MaxLatency in the TSN Configuration Architecture

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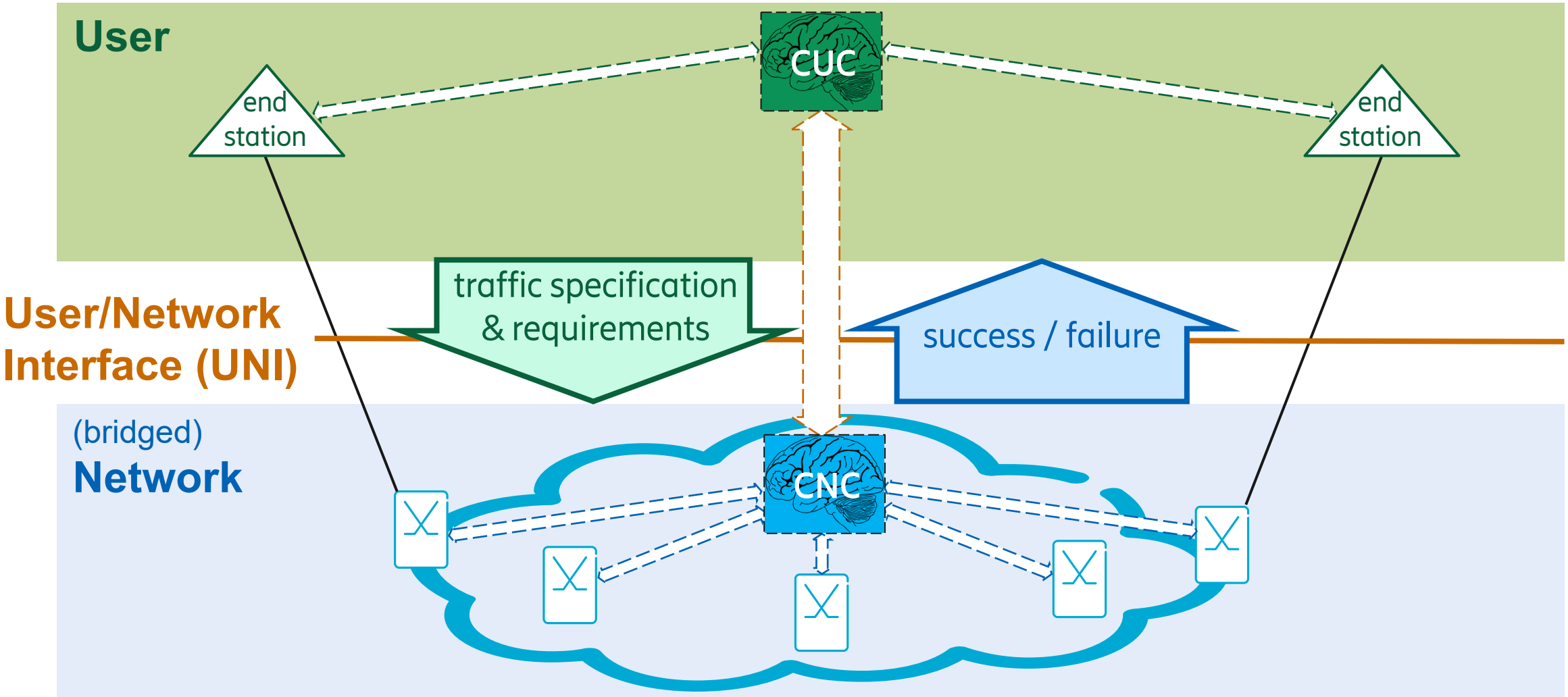
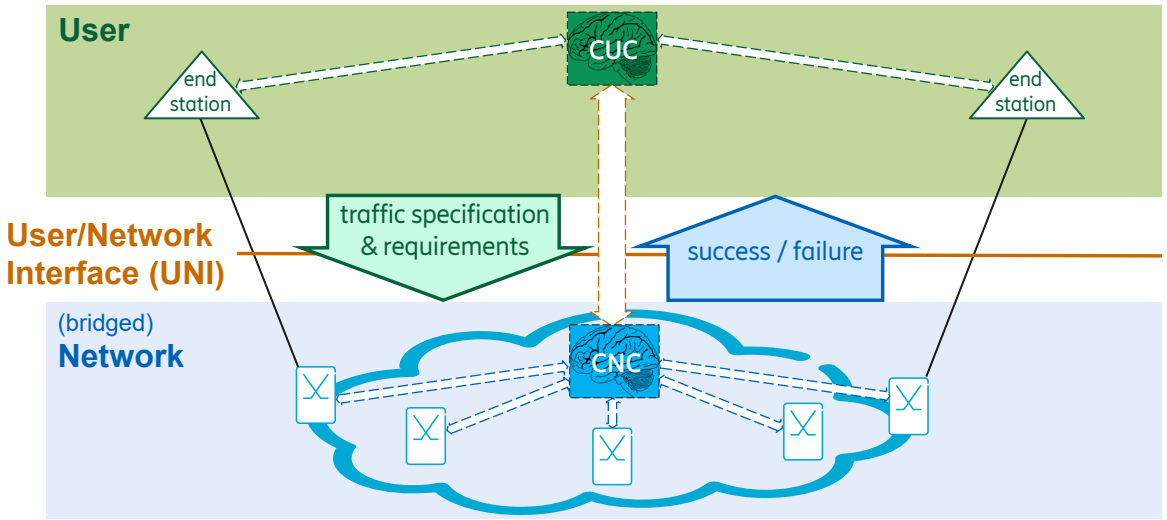
Preliminary Notes

- This presentation investigates MaxLatency from TSN configuration architecture perspective

Roles from the Perspective of the UNI

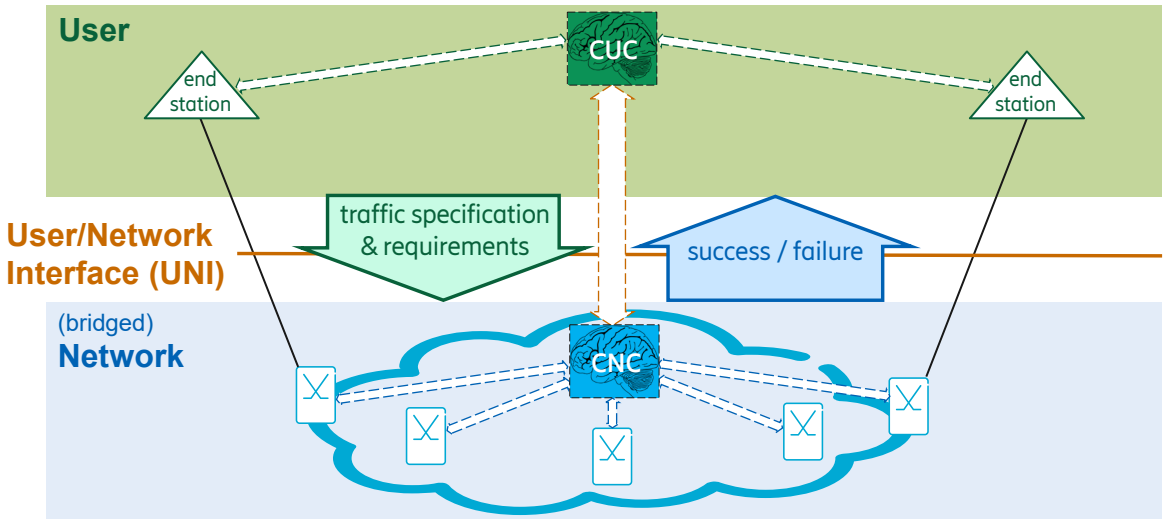


User Actions
(simplified overview)



- Both the User and the Network know the linkrates of the UNI links
- User designs the application residing in multiple end stations (Talker and Listener(s))
  - (see, e.g., item 3) in Annex U.1 in IEEE Std 802.1Qcc-2018)
  - This does not include any interaction with the Network
  - This includes the application's timing requirements
  - The User is aware of the MaxFrameSize and MaxFramesPerInterval
  - MaxLatency can be determined and expressed as per 802.1Qcc because both the frame size and linkrate are known
- User provides UserToNetworkRequirements including MaxLatency to the Network

Network Actions
(simplified overview)



- Both the User and the Network know the linkrates of the UNI links
- Network receives UserToNetworkRequirements including MaxLatency from User
- Network does its internal job
  - Decides whether or not the deadline provided by MaxLatency can be met taking into account the MaxFrameSize and linkrate of the UNI links
  - Latency budgeting is purely Network internal business as well as the networking techniques applied
  - If a Stream can be preempted, then latency budgeting must include worst case preemption events, even at the edge port of the Network if preemption can happen there
- Network reports success/failure on Stream establishment as well as the AccumulatedLatency, which is less than or equal to MaxLatency in case of success