

Gratuitous Neighbor Discovery.
Creating Neighbor Cache Entries on
First-Hop Routers
[draft-ietf-6man-grand-01](#)

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Quick Recap

Problem: a host start sending traffic, the return flows arrive to the router, no neighbor cache entry, packets dropped until address resolution completes.

Solution:

- Nodes advertise their addresses by sending unsolicited NAs
- Routers create STALE entries

Status: WGLC
Changes since -00

'Host' Replaced With 'Node'

- RFC4861:
 - Node: an IPv6-enabled device.
 - Host: a node which is not a router.
- Benefits of routers announcing their addresses:
 - Next-hops for routes etc

Perform GRAND For All Addresses

Announcing Link-Local Addresses too.

- Easier to implement.
- Why not?
- Might be beneficial in some corner cases or in future .

Modification to RFC4861 section 7.2.6

Moving the proposed update a few paragraphs below.

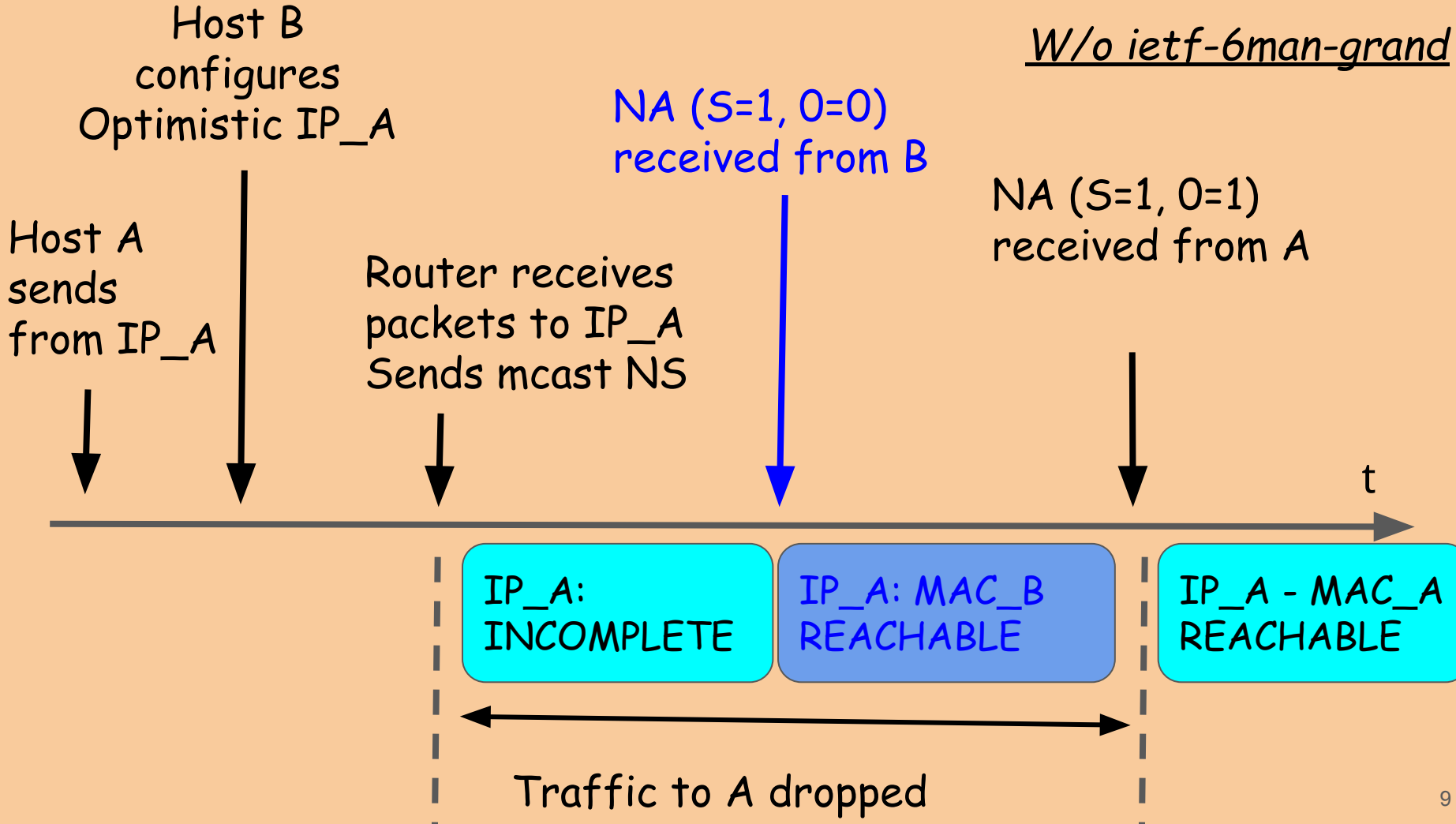
**Most Important Update:
Avoiding Disruption
(Duplicated Addresses)**

Unsolicited NA Received, no Entry

1. "Rightful" owner (host A) joins the network, sends packets.
2. Another host (host B) assigns the same optimistic address and sends an unsolicited NA.
3. Return traffic arrives to the router

Would unsolicited NA introduce disruption?

W/o ietf-6man-grand



Host B configures Optimistic IP_A

R. sends unicast NS

Host A sends from IP_A

NA (S=0) from B

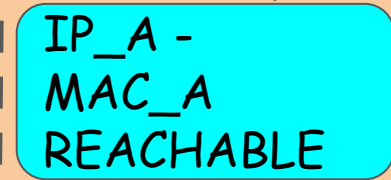
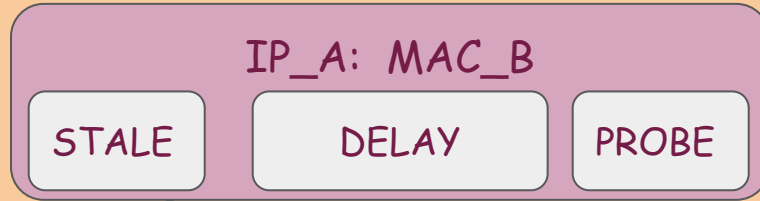
Router receives packets to IP_A

DAD fails

R. sends mcast NS

NA (S=1, O=1) from A

t



Traffic to A dropped

Unsolicited NA Received, no Entry

Max. additional impact on the rightful owner:

$\text{DELAY_FIRST_PROBE_TIME} +$
 $(\text{MAX_UNICAST_SOLICIT} - 1) * \text{RETRANS_TIMER}$

$5000 + (3 - 1) * 1000 = 7\ 000\ \text{ms} = 7\ \text{secs}$

Disruption Probability is Rather Low

Two hosts start using the same IPv6 address within tens of ms (time for first return packet to arrive)

Is it bad enough?

QUESTIONS?

COMMENTS?