

ITUEvents

Second Workshop on

Cost models for data services and international internet connectivity

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itu.int/go/WS_FGCD_02



New & Old Models for Internet Connectivity Provision

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Hosted by:



Agenda

- 3 Tier Model
- Actors: Old & New
- Peering: A huge imperative
- New Approaches for Widespread Connectivity

3 Tier Model Unpacked

Relationships

Transit

A network that allows network traffic to cross it by providing transit services.

Typically, transit is paid for by smaller networks to gain access to the rest of the internet.

Peer

Network owners who see a mutual benefit in allowing each other access to their respective networks.

In this situation, neither party has to pay for the exchange of traffic, which is referred to as a **settlement-free** exchange.

Customer

An internet service provider pays another network for internet access, and provides internet access in return.

3 Tier Model Unpacked

Technical & Commercial

Tier1

- **Don't pay** to have their traffic delivered
- Can deliver traffic to the entire Internet routing table solely through their **peering relationships**
- Peer on **more than one** continent
- Own or lease **transoceanic** fiber optic transport
- Deliver packets to and from customers and to and from peers around the world.

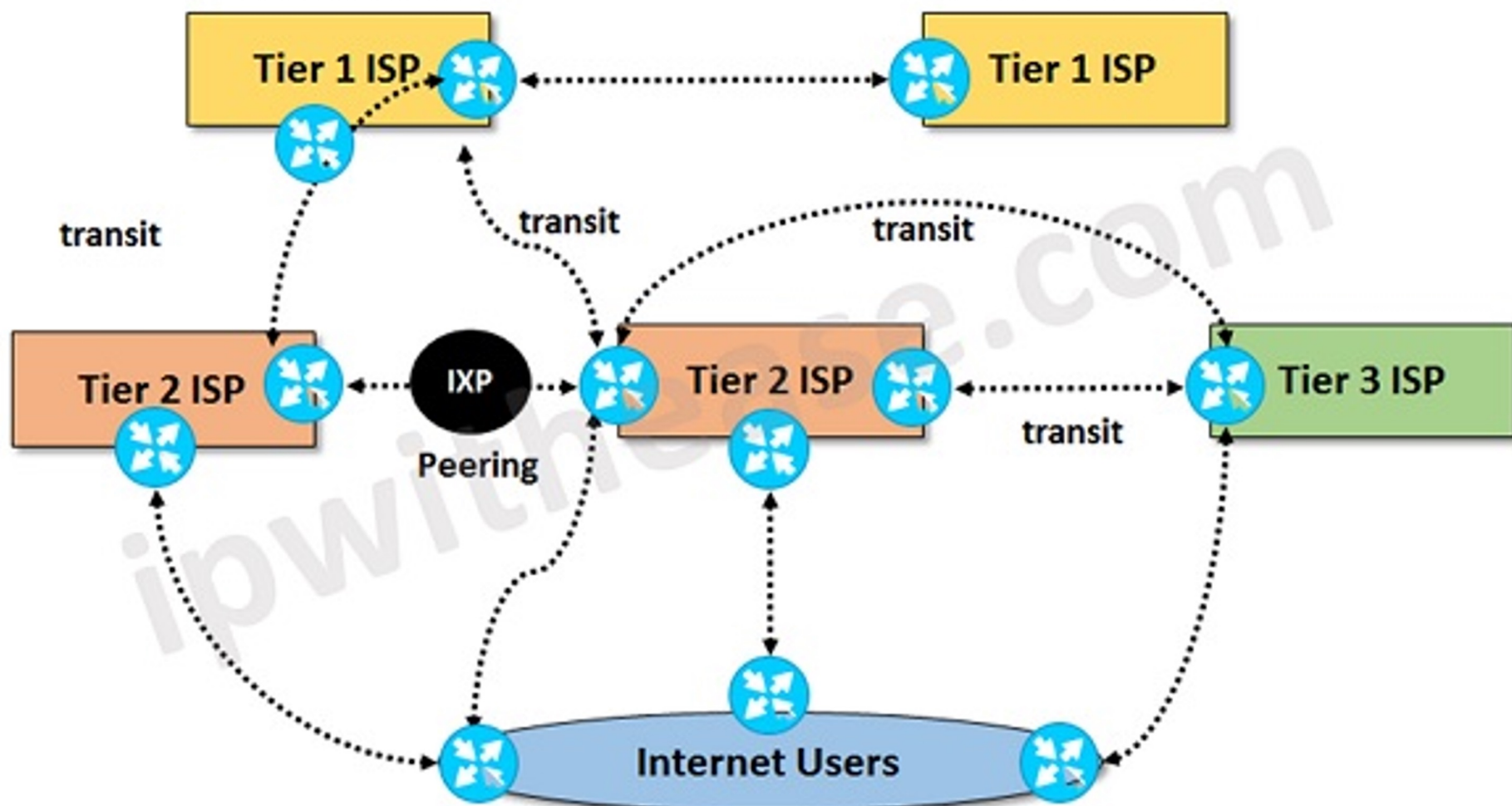
Tier 2

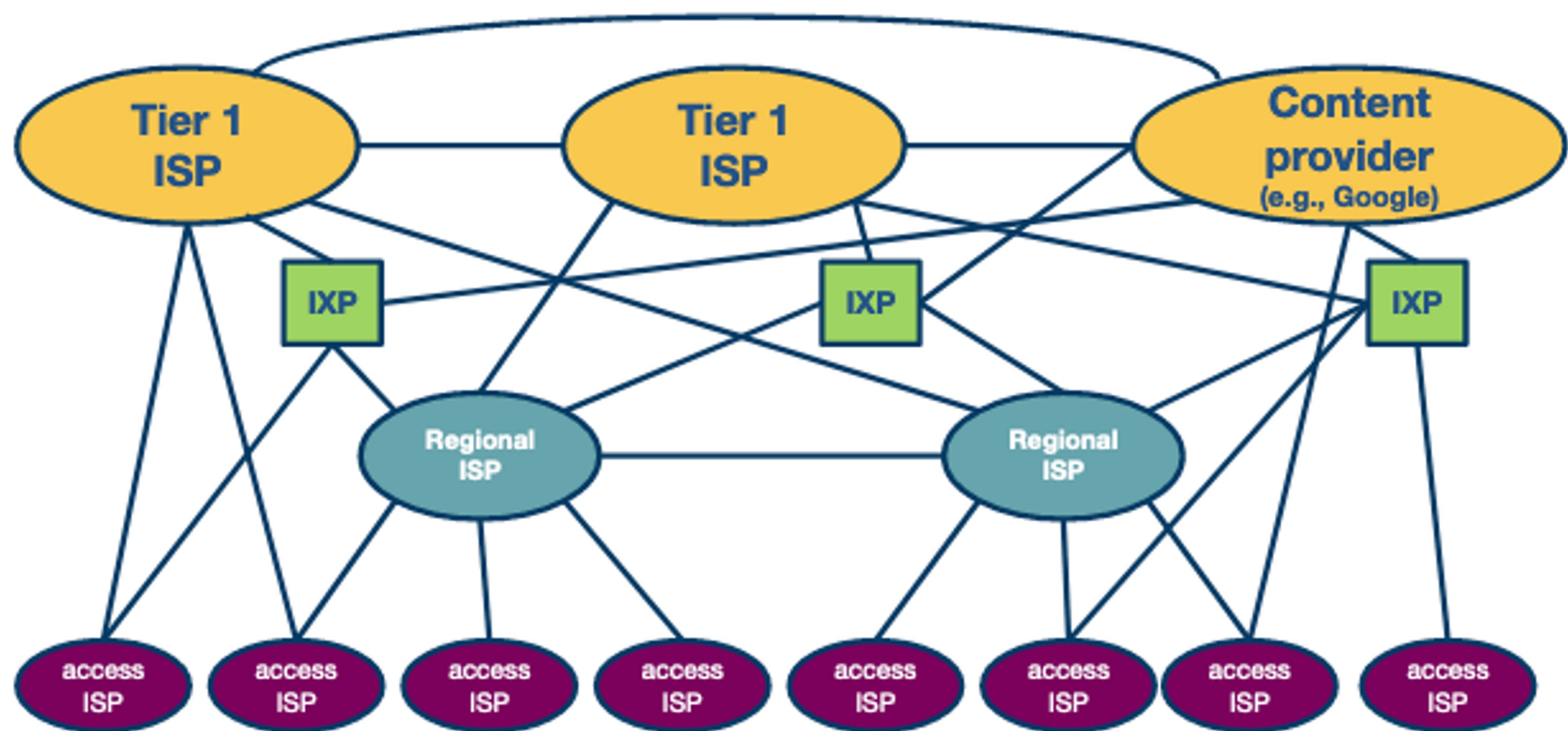
- Paid **transit** via Tier 1 ISPs
- Peering with **other Tier 2** ISPs to deliver Internet traffic to end customers through Tier 3 ISPs
- Regional or National Carriers
- Often referred to as “Wholesale network operators”

Tier 3

- Purchases Internet transit from Tier 2 ISPs (and sometimes Tier 1)
- Primarily engaged in delivering Internet access to end customers
- Provide the "on-ramp" or local access to the Internet for end customers
- **Peering** with other Tier 3 ISPs

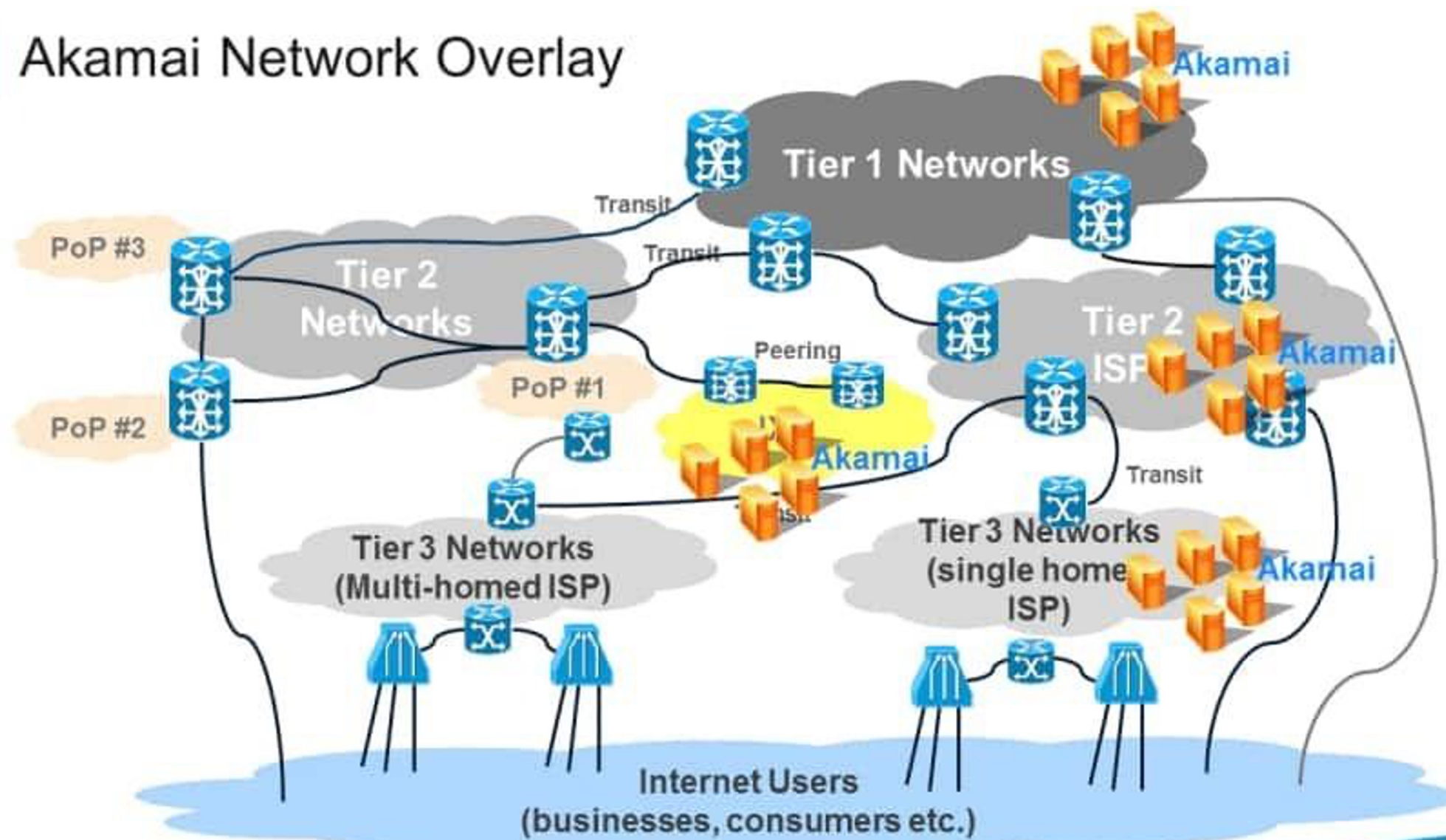
Tier 1, Tier 2 and Tier 3 ISP



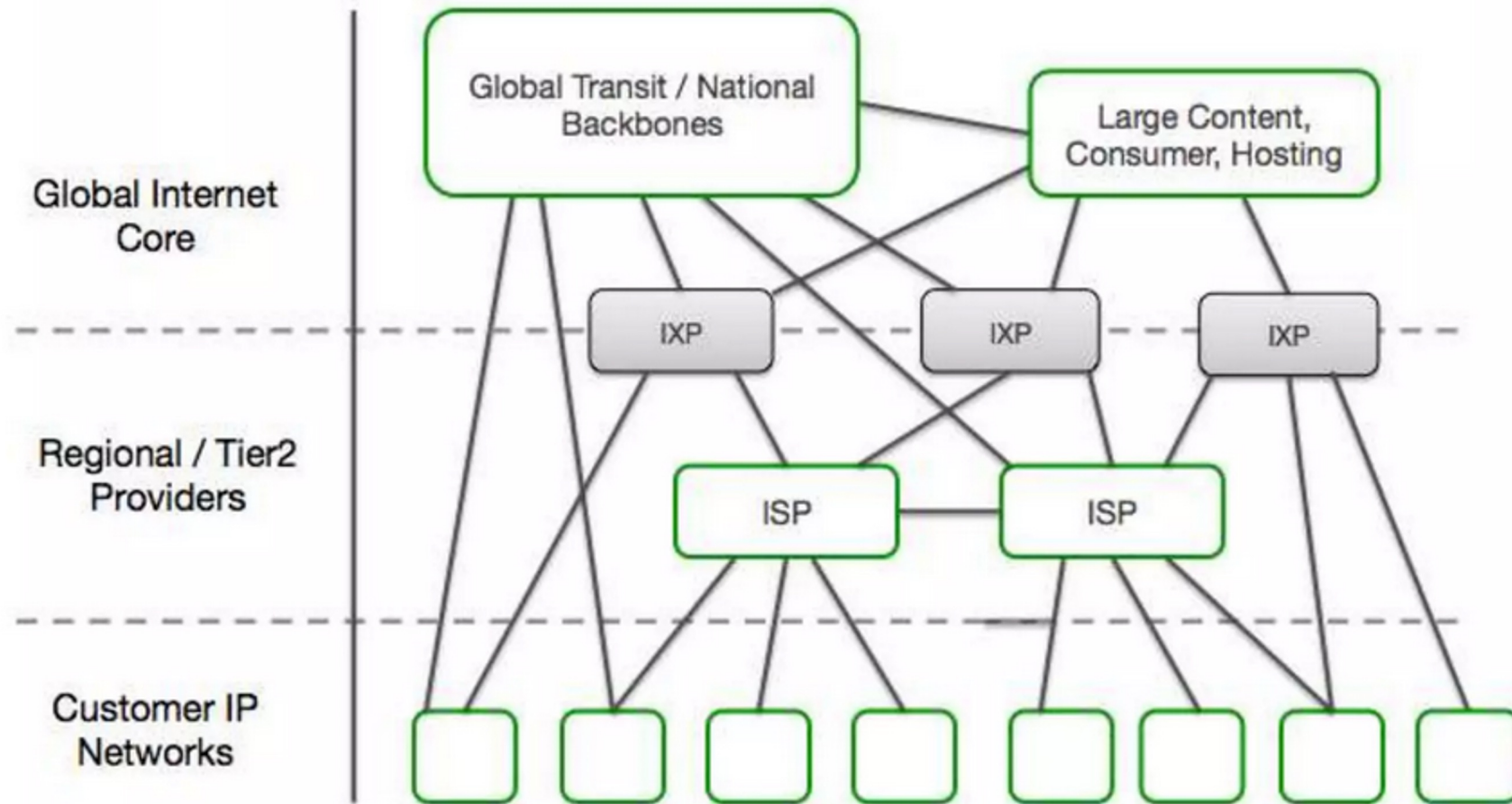


Interconnection of ISPs

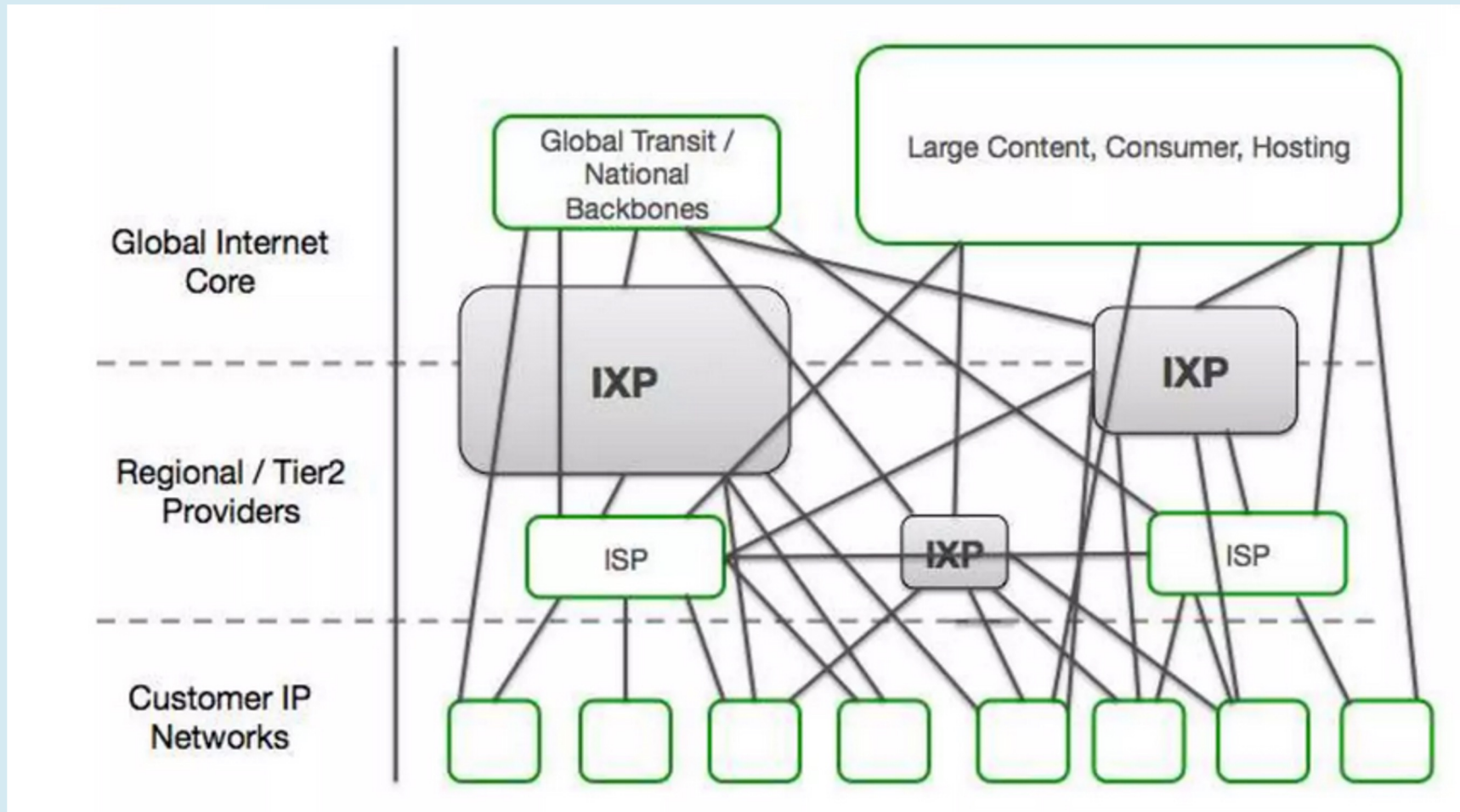
Akamai Network Overlay



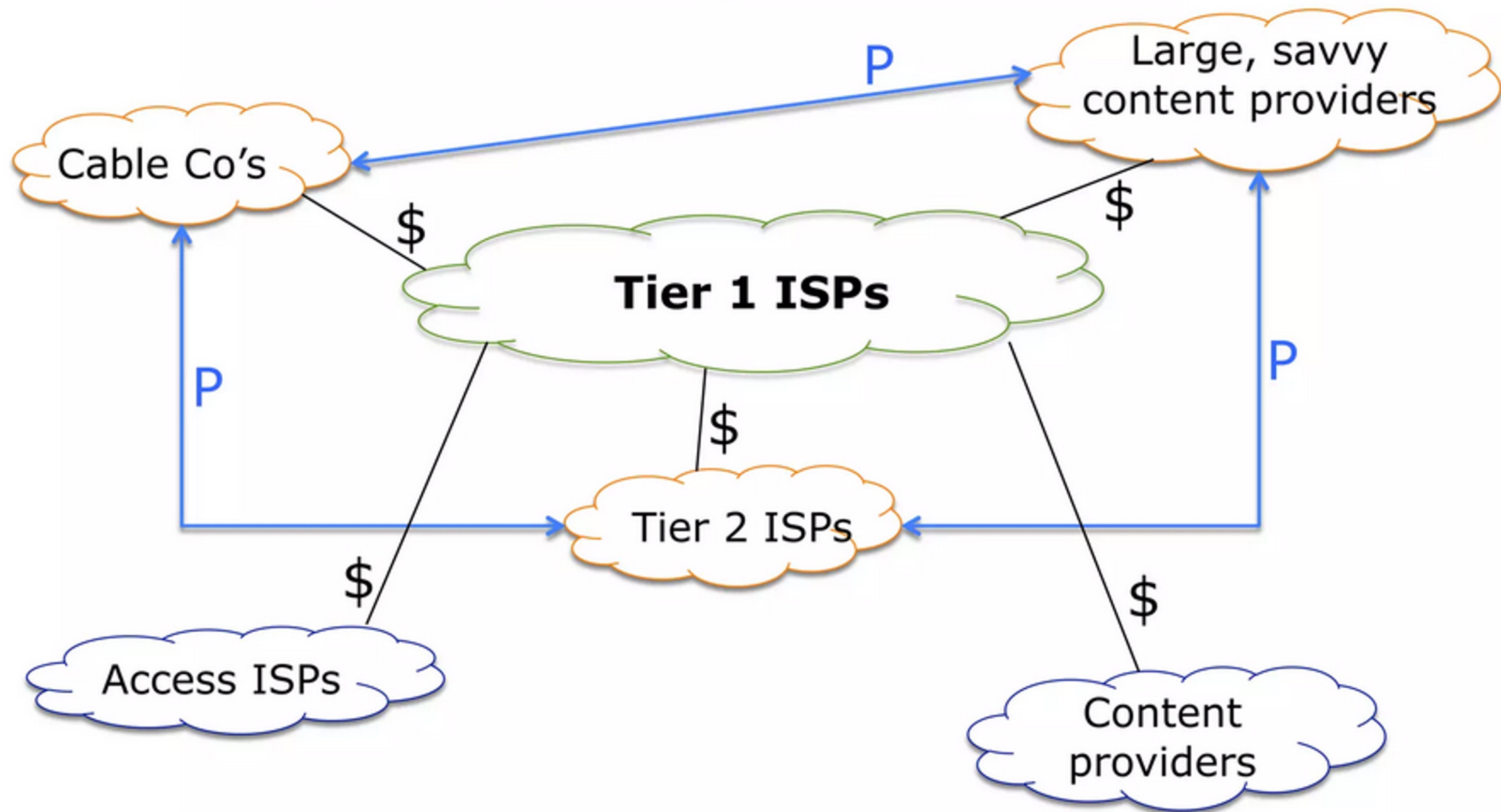
Peering: Yesterday



Peering: Today & Tomorrow



Donut Peering

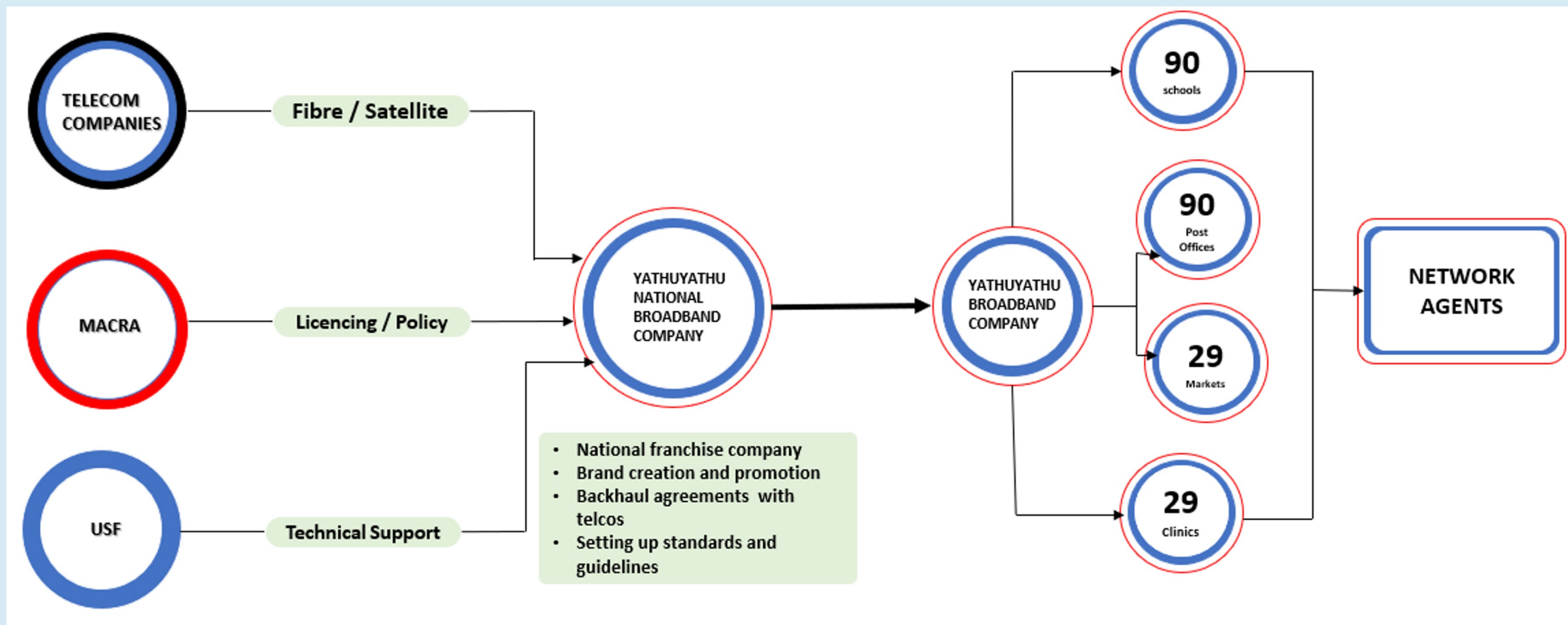




New Approaches for Widespread Connectivity

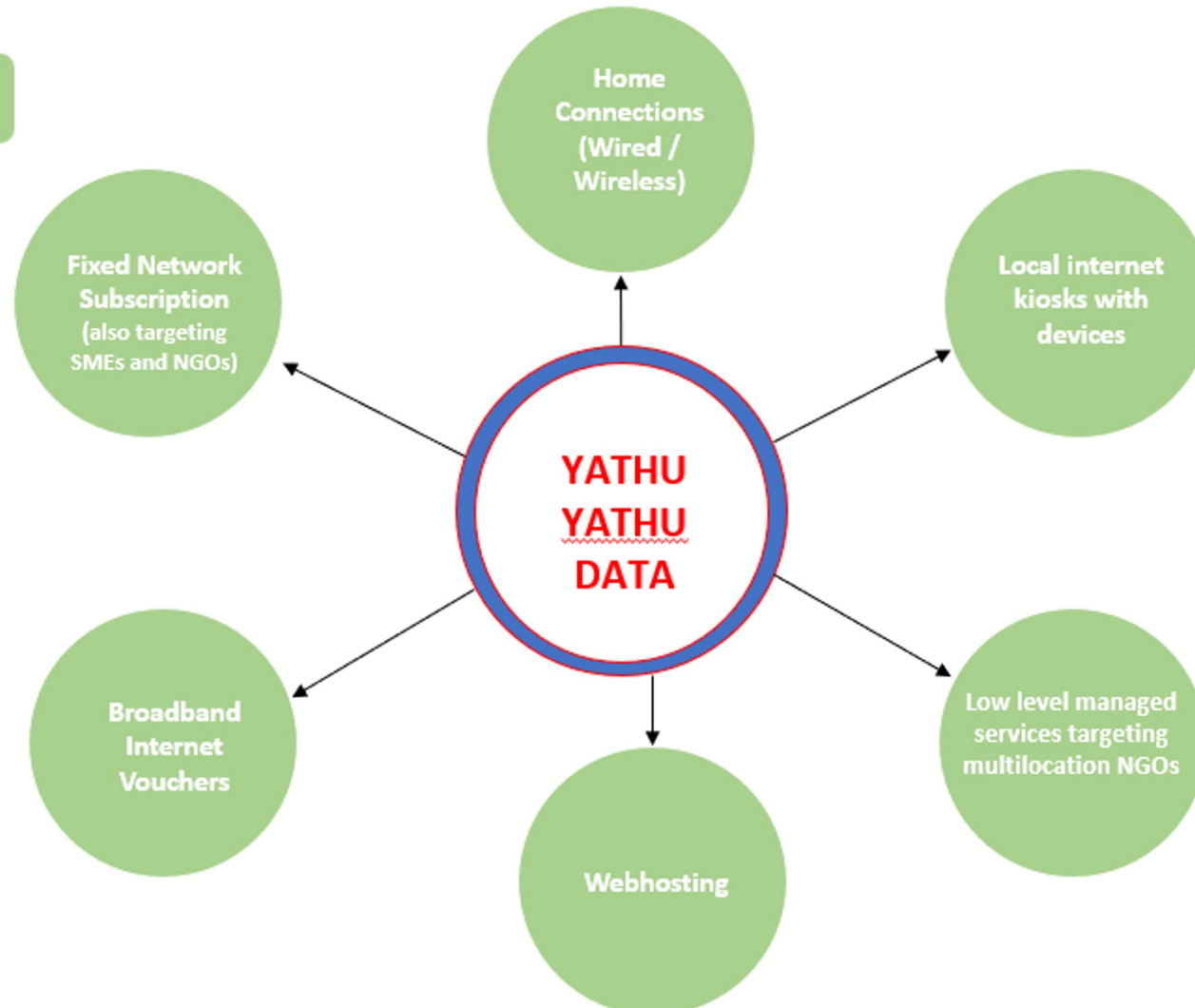
- **Community Networks**
- **TV White Spaces**
- **Spectrum Refarming**
- **Access Infrastructure Sharing (WOAN etc)**

Malawi: Community Broadband Operators



Malawi: Community Broadband Operators

Immediate Services



Thank You!

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