

Roundtable on Convergence of Communications Technologies

Executive Summary

The US should participate in the global implementation of Enum services currently underway. By taking the necessary steps to provision Enum services in the US, the US government will help to ensure the significant benefits to the communications industry that Enum promises.

Enum, at its core, is simply the creation of an Internet domain name (DN) from an existing E.164 Telephone Number (TN). For example:

E.164 TN **+1 202 533 2810**, becomes DN **0.1.8.2.3.3.5.2.0.2.1.e164.arpa**

The Domain Name System (DNS) is *the* naming and routing technology used by the Internet. In addition to this obvious quality, DNS was chosen for Enum due to its:

- Low cost - Communications service providers, and hardware and software providers can implement the DNS capability for little or no cost because it is free to use and the software is freely available,
- Global accessibility - DNS is globally accessible from any node on the Internet, and
- User choice - Users can choose to participate in the DNS by registering a DN for a nominal fee.

The Enum DN can be divided into the following domains:

arpa	Top Level Domain
e164.arpa	Enum domain
1.e164.arpa	Country-level domain
0.1.8.2.3.3.5.2.0.2.1.e164.arpa	TN-level domain

The US can opt-in to Enum by provisioning its Country-level domain. All ITU member states have the same choice.

Enum is a simple and low cost capability that will accelerate the transition of the global communications infrastructure from the legacy telephone network to the Internet. The packet-switched infrastructure of the Internet is more cost efficient and feature rich than the circuit-switched telephony infrastructure. Enum is a key enabler of the convergence of these two networks.

Participating in Enum will allow communications service providers, and hardware and software providers to integrate the functionality into their offerings. If the US does not participate, these companies will have to develop non-standard and proprietary solutions. Proprietary solutions are likely to be inferior because they will encourage “walled-gardens” rather than global accessibility.

Answers to NTIA Questions

Question 1

What is the vision behind ENUM?

Why would customers want an ENUM-ready device or register their phone number with an ENUM service provider?

(Does this vision include a way to facilitate communications via different networks worldwide?)

Answer

The Vision of Enum is to provide a bridge from the legacy communications network, the PSTN, to the new communications network, the Internet.

- The circuit-switched infrastructure of the PSTN uses E.164 TNs for naming and routing.
- The packet-switched infrastructure of the Internet uses the DNS for naming and routing.
- The communications infrastructure is evolving from circuit-switched to packet-switched.
- Enum enables the Internet to use TNs for the purposes of routing, by creating a domain name from a TN, e.g., 0.1.8.2.3.3.5.2.0.2.1.e164.arpa.
- Enum enables communications traffic to flow from the PSTN to the Internet.

Question 2

What is envisioned as the "killer application" of ENUM? What other services/capabilities will the ENUM protocol support or facilitate?

Answer

Since Enum is a bridge between the PSTN and the Internet, the "killer ap" for Enum is the same as the "killer ap" for the PSTN - Voice, or more correctly VoIP.

- Although Enum can, and likely will, be an enabler of new services we really don't know what those services are today. Initially it will enable the ability to deliver existing voice and Internet services over a common network, on common hardware and software. This will enable voice services to interact with Internet services.

Question 3

Are there other ways of doing what RFC 2916 (currently being considered by the IETF) is designed to accomplish?

Are companies currently exploring ways to provide the services/capabilities that ENUM will make available through mechanisms that do not rely on telephone numbers or DNS addresses, or both?

Answer

While there will be other solutions for mapping TNs to the Internet, no other solution provides the global addressing and global accessibility that is a basic requirement for routing on the Internet.

- Other solutions will be ad hoc, non-standard, and therefore localized. These run the risk of creating “islands of interoperability” without global accessibility.
- DNS is a very obvious solution for Enum since it is *the* naming and routing technology of the Internet. In addition DNS is low cost, globally accessible, and provides user choice.

Question 4

Does implementation of ENUM require the adoption of a single, common or hierarchical architecture, such as that proposed by the IETF?

What are the principal advantages and disadvantages of a single common or hierarchical architecture?

Is there any technical or economic necessity for a single, common or hierarchical architecture?

Answer

A single common Enum architecture will increase competition for ALL segments of Enum-related service providers. Enum provides an additional opportunity for companies that provide domain name registry and registrar services. But the real economic impact will come from competition among communications service providers, and hardware and software vendors.

- Domain name registries compete by pursuing regulator-endorsed contracts. They do not compete for private registry services.
- Registrars rely on regulator-endorsed registries to provide their services. Private registries do not provide a stable environment for registrars.
- Communications service providers, and hardware and software vendors are already evolving their offerings from circuit-switched platforms to packet-switched platforms. Enum will increase competition among these entities.
- The existence of a single architecture proposed by the IETF ensures the availability of a standard implementation to which competitors can build to facilitate high-quality competitive services.

Question 5

If RFC 2916 is adopted, will other methods or mechanisms be precluded or become less viable?

Answer

Implementing Enum will not preclude other solutions. The user's commitment to Enum will be so minimal that it cannot act as a barrier to other viable solutions.

- Because provisioning Enum requires regulatory endorsement of a registry/registrar infrastructure it may affect demand for private registry/registrar services. Since there is no market for private registry/registrar services there is likely to be little or no affect.
- There will be no affect on solutions that do not rely on a registry/registrar infrastructure.

Question 6

Should the U.S. decide to opt-in to RFC 2916?

What are the advantages or disadvantages to this decision?

Answer

The US should opt-in to Enum because it will accelerate the process of convergence and increase competition among multiple industry segments involved in providing the communications infrastructure.

For more information please visit our websites, enum.org and neustar.biz or contact Tom McGarry, Vice President, Strategic Technical Initiatives, at tom.mcgarry@neustar.biz. Media inquiries should be directed to Barbara Blackwell, at +1 571 434 5754.