

::: SANOG-32, **DHAKA**, **BANGLADESH** :::

Next Generation Broadband [Part – I]

INTERNET ECONOMICS: Urban and Rural perspectives

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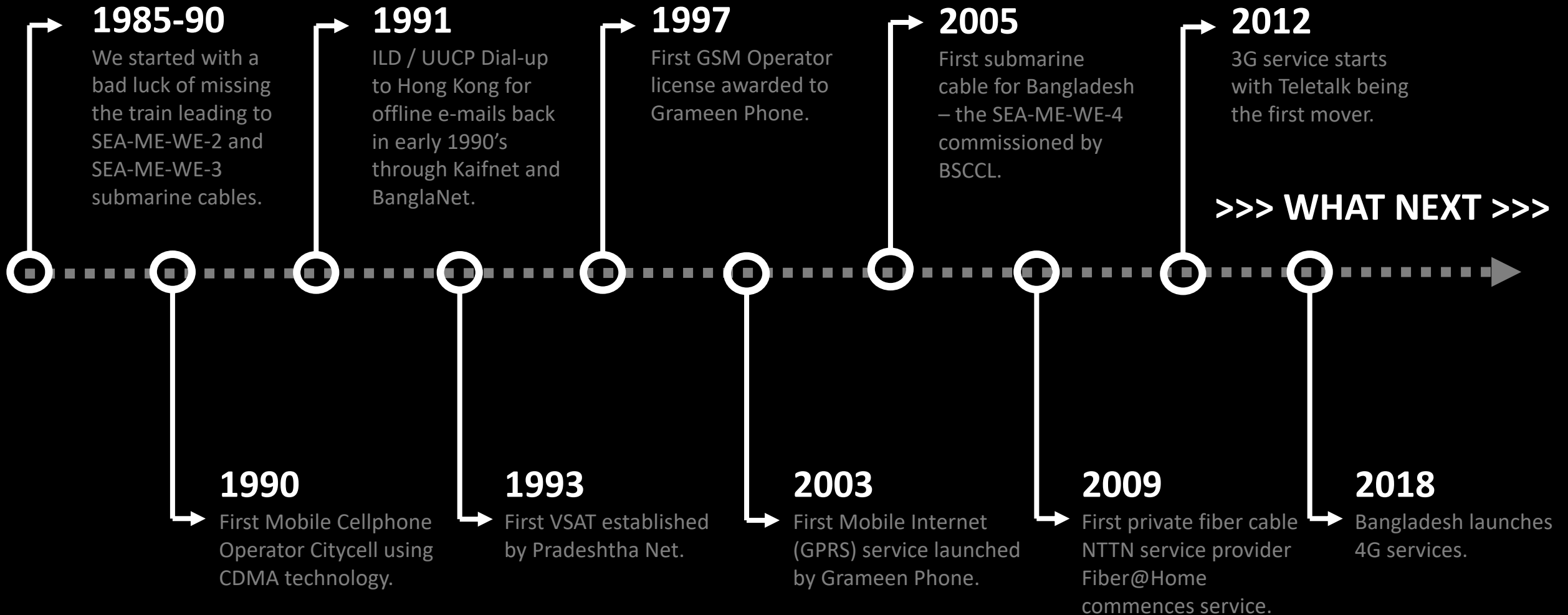
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“A BRIEF HISTORY OF TIME”


- STEPHEN HAWKING

Journey of Internet in Bangladesh




The scale of Internet subscribers in Bangladesh

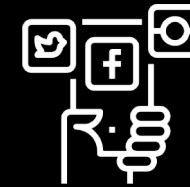
* Updated as of June 2018 from BTRC website.



150.945
Million
Mobile
Subscribers



87.79
Million
Internet
Subscribers



82.024
Million
Mobile Internet
Subscribers

93.43%



0.081
Million
WiMax
Subscribers

0.09%



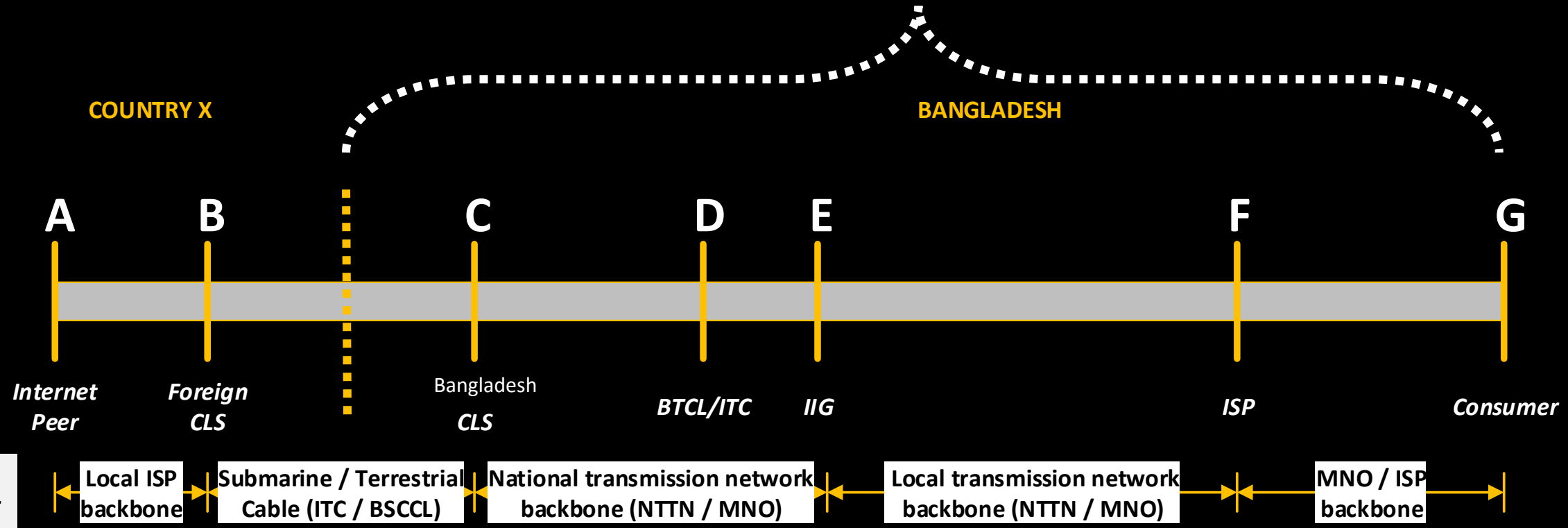
5.685
Million
Broadband + PSTN
Subscribers

6.47%

Technology trend is leading towards a
Wireless future

How Internet reaches the last mile in Bangladesh

Optimization is possible here as **70%-80%** of the cost lies in this part



Considering the cost points how can we try to **Standardize the cost at the last mile?**

Lack of infrastructure **limits economic growth** at last mile



Development is always centered around **Metropolitan cities and Economic growth centers** which are facilitated with basic infrastructure, access to education, financial institutions and communication infrastructure

This means for other areas there is a **LACK of**

Proper physical infrastructure reaching other rural areas

Educational institutions; as a result less qualified resource building options

High yielding economic activity

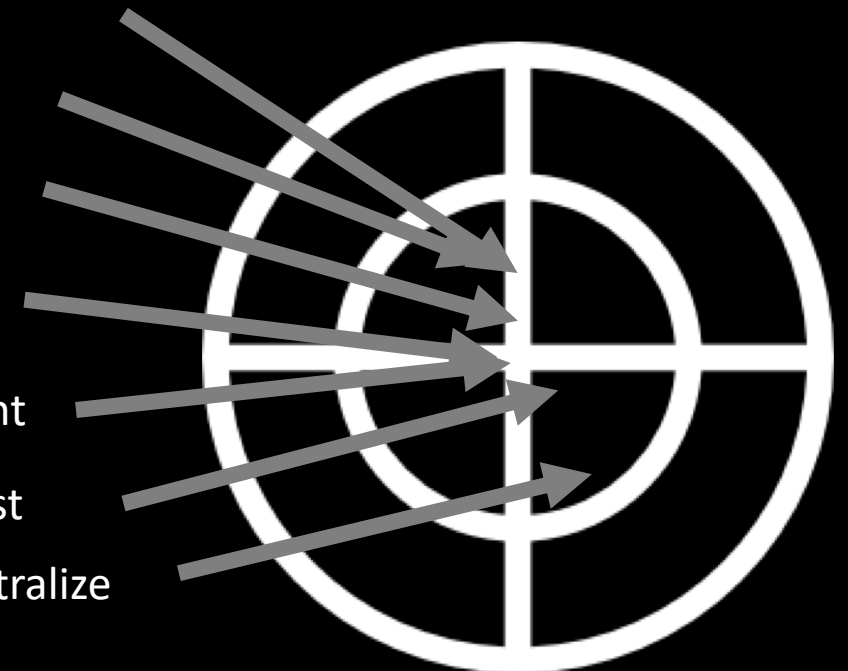
Financial infrastructure

Development

Interest for service providers to invest

This is why Government can't decentralize

**AND AS A
RESULT**

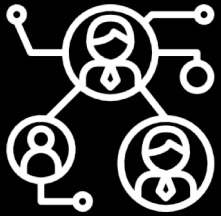


A lot of people are **flocking towards Urban cities**
while others are contributing to the **Digital**
Divide;

From Regulatory perspectives network operators
have a lot to do here...

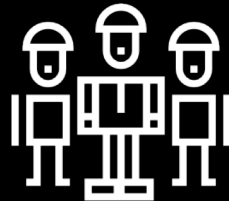
Our Regulatory Framework needs **more support from us**

URBAN



Create more Business friendly environment

Empowerment of Associations / Trade Bodies

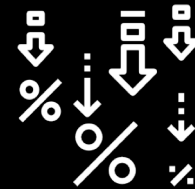


Fair play

Are we doing enough to educate customer?



RURAL



Price protection for sustainability in market

Creating policies for Digital Inclusion



Help Enforce law and build communities for better future



Raising awareness and offering VGF to build infrastructure



For better economics hack different **stages of growth**

	Stage-1	Stage-2	Stage-3
Subscribers	0 – 1,000 subs	1,001 – 10,000 subs	10,000+ subs
Bandwidth usage	Upto 500Mbps	Upto 10Gbps	Over 10Gbps
	Single PoP	2-10 PoP	Own Infrastructure and multiple PoP
Coverage	Locality	City	Multiple city (Urban and/or Rural)
Services	Residential broadband and some corporates and small scale FTP	Residential, Corporate, Small scale providers, FTP services, Gaming,	Residential, Corporate, Small providers, Cloud, Infrastructure, other VAS such as FTP Services, Gaming, Cyber Café, Hardware sales, PC repair, etc...
Service optimization	Transit	Routing optimization, CDN	Peering, Multiple CDN, Cloud, Portal
Technology	Ethernet	Ethernet, GPON	Ethernet, GPON and yes Legacy tech such as P2P Radio's!!!
Staff	3-10	11-100	100+

Why can't we grow above **Stage-3**

- Low education
- Lack of vision
- Lack of educated personnel
- Lack of Business analysis capability
- Meagre investment (din ani din khai)

- Basic Internet barely satisfies the needs of the customers. We need access to international content as well as create proper localized Content

- We use FB, Youtube and recently live TV is catching up as a trend which make up 90% of our user base

- Dark content being served as an alternative to facilitate demand

- This is where there is room for investment and growth. Businesses can see potentially positive revenues from such sector.

- Foreign organizations are bringing their focus here.

Big Data is the way to grow by **consumer data behavior analysis**

Traffic usage pattern (Time of day, Weekend, Holidays)

Types of traffic being used

What are these traffic entities

Routes being taken by such traffic

How you are connected to these routes

What more you can do to optimize these routes

Cost factors involved for optimization (at times you don't)

Can you bring in such content and cache them

Plan on how you can offer similar services

Are there any regulatory constraints

Customer charging and packages

Better service brings better yield

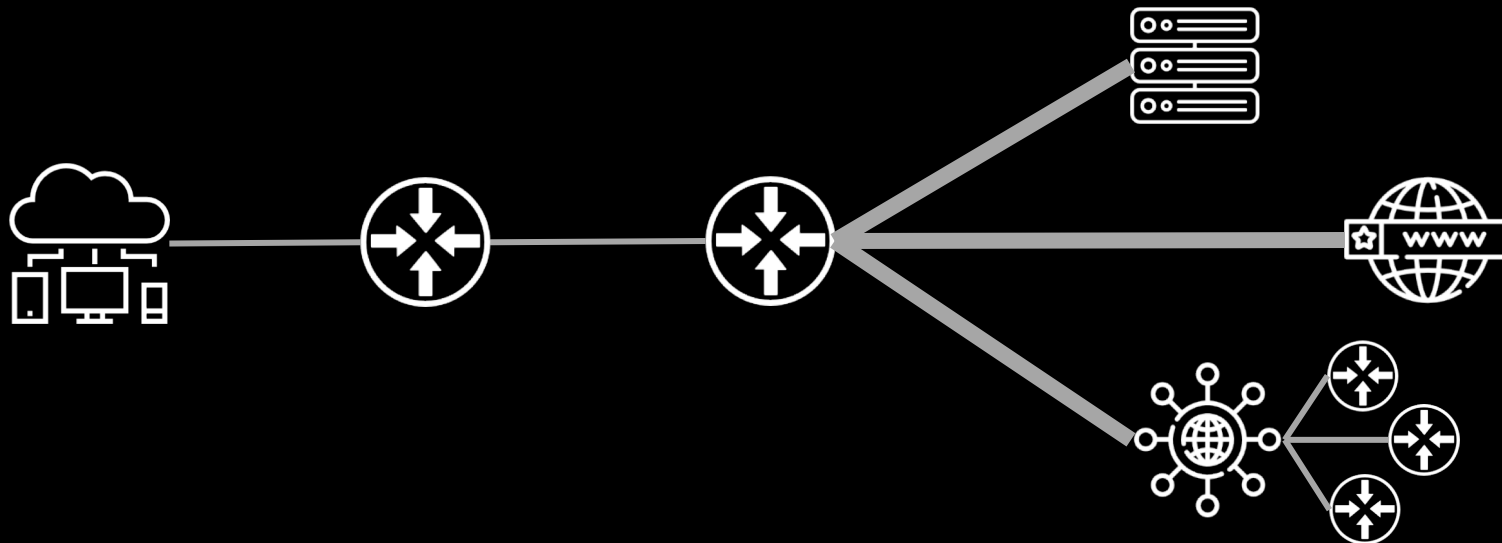
Happy customer is willing to pay more

More Revenue = More Growth options

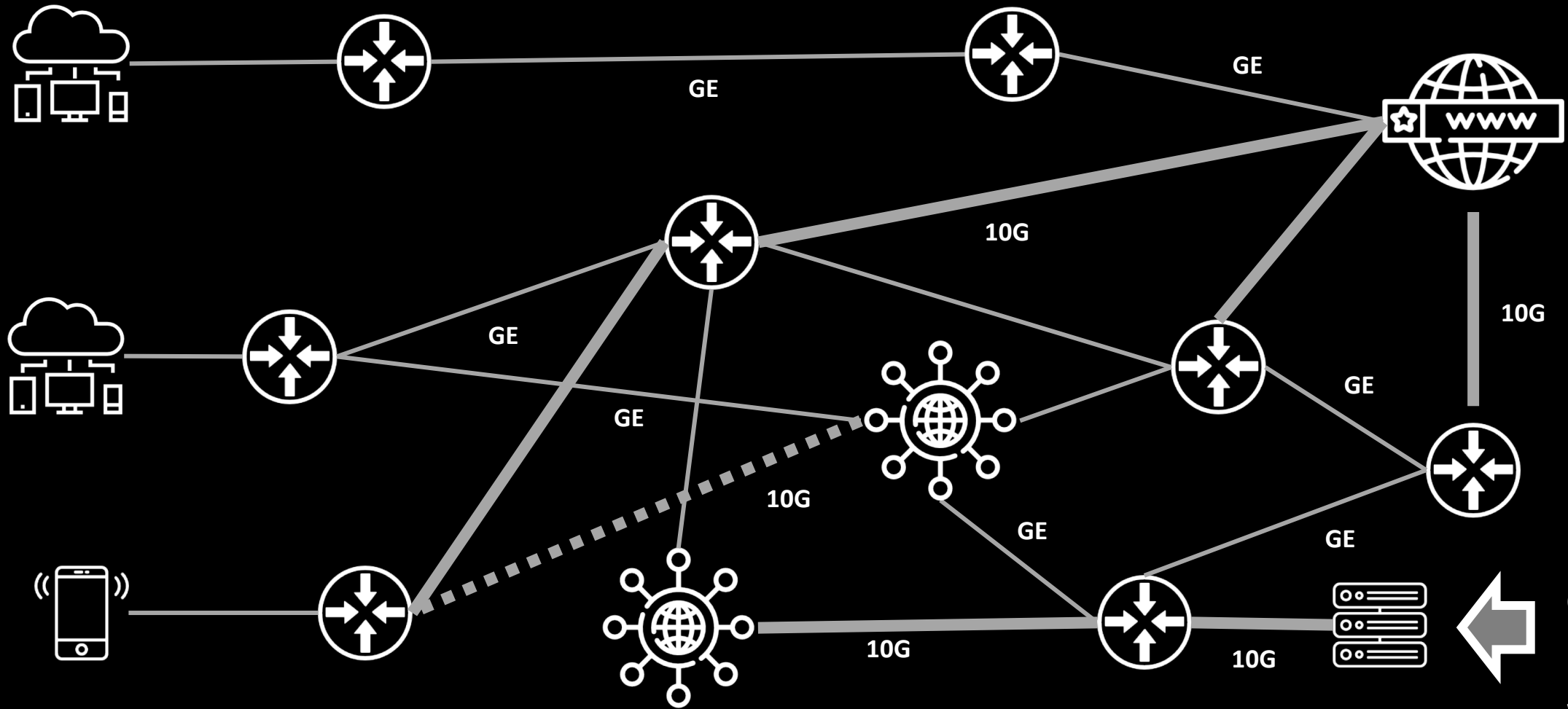


Which is better: Transit vs Peering vs CDN

- **Transit:** Start small and don't have in-depth analysis capability (Stage-1).
- **Peering:** Once you have grown to a level (talking about having multiple Gbps of traffic), optimize your costs by connecting other SP's offering more routes (Stage-2).
- **CDN:** After a certain level you will realize Peering is not enough, and you will need multiple dedicated CDN to enhance customer experience and drive traffic (Stage-3).



Transit and Peering bottlenecks + complexities



Content resides here; Where art thou?

Routing | Capacity Limits | Path Limits

Shifting Economic Trends of the Industry

- **10Gb Ethernet** is becoming mainstream; **100GbE** will be accessible in few years
- **Neutrality rulings** in US and EU
 - Highly varying benefits and downside between US and EU
 - Fight with the big boys, bringing benefits to us
 - China has secured its own position within this
- The **“dumb” pipes problem**: Transport and IP services increasingly commoditized
- Resultantly; the **global IP Transit market compresses 16- 18% per year**, depending on region
- Movements to **Private Data Center / Cloud Interconnection**
- Massive **improvements in measurement and monitoring traffic**
- Content providers are willing to take **content experience to new levels**
- Customers looking for **rich, yet simple / seamless service experience**
- **Innovation is fueling the Tech disruption**

Human beings – **EVOLVING!**



Over the years Mankind has evolved

Our needs have evolved too

IS IT TIME TO BRING A DISRUPTIVE
PRODUCT / SERVICE
IN
BANGLADESH?



How to design a disruptive **product / service**

“If you design first and think later, you may be left with the tower of Pisa.” – Famous quote

UNDERSTANDING

- Customer demand
- Technology trend
- Market development
- Infrastructure (available and required)
- Purchasing Capacity of people
- Service mindset
- Innovation



And the most essential ingredient

WOW FACTOR

Case Studies of big boys: Tech Disruption 101

Except this guy everyone started off small



Reliance Jio



Google Fiber



Singtel



Virgin Media UK



Youtube



Whatsapp



Amazon



Tencent



Facebook

Case study reference :
IDC; Gartner; Researchgate.net; Case Center;



THANKS A LOT FOR YOUR VALUABLE TIME

