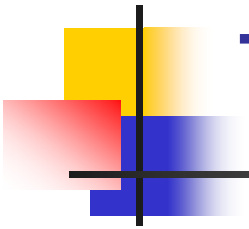
DNS Conformance Tester
&
Test Event Report

dnsext WG@65th IETF

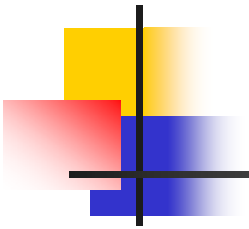
2006/03/21(Tues.)

Yukiyo Akisada@Yokogawa Electric Corporation, TAHI Project

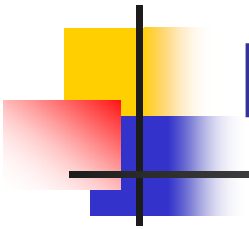


TOC

- Status of DNS Conformance Tester
- Introduction of
  DNS Conformance Tester
- Test Event Report



Status of DNS Conformance Tester



DNS Conformance Tester Status

- 2006/02/28 ver.1.0 has been released!
  - Download: http://www.tahi.org/dns/
  - Supported devices:
    - DNS Server & Client
    - IPv6 & IPv4 transport
    - TCP & UDP transport

Target RFCs (basic functions)

- RFC 1034: DOMAIN NAMES - CONCEPTS AND FACILITIES
- RFC 1035: DOMAIN NAMES - IMPLEMENTATION AND SPECIFICATION
- RFC 1123: Requirements for Internet Hosts -- Application and Support
- RFC 1995: Incremental Zone Transfer in DNS
- RFC 1996: A Mechanism for Prompt Notification of Zone Changes (DNS NOTIFY)
- RFC 2181: Clarifications to the DNS Specification
- RFC 2308: Negative Caching of DNS Queries (DNS NCACHE)
- RFC 3425: Obsoleting IQUERY

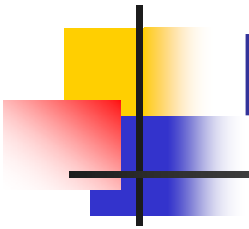
Target RFCs (extension functions)

- RFC 2671: Extension Mechanisms for DNS (EDNS0)
- RFC 2782: A DNS RR for specifying the location of services (DNS SRV)
- RFC 3401: Dynamic Delegation Discovery System (DDDS) Part One: The Comprehensive DDDS
- RFC 3402: Dynamic Delegation Discovery System (DDDS) Part Two: The Algorithm
- RFC 3403: Dynamic Delegation Discovery System (DDDS) Part Three: The Domain Name System (DNS) Database
- RFC 3404: Dynamic Delegation Discovery System (DDDS) Part Four: The Uniform Resource Identifiers (URI) Resolution Application
- RFC 3405: Dynamic Delegation Discovery System (DDDS) Part Five: URI.ARPA Assignment Procedures
- RFC 3596: DNS Extensions to Support IP Version 6

Download Statistics

- Statistics at 2006.03.17

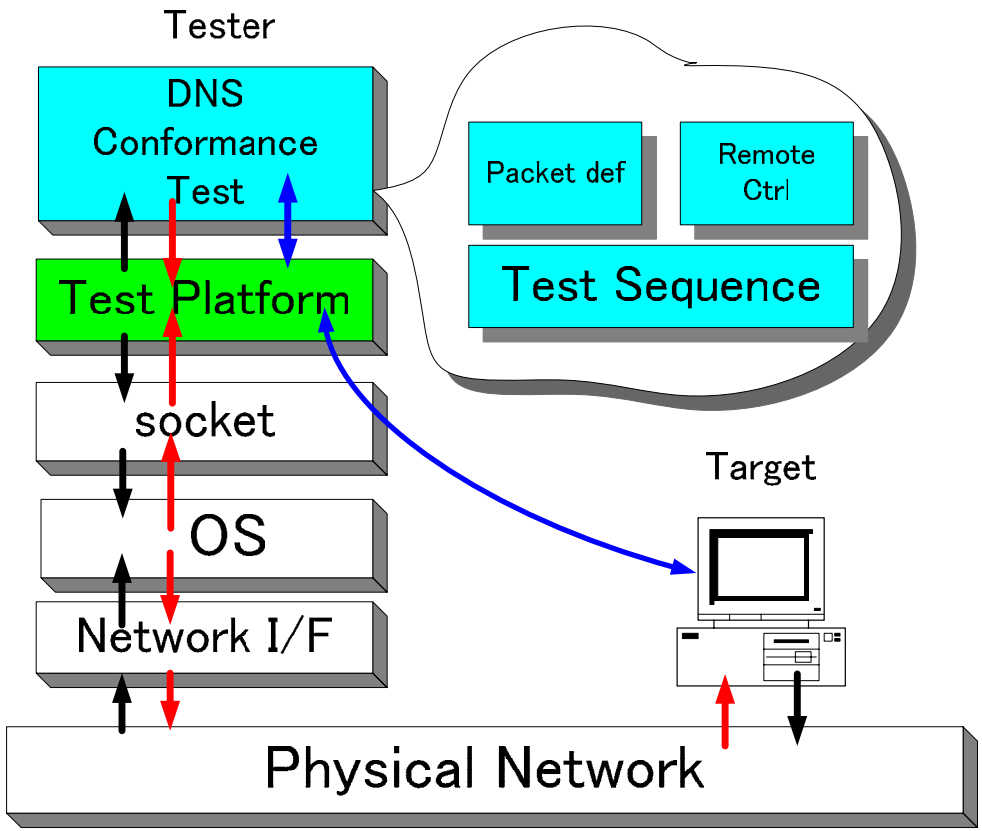
Ver.0.1	93 users
Ver.0.2	163 users
Ver.1.0	26 users
Total	282 users (uniquely 270 users)

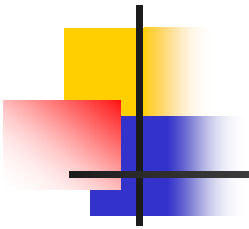


Feature

- Designed as standard application using internet domain socket
- More than 300 test sequences
- Support automatic testing (optional)
  - need to prepare some scripts to control the target
  - ‘bind9’ is ready to test full automatically
- HTML output
- Freeware

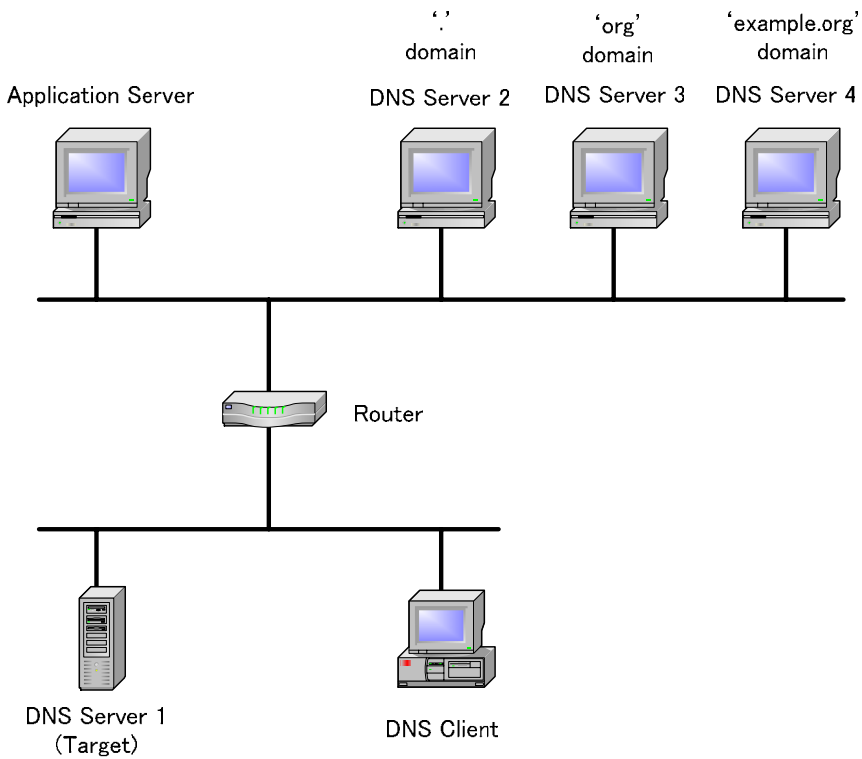
Structure


Tester
DNS Conformance Test
Packet def
Remote Ctrl
Test Sequence
Test Platform
socket
OS
Network I/F
Target
Physical Network

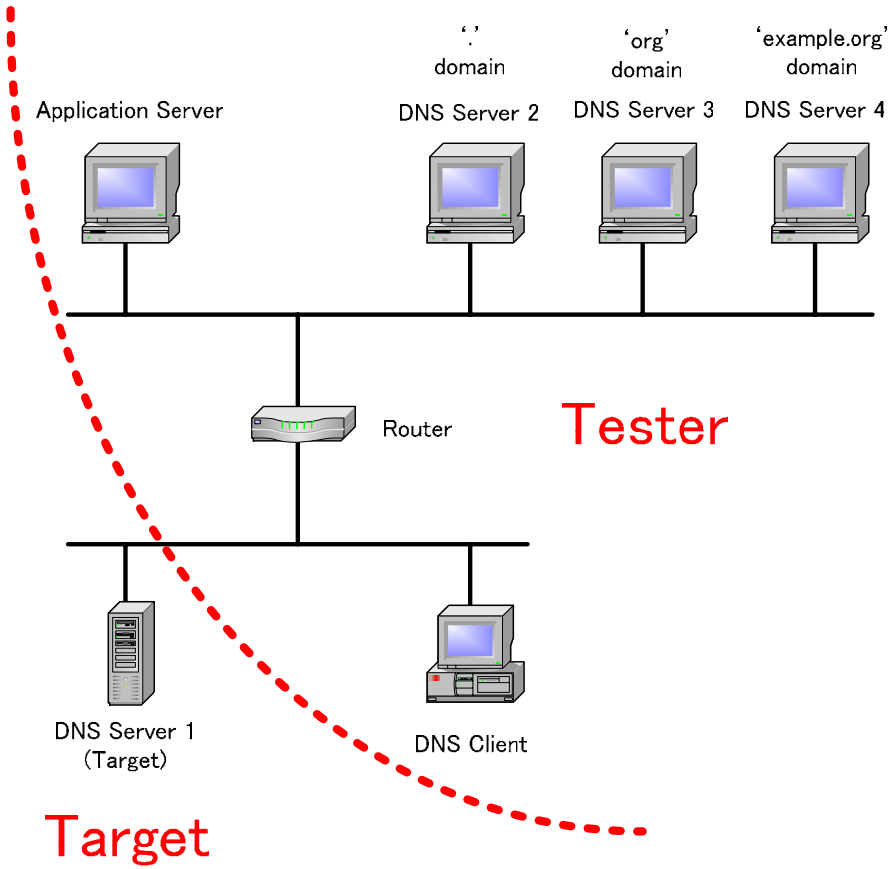


Introduction of DNS Conformance Tester

Logical Topology (1/2)

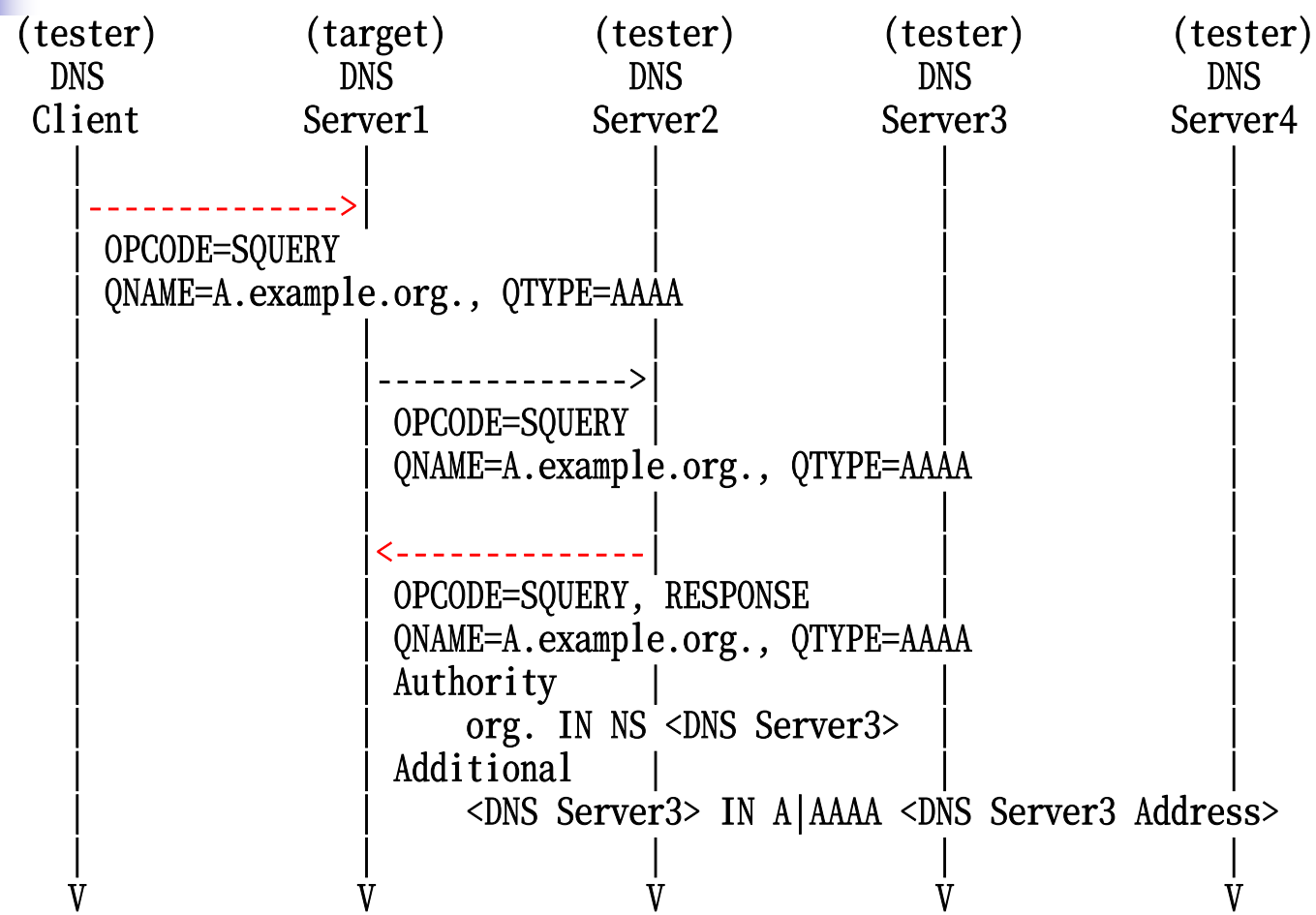


Logical Topology (2/2)

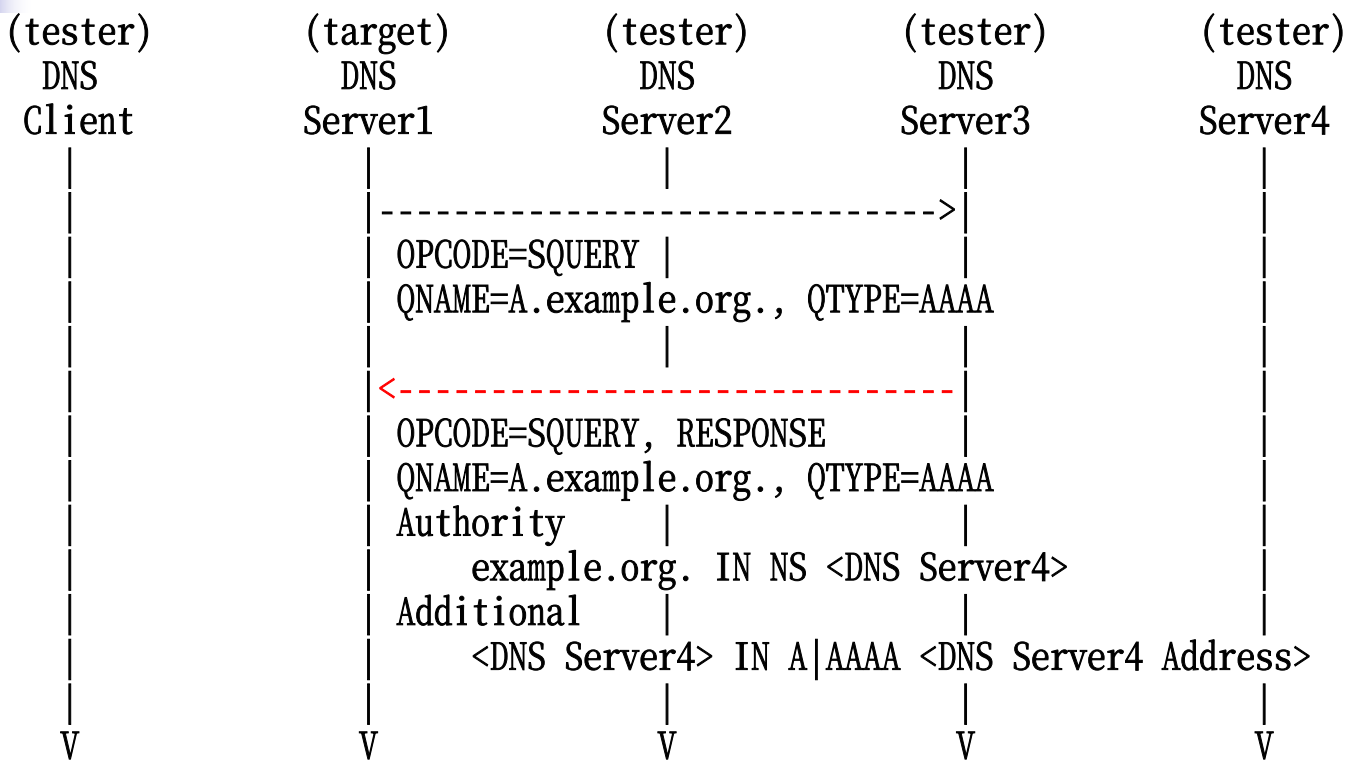


Physical Topology

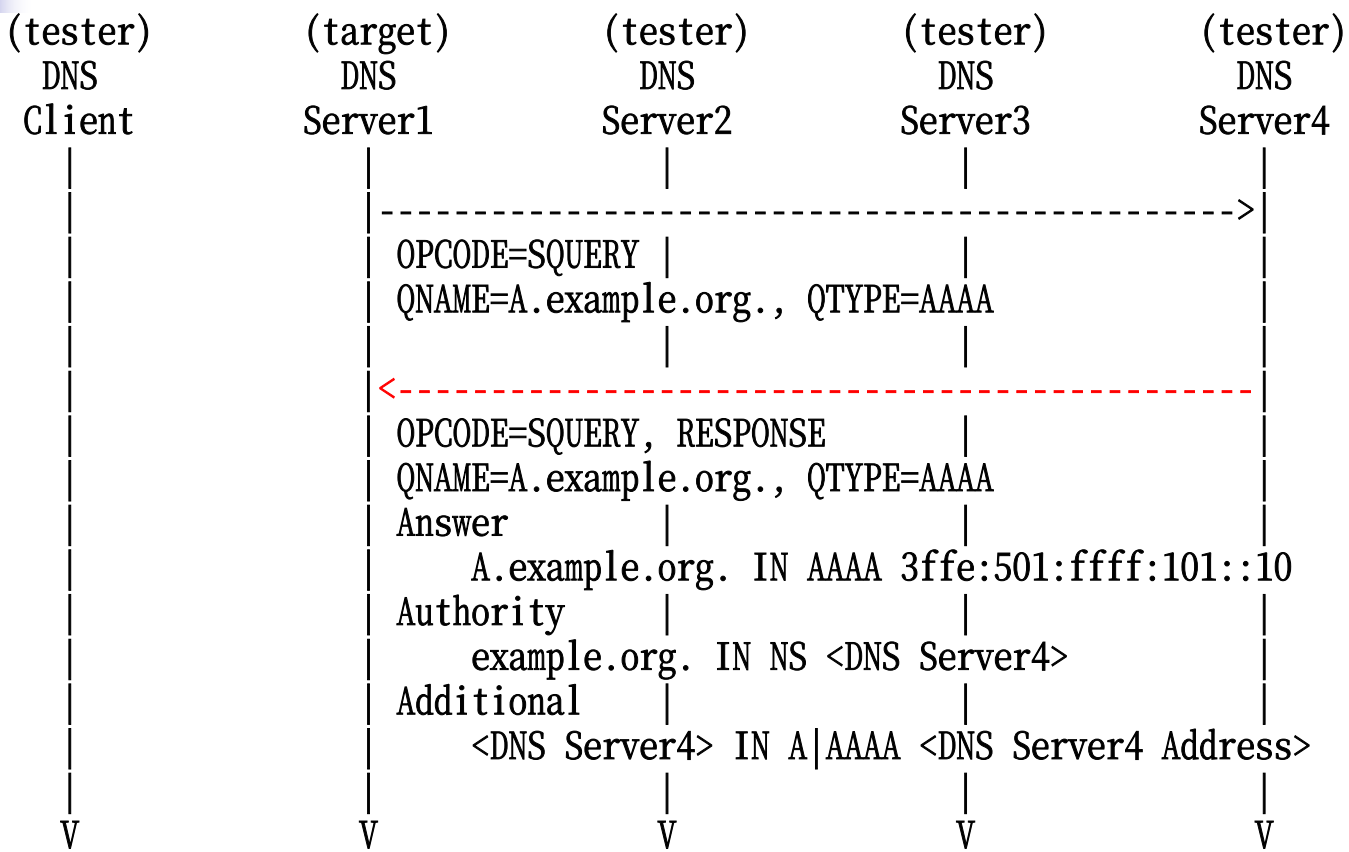
Test Sequence



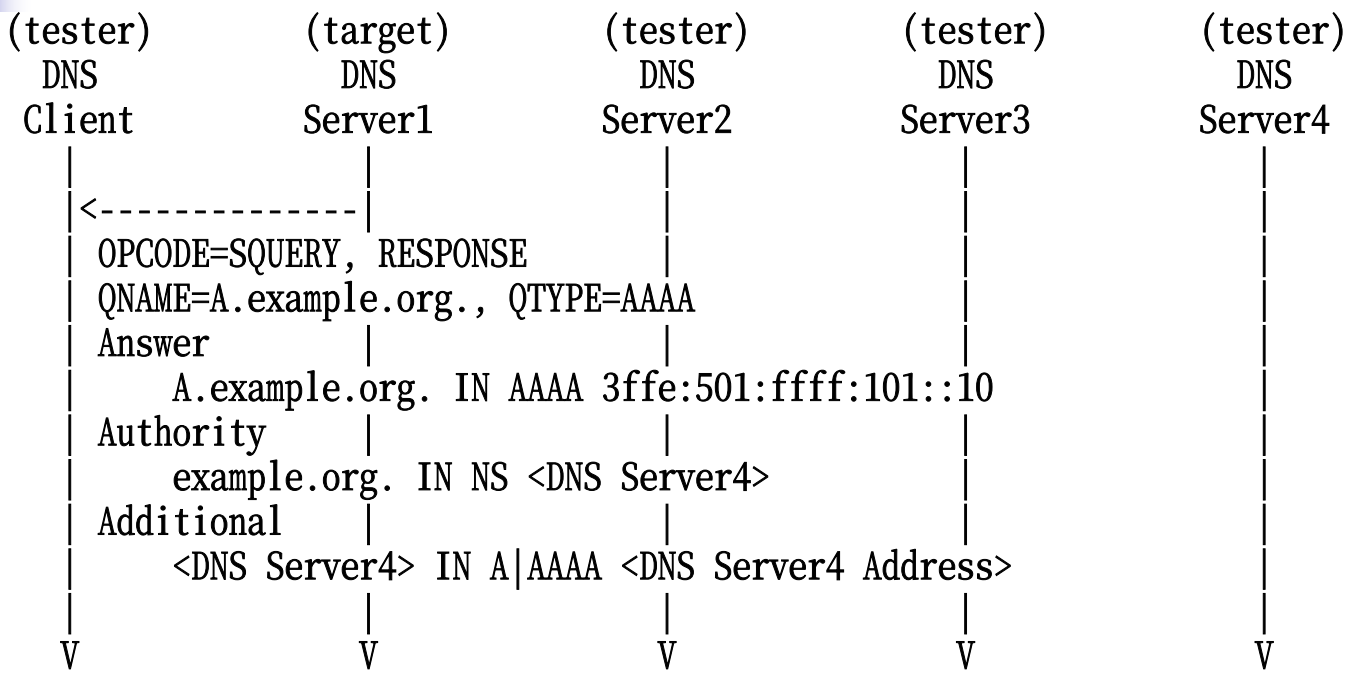
Test Sequence



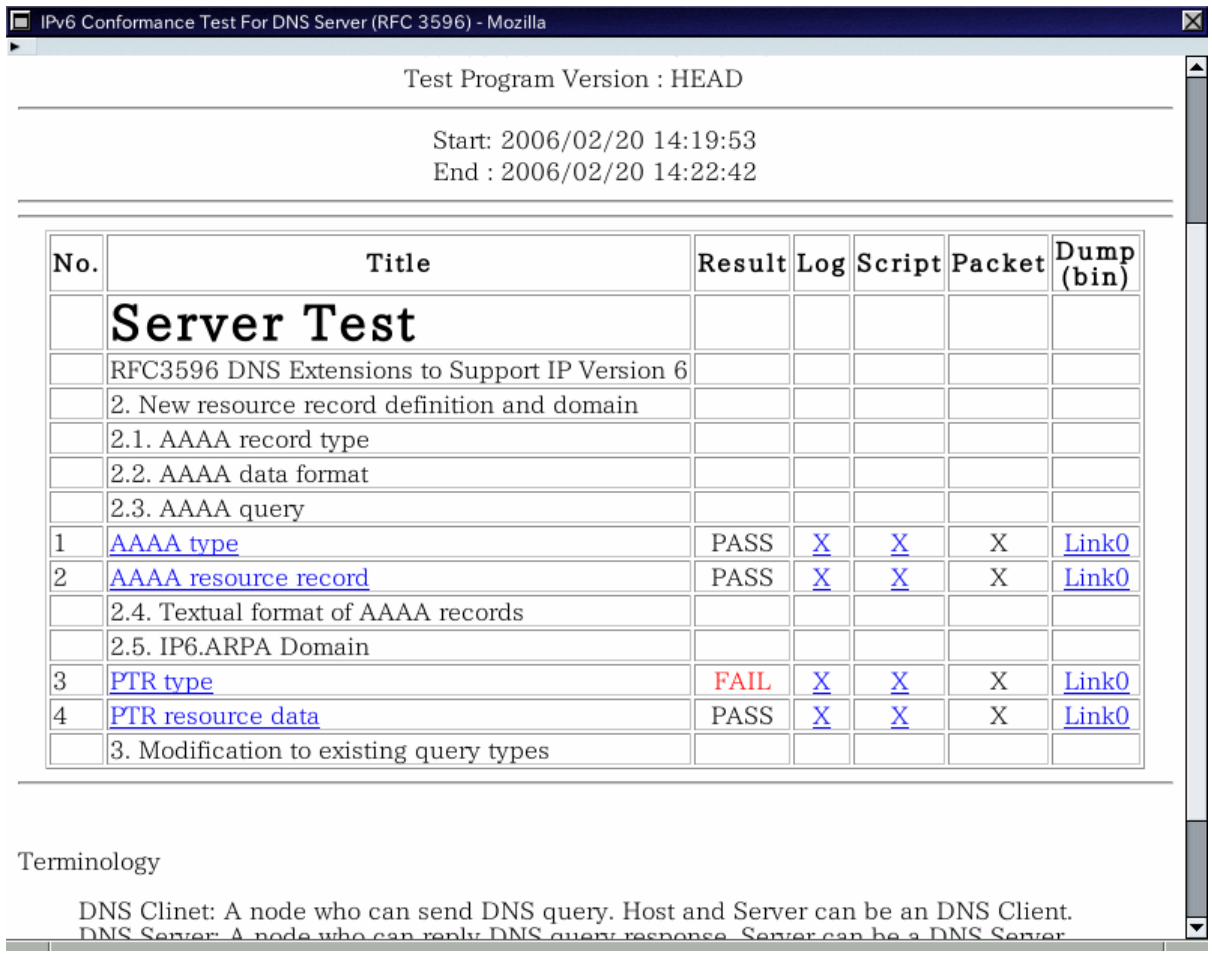
Test Sequence



Test Sequence



Test Log (1/2)



IPv6 Conformance Test For DNS Server (RFC 3596) - Mozilla

Test Program Version : HEAD

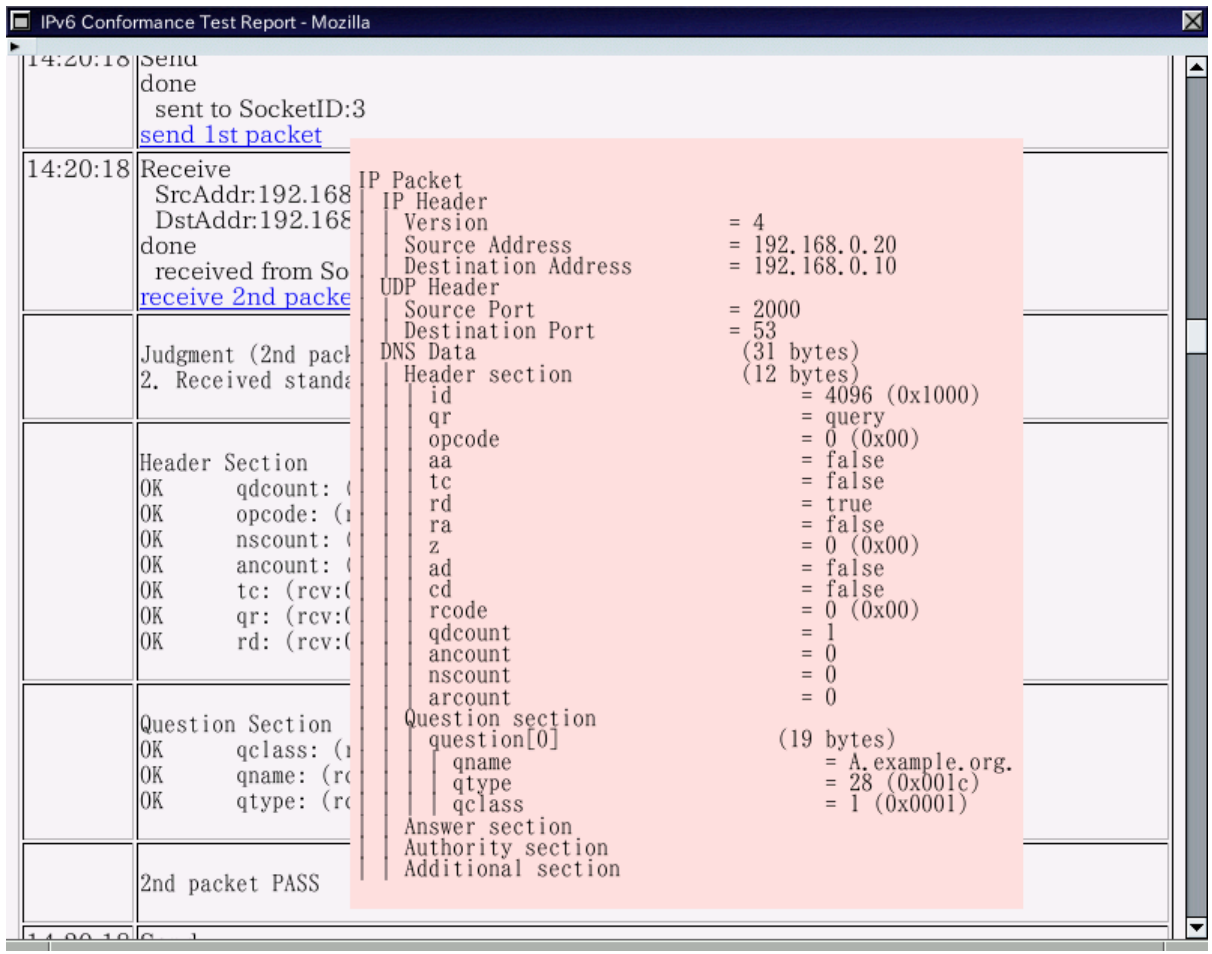
Start: 2006/02/20 14:19:53
End : 2006/02/20 14:22:42

No.	Title	Result	Log	Script	Packet	Dump (bin)
	Server Test					
	RFC3596 DNS Extensions to Support IP Version 6					
	2. New resource record definition and domain					
	2.1. AAAA record type					
	2.2. AAAA data format					
	2.3. AAAA query					
1	AAAA type	PASS	X	X	X	Link0
2	AAAA resource record	PASS	X	X	X	Link0
	2.4. Textual format of AAAA records					
	2.5. IP6.ARPA Domain					
3	PTR type	FAIL	X	X	X	Link0
4	PTR resource data	PASS	X	X	X	Link0
	3. Modification to existing query types					

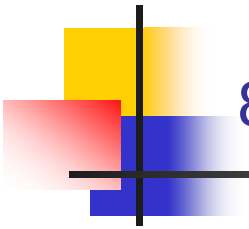
Terminology

DNS Clinet: A node who can send DNS query. Host and Server can be an DNS Client.
DNS Server: A node who can reply DNS query response. Server can be a DNS Server

Test Log (2/2)


IPv6 Conformance Test Report - Mozilla
14:20:18 Send
done
sent to SocketID:3
send 1st packet
14:20:18 Receive
SrcAddr:192.168
DstAddr:192.168
done
received from So
receive 2nd packe
Judgment (2nd pack
2. Received standa
Header Section
OK qdcount: (
OK opcode: (
OK nscount: (
OK ancount: (
OK tc: (rcv:(
OK qr: (rcv:(
OK rd: (rcv:(
Question Section
OK qclass: (
OK qname: (rc
OK qtype: (rc
2nd packet PASS
IP Packet
IP Header
Version = 4
Source Address = 192.168.0.20
Destination Address = 192.168.0.10
UDP Header
Source Port = 2000
Destination Port = 53
DNS Data (31 bytes)
Header section (12 bytes)
id = 4096 (0x1000)
qr = query
opcode = 0 (0x00)
aa = false
tc = false
rd = true
ra = false
z = 0 (0x00)
ad = false
cd = false
rcode = 0 (0x00)
qdcount = 1
ancount = 0
nscount = 0
arcount = 0
Question section
question[0] (19 bytes)
qname = A.example.org.
qtype = 28 (0x001c)
qclass = 1 (0x0001)
Answer section
Authority section
Additional section

Test Event Report

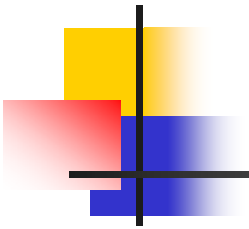


8th TAHI IPv6 Interoperability Test Event Report (1/2)

- 2006/01/23-2006/01/27
- at Nippon Convention Center (widely known as "Makuhari Messe"), in Chiba, Japan.

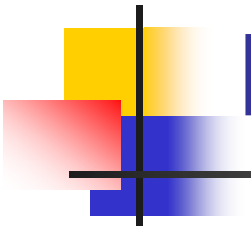
8th TAHI IPv6 Interoperability Test Event Report (2/2)

- Tested for 1 DNS client from Japanese vendor
  - Basic RFC's test
    - Negative Cache
  - Extension RFC's test
    - SRV
    - AAAA
  - some SHOULD violations in implementation are there
- We hope that more vendors come to the next!!



Information

- Generic Information
  - http://www.tahi.org/dns/
  - contact@tahi.org
- Users ML
  - dnstest@tahi.org
  - more than 30 persons are there (at 2006.03.16)



EOF

Thanks!!