

# DNSSEC deployment in .JP

APTLD Meeting

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Yoshiro YONEYA <yoshiro.yoneya@jprs.co.jp>

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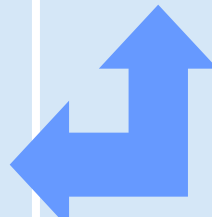
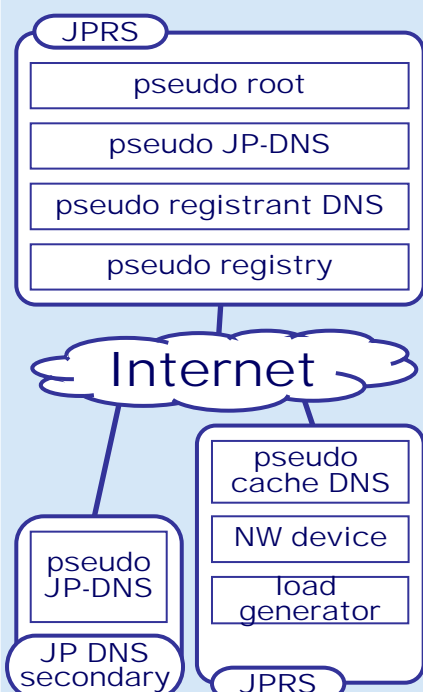
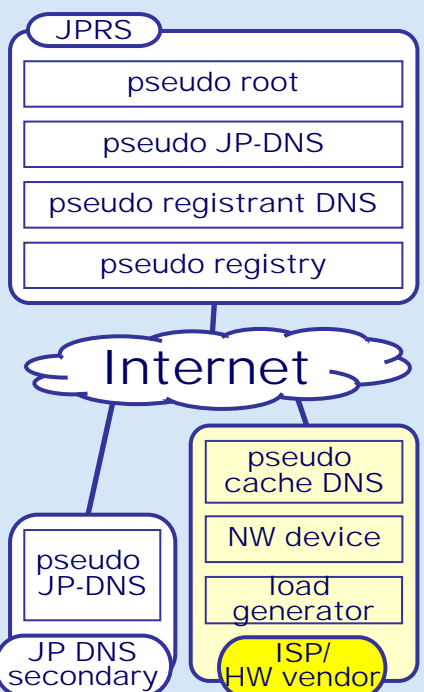
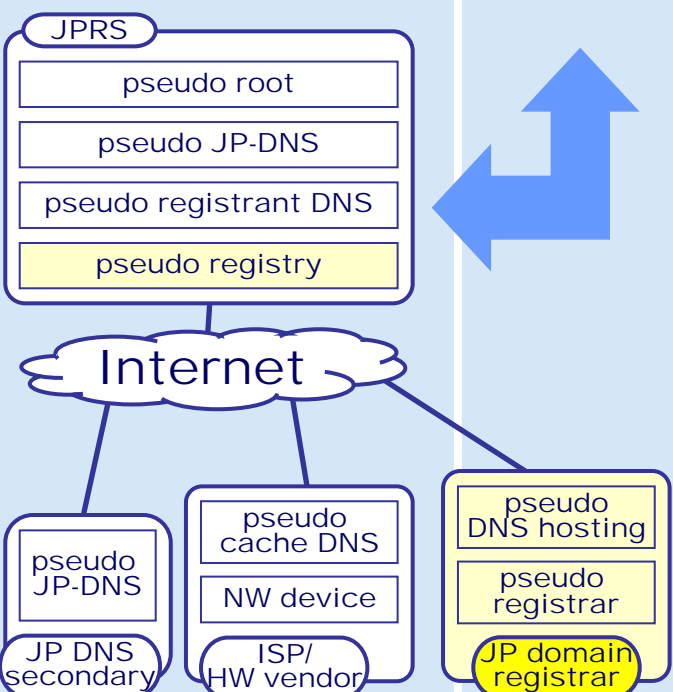
- Activities of JP toward DNSSEC roll out
- DNSSEC introduction process of JP
- Issues on operations

# Activities of JP toward DNSSEC roll out

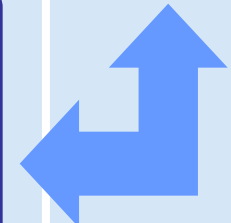
# Technical Evaluation

# DNSSEC technical evaluation by JPRS

As of Feb 2011

	Step1/2	Step3/4	Step5	Step6
Description	<ul style="list-style-type: none"> <li>•Fundamental function test</li> <li>•Behavior check of zone transfer</li> </ul>	<ul style="list-style-type: none"> <li>•Behavior check of caching DNS servers (full resolvers)</li> <li>•Behavior check of network devices</li> <li>•Listing of check items of ISPs/HW vendors</li> </ul>	<ul style="list-style-type: none"> <li>•Behavior check of DS registration</li> <li>•Accumulation of operation experiences</li> </ul>	<p style="text-align: center;"><b>Join DNSSEC Japan testbed</b></p> 
Participants	JPRS, JP Secondary DNS operators	JPRS, JP Secondary DNS operators, <u>ISPs, HW vendors</u>	JPRS, JP Secondary DNS operators, ISPs, HW vendors, <u>JP Registrars</u>	
Diagram				

**Join  
DNSSEC  
Japan  
testbed**



# Explanation of Step1~5 (1/2)

- Step1
  - Draft DNSSEC function check instruction (\*1) and DNSSEC performance check instruction (\*2) based on local evaluation to prepare Step3 and 4
    - (\*1) An instruction for checking various behaviors that are essential to provide correct DNSSEC service at both recursive DNS servers and authoritative DNS servers. Indicating checking procedures in form of supposed troubles and their troubleshooting scenarios
    - (\*2) An instruction that is indicating device configurations and methods for understanding load of recursive DNS servers and traffic shift of authoritative DNS servers
- Step2
  - Performed zone transfer evaluation with JP DNS secondaries
  - Found BIND bug, reported it to ISC, and fixed in BIND 9.7.1

# Explanation of Step1~5 (2/2)

- Step3 and Step4
  - Evaluated recursive DNS servers and Network devices with several ISPs and Hardware Vendors, and wrote a joint report
  - The report is available from JPRS Web site
- Step5
  - Evaluated behavior of registry I/F and procedure of domain registrar transfer with several JP domain registrars, and wrote a joint report
  - The report will be available from JPRS Web site

# Background and outcome of evaluation

- Background
  - There are a thousands of ISPs and hundreds of JP registrars in Japan
  - Their cooperation is required for successful DNSSEC deployment
  - But hard to contact and conduct all of them
- What were done
  - JPRS called for participation in technical evaluation activity to some major ISPs, HW vendors and JP registrars
  - JPRS conducted monthly information exchange meetings among participants
- Outcome
  - Participants and JPRS had published four documents
    - DNSSEC function check instruction
    - DNSSEC performance check instruction
    - DNSSEC technical evaluation report, function and performance check edition
    - DNSSEC technical evaluation report, operation design edition
  - Summaries are introduced at APRICOT2011 conference

# Community activity

# DNSSEC Japan - a community initiative - (1/4)

- Background information of Japan
  - Lack of Japanese information around DNSSEC
  - Many of DNS related stakeholders (e.g. ISPs, Registrars and operators)
  - An community initiative which covers wide range is required to deploy new technology
  
- What “DNSSEC Japan” is
  - a forum for domain name registries, registrars, registrants and relevant parties such as DNS and network operators
  - with the aim of introducing and deploying DNSSEC that enhances security of the DNS
  
- Organization
  - Chair                                   Yoshiki Ishida (JPIX and DNSOPS.JP)
  - Vice Chairs                           Tsuyoshi Toyono (Internet Multifeed)  
  Yoshiro Yoneya (JPRS)
  - Secretariat                            JPRS
  
- Participation principle
  - to carry out activities based on the mutual cooperation by participants

# DNSSEC Japan - a community initiative - (2/4)

- Objectives
  - to sort out and discuss issues in relation to deployment and operation of DNSSEC
  - to enhance technical capability of participants and sharing of technical expertise
  - to conduct outreach activities such as providing relevant tools and giving technical commentaries
  
- Activities
  - to sort out and share issues regarding introduction and operation of DNSSEC
  - to conduct technical verifications and accumulate expertise for introduction and operation of DNSSEC
  - to develop BCP relating to introduction and operation of DNSSEC
  - to deploy DNSSEC through propagating results of its activities

# DNSSEC Japan - a community initiative - (3/4)

- Schedule
  - 24 Nov 2009           Inauguration
  - Jan 2010             Formation of WGs for testing and public relations
  - Mar 2010             Formation of Workshop for understanding DNSSEC
  - July 2010            Event for public relations
  - Aug 2010            Test start
  - Nov 2010            Publication of technical and operational documents
  - Mar 2011            Conclusion of main activities
  - Apr 2011            Final event to relate with the public
  
- Member organizations as of Feb 1 2011
  - 35
  
- Information
  - Web            <http://dnssec.jp/>
  - Email         [sec@dnssec.jp](mailto:sec@dnssec.jp)

## DNSSEC Japan - a community initiative - (4/4)

- current activities
    - technical verification WG
      - collect and verify information relevant to DNSSEC introduction / deployment
    - publicity WG
      - publicize information about DNSSEC and DNSSEC Japan
  - closed activities
    - operational workshop
      - protocol understanding Sub-WG works on sharing of understanding of RFCs
      - operational technology Sub-WG works on hands-on learning of DNSSEC operation
- DNSSEC Japan aids DNSSEC introduction phase, and DNSOPS (DNS Operators Group) Japan will take the role of community communication in DNSSEC operational phase

# DNSSEC introduction process of JP

# DNSSEC introduction process (1/3)

- Announcement of DNSSEC introduction schedule
  - 2009-07-09
    - JPRS announced its plan to implement DNSSEC in JP domain name services
    - Target was by the end of 2010
  - 2010-07-21, 2010-09-06
    - JPRS announced detailed schedule (final roll out date)
  
- Technical Evaluation
  - 2009-12 to 2010-11
    - As described in “Activities of JP toward DNSSEC roll out”
  
- Publish of DNSSEC parameters and practice statement
  - 2010-08-30
    - JPRS published DNSSEC parameters for JP zone
  - 2011-01-14
    - JPRS published JP DPS (DNSSEC Practice Statement) which states ideas of policies and practices of JPRS with regard to DNSSEC operations for the JP zone

# DNSSEC introduction process (2/3)

- Introduction of DNSSEC to JP zone
  - 2010-09-29
    - All JP DNS servers come to DNSSEC ready (HW, SW, NW)
  - 2010-10-04
    - JPRS did the first JP DNSSEC Key Ceremony
    - About 8 hours, 130 procedures
  - 2010-10-17
    - Start signing of JP zone
    - JP DNSKEY was published in JP Zone
  - 2010-10-29
    - ZSK for roll over was pre-published
  - 2010-11-03
    - JPRS did first ZSK roll over
  - 2010-12-10
    - DS was registered in Root zone

# DNSSEC introduction process (3/3)

- DNSSEC service roll out
  - 2011-01-16
    - JPRS started DS registration in JP zone
    - 14 JP registrars registered about 270 DS (as of Feb 2 2011)
  
- DNSSEC steady operation
  - Monthly ZSK roll over
  - 2011-09 or 2011-10
    - JPRS will do second JP DNSSEC key ceremony & first KSK roll over

# Issues on operations

# Fear for “zone vanishing” in the process

- JP zone will vanish if DS registration to IANA/Root zone failed
  - Because of the process embraces human operations
  - This cannot be avoided 100%
- TLD registries need ways for emergency DS key roll over
  - TLD zone vanishing cause huge impact to registrants and internet users
  - Ways to avoid and mitigate the impact is essential
- JPRS plans to draft a strawman proposal (I-D?) for the scheme
  - Need your help and cooperation to make it Internet-wide scheme
- Reference to IANA/Root operation
  - <http://www.iana.org/procedures/root-dnssec-records.html>
  - <http://www.root-dnssec.org/2011/01/27/rrsig-checking/>

# Q and A

