Network Notification for Traffic Engineering and Load Balancing at Network Boundaries

Luis M. Contreras (Telefónica)

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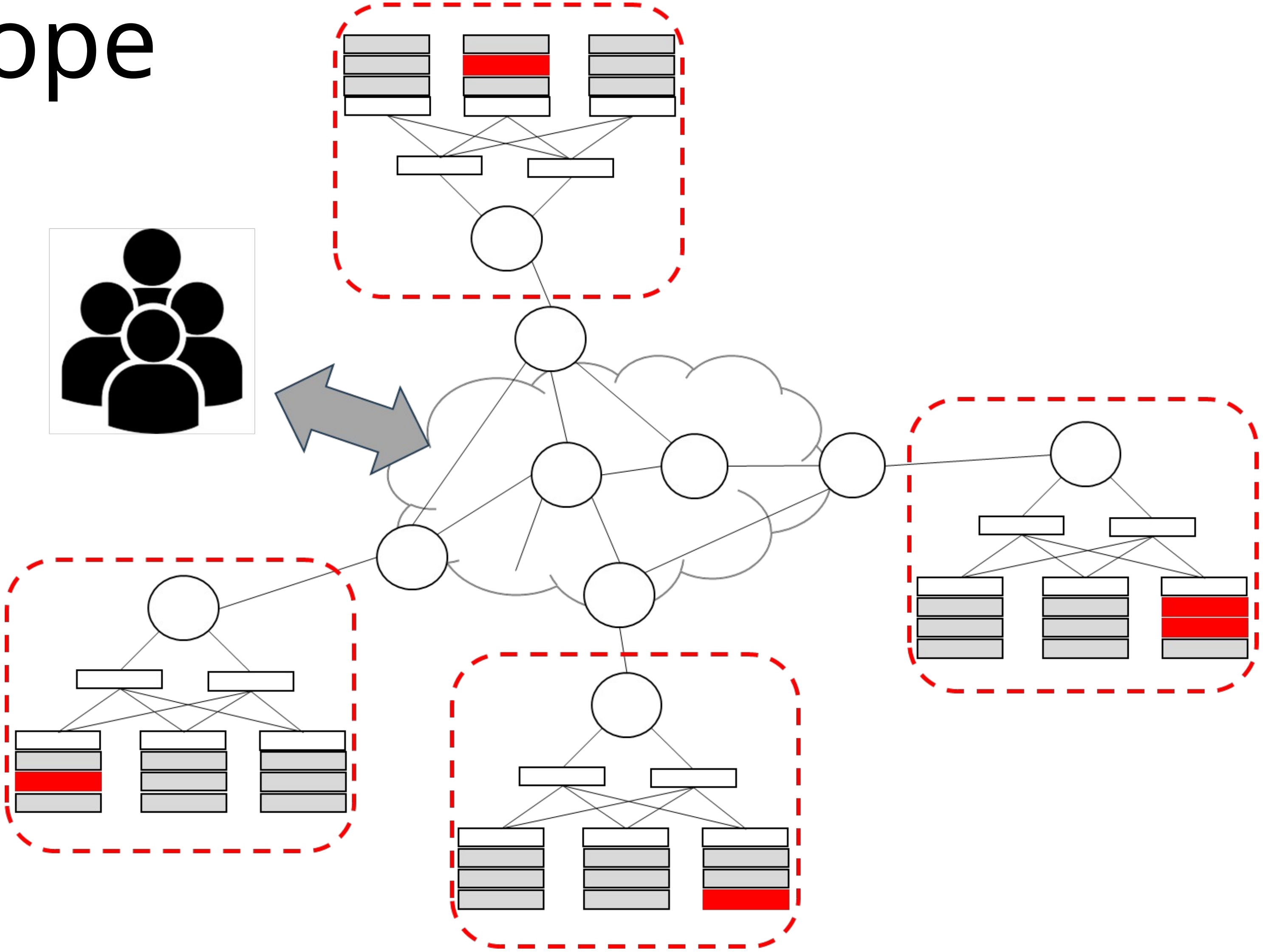
Scenarios in scope

- Classical interconnection scenarios (peering, transit, internet exchanges)
- Connection of CDN / content caches internal to the network
- Interconnection of data centers (DC Gateway)
- Cloud-edge continuum



Problem statement

- The interconnection of domains is typically characterized by either large number of links or links of high capacity or both
  - Transition from 100 GE (or multiples of it) to 400 GE to 800 GE to 1,6 TE …
- Network interconnections are increasingly becoming sensitive to sudden changes because of the large volume of traffic delivered through them
- Unplanned operational situations motivate changes on traffic flows that can cause serious congestion internal to the network operator
- Focus here is intra-domain and how network notification can assist on avoiding service affection
  - Inter-domain not covered at this stage

How Network Notifications could help?

- Network Notification can trigger mitigation mechanisms to avoid traffic tsunami effect
  - E.g., direct notification among PE nodes can trigger actions on TE tunnels for accommodating sudden traffic flooding
- Protocol timers for routing convergence could represent a graceful period where network notifications (and derived actions) could help
- Pre-established policies or dynamic reconfigurations could avoid global effects
  - But this is part of the solution, so not for this discussion