Reverse DNS lookup failure and lessons learned

Toshiyuki Hosaka <hosaka@nic.ad.jp>
Japan Network Information Center (JPNIC)
Overview

• Trouble overview
• Impact of reverse DNS failure
• Response from JP community
• Issues
• Improvements
## Trouble Overview

<table>
<thead>
<tr>
<th>Duration</th>
<th>2005/10/23 3:30~22:00 (JST) 18h30min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Details</td>
<td>Reverse DNS lookups failure to part of JP/KR networks + ERX ranges from the APNIC region maintained in ARIN reverse DNS zones</td>
</tr>
<tr>
<td>Affected zone</td>
<td>216 x class B (JPNIC) + part of KRNIC zone + APNIC ERX range</td>
</tr>
<tr>
<td>Cause of failure</td>
<td>The security update on Saturday (Oct.22 by APNIC) caused some errors in APNIC's shared zone reverse delegation data. This resulted in some reverse DNS records accidentally being undelegated. (*)</td>
</tr>
</tbody>
</table>

Impact of reverse DNS lookup failure

• Denial of connection
  – There was a report: network access control (tcp_wrapper) specified by a domain rejected valid connections. Example of the setting would be:
    • ALL: .example.jp
  – Some e-mails messages could not be relayed

• Impact varies depending on the application settings (by server manager)

• Reverse DNS lookup is still critical as forward DNS lookup for ISPs, because it could cause their service interruption
Response from JP community

• Initial trouble report was too late
  – ISPs need immediate report as soon as the problem was detected, in order to point it for their customers as an “official information”
    • 10/23 13:24 : a NW operator e-mailed to JANOG ML for this trouble
    • 10/23 22:00 : Problem fixed
    • 10/24 13:00 : 1st report by JPNIC
    • 10/28 14:30 : 1st report by APNIC
    • 10/28 14:58 : 2nd report by JPNIC

• Tel/Fax contact may be more appropriate than web/e-mails
  – When DNS and/or RIR/NIR infrastructure fails
  – 24 x 7 emergency contact?
Issues

• Should re-recognize that RIR/NIR is responsible for reverse DNS zone management which is important service to the community
• How to detect the problem
• How to notify the problem to the communities
• RIR-NIR cooperation
• Escalation procedure
Improvements

- Automated alert script implemented both APNIC and JPNIC
- Escalation procedure (APNIC-JPNIC) was defined
- Increase visibility of service status (APNIC)
- Change the scheduled maintenance window to weekdays, avoiding weekend (APNIC)
Comments?