Data-driven
Coordination of Network Devices
in Computing in the Network

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Zongpeng Du
duzongpeng@chinamobile.com
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Strict Network Programming

• In network programming, for example in SRv6, we can enable a SID list in the packet header of IPv6.

An Example SID list

It can be consider as a strict network programming mechanism, in which a function **MUST** take place in a specified node.
Loose Network Programming

- If we only need a function to be implemented in the network, no matter in which node, the mechanism in this draft can be considered. It can be considered as a loose network programming mechanism, in which a function \text{MAY} take place in any node.
Coordination needed in Loose Network Programming

- However, we do not want a function being implemented twice or more, so that a coordination mechanism is needed.

It needs to be checked on each node so that it is suggested be included in the HBH extension header of the IPv6 encapsulation.
Coordination needed in Loose Network Programming (Cont.)

• For example, Router 3 is busy on forwarding and do not what to perform any functions/tasks.

We can use a bitmap to indicate the functions/tasks that are needed to be done in the network.
The Scenario for Loose Network Programming

- For example, network nodes can detect the DDoS attack by analyzing the characteristics of the flows, and drop packets of the suspect flows. But a node can only do it when it is not busy.

The nodes can make a local decision about whether to do the job according to its status, and the main job is still the forwarding.
Thanks for listening

Welcome for comments