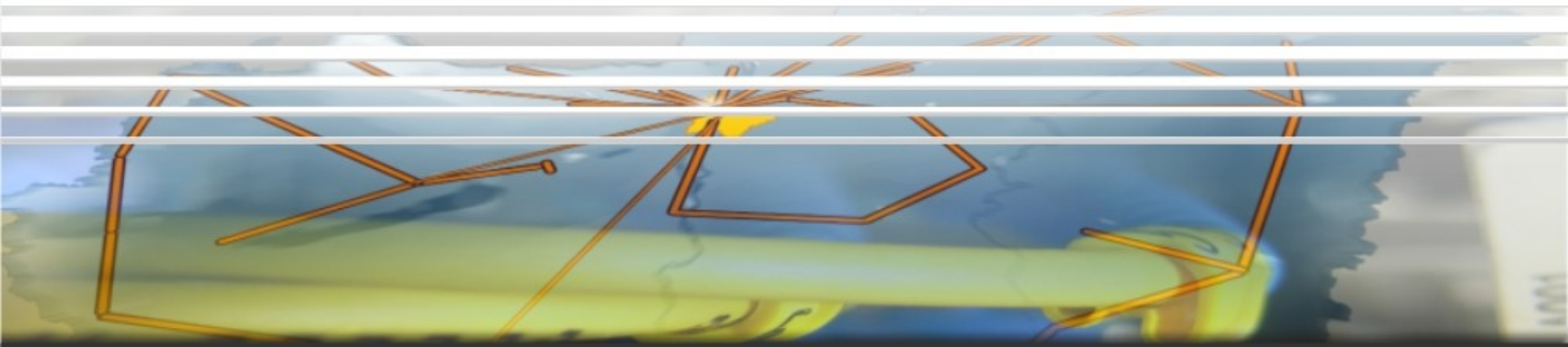# NRENum.net (update)
new developments and service update

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New delegations

- New delegations
  - +48 Poland has recently been delegated to the NRENum.net tree.
  - +1 NANP => Internet2 DNSSEC secured
  - +61 AARNET
 - +54 Argentina
  - +55 Brazil
  - +371 Lithuania

- Delegations in progress
  - There are on-going discussions with Peru and Sri Lanka.
  - 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 centralized regional DNS operations and the corresponding country delegations must be discussed with the service participants.

Operational plans and issues

- It is planned to create a service Operational Team
  - Currently operation is voluntary based by NREN-s.
  - Current dns server operators (CARNET, NIIF, SWITCH)
- More DNS Slave servers spread around the world.
  - To make service more stable, we have to discuss how can we distribute slaves world wide.
  - Currently we have two slave servers. Operated by SWITCH and CARNET.
  - All DNS servers are currently only in Europe.
- Re-validation of old delegations
  - We need to initiate a discussion about to extend policy with top level country code re-validation process.
- GÉANT3 eduCONF service and world gatekeeper is planning to query and use nrenum.net

NRENum.net organization
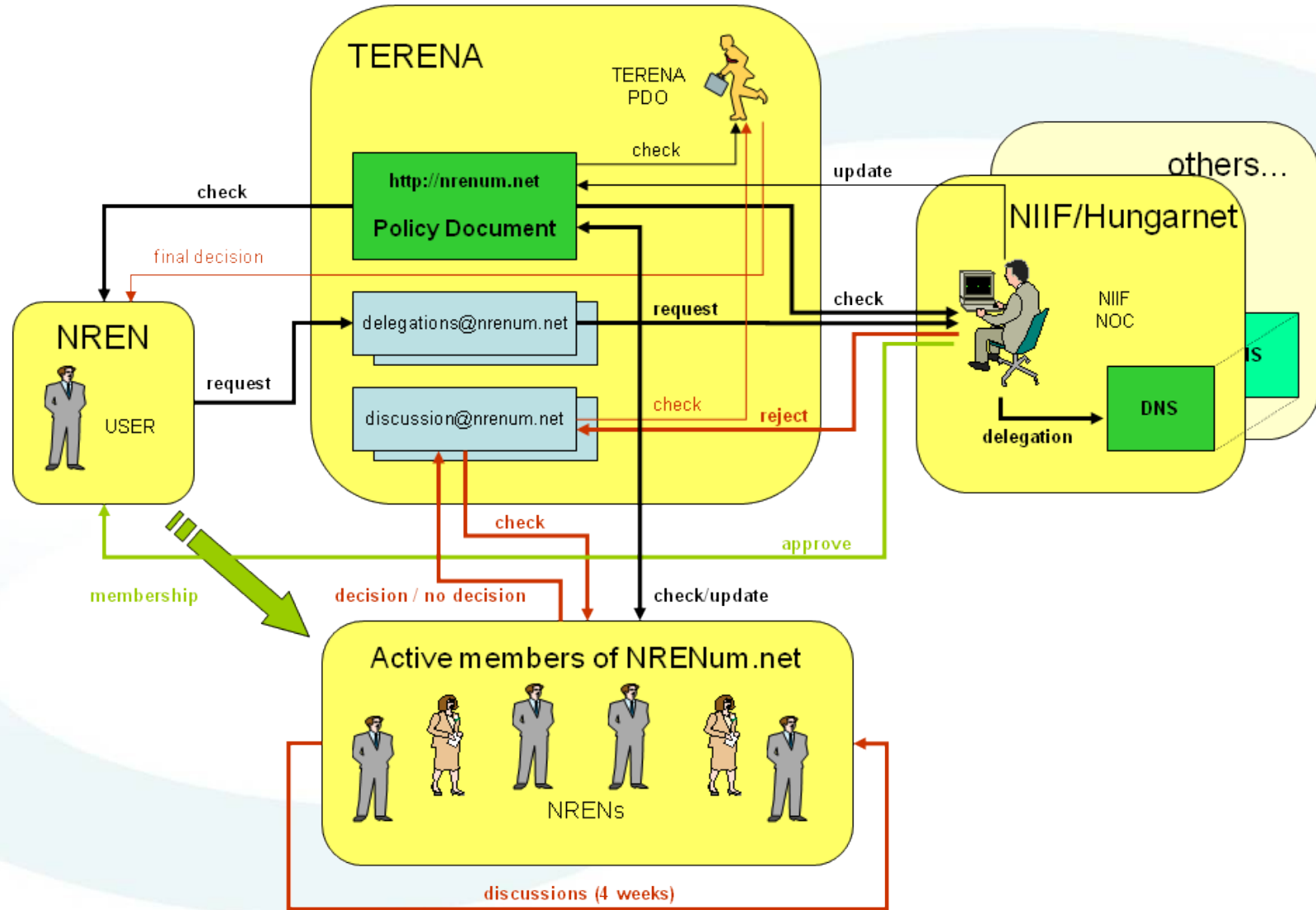
Policies update and BCP

- Update the NRENum Policy
  - Clarification only
  - Extend it with more detailed description on some fields, to make it more clear/unambiguous.
- National service policy recommendations, best practices
  - National policy could allow to add a valid E.164 to nrenum.net owned by an entity that is not connected any form to NREN's community.
- Collecting Best Current practices (TODO)
  - We have to collect Best Current Peering Practices and circulate in our community (SIP,H.323,XMPP etc.)
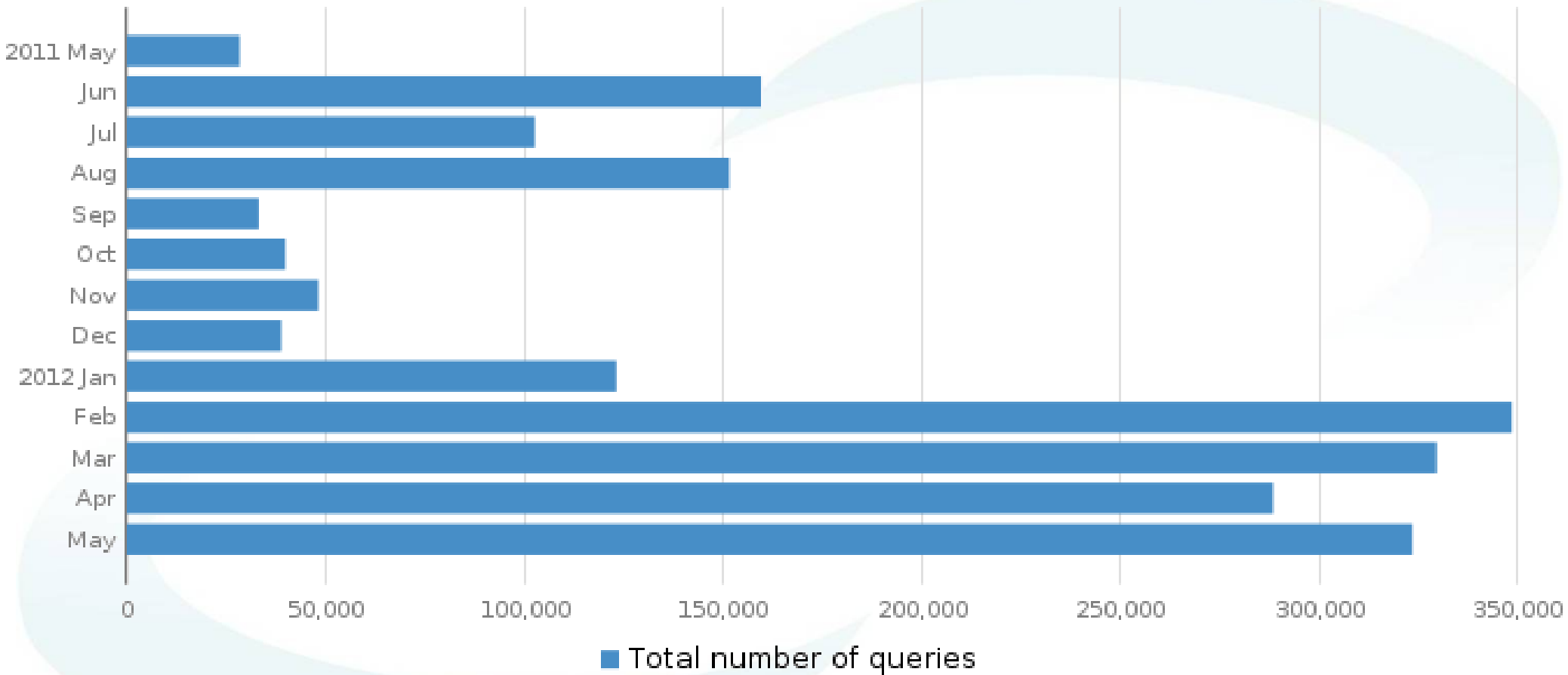 - Collect best current country level operation and sub-delegation practices, issues, tools etc.

Virtual numbers

- NREN's community has limited E.164 number ranges.
- There is an ongoing discussion about the solution of this problem.
  - creating a new subtree for virtual numbers (e.g. v.nrenum.net)
  - using a new virtual county code
- The most popular option in the community is selection a virtual country code
  - 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 tree potential virtual country code 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 - 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.
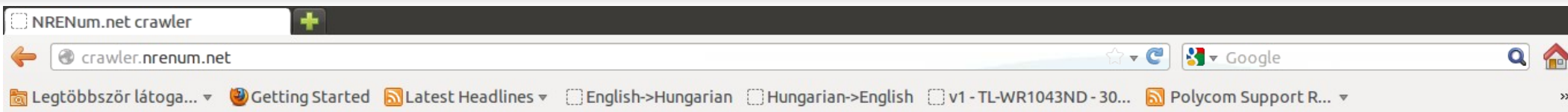
Technical developments

- DNSSEC
  - DNSsec implementation at Tier-1 level
    - Carwler and web page is secured
    - dnssec+nsec3 opt-out
  - DNSsec secured Country Codes
    - +36
    - +1
- US +1 country code delegation trial (Internet2)
- Query statistics
  - We will stop collect query log end of this year. After that time the improved crawler will be the primary statistics.
  - Crawler adds lot's of query but it is filtered out from statistic.

Query log statistics

　　　NRENum.net update

crawler

NRENum.net update

Improving NRENum.net Crawler (TODO)

- DNS empty non-terminals NXDomain issue
  - Some DNS servers e.g. old PowerDNS replies NXDOMAIN for empty non-terminals
  - CARNET DUNDi + ENUM frontend
- Extending with an ENUM lookup web interface
- Reorganizing data table
  - Optimizing indexes
- Updating DNS lookup library
  - Allowing query IPv6 DNS servers
- Improving query speed
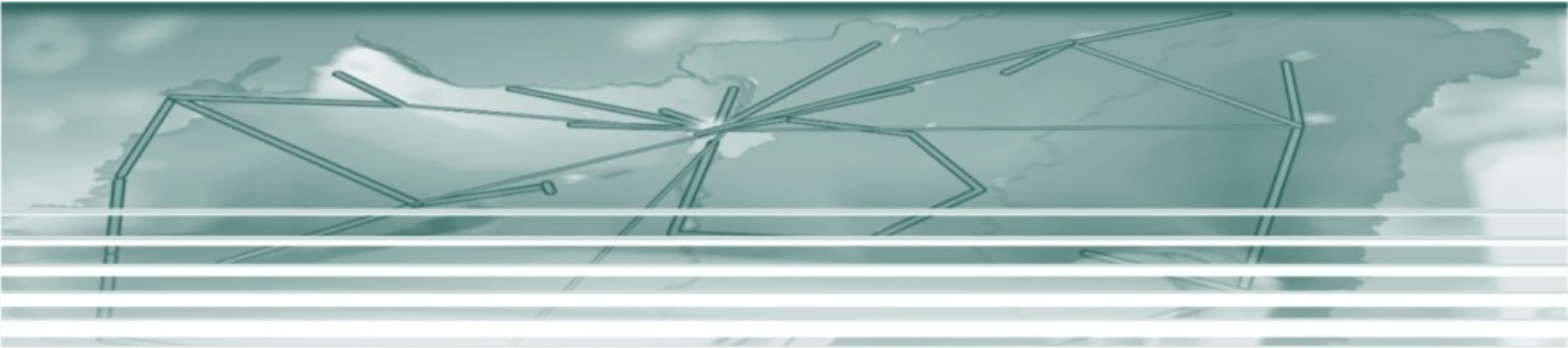 - Parallel query
  - Database tuning
- Etc.

Service Financial issues

- Domain ownership transfer
  - Both nrenum.net and nrenum.org domains are now owned/covered by TERENA
    - Only nrenum.net is used as root of the ENUM tree.
    - Web browsers are redirected, so it points to TERENA WIKI nrenum.net page.
- Currently operation is voluntary based
  - E.g. DNS servers operation, dnssec operation, query log summary and analysis, and crawler web statistics operation
- Sustainable operation (covering service costs)
  - Long term sustainability by voluntary contribution to service operations
  - Use of the GN3 eduCONF budget for GÉANT countries

Summary

- Operation and Service is stable.
    - Introduced DNSSEC in the service
    - Plans to setup Service Operational Technical Team
    - More slaves to improve scalability and stability.
- NRENum.net community is growing. New Country Codes delegated.
- Planed usage in GÉANT eduCONF (H.323)
- A Policy refresh update needed.
- National service policy recommendation, BCP-s
- Virtual number issue has to be solved.
- Sustainable operation (covering service costs)
    - Long term sustainability by voluntary contribution to service operations.
    - GÉANT3 eduCONF joint effort trial.
    - Probably NRENum.net service will have a small budget to improve and extend service.

Questions?

Thank You!