

CENTR technical activities  
since October 1st, 2006  
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# Technical activities since Oct. 1, 2006:

- „glue records”
- **DDoS discussion**
- whois-catalogue discussion
- contact in emergency situations discussion
- survey on ‘anycast addressing’
- upcomming... Service Level Agreement for the IANAfunction & eIANA project

# Glue record

- Glue records are A or AAAA resource records accompanying a delegation of a domain **in the delegating zone**, providing address information for name servers mentioned in NS resource records.
- Glue records are **not authoritative** data of a delegating zone.
- Example:

bravo.example.	NS	ns.one.example.
bravo.example.	NS	ns.bravo.example.
ns.bravo.example.	A	1.2.3.4

# Glue record – further reading

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- Koch, P., “Stirring the Glue Pot. DNS Glue Policy Consideration”

CENTR Tech Meeting, Amsterdam 01.10.2006

[https://www.centri.org/docs/2006/10/CENTR\\_KOCH\\_GLUE.pdf](https://www.centri.org/docs/2006/10/CENTR_KOCH_GLUE.pdf)

- Koch, P., “DNS Glue RR Survey and Terminology Clarification”

Internet Draft, October 1, 2006

<http://www.ietf.org/internet-drafts/draft-koch-dns-glue-clarifications-02.txt>

# Glue Records Policies [1]

- According to I-D “DNS Glue RR Survey and Terminology Clarifications”:

- “narrow”

- Glue RRs are registered if and only if the name server resides within or below the delegated (child) zone (that is, within the delegated domain). This was suggested by [RFC1034]. **It is used by most of the ccTLDs.**

- “wide”

- Glue RRs are registered if and only if the name server resides below the delegating (parent) zone. There is no need to register glue RRs if the name server's name belongs into the parent zone. This was suggested by [RFC1033]. **It is used for the root zone.**

# Glue Records Policies [2]

- According to I-D “DNS Glue RR Survey and Terminology Clarifications”:
  - “never” or “null”

Glue records are never registered; applies to parts of the IN-ADDR.ARPA
  - “case by case”

Glue RRs are registered following the “narrow” policy except where there are (circular) dependencies that demand additional glue RRs.
  - “mandatory”

Glue RRs are always registered for all name servers. This was suggested by [RFC0973].
  - “other”

Combination of the above.

# Glue open issues [1]

- „wide” policy in the Root
- glue ownership
  - ▣ the same server in many delegations
  - ▣ who owns the glue?
  - ▣ authoritative source
    - How to get the valid address?
      - DNSSEC
      - Other secure channel

# Glue open issues [2]



## □ glue consistency

- Does server name still exist?
- Does server name resolve?
- Does the authoritative A record match the glue?
- What TTL should be set for a glue?

# IANA Announce




- 5 December 2006 – “Comment Sought on DNS Root Zone Glue Policy”
  - ▣ “IANA is seeking to review its practices associated with how it maintains IP address information in the root zone, commonly known as “glue”. ”
- Current approach: “wide” policy
- Possible approaches:
  - ▣ Retain same approach
  - ▣ Reduce acceptance threshold
  - ▣ Allow changes with a mandatory advisement and wait period
  - ▣ Introduce name server operators as participants in the process

# Reduce acceptance threshold



“Instead of requiring every administrative and technical contact to approve, the threshold could be at a minimum the requesting administrative and technical contact, or be a lower figure than 100%. For illustration, a hypothetical criteria may be “The changes must be approved by the administrative and technical contacts of either two affected TLD operators, or 20% of affected TLD operators – whichever is higher.””

# Allow changes with a mandatory advisement and wait period



“Once the acceptance criteria is met, if it has not been accepted by 100% of affected parties, IANA can notify all administrative and technical contacts of the nature of the change and give them a fixed time (e.g. 30 days) to make necessary alterations before changes are made to the root zone. ”

# Introduce name server operators as participants in the process



“Changes are requested and coordinated with the administrative and technical contacts of a domain. These are not necessarily the same parties that operate the authoritative name servers for a domain. These operators may authorize changes instead, although such an approach would be a radical departure from current operations and would require a new procedure that dealt with the roles and responsibilities of these operators, as well as IANA procedures to authenticate these parties.”

## CENTR's Comments on IANA's DNS Root Zone Glue Policy

30<sup>th</sup> January 2007

The Council of European National Top Level Domain Registries, CENTR, thanks for the opportunity offered to comment on IANA's "DNS Root Zone Glue Policy".


These comments make use of the nomenclature introduced by the document "DNS Glue RR Survey and Terminology Clarification" [1].

The current "wide" glue policy in the root zone has some drawbacks that could be avoided if introducing a "narrow" one:

- It increases the number of glue records.
- It increases the number of human administrative interactions.
- It makes more difficult to keep synchronized the glue in the root with its authoritative source in the DNS.

A significant number of TLDs has used a "narrow" glue policy themselves for many years. Yet in order to introduce a "narrow" policy in the root, it would be necessary to conduct appropriate experiments in a testbed environment. CENTR looks forward to continuing the discussion on the best

# Comment Sought on DNS Root Zone Glue Policy



## □ Guiding questions

1. How should IANA accept requests to alter root zone glue? (either in general, or specifically for shared glue)
2. What criteria should be used to approve shared root zone changes?
3. In the event that an affected party contests a change, how should this conflict resolved and on what grounds can a change proceed regardless?
4. Are there any other unintended consequences of renumbering a shared name server that have not been considered?

# Comments and suggestions [1]

<http://forum.icann.org/lists/root-glue-comments/msg00005.html>

- drawbacks of “wide” policy
  - ▣ It increases the number of glue records.
  - ▣ It increases the number of human administrative interactions.
  - ▣ It makes more difficult to keep synchronized the glue in the root with its authoritative source in the DNS.
- implementation of the “narrow” policy in the root zone
  - ▣ a TLD manager registering glue in the root zone would be the only party allowed to make changes to it afterwards.
  - ▣ Attempts to register or to update address records that are not located within the delegated domain the requester is responsible for should lead to a failure of the root zone change request.
  - ▣ it is necessary to conduct appropriate experiments in the testbed environment

# CENTR Comments and suggestions [2]

- if the “wide” policy is to be maintained, the glue addresses should be acquired from authoritative sources
  - via DNSSEC’s mechanisms – by verifying chain of trust
  - or, “if the chain of trust cannot be verified (this will be the most usual case for the time being), today’s mechanism of notification to all administrative and technical contacts of the affected TLDs should be triggered.”
  - “a lack of response by these parties after a certain time threshold should be interpreted as a silent consent to a change.”
  - “a dissenting answer from any of the affected TLDs within the aforementioned time window would require, like today, a manual review and clarification of the situation.”



**„WHOIS-Catalogue” servers**

# „WHOIS-Catalogue” servers



- Who have the list of whois servers
  - whois-servers.net servis
  - Programs with hardcoded list
  - List of whois servers at IANA Root-Zone
  - SRV RR
- Who and what uses SRV?
- Should we really start using SRV
- What about IRIS?

# The End



Thank You



additional slides on glue  
records...

# Comments and suggestions [1]

- ISNIC; IANA should also maintain a database of host objects along with their contact object(s).

- ▣ Only right contact(s) can modify a host object

- ▣ Automated updating glue records

- <http://forum.icann.org/lists/root-glue-comments/msg00001.html>

- AFNIC supports the idea of “Allow changes with a mandatory advisement and wait period” policy

- <http://forum.icann.org/lists/root-glue-comments/msg00002.html>

# Comments and suggestions [2]

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- IANA WG supports the implementation of “Allow changes with a mandatory advisement and wait period”
  - ▣ 85 % of the Domain Name Servers in the root zone file serve only one domain.

<http://forum.icann.org/lists/root-glue-comments/msg00003.html>

- JPRS sees no point in changing the current policy

<http://forum.icann.org/lists/root-glue-comments/msg00004.html>

# Comments and suggestions [5]

## □ DENIC's comments

<http://forum.icann.org/lists/root-glue-comments/msg00006.html>

- “"wide" glue policy is the major cause of the current ambiguity, since multiple TLDs might share an authoritative name server and therefore might want to alter the same glue address information.”
- “narrow” policy would alleviate the problem
- do not suggest a policy change right now
- encourage further discussion of the operational and other effects of a narrow glue policy for the root zone in the broader DNS operational community

# Comments and suggestions [6]

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- **Nominet's comments**

<http://forum.icann.org/lists/root-glue-comments/msg00006.html>

- ▣ **eliminate “shared glue”**

No two TLDs would have a name server with the same DNS name. This does not preclude the use of the same name server by multiple TLDs; they would only have to use distinct names to refer to the same IP address.

# Comments and suggestions [7]

## □ Nominet's comments

<http://forum.icann.org/lists/root-glue-comments/msg00006.html>

### ▣ investigate the possibility of a transition to a “narrow” policy

Examine the effect of the removal of the “wide” policy on:

- general resolver behaviour
- specific, widely-deployed resolver implementations
- traffic patterns at the root servers

Perform suitable checks to identify cases where some non-narrow glue will be required or desired, e.g. for total or partial circular references.

# Comments and suggestions [7]

## □ Nominet's comments

### ▣ suggested best practice

Use name server:

- which are immediate descendents of the TLD
- for which the TLD zone is authoritative
- which have the shortest possible least-significant (left-most) labels

### ▣ example

```
EXAMPLE. SOA ...  
EXAMPLE. NS A.EXAMPLE.  
EXAMPLE. NS B.EXAMPLE.  
EXAMPLE. NS C.EXAMPLE.  
A.EXAMPLE. A 192.0.2.1 ; Anycasted hosts or  
B.EXAMPLE. A 192.0.2.66 ; hosts in distinct  
C.EXAMPLE. A 192.0.2.130 ; autonomous systems
```



and something on last TECH WS  
in Amsterdam

# 15th CENTR Technical Workshop

## Presentations summary

- **Glue Politics, Peter Koch (.de)**

Analyses and comparison of different glue policies

- **Technical Policy for IANA, Kim Davies (IANA)**

An Overview of the responses and comments received on the discussion paper on the IANA technical checks (paper released in August 2006)

- **Email Address Internationalisation (EAI) Overview, Marcos Sanz (.de)**

The presentation discusses the problems and solutions concerning the introduction of internationalised email addresses. It has been noted that EAI requires changes both in the architecture of the messages and the way they are transported.

# 15th CENTR Technical Workshop

## Presentations summary

- ITU and IDNs, Andrzej Bartosiewicz (.pl)

Summary of the ITU discussions on IDNs. It has been outlined that it is very important the (cc)TLD sector takes part in the discussion to avoid that the ITU takes bizarre decisions.

- EPP Transfer Variants Investigation, Bernhard Höneisen (.ch)

According to SWITCH the standard EPP transfer does not meet all requirements. The suitable solutions has been presented and discussed their advantages and disadvantages.

- EPP Plans in .ch/.li, Patrick Zenklusen (.ch)

Varioants of EPP transfer has been discussed and presented new EPP solution for .ch

# 15th CENTR Technical Workshop

## Presentations summary



- Carrier Registrations in User ENUM (CRUE), Jay Daley (.uk)

An overview of the process and principles for carrier registrations in user ENUM that Nominet would like to implement in the UK.

- DNSSEC and dynamic updates, Krzysztof Olesik (.pl)

Presentation of DNSSEC and dynamic updates implementation in .pl

- NSEC3 update, Roy Arends (.uk)

The progress of NSEC3 development has been presented