Service Level Requirements based Footprint for CDNI

draft-song-slr-based-footprint-01
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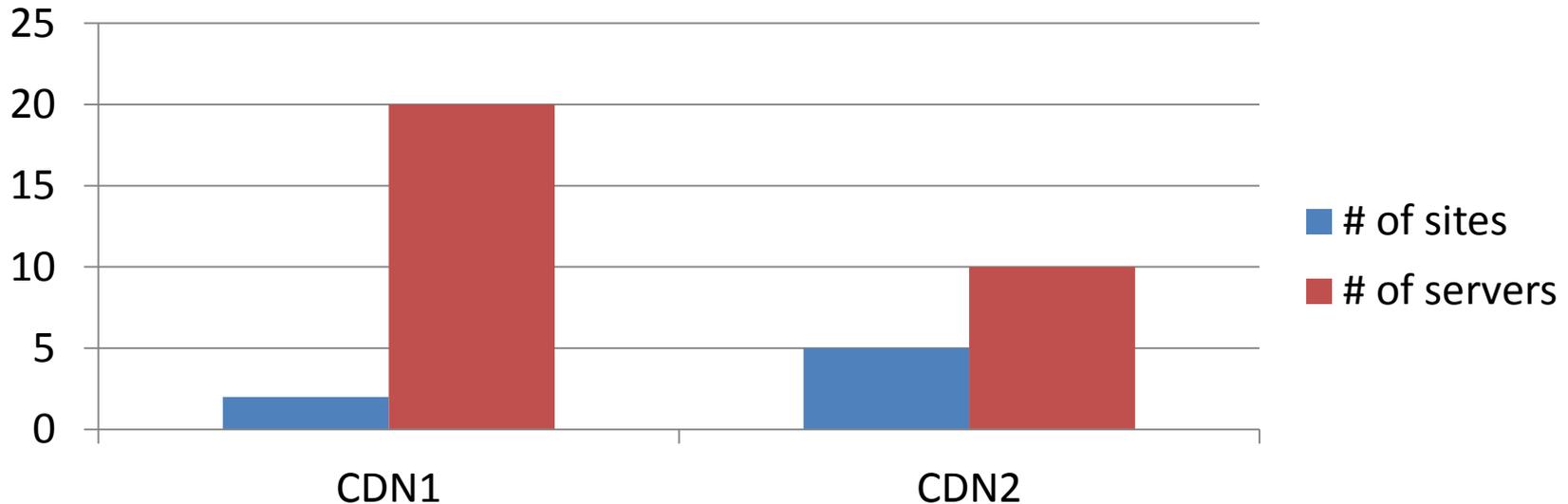Yunfei Zhang zhangyunfei@chinamobile.com

About the document

- High level idea
  - Not cover every details
  - Not have thoroughly considerations
- Use to generate discussion on service requirements based footprint

Why SLR based Footprint – application's perspective

- Assume two applications
  - File downloading
  - Online streaming

- File downloading App only requires the file downloading rate, it does not care about the distance [user$\leftarrow\rightarrow$CDN surrogate]

- While...the streaming APP requires the response time to be really short for a short startup delay

- So...Why cannot a same CDN have different footprints for these two APPs?

Why SLR based Footprint
- CDN's perspective

- **CND 1 has less sites than CDN2, but more servers (assume each server has the same capacity)**

- **Why cannot CDN1 have larger footprint than CDN2?**

Why SLR based Footprint - conclusion

- Each CDN can serve the whole world if the IP address of surrogates are publicly reachable
  - But can NOT satisfy application's requirements

- So the basic requirements are from the applications, and the footprint should be based on these service level requirements

SLR Parameters

- The SLR parameters that will impact footprint (examples)
  - Average response time
    - Those topologically close will get shorter response time
  - Throughput
    - More throughput, may mean larger footprint
  - Startup Delay for streaming
    - Determined by both topological distance and the processing power
  - …

Dynamic Mapping

- Two possible ways for exchanging map info
  - SLR for an APP is exchanged between upstream CDN and downstream CDN, and the downstream CDN will determine its footprint accordingly and report to upstream CDN
    - ALTO network map

  - The mapping between different SLR parameters and the CDN's footprint are exchanged among CDNs, and the upstream CDN can calculate the footprint for a downstream CDN according to an APP's SLR parameters
    - ALTO network map

Next Step

- If the idea makes sense, then work together with the Footprint&Cap information advertisement design team

Thank You!

Xie xie!