



Australian ENUM trial - Authentication/validation processes for geographic and mobile numbers

- Robust processes required to allow geographic and mobile numbers to be used in the trial
- Main issues:
 - Authentication of Registrant identity
 - Validation of Registrant's rights of use of geographic/mobile number
- Authentication/validation will be conducted by Registrars



Australian ENUM trial – Current status

- Tier 1 Registry and 2 Registrars involved in trial



- As at November 2006 there were 266 ENUM domain registrations
- ACMA is currently conducting a Privacy Impact Assessment of the ENUM trial



Australian ENUM trial – Privacy Impact Assessment

- To address the privacy risks perceived to be present in the use of ENUM
- Consider potential future privacy issues should ENUM become commercially available
- Provide transparency to the processes used in the data collection and data transactions involved in the implementation of ENUM



Australian ENUM trial – ENUM Day

- The purpose of ENUM Day
- Planned demonstrations for the day
- Where to from here?



Resources

- Official Australian ENUM trial website:
 - www.enum.com.au
- ACMA ENUM web page:
 - http://www.acma.gov.au/ACMAINTER:STANDARD::pc=PC_2475
- Email:
 - enum@acma.gov.au



**Thank you for your attendance
and enjoy your day**

Any questions?



Glossary

- **ARPA** – Address and Routing Parameter Area. Internet top level domain used for infrastructure purposes
- **ACMA** – Australian Communications and Media Authority
- **DCITA** – Department of Communications, Information Technology and the Arts
- **DNS** – Domain Name System
- **E.164** – ITU Recommendation which defines the international public telecommunication numbering plan used in the PSTN
- **ENUM** – Telephone number mapping protocol developed by IETF
- **H.323** – ITU recommendation that defines protocols to provide audio-visual communications sessions on packet networks
- **IETF** – Internet Engineering Task Force
- **IP** – Internet Protocol
- **ITU** – International Telecommunication Union
- **NAPTR** – Naming Authority Pointer
- **PSTN** – Public Switched Telephone Network
- **SIP** – Session Initiation Protocol
- **URI** – Universal Resource Identifier
- **VoIP** – Voice over Internet Protocol