Report on the 4th ENUM Day, 1 March 2005 held in Frankfurt am Main

In the context of the continuing ENUM test operation, the responsible registry, DENIC, organized the fourth ENUM Meeting on March 1, 2005, with a particular focus on the German-speaking countries other than Germany itself. Some 130 participants with various interests in the subject, including numerous DENIC members already offering ENUM domains, telecommunication service providers and academics, discussed the progress that ENUM had made in Germany in the months before the meeting. Many of the participants were attending with the expectation of hearing about tangible plans for moving to the regular ENUM operation in Germany.

Agenda

1.   Welcome and Introductory Summary

Welcome (Sabine Dolderer, DENIC eG)

The participants were welcomed by Sabine Dolderer, a member of DENIC's Executive Board, and the meeting was conducted by Petra Blank, a member of DENIC's ENUM project team. Right at the beginning, Sabine Dolderer announced the core message of the ENUM Meeting: "after three years of evaluation, the German ENUM trial is now ready for the transition to regular operation". She went on to say that "the necessary documentation will be presented, and we can then coordinate how best to complete this transition with all those concerned".

Progress in the ENUM Project (Stefan Dieterle, DENIC eG)

The declared objective of the ENUM project is to arrive at a regular, commercial operation. Stefan Dieterle (DENIC's ENUM project manager) underpinned this statement with the latest figures. The number of ENUM domains had increased by a further 69% to a new total of 1622 since the preceding ENUM Meeting on September 28, 2004. It seemed highly probable that the move to regular operation would trigger a further increase in new registrations.
The project team had strengthened the standing of ENUM through public-relations work. This had included the distribution of a feedback questionnaire to those DENIC members already handling

registrations, and the response rate had been 76%. The evaluation of this feedback had shown clearly that the perception of the trial as it had run up until then was markedly positive.
Stefan Dieterle also reported on the ENUM working party that had been created shortly beforehand with the remit of concentrating on the registrar function. It had held its first meeting in December 2004 and had met with an enthusiastic response from DENIC's members. The topics being tackled by the working party included the optimization of the ENUM domain registration processes at DENIC and the preparation of an operations document for 9.4.e164.arpa. The intention was for the operations documentation to describe all the tasks, responsibilities and duties of all the parties involved in the ENUM operation.

All the slides that were shown to accompany the presentation at the ENUM Meeting are available at: http://www.denic.de/de/enum/veranstaltungen/denic_enum-tage/index.html.

2. Technical Background

SIP and ENUM (Dr. Jörg Ott, University of Bremen)

The presentation by Dr. Jörg Ott elucidated the technical background to SIP and ENUM. The SIP protocol (Session Initiation Protocol) takes charge of the signalling for a VoIP connection.
Addressing for a SIP communication takes place through the SIP-URI (Session Initiation Protocol – Uniform Resource Identifier). The precise technical processes are recorded in detail in the full version of the presentation documentation: http://www.denic.de/media/pdf/enum/veranstaltungen/TM-2005-03-Ott.pdf.
Dr. Ott explained in detail how ENUM technology functions in combination with SIP. Apart from its other features, this presentation represented an excellent opportunity for new participants in the ENUM trial to gain a better understanding of how ENUM works in detail and where its advantages lie. He also presented alternative address resolution mechanisms, such as TRIP and peer-to-peer-based approaches, and showed for each one of them where they might be deployed and how they might be used as additions to ENUM in particular environments. Once again, he clearly stressed the advantages of ENUM as an internationally standardized protocol built on a reliable and technically mature infrastructure.

H.323 and ENUM (Christoph Künkel, Innovaphone)

Christoph Künkel gave a very clear presentation of how an H.323 connection is created by registering the terminal devices with the local gatekeeper, call validation and call signalling. Once again, the central issues included: "how does ENUM fit in with these scenarios" or "how does ENUM extend classical H.323 scenarios?"

Christoph Künkel expressed the view that the correct place for the ENUM logics was in the gatekeeper[1]. This would also solve the problem of addressing any number of VoIP subscribers through a single telephone number, even if the call managers concerned were not to work in an integrated network with

---

[1] A gatekeeper supervises and routes incoming and outgoing calls, monitors bandwidths in the network, translates the terminal addresses and names and authorizes these for particular calls.

one another and were not to exchange their addresses. It would also be possible to couple the two worlds of SIP and H.323 through ENUM. Whereas ENUM formed consistent addressing throughout, the signalling messages still needed to be converted through a signalling gateway. For the media data, on the other hand, it was possible to use the same protocols.

Christoph Künkel pointed out that the Innovaphone installation provided support for both protocols and that signalling gateways were also ready.

3. Regulation

Current developments in the use of telephone numbers for VoIP
(Dr. Mirko Paschke, RegTP)

Dr. Mirko Paschke presented a comprehensive view of the development of the VoIP market since the start of 2004 and the resulting need for the regulatory authority to act. One point he explicitly justified was the prohibition on transferring geographic-area numbers to a location outside of the specific geographic area where they were first assigned.

In the course of 2004, the regulatory authority had organized various hearings. Their individual subjects had been:

- regulatory positioning of VoIP
- need for new numbers for VoIP – the (0)32 range
- the prohibition on transferring geographic-area numbers to outside of their defined area
- the need to amend the terms and conditions for using geographic-area numbers

The final outcome of these hearings was the introduction of the (0)32 number range and the decision to reaffirm the requirement for geographic-area numbers to remain within their area.

Dr. Paschke also presented the particular properties of the (0)32 number range, such as the complete absence of geographic constraints and the terms and conditions governing their use. He went on to express the expectation that the network operators would proceed to made the necessary interconnections as quickly as possible to enable this number range to be accessed via the PSTN and not only via the Internet (using ENUM).

Changing subjects, Dr. Paschke spoke for a while about the regulatory positioning of VoIP within Europe and presented a forecast of the challenges the regulators would face in the course of 2005. The participants were particularly keen to listen to what he had to say about "establishing the framework for the regular ENUM operation". He, like others, believed that crucial questions had already been answered in the field trial and he would endorse DENIC's proposal to prepare for its transition to regular operation. RegTP was waiting for DENIC to submit a final report on the ENUM trial, to be accompanied by a model for the regular ENUM operation.

4. Regular ENUM Operation in Austria

Regular operation in Austria
(Robert Schischka, enum.at)

Robert Schischka reported on the regular ENUM operation in Austria, which had been active since December 2004. His presentation bore the title "Status and experience from trial and production", and he offered a very interesting but also entertaining insight. Robert Schischka had been appointed general manager of enum.at GmbH, a service company for convergent network services and a 100% subsidiary of a foundation with the name of Internetprivatstiftung Austria. enum.at's core business is the operation of the tier-1 ENUM registry, and it makes use of the resources of nic.at in supplying these services. In terms of the number of ENUM domains, nic.at still had only relatively few (less than 100), given that hardly any products for using them were available on the market as yet. Robert Schischka stressed that ENUM's effective outreach had to be measured in terms of the number of accessible subscribers and not the number of registered domains. enum.at already had an appreciable number of accessible subscribers, with Vienna university's employees alone accounting for 3100 numbers. He summed up the results of the trial in Austria as follows:

- There are few problems with the technical processes; the organizational and legal issues, on the other hand, are more complex;
- It is important to define processes in such a way that they will still function even if some market participants adopt a stance of "non-cooperation";
- Product development throughout the trial itself had only been sluggish;
- Knowing about the future production environment and its limiting conditions are important for market development;
- Small telecommunications companies and ISPs manage to act noticeably faster on the market;
- Currently the critical success factors for VoIP offerings are those brought about by market pressure.

Finally, Robert Schischka expressed the view that he expected that many of the above results would be applicable to the German market too.

The regular operation in Austria from the perspective of a registrar
(Rudolf E. Steiner, nemox.net)

This intended presentation was not made.

5. Applications

Context-dependent accessibility and Communication
(Manuel Görtz, Dr. Ralf Ackermann, TU Darmstadt)

Manuel Görtz from the Multimedia Communication Lab of TU Darmstadt (under Prof. Ralf Steinmetz) presented the results of the research he had been carrying out in the field of context-dependent communication. He listed the demands currently made of communication services as the following:

- Filtering incoming communication requests
  This is needed, for instance, to provide protection against incoming VoIP spam but also to be able to offer certain communication partners particular means for establishing contacts intended specifically for them;
- Forwarding mechanisms
  These ensure that incoming messages can be received at a terminal device where the user is accessible;
- User-friendly services
  The possibilities for customizing services must genuinely cater for users' real needs.

The analysis of the current status of communication in the various networks was followed by the question: "what could we be doing better?"
It is the concept of contexts that provides the key element in striving for consistent end-to-end communication. "Context" for this purpose is a description of the relationship between the object and its environment. Provided user profiles are defined through user preferences, it is possible for the application to analyze this data and to steer the communication in such a way that the requirements listed above are met.
These scenarios have already been implemented at the Darmstadt Institute of Communication using the Session Initiation Protocol. The basic elements available to it were the SIP Express Router of Fraunhofer Focus GmbH and Vovida's telephony system, which had been enhanced, as required. Manuel Görtz furnished a detailed description of how the implementation was made using technical standards, such as PIDF and CPL.
He then moved on to the future and the forthcoming challenges. One example was that future systems would have to be self-learning. What this means is the autonomous creation of rules and their automatic adaptation as users change their pattern of behaviour.
At the end of his presentation, he made a practical demonstration of what up until then had only been shown in theory. Manuel Görtz had equipped himself with a sensor and, as he moved about, the telephone he had brought with him recognized him whenever he walked within a predetermined range of it. Incoming calls were then promptly routed to this particular device.

The advantage of this technology is self-evident. Whereas in the past the wrong telephone would have rung (or even all the telephones), in future the only telephone to ring will be the one precisely where the person called happens to be.

6. Miscellaneous Inputs from Trial Participants

At the ENUM Meeting, Michael Volpert of dtms AG announced that his company had made a gateway available that was able to ensure the accessibility of VoIP subscribers in any conceivable IP networks, including from normal PSTNs. At dtms this functions by means of a service number based on an intelligent network. VoIP subscribers can make calls to the free-phone number 0800 2010220. For this purpose, dtms uses the ENUM protocol and works in cooperation with Portunity GmbH, which supplies the IP switching and database function. ENUM uses the DNS (Domain Name System) to establish and break links between telephone numbers and web addresses or URLs that have been stored. Any

interested VoIP user was invited to contact Portunity at www.enum-center.de if the wanted to be registered in the ENUM database and to have an ENUM domain assigned. That was the sole precondition for accessibility. Portunity had set up further information about ENUM and Internet telephony in its enum-center.