

# Panel discussion: IXP competition and collaboration in a city/country

# Background

- In a city of country/economy, ususally there is more than one IXP
- IXPs in a city have to compete each other
  - they have to attract and get more members/customes to their own IXP
- But they may have to collaborate each other in some situation
  - for example, to avoid networks (members/customers) annoying different operation rules among IXPs, suffering maintenance of two IXPs at the same time, and so on.

# Outline

- Panelists will talk about the current situation of competition and collaboration (if any) in their city
- And discuss what IXPs should do to collaborate (or no need to collaborate)

# Panelists = Moderators

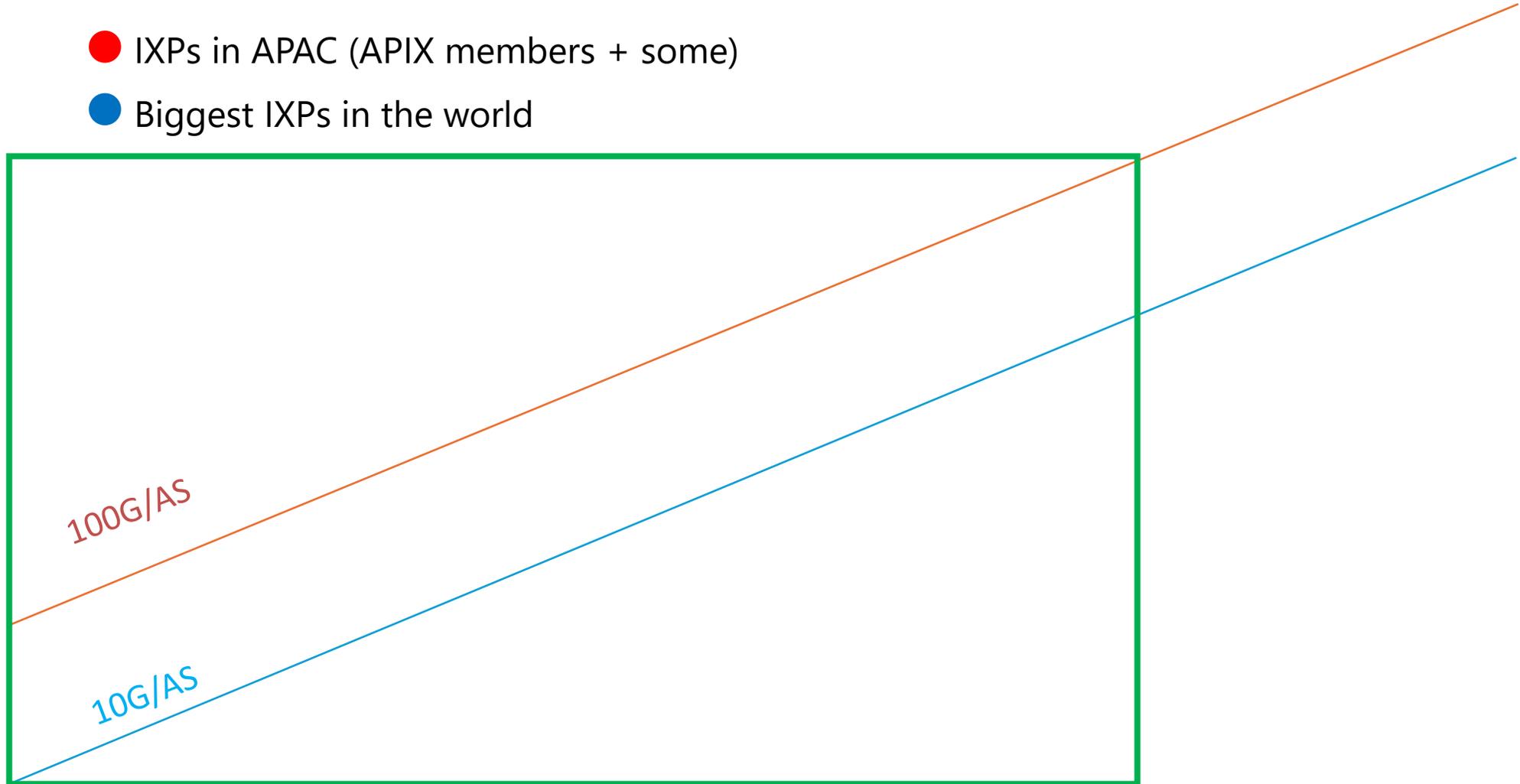
- Michael Takeuchi (IIX / RAPIDNET) – case of Jakarta (Indonesia)
- Katsuyasu Toyama (JPNAP) – case of Tokyo (Japan)

# Scatter Graph (ASN, Capacity)

Data from PeeringDB  
(July 2025)

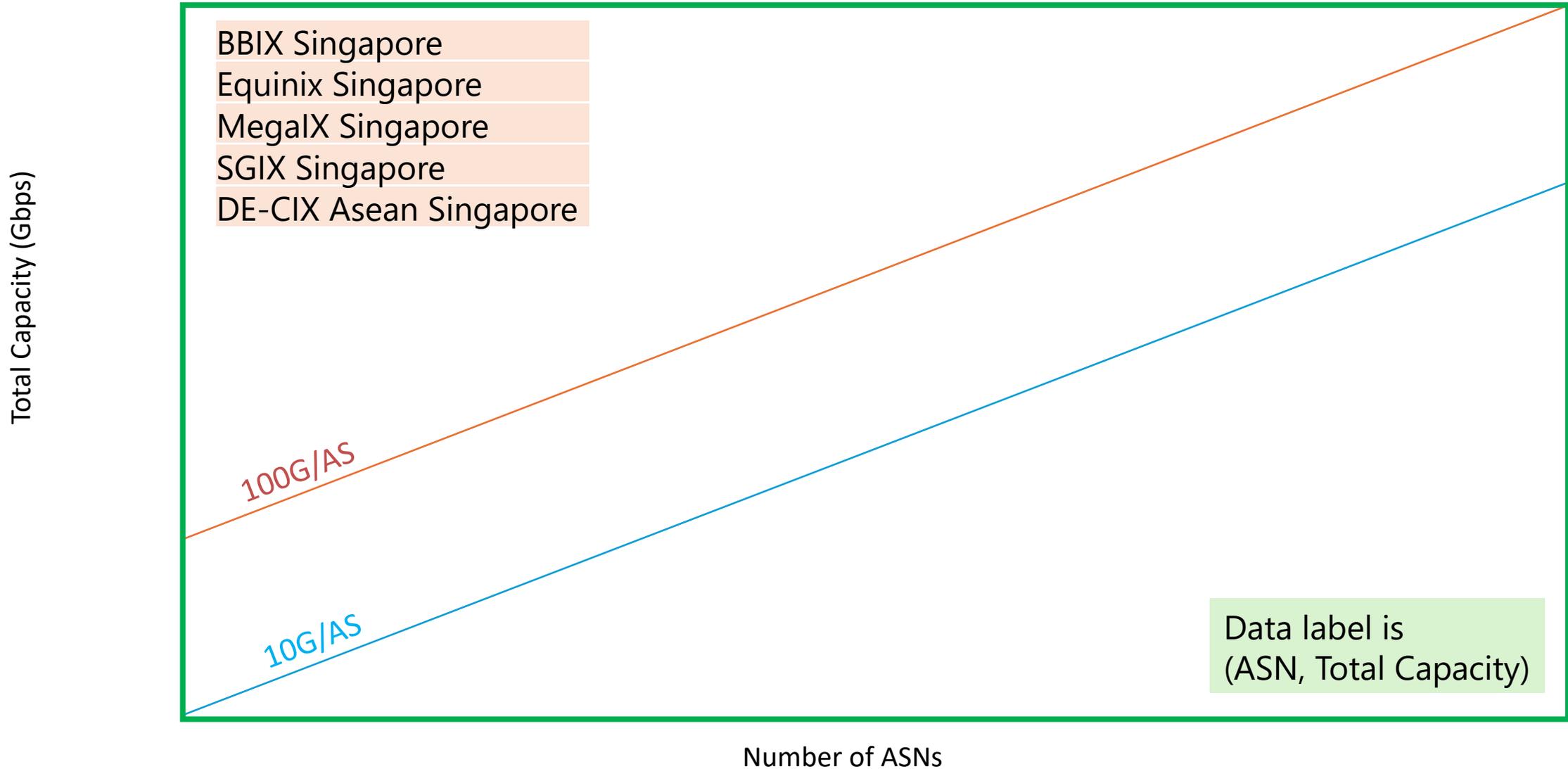
- IXPs in APAC (APIX members + some)
- Biggest IXPs in the world

Total Capacity (Gbps)

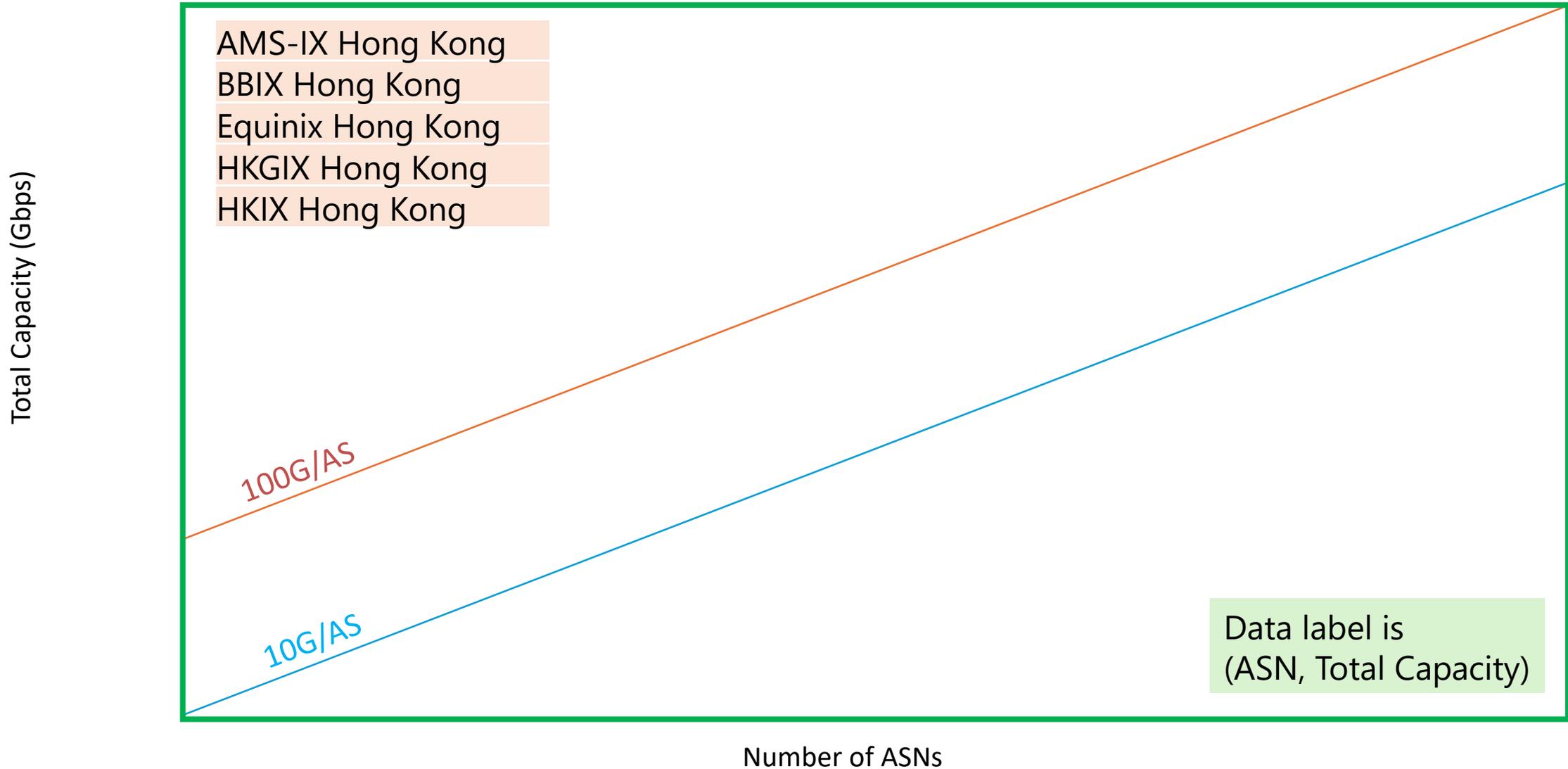


Number of ASNs

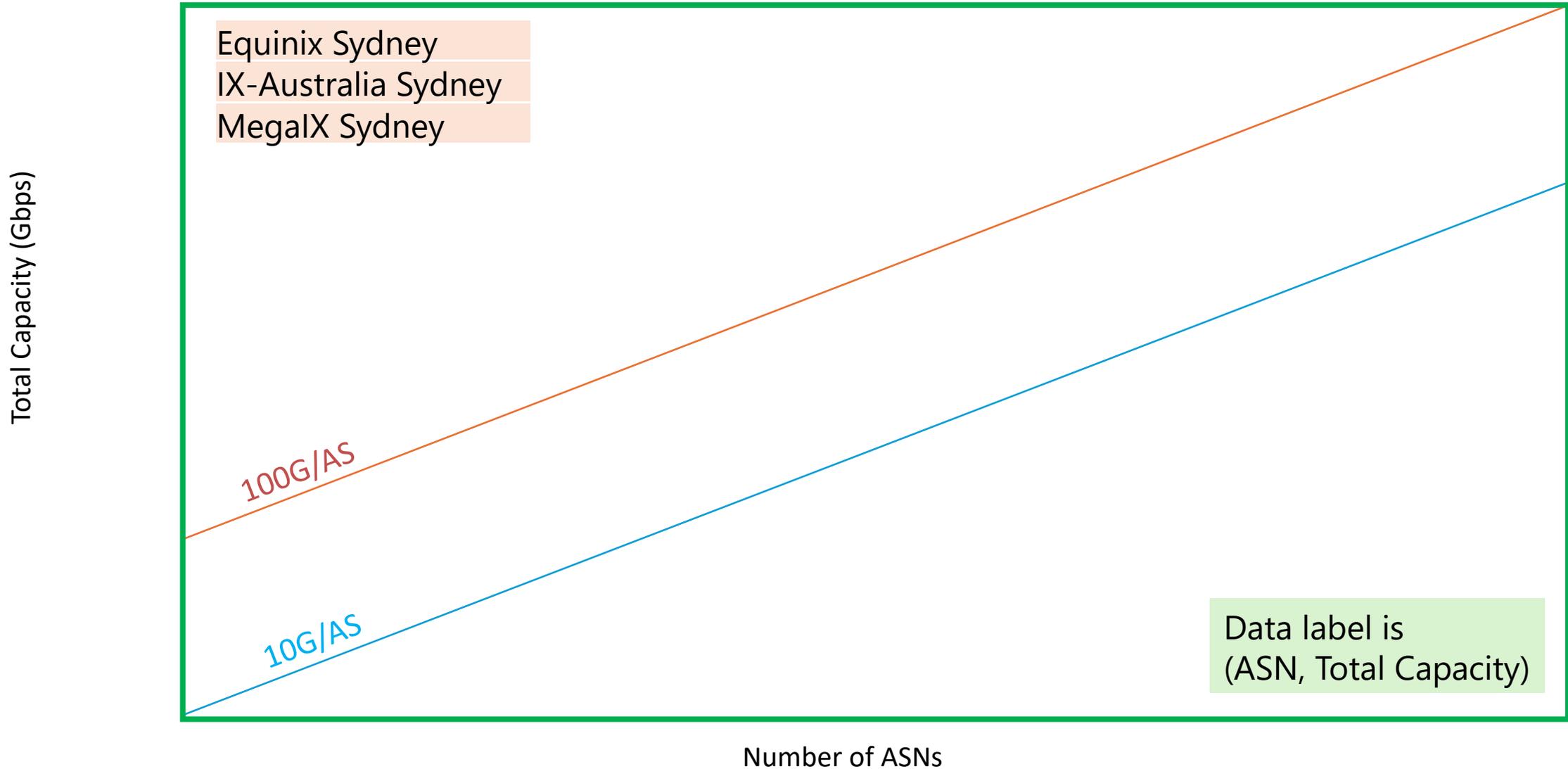
# Singapore



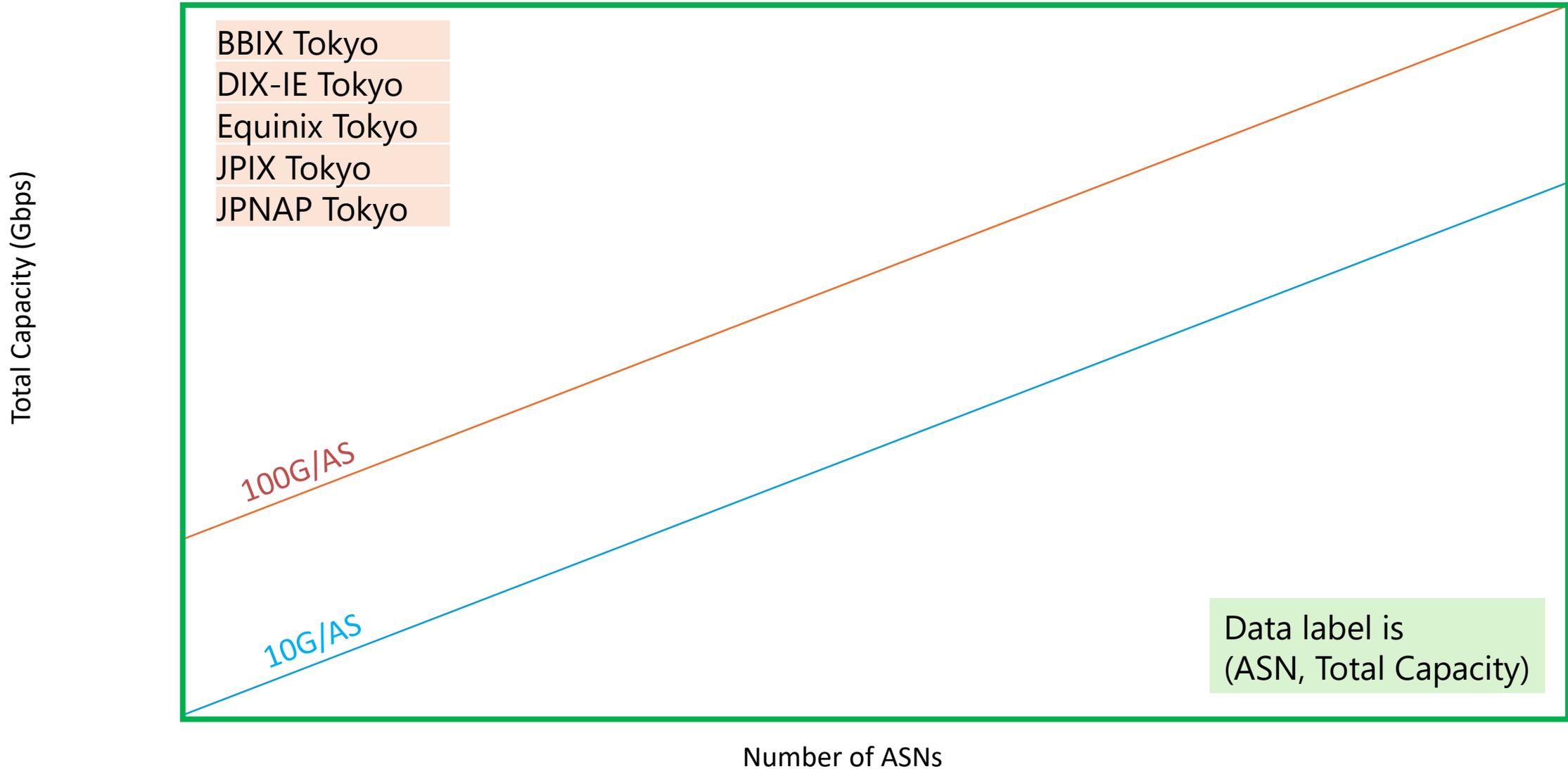
# Hong Kong



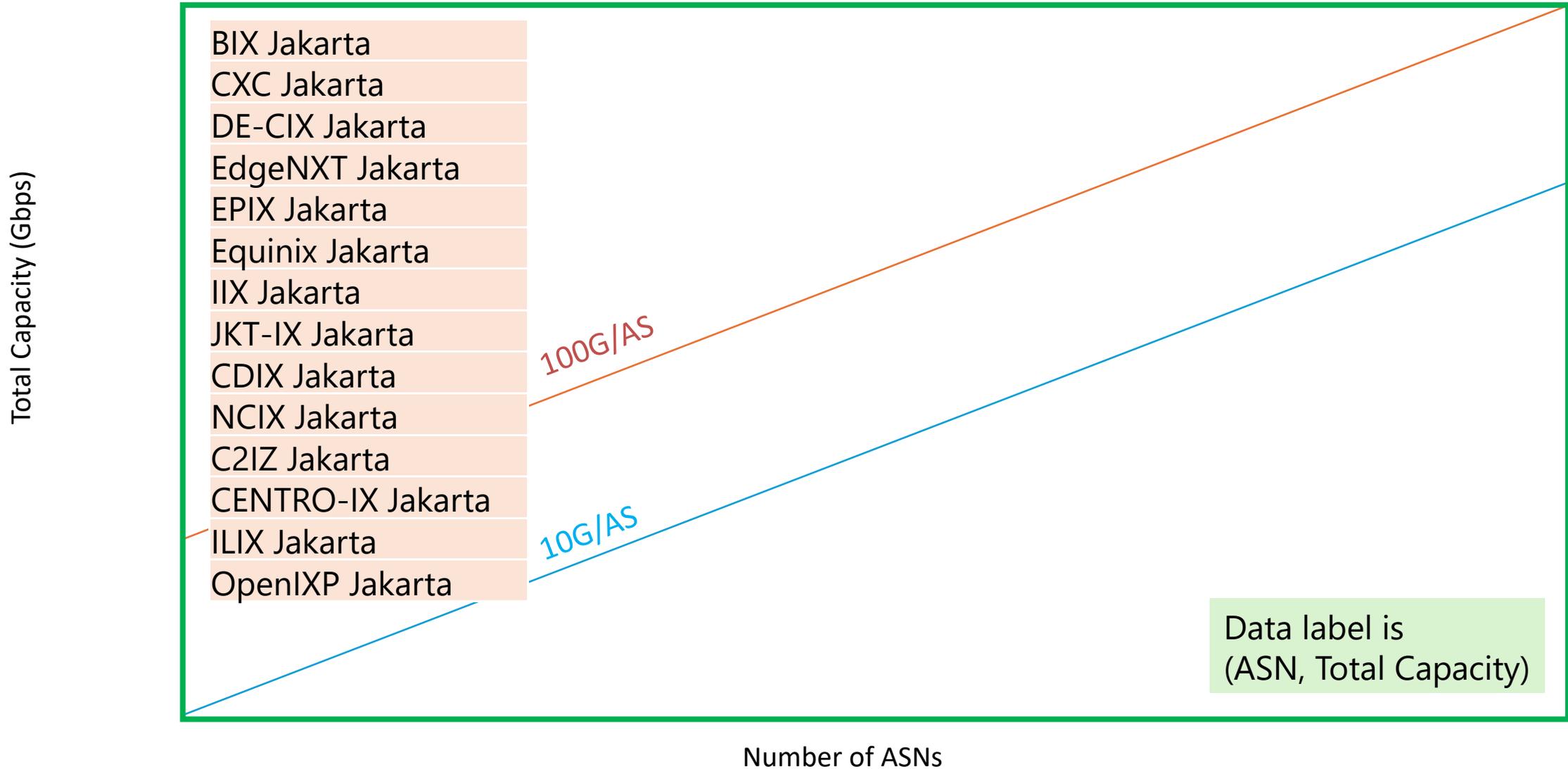
# Sydney, Australia



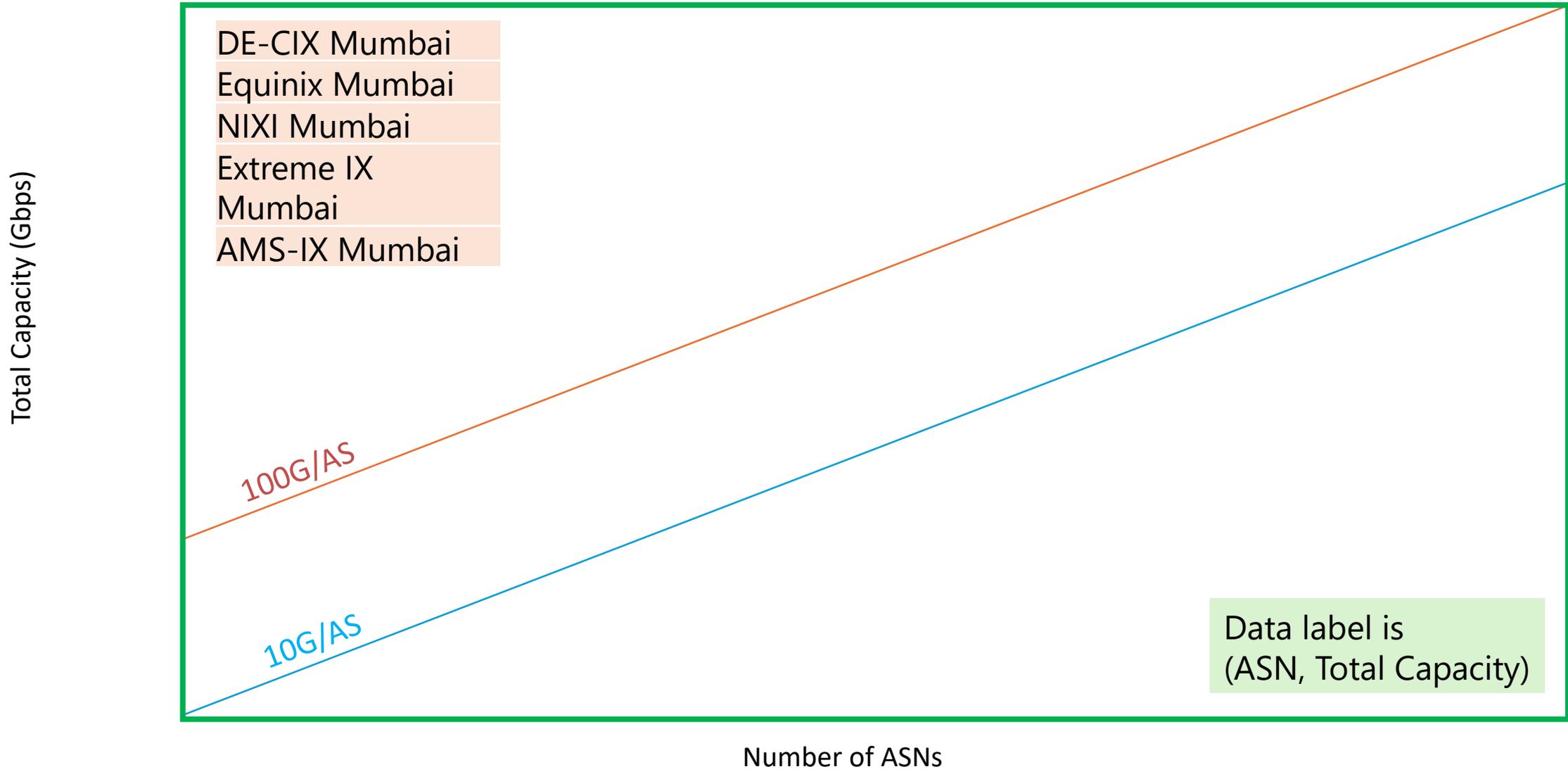
# Tokyo, Japan



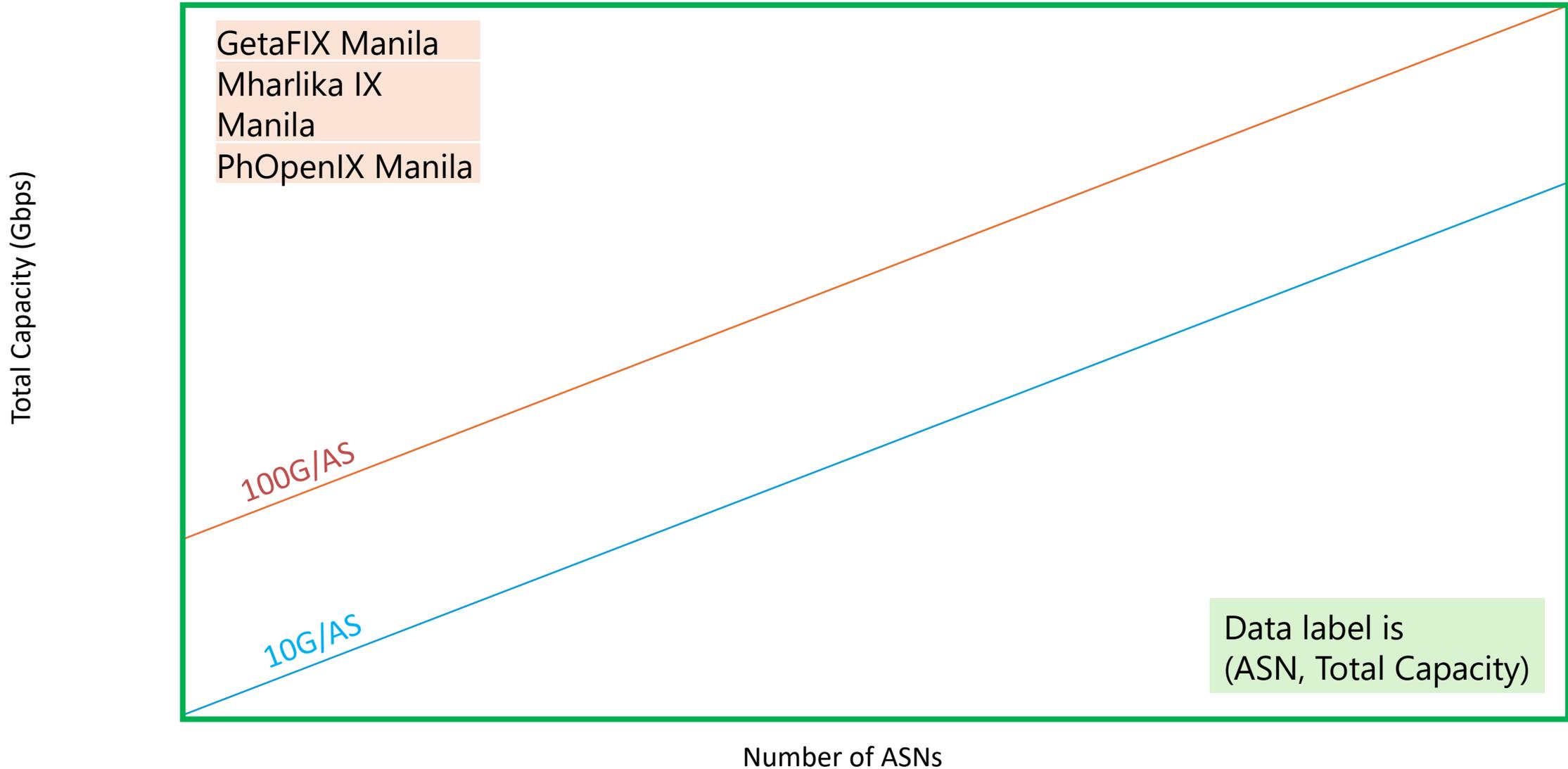
# Jakarta, Indonesia



# Mumbai, India



# Manila, Philippines



# Jakarta, Indonesia

by Michael Takeuchi (IIX,PAPIDNET)

# Top 3 IXP in Jakarta (based on traffic)

No.	Name / ASN	Networks	Traffic	Prefix	Organization	Founded
1.	IIX-Jakarta / 7597	742	19Tbps	17800+ +	APJII (ISP Association)	1997
2.	OpenIXP / 7717	598	7.96Tbps	18900+ +	Community	2005
3.	JKT-IX / 137295	786	6.5Tbps	17800+ +	NTT Indonesia	2018

- Prefix count data are dynamic  
 - Traffic was calculated in total (in+out)  
 - Data was collected on 07 February 2026

# Indonesia IXP Timeline

- 1997, Indonesia Internet Exchange (IIX-APJII)
- 2005, OpenIXP / NiCE
- 2010, Cyber2 Internet Exchange (C2IX)
- 2014, Biznet Internet Exchange (BIX)
- 2018, cloudXchange (CXC)
- 2018, JKT-IX by NTT Indonesia
- 2023, EPIX by Digital Edge
- 2023, EdgeNXT by BDX
- 2024, DE-CIX Indonesia

Also, a lot of others IXP that I don't have the data...  
based on peeringdb, Indonesia have 75 IXP entry records

# Competition and Collaboration

- Competition? I am not sure, most IXPs in Indonesia are complementary services provided by data centers or operate without commercial concerns.
- Collaboration? Absolutely!

We share infrastructure, exchange PoP locations, and support each other through special colocation and interconnection arrangements across multiple IXPs and data centers.

We also actively collaborate by sharing technical challenges and working together to solve them. We believe that strong collaboration builds stronger and more resilient infrastructure.

# My Opinion on the Growth of New IXPs

- As IIX-APJII (IXP Operator)

I am not seeing this as a competition threat. There is no commercial concern, and the emergence of more IXPs indicates that Indonesia's Internet ecosystem is growing and interconnection demand is increasing, which is a positive development.

- As RAPIDNET (ISP Operator)

The presence of multiple IXPs also increases network operational complexity, especially in managing routing policies, handling potential asymmetric traffic, and maintaining optimal performance.

# Tokyo, Japan

Katsuyasu Toyama (JPNAP)

# Tokyo, Japan

- IXPs
  - Four major IXPs: BBIX, Equinix, JPIX, JPNAP

# IXPs in Tokyo: 3 (domestic) + 1 (global)

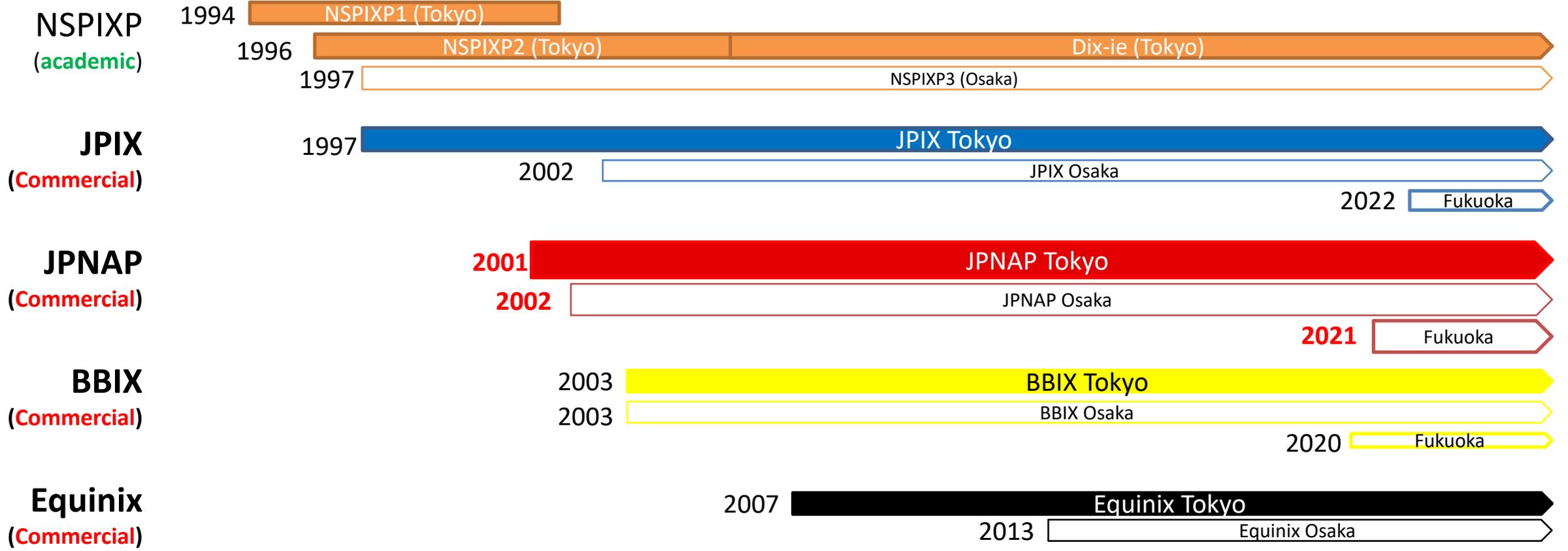
	JPIX	JP NAP	BBIX	Equinix
Started	1997	2001	2002	2007
Carrier group	KDDI	NTT	Softbank	(Global)
	Commercial	Commercial	Commercial	Commercial

- They operate IX under 'open and neutral' policy : not mandatory to purchase their carrier's services (like IP transit, leased line, etc)

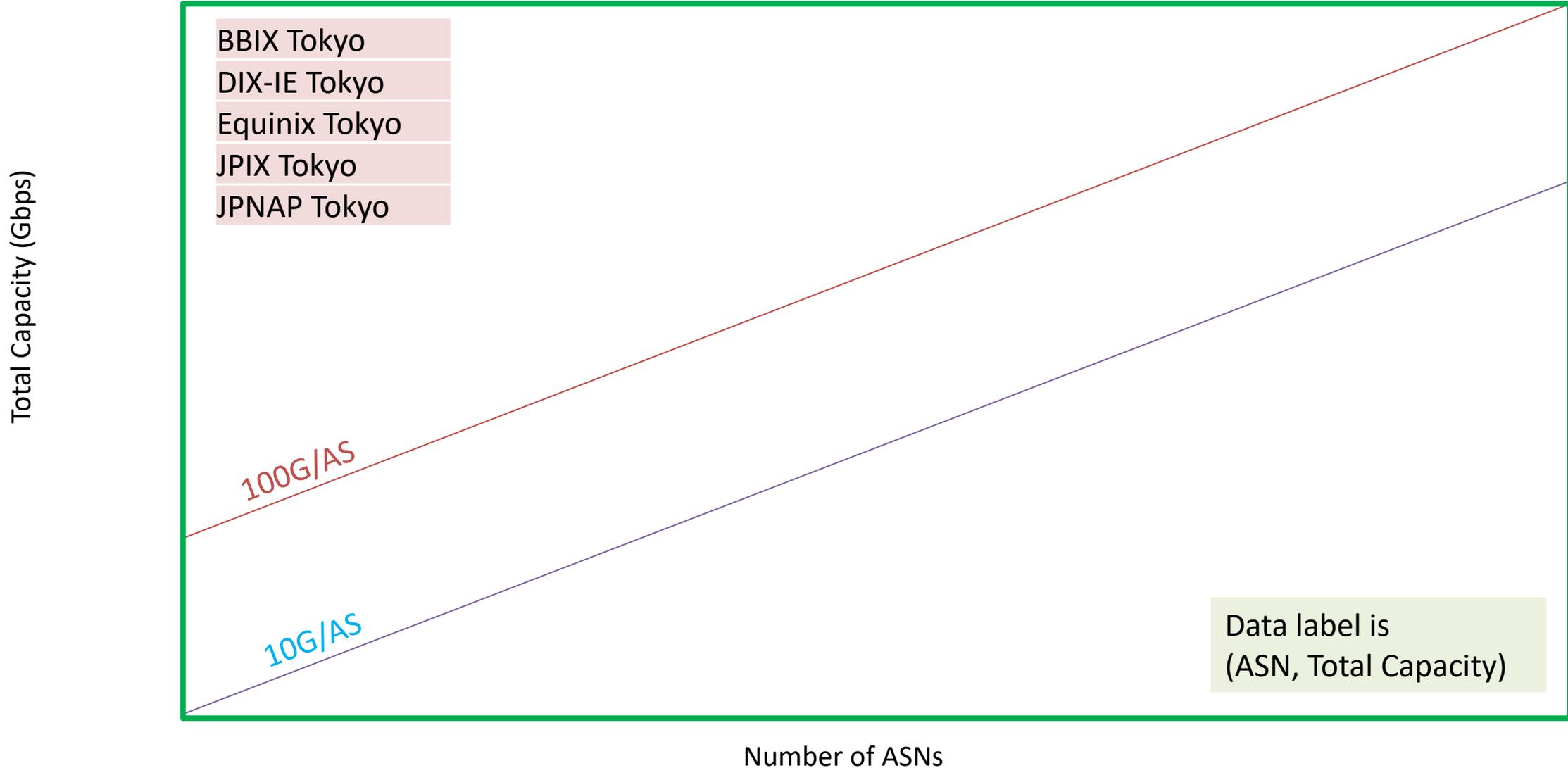
# History of IXPs in Japan

First commrcial ISP staretd (1994)

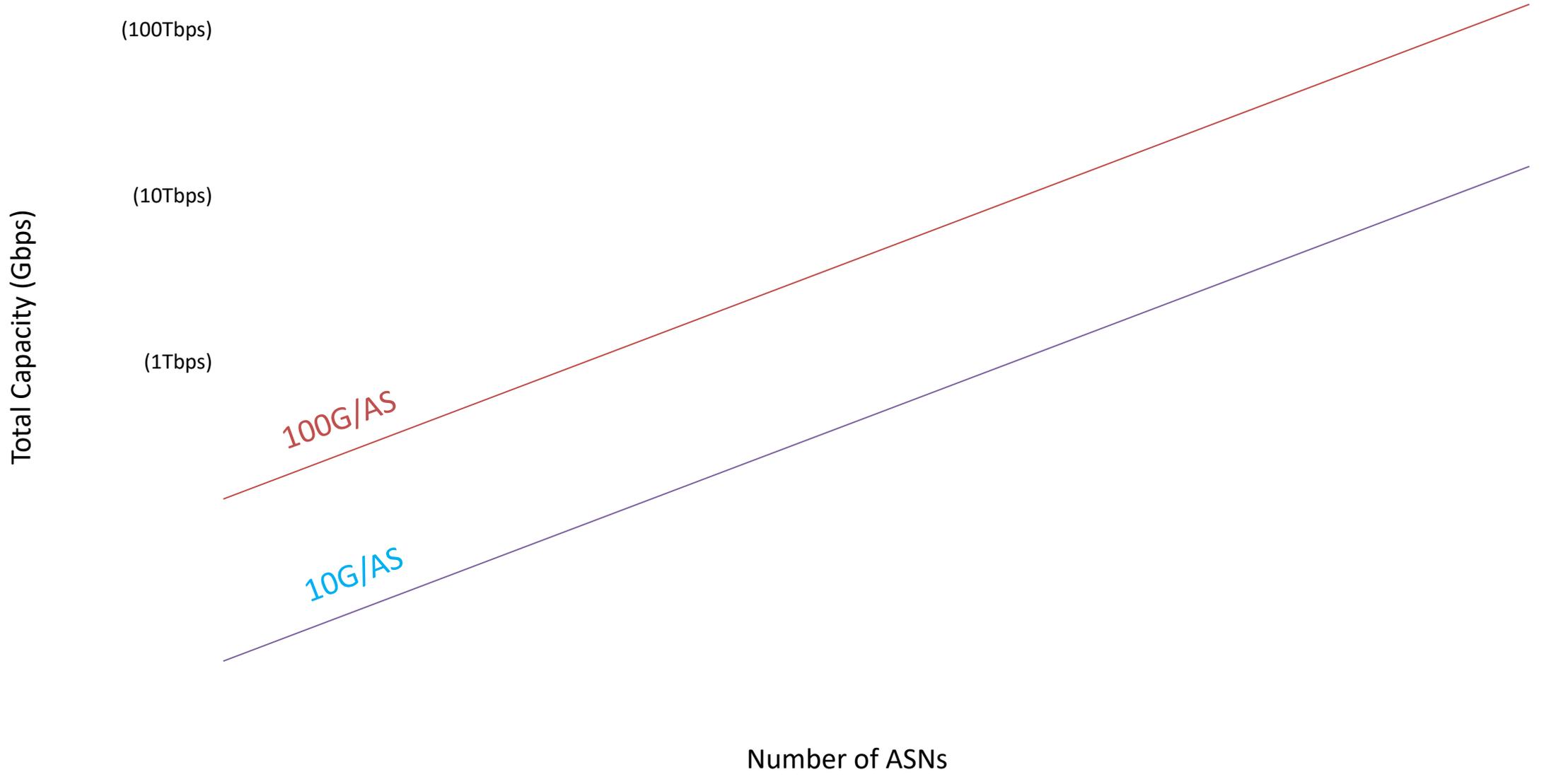
1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013 2015 2017 2019 2021 2023 2025



# IXPs in Tokyo, Japan



# IXPs in Tokyo, Japan



# Competition among IXPs in Tokyo

- **Quite difficult to differentiate services** (like in other markets)
  - Price competition is in the first place
- Each IXP is trying to
  - invite an ASN earlier than other IXPs
    - to attract potential customers with ASNs which they can reduce costs of IP transit
    - for overseas' content providers, collaborating with parent company becomes key
  - support local ASNs better than other IXPs
    - Smaller ISPs need technical and operational support

# Tokyo, Japan

- **Competition**

- Port price
- Additional services
  - Value added services, Cloud access services, Remote peering, ..

- **Collaboration**

- Regular meeting by 5 IXP operators in Japan (BBIX, DIX-IE, Equinix, JPIX, JPNAP)
- Sharing the information about a big maintenance work
  - to avoid members/customers losing all the redundant paths by the clash of both maintenance
- Experimental join project for members/customers' benefits
  - Shared ROA cache servers for members/customers

IXP operators in Japan often collaborate for customers (=all networks' benefit)

- Not for their own customers only, but for all the networks

# Interactive session

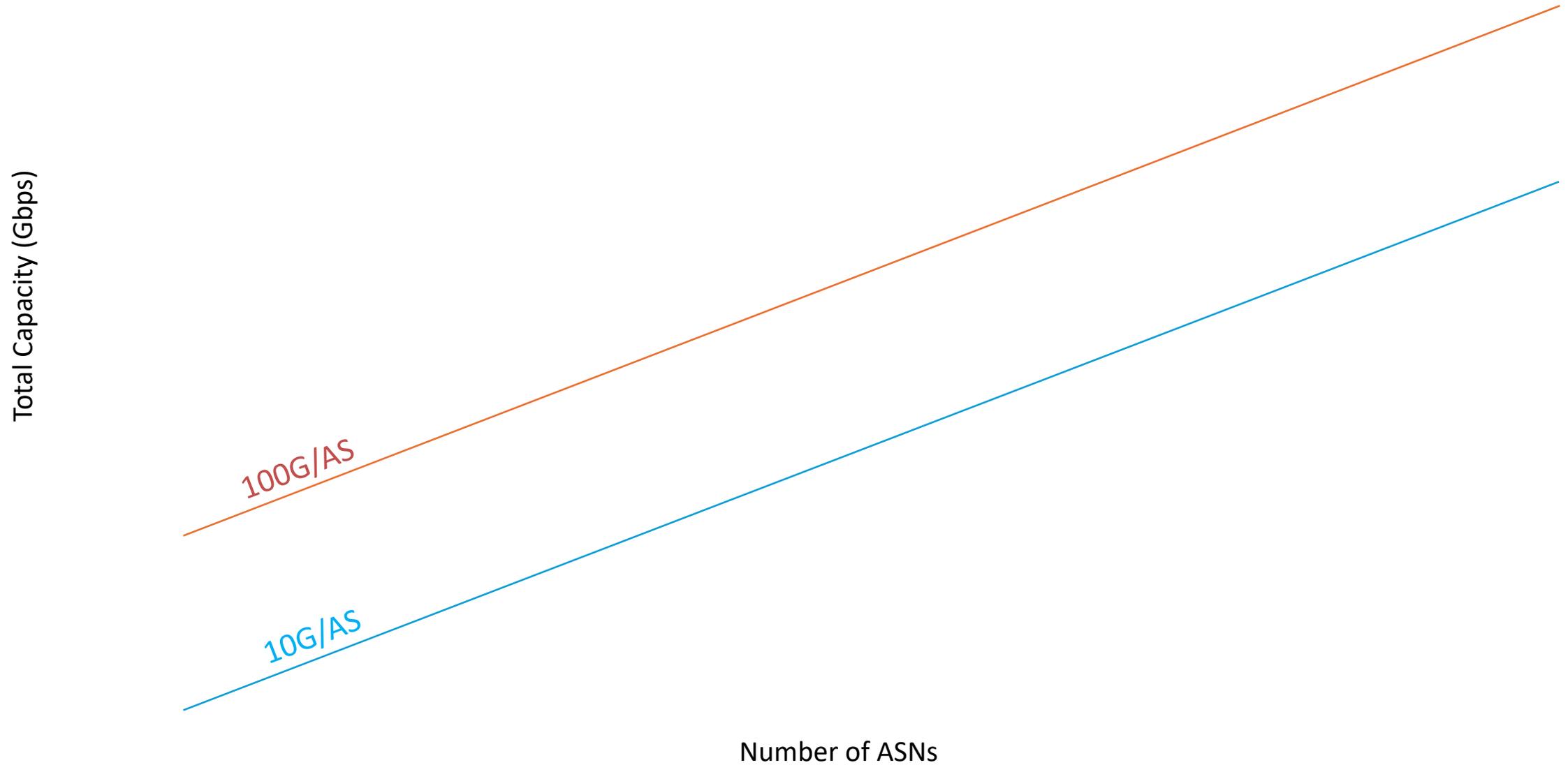
In your city (country/economy),

- Competition or no competition?
  - Why?
- Any collaboration?
  - if you have, what kind of collaboration?
  - if no, why?

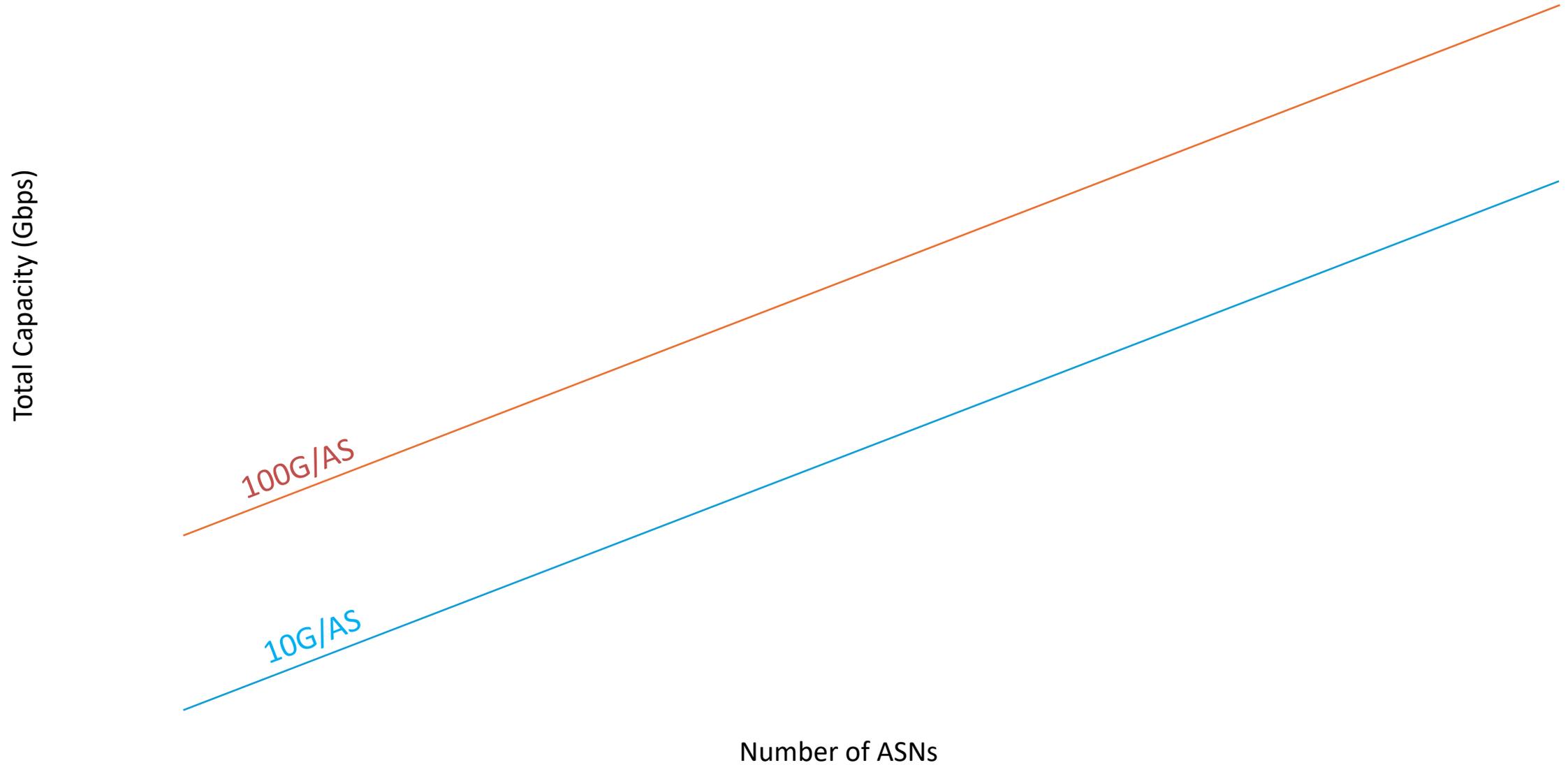
**Thank you for your participation!**

For reference

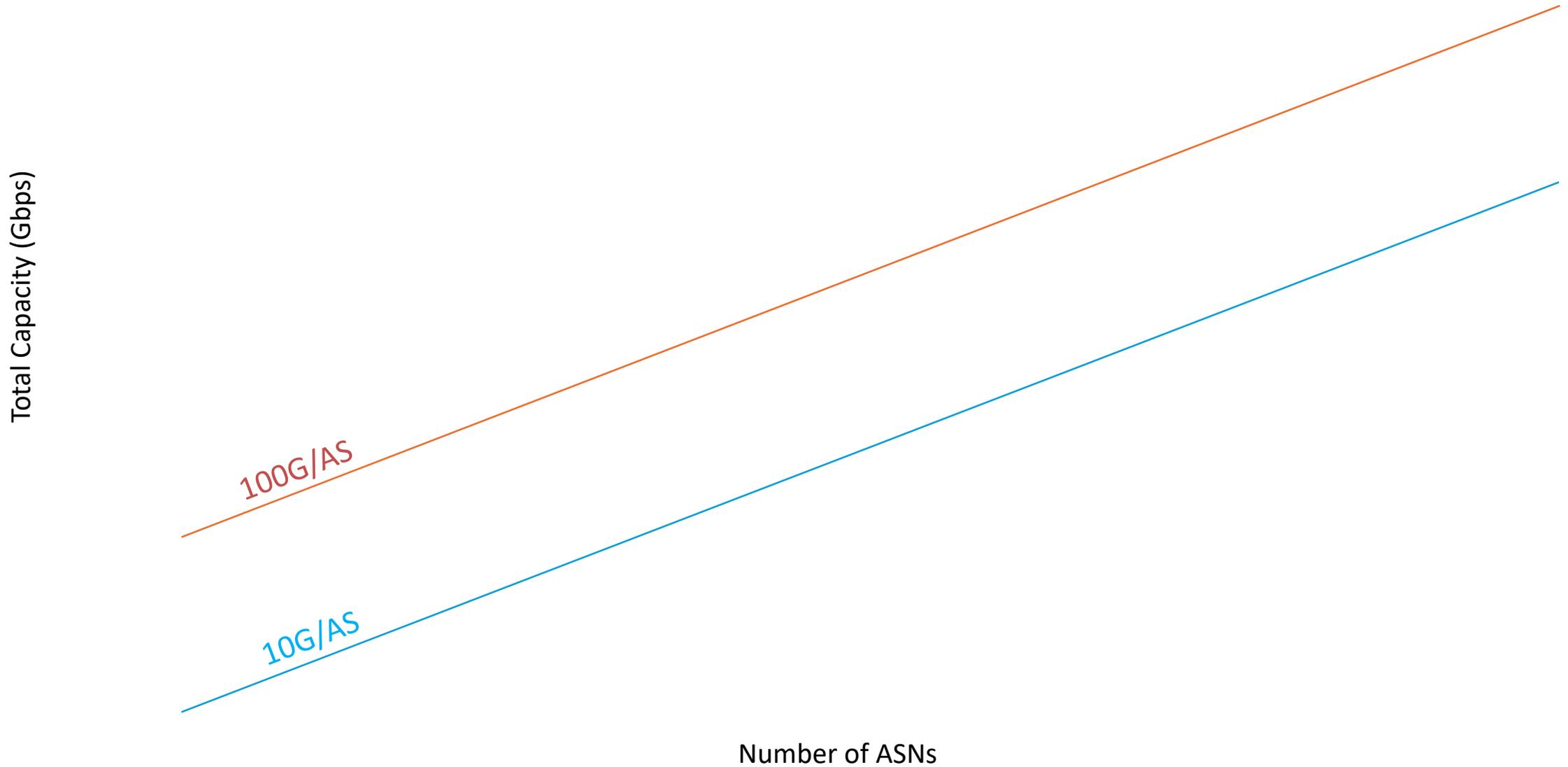
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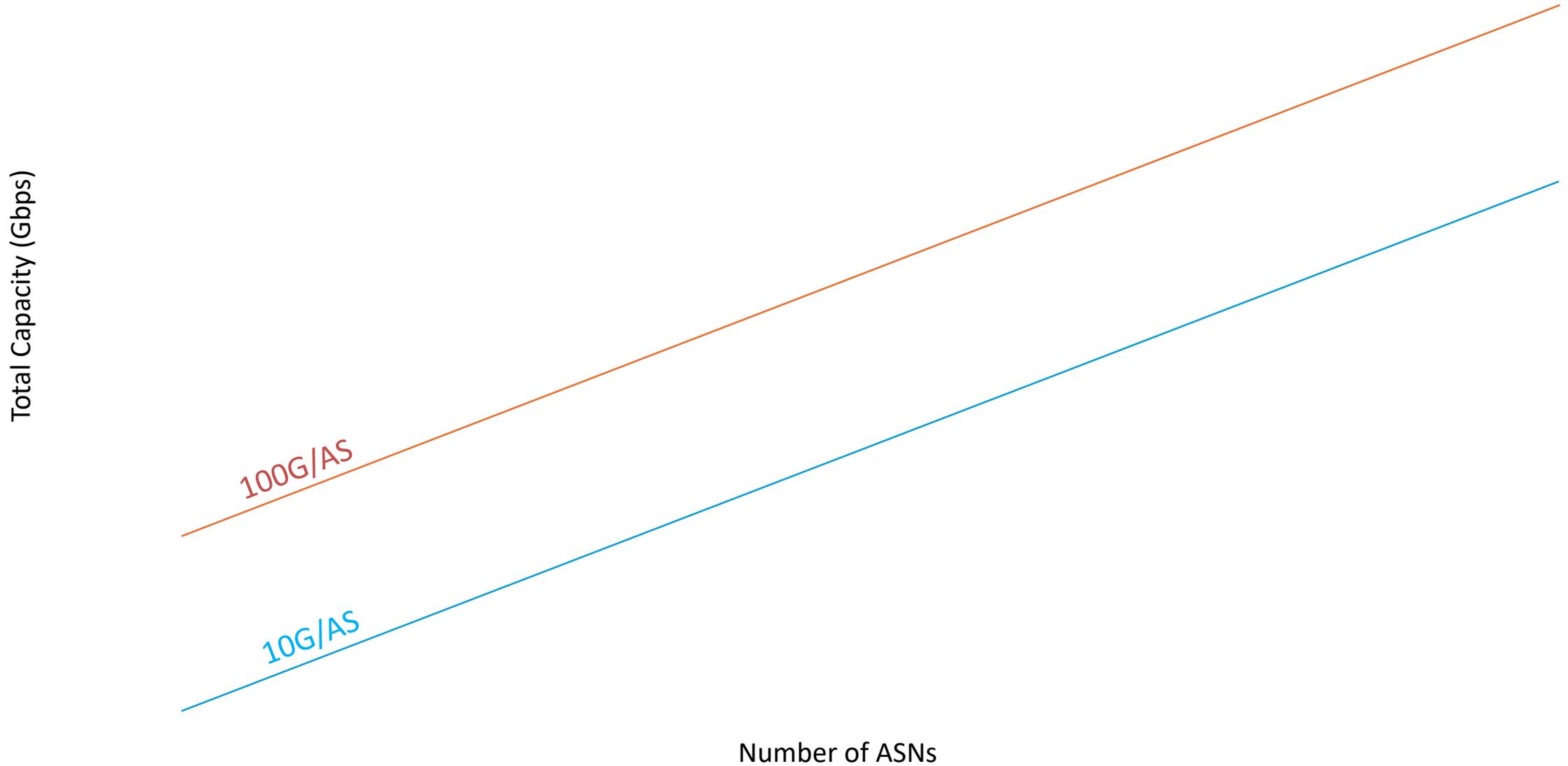
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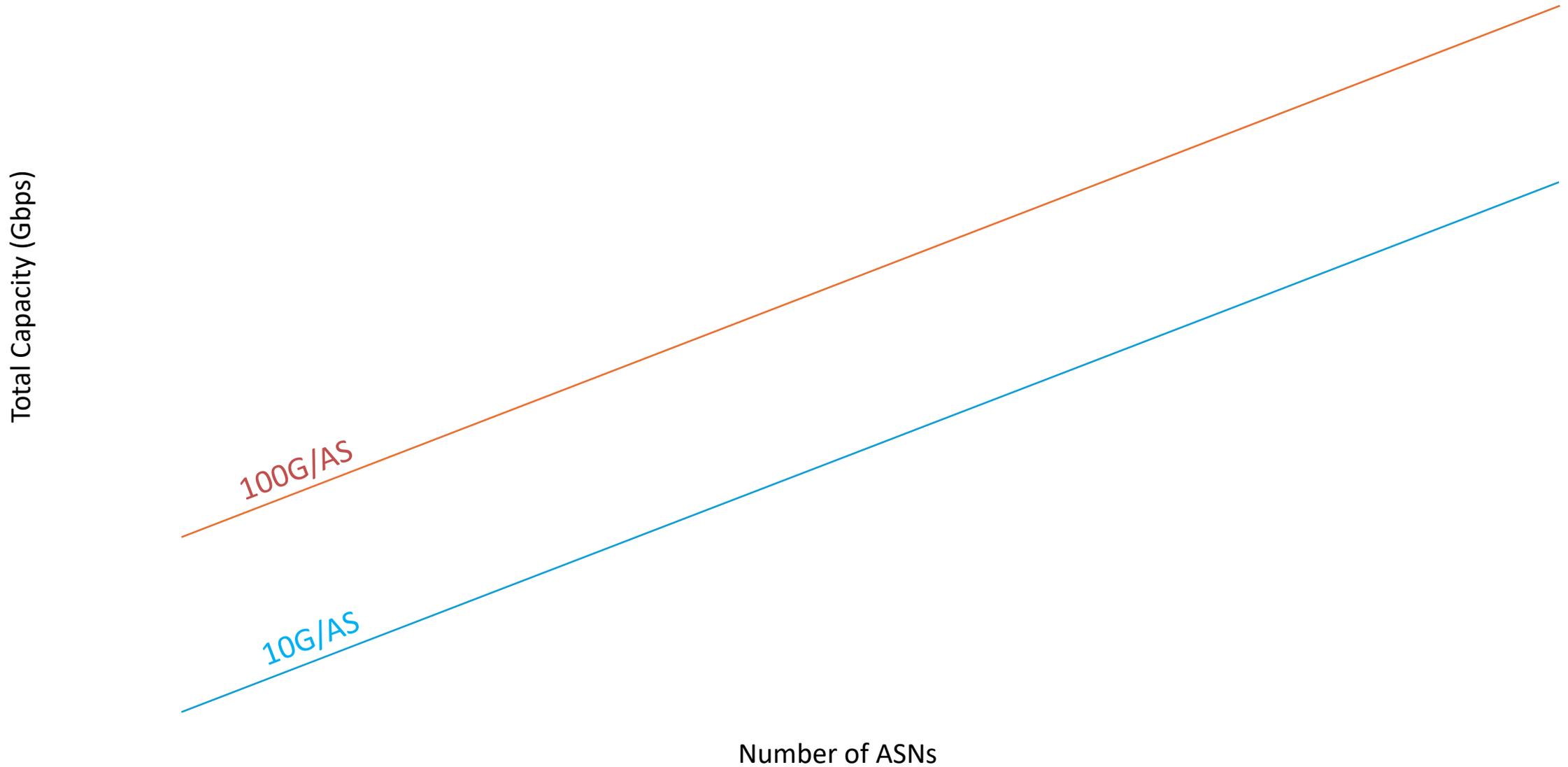
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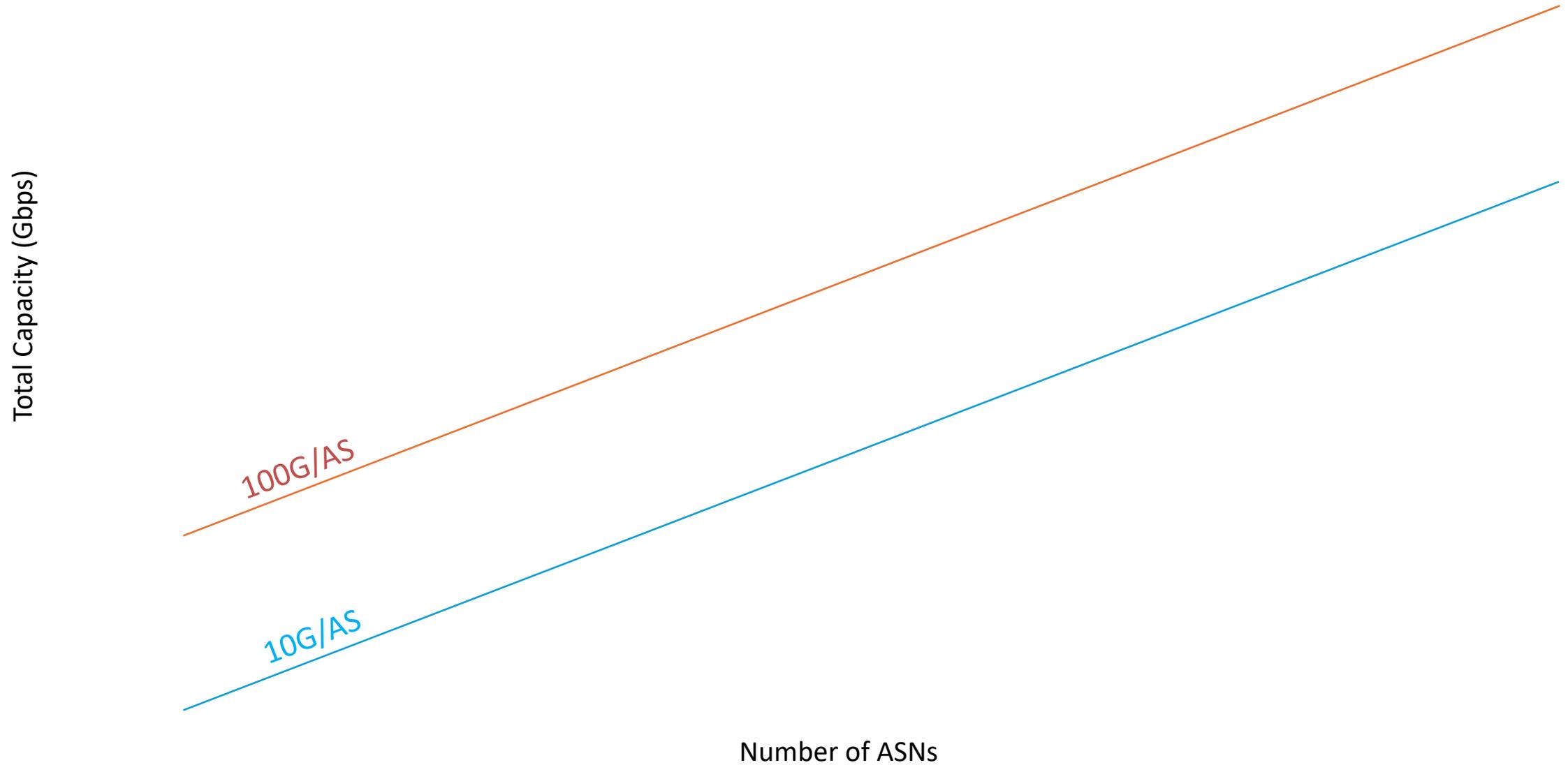
# Tokyo, Japan



# Jakarta, Indonesia



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# Manila, Philippines

