# PCC.I/RES. 116 (XI-07) [1]

## STANDARDS COORDINATION DOCUMENT (CSD) FOR IETF RFC 3761 "THE E.164 TO UNIFORM RESOURCE IDENTIFIERS (URI) DYNAMIC DELEGATION DISCOVERY SYSTEM (DDDS) APPLICATION (ENUM)"

The XI Meeting of the Permanent Consultative Committee I: Telecommunications,

**CONSIDERING:**

a) The rapid developments towards the convergence of telecommunications and the Internet;

b) That there is a need to acknowledge standards relating to the convergence of existing networks in a way that maintains interoperability across the Region, and that best serve the current and future needs of the users of these networks throughout the Region;

c) That the Next Generation Network (NGN) effort at the ITU-T makes use of multiple broadband, QoS-enabled transport technologies and in which service-related functions are independent from underlying transport-related technologies;

d) That there is consensus that new forms of communication are fundamentally transforming the way in which people, communities, businesses and governments interact with each other;

e) That there will be a change from predominantly circuit-switched to packet-based information transport, and

f) That this change will provide the end user with the ability to more efficiently receive multimedia services, including e-mails, file transfers, messaging and distribution services,

**RECOGNIZING:**

a) That Internet Protocol (IP) has now evolved beyond data-only networks to encompass an integrated, converged world of voice and data communication;

b) That there is a need for a smooth transition to Next Generation Networks (NGN);

c) That the Internet Engineering Task Force (IETF) is the preeminent body for globally accepted standards for Internet protocols, and has developed ENUM as one of the protocols to allow the communication and interconnection of distinctly different networks;

d) That the ITU plays an administrative role in validating a country's e164.arpa ENUM delegation to ensure that only the government or a country's designated Number Administration can authorize its country code be placed in the ENUM TLD;

e) That ENUM contains validation and verification components that maintain privacy and security of end user and network operator data;

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[1] CCP.I-TEL/doc. 1158/07

f) That ENUM is the protocol used for mapping ITU-T Recommendation E.164 telephone numbers into the Domain Name System (DNS), and that will be used to enable convergence;

g) That this draft Resolution was circulated to Member States through the CITEL Secretariat for consultation and no comments were received,

**RESOLVES:**

1. To endorse IETF RFC 3761, "The E.164 to Uniform Resource Identifiers (URI) Dynamic Delegation Discovery System (DDDS) Application (ENUM)", with no deletions, additions or modifications; and,

2. That the Rapporteur Group on Standards Coordination continue to monitor the IETF ENUM developments and determine their applicability for the Americas as this work evolves.

## ANNEX TO RESOLUTION PCC.I/RES. 116 (XI-07)

## STANDARDS COORDINATION DOCUMENT (CSD) FOR IETF RFC 3761 "THE E.164 TO UNIFORM RESOURCE IDENTIFIERS (URI) DYNAMIC DELEGATION DISCOVERY SYSTEM (DDDS) APPLICATION (ENUM)"

### Executive Summary

The Working Group on Technology has addressed IP based technologies as part of its studies of standards for Next Generation Networks (NGN), Services, Signaling, and Operations as they relate to the service access needs of the Americas. Part of this work has included the monitoring of the work of the Internet Engineering Task Force (IETF).

The ENUM protocol developed by the Internet Engineering Task Force (IETF) unifies traditional telephony and next-generation IP networks, and provides a critical framework for mapping and processing diverse network addresses. ENUM maps the E.164 telephone number — the most basic and commonly-used communications address — into a Universal Resource Identifier (URI) that can be used across many different devices and IP based applications (voice, fax, mobile, e-mail, text messaging, location-based services and the Internet).

### 1. INTRODUCTION

This document is based on discussions that have taken place at the Permanent Consultative Committee I: Telecommunications. In 2003, a Rapporteur Group on Communications Network Management and Operations was formed (PCC.I/RES. 18 (II-03)), with several Rapporteur Groups established within the Working Group on Standards Coordination. Three of the Rapporteur groups (Fixed and Mobile Services and Network Signaling, Transport Infrastructure, and Communications Network Management and Operations) contained terms of reference related to the consideration of protocol standards required for interconnectivity and interoperability of existing and future communications networks (wireline and wireless) across the Region; ultimately this was to result in the emergence of a single, seamless network, and help identify and evaluate technical issues relating to the standards required to support interconnectivity and interoperability of existing and future transport networks across the Region. Ultimately, this was to

result in the emergence of an end-to-end optical network. This work was to draw primarily on the work of existing standards-setting bodies, including the ITU-T, and other fora as appropriate.

As part of the Standards Coordination work plan, it was established at the III PCC.I Meeting (2003) doc.184/03 rev.2 that PCC.I would consider the adoption of a Standards Coordination Document (CSD) on telephone number mapping (ENUM).

Also, during the PCC.I Number Portability Workshop, September 20, 2005, Washington D.C., the use of the ENUM protocol was presented and discussed as one of the enablers that will facilitate the implementation and management of number portability in a converged communications environment (CCP.I-TEL/doc. 0723/07). At the X PCC.I Meeting (2007) in Buenos Aires, a review of the ENUM standard was presented (CCP.I-TEL/doc. 0995/07). This document described the motivation for creating the ENUM mapping, the content of the standard, and the advantages of using ENUM for Next Generation Networks.

## 2. BACKGROUND

The ENUM protocol, published in the Internet Engineering Task Force (IETF) standard document RFC 3761, is used for mapping ITU-T Recommendation E.164 telephone numbers into the Domain Name System (DNS).

The ENUM protocol uses what are called naming authority pointer (NAPTR) DNS resource records to identify the available methods or services for contacting a specific network node identified through a Recommendation E.164 number. The ENUM protocol defines and uses a specific type of NAPTR service with the mnemonic "E2U" (E.164 to URI Resolution).

The result of an ENUM query can be one or more Uniform Resource Identifiers (URIs) with their order of processing and preference indicated by values in the naming authority pointer (NAPTR) records. These URIs are then used to reference resources or services associated with the E.164 number. Possible examples of resources or services include fax number, mobile number, e-mail address, GPS coordinates, phone redirection services, unified messaging services, voice mail, and public key for asymmetric encryption applications.

## 3. CONCLUSION

The Working Group on Technology recommends that PCC.I endorse IETF RFC 3761, “The E.164 to Uniform Resource Identifiers (URI) Dynamic Delegation Discovery System (DDDS) Application (ENUM)”.

## 4. FUTURE WORK

The Rapporteur Group on Standards Coordination will continue to monitor activities associated with IETF RFC 3761 on ENUM.

## 5. RESOURCE DOCUMENTS

[1] “ENUM” Resolution 49, World Telecommunication Standardization Assembly (WTSA) October 2004, Florianopolis, Brazil.

[2] “The E.164 to Uniform Resource Identifiers (URI) Dynamic Delegation Discovery System (DDDS) Application (ENUM)” IETF RFC 3761.

[3] “Final Report and Addendum 1, Rapporteur Groups Mandates, Terms of Reference and Work Plans”. II Permanent Consultative Committee I: Telecommunications Standardization, April 7 to 10, 2003, Ciudad de Guatemala, Guatemala.

[4] “Final Report – Structure and Terms of Reference of the Working Groups of PCC.I” PCC.I/RES.104 (IX-06). IX Meeting of Permanent Consultative Committee I: Telecommunications, September 12 to 15, 2006, Buenos Aires, Argentina.

[5] “Final Report” doc. CCP.I-TEL/doc. 184/03 rev.2. III Meeting of Permanent Consultative Committee I: Telecommunications Standardization, April 7 to 10, 2003, Ciudad de Guatemala, Guatemala.

[6] “Creation of a Technical Notebook on Next Generation Network Standards” PCC.I/RES.17 (II-03) III Meeting of Permanent Consultative Committee I: Telecommunications Standardization, April 7 to 10, 2003, Ciudad de Guatemala, Guatemala.

[7] “Numbering” Electronic Bulletin Number 32 CITEL – February 2007.

[8] “Final Report” VI Permanent Consultative Committee I: Telecommunications Standardization, April 11 to 14, 2005, Tegucigalpa, Honduras.

[9] “Standardizing Number Portability as Networks Converge” Document CCP.I-TEL/doc. 723/05, Number Portability Workshop, VII Meeting of the Permanent Consultative Committee I, 20 September 2005, Washington DC., United States of America.

[10] “ENUM”, Document CCP.I-TEL/doc. 0995/07. X Meeting of the Permanent Consultative Committee I (2007), Buenos Aires, Argentina.