.JP technical update
- IP Anycast in .JP -

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Today’s topics

- .JP activities in 2003
- IP Anycast for .JP DNS distribution
  - Technical Details
    - A.dns.jp
    - D.dns.jp
- Future plans
- Acknowledgements and related links
### .JP DNS activities in 2003

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
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<tbody>
<tr>
<td>Jun-Aug</td>
<td>Unification of hostnames</td>
</tr>
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<td></td>
<td>- A.dns.jp $\rightarrow\neg$ F.dns.jp</td>
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<tr>
<td>Aug</td>
<td>Change of physical location, IP address and AS number of E.dns.jp</td>
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<td></td>
<td>- Osaka area (outside of Tokyo)</td>
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<td>- Provider independent (PI) address and AS number for DNS infrastructures</td>
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<tr>
<td>Sept</td>
<td>Assignment of PI address block and AS number to A.dns.jp</td>
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<tr>
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<td>- This assignment is based on ‘critical infrastructure’</td>
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<tr>
<td>Dec</td>
<td>RIPE NCC has kindly started monitoring .JP nameservers</td>
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<tr>
<td></td>
<td>- dnsmon</td>
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<td></td>
<td>- <a href="http://dnsmon.ripe.net/">http://dnsmon.ripe.net/</a></td>
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### IP Anycast for .JP DNS distribution

- A.dns.jp and D.dns.jp are now in IP Anycast mesh
  - A.dns.jp, by BGP anycast
  - D.dns.jp, by IGP anycast
  - Details are described later
- We completed system buildup, and applied for the change of nameservers information (IP address) to IANA
- Schedule
  - Jan 19: zone data of jp and dns.jp were changed and ‘ccTLD modification form’ was sent to IANA
  - Jan 22: receipt of the “change request” came from IANA
  - Jan 23: JPRS confirmed the change request
    - Some further operations are needed to be done by IANA
    - For example, communication with DoC (US government)
    - The change is expected to be effective on the rootserver in a few days
A.dns.jp

- Operated by JPRS
- BGP Anycast (IPv4 only)
  - 203.119.1.1 (IPv4 address)
  - 23774 (AS number)
- Located in Tokyo and Osaka
Technical details of A.dns.jp (cont.)

- **Node**
  - Fully-duplicated system
    - DNS servers
    - BGP routers
    - Switches
    - Maintenance servers
    - Local routers
    - Remote console servers
  - All servers are active and load-shared
  - Automatically switched upon system failure

D.dns.jp

- Operated by IIJ (Internet Initiative Japan)
- IGP Anycast
  - 210.138.175.244 (IPv4 address)
  - 2497 (AS number)
- Two nodes in Japan, two nodes in US (East and West)
Technical details of D.dns.jp

- All nameserver nodes are connected to IIJ backbone network
- IIJ has its own global IP backbone and external connection points in Japan and US

Future plans
- Worldwide distribution?
  - In Europe, Asia, .... ?
- IP Anycast of other .JP nameservers for JP DNS distribution?
  - RFC 3258 says, "... organizations implementing these practices should always provide at least one authoritative server which is not a participant in any shared unicast mesh."
  - At least one nameserver should remain 'not anycasted'
Acknowledgements and related links

- Special thanks to
  - JP DNS operators group
    - Engineering team for .JP nameserver operation
  - Mr. Yoshinobu Matsuzaki, the IIJ D.dns.jp operator and his colleagues

- Related links
  - Press release
  - JP DNS Web Page
    - http://www.dns.jp/
      - Coming soon ☻

Questions?

http://jprs.jp/
http://www.dns.jp/