

# IPv6 multihoming status

The follow up to Manchester...



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# Background

- In Manchester Geoff Huston presented the status of multihoming in IPV6
- And a deeper background on the problem
- And some on the possible solutions
- But a short recap first...

# The problem

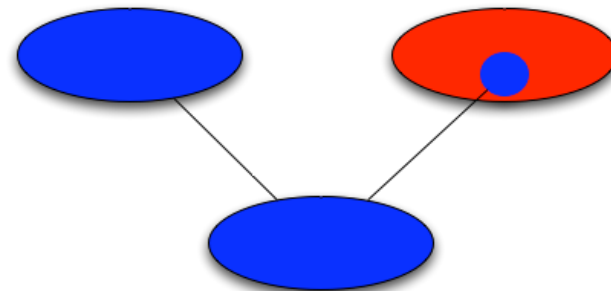
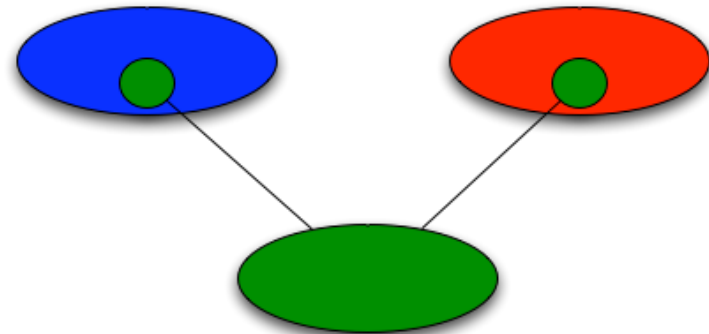
- Some end sites want multiple connections to different upstreams for
  - Resilience
  - Renumbering avoidance
- This does not *HAVE* to imply multiple upstream providers
  - But it can

# The problem

- Routing system constraints
  - In order for the multiple upstreams to forward traffic to the end-site, a unique identifier is needed for the longest-prefix-match algorithm
- In IPv4 this is either of
  - PI address block
  - “more specific” PA
  - Multiple addresses on each node

# Multihoming Today

- AS + PI
  - Get an AS
  - Get PI space
  - Advertise and use BGP
- More specific PA
  - Advertise the more specific route



# Effects of Multihoming

- Leads to “uncontrolled” growth of the routing table
  - Can lead to problems in the future
- Would be better if each end-user/site could get a block from each provider
  - And be able to use both prefixes as source addresses in case of failures
  - Today this does not work due to inbound-filtering at the ISPs

# The IETF effort

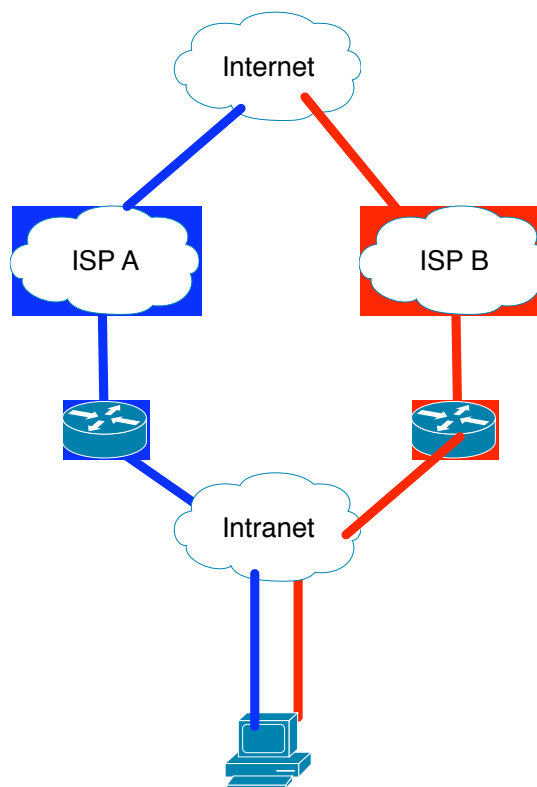
- The multi6 WG was (is) tasked with inventorising possible solutions
  - And benchmarking/selecting a solution
  - Selected an architecture based on separating locator / identifier
  - WG is waiting for all documents to leave the RFC editor queue
- Work on protocol is moved to the shim6 WG

# shim6 - Breaking news

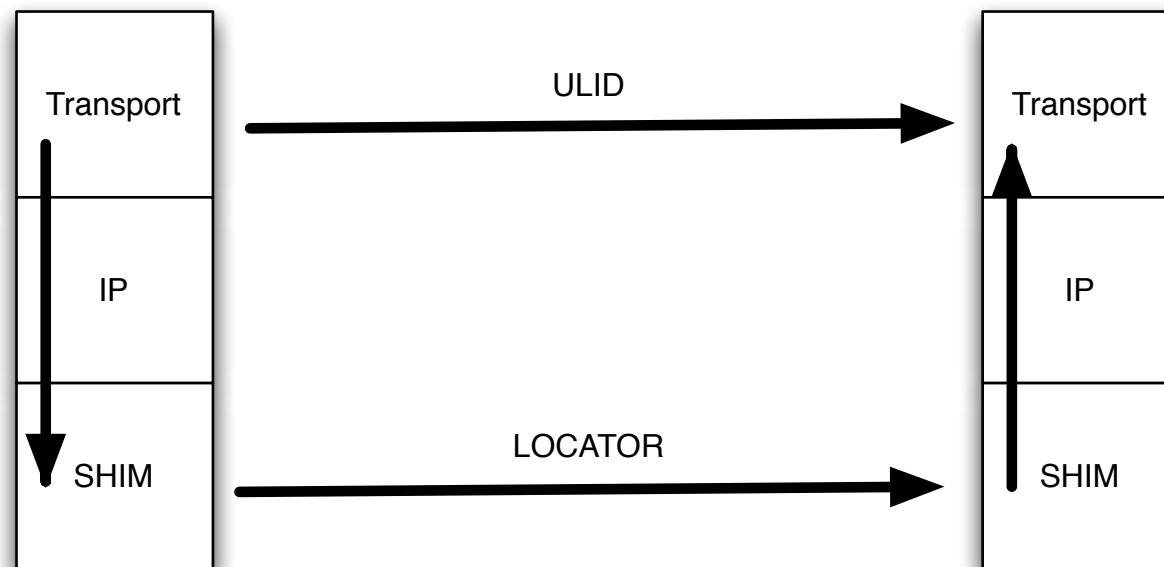
- “Amsterdam, Krasnapolsky. During the weekend, the IETF shim6 WG held an interim meeting at the Krasnapolsky hotel in Amsterdam. One participant says ‘the brownies was delicious’”.
- Other news is that during the interim meeting we worked out details on the protocol
- By now there should be an in Internet-draft out draft-ietf-shim6-proto-01.txt



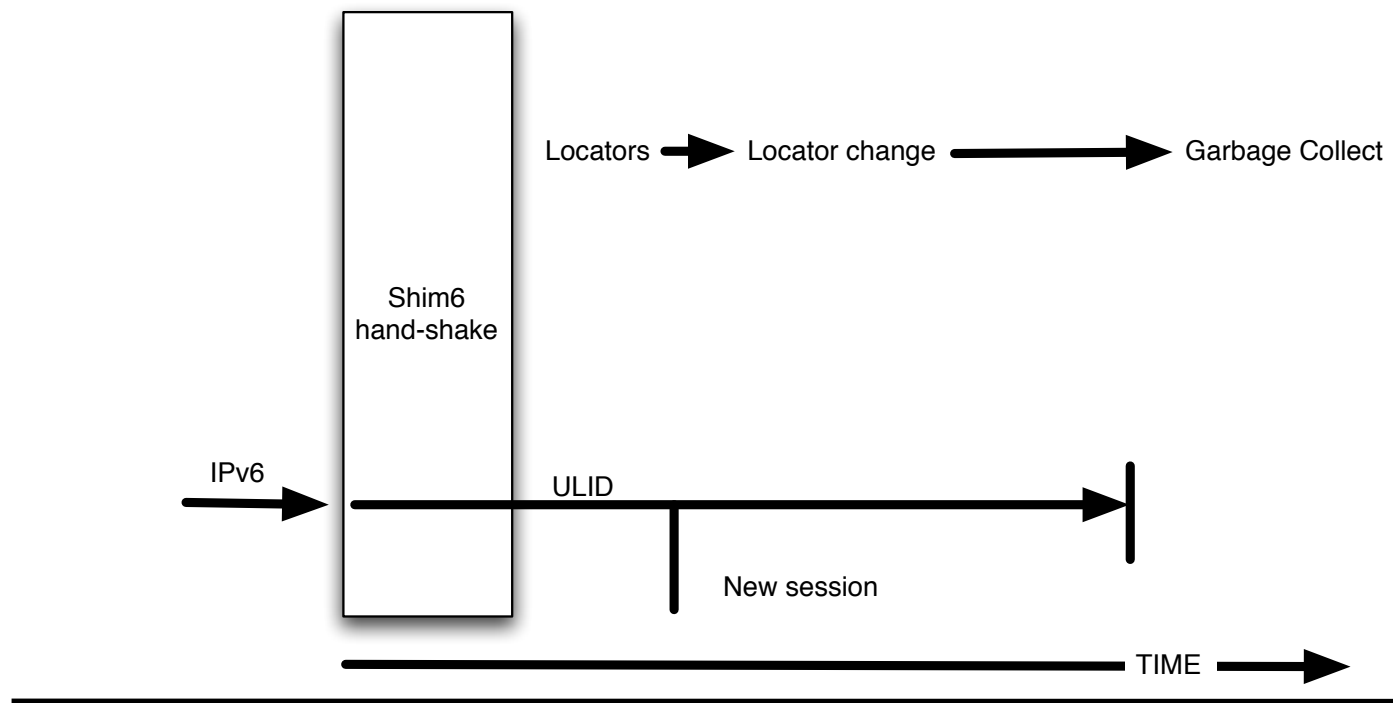
# shim6 model



# Shim6 model



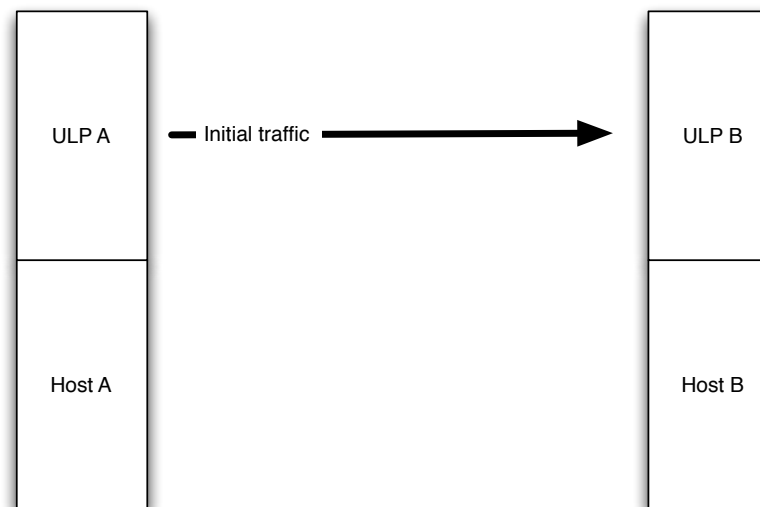
# Shim6 model



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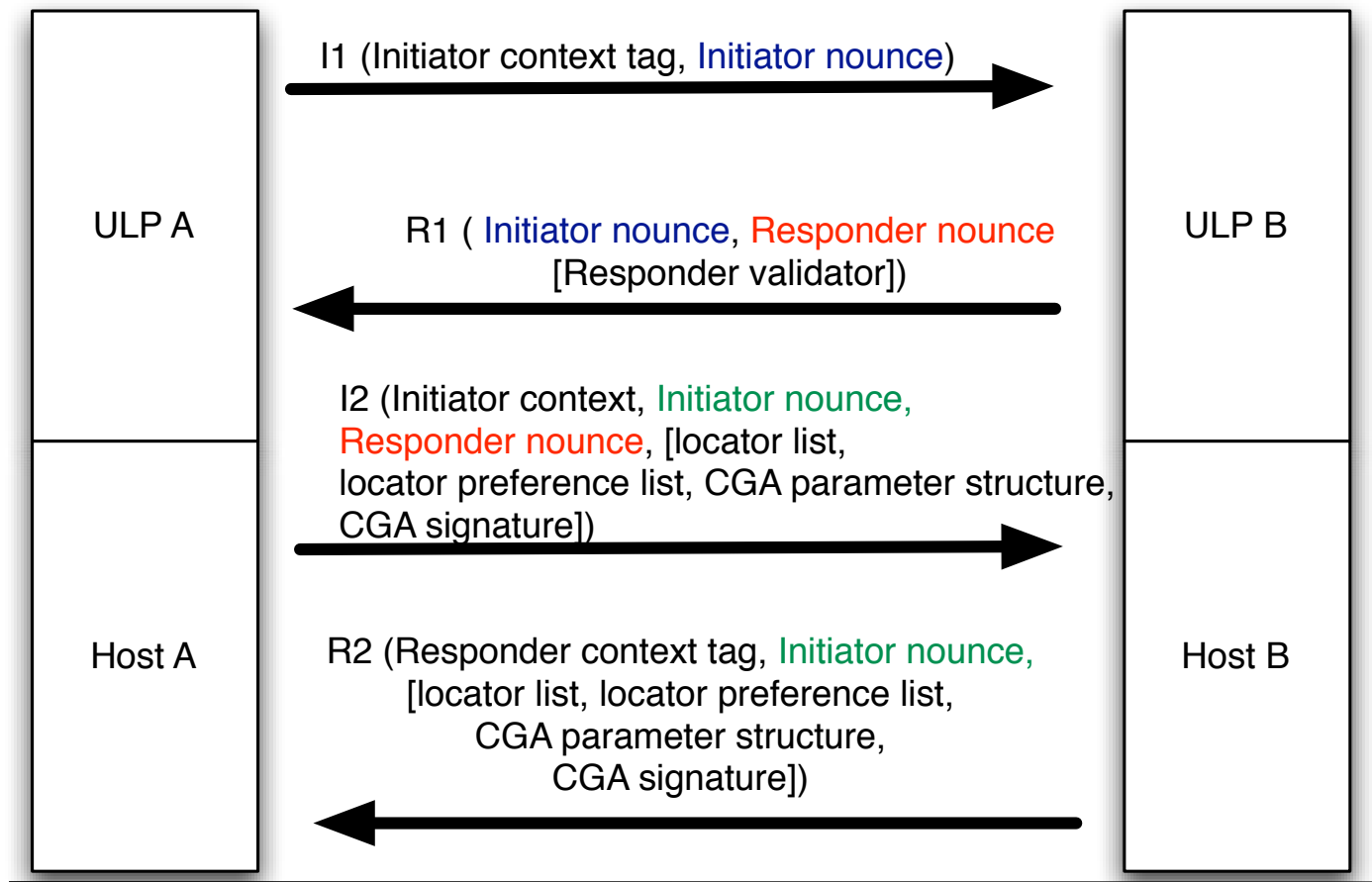
# Shim6 (IPv6) - protocol

- The stack in host A receives an request from the ULP to initiate traffic to host B
- Host a chooses an source locator based on RFC3483
- Connection is established as normal
- Only once the connection is determined to be “persistent” a shim6 state is set up



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# Shim6 - protocol



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# Shim6 - protoocol

- A lot of other messages specified to handle
    - No context errors
    - Locator list update and locator list update ACK
    - Rehome request and rehome request ACK
    - Reachability probe and reachability probe reply
-

# shim6 - protocol

- Messages sent as IPv6 extension headers
- Current thinking is that the base header will look remarkably like a HIP header
  - but it is *NOT!*
- Some issues are still TBD but we have come a far way....

# shim6 document status

- HBA document
  - Will be sent to WG LC around Vancouver
- -01 core protocol spec should be out today
- WG chairs will ask ADs for an update of RFC3848
- Failure detection and reachability probing draft by Vancouver
- Work in new year
  - Applicability draft, application referral draft, Upper layer API draft,



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