CaTE
(Content-aware Traffic Engineering)

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Problem Statement

CDN Server Selection

Challenges

• precisely locate end-user
• infer current network path conditions
CaTE

- combine ISP network information with CDN content server location
- leverage network path diversity for Traffic Engineering
Networkwide Traffic Reduction with CaTE

Size does matter

- few but big CDNs are enough
- additional CDNs yield smaller increase
Results

Backbone Path Delay Reduction

Backbone Delays

- again few big CDNs yield most of the gain
- avoid high delay paths
Questions?

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Appendix

Backup Slides
Click stream data
- Anonymized trace from a POP in a large European ISP.
- Trace spans over 20,000 customers and 14 days
  - Total of 1.2 billion requests (89 million/day)
  - Allows for volume extraction of HTTP connections

IGP network topology + BGP information
- Scale traffic demand to network topology
- Results in fine grained network traffic demand
Internet traffic by infrastructure

CDNs host more than one website/Application

- **By website** → honor website/application assignment by CDN
- **By CDN** → ignore website/application assignment by CDN
• **CaTE** shifts traffic volume from longer to shorter path
• Improves matching of customers to CDN servers