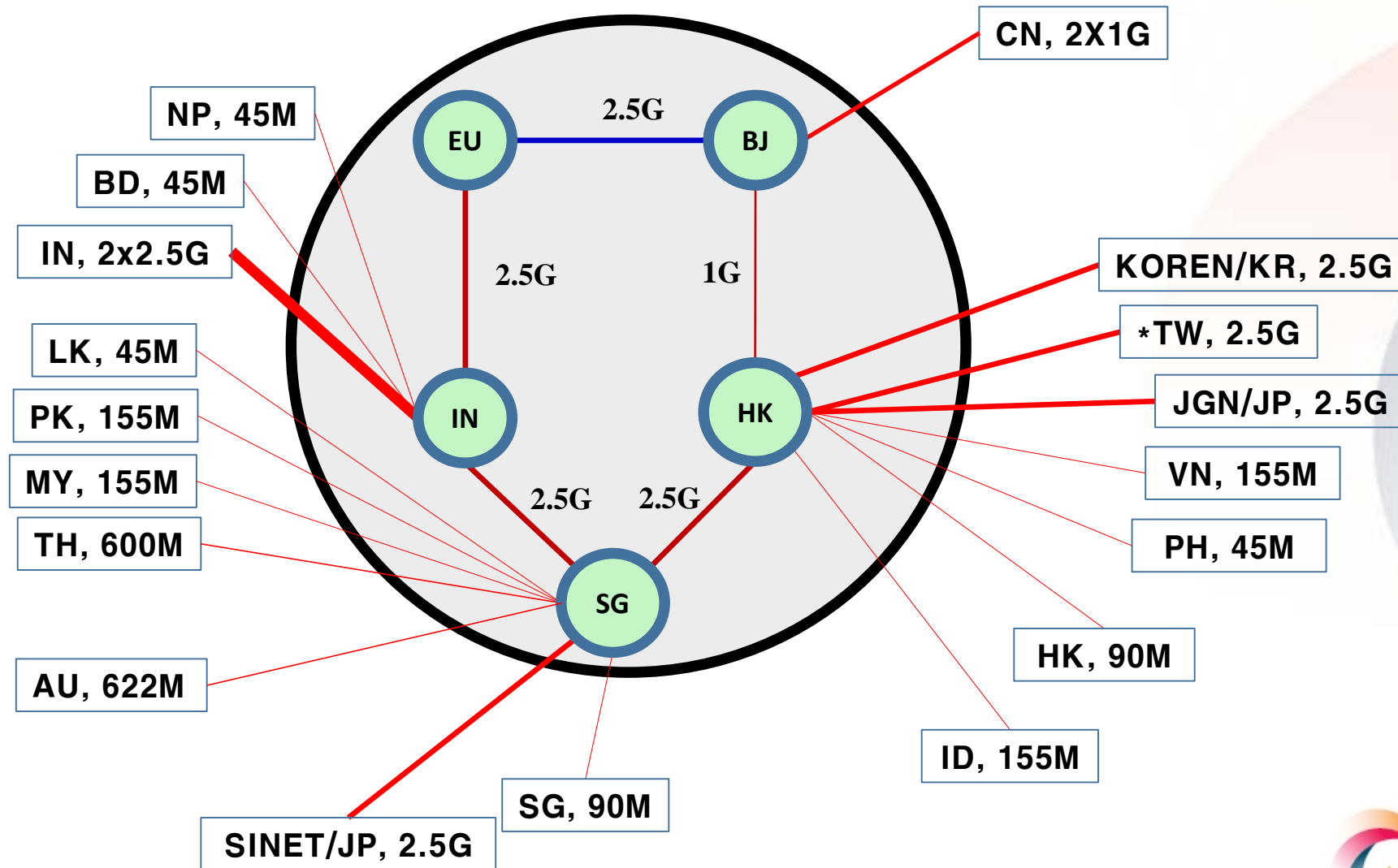1. **TEIN, how it has progressed?**
   a. February 2012
   b. March 2018
   c. Brief look at increase of bandwidths
   d. Costwise change

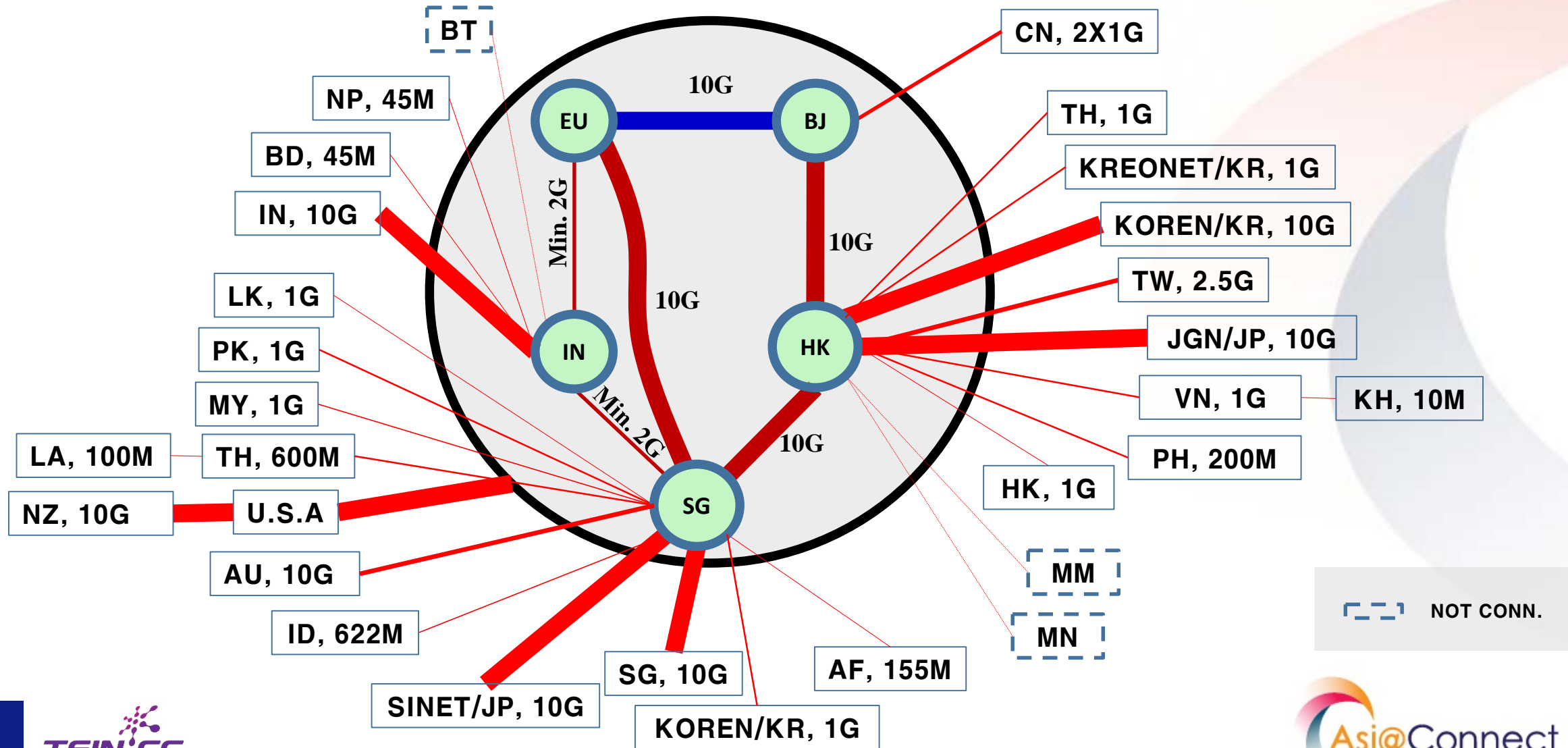2. **Plans for the future**
   a. 2018
   b. After 2018

Patch Lee

TEIN*CC

25 March 2018

1.a TEIN Networks – Topology (as of Feb. 2012)

CN, 2X1G

NP, 45M

BD, 45M

IN, 2x2.5G

LK, 45M

PK, 155M

MY, 155M

TH, 600M

AU, 622M

KOREN/KR, 2.5G

*TW, 2.5G

JGN/JP, 2.5G

VN, 155M

PH, 45M

HK, 90M

ID, 155M

SG, 90M

SINET/JP, 2.5G

EU — 2.5G — BJ

2.5G

1G

IN

HK

2.5G

2.5G

SG

1.b TEIN Networks – Topology (as of March 2018)

1.c TEIN Networks – Bandwidths & Traffic usage

Bandwidths

	Jan. 2013	Jan. 2018	%(CAGR)
Backbone	6,000	32,000	40
Access	16,702	74,187	35
SUM	22,702	106,187	36

- Unit: Mbps

vs.

Traffic Volume

	2012	2016	%(CAGR)
Inbound	5,436	9,222	14
Outbound	4,869	10,566	21
SUM	10,305	19,788	18

- Unit: TB

1.d TEIN Networks – costwise, see the trends

Price variation 2012 to 2018
- EUR per Mbps per Month

Legend: Asia to Europe, Bangladesh, Indonesia, Malaysia, Nepal, Pakistan, Vietnam, Sri Lanka, The Philippines
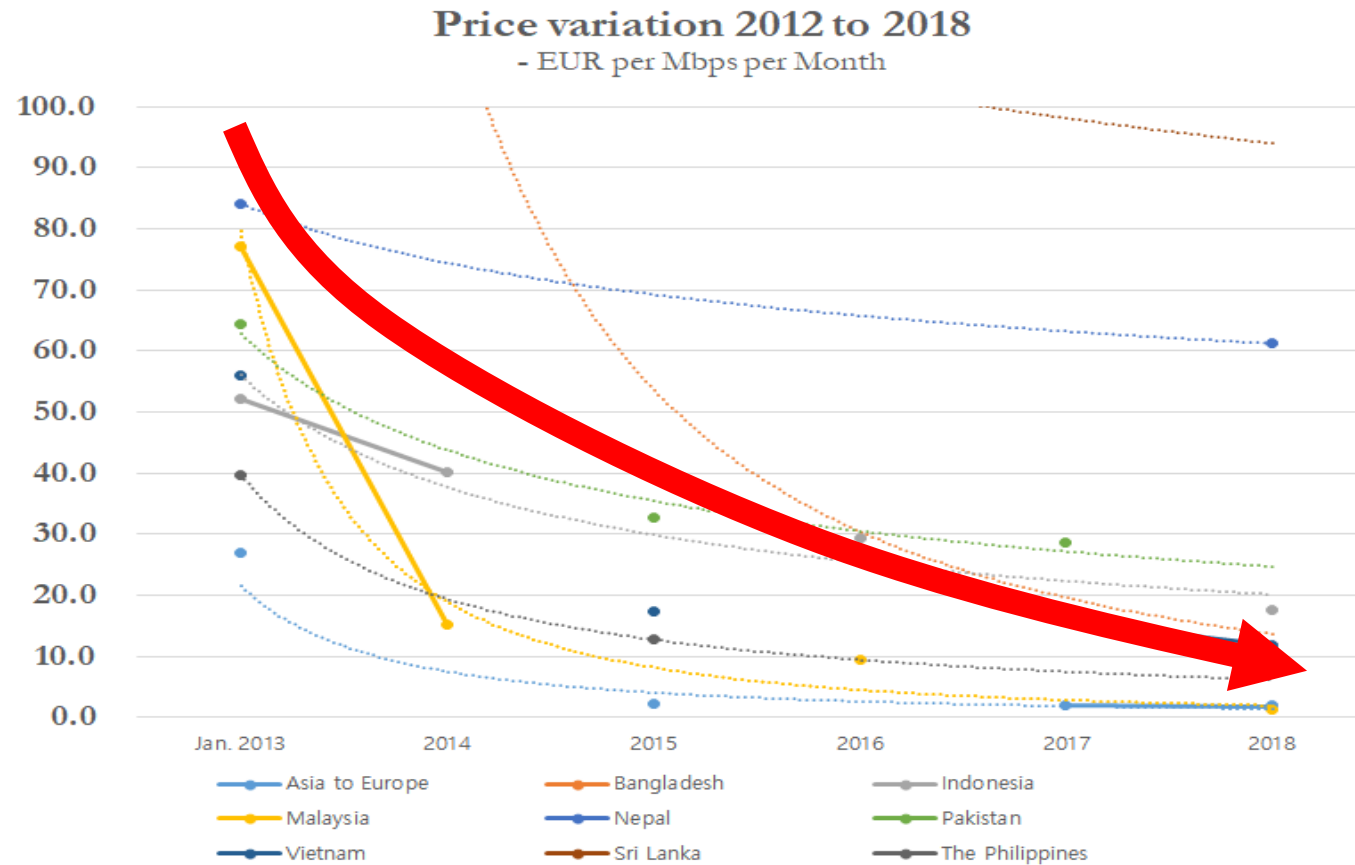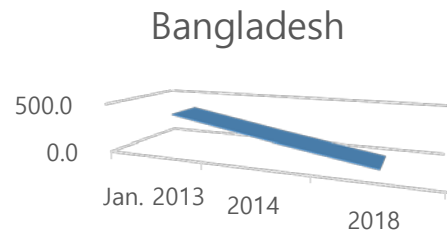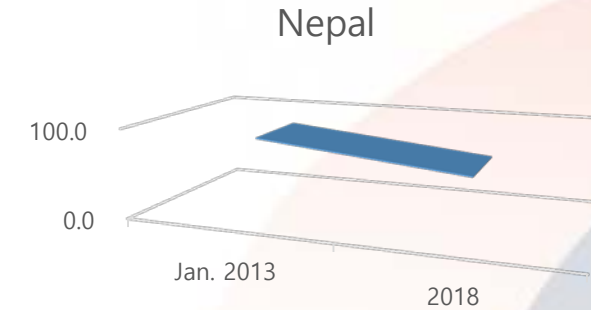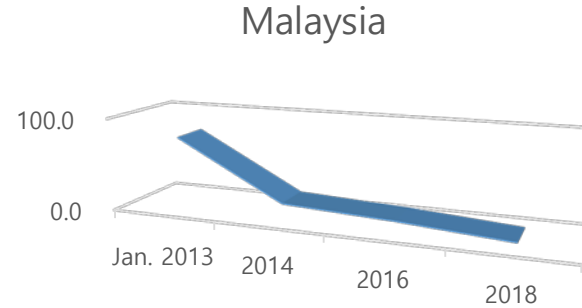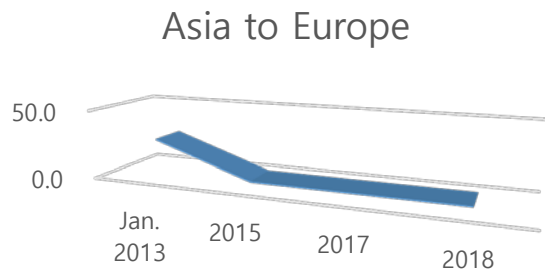
✓ **Price is Continuously moving downward sharply**

- Information reflects on IPLC (International Private Leased Circuit) trends in many of TEIN countries.

1.d TEIN Networks – how it changed, case by case?

Asia to Europe

Malaysia

Nepal

Bangladesh

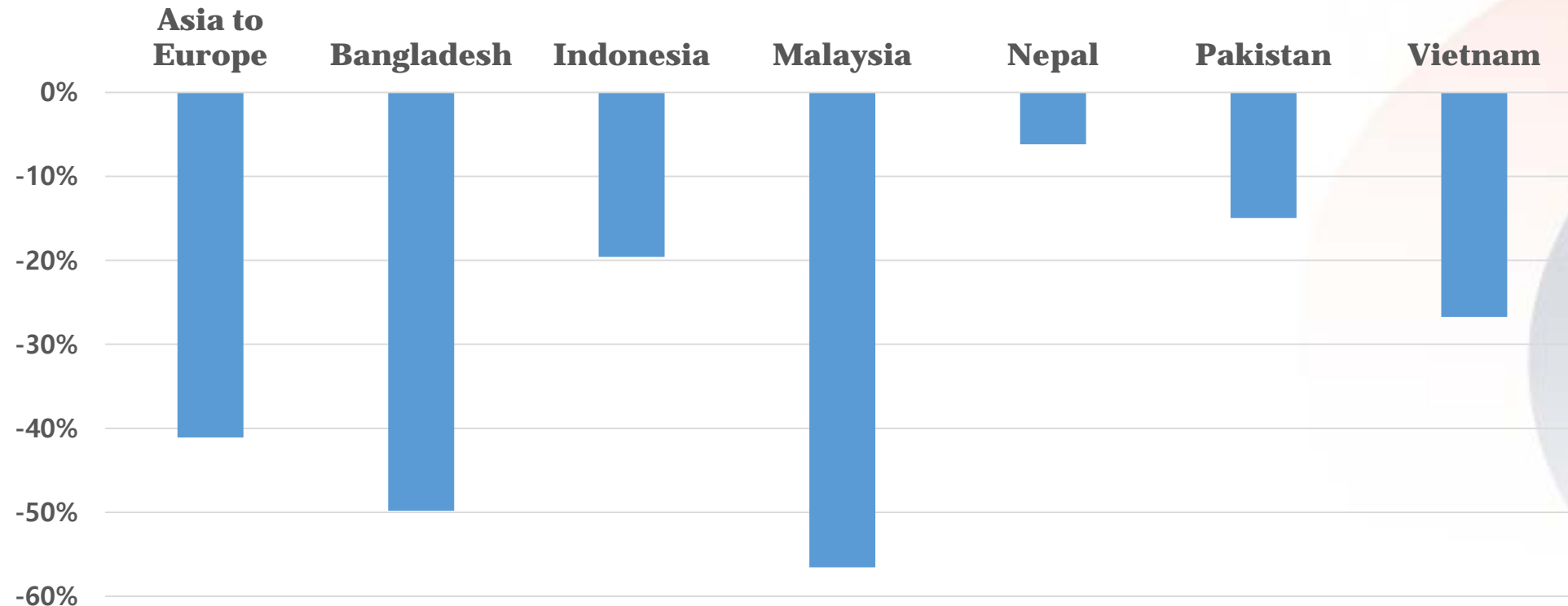Vietnam

Sri Lanka

Indonesia

Pakistan
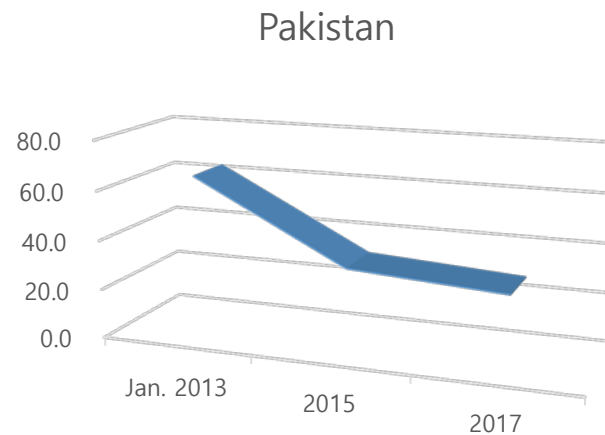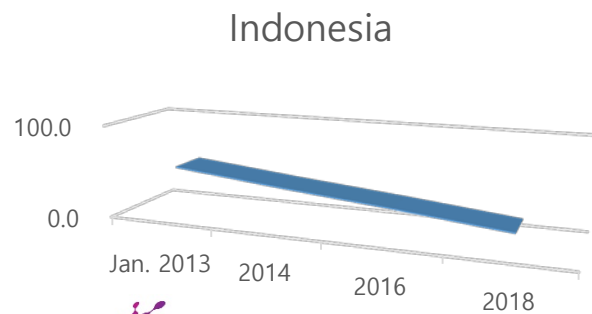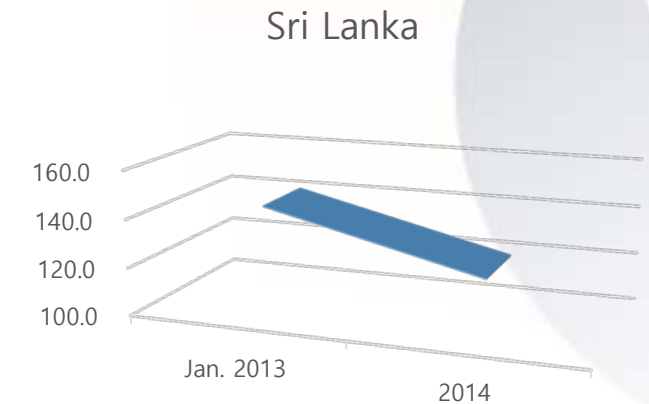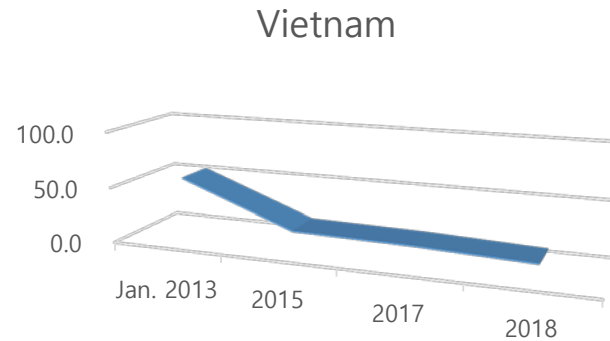
Factors:
- IPLC price
- EUR per Mbps per Month

l.d TEIN Networks – costwise how it changed?

CAGR Mbps Monthly Lease Price Reductions for Selected routes

- Information reflects on IPLC (International Private Leased Circuit) trends in many of TEIN countries.

1.d TEIN Networks – How come so much difference?

❖ **New sub-sea cables launched**
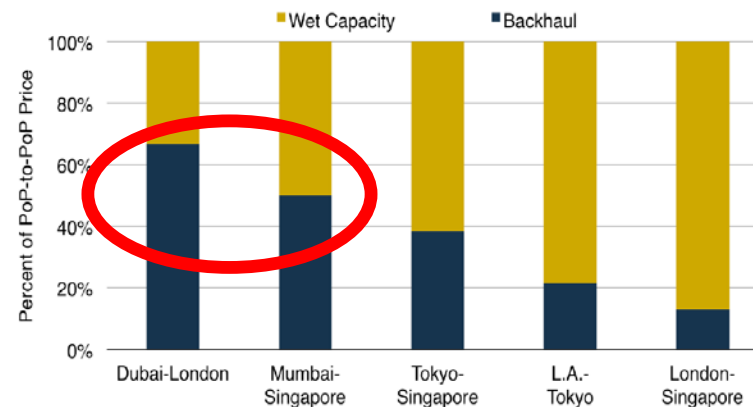 ▪ SMW5(Asia-Europe, 2016), APG (Intra Asia, 2016), SJC(Intra Asia, 2013)

❖ **Capacity surging due to technology advancement in fibres, equipment**

❖ **Competition heats up in domestic markets**
  ▪ Malaysia(?)

Src: TeleGeography

2.a Plans for - 2018

❖ **Completion of 2017 IPLC procurement tender**
- 9 Access links (BD, KH, ID, LA, MY, MN, MM, NP, VN) started, but MN dropped
- Confirmed: MY(10G), ID(1G) & VN(1G), June 2018 targeted to deliver

Activity	Timeline
Contract Notice Issued	20 June 2017
Expressions of Interest received	~ 24 July 2017
Shortlisting completed	30 September 2017
Formal Invitation to Tender (ITT) released	1 October 2017
Formal ITT responses received	~ 20 November 2017
Evaluation complete	~ 25 February 2018
Publish tender awards (1st, MY, ID & VN)	22 March 2018

2.a Plans for - 2018

❖ **New routers (MX480, Juniper) at HK & SG POP**
  - Procurement process is done, expect to be installed around May
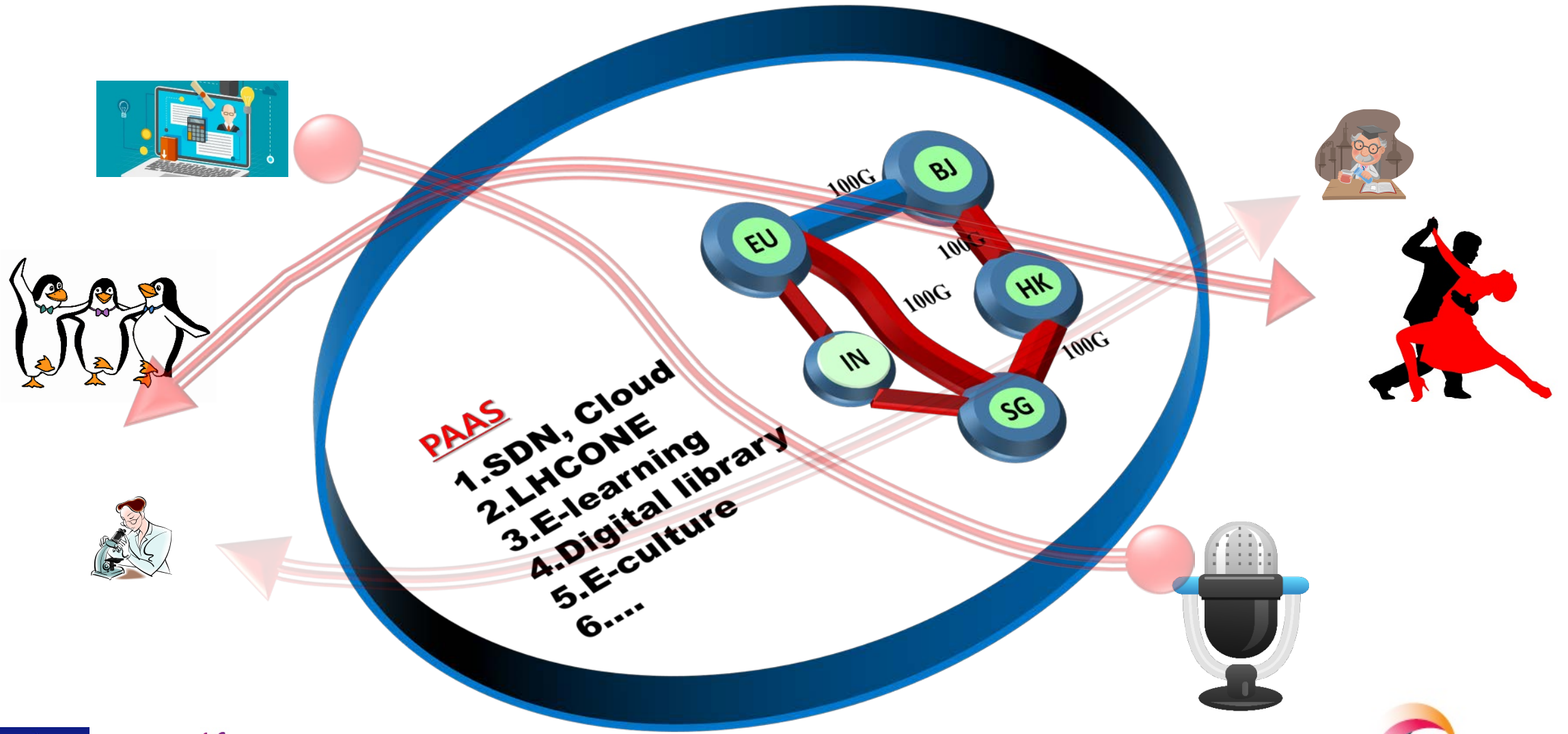 - Meet demands for 10G & 100G upgrades, connections to IXes.

❖ **NMS(Network Monitoring System) revamp**

❖ **Application Database for Asi@Connect**
  - Basic storage for all the results throughout TEIN4 and Asi@Connect period

2.b Plans for the future – Platform

PAAS
1. SDN, Cloud
2. LHCONE
3. E-learning
4. Digital library
5. E-culture
6. ...

100G
100G
100G
100G

BJ
EU
HK
IN
SG

Thank you!!!