Michael Takeuchi

IXP ≠ IP Transit: Understanding the True Role of Internet Exchange Points

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Hello, I am **Michael Takeuchi**

- Chief Technology & Operating Officer
  of Media Cepat Indonesia, PT (RAPIDNET)

- Deputy Chief of Indonesia Internet Exchange (IIX) and
  Data Center at the Indonesian ISP Association (APJII)

- Certified Juniper JNCIP-DC|ENT|SP, Cisco CCNP-EI,
  EC-Council CEH|CEI|CND|CSA|CCT|CHFI|CTIA|ECIH,
  Fortinet FCP|FCSS, MikroTik Certified Trainer & Engineer

- Based in Jakarta, Indonesia

in https://www.linkedin.com/in/michael-takeuchi
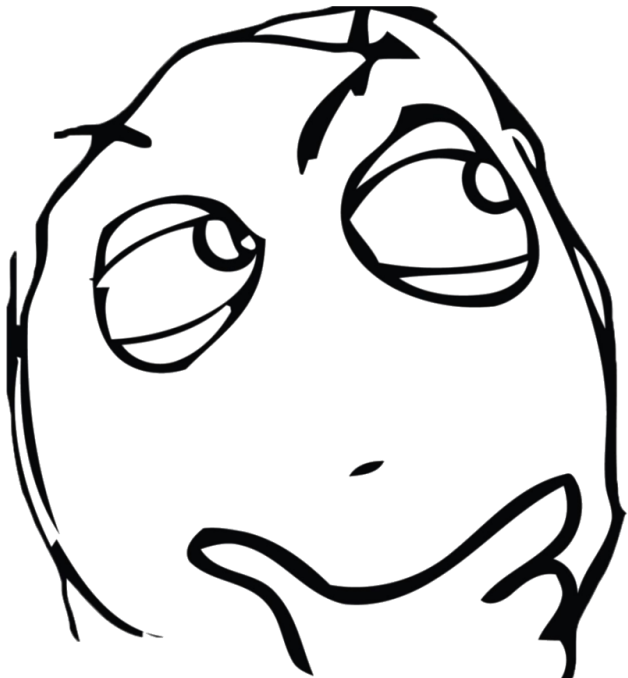
✉ michael@takeuchi@rapid.net.id

The Misconception / Key Issue

Many people still mistakenly believe that IXPs are:

🚫 IXP is my backup IP transit

🚫 I can peer with the whole internet at the IXP

🚫 IXP are do the routing

🚫 Connect with an IXP can optimize the latency

All these assumptions are not 100% right.

So, what Internet Exchange Point for?
What it is?

In fact.

○ An IXP is not a replacement for transit. It's about **exchanging traffic** with peers, not guaranteeing upstream connectivity.

○ You only peer with networks that agree to exchange traffic with you. **Transit is still needed** for the rest.

○ IXPs just provide the **switching fabric**. Routing decisions stay in your BGP setup, not the exchange.

○ You may improve paths to certain networks, but **latency depends** on geography, topology, and peering agreements.

What Is an IXP, Topology/Architecture
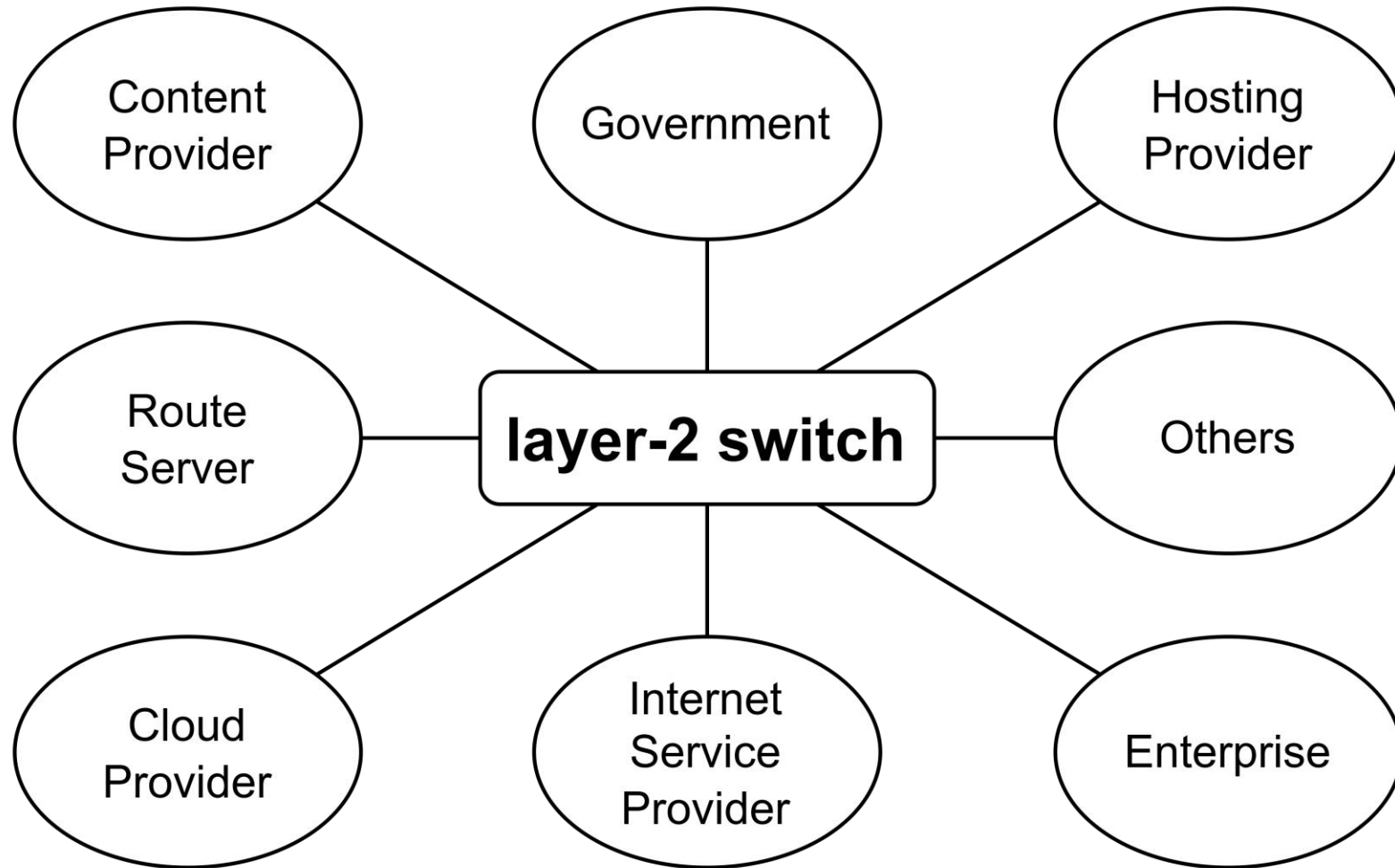
What Is an IXP, Key Traits...

- **Layer 2 switch fabric**

Just a big Ethernet switch—no Layer 3 magic here. Routing stays with the peers.

- **Reduces dependence on third-party transit**

Local traffic stays local = less cost, lower latency, happier users.

- **Improves routing efficiency**

Shorter paths to nearby networks, fewer hops = faster connections.

- **Encourages regional Internet growth**

Local content, local traffic, local empowerment.

- **Operates with a route server (optional)**

Route servers simplify BGP sessions—no need to manage dozens of BGP configs.
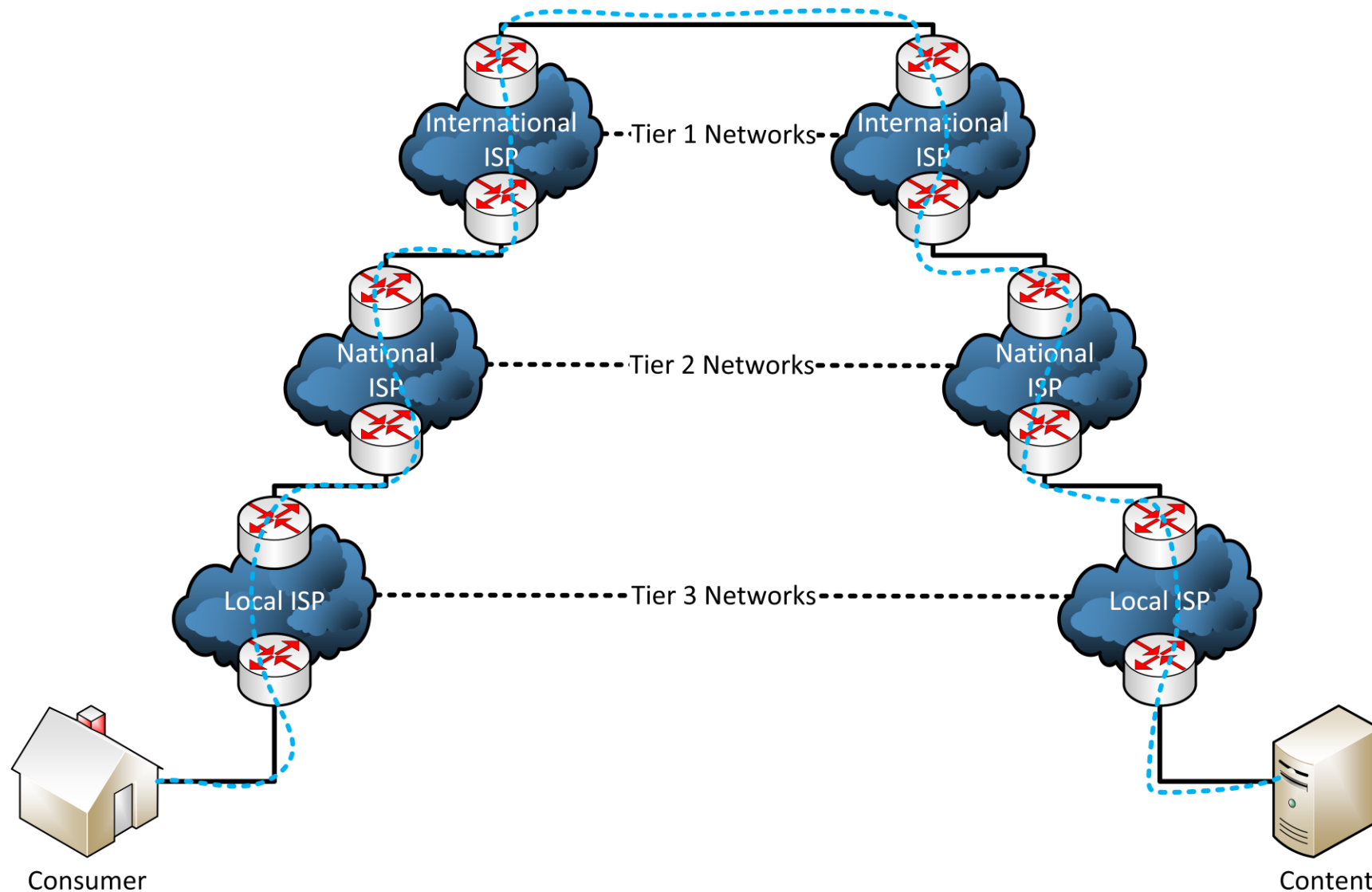
- **Cost-effective interconnection**

One port, many peers. Saves $$$ on upstream transit.
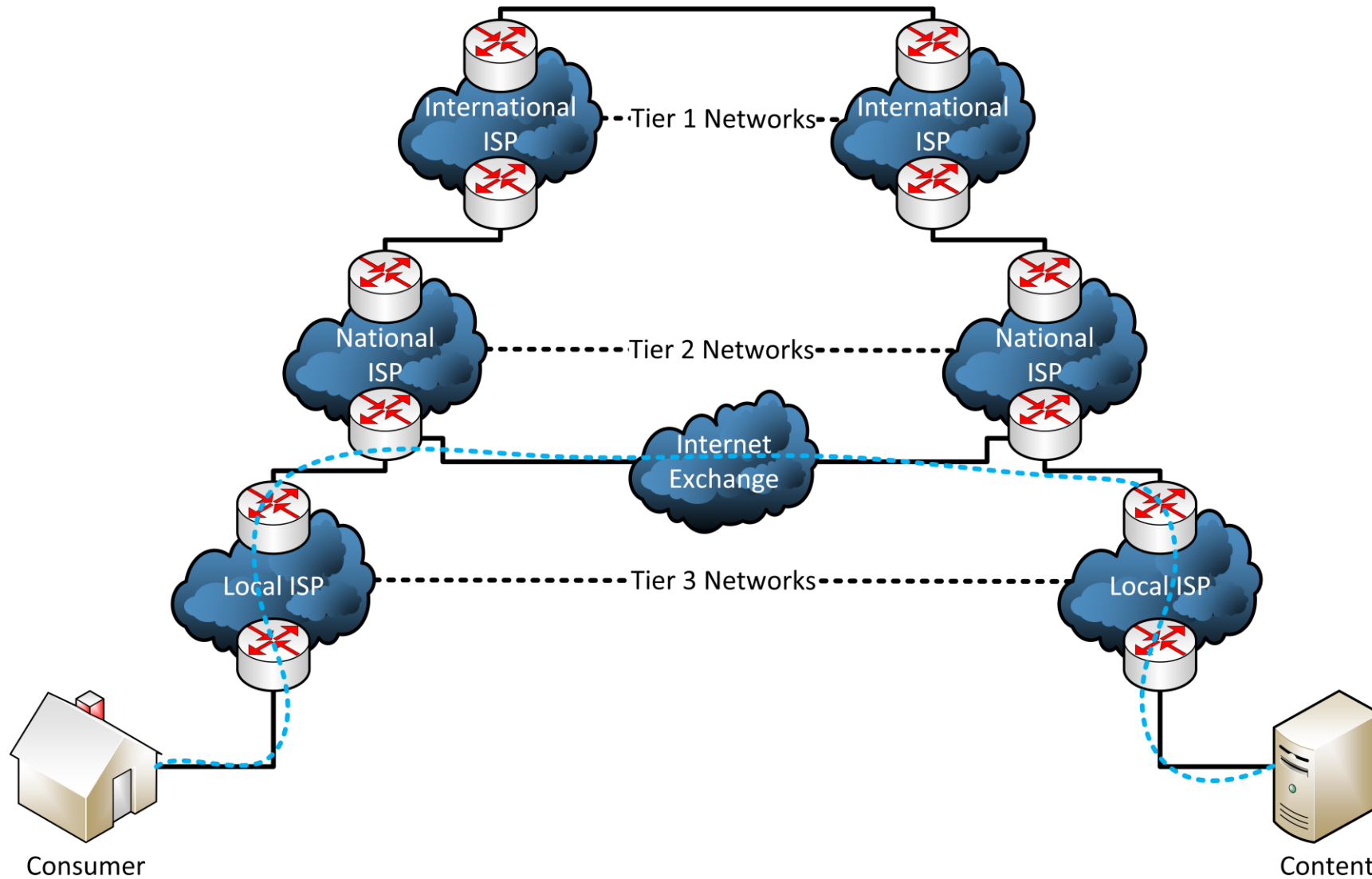
What Is an IXP, Use Case

- Direct peering between:
  - Internet Service Provider
  - Content Delivery Network
  - Enterprises
  - Government
  - Cloud Provider
  - Hosting Provider
- Improves performance, lowers costs
- **Keeps traffic local**, no need going to transit or overseas

Customer to Content Topology (without IXP)

International ISP — Tier 1 Networks — International ISP

National ISP — Tier 2 Networks — National ISP

Local ISP — Tier 3 Networks — Local ISP

Consumer

Content

Customer to Content Topology (with IXP)

What Is an IXP, Comparing with IP Transit

Feature	IP Transit	Internet eXchange Point
Purpose?	Global Internet Access	Local traffic exchanges
Connection Type?	Routed via Upstream	Direct peering between networks
OSI Layer?	Layer 3 (routing)	Layer 2 (switching), faster than routing!
Cost Structure?	Charged by bandwidth usage	Typically, port-based fee or free
Latency?	Depending on upstream path	Lower, local routes and switching between networks
Use BGP routing?	Yes	Route server only do the BGP signaling, the traffic doesn't go to route server

What You Actually Need to Join an IXP

- ☑ ASN (Autonomous System Number)
- ☑ Public IP prefixes
- ☑ Physical port (10G/100G/400G/800G/1.6T/even more)
- ☑ BGP router to do the peering
- ☑ A willingness to peer and be communicative :)

Conclusion

IXP ≠ IP Transit

An IXP simply helps you interconnect with other networks.

Thanks! :)
Questions?