Title: Services' Sharing and DCI Analytics on Meta's Backbone Network

Extended Abstract:

Meta's production Backbone network connects all its DC regions to each other and to its global Points of Presence (POPs). The paper covers Services' SLO solution for sharing the DC-DC IP network of the Backbone, and the Network SLI efforts derived from monitoring the Backbone network. Meta's Backbone Network connects Meta's multi-billion users to Meta Services, and is a global network consisting of physical IP and Optical transport networks. The Optical network includes metro, terrestrial longhaul, and subsea cable builds and underpins the global IP network.

The demand in DC to DC traffic has been growing more rapidly than the network capacity, especially due to AI workloads, hence we have had to come up with a fair, efficient, safe and resilient solution to share the Backbone network resource between thousands of Meta services with isolation, flexibility and SLO guarantees.

We present the "entitlement contract", which defines services' network quota and is set up between the network team and services teams, while achieving network efficiency and meeting long-term SLO guarantees. We also share how the contracts are enforced on the production traffic via a large-scale distributed *runtime system*, Floodgate. Floodgate has been deployed and operated for over two years in production.

We have various network monitoring measures as our Network analytics, using both pull and push mechanisms, that we use for operating the network reliably. We also translate those to Network SLI for DCI (the DC-to-DC IP network, as well as underlying Optical network), that shows the effectiveness of the Entitlements calculations, and is also used as input for determining Entitlements for future periods.

Abbreviated Abstract:

We cover how Meta Services share the Meta Backbone network that connects all its DC regions to each other and to its global POPs, using network quota entitlements. We also cover the Network SLI efforts derived from monitoring the Backbone network.