

TERENA TF-ECS

Activity 2

Overview of national activities and deployments

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contributions from all

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Introduction

The Task Force Enhanced Communication Services (TF-ECS) is exploring collaboration tools and technologies that go beyond simple voice and video conferencing. They are coordinating current national activities and assisting in the rollout of next-generation collaboration services. The task force is investigating the impact of future developments in real-time communications and also defining architecture and trust models for peering such deployments in national research and education networks.

This survey was completed in the framework of “Activity C” of the TF-ECS. The main goal of the survey was to obtain a complete overview of national activities and deployments in the field of enhanced communication services. To this end, interviews were conducted with the person responsible for videoconferencing at each NREN. Two questionnaires were prepared. One had detailed questions for NRENs which have extensive experience of the subject, and the other was a simplified version for NRENs that are just starting to use such networks. The questionnaires were intended to help people prepare the interviews. The interviews themselves did not adhere strictly to the questionnaire. In most cases they were held in the form of an open discussion. This consultation exercise proved to be an excellent source of information. The present report summarizes the discussions and highlights a number of issues which would seem to be common to all NRENs.

We began by interviewing members of the TF-ECS, and then extended this to members of the TF-VSS at a later stage. In a third phase, we also intend to interview NRENs that aren't playing an active role in the two taskforces. We wish to gain deeper insight into why they are not participating in the activities. This draft version constitutes a preliminary report for TNC07 and is not yet exhaustive. We have already pinpointed a number of trends from these few first interviews, however, which probably hold true for all NRENs.

So far, the following European NRENs have contributed to the survey: BELNET (Belgium), CESNET (Czech Republic), FCCN (Portugal), Forskningsnettet (Denmark), GARR (Italy), GRNET (Greece), NIIF/HUNGARNET (Hungary), RedIRIS (Spain), SURFnet (Netherlands), SWITCH (Switzerland).

Survey results

Driving motivation

Initially, the prime motivation for many NRENs to deploy SIP-based services was the conviction that it would permit cost savings. It was necessary to save money on the charges for landlines, in particular, since these were still expensive in many countries. This turned out to be a very short-sighted approach, however. Given that telecommunication costs are now being reduced rapidly, with flat rates being offered in many cases, the need to save costs by establishing VoIP services has become less pressing. A number of NRENs do, however, still use VoIP as an argument to apply

pressure to telecom operators to reduce the charges for landlines to universities. Calls to the GSM network hold a higher potential for savings. The number of calls to GSM networks is increasing. Special agreements with GSM operators who do not provide landlines (or the last mile) to universities can make the use of VoIP trunking more attractive.

The survey showed that the long-term strategy for most NRENs is to deploy a service which can be better integrated in the existing infrastructure and which offers added functionalities and has a wider ubiquity.

Dedicated network solutions

Just a few NRENs deploy dedicated network solutions, such as lightpaths. From the viewpoint of network performance it is not felt necessary to have dedicated links just for real-time communication traffic. A number of NRENs were of the opinion that the perceived feeling of security can be increased by offering dedicated connections of this type. Other NRENs are considering enabling QoS. However, many NRENs don't have a QoS mechanism enabled on the backbone, which means they rely on proper dimensioning of the backbone to achieve carrier grade quality on their backbone but doesn't offer end-to-end QoS into the LANs of their institutions.

NREN IP network

The NREN backbone is used primarily to transport voice/video between institutions. In many cases, NRENs are not aware of VoIP traffic being exchanged between institutions and telecom operators, because the universities deal directly with the operator, thus bypassing the NREN. IP peerings between NREN and telecom operator ought to be envisaged.

Centralized infrastructure

At the beginning, discussions were held on whether the NREN could play a key role by providing a centralised infrastructure. The SIP protocol originates from a decentralised approach, however. Authentication issues favour a decentralised approach too. Free, central SIP servers are offered simply as a kick-start service. NRENs have traditionally offered a central MCU service.

Telecom operator

All the NRENs made it quite clear that it is not their intention to become a telecom operator. They want to avoid having to fulfil all the obligations imposed by the national telecommunication laws. In many countries, this means being able to provide lawful interception handling and being able to route emergency calls. Without an operator license it is not possible to offer telecom services to third parties (e.g. alumni). End users at universities are not normally regarded as third parties.

End-user services

End-user services raise many issues. First of all, it is not clear how to bill phone calls directly to the end user without having to build up a billing infrastructure. Some NRENs act as resellers and offer a re-branded service from a VoIP operator. Another possibility

is to forward calls to PSTN by means of a pre-selection code. In this case, end users must have a direct contractual relationship with the owner of the pre-selection code.

The decentralized architecture makes it difficult for the NREN to offer a good end-user service. Moreover, universities tend to preserve a certain autonomy and want to offer enhanced communication services to their students and employees on a direct basis – in the same way as they offer an e-mail service, for instance.

Dialling Plans

ENUM is generally seen as the core technology for disclosing the different ECS networks. It is still not clear how virtual numbers will be dealt with (numbers not routed via the PSTN), which were introduced with GDS in the past. By far the bigger issue is enhancing the political status of ENUM. In many countries, the national prefix has not been delegated. Only very few countries have a production environment, which is many times based on an operator model only (not for end users). There is often no convincing business model and, as a result, the rollout of ENUM is being held up. The community has established an alternative, independent ENUM tree. Nrenum.net offers a temporary solution for those countries that are having problems in obtaining a delegation on the Golden Tree (.arpa). However, nrenum.net risks becoming a private, academic tree which is separate from the private sector, as is the case for GDS.

ISN (ITAD Subscriber Numbers) constitutes an alternative to ENUM and this is widespread, especially in the USA. ISN is basically a derivate of ENUM which relies on the ferenum.org tree. European NRENs think that it is a good idea to look up ISN numbers too but do not consider that ISN will attract a greater amount of attention than ENUM.

Enhanced communication services

There is a clear trend towards web-conferencing. It is expected that more and more communication sessions will be started directly from computer desktops. Presence information and buddy lists are essential features. IM will also play a more important role in business communication. Video multipoint conferencing and voicemail ought to be supported too. Application and desktop sharing is desirable, but will be very difficult to implement using open standards.

Estimates

Those interviewed were asked to give their personal estimate of the progress of the rollout of ECS systems. The results were very optimistic. It was estimated that, by the end of 2007, several hundred institutions in Europe would be reachable by SIP. This means that several hundred thousand students, researchers and employees will be interconnected. In many cases, the estimates were not supported by statistical data. These numbers must therefore be treated with caution but they nonetheless demonstrate the very optimistic attitude of the community.

Conclusions

There is currently a great number of ongoing activities in the field of enhanced communication services in the different European countries. SIP was pinpointed as

playing a key role in the architecture of next generation real-time communication systems. ENUM will be the core technology for disclosing the different forms of local deployment. However, the political situation, plus a lack of business models, is holding up the rollout of this technology. It was seen that web-conferencing will be playing a more significant role in future. Presence information and buddy lists will change the way in which communication sessions are initiated. The development of enhanced features of this nature and the establishment of communication systems with a wider ubiquity are the real driving force behind the deployment of SIP-based services.

Appendix 1 Detailed questionnaire

[textbox]

What is the name of your organization/NREN?

- _____

[multiple choices]

What is the driving motivation for establishing SIP-based services?

- saving costs
- better integration in existing infrastructure
- extensibility / scalability
- added functionality
- others

Network Service provider

[single choice]

Does your NREN provide dedicated network solutions (optical link, lightpath) between carrier and institution (Network service provider)?

[multiple choices]

Which technologies are used?

- Optical Link
- lightpath
- Vlan

Transport Service provider

[single choice]

Is the NREN IP network used for transporting voice only between academic institutions?

- Yes
- No

[single choice]

Is the NREN IP network used for transporting voice between carrier and academic institution?

- Yes
- No

[multiple choices]

How is the network organised, do you use:

- VPN
- IP Peering
- Public NREN backbone
- SIP/H.323 Trunk

Session Service provider

[single choice]

Do you control SIP sessions by providing a centralized SIP Proxy or Session Border Controller for all institutions?

- Yes
- No

[single choice]

Are you considering becoming a telecom operator?

- Yes
- No

Application Service provider

[single choice]

Do you provide an end-user (researcher, students,....) service?

[single choice]

Do you charge the end users directly for the costs due to IP-PSTN gateways?

- Yes
- No

Dialling Plans

[single choice]

Have you already adopted ENUM or do you plan to do so?

- Yes, we have already adopted it
- Yes, we plan to adopt it
- No

[single choice]

Do you plan to join nrenum.net?

- Yes
- Yes, we have already done so
- No, we will be using the official arpa tree.
- No

[single choice]

Do you plan to support ISN?

- Yes
- No

Others

[single choice]

Is the architecture designed/optimised primarily for voice only?

- Yes
- No

[multiple choices]

Which other enhanced communication services do you provide?

- Video-conferencing
- Instant messaging
- Presence
- Voicemail

[single choice]

How many research and academic institutions (amongst your clientele) do you expect to be reachable by the end of 2007?

- 0
- 1-5
- 5-20
- more than 20

[text choice]

How many endpoints do you expect to be reachable by the end of 2007?

- _____

Appendix 2 Simplified questionnaire

[textbox]

What is the name of your organization/NREN?

- _____

[multiple choices]

Does your NREN already deploy a H.323 based network?

- Yes, just for the head office
- Yes, head office and other universities are interconnected
- No
-

[multiple choices]

Does your NREN already deploy a SIP-based network?

- Yes, just for the head office
- Yes, head office and other universities are interconnected
- No

[multiple choices]

What is/would be the driving motivation for offering SIP-based services?

- saving costs
- better integration in existing infrastructure
- extensibility / scalability
- added functionality
- others

[single choice]

Could you imagine providing an end-user (researcher, students,....) service?

- Yes, we do already
- Yes, we could imagine doing so
- No

[single choice]

Could you imagine becoming a telecom operator?

- Yes
- No

[single choice]

Would you charge the end users directly for the costs due to IP-PSTN gateways?

- Yes
- No

Dialling Plans

[single choice]

Have you already adopted ENUM or do you plan to do so?

- Yes, we have already adopted it
- Yes, we plan to adopt it
- No

[single choice]

Do you plan to join nrenum.net?

- Yes
- Yes, we have already done so
- No, we will be using the official arpa tree.
- No

[single choice]

Do you plan to support ISN?

- Yes
- No

Others

[single choice]

Is your existing architecture designed/optimised primarily for voice only?

- Yes
- No

[multiple choices]

Which other enhanced communication services do you provide?

- Video-conferencing
- Instant messaging
- Presence
- Voicemail

[single choice]

How many research and academic institutions (amongst your clientele) do you expect to be reachable with SIP by the end of 2007?

- 0
- 1-5
- 5-20
- more than 20

[text choice]

How many endpoints do you expect to be reachable with SIP by the end of 2007?

- _____