“Inter-net” in Japan

Hideyuki Sasaki
BBIX, Inc.

“Inter-networking” in Japan

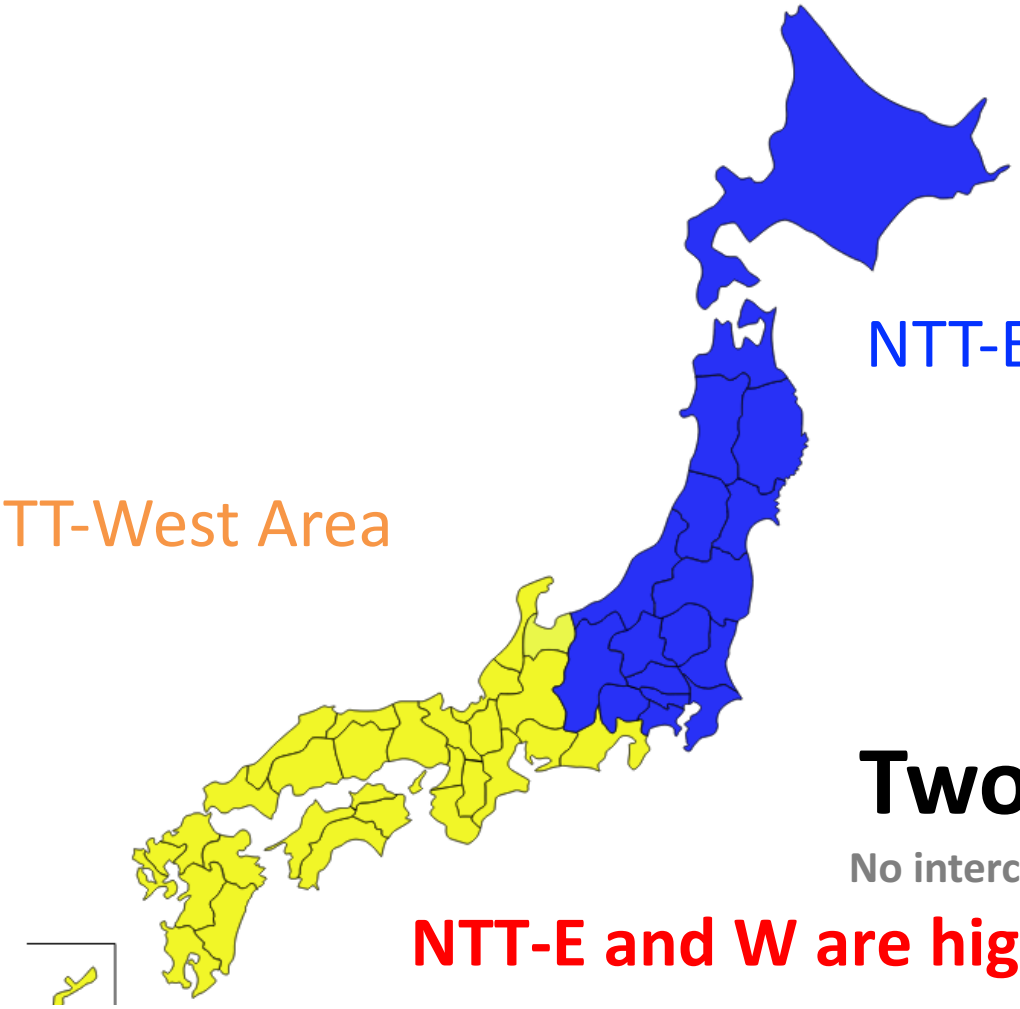
- **Nationwide backbone**
  - Carriers
  - Dark fiber market
- **Access / Metro Networks**
  - Types of the connection
  - Flet’s
- **Inter-connection**
  - International
  - Transit
  - Peering

3 major Carriers in Japan

	NTT Group	KDDI Group	SoftBank Group
Mobile	NTT docomo	+UQ Mobile	+Wireless City Planning
Backhaul Internet	NTT Communications NTT PC, NTT-ME, etc	KDDI	SoftBank
Access Line	NTT East NTT West		
Data Center	NTT Communications NTT Smart Connect NTT Data, etc		+IDC Frontier

NTT-C(AS2914) and the other NTT companies are different

Access lines are provided by NTT-E/W



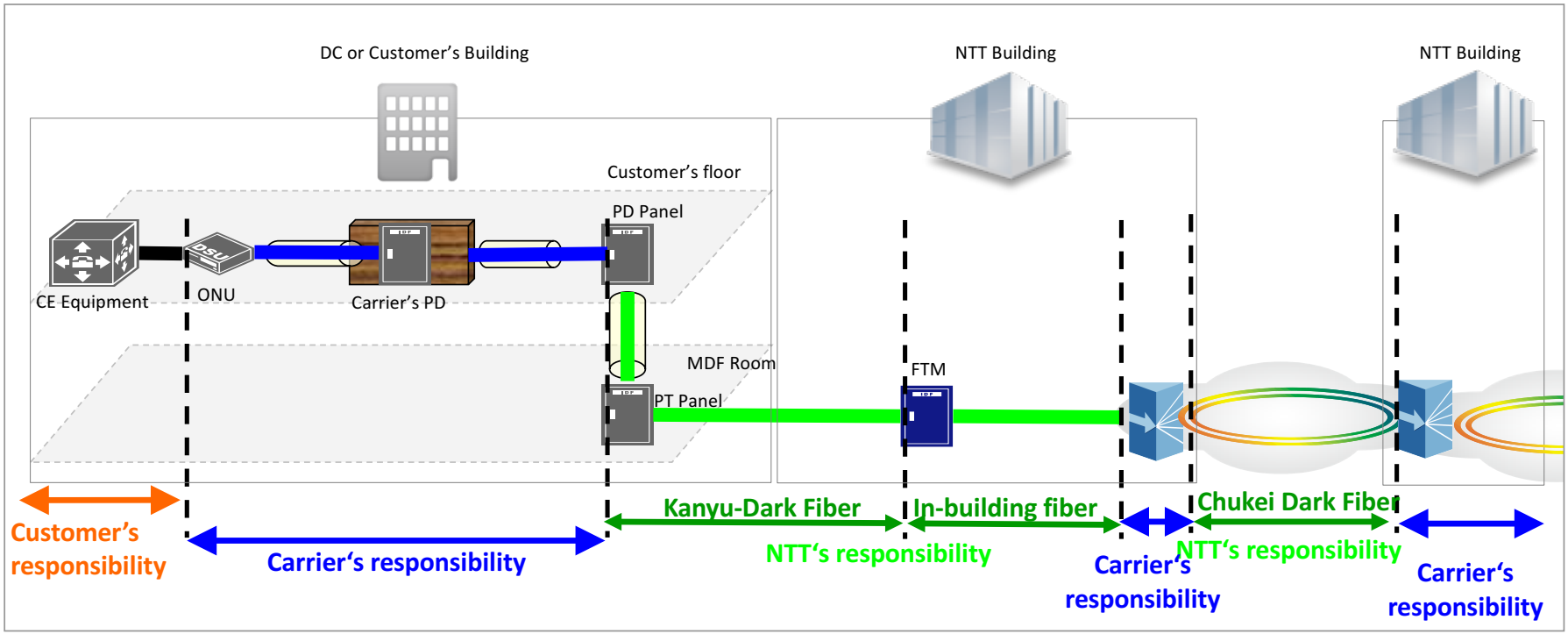
Two different companies

No interconnection can be provided between 2 region…

NTT-E and W are highly regulated by the government

NTT's Dark Fiber

- NTT-E/W are regulated to provide their DF to licensed operators in Japan.
- Two types of Dark Fibers
  - Kanyu(NTT building to the customer building) – Less than $30/fiber
  - Chukei(between NTT buildings) 1cent/1meter



Carrier's are efficiently using NTT's Dark fiber for their service.

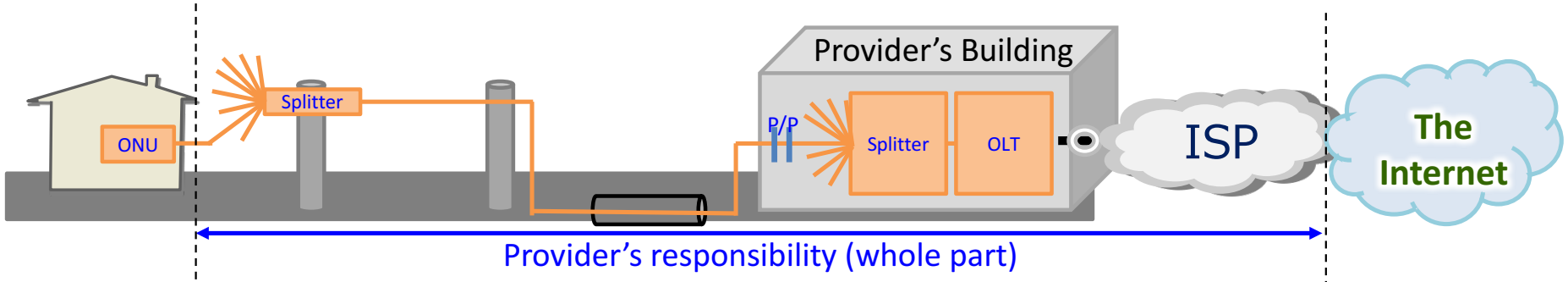
Optical Fiber (Other providers)

- Marunouchi Direct Access (in Marunouchi/Otemachi)
- NTT Smart connect (in Dojima complex)
- Railway companies (Tokyo metro, etc)
- Local governments
- CATV operators
- (Sometimes) Carriers

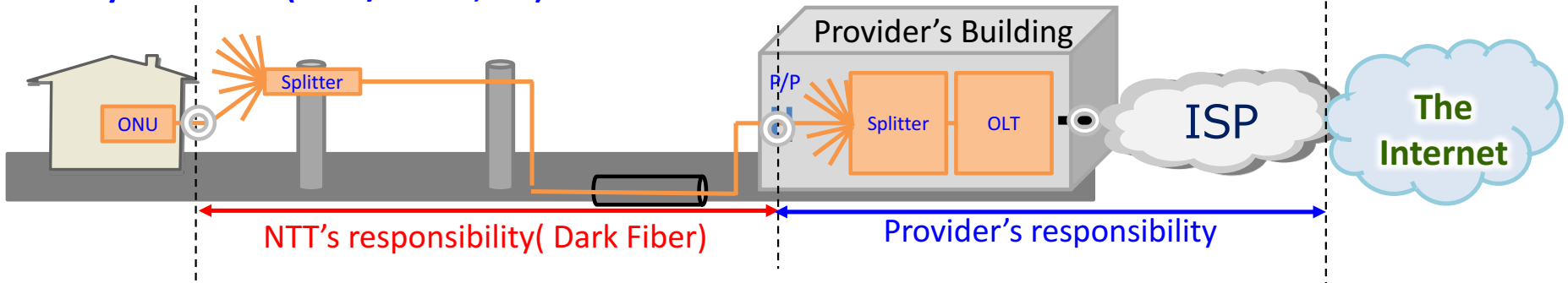
Still just the beginning

Access lines fibers for the Internet

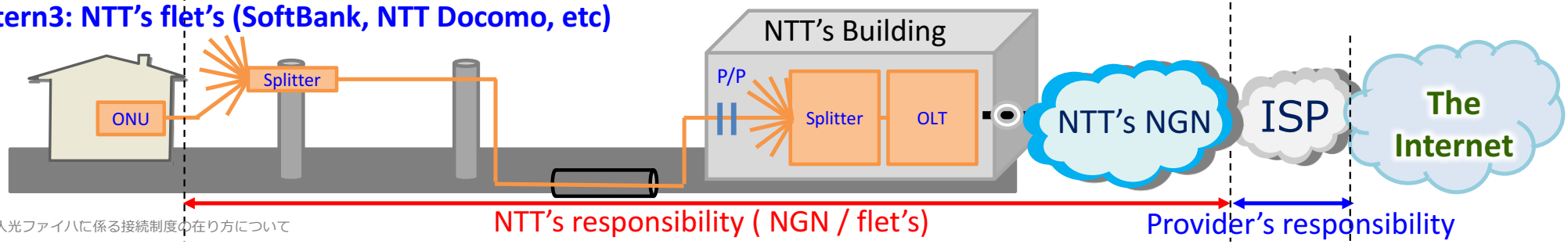
Pattern1: Fully independent from NTT (CATV, UCOM, Power-Co subsidiaries(incl. part of KDDI))



Pattern2: Hybrid model (KDDI/So-net, etc)



Pattern3: NTT's flet's (SoftBank, NTT Docomo, etc)

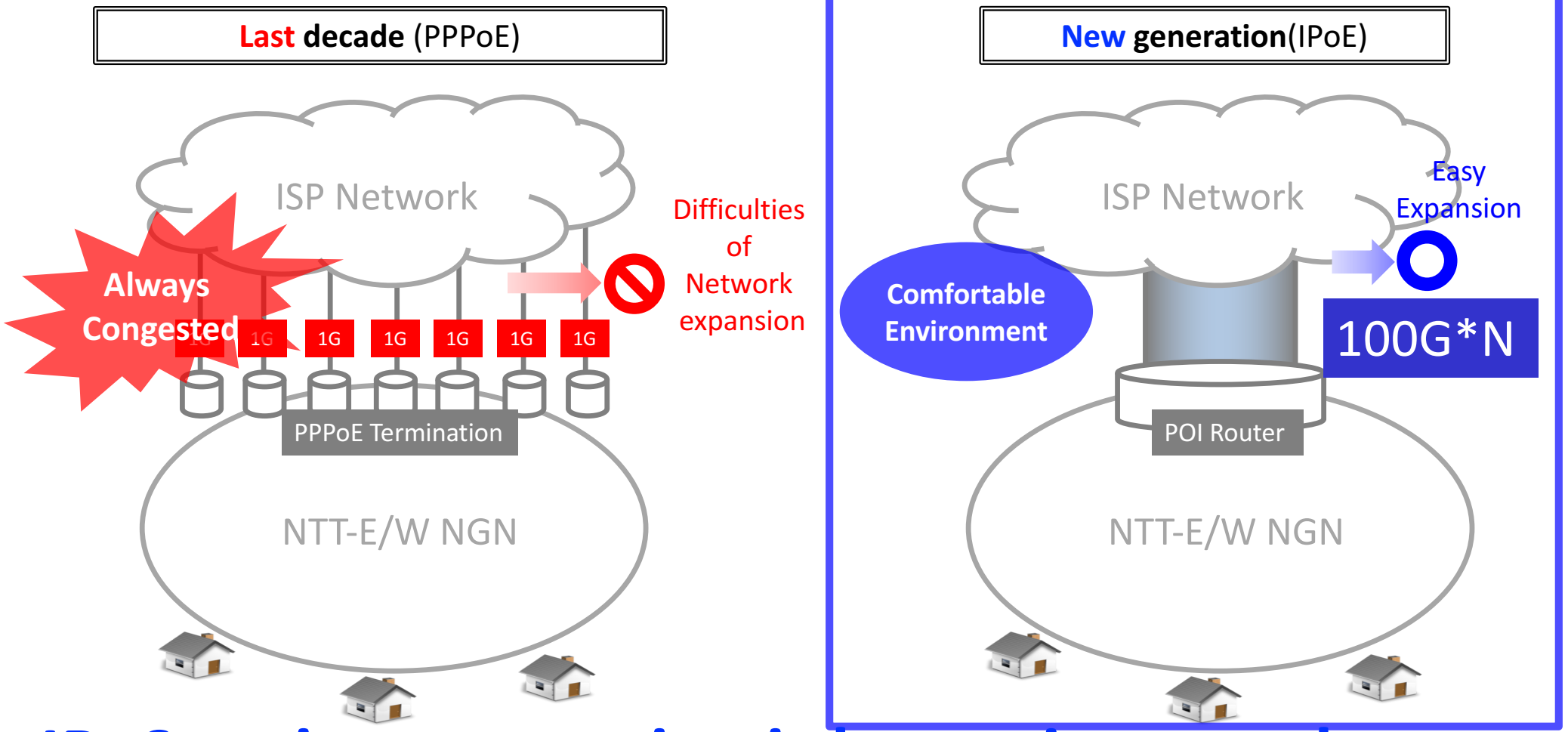


*Source:*加入光ファイバに係る接続制度の在り方について

NTT's flet's network

- One of the worlds' first nationwide FTTH services.
  - 10Mbps(2002) to 1Gbps(current)
  - PPPoE to IPoE (NGN)
- Internet connectivity is provided by ISPs.

Differences between PPPoE and IPoE



IPv6 native connection is becoming popular now

10G services by regional CATVs

平成28年11月21日

報道関係者 各位

インターネット新潟県内最速10ギガ！

NCT光 平成29年1月よりサービス開始

広がるエリア！ 長岡市はもとより、見附市、旧栄町、旧三条市全域にサービス拡大

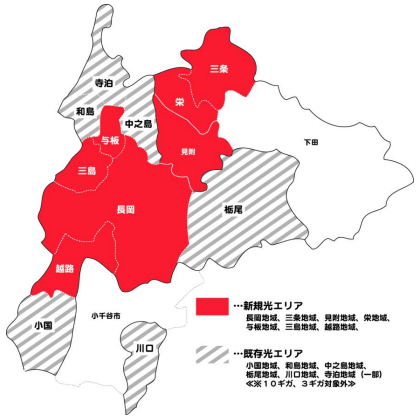
株式会社ＣＣＪグループの株式会社エヌ・シィ・ティ（本社：新潟県長岡市、代表取締役社長：澤田正彦、以下「ＮＣＴ」）は、光ファイバーによるインターネットサービス「ＮＣＴ光」を平成２９年１月より開始いたします。

「ＮＣＴ光」は新潟県内最高速度のインターネット接続サービスです。１０ギガ、３ギガの超高速コースでお客様の速さへの要望にお応えします。（※既存光エリアを除く）

「ＮＣＴ光」は、平成29年１月にＮＣＴ本社屋のある長岡市千場近隣地域からサービスを開始し、翌２月からは、見附市、旧栄町、旧三条市、長岡市関原地域へとサービス提供地域を拡大いたします。
さらに、長岡市街地から与板地域、三島地域、越路地域へと逐次サービスエリアを拡大してまいります。

既にご加入いただいているお客様につきましては、エリア拡大にあわせて「ＮＣＴ光」への切替を順次 ご案内させていただきます。
また、コミュニティ放送や多チャンネル専門放送、ＫＤＤＩケーブルプラス電話は、継続してご利用いただけます。

ＮＣＴでは、今回の「ＮＣＴ光」の提供とあわせ、従来から実施している地域情報の発信を通じて、この地域の発展に寄与し、皆様に愛される企業であり続けるため、一層努力してまいります。



10G to the home service providers

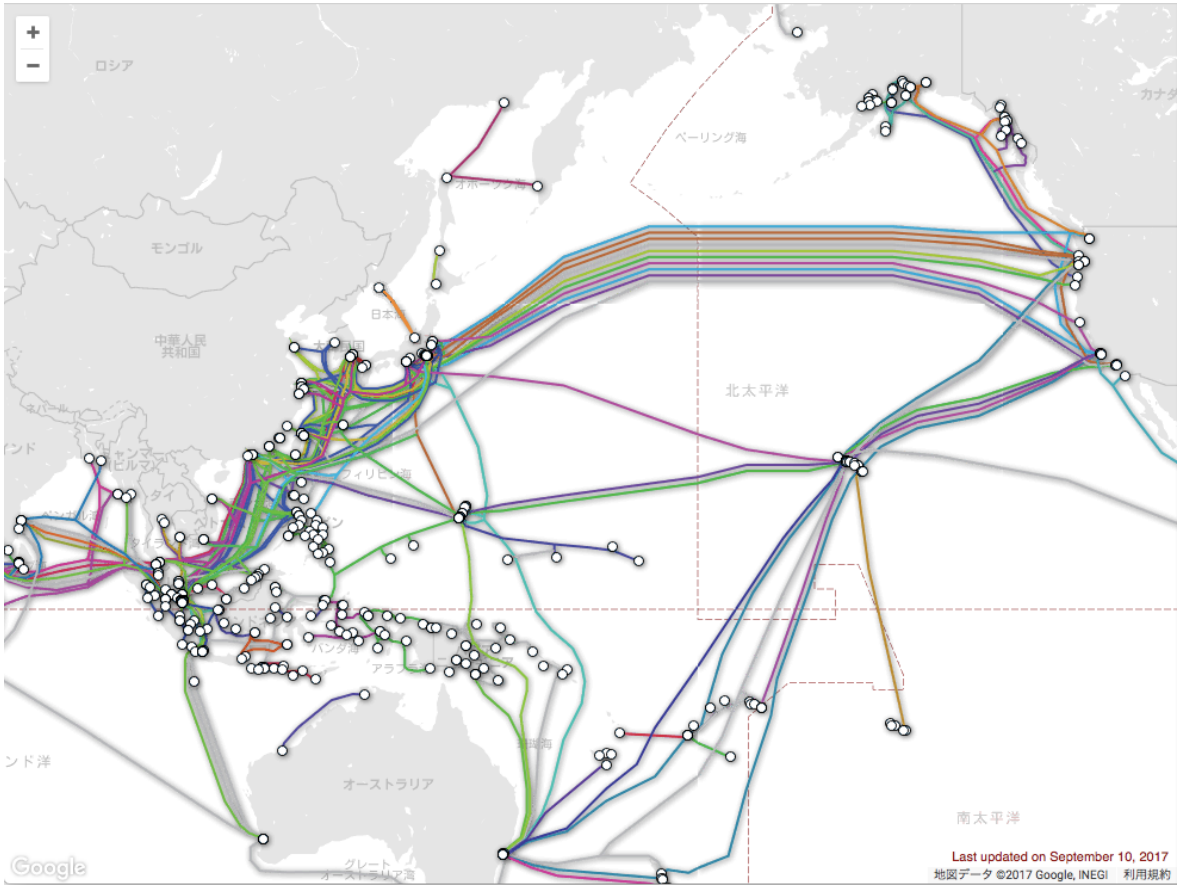
(My research basis)

- NCT (Niigata)
- TOKAI Cable (Shizuoka)
- Heartnetwork (Ehime)
- Akita Cable (Akita)
- Oita Cable (Oita)

MRC:$50-$200 range for their high speed services.

International

Japan is best “transit country” between US and Asia.



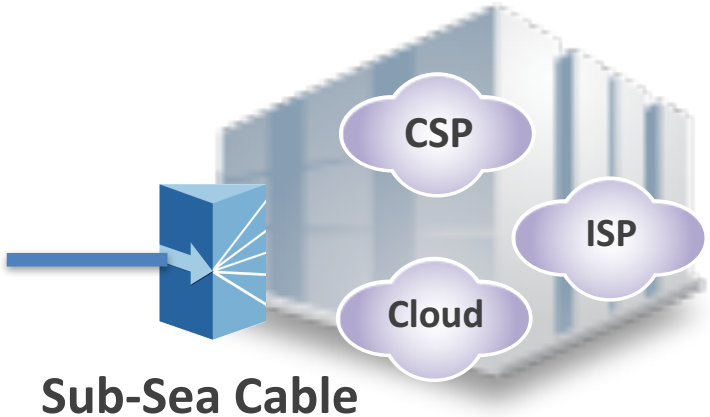
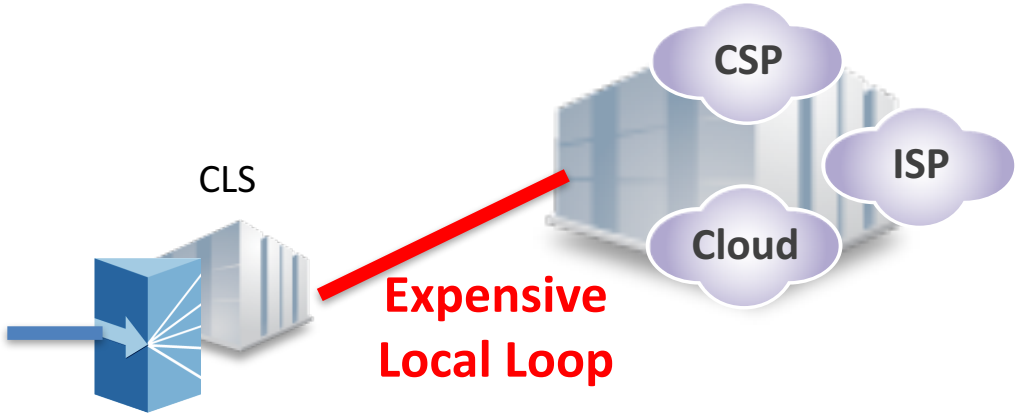
Intra Asia Cables	Trans Pacific
APG	FASTER
SJC	PC-1
ASE	TGN-Pacific
AJC	NCP
EAC-C2C	Unity
TPE	TPE
APCN-2	Japan-US
FNAL/RNAL	
TGN-IA	
GOKI	
KJCN	

Source:https://www.submarinecablemap.com

Shortest path from South East Asia to US West coast

- The shortest path from South-East Asia to the US goes through Japan
- The Great Circle Route shown above in purple line

Local Loop issue

In other Countries Cable Termination ≒ Network POP Traffic Exchange is available at CLS	Case in Japan CLS needs the connectivity with Metro area Traffic Exchange in CLS is almost unavailable
 Sub-Sea Cable Termination	DC in Tokyo Metro Area  Sub-Sea Cable Termination

We need to change this situation to make Japan as an Asian Hub

(Oops, my parent company is making this…)

Transit

(Players)

- Domestic Carrier/ISPs
  - NTT-C, SoftBank, KDDI
  - Arteria, TOKAI, BIGLOBE, IIJ
  - Power-co subsidiaries
  - Colt(ex-KVH), Sakura Internet
- Global
  - Telstra(incl. ex. Pacnet), TATA, PCCW, GCX
  - China Telecom, China Unicom, CMI

(Pricing)

Maybe, 5-10 times more expensive than US/Europe…

“Japan may be a last resort for IPT providers? ☺”

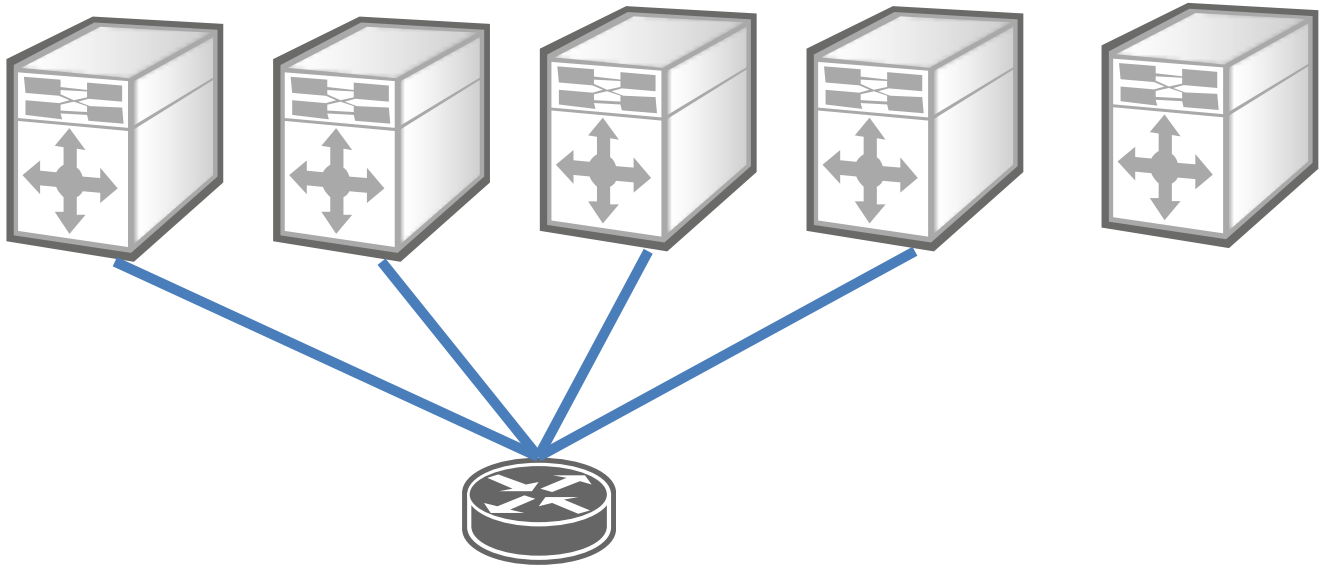
Excessive Quality Requirement

Eg.) Dual redundant configuration (N(2+2)+1)

(First pair)
For redundancy

(Second pair)
In case trouble happens,
during maintenance of First pair.

(Spare Parts)
Chassis is also stocked



We know it's expensive, but our culture brings higher cost. ☹

Unique Peering Environment in Japan

APNIC

言語を選択 | Contact us | Jobs | Site map | Search blog... Go

Your IP address: 202.45.12.140

Services | Training | Events | Research | Community | Blog | About | MyAPNIC

Peering sahou in Japan (sahou: the way to do things)

By Seiichi Kawamura on 10 Sep 2014

Category: Tech matters

Tags: Guest Post, IXPs, Japan, peering, routing

Like Share 0 Tweet 0

Blog home

Every region seems to have its unique peering environment, and Japan is no different. There are many international companies that extend out into Japan and peer at exchanges there these days, and I thought it may be worthwhile for some to share the culture and environment in Japan.

There are four big exchanges in Japan. All are located in Tokyo and those are JPIX, JPNAP, BBIX, and Equinix (order does not reflect and size or preference). ISPs from all around the country extend out into Tokyo to peer at these exchanges. Of course there are exchanges in other cities. Osaka is growing especially rapidly these days, but I would say Tokyo is still has the big mass by far. If you looked at who owns these exchanges, you may be surprised that all except Equinix, the major share holder is one of the big three telcos. It is also interesting that the exchanges have managed to keep their neutrality and have switches in carrier neutral data centers despite their ownership.

Get updates

Email

Subscribe! Show options

Latest Tweets

Learn how you can use @RIPE_Atlas anchors to check you Internet connectivity http://t.co/gKYi3mQTpJ, 2 hours ago

Kae Chun Jul (National Foundation Day) South Korea!, Oct 3

Fascinating Internet performance measurement initiative from Brazil. #LACNIC24 @lacnic https://t.co/FHPtPFjQg3 http://t.co/AZJC6qEC0H, Oct 3

Authors

▸ Adli Wahid

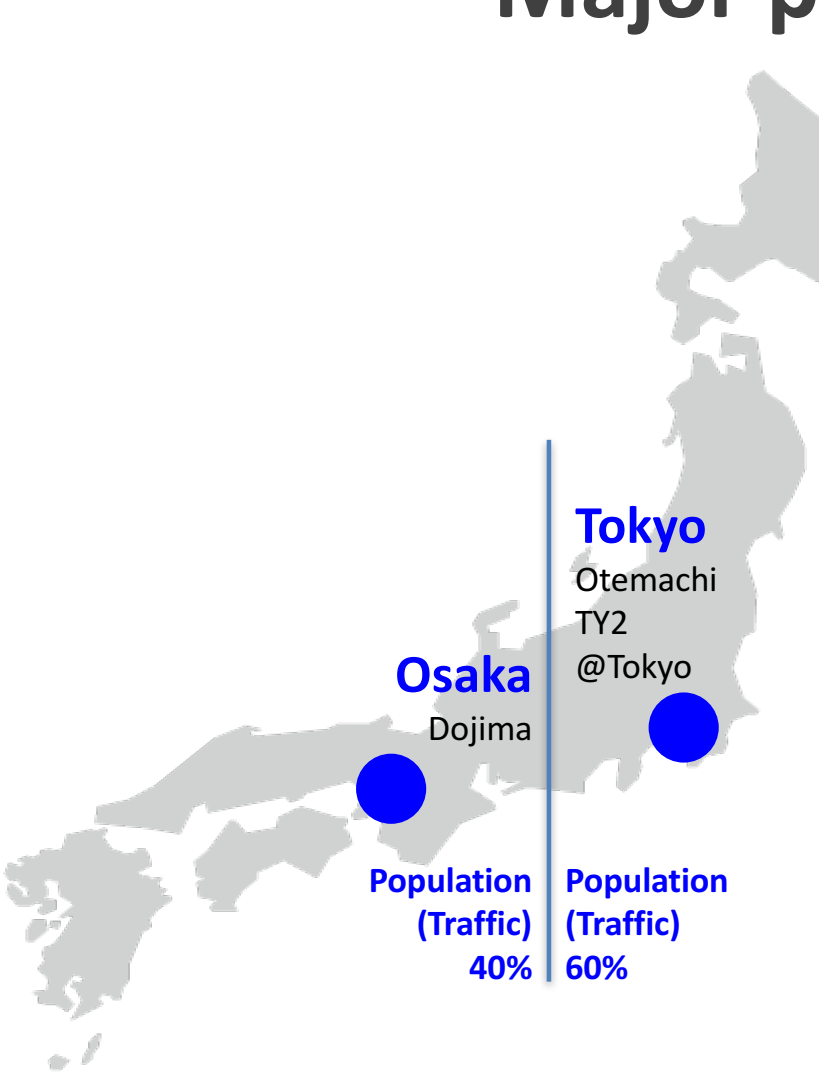
▸ Bhadrika Magan

- Disaggregated Traffic (400+ ISPs)
- Language barrier
- Expensive IX price

Much different from other areas, the peering environment in Japan is so unique as Mr. Kawamura introduced at APNIC Blog.

https://blog.apnic.net/2014/09/10/peering-sahou-in-japan-sahou-the-way-to-do-things/

Major places for Peering



Tokyo:
More than 99% traffic coverage in Tokyo

Osaka:
Handful major players + Global contents

IX providers in Japan

JPNAP

- NTT Group
- Tokyo and Osaka

BBIX

- SoftBank Group
- Tokyo, Osaka, Okinawa and Maruyama CLS

JPIX

- KDDI Group
- Tokyo, Osaka, Nagoya and Okinawa

EIE

- Equinix
- Tokyo & Osaka

Ask each of us for the detail. ☺

Peering Communities

- JANOG (twice a year)
- Peering in Japan Slack community
- IXP Users' meeting
- Peering Asia ☺

“No Peering, No Internet”