

JP DNS Operational Experience

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Brief Introduction of JPRS

- JP domain registry
 - The second agreement ICANN has signed with ccTLD
 - 1st April 2002
- Commercial based company
 - Spinned off from JPNIC
 - Many JPNIC engineers and operators changed their belongings

For more information see JPRS web page

<http://jprs.jp/>

Agenda

- Introducing JP DNS
- Daily Management of JP DNS
- BIND 8.3.0 trouble

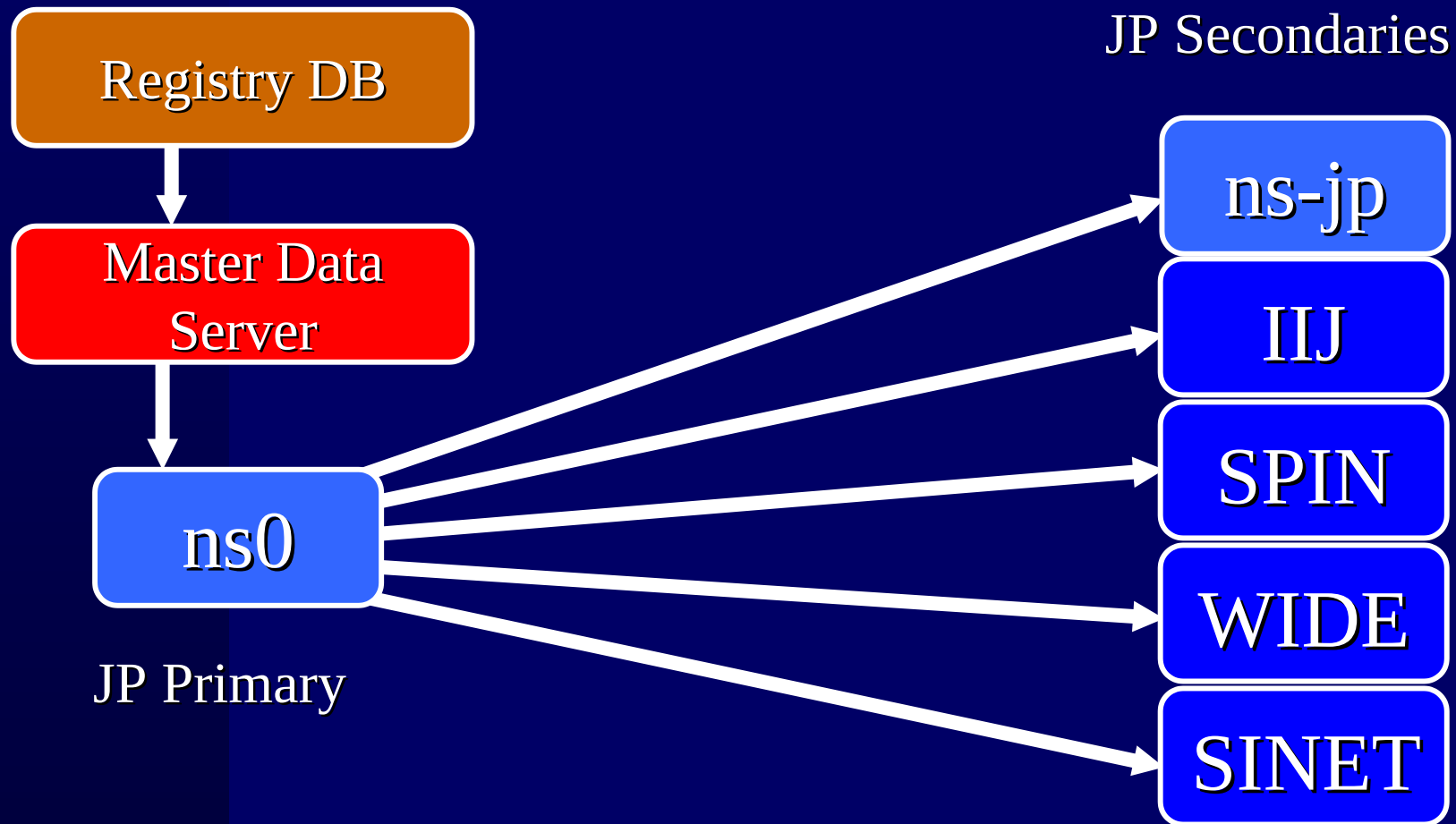
What is JP DNS

- JP DNS consists of...
 - JP Domains (350,000 domains)
 - General-Use JP Domain Names (2LD)
 - Alphanumerical characters (EXAMPLE.JP etc.)
126,000 domain names registered
 - Japanese characters (日本語.JP etc.)
61,000 domain names registered
 - Organizational Type / Geographical Type JP Domain Names
 - Organizational: CO.jp, AC.jp, ...
 - Geographical: TOKYO.jp, ...
 - 280,000 domain names registered
 - IP Addresses Allocated by APNIC
 - 260 of /16 IP reverse in-addr.arpa zones
(Each zones have about 200 in-addr.arpa sub-domains)

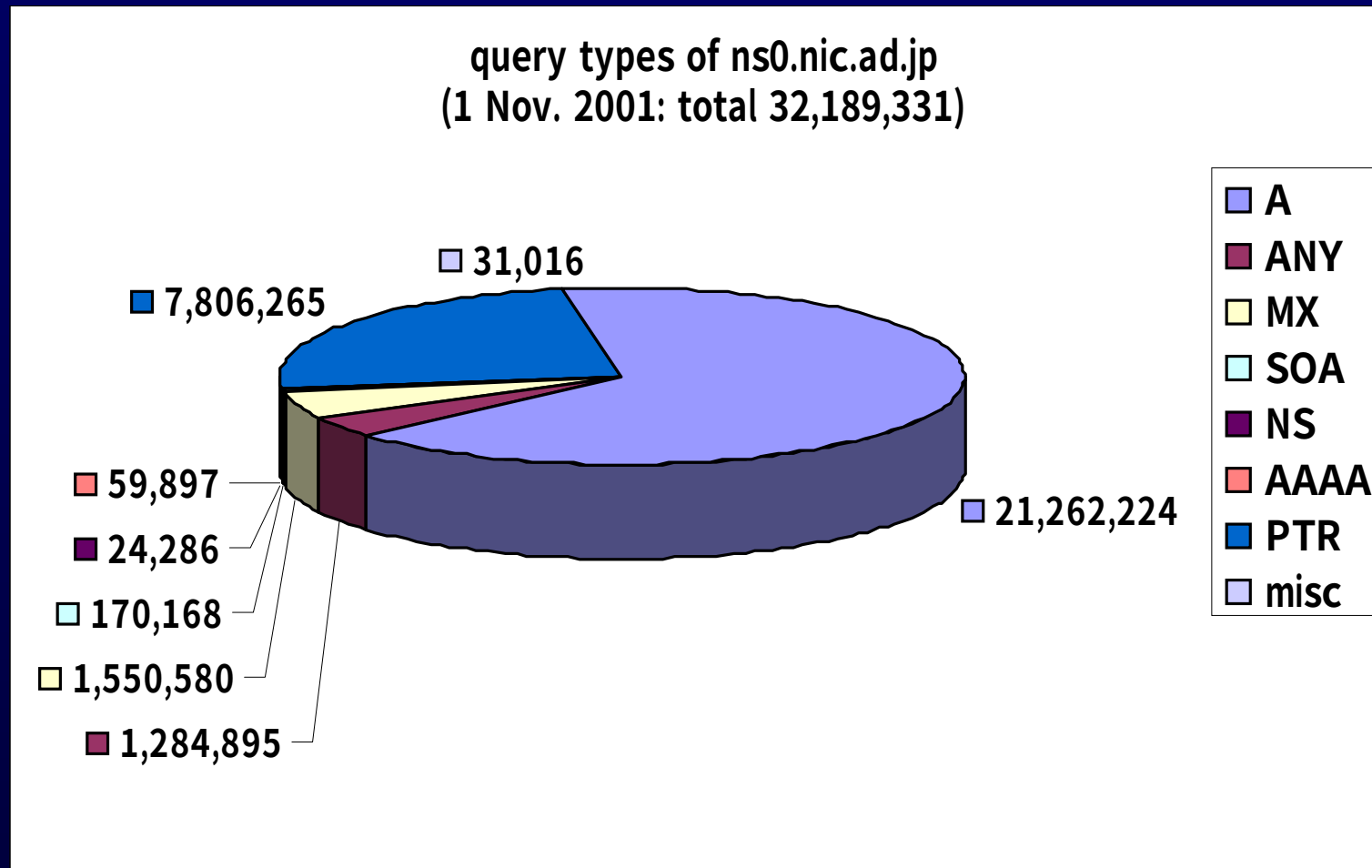
JP DNS Server Operators

- One Primary DNS Server
 - Owned by JP Registry (JPNIC / JPRS)
 - ns0.nic.ad.jp
- Five Secondary DNS Servers
 - Owned by JP Registry (JPNIC / JPRS)
 - ns-jp.nic.ad.jp
 - Commercial ISPs
 - IIJ (ns0.iij.ad.jp)
 - SPIN (dns0.spin.ad.jp)
 - Research and Academic Networks
 - WIDE Project (ns.wide.ad.jp)
 - M Root Server Operators
 - SINET (ns-jp.sinet.ad.jp)

JP DNS System Data Flow

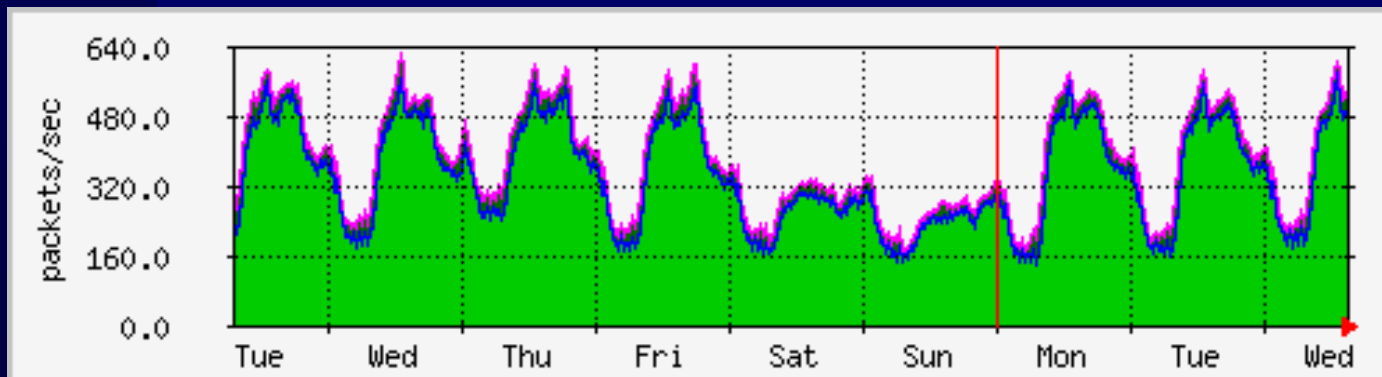


Query Types of JP DNS



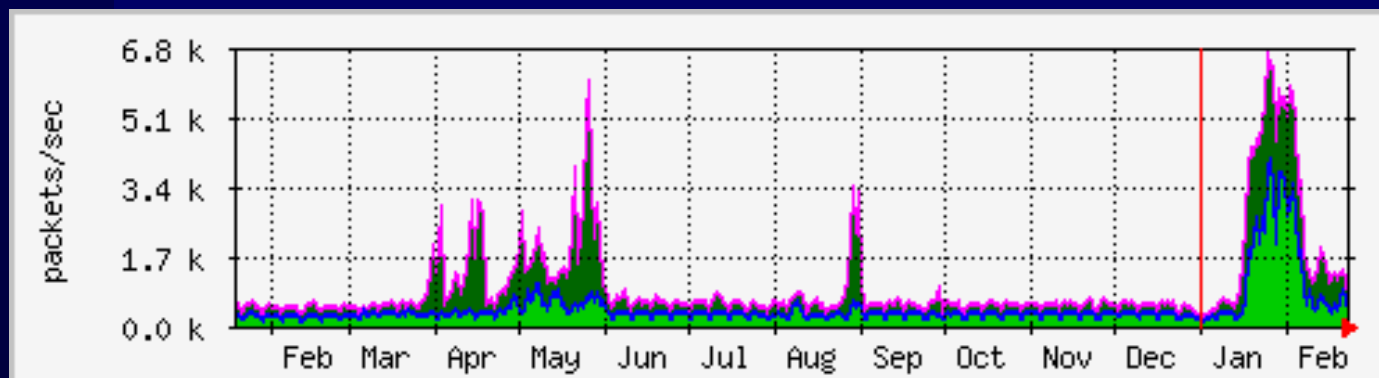
Weekly Trend of JP DNS Queries

- MRTG Snapshot for ns0.nic.ad.jp
 - Average queries: 350 queries/sec
 - High queries in Daytime
 - Low queries in Weekend



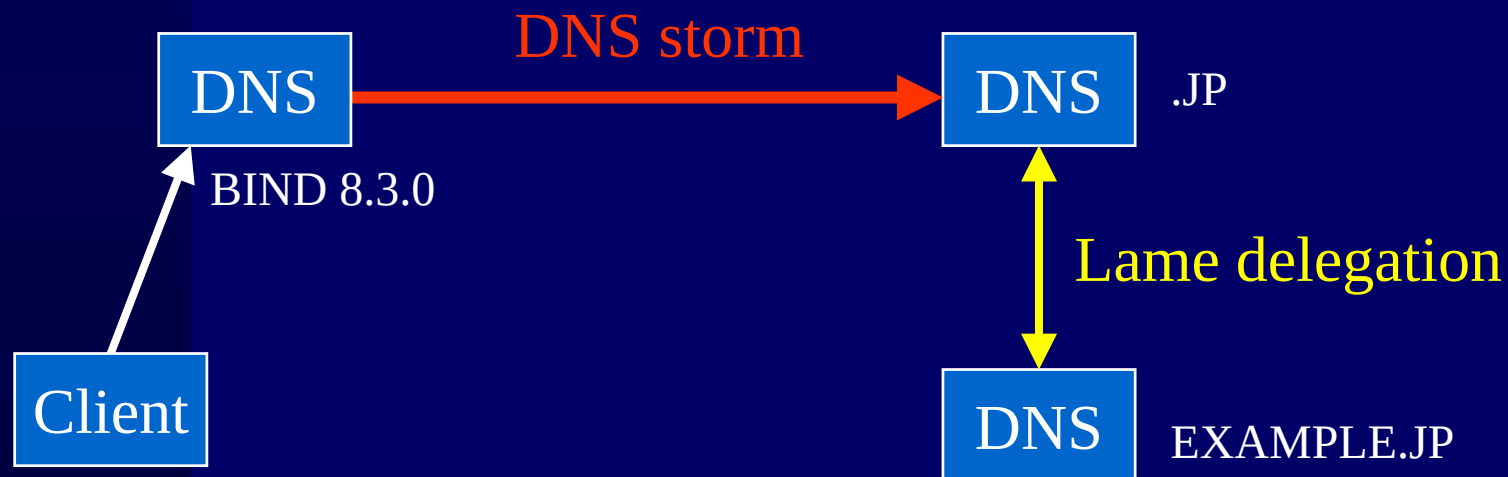
Peak Queries on ns0.nic.ad.jp

- Heavy queries come from unexpected events
 - April and May 2001
 - Starting of JP 2LD registration
 - August 2001
 - CodeRed or Nimda?
 - January and February 2002
 - BIND 8.3.0 released



BIND 8.3.0 Trouble Situation

- Lame delegations on sub-domains can cause DNS storms between upper DNS server and BIND 8.3.0 recursive servers.



BIND 8.3.0 Trouble Report

- Course of events

- 11th Jan 2002: BIND 8.3.0 released
 - Queries of ns0 increased rapidly.
 - Up to 6700 queries/sec!!
- 27th Jan. 2002: JPRS reported to ISC
- 2nd Feb. 2002: BIND 8.3.1 released (bug fixed version)
- 7th Feb. 2002: JPRS announced about BIND 8.3.0 problem

What to care on DNS Operation

- Zone file operation
 - Check the sub-domains.
 - Lame delegations is potential trouble
- DNS queries
 - Monitor the DNS traffic
 - MRTG is good
 - Check the ordinary traffic first
- BIND software
 - Check before install
 - Stable version need not to upgrade
 - Security fix must be done.
 - Do not use BIND 8.3.0!!

Acknowledgement

- Telecommunications Advancement Organization of Japan (TAO).
 - JPRS's research activity of investigation of DNS is a part of TAO's research.
 - <http://www.shiba.tao.go.jp/>