

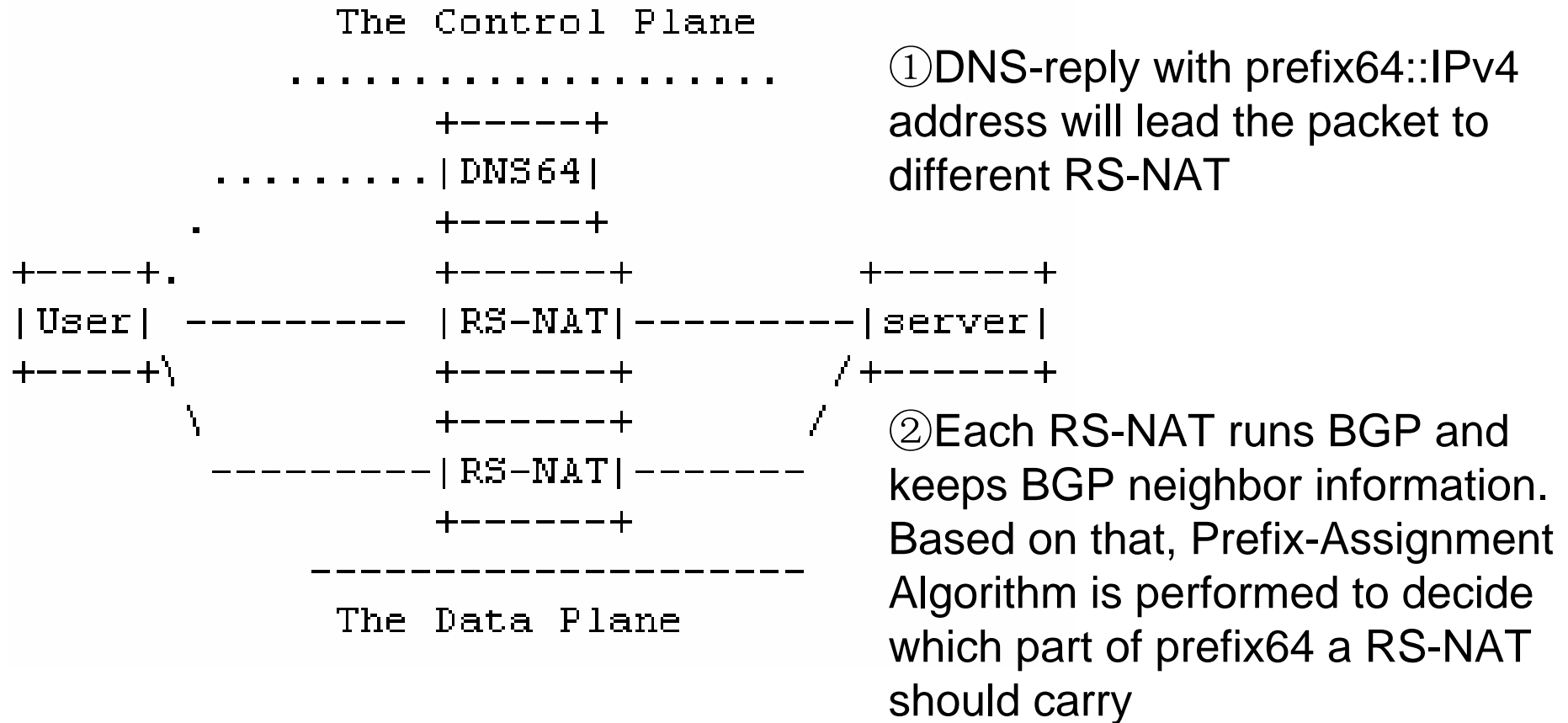
# Reliable and Scalable NAT mechanism (RS-NAT) based on BGP for IPv4/IPv6 Transition

Chen Gang

# Introduction

- Most of NAT processing is stateful, which will bring a high risk of single-point failure
- Multi-NAT mechanism is still restrained by a static configuration and localized mapping information
- The draft has proposed a RS-NAT mechanism to facilitate NAT load balancing and enhance network robustness

# Load balancing mechanisms: IPv6-IPv4 scenario

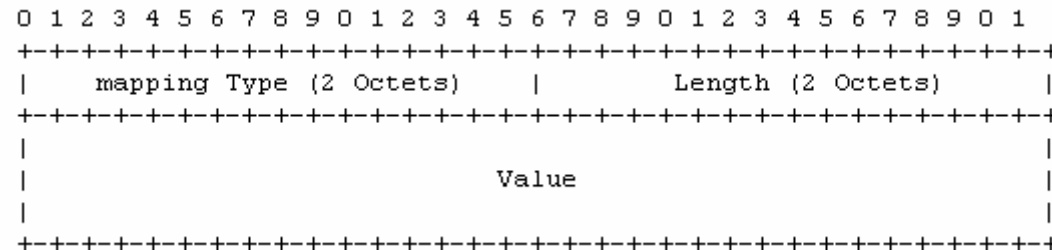


Prefix64 pool maintained by DNS64 could be averagely assigned to each RS-NAT, which will announce the prefix64 NLRI to USER network

# Redundancy mechanisms

- When one of RS-NATs failed, two problems will be incurred
  - Problem A: there is no valid routes to the destination
  - Problem B: there is mapping information lost
- Redundancy solutions
  - For Problem A: each RS-NAT could advertise overlapped prefix64 with low priority in case other RS-NAT routers are failed
  - For Problem B: an address mapping attribute is defined to synchronized mapping state among RS-NATs

# Address mapping attribute



- Address mapping attribute is an optional transitive attribute
- mapping Type (2 octets):
  - IPv4-IPv4: mapping Type = 1
  - IPv4-IPv6/IPv6-IPv4: mapping Type = 2
  - IPv6-IPv6: mapping Type=3
- Length (2 octets): the total number of octets of the Value field
- Value (variable): The value is composed of the address mapping information

Thanks