TCP Dynamic Parameter Control

draft-song-dclc-tcpdc-01

Haibin Song   haibin.song@huawei.com

Rachel Huang   rachel.huang@huawei.com

Problems

- End hosts will reduce TCP sending window sharply when packet loss
  - But packet loss does not necessarily mean network congestion!!!
  - If there is no congestion in the network or the receiver, the sender SHOULD NOT do that

- Small init_cwnd impacts user experience when the network is idle
  - Small init_cwnd means more cycles for a given size file transfer, Especially for web browsing
  - Why not using large init_cwnd when the network status is good?
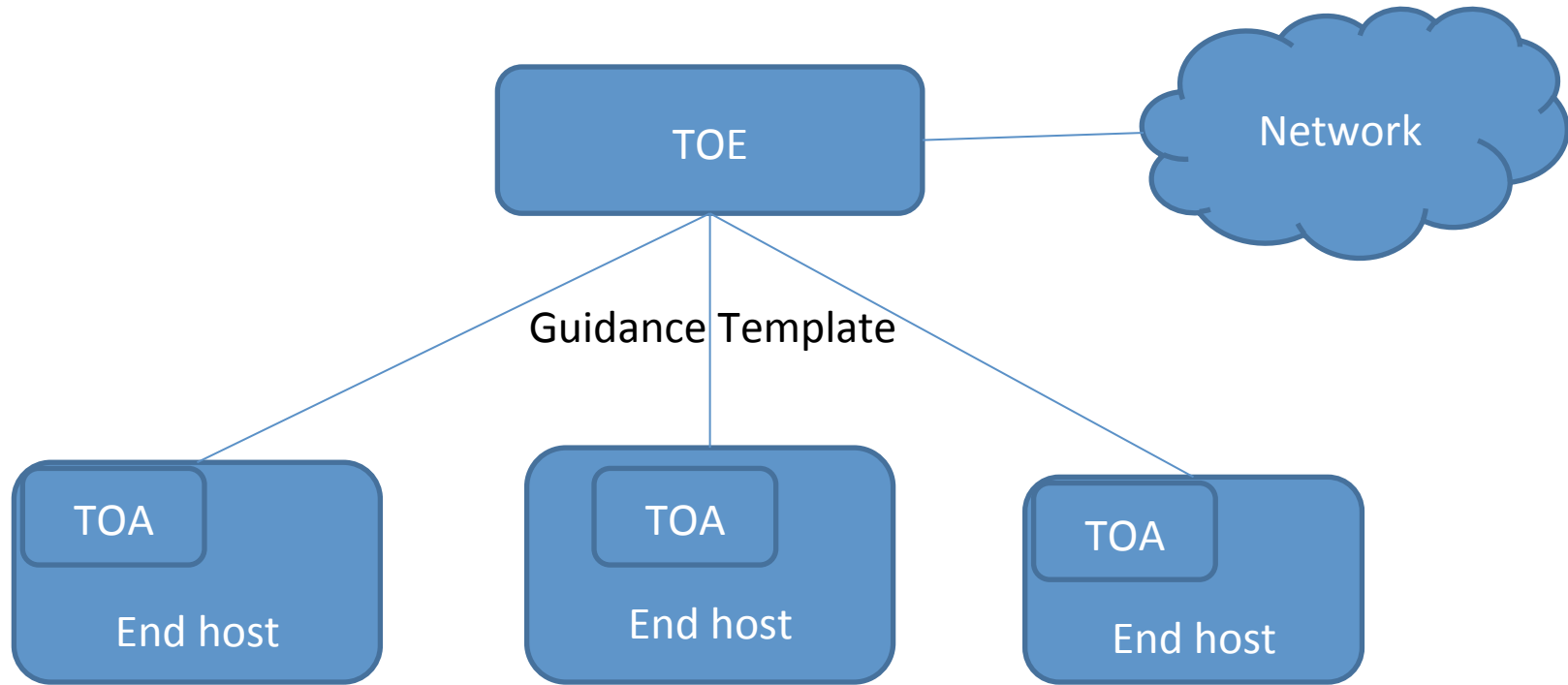
Motivations

- Can we adjust TCP parameters according to network status, instead of using those fixed TCP parameters?

  - Should also consider the endpoints properties, like network locations, subscription bandwidth level, and etc

Goals

- To Make TCP aware of network status, as well as endpoint properties

TCP Parameters Dynamic Control

- TOE gets **network status information** and **end host subscription information ,** from NMS or SDN controller;
- TOE provides guidance TCP parameters relative to different network status to TOA;
  - ([Sender upband,] [Recvr downband,] relative network status) => TCP_Par_guidance
- TOA adjusts its host TCP parameters according to guidance from TOE
  - Regularly check the network status, or be notified of the network status changes

Guidance Levels

- Network level
  - Could be a LAN, DC, AS, or etc
  - Consider the general status of the whole network, and then give the suggested {[Endpoint properties], network status} <-> TCP parameter mapping template for it

- Link level
  - Consider the particular link status between sender and receiver
  - Usually dedicated link, or the route can be predicted
  - {[Endpoint properties], the particular link status} <-> TCP parameter mapping template for it

Messages

- Request/Response
  - Get the current recommendations

- Subscription Mode
  - Can get updated guidance template when there is any change

Next step

- Monia Ghobadi will be the co-author
- Ask for comments in the list
- Further improve the document

- Thank you!