Endogenizing Interconnection Measurement and Economics

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Examine Interconnection Decisions Holistically

- Tend to frame an interconnection in isolation
- Does not capture the interconnection decision
  - Maintain existing transit relationship
  - Route through a different peering or transit partner
  - Obtain access through a third-party CDN
  - Create own server farm/data center
  - Deploy local storage (such as Netflix’s Open Connect)
Examine Systemic Responses

- Important to examine congestion in particular ISPs
- Important to examine prioritization policies within ISPs (e.g., Cogent in February-March 2014)
- Missing focus: traffic generators’ and ability to reroute along different paths
  - More complex topology (Faratin, Clark, Bauer, Lehr, Gilmore and Berger 2008; Yoo 2010; BITAG 2014)
  - More complex incentives (e.g., load balancing, cost minimization, ratio maintenance, QoS, opportunism)
MIT Study on Comcast Congestion

Three transit links of Comcast in Bay Area over time

- Cogent
- TATA
- Level3

![Graph showing three transit links of Comcast in Bay Area over time. The x-axis represents the months from February 2013 to April 2014, and the y-axis represents the congestion period in hours. The graph includes data points for each month, showing the congestion levels for Cogent, TATA, and Level3 networks.](image-url)
Closing Thoughts

- Analysis needs to capture full range of technological and topological alternatives and incentives
- Zero-price interconnection is really barter/depends on symmetry
- Good-faith disagreements on price are a normal part of a well-functioning economic market
- Potential liability will affect negotiations