

Agenda:

1. Welcome and Opening
2. Update on ENUM Implementation within the UK and what is Happening within the European Standards Arena
3. ENUM in the Netherlands
4. Unified Communications and ENUM
5. Carrier ENUM – Next Generation Interconnection
6. The Market for IMS and the Consequences for ENUM
7. Modern NGN Testbeds
8. ENUM for Number Portability – The Application of IPX (GSMA)

Minutes of Meeting:**1. Welcome and Opening (Sabine Dolderer, DENIC eG)**

Sabine Dolderer welcomed the participants of the 10th ENUM Day of DENIC and gave a brief description of ENUM and its current variants.

For the complete presentation of Sabine Dolderer please refer to:

http://www.denic.de/media/pdf/enum/veranstaltungen/Dolderer_20080418.pdf

2. Update on ENUM Implementation within the UK and what is Happening within the European Standards Arena (Tony Holmes, British Telecom)

Tony Holmes first gave a survey of the evolution of ENUM in Great Britain. It all started with a workshop in summer 2001. There were three candidates volunteering for an ENUM trial. In the end they carried out the trial together, which brought about some minor problems. The regulating authority also caused some delay by raising the question of monopoly and market domination by the large telecommunications companies. To face that concern, a governance organization was founded, the so-called UK ENUM Committee.

In Great Britain, ENUM was implemented by "CRUE": Carrier Registration in User ENUM". This means that the carrier can register ENUM domains for the numbers assigned by them without the owner of the telephone number necessarily being informed about it. Then two NAPTR entries are created for routing, either tel or SIP. If the owner of the telephone number is interested in the ENUM domain his/her wishes and entries take preference.

The second part of Tony Holmes' presentation dealt with ENUM in the NGN environment. To route within and between NGNs, Carrier ENUM should be used because there are standards and protocols for it, it fits the NGN architecture and it meets the carriers' requirements. Mr Holmes then explained the TISPAN NGN architecture, which supports both the fixed and the mobile networks in one single architecture. He continued with the question of the Top Level Domain under which Carrier ENUM should be established. e164.arpa and others have been proposed for this purpose. He pointed out the necessity to avoid that the various initiatives dealing with Carrier ENUM, partly located in the non-public Internet, i.e. in the private DNS, drift apart. If that happens, potential global resolution approaches might become unavailable. Proposals have been submitted for ETSI TISPAN how to proceed and which information is to be stored and provided at which TIER level. These proposals are planned to be reconciled with those of GSMA by the end of 2008.

For the complete presentation of Tony Holmes please refer to:

http://www.denic.de/media/pdf/enum/veranstaltungen/Holmes_20080418.pdf

3. ENUM in the Netherlands (Michiel Henneke, SIDN)

Michiel Henneke reported about ENUM in the Netherlands. In the Netherlands, SIDN ENUM was deployed in the production environment on 26 March 2008. Prior to the deployment, a market analysis was carried out to answer the following fundamental questions:

What will we use ENUM for? A frequent answer is reachability, but isn't that a killer application?

What can you do with ENUM? In the Netherlands, the focus is on service interoperability, routing, number portability and identity management.

In 2007, the so-called ENUM innovation platform was created as a body for collecting the ideas of everybody interested in ENUM. It turned out that the fundamental requirements comprise a transparent policy, involvement of all operators in the market and the exclusive implementation of Public User ENUM. The most valuable proposals came from outside the telecommunications area, which was very beneficial to the process.

Henneke considered the Netherlands an attractive market for ENUM because the country has high broadband penetration, users are open to innovations, the VoIP is widely spread already today, the regulator supplies number blocks not only to carriers but also to end users, and the Netherlands already provide of a central number portability database. As to the technical level, NL uses the registration system of Austria, which is also applied by Ireland. Ten ENUM registrars and one validation agent have already started operation in NL.

For the complete presentation please refer to

http://www.denic.de/media/pdf/enum/veranstaltungen/Henneke_20080418.pdf

4. Unified Communications and ENUM (Dr. Johann-Heinrich Schinke, Siemens Enterprise Communications)

Today, more and more companies face the challenge to integrate communication into the business process. Times when this involved only support in the fields of sales and marketing have long passed. Today the companies must cope with an increasing mobility of their employees, not only outside the office but also in the office building due to modern means of office organization. So the target is to converge IT and communication fields. Dr. Schinke presented related considerations and developments of his company, in particular its use of ENUM in communication systems seen under the carrier aspect.

The ISDN networks do not provide sufficient capacity for the intended usage, that is why one switches to IP networks. The trend is open communication networks. Language will remain a fundamental element of communication, in particular in time critical situations. Implementation, however, will become increasingly software-based and develop towards a multi-vendor infrastructure and multi-vendor services.

Siemens' implementation is based on a service-oriented architecture (SOA) that offers central basic services to which further applications can be added. This enables the user to use the available services as an integral unit (e.g. access calendar entries via voice entry, change the calendar entries and receive the acknowledgement as voice output again). Many of these applications are based on a telephone number but want to have access to Internet resources. Therefore, the system solution includes an ENUM server.

For the complete presentation please refer to

http://www.denic.de/media/pdf/enum/veranstaltungen/20080418_Schinke.pdf

5. Carrier ENUM – Next Generation Interconnection (Ulrike Rößger, Telekom Austria)

Ulrike Rößger briefly introduced herself and Telekom Austria. Mobile services have been part of the company's range of products for about two years. Already being involved with User ENUM, Telekom Austria now also participates in the GSMA ENUM trial. Planned are IMS SIP-based voice and video services as well as instant messaging. So Telekom Austria's focus is slightly different from that of the GSMA, which highly concentrates on MMS, settlement and similar. But Telekom Austria does not only want to connect mobile telephony companies but also grant ISPs access to Carrier ENUM. Three approaches for integration are being investigated in this context. In the course of her presentation, Ulrike Rößger explained in greater detail how Telekom Austria wants to contribute to the GSMA trial.

For the complete presentation of Ulrike Rößger please refer to

http://www.denic.de/media/pdf/enum/veranstaltungen/Roessger_20080418.pdf

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6. The Market for IMS and the Consequences for ENUM (George D. Salisbury, Detecon International)

George Salisbury presented the view of a telecommunications company. That is why he showed a doubtful attitude towards ENUM. To earn profit, the telecommunications companies have to maintain the customers' experience by managing services on his/her behalf and by not forwarding them to a system like ENUM. The customer wants services easy to handle. They shall be configured by the provider so that the customer does not need to manage them him/herself. Due to its numerous connection options, ENUM generates considerable complexity. The intelligence to manage that complexity is, however, not reduced to the ENUM server but must also be rendered by the provider or the user.

The model developed for IMS ten years ago has been overtaken by technical progress. The motivation that drove IMS is no longer relevant: The costs for telecommunications have decreased considerably, it has become much easier to enter the market. While the PSTN needed approximately 80 connection points for one million inhabitants, IP-based NGNs require just about 20 for all of Germany. In addition to that, good number portability is needed. But this concerns Carrier ENUM and not Public ENUM.

Mr Salisbury explicated what NGN exactly means. He said that any service available in the field of telecommunications can be reduced to two basic needs: information and transport. On the Internet, the intelligence is not located in the network but at the margins. On top of that, there are the transport providers that guarantee good transfer quality. IMS only is an interaction between transport and information providers. But NGN services have not yet reached the standard that is available with ISDN.

George Salisbury concluded: Tomorrow's technology will make today's obsolete. Public ENUM is at risk of becoming - not yet obsolete - but old. Moreover, he valued a support of the pay-for-use services as problematic. Carrier ENUM, in contrast, is badly needed.

For the presentation refer to

http://www.denic.de/media/pdf/enum/veranstaltungen/Salisbury_20080418.pdf

7. Modern NGN Testbeds (Jens Fiedler, Fraunhofer FOKUS)

Jens Fiedler started with a short survey on the testbed at FOKUS. They currently observe the various networks (PSTN, mobile, Internet) growing together into a converged NGN. Not only the applications become more versatile but also the architectures that are used. To understand the interaction of the various parties involved it is therefore not sufficient to have a look at the testbeds of individual providers but one must create cross-provider testing facilities. On the one hand a research testbed is required to render a proof of concept, and on the other testbeds of the industry are needed to perform interoperability checks.

FOKUS is concentrating on testbeds for service technology. The focus is on the Open IMS Playground. A large number of companies, but also universities, research institutions and public agencies are participating by now. The project also includes an investigation of ENUM, since it is a standardized

DNS-driven and widely distributed directory for services. The German service line 115 is investigated as a case study.

For the presentation of Jens Fiedler refer to
http://www.denic.de/media/pdf/enum/veranstaltungen/20080418_Fiedler.pdf

8. ENUM for Number Portability – The Application of IPX (GSMA) (Rainer Bäder, Alcatel-Lucent Germany)

According to Rainer Bäder's opinion, ENUM has not yet made it. He considered User ENUM as too far away from market needs. The level of acceptance of Carrier ENUM is not yet clear. The use of the Internet is continuously gaining importance, but you now have to integrate data via the Internet that have not yet or only slightly been related to networks before. In the medium run, all PSTN networks will be converted to IT-based networks.

He then defined IPX – Internetwork Packet Exchange. Contrary to the Internet, IPX can also provide Quality of Service (QoS), Cascading Payment, Security and many more services. Being a managed IP network, it is possible to define SLAs and performance indicators that are decisive for the payment of the respective service. In addition to that, a money flow between all parties involved can be mapped. GRX serves for switching mobile phone calls across network borders.

For the test of Carrier ENUM, the GSMA will use the Top Level Domain e164enum.net. Bäder introduced the delegation models. He assumed that in the end the Single Root Model as used with the DNS will be applied. The scenario under review is number portability in the field of mobile telephony.

For the presentation of Rainer Bäder refer to
http://www.denic.de/media/pdf/enum/veranstaltungen/Baeder_20080418.pdf

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