

# NRENum.net Home

## NRENum.net members meeting minutes and service updates

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2nd GNGC

Participants:

Tim Boundy, JANET

Alex Galhano Robertson, RNP

Erik Kikkenborg, NORDUnet

Peter Szegedi, TERENA

Apologised:

Praveen Misra, ERNET

Bill Efthimiou, AARnet

Ben Fineman, Internet2

Meeting notes:

1) NRENum.net service update.

- Peter, TERENA reported that RENATA, Colombia has been delegated to the service. There are some technical issues (DNS configuration state-of-the-art) with RAAP, Peru's delegation. Misi, NIIF (OT chair) is helping them solving the issues.

- In Asia Pacific region, we have recently received a delegation request from SingaREN, Singapore, to be followed-up. HKU successfully delegated their number ranges under the Hong Kong CC and appeared in the Crawler.

- In Europe, NORDUnet is talking to the Finish NREN about their delegation. Erik is seeking for technical discussion about end-user number delegation practices under the country codes.

- We recognised that some Latin American countries have in general problems with simple infrastructure setup and configuration. RNP/RedCLARA gives trainings to them and some knowledge can also be transferred from Europe to Latin America via the ELCIRA project and the hopefully coming ELCIRA II. To be discussed further.

2) Virtual Numbering Expert group report

- Peter, TERENA reported that the VN Expert group has analysed and discussed the results of its mini-survey and finally came into some concisions.

- The survey showed that the "VN issue" is only relevant to a sub-set of NRENum.net service stakeholders. We need a solution that does not interfere with the others. Many of the relevant NRNEs are using national "sandboxes" that are not fully legitimate according to our service policy. The VN expert group will come up with recommendations to move away from that bad practice. At the moment two potential paths are envisaged: a national/domestic solution and a global solution. There is a slight preference towards the legitimate global solution. The pros and cons of these solutions will be analysed and service stakeholders consulted one by one.

- The next steps are; to come up with a one-page summary of the VN expert group consensus and to approach the NRENum.net service stakeholders as well as the industry/regulatory contact persons for their input. The VN expert group also investigating the possibility to join the "Numbering Testbed" proposal of Jay Carpenter, Phoneword submitted to the FCC call in the US.

### 3) Service policy clarification

- Bill, AARnet reported the situation on the mailing list, that we have to clarify the service policy wrt. cases when the NREN is "blocking" the active participation of one of their universities in the service.

- The '30 days proposal' was supported by all the GNGC meeting attendees.

- The proposal says that a letter (postal and electronic) must be sent out by TERENA to the NREN asking for the clarification on their position wrt. the service. The NREN has 30 working days to respond. In case of positive response, the delegation request must arrive to TERENA in an other 30 working days. In case of successful delegation, the sub-zone delegation to the preferred universities must happen in an other 30 working days. In case of negative response, delay, or non-performance GNGC keeps the right to delegate the CC to the university following the very same procedure.

- Erik, NORDUnet asked for one additional clarification. If the CC is delegated to a university that university should sub-delegate zones to other universities. The competition between universities may happen but does not seem to be realistic. Re-delegation request is always possible.

Peter, TERENA will make these additional clarifications to the Service Policy document.

4) Meeting closed, no AOB. The next GNGC meeting will be on 26 May 2014 at 13.00 GMT/UTC, if not elsewhere (Internet2/TNC2014).

## 1st GNGC meeting - Notes

Date and time:  
29 October, 2013  
12.00pm GMT/UTC

Participants:  
Tim Boundy, JANET  
Ben Fineman, Internet2  
Alex Galhano Robertson, RNP  
Bill Efthimiou, AARNet  
Peter Szegedi, TERENA  
*/Erik Kikkenborg, NORDUnet - apologised/  
/Praveen Misra, ERNET- couldn't connect/*

Agenda:  
1) Round of introductions  
2) Administrativa  
3) Virtual Numbers tech group  
4) AOB

### Notes:

1) Skipped.

2) Concerning the GNGC administrative issues, the meeting attendees agreed as follows:

- Tim Boundy, JANET volunteered to be the first chairman of the GNGC. There was an unanimous agreement among the attendees.
- The group agreed to have regular meetings pre-scheduled quarterly (i.e. on 26 of February, May, August, November, 2014).  
MARK YOUR CALENDARS!
- There are two potential times that are reasonably convenient in all time zones: 1.00pm GMT/UTC and 9.00pm GMT/UTC. The group agreed to rotate these start times meeting by meeting (next meeting will start at 9pm GMT/UTC).
- The primary communication channel of the group is the GNGC mailing list ([gngc@nrenum.net](mailto:gngc@nrenum.net)). Ad-hoc VCs may be called as needed. The repository for the GNGC documents and minutes is the NRENum.net homepage at <http://nrenum.net>
- The GNGC meetings are minuted by the TERENA personnel. The minutes go public on the NRENum.net homepage upon approval of the GNGC members.
- VC MCU must be tested well before the next meeting. Ben, Internet2 offered their MCU as an alternative.

3) The meeting attendees agreed to create a small expert group investigating and proposing a single solution for Virtual Number handling with regard to NRENum.net as follows:

- The VN expert group shall be limited to 6 people as the maximum.
- The VN expert group shall have a clearly defined mandate in order to investigate the potential scenarios in consultation with the NRENum.net stakeholders, industry and regulators, and come up with a viable recommendation, justification and draft implementation plan.

## 9th VC minutes

Title:  
NRENum.net call about virtual number delegation

Date:  
Wednesday, 15 May 2013 at 2pm CEST

Participants:  
Foad, JANET  
Bill, AARnet  
Ben, Internet2  
Michael, Internet2  
Misi, NIIF  
Bartek, PSNC  
Thomas, SWITCH  
Simon, RENATER  
Peter, TERENA  
Bernie, UCom.ch

### Notes:

1) Negotiating with national regulators

Peter (TERENA) reported that FCCN, the Portuguese NREN, has successfully negotiated with the national regulator and got an are code (within the Portuguese dialling plan) to be used for virtual numbers. In this way,

virtual numbers managed by FCCN can be considered as legitimate, real numbers to be delegated to the NRENum.net tree.

Bill (AARnet) said that they are also following this approach and negotiating with the Australian regulator along the same lines.

Peter (TERENA) concluded that it's definitely an option for those countries where there is an appropriate area code within the national dialling plan available for virtual number delegations.

ACTION 1 on all to try and collect these national cases, success stories and make them visible to other NRENS. This can help negotiating with national authorities, where it makes sense.

#### 2) What to do with v.nrenum.net?

Misi (NIIF) summarised that creating the "v.nrenum.net" virtual sub-tree seemed to be a good idea but technically it can hardly be ensured that the virtual sub-tree (containing both real and virtual numbers) will always be in sync with the production nrenum.net tree (containing the real numbers only).

Having a completely separate virtual tree containing only the virtual numbers (i.e. yet an other tree to query) doesn't sound appealing to the meeting participants. No use of that virtual tree is anticipated.

Peter (TERENA) concluded that the group has reached a consensus on dropping the v.nrenum.net sub-tree idea.

ACTION 2 on Misi (NIIF) to revoke the v.nrenum.net sub-tree.

#### 3) Picking a virtual country code.

We still need an alternative solution for those countries where virtual numbers are used and either there is no room in the national dialling plan for virtual number legitimization or negotiations with the national regulator/carrier(s) are stuck.

The alternative solution for this would be to pick and "unused" country code from the ITU-T grid. Starting a collective negotiation process with ITU-T could be time consuming and give us no guarantees that carriers will ever comply to that, therefore not preferred. Polling for a country code that is deliberately chosen by us would be the way forward.

Once we have a global CC selected, there was a discussion about how the actual virtual number administration and management can be done under that CC. Basically two options were discussed: a) flat numbering approach b) replicating the exciting country code structure of ITU-T.

Pros and cons concerning number range allocation, administration, management and governance were mentioned on both sides. In the end there was a slight preference towards the flat numbering approach but there was no firm consensus. Therefore, it was recommended to draft a proposal on this solution and distribute that on the mailing list for further comments and suggestions on the actual implementation.

ACTION 3 on Peter (TERENA) to draft a proposal for alternative virtual number delegation under a global country code selected by the NRENum.net community.

#### 4) AOB

Misi (NIIF) encouraged the service participants to use DNSSec. He also mentioned a web portal idea for semi-automated end-user number delegation management. These topics can be discussed at an other time.

Bill (AARnet) mentioned the SIP-NRENum.net training at TERENA Networking Conference 2013. Feel free to participate! Registration is open at [https://www.terena.org/events/details.php?event\\_id=2529](https://www.terena.org/events/details.php?event_id=2529)

## eduCONF-NRENum.net joint workshop

Date: 18-19 March 2013

Location: TERENA office, Amsterdam, Netherlands

URL: <http://www.terena.org/activities/educonf/nrenum/programme.html>

1) Joint GN3 eduCONF - TERENA NRENum.net pilot: handling of virtual (GDS, eDDi) numbers:

1.1) NRENum.net will not change its service policy, although in principle it does not allow the delegation of virtual numbers into the production NRENum.net tree: instead it will seek ways to legitimate virtual numbers so that they can be delegated to the NRENum.net tree without the need for a policy change.

1.2) An NREN-recommended roadmap was devised for this:

A) NRENS should initiate discussion with their national regulators to try and get permission to use a potential sandbox/superspace (unused area code) inside their national dialling plan to populate virtual numbers, or promote such use.

B) The NRENum.net Operations Team should pick an unused country code at the global level to populate virtual numbers. For this purpose, a virtual NRENum.net sub-tree (also referred as 'NRENum.net extended tree') will be created that is different from the production NRENum.net tree and includes all information from the production tree plus the selected virtual country code. This will be available for a trial/pilot period to be tested by NRENS.

1.3) Meanwhile, eduCONF will ensure the following points:

A) Both virtual GDS and eDDi numbers will be populated in the virtual NRENum.net sub-tree (NRENum.net extended tree) under the selected country code for pilot / test purposes. If this pilot is successful, all virtual GDS and eDDi numbers will become an ENUM number to be delegated to the production NRENum.net tree.

B) In its activities in the GN3 and GN3plus projects, eduCONF will promote the use of NRENum.net as the global uniform dialling solution for video communications.

2) Participants approved necessary changes to the NRENum.net Service Policy implied by the joining of RENATER and NORDUnet in the service. These were two additions to the C. Membership section:

C.1.3. in case a country has agreed to be represented by an other NREN or international organisation, the two entities have to clarify their individual roles with regards to NRENum.net.

C.4. The NREN (entity) agrees to fully support a future transition and provide all data when requested to ensure a swift re-delegation should NRENum.net decide to re-delegate a country prefix to a different entity.

The new Service policy v.0.5 is now into effect

<https://confluence.terena.org/display/NRENum/Service+policy+v.0.5>

3) Peter Szegedi, TERENA was given the mandate to initiate discussions with the community about the preparation of a high-level Global Governance Committee for the global NRENum.net service.

4) Participants agreed that TERENA / NRENum.net should negotiate with Internet2, AARnet and NORDUnet about operating DNS slaves within their region: the DNS master will remain operated by NIIF/HUNGARNET. This will be followed up by Peter Szegedi, TERENA and Mihaly Meszaros, NIIF.

5) A new DNS crawler application will be put on the NRENum.net tree for test purposes. This was offered by Simon Perreault, RENATER and will be followed up by him and Mihaly Meszaros, NIIF. In case of successful tests we may decide to migrate from the current crawler <https://crawler.nrenum.net/> to the new one.

6) A hands-on training session titled "SIP-based video calling via NRENum.net" will be held at the 2013 TERENA Networking Conference in Maastricht, Netherlands in June. Workshop details and registration are available online <https://tnc2013.terena.org/core/event/4>  
[https://www.terena.org/events/details.php?event\\_id=2529](https://www.terena.org/events/details.php?event_id=2529)

Contributions of existing training and/or tutorial materials (in addition to the training material available) are very welcome!

7) Both eduCONF and NRENum.net services have now official service logos being trade marked. The logos were introduced to the workshop participants and can be found on the service websites, respectively.

**eduCONF-NRENum.net joint VC (pilot kick-off)**

Date: 28 November 2012  
Time: 12:00 CET (Amsterdam)

Recording:

[https://vvc.niif.hu/mcu\\_booking/ondemand/embedded/empty\\_page/0135410781300-07704208qt.mp4/1280x720](https://vvc.niif.hu/mcu_booking/ondemand/embedded/empty_page/0135410781300-07704208qt.mp4/1280x720)  
(starts at approx. 1:00:00)

Slides:

<https://confluence.terena.org/download/attachments/21627003/NRENum-v3.pdf>

Description of Work:

<https://confluence.terena.org/download/attachments/21627003/educonf-nrenum-dow-v1.pdf>

Participants:

Henny Bekker, SURFnet  
Bert Andree, Antarbör  
Guido Aben, AARnet  
Bill Efthimiou, AARnet  
Mészáros Mihály, NIIF  
Bernie Hoeneisen, Ucom  
Nuno Gonçalves, FCCN  
Miguel Duarte, FCCN  
Rui Ribeiro, FCCN  
Jan Ruzicka, CESNET  
Erik Kikkenborg, NORDUnet  
Tim Boundy, JANET  
Foad Boroujerdi, JANET  
Alex Galhano Robertson, RNP  
Ognjen Milosavljevi, AMRES  
Bartłomiej Idzikowski, PSNC  
Maciej Strozyk, PSNC  
Peter Szegedi, TERENA  
Mariano Martin, Red Académica Argentina

#### NOTES:

The GN3 eduCONF - TERENA NRENum.net joint pilot starts today and runs until 31 March 2013 (the end of GN3 Project). Budget is allocated to GN3 Project eduCONF Task. All GN3 participants can benefit from that. Participants outside of the current GN3 Project Consortium are very welcome to contribute to the pilot on a voluntary basis. Liaison with RIPE ENUM Working Group will be maintained.

Mailing lists to be used:

[discussion@nrenum.net](mailto:discussion@nrenum.net)

[educonf-workshop@geant.net](mailto:educonf-workshop@geant.net)

Make sure that you are on these lists.

Key milestones of the pilot:

- 1) Survey about the pilot options - CoB by 15 December 2013
- 2) Implementation of the sensible options by 15 January 2013
- 3) Trial period open by 15 March 2013
- 4) Closing workshop - around end of February, beginning of March 2013

Interested participants:

Those that are already in eduCONF:

PSNC, NORDUnet, JANET, NIIF, AMRES

Others:

SURFnet, RNP, CESNET, AARnet, Ucom

Some comments:

Survey about the national systems/solutions that are in place will tell us a lot about the potential implementation scenarios for the pilot.

SURFnet's GDS country gatekeeper will soon be shut down. All the users must be migrated to ENUM. SURFnet has distributed a technical documentation about their trial on the NRENum.net mailing list.

Use of existing valid phone numbers makes the integration/migration easier. We have to be careful with the potential mismatches between GDS and ENUM numbers.

The National Dialling Plans are different country by country therefore it's difficult to agree on a single uniform prefix inside the NDPs. Choosing a global "internet county code" (outside the NDPs) that does not clash with the E.164 grid is a potential solution to the piloted.

Simple and clear validation policy is essential.

There appear to be two different kinds of requirements for virtual numbers:

- 1) overcome the number shortage (or unavailability) in some countries
- 2) having short numbers

When it comes to the "short numbers" requirement, Bernie doubts that the main nrenum.net tree is the right place to solve this; as it simply doesn't scale well and has a big potential to mess up existing E.164 number plan. Concerning the options to overcome the number-shortage/unavailability, the big question to be asked beforehand should always be: "What happens, if the virtual-number space once will get assigned in the real (E.164) world and nrenum.net-virtual-numbers overlap with ordinary PSTN users'?" and what is the likelihood for this to occur.

Interest came after the VC:

Internet2, INOVA|RED, RENATER

## Status update

Date: 26 November 2012

### 1) \*Virtual number delegation\*

Recent discussion about virtual number delegation to the NRENum.net tree concluded that the virtual numbers must be very well separated from the valid PSTN numbers. The separation can be done:

- a) either at the national numbering plan level (no migration needed), or
- b) at the top level creating a virtual country code (for new virtual number ranges)

<https://confluence.terena.org/display/NRENum/Handling+virtual+numbers>

Note that the administration of the virtual number ranges is an open issue.

- Choosing a "virtual country" code

It is highly recommended that the selection of the virtual country code and the recommendations for virtual numbers are in line with ITU-T, the national numbering plans, and the local operators' dialling plan. There have been several attempts in the past to delegate virtual numbers to an ENUM tree. Previous (commercial) experiences must be collected and a clear case must be presented before one can approach ITU-T with any proposal. There are three potential cc options so far:

- a) +10 - this is under the North American NP but not an APN, must be discussed with Internet2
- b) +83 - officially, a request must be submitted to ITU-T, the approval process is non-transparent and highly political (and btw costly)
- c) +883 5100 - this domain is already delegated to Voxbone. They are willing to sub-delegate ranges to TERENA (i.e. non-profit) for free, to be discussed.

- eduCONF use case

GN3 project eduCONF activity is willing to run a pilot with NRENum.net where the virtual eduCONF VC numbers are delegated to the NRENum.net tree and ENUM protocol is enabled on the VC gatekeepers. A New Idea Form (NIF) has been approved by the GN3 Project Office. A 4-month trial will be run for virtual number delegations. Those NRENum.net service participants who are also participating in the GN3 project might be able to claim efforts on the project to complete/contribute to this task (see financial issues).

## 2) \*Technical developments\*

- DNSsec implementation at Tier-1 level (optional)

DNS operators are kindly asked to send the DNSSEC Zone Signing Key hash (DS record) to NIIF (Misi). DNSSec implementation is not mandatory but highly recommended.

- Fix the ENUM Crawler

ENUM Crawler tool works on NRENum.net tree but is far not perfect <https://crawler.nrenum.net/> Voluntary Java developers and Tier-1 DNS operators might want to help out with software fixes.

- US +1 cc delegation trial

+1 cc has been delegated to Intrenet2. Due to the well-known anomalies of the North American numbering plan it is recommended to follow the dual Tier-1 implementation proposed by the official US ENUM trial report (pp. 7) <http://www.enumllc.com/USEUTrialRpt.pdf> To be discussed.

- Re-validation of old delegations

It has been suggested that some of the old number delegations (in the early joined EU countries) might be outdated because of the lack of number re-validation processes. The necessary re-validation efforts might be claimed under the GN3 eduCONF trial (see financial issues).

- Use the federated AAI of NRENS for ENUM validation

Number validation and/or re-validation is a key issue if NRENum.net wants to become a reliable production service. It would be interesting to see if and how the federated AAI infrastructure of NRENS can be used/applied for ENUM validation. Having the appropriate validation infrastructure in place is more important than the policy itself. NRENum.net tree can be used to pilot the federated identity-based ENUM validation infrastructure and propose validation policy recommendations. The complexity of the validation process must be in balance with the administrative overhead and the potential harm may be caused. In longer term, the Golden tree and the NRENum.net tree policies should be harmonised, although the NRENum.net tree is restricted to the R&E community.

## 3) \*Operational issues\*

- Creating a service Operational Team

It is recommended to create a service Operational Team including the primary and secondary top level DNS operators and other key people of the community. Volunteers and/or nominations are very welcome! Once NRENum.net service has a budget line, Operational Team members will be funded (see financial issues)

- National service policy recommendations, best practices



A reliable production-like service needs harmonised national service policies. Recommendations for national service policies must be discussed and documented in line with the top level service policy and preferably with the Golden ENUM tree national policies. A harmonised policy allows us to participate in any ENUM federation of the future.

- New delegations

On-going discussions with Peru and Sri Lanka.  
Signalled interest by the Nordic countries, Russia, and UK.

NORDUnet has previously signalled that they are willing to delegate all the five Nordic countries (Denmark, Iceland, Sweden, Norway, Finland) in one step and operate a regional DNS. RNP, Brazil also mentioned that, on behalf of RedCLARA, they are willing to operate one regional DNS for the Latin American countries. The practice of the centralised regional DNS operations and the corresponding country delegations must be discussed with the service participants.

#### 4) \*Financial issues\*

- Domain ownership transfer

Both nrenum.net and nrenum.org domains are now owned/paid by TERENA and administered by NIIF.

- Use of the GN3 eduCONF budget for GÉANT countries

As mentioned above, if the eduCONF trial is approved by the GN3 Project Office, GN3 project participant might be able to claim efforts on the project. If so, the contributions planned and efforts claimed on NREnum.net technical and policy developments must be discussed and approved by the eduCONF task leader. I'll keep you posted on the progress of the NIF.

- Long term sustainability by voluntary contribution to service operations

NREnum.net (i.e. the top level DNS service) is being run by voluntary efforts of particular NRENS. A reliable, production-like service needs assurances therefore it is recommended to collect (voluntary) contributions from the service participants (on a yearly basis) and channel the money into the service operators (i.e. Operational Team) contracted with TERENA. Previously, five NRENS have already signalled to me that they are ready to contribute with money to the service operations that is a very good sign! I'd like to follow up on this important issue asap.

## Minutes of VC about nrenum.net 2012-05-09

Date: 09 May 2012  
Time: 13:00 CET (Amsterdam)

#### Participants:

Henny Bekker, SURFnet  
Mészáros Mihály, NIIF  
Bernie Hoeneisen, Ucom  
Nuno Gonçalves, FCCN  
Miguel Duarte, FCCN  
David Vrtin, ARNES  
Kewin Stoeckigt  
Jan Ruzicka, CESNET  
Bill Efthimiou, AARnet  
Mariano Javier Martin, INNOVA|RED  
Fernando Aversa, INNOVA|RED  
Peter Szegedi, TERENA

#### Agenda:

- 1 - NREnum.net status update (new members, pending delegation requests, etc.)
- 2 - Proposed changes to the policy doc - discussion
- 3 - Collecting best practice docs, how-to's, etc. - any contribution
- 4 - Technical service improvements:
  - making the service more secure (server certificates, TCS, DNSsec),
  - handling virtual numbers (GDS)
  - using ENUM Crawler to discover the tree
- 5 - Sustainability of the service (funding sources, etc.) - discussion
- 6 - AOB, next VC

Minutes:

1)

PS (TERENA) reported that RNP, Brazil, INNOVA|RED, Argentina, and AARnet, Australia have recently joined the service that has now got 16 delegations all together from three continents. A delegation request of +1 from Internet2 is pending (due to not configured DNSs). MJM (INNOVA|RED) reported that the RedCLARA countries are keen on joining the service. He recently talked to Ecuador, Nicaragua, El Salvador and Peru, usually the ones that Argentina is peering with, about the service. BE (AARnet) reported that he knows about the interest of Sri Lanka and Malaysia. Thailand, India and Philippines are among the potential candidates to talk to. What concerns Europe, JR (CESNET) noted that they are considering to join the service, however the Golden tree is in production stage in the country so that may require some policy change on the NRENum.net service side.

2)

To this end, the proposed changes to the service policy document was presented by PS (TERENA). The current policy says that NRENum.net is an intermediary service and migration to the Golden tree is mandatory in case if the Golden tree is in production in the given country. Apparently, Czech Republic, Portugal and the Netherlands (represented in the call) are in this situation. MD (FCCN) said that they are indeed finalising the number migration to the Golden tree but they still plan to query the NRENum.net on the second place. MD recommended to put a requirement in the service policy that says that both the Golden tree and the NRENum.net should be queried by the participants. HB (SURFnet) said that SURFnet still uses the NRENum.net tree and they do not consider number migrations to the Golden tree but use both trees in parallel.

Following these comments, it was agreed by the meeting participants that NRENum.net shouldn't be called as an intermediary but a complementary service to the Golden tree. Any migration from the NRENum.net tree to the Golden tree is recommended but not mandatory anymore.

MM (NIIF) noted that it is not clear whether NRENum.net is a public or private tree. He suggested to clarify this in the policy document. NRENum.net can be considered as private, taking into the fact that only NRENs can play the role of the national registrar for the given country, but it is definitely a public service in a sense that anyone can query the tree (that is actually recommended to all).

An addition to the policy document was also proposed that allows service participants to populate virtual numbers in the NRENum.net tree under special technical conditions (see later). In principle, the valid PSTN numbers and the virtual numbers should very well be separated in the tree.

BE (AARnet) pointed out that the statement about the NRENs' responsibility and the national policies is not entirely clear. PS (TERENA) agreed to propose a better phrased statement in that section of the policy document.

BE also said that the renewal cycle of the service mandate (currently 2 years) is too short. It was agreed to set that up to 5 years. PS (TERENA) noted that in principle it is good to check the validity/support/usefulness of the service every now and then.

**\*ACTION\*** on PS (TERENA) to distribute an updated version of the service policy document for approval.

3)

MM (NIIF) asked if anyone has any best common practices that might be useful to share about peering services, protocols, equipment configurations, etc. BE (AARnet) said that they are happy to share their practices and apparently have already shared the Acme Packet SBC configuration steps that is available on the Wiki (under "How to participate").

4)

Among the technical issues, MJM (INNOVA|RED) noted that Argentina use virtual numbers and the number validation is not a trivial task to them. MM (NIIF) said that it is not allowed by the current service policy and the handling of the virtual numbers must be technically solved. BE (AARnet) agreed that in principle the NRENum.net tree must be clean (i.e. not to mix virtual and valid PSTN numbers), although it might be difficult to guarantee this. KS seconded this.

Three potential solutions were discussed to handle virtual numbers:

- a) MM's (NIIF) proposal was to use a separate tree (i.e. virtual.nrenum.net) to populate the virtual numbers completely separate. It also means that the virtual tree must be queried separately.
- b) BH (Ucom) proposed that to pick an unused country code under the

NRENum.net tree and populate the virtual numbers under that virtual cc. That country code must be carefully selected though.  
c) KS gave a third proposal namely to double-check the national numbering plans if there is any number range reserved for VoIP only. Those number ranges (in each country plan) could be used to populate virtual numbers.

DV (ARNES) noted that they practice in case of video conference numbers is that they put an additional 0 digit to the country code so that the virtual numbers are separated in range from the valid ones at the national numbering plan level. This solution can practically be considered as option c) above.

PS (TERENA) said in any case, TERENA does not want to be in charge of the allocation of virtual number ranges to participants. He was assured that in case of any of these solutions the original country code mapping plan can be reproduced in the virtual range, so there is no such a responsibility there.

**\*ACTION\*** on PS (TERENA) to distribute the notes of the virtual number handling issue as a separate document so that participants can start discussing the options.

MJM (INNOVA|RED) asked if there is any statistical or discovery tool in place that can give us a better picture about the service usage. PS (TERENA) answered that SWITCH (the secondary DNS operator) has a statistical tool that shows the number of successfully solved requests on the tree. Statistics will be collected. TERENA has got the code and the licence of an ENUM Crawler tool that discovers the delegated numbers in the tree. Currently NIIF is working on that to put up on the NRENum.net tree. Any help in PHP coding is very welcome!

5)

On the note of JR (CESNET) about the GN3 project eduCONF activity, PS (TERENA) said that the service sustainability must be ensured. Currently the service is run on a voluntary basis with no funding of efforts. As long as TERENA promotes this as a global (production) service and participants relay on that, contracted operators and funding sources must be found. PS (TERENA) clearly said that the service ownership and coordination must be kept in TERENA's hands regardless what funding sources will be preferred. GN3 and the follow-up GN3+ project was mentioned as one of the options to secure funding. The GN3 eduCONF activity leader(s) will be approached by PS to investigate this possibility.

6)

DV (ARNES) proposed to check the TERENA Compendium questionnaire and try to approach and convince those European countries that are providing VoIP services within their constituency.

KS asked if there is any plan for an informal/formal get together during the TNC2012 conference. PS (TERENA) said that it is always possible if there is sufficient interest in it. An e-mail will be posted about this (potential slot might be over the afternoon coffee break on Tuesday).

The VC was closed after 1.5 hours discussion.

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Attached to the minutes by Peter Szegedi (TERENA)

- Under point 2) No further comments to the policy change has been made, the changes have been approved.

- Under point 4) it was agreed to trial DNSsec with FCCN and potentially with other NRENS. Please contact Misi at NIIF if you want to participate in the trial.

- Under point 5) I mentioned an other funding model that basically counts on the service participants' voluntary contribution to the service operation year by year (GLIF and REFEDS work like this at TERENA). To this end, I would appreciate if you can tell me (in private) if your NREN is able to contribute. I can imagine something like:

- a) Cannot contribute with money
- b) 1-100 Euro/year
- c) 100-500 Euro/year
- d) 500-1000 Euro/year
- e) More than 1000 Euro/year, if needed

Let's see if we can collect some money this way. I would also like to know how certain your answer is.

## Minutes of VC about nrenum.net 2012-03-22

Date: Thursday, 22 March 2012  
Time: 9-10am CET

### Attendees:

Mihaly Meszaros, Misi (NIIF)  
Jan Ruzicka (CESNET)  
Bill Efthimiou (AARnet)  
Bernie Hoeneisen ()  
Philippe Van Hecke (Belnet)  
Peter Szegedi (TERENA)

### Notes:

- Misi briefly summarised what the service technically does. Basically it's a primary top-level DNS operated by NIIF and two secondary DNSs at SWITCH and CARNet. For a simple DNS lookup request it comes back with the URI.
- Peter also summarised that the NRENum.net policy is lightweight. There is no delegation split per country, so the one and only NREN must be the registry and/or registrar of the given country. In some special cases an appointed university can play this role too. The delegated NREN is then fully responsible for the technical validation of their name servers hosting the child zones, E.164 numbers, set up the national policy, etc.
- Currently the service is operated in a best effort way, on voluntary basis. We might want to reconsider this taking the fact that the service is slowly becoming a global (production) service. RNP, Brazil has just joined the service as the first non-European NREN.
- Answering Jan's question, Peter said that an NREN can join the service even if the Golden tree is officially operational in the country but there are technical and/or administrative difficulties in practice (e.g., due to the strict policy) that the NREN cannot cope with.
- There were some practical questions raised by Bill and others on how the service is being used by the delegated NRENs. Some practical service improvement ideas came up concerning for instance security & trust and automated problem detection.
- Philippe mentioned that there are some security concerns in Belgium with regards to public SIP server addresses and using public URIs. That is why every university builds up their walled-gardens of VoIP. Peter noted that the additional security thread of using NRENum.net might be marginal.
- Misi said that we have to think about how to improve the security & trust of the service. We might want to request server certificates of the TERENA TCS service.
- The question also came up on how to use NRENum.net for services other than voice (e.g., video conferencing). For instance, how to handle GDS and virtual numbers.
- NIIF operates VoIP and VC infrastructures completely separate at the moment. CESNET, FCCN, and AARnet have an architecture based on SBCs. Common best practices of using SBC-based architectures would be recommended to share.
- Bernie asked about the use of virtual numbers. There were two suggestions; a) to set up a separate tree for virtual numbers and b) to dedicate a virtual country code in the NRENum.net tree to populate virtual numbers. The second option seems to be preferable that could be in line with the joint Internet2, TERENA, APAN effort to send a letter to ITU-T requesting an unused country code for "Internet country".
- Bill mentioned that APAN operates a SIP peering service (hosted in Japan) however the APAN community in general knows a little about the NRENum.net service. Bill is willing to spread the word in the APAN community and also investigate the possibility of AARnet joining the NRENum.net service for testing.
- Finally, Peter suggested to have some regular VCs (every two weeks or so) to follow up on the issues above.

### List of actions:

- 1) Collect common best practices on how NRENs operate DNS, manage the local tree, handle security issues of public addresses and URIs.
- 2) Discuss and solve the virtual number handling issue.
- 3) Increase the service security and trust using TERENA TCS server certificates <http://www.terena.org/tcs/>

## Minutes of VC about nrenum.net 2011-03-23

Date:  
23-03-2011 @ 15:00-16:30 CET

Participants:

Mihaly Meszaros, NIIF  
Bernie Hoeneisen, Ucom (former SWITCH)  
Djivo Milic, CARnet  
Miguel Baptista, UNINETT  
Jarle Greipsland, UNINETT  
Marco Sommani, CNR/GARR  
Andrea De Vita, CNR/GARR  
Alessandro Mancini, CNR/GARR  
Nuno Goncalves, FCCN  
Miguel Duarte, FCCN  
Peter Szegedi, TERENA

Agenda:

- 1) Roll call
- 2) Review of the current service and policy document [https://www.nrenum.net/index.php/Policy\\_Document](https://www.nrenum.net/index.php/Policy_Document)
- 3) Continuation of the service (collective decision/agreement)
- 4) Operational issues of the service:

- hosting NRENum.net DNS master (SWITCH => NIIF) and slave (NIIF => CARnet) zones
- domain ownership (current registrar is Gandi)
- email list regulations (discussion, delegations)
- AOB
- 5) Participation in the RIPE NCC meeting
- 6) Support behind service enhancement and potential new activities
- Enable DNSSEC for NRENUM.NET, and provide the possibility of secure delegations (DS records)
- 7) AOB

Notes:

- The VC participants reviewed the current Policy Document [https://www.nrenum.net/index.php/Policy\\_Document](https://www.nrenum.net/index.php/Policy_Document)  
The following modifications have been agreed:

A.1. NRENum.net service is not considered as a "pilot" service any more.  
The word "pilot" must be deleted.

B.1. Agreed to extend the service mandate by the end of 2012.

C.1. Allow University to join NRNEum.net service.

C.1.2 Add a new point saying: "In case a country has no operational NREN or the NREN is not a legal entity, University can participate in the service. It is the responsibility of the University to ensure that there are no competing delegation requests in the given country. Splitted delegation is not allowed."

E.1. NIIF volunteered to host the service at least by the end of 2012.  
Participants agreed to migrate the primary DNS operation from SWITCH to NIIF. CARnet also volunteered to host a secondary DNS. The migration will be done by 30 April 2011.

F.4.1 There is a typo: change 4.2 to 1.1

G.1.2 The delegation request <[delegations@nrenum.net](mailto:delegations@nrenum.net)> must be checked by NIIF. NIIF must subscribe to the list. SWITCH will be unsubscribed.

The rest of the Policy Document is fine as is.

- Participants agreed to answer to the RIPE NCC's invitation and present about NRENum.net service at the next coming meeting. Peter Szegedi (TERENA) will give a talk. Bernie Hoeneisen (Ucom) may be there to deal with the technical questions (if any). Peter asked NIIF and SWITCH to send some technical information about the service to be used in the presentation.
- Mihaly Meszaros (NIIF) mentioned that he contacted Internet2's AVCI WG (Ben Fineman) and they are interested in the NRENum.net service. It is an action on Peter Szegedi (TERENA) to follow up on the nature of this interest.
- Bernie Hoeneisen (Ucom.ch), as the chair of IETF ENUM WG, noted that the IETF ENUM WG will be concluded shortly, as its mission has been completed. This means that for the time being there won't be any standardisation efforts on ENUM in the IETF. However, it is now possible to register new Enumservices (besides E2U+sip, E2U+h323, ...) with a new, simplified process. (For reference see RFC 6117.)

- Mihaly and Bernie mentioned some potential service enhancements such as using DNSSEC or Server Certificates (TCS) for authentication. It was agreed to organise another VC discussing the potential service enhancements on-demand (most likely after the successful service migration to NIIF).
- Peter Szegedi (TERENA) proposed that he will initiate an internal discussion at TERENA Secretariat about the positioning of the NREnum.net (pilot) service as a real TERENA service in the future. It may lead to a static service website (instead of the current Wiki), a service logo design, etc. Peter will inform the list about the outcome of the discussions.

## Minutes of VC about nrenum.net 2008-06-18

Date/Time:

18.06.2008 / 10:30 - 11:30 CET

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### Participants:

- Mihaly Meszaros <misi (o) niif.hu>
- Kewin Stoeckigt <kewin (o) acm.org>
- Peter Szegedi <szegedi (o) terena.org>
- Bernie Hoeneisen <bernie.hoeneisen (o) switch.ch> (chair and secretary)

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### Agenda:

- 1) Action Points of last meeting
- 2) Discussion about policy issues
- 3) AOB

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Minutes:

#### 1) Action Points of last meeting

AP1 (Peter): Approval of Terena (Peter)

- nrenum.net will be moved forward to a productive service

==> ok, will be called pilot service (for political reasons)

- part of the Terena portfolio

==> ok

==> Terena is able to commit for a certain time (minimum time to be defined)

- Policy board

==> Might be overkill

==> Resolved

AP2 (Andras): Possible later GEANT/GN2 involvement could be discussed in the Berlin meeting

==> No progress information available

AP3 (Peter): Mediawiki and account handling and mailing lists

- Go with Mediawiki, unless Terena has an issue

==> Ok, even under domain nrenum.net

==> Will be set up latest next week

- Account handling to be figured out

==> currently only local accounts possible (for technical reasons)

- Mailinglists under nrenum.net

==> o.k.

==> In the beginning there is a need for:

- discussion mailing list e.g. < discuss (o) nrenum.net > (or other name as suitable)

- address for zone delegation requests: < delegations (o) nrenum.net >

- address already exists for this purpose, but current mailbox needs to be moved to Terena

- Request Tracker (e.g. Mantis, trouble ticket or or similar) solution preferred, if available. Otherwise a mailing-list with archiving function would also do the job

==> Mediawiki and mailinglists / request tracker to be set up (\*AP11: Peter, Kewin & Bernie\*)

==> Resolved (partly replaced by AP11)

AP4 (Peter, Kewin & Bernie): Transfer of ownership and registrar

==> Ongoing

## 2) Discussion about policy issues

Misi:

- Asks about audition/monitoring

- Nameservers

- Delegations

- Policy enforcement, e.g. if e164.arpa gets available after some time

Bernie:

- Asks for agreement that no decisions concerning this issues are made now,(could be discussed at some later stage).

==> No objections

Bernie:

- We have a charter for trial

- Principles of trials can be easily applied to (pilot) service

- What more is needed?

Misi:

- Mentions virtual numbers and mixing nrenum.net / e164.arpa population

Kewin:

- Opposed to virtual numbers

- Is against charter (as now)

- Transition to e164.arpa gets troublesome

- Mentions negative experience with GDS and virtual numbers

- Opposed to allow mix

- Confusion is a risk

Misi:

- Sees the points of Kewin

Bernie:

- Agrees with Kewin

Misi:

- Mentions regulatory impact on real e164 numbers

- Some restrictions do not apply to non-e164 numbers

- Might impact nrenum.net operations

Bernie:

- Is not sure about policies in different countries

- Usually only a problem if routed on PSTN

- Asks whether there are countries, where legal restrictions cause this kind of problems

Misi:

- Thinks Hungary has such problems

- Concerned about lawful interception and keeping CDRs for legal reasons

Kewin:

- ENUM is independent on the telephony service, rules should therefore not apply

==> Put discussion to trial mailinglist

Bernie:

- Should we assign somebody to rewrite the policy document? Volunteers?

Peter:

- Offers to review it

==> Find someone on the mailing lists (trial or tf-ecs) to take the lead for writing such a document. (\*AP12: N.N.\*)

Bernie:

- How about appeals? Do we need a body for this?

- Appeals could come up:

- If delegation is rejected

- If delegation was made, but not according to policy

Peter:

- Guidance/Appeal process should go to the policy document

Kewin:

- Proposes majority decision among the members

Bernie:

- Is concerned that this is rather vague

- Who is member? NRENS? Persons? Which NRENS? Only those with delegations?

Misi:

- Terena should be given the final word.

Peter:

- If Terena is officially assigned this role it's ok with Terena

==>

1) Appaels sent to discussion mailing list

2) If not resolved there within four weeks, Terena will make the final descison

Misi:

- What should be role of zone host (the one who actually inserts the delegation to the zone; SWITCH NOC)?

==>

1) Take in delegation request

2) check whether is is policy conform, if ok, add, if not ok, reject



Bernie:

- Will \_try\_ to write a rough draft proposal based on todays discussion (\***AP13: Bernie\***)

### 3) AOB

Nothing

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#### List of Open Action Points:

AP2 (Andras): Possible later GEANT/GN2 involvement

AP4 (Peter, Kewin & Bernie): Transfer of ownership and registrar

AP11 (Peter, Kewin & Bernie): Mediawiki and mailinglists / request tracker to

AP12 (N.N.): Find author of policy document

AP13 (Bernie): Draft proposal of policy document

## Minutes of VC about nrenum.net 2008-06-13

Date/Time:

13.06.2008 / 10:30 - 11:30 CET

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#### Participants:

- Mihaly Meszaros <misi (o) niif.hu>
  - Kewin Stoeckigt <kewin (o) acm.org>
  - Andras Kovacs <akov (o) niif.hu>
  - Jan Ruzicka <janru (o) cesnet.cz>
  - Peter Szegedi <szegedi (o) terena.org>
  - Dimitris Daskopoulos <dimitris (o) ccf.auth.gr> (joined later)
  - Bernie Hoeneisen <bernie.hoeneisen (o) switch.ch> (chair and secretary)
- 

#### Agenda:

- 1) Discussion about move towards production service
  - 2) Host for zone
  - 3) Registrar for domain name
  - 4) Webpages / Mailinglists
  - 5) Tranfer of the domain name to Terena
  - 6) Secondaries for zone
  - 7) AOB
- 

Minutes:

#### 1) Decision about moving nrenum.net from trial into production (or whatever level) service

Misi:

- Go to production or say this is a service

Kewin:

- Agrees to move to production
- TF-ECS will cease to exist soon
- Other bodies to be found to take care of technical side

- Maybe integrate with GN2 stuff

Peter:

- If it is a service, should be assigned a live-time

- Find form to use it

- According to his understanding not operated by Terena, but NREN(s), but it's up to discussion

Kewin:

- Terena should not need to run it technically, but NREN(s)

- Sees Terena rather as oversight body (mediator role, guidance, etc.)

- Would lead to a joint venture

Peter:

- Agrees with Kewin

- The form is to be figured out

- Should not be connected to any TF, as TFs are not stable bodies

- Could include it into Terena portfolio

Kewin:

- There is a need for some commitment/guarantees, that the service will be run until some point in time to boost it

Andras:

- It might be possible to involve it in GN2; benefit: it is financed

Jan:

- Should Dante be involved?

Andras:

- GN2 (successor GN3) involvement is possible

- Repeats financial aspect

Jan:

- Depends, on the level of influence

Andras:

- Financing might be a reason

Misi:

- Expect financing and hosting not to be a big problem

Jan:

- Also not afraid of financing

Misi:

- Terena can help

Peter:

- Agrees, if included in Terena portfolio

Bernie:

- Shall we now discuss about policy issues?

Kewin:

- Put it to AOB

Bernie:

- o.k., done

Peter:

- We seem to have two options:

1) Terena takes over delegation

- Acts as mediator

- NREN technical stuff

- Policy issues to be decided (e.g. policy board)

2) Move it to GEANT

Kewin:

- Prefers to go on with option 1), and decide later, whether or not involving GEANT is sensible

Bernie:

- Agrees with Kewin

- Is afraid of the timing, in case GEANT is to be involved

Dimitis:

- Agrees too, as it is easier

- Financing not a big issue

Bernie:

- Asks for opposition about going with option 1) and explore option 2) later on.

--> No opposition

Peter:

- ok, but form a policy board with relevant NRENS

==> Given the approval of Terena (**\*Peter\***):

- nrenum.net will be moved forward to a productive service

- Will be part of the Terena portfolio

- Policy board (or similar body) to be formed

- Policies to be decided

==> Possible later GEANT/GN2 involvement; could be discussed in the Berlin meeting (**\*Andras\***)

**2) Assign host for the zone nrenum.net (primary nameserver) (Switch has been doing this till now and is able to continue)**

==> Confirmed, that SWITCH continues to run the zone (Simon Leinen <noc (o) switch.ch> will be the main contact at SWITCH)

**3) Assign Registrar for Domainname (Terena to choose Registrar)**

==> Already resolved by email (Terena decided it to be "Gandi SAS") No further discussion

**4) Decide who will be hosting the webpage (wiki/CMS/whatever) and mailing list(s)**

Bernie:

- Server with webpage will be switched off in about 10 days

- Mailing list(s) could remain for the time being, if needed

Jan:

- As long as content is static, no wiki is needed

Peter:

- What is required?

- Explains solutions: Static, Mediawiki, Confluence

Bernie:

- Dynamical better than static at least for technical parts
- Wiki-like solution preferred to encourage people to update
- Confluence features not necessarily needed, mediawiki will probably do it

Kewin:

- Agrees

Peter:

- Terena can do all the variants discussed so far
- Whether under the domain nrenum.net needs to be figured out

Bernie:

- Tends for mediawiki
- Other opinions?

Kewin:

- Terena should decide about the exact technical solution, depends on technical knowledge at Terena

Bernie:

- Agrees with Kewin
- Would like to make a recommendation for the preferred solution, while still leaving final decision up to Terena

Peter:

- Terena has also experience with Mediawiki

Dimitris;

- What kind of accounts do we provide?

Peter:

- To be figured out

Bernie:

- Prefers personal accounts

Misi:

- Can confluence be integrated with Shibboleth?

Jan:

- Both mediawiki and confluence can be integrated with shibboleth

Peter:

- Let's go for mediawiki, unless Terena has some issues

Bernie:

- how about access-writes for external (outside the community) people, if Shibboleth is used?

Peter:

- Many NRENS provide Virtual Home Organisations for this

Misi:

- Local accounts can be used as well

Bernie

- How fast could it be set up?

Peter:

- During next week it can be set up

==> Go with Mediawiki, unless Terena has an issue (**\*Peter\***)

==> Account handling to be figured out (**\*Peter\***)

Peter:

- Terena might be able about to host mailing lists under nrenum.net

- To be figured out (**\*Peter\***)

#### **5) Transfer of ownership (and Registrar) of the Domainname nrenum.net (Kewin -> Terena)**

==> Will be discussed among (**\*Kewin, Peter, Bernie\***)

==> Kewin will also transfer nrenum.org (not only nrenum.net) Terena to decide what is going to happen with nrenum.org

#### **6) Add some secondary nameservers for zone nrenum.net**

Bernie:

- From technical point of view, three nameservers are sufficient

- There might be some "marketing-driven" reasons to add more secondaries

- e.g. to demonstrate commitment / involvement / trust to attract more NRENs to join in

Dimitris:

- Might offer secondary, if sensible

#### **7) AOB:**

Topics:

- Double provisioning (entries in e164.arpa and nrenum.net)

- Other policy issues

Kewin:

- Postpone policy issues to another meeting

==> Next meeting will on 18.06.2008 10:00 CEST about policy issues (**\*Bernie\***) to arrange it

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## Space contributors

- [Peter Szegedi](#) (2035 days ago)