
IPv6 deployment metrics using .JP domain

APNIC 17
25 February 2004

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Approach for IPv6 deployment metrics

For appeal of IPv6 deployment, it's important to keep measuring the set of specific metrics

- IAJapan(Internet Association Japan) has a plan to start the investigation to measure the degree of IPv6 deployment from April of 2004 in Japan.
 - Committee Members: ISP/IX's operators, Research Community, and so on.
- Only one IPv6 deployment metric is not enough
 - We made the set of IPv6 deployment metrics

IPv6 deployment metrics set

- Scale of IPv6 Internet
- IPv6 deployment ratio
- Stability of IPv6 Internet
- Characteristics and tendency of IPv6 traffic

IPv6 deployment metrics (I)

Scale of IPv6 Internet	
Addresses	The number of IPv6 address blocks which has been allocated for LIRs by RIRs. (# of /32s)
	The number of IPv6 address blocks which has been registered to RIRs whois Databases. (# of /48s)
Routing information	Total number of IPv6 BGP4 routing entries
	Total number of ASs of IPv6 BGP4
	The average of AS path length of each IPv6 BGP4 routing entries
Traffic	IPv6 traffic amount of IX' s backbone network

IPv6 deployment metrics (II)

IPv6 deployment ratio	
Routing Information	# of ASs announcing IPv6 prefixes / # of ASs announcing IPv4
IP traffic	IPv6 traffic amount / IPv4 traffic amount at IX' s backbone network
DNS/Mail/Web deployment rate	. JP DNS records statistics (to be described later)
Analysis of access to application (such like Web)	Ratio of IPv6 web clients and IPv4 ones

IPv6 deployment metrics (III)

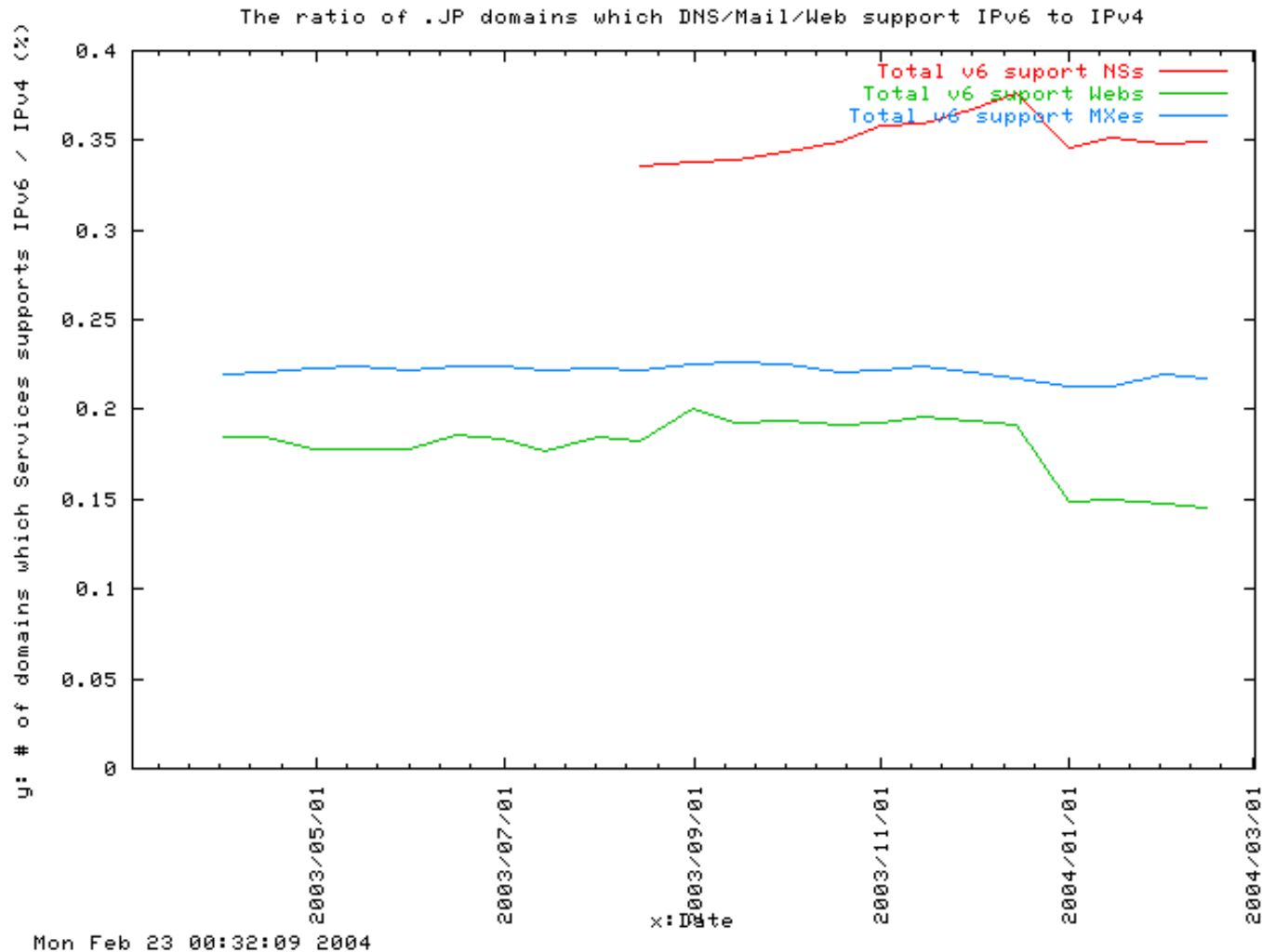
Stability of IPv6 Internet	
Routing information	The number of route flap of BGP4+
Quality of transport	<ul style="list-style-type: none">▪ frequency of packet loss▪ round trip time
Characteristics or tendency of IPv6 traffic	
Traffic	Analysis of IPv6 traffic' s contents (such like TCP or UDP, port number)

Method of .JP DNS records statistics

- The purpose is to measure the ratio of .JP domains which DNS/SMTP/Web services supports IPv6
- This statistics is operated in cooperation with JPRS
 - JPRS (Japan Registry Service Co., Ltd) is only one .JP registry
- The method is looking up the following DNS records for all .JP domains and taking the statistics of the results
 - NS records which has AAAA records
 - This is interpreted as that the domain has IPv6 DNS server
 - MX records which has AAAA records
 - this is interpreted as that the domain has IPv6 SMTP server
 - (*www.*)*domainname* has AAAA records
 - this is interpreted as that the domain has IPv6 Web server

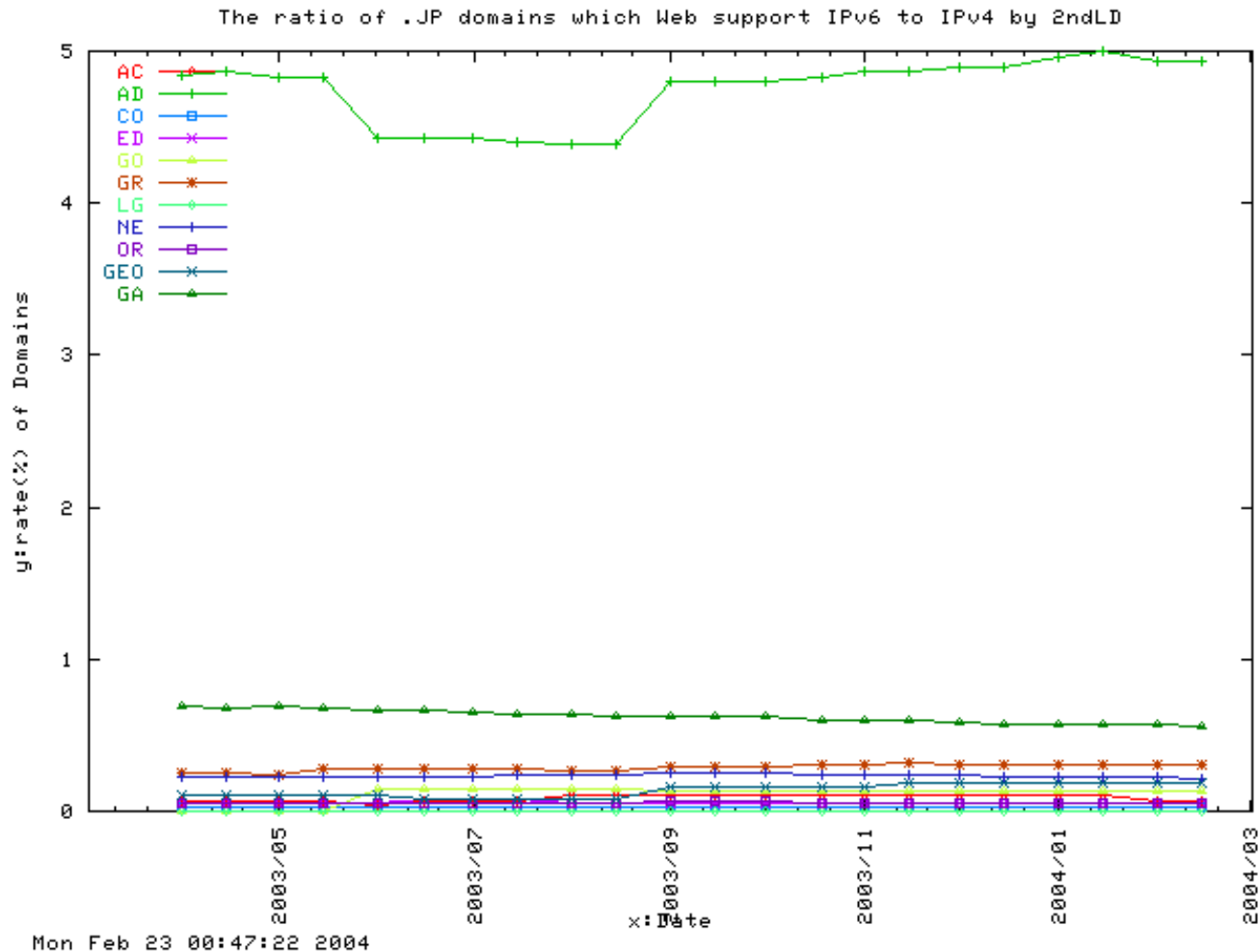
Measured data of .JP DNS records statistics

- The ratio of .JP domains which DNS/SMTP/Web supports IPv6 to IPv4



Measured data of .JP DNS records statistics

- The ratio of .JP domains which Web supports IPv6 by SLD



Contact

- If you have any interest or question, please contact us
- We are ready to cooperate with any domain registry in other countries

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Thank you very much