

CaTE

(Content-aware Traffic Engineering)

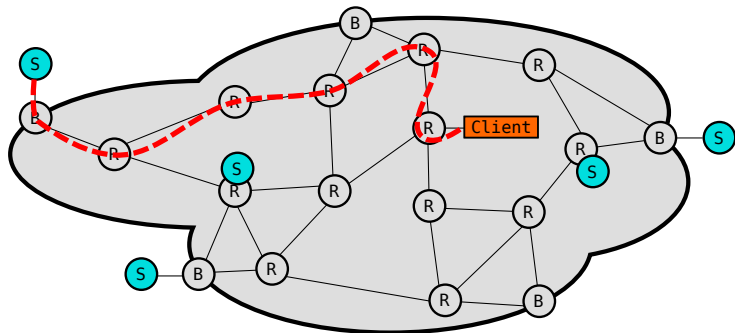
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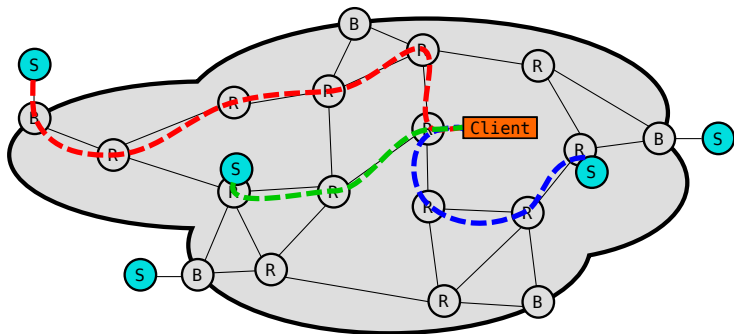
CDN Server Selection



Challenges

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

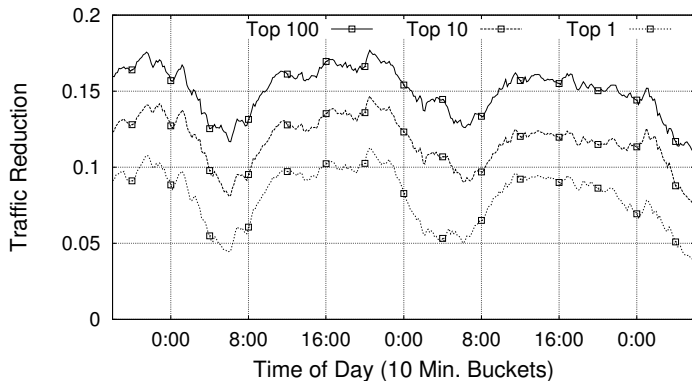
Content-aware Traffic Engineering



CaTE

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

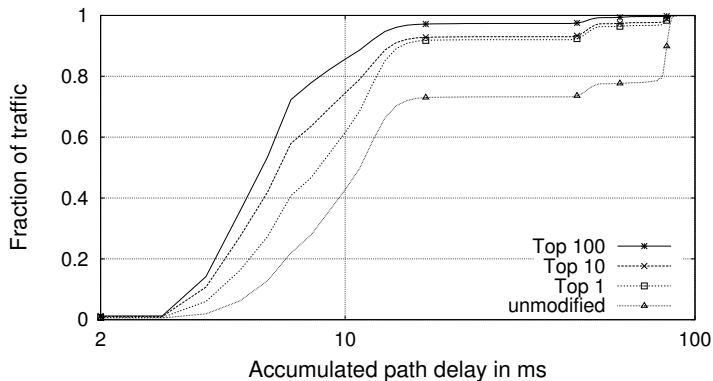
Networkwide Traffic Reduction with CaTE



Size does matter

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

Backbone Path Delay Reduction



Backbone Delays

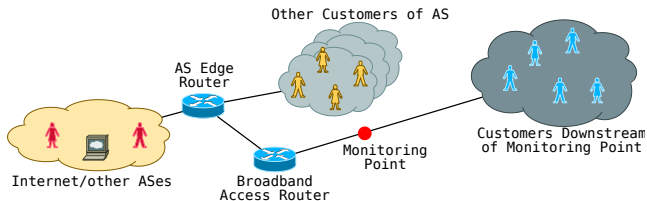
- again few big CDNs yield most of the gain
- avoid high delay paths

Questions ?

`www.inet.tu-berlin.de/?padis`

Backup Slides

Data Set



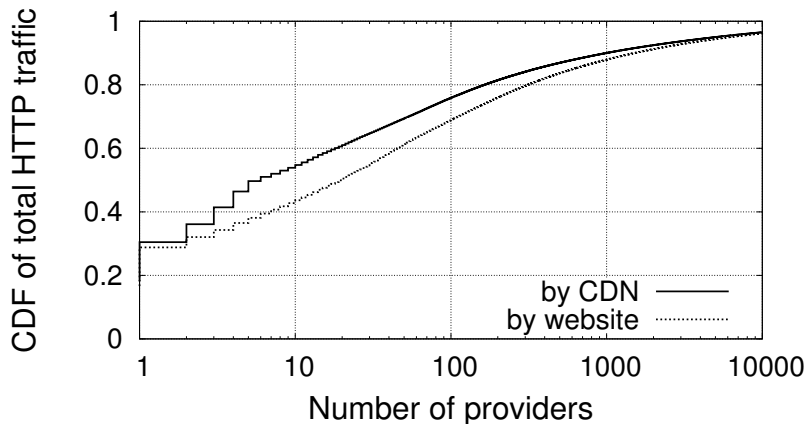
Click stream data

- 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

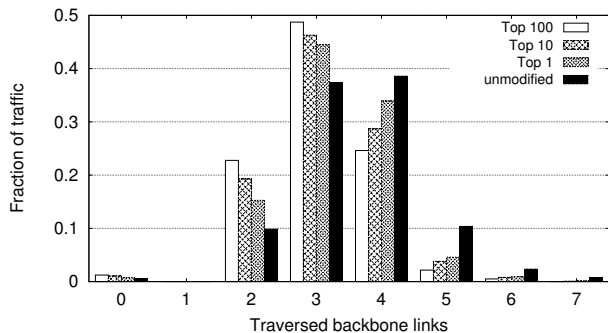
Internet traffic by infrastructure



CDNs host more than one website/Application

- **By website** → honor website/application assignment by CDN
- **By CDN** → ignore website/application assignment by CDN

Backbone Path length



- CaTE shifts traffic volume from longer to shorter path
- Improves matching of customers to CDN servers