

Peering and CDNs

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Google

Imagine you're a Content Provider

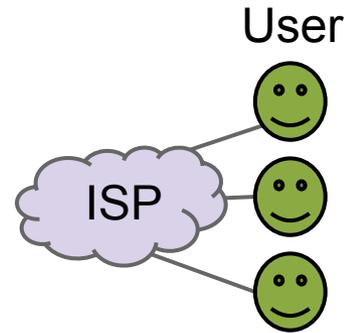


Content Provider

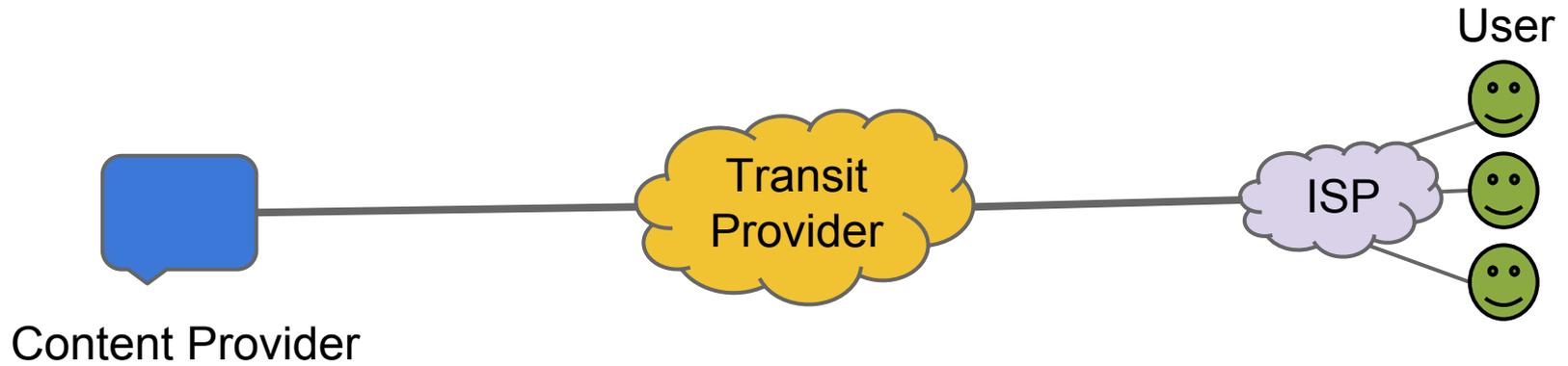
Imagine you're a Content Provider



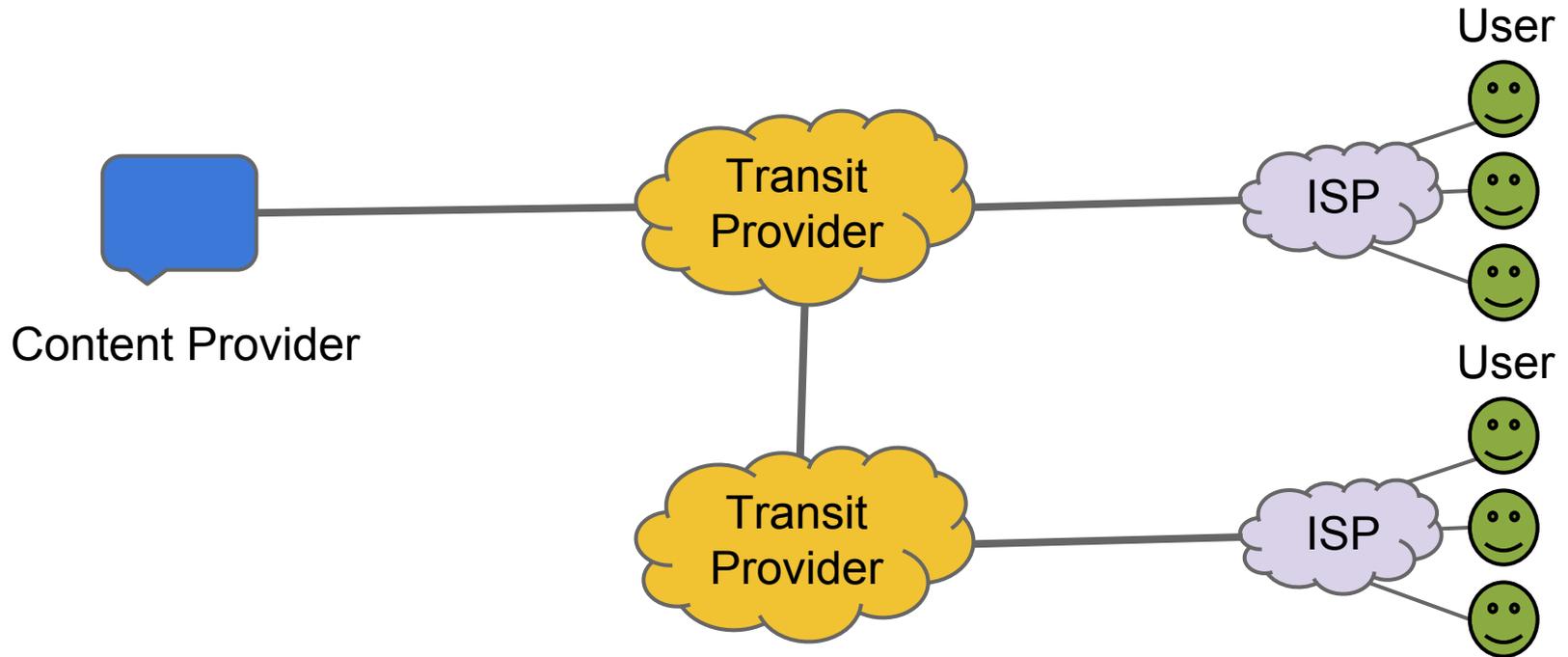
Content Provider



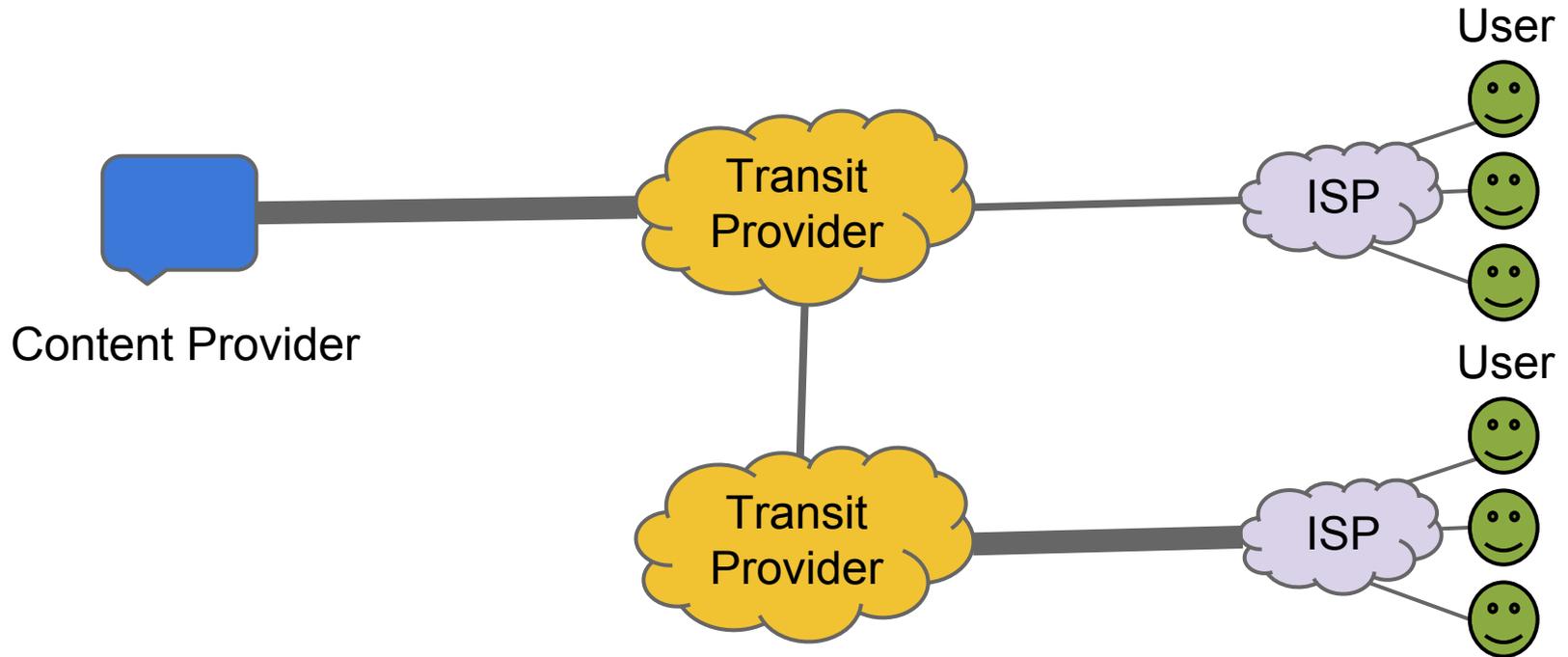
Imagine you're a Content Provider



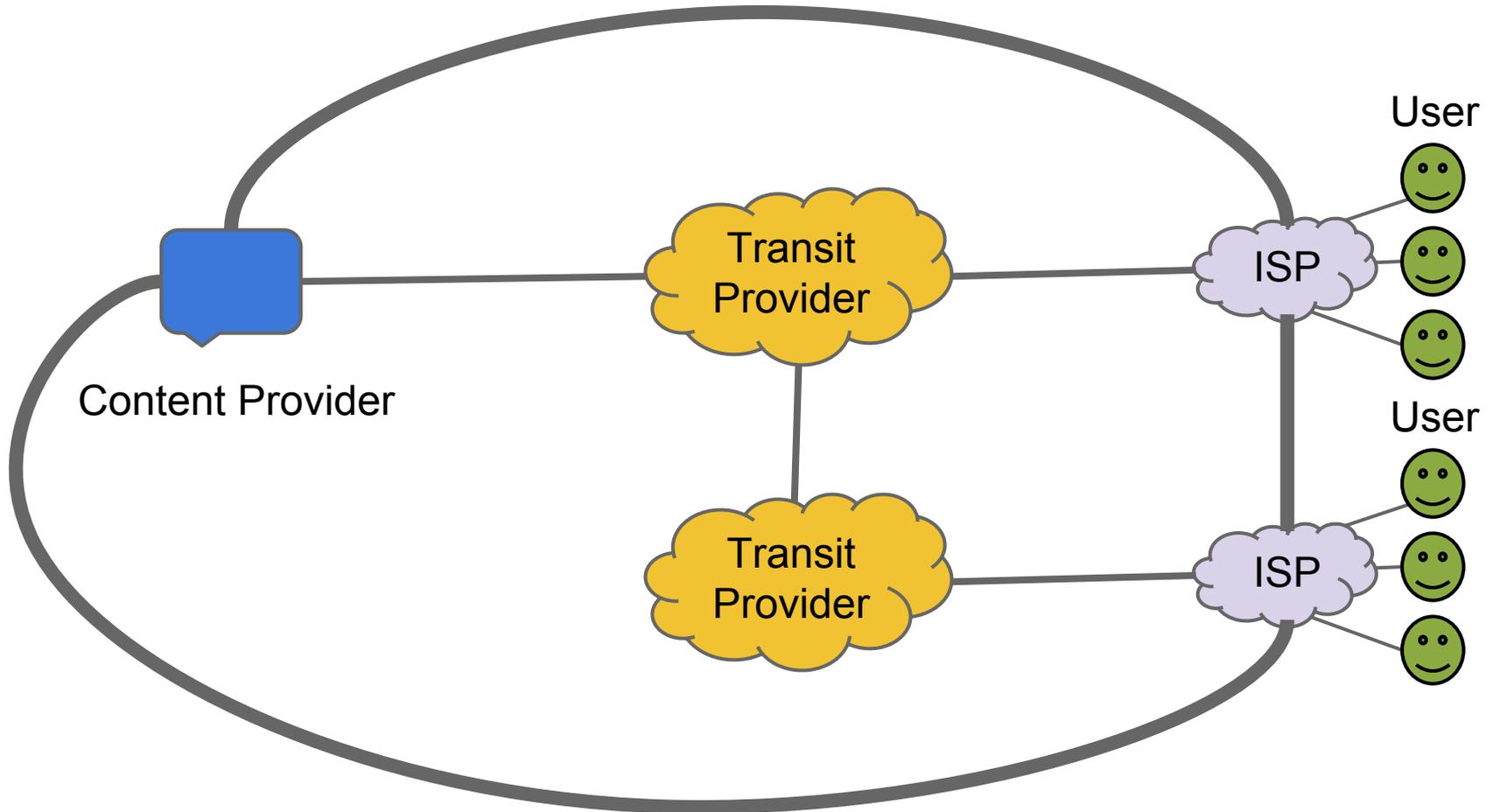
Imagine you're a Content Provider



If you are very successful ...



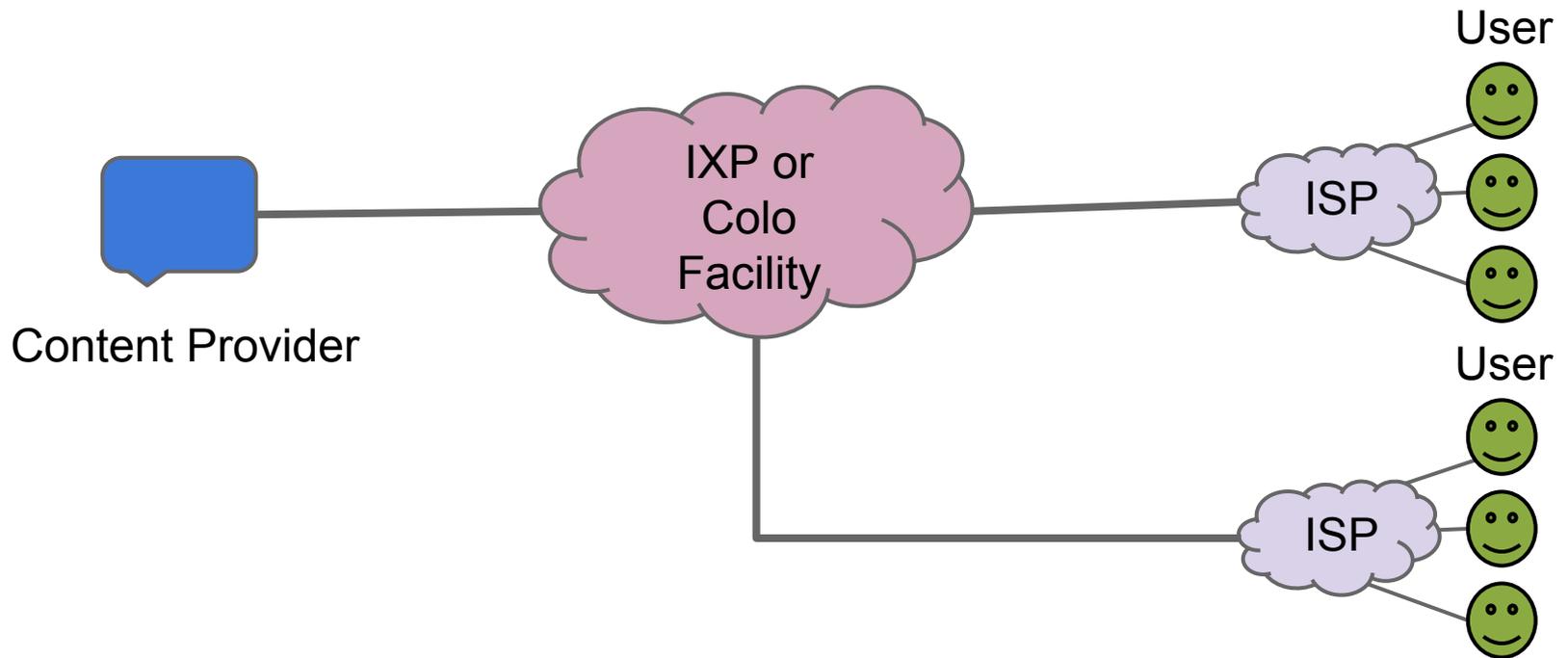
Peering



Peering

- Peering is the direct interconnection between two networks for the exchange of traffic.

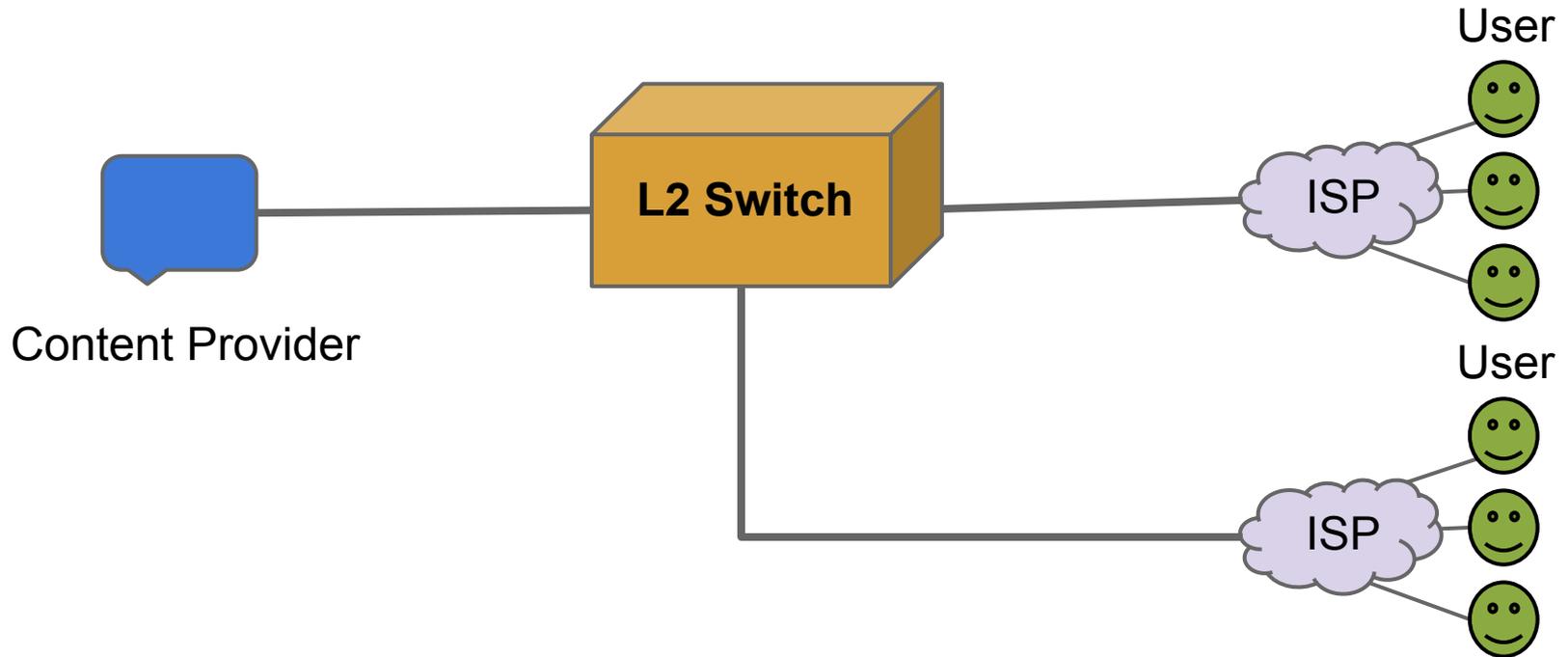
Peering



Public Peering

- Public Peering
 - Done in Internet Exchange Points
 - Better when traffic is low to many individual peers and aggregation of traffic creates an economical incentive

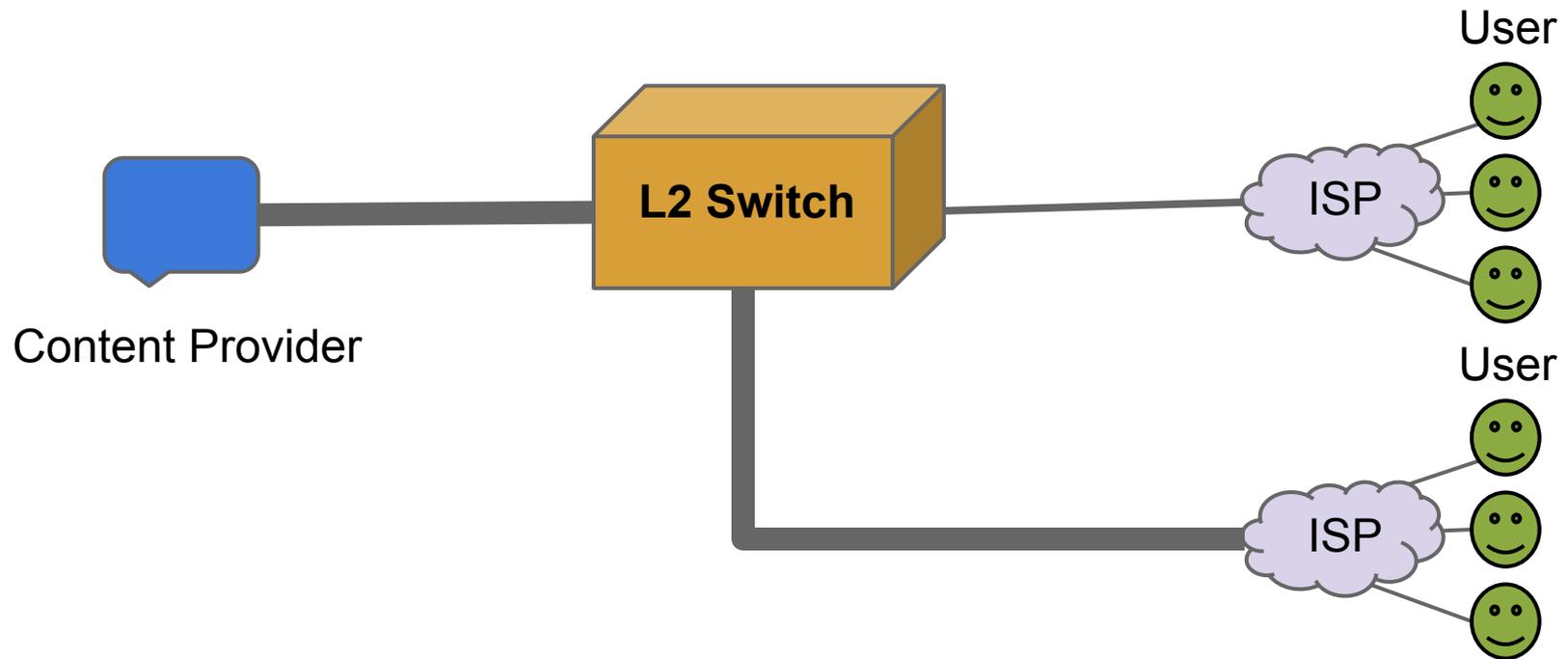
Public Peering - IXP



IXP governance models

- Private vs non-profit
- Membership-based vs other
- Government sponsored/operated vs non-gov. spon./oper.
- Closed vs. Open

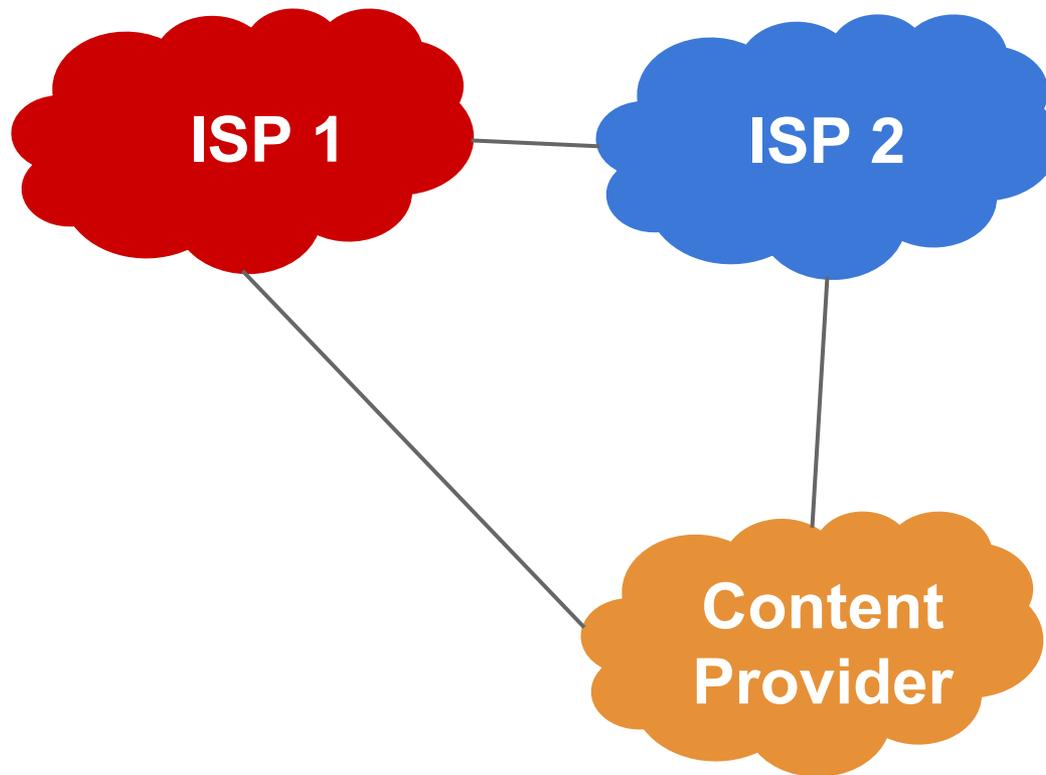
What about too much traffic to just a few peers in the IXP?



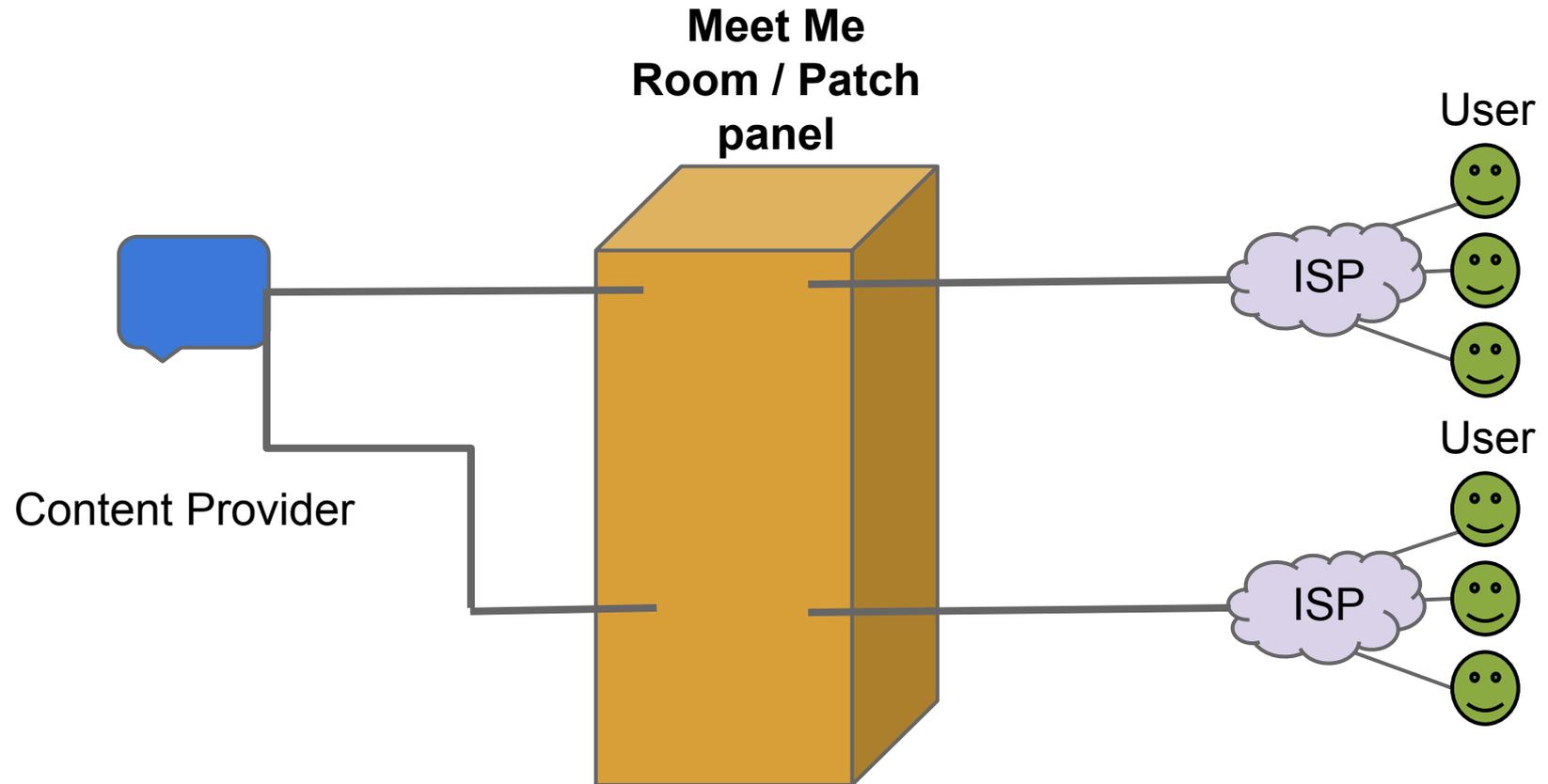
Private Peering

- Private Peering
 - Done in private links or in carrier houses
 - Better control of traffic flows
 - Better when individual traffic is high

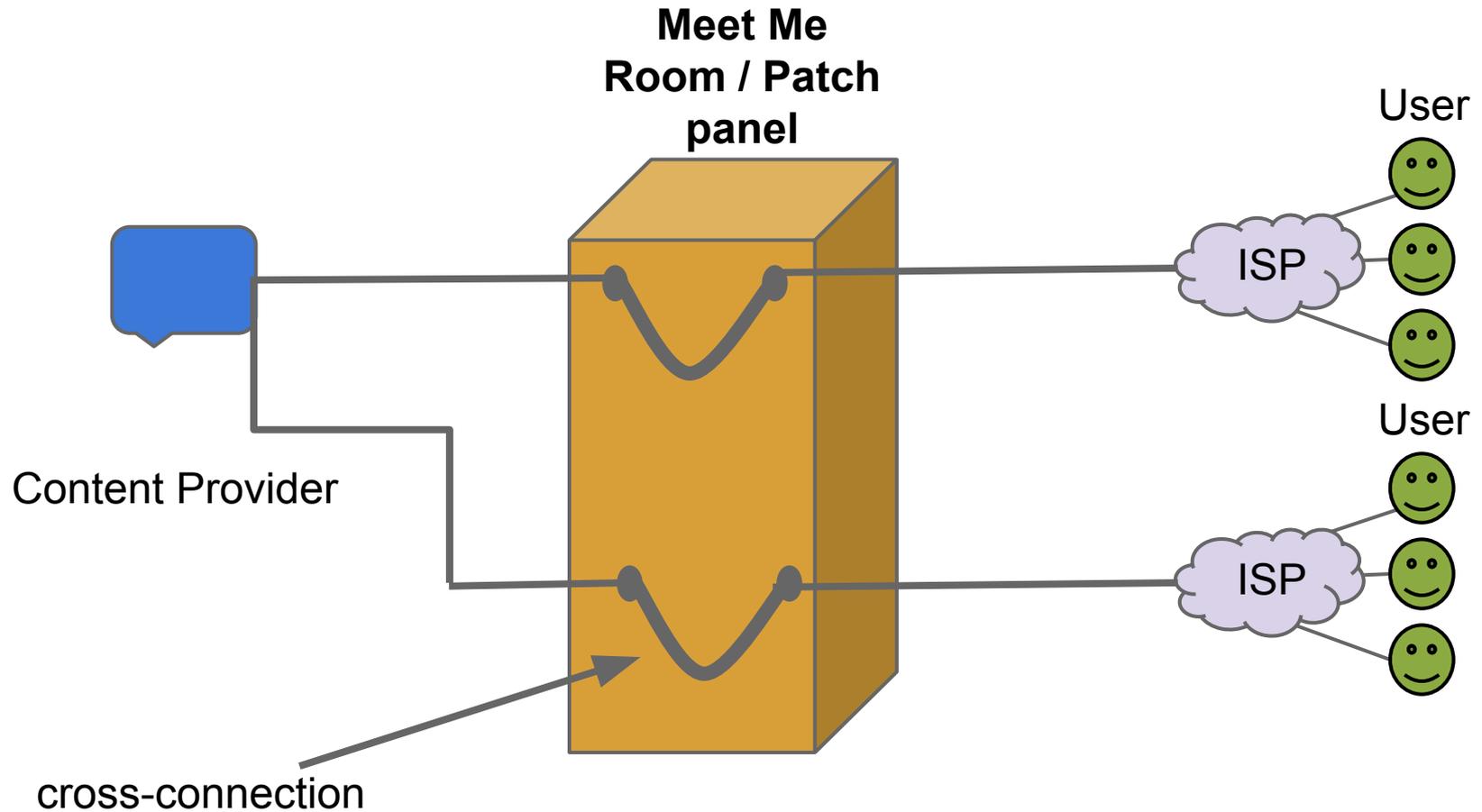
Private Peering



Private Peering in colo facility



Private Peering in colo facility



Private peering vs Public Peering

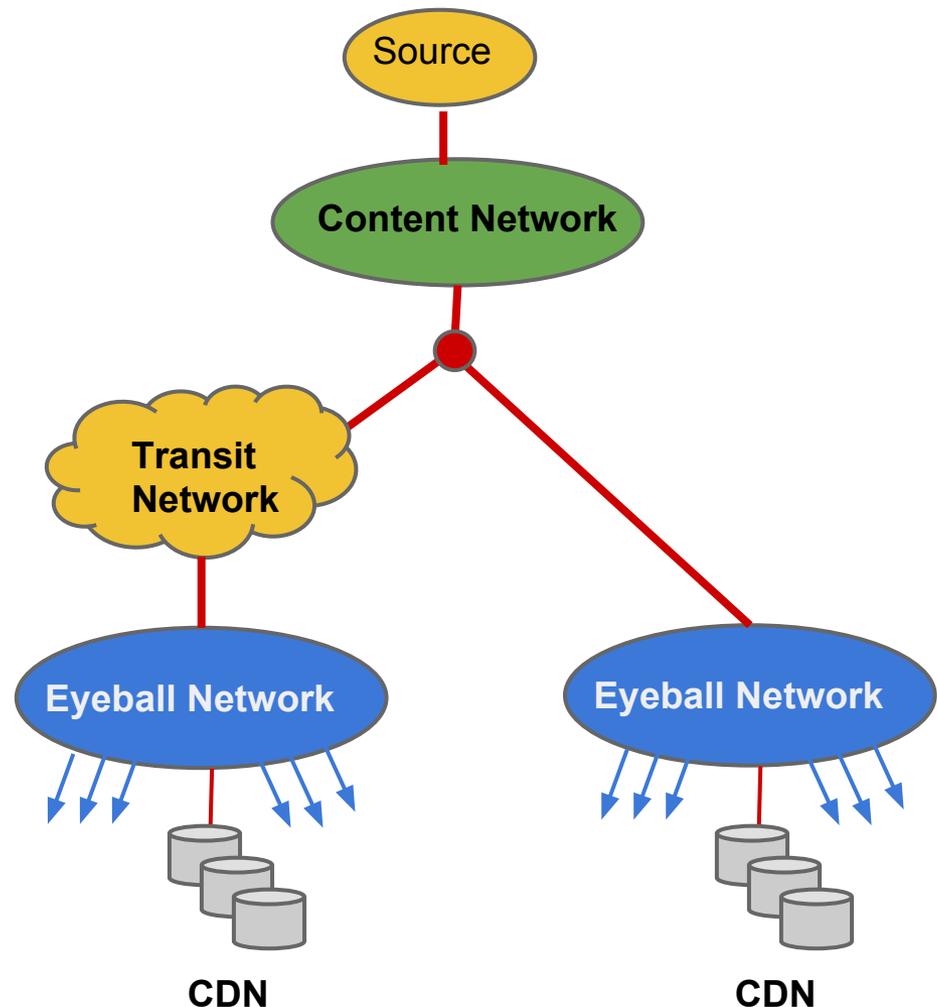
- Both are good solutions aimed to different needs
- Small-medium ISPs/Content providers generally use more Public Peering
- Very large ISPs/Content providers generally use more private peering to other large peers and public to small-medium

**The next step to scale and
grow your content ...**

**Content Distribution
Network (CDN)**

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



Example of CDNs

- Traditional and Telco CDNs
 - Akamai
 - Cloudflare
 - Level3
 - Limelight Networks
- Content Provider own CDNs
 - Google
 - Netflix

Benefits of Peering & CDN relationships

- For users:
 - Lower latency
 - Higher reliability
 - Better performance
- For network operators:
 - Lower costs
 - Higher reliability
 - More predictable routing
 - Better performance for customers
 - No third parties involved
 - Mutually beneficial relationship with partner

El caso de negocio del Peering

- ¿Cómo convencer al CFO de hacer peering?
- No hablar sobre BGP, routing, mejora de latencia, etc., etc.
- Haz un análisis de Costo-Beneficio



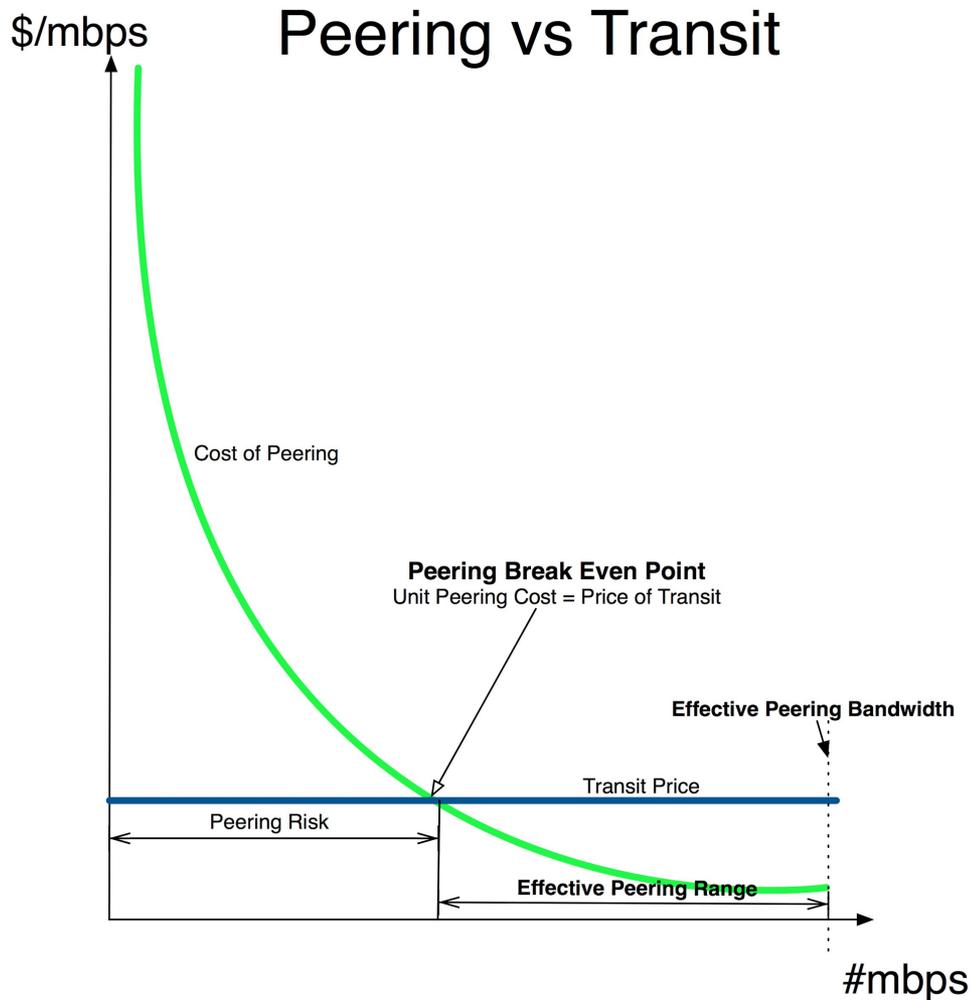
Análisis Costo-Beneficio

Comparación Costo Monetario

Transporte al punto de peering	Fijo a cierta capacidad
Colocación	Fijo
Equipmientto	Fijo
Costo de Puerto en IXP/x-connect	Fijo

Transito	En base a uso
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Comparación Costos



Fuente: Dr Peering
<http://drpeering.net/white-papers/A-Business-Case-For-or-Peering.php>

El Caso de Negocio de Peering

- By Dr. Peering
 - <http://drpeering.net/white-papers/A-Business-Case-For-Peering.php>

Assumptions

- Transit
 - Cost of transit 5 USD per Mbit per month
- Peering (10G)
 - Local transport: 2,000 USD per month (10G)
 - Colocation fee: 1,000 USD per month
 - IX port: 2,000 USD per month
 - Equipment: 8,000 USD per month (router amortized at 36 months)
 - Total: 13,000 USD total per month

Peering break even

- Break even point in BW
 - Cost of peering / Transit cost
 - (13,000 MRC) / (5 USD/Mbps/MRC)
 - = **2.6G**
- Cost of peering at maximum efficiency
 - Cost of peering / BW
 - 13,000 / 10,000
 - = **1.3 Mbps per USD per Month**

**Thank you
and happy
peering**