
Peering and CDNs

— Peering Tutorial —

Imagine you're a Content Provider

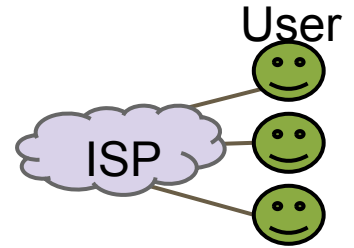


Content Provider

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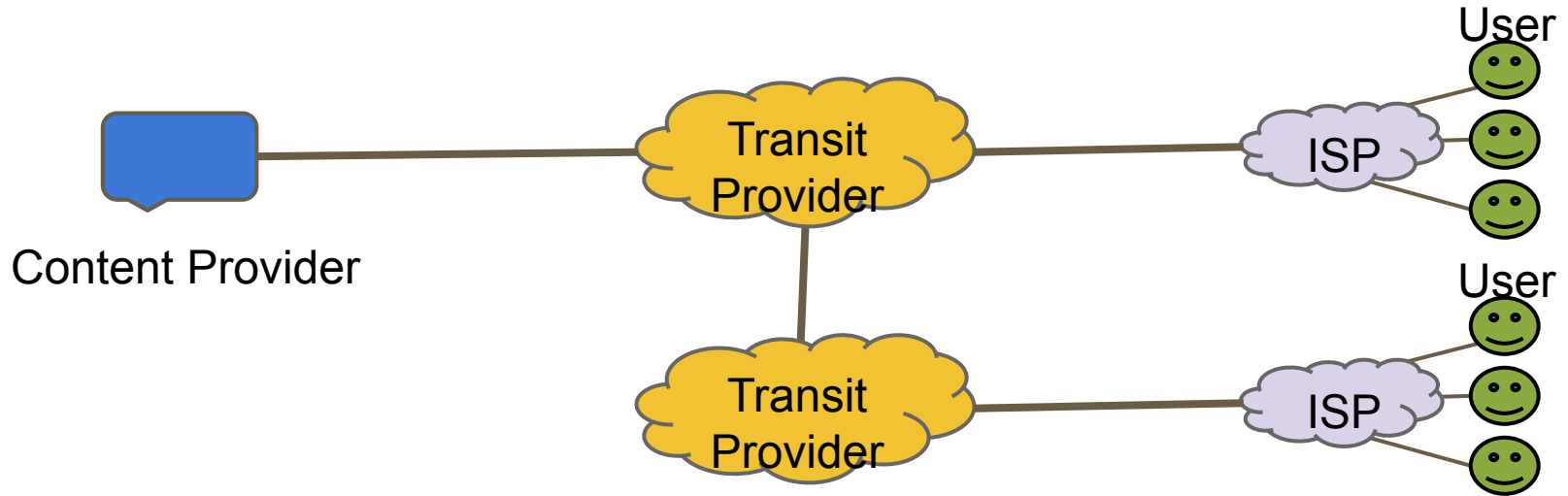
Content Provider



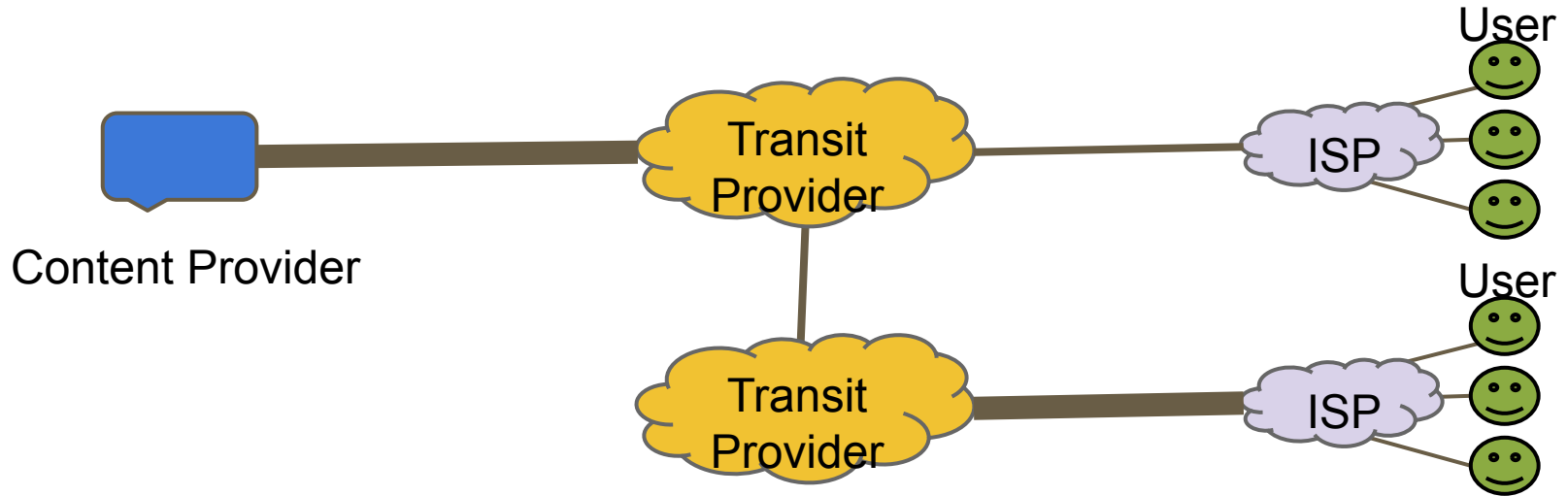
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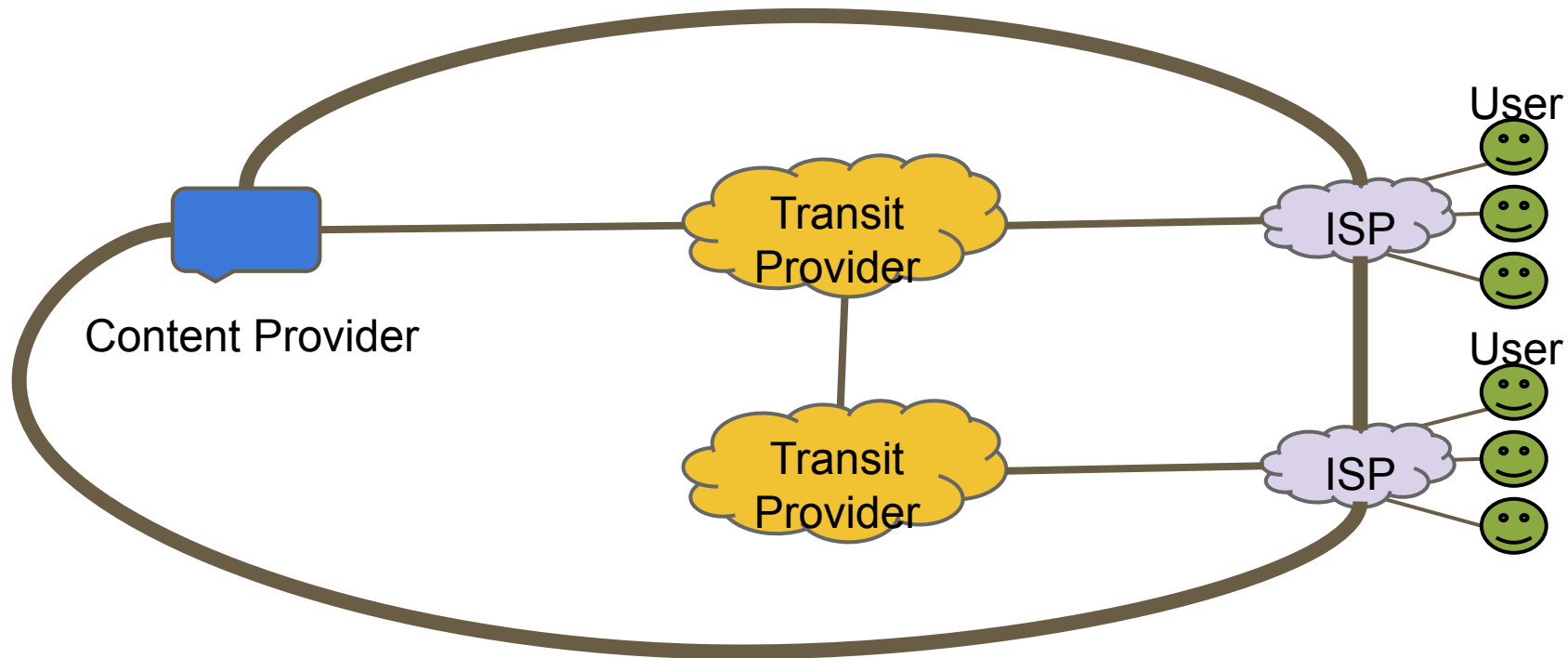
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If you are very successful ...



Peering

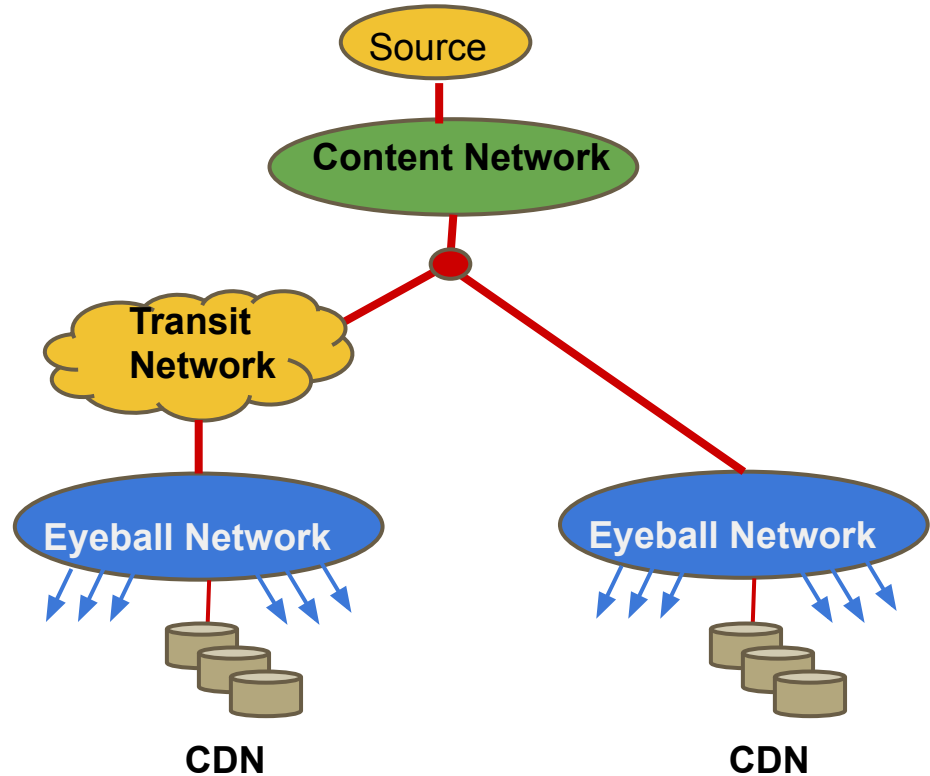


Static content

- There is some content that is static and public
- We can store popular content close to the user and avoid to retransmitting it every time is requested

What is a CDN (Content Delivery Network)?

- Distributed delivery platform for content
- Servers content closer to end-users
- Improve performance for users
- Lower cost for content and access provider



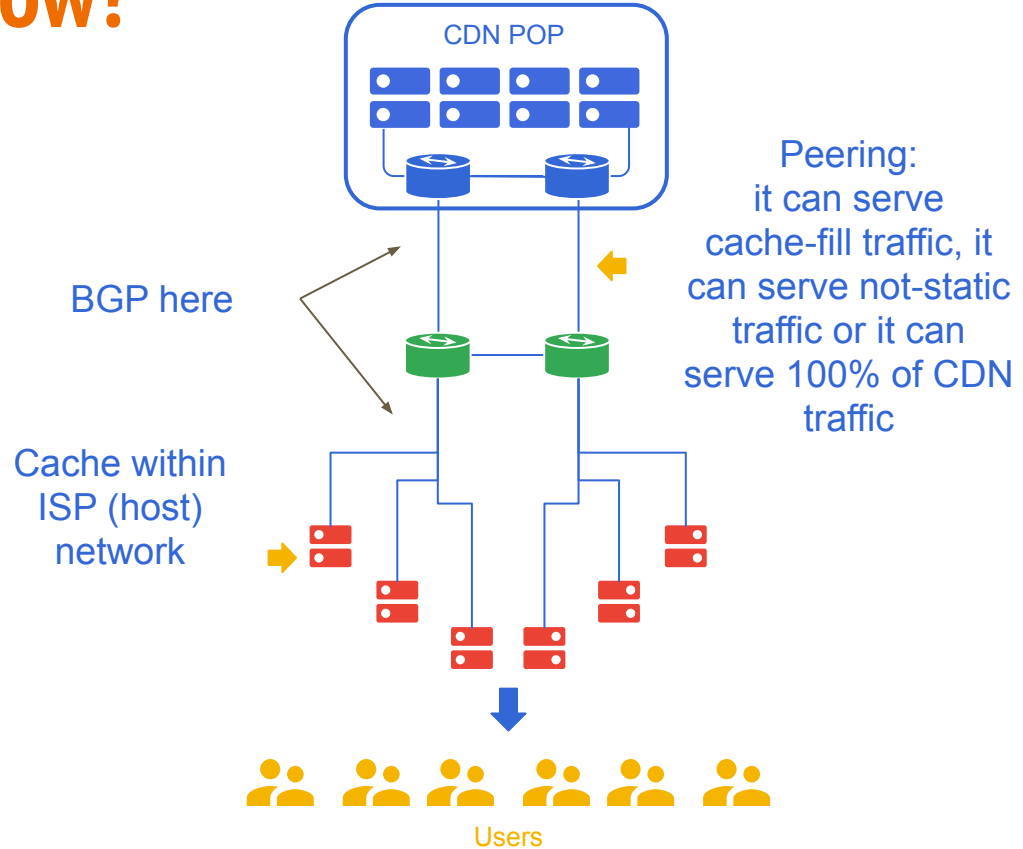
Why?

- Some content it is always the same, instead of delivering “n” times just deliver it once to a local storage
- CDNs reduce latency and improve the quality of experience for the user
- It is cheaper for the host (ISP) and the CDN provider than using transit connectivity
- It is an option when peering is not possible but if peering is present it optimizes traffic delivery

How?

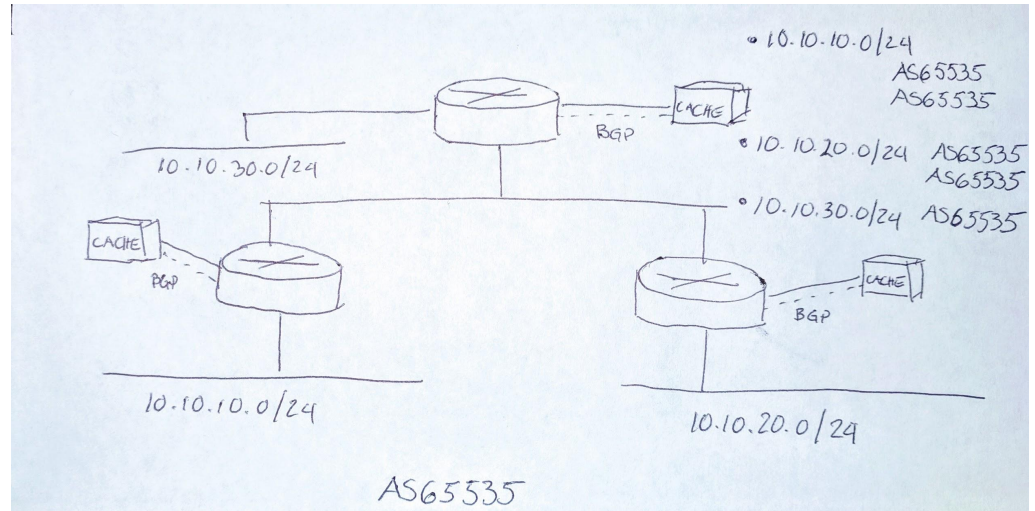
- The CDN provider provides hardware (machines and sometimes network gear)
- The host (ISP) provides space, power, network connectivity to the users and to the Internet (for “cache-fill”), and remote hands.
- The ISP announces (regularly using BGP but other methods can be used) their IP prefixes to the CDN
- The CDN serves content to ISPs users depending on the “advertised-prefixes” and some heuristics to improve quality, latency and cost.

How does traffic flow?



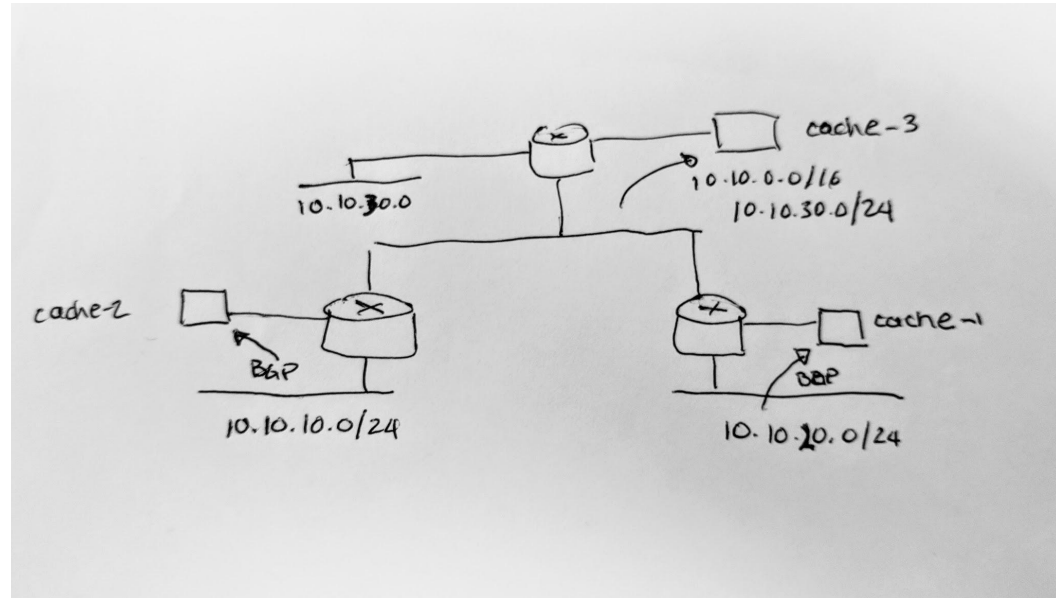
Traffic engineering

- Some CDNs recommend not to do TE (their own traffic engines can take care of changes of traffic flows, backup and optimization)
- If you have to, you could use (depending on the CDN)
 - Prefixes aggregation and disaggregation
 - BGP AS_PATH addition
 - BGP communities



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Example of CDNs

- Traditional and Telco CDNs
 - Akamai
 - Cloudflare
 - Limelight Networks
- Content Provider own CDNs
 - Google
 - Netflix
 - Facebook

**Thank you and happy
peering**
