IPv6 Segment Routing for Multicast
@
Comcast

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Why?

- Because of the topology and relative volume of traffic compared to unicast; there is no benefit to running IP Multicast in the Backbone/Regional area networks
  - RAN is a hub and spoke architecture: multicast traffic needs to be on all links to the hubs receiving it
  - BB is a sparse topology with multiple Tb/s links
- Multicast is a significant burden on - vendor silicon/code/testing
  - Comcast multi-vendor interoperability testing and Operations (estimates of 20% of silicon for bus/fabric chips)
- Multicast is an obvious, very beneficial choice to move out of the Underlay Network and into x86, Software and Application control

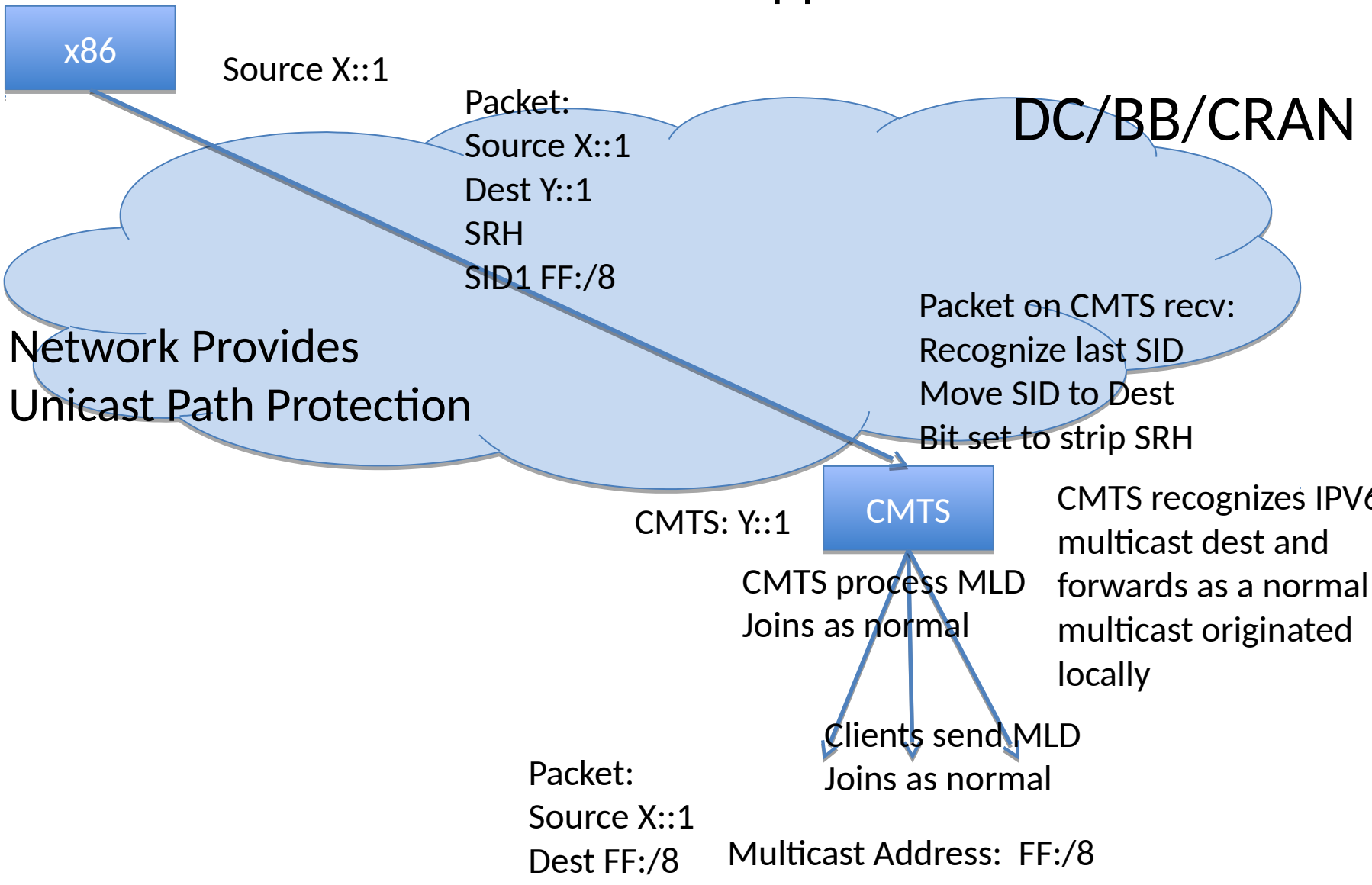
Simplicity

- The IPv6 header has the capability of adding Option Headers for specific functions
  - The Segment Routing Header (SRH) is one; it is only processed if the Router is the destination of the packet being processed
  - The function of the header is very similar to the Loose Source Route (LSR) function in IPv4; the intermediate IPV6 addresses are SID's
  - There was an original Option Header defined in IPv6 for this function that was deprecated; SR brings back the function with a new Option Header definition.

IPv6 SR SUPPORT IS NOT REQUIRED BY ANY ROUTER/SWITCH/DEVICE not identified as a SID!!!

IPv6 SR Solution

Source and CMTS support SR



IPv6 SR Solution

One Source, Multiple CMTS support