

SA46T-AT

SA46T Address Translator

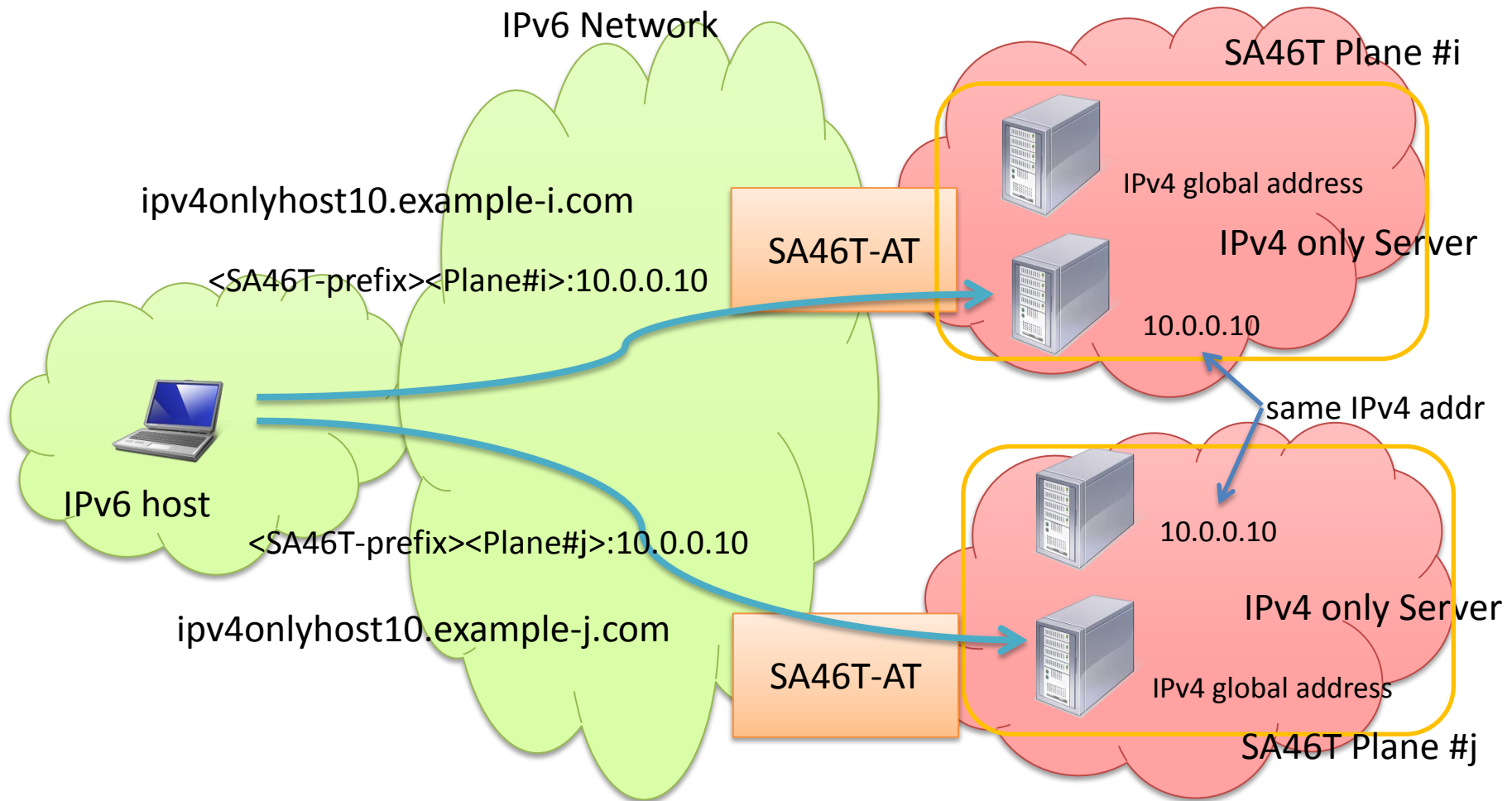
draft-matsuhira-sa46t-at-01.txt

2013/3/12
Naoki Matsuhira
Fujitsu Limited
behave WG, 86th IETF Orlando, March 2013

What is SA46T-AT

- SA46T address translator
 - IPv6 - IPv4 header translator using SA46T address
 - Enable IPv6 client - IPv4 server communication
 - Thinking from scratch
 - very specialized, not general purpose
 - Main Target is IPv4 only server, translate to IPv6
 - uni-directional, only support IPv6 clients initiated communication
 - Support specific application, main target is http
- SA46T
 - Stateless Automatic IPv4 over IPv6 Encapsulation / Decapsulation Technology

Network configuration with SA46T-AT



Position of SA46T-AS on RFC6144 scenario

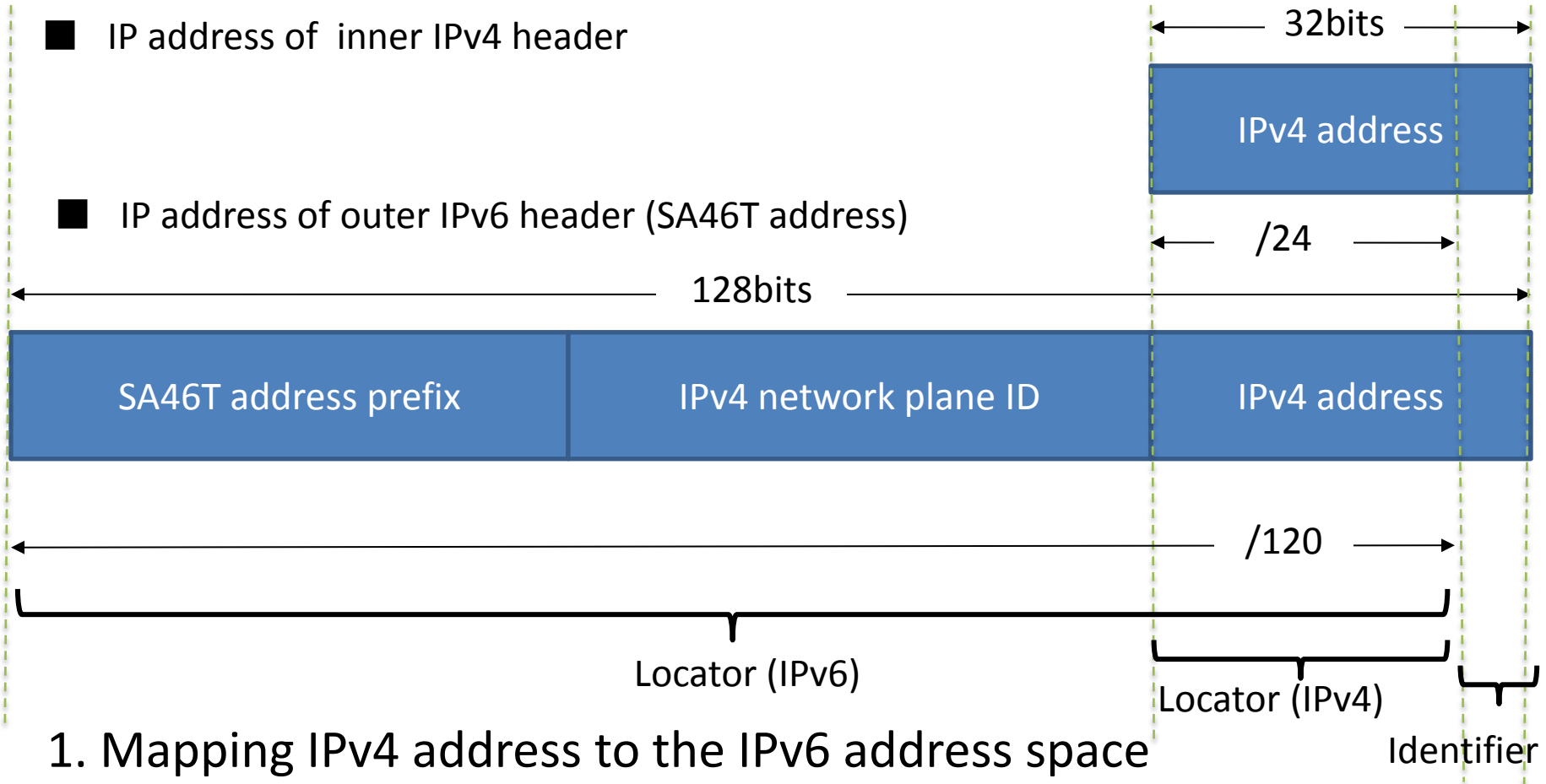
Initiate \ Target		IPv4		IPv6	
		network	Internet	network	Internet
IPv4	network			#6 SIIT	#4
	Internet			#2 SIIT	#8
IPv6	network	#5 SIIT	#1 SIIT NAT64?		
	Internet	#3 SA46T-AT	#7		

SIIT: RFC6145, "IP/ICMP Translation Algorithm"

NAT64: RFC6146, "Stateful NAT64: Network Address and Protocol Translation from IPv6 clients to IPv4 Servers"

Architecture of SA46T

(Addressing and Routing)

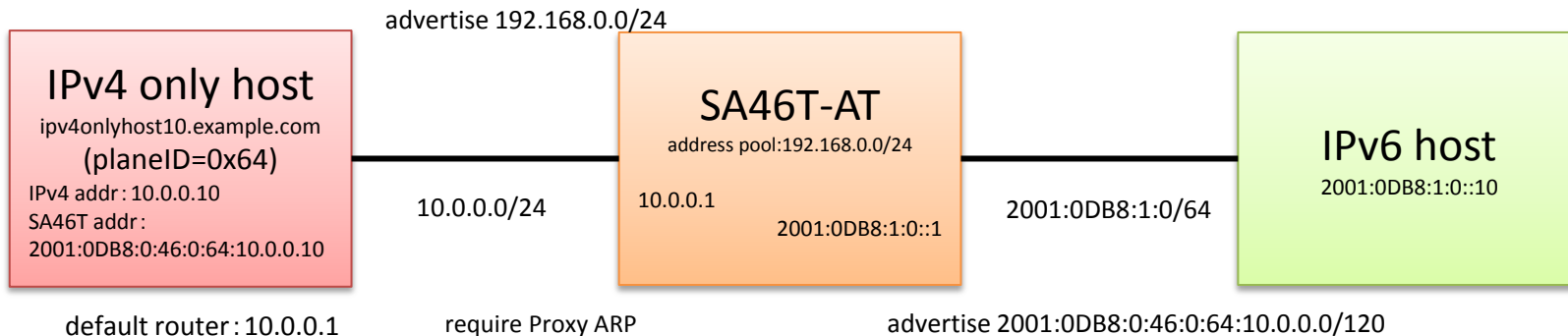


SA46T-AT spec

SA46T prefix 2001:0DB8:0:46/64

DNS

ipv4onlyhost10.example.com IN AAAA 2001:0DB8:0:46:0:64:10.0.0.10



addr of IPv6 host	SA46T addr mapped IPv4 only host Not needed	IPv4 addr mapped to IPv6 host(dynamic assign)	addr of IPv4 only host Not needed	entry expire timer
2001:0DB8:1:0::10	2001:0DB8:0:46:0:64:10.0.0.10	192.168.0.200	10.0.0.10	

Processing from IPv6 to IPv4

- (1) examine the exists of the entry for IPv6 host
- (2) If there is no entry, get IPv4 address for mapping of IPv6 host from IPv4 address pool, and make entry to the translation table.
- (3) IF there is the entry, resolve mapped IPv4 address for IPv6 host

Processing from IPv4 to IPv6

- (1) Search address translation table with key destination IPv4 address, and resolve corresponding IPv6 address.

Other processing

- (1) Remove the entry of address translation table if expire

Configuration of SA46T-AT

- SA46T address prefix for route advertisement (2001:0DB8:0:46:0:64:10.0.0.0/120)
- IPv4 address pool for IPv6 hosts
- entry expire default time (TBD)

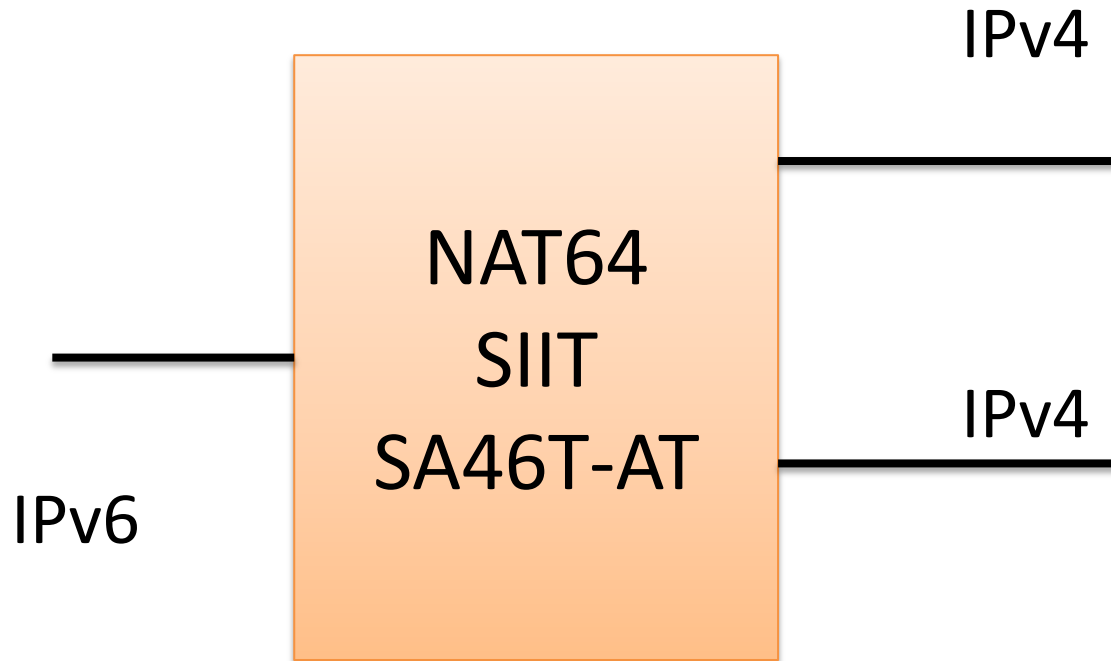
implementation and experiments

- implementation
 - exists
- experiments
 - Open Router Competition at Interop Tokyo 2012
 - WIDE camp

Relation with NAT64 and SIIT

- SA46T address may apply to the NAT64 and SIIT.
 - NAT64 work scenario #3 in RFC6144 ?
 - NAT64 work all scenario in RFC6144 ?
- SA46T-AT seems SA46T address with SIIT
 - however RFC6145(SIIT) does not support scenario #3 in RFC6144
- Does NAT64 and SIIT work with duplicate IPv4 address ?
 - This condition may exists whether using SA46T address or not.

Working with duplicate IPv4 address



possible same IPv4 address with different plane

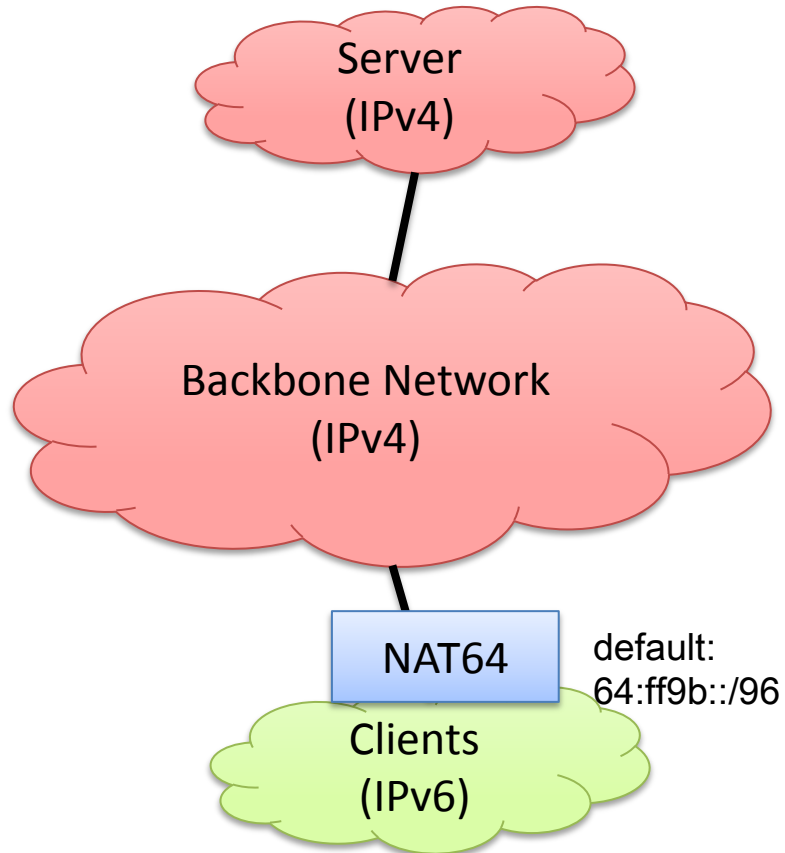
Next step

- current I-D is not separating address format (SA46T address) and processing
- Maybe can separate address format (SA46T address) and processing
 - address format is described in RFC6052
 - IPv6 Addressing of IPv4/IPv6 Translators
 - processing: NAT64(RFC6146) and SIIT(RFC6145)
- update I-D
 - separate that, if possible
 - more clear, more organized
- Any comments ?

backup slides

NAT64 and SA46T-AT

NAT64



SA46T-AT

