An outsider's view to closing the digital divide in South Asia

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SANOG 39

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Disclaimer

Opinions expressed are my own and not of my employer

Who am I?

Introduction

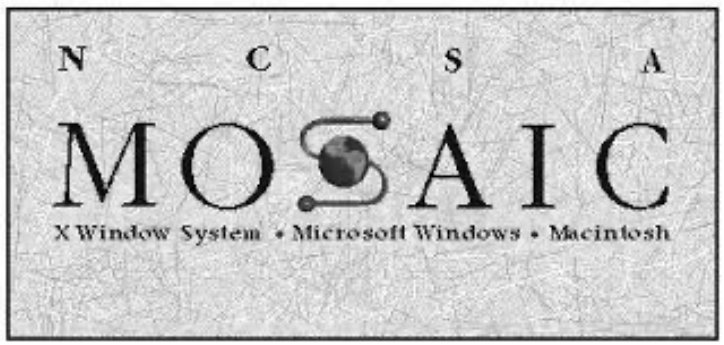
TECHNOLOGY

30 years ago, one decision altered the course of our connected world

April 30, 2023 · 7:00 AM ET
Heard on All Things Considered

By Julian Ring

3-Minute Listen + PLAYLIST



Who am I (contd)

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Telecom Regulatory Affairs Advisory Committee (TRAAC)

Level (3) COMMUNICATIONS

EQUINIX

APNOG Asia Pacific Network Operators Group

Disclaimer #2

I am not an expert in Internet Governance nor an expert in South Asia

I know governmental policies are hard

I'm not criticizing any existing policies, just sharing observations as an outsider

Some of my observations may be incorrect or incomplete, but likely "accepted-as-fact" for most ignorant outsiders (like me)

Feedback welcomed – help me help you spread the word

What is the Digital Divide?

Different demographics of people in their ability to understand, access and effectively use technology.

South Asia is one of the regions where the digital divide is most pronounced. According to a report by the World Bank, only 15% of households in South Asia have access to the internet. The report also states that the digital divide in South Asia is not only limited to access but also to usage. The majority of internet users in South Asia are men and urban residents.

Bridging the digital divide is important because it increases the employment opportunities of the information poor by helping them overcome social and cultural inequalities

Infrastructure support for Supply & Demand

Demand

- Population
  - Education
  - Disposable income

Infrastructure

- Last mile access
  - Fiber
  - Mobile
- Data centers
- Domestic capacity
  - Internet Exchanges
- International capacity

Supply

- Content

Same problem everywhere

- Trade
- Transport
- Internet
- Medicine
- etc

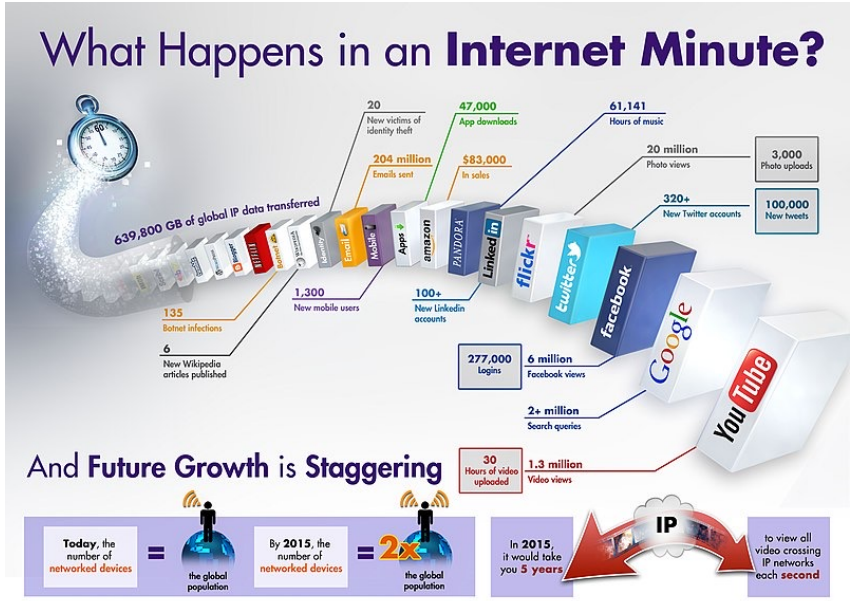
Myth: We have made great progress in closing the Digital Divide

Country	Internet penetration rate	Fixed Broadband Subscription per 100	Adult literacy rate
Afghanistan	18%	0.07%	31%
Bangladesh	25%	6%	75%
Bhutan	54%	0.4%	67%
India	43%	2%	74%
Maldives	63%	15%	98%
Nepal	38%	4%	68%
Pakistan	25%	1%	58%
Sri Lanka	35%	12%	92%

Source: data.worldbank.org 2020

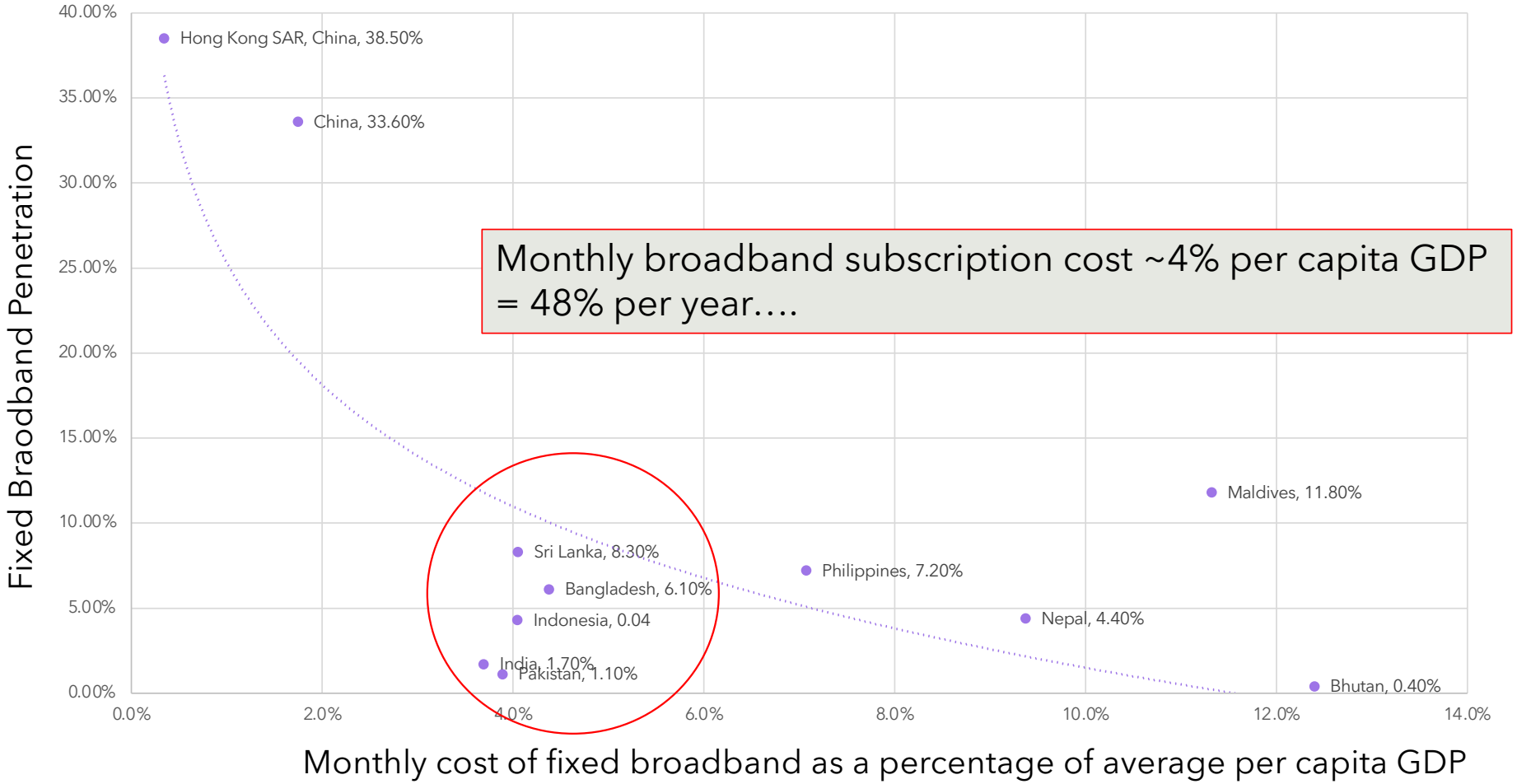
Fixed Broadband penetration is more important metric to measure the digital divide

- Internet is consumed differently when visiting each page cost money
- Performance also changes behaviour
  - Latency + Bandwidth
  - Device Type
- We need affordable, unmetered, high-speed access
  - Wireless can be a last-mile solution for hard-to-reach areas, but an unmetered tariff should be made available



File:Internet Minute Infographic.jpg - Wikimedia Commons

Fixed broadband cost vs penetration



Internet as a utility?

- Delivering affordable service to everybody is possible
- NBN is analogous to National Grid?
- ISP competes on service pricing/quality vs reachability

Electricity in every village in India

Bruce Murphy, Former India Programme Manager
Hannah Daly, Former WEO Energy Analyst
Commentary — 01 June 2018

On 28 April 2018 Indian Prime Minister Narendra Modi announced that India had achieved its goal, ahead of schedule, of providing electricity to every village in India. This is one of the greatest achievements in the history of energy.

Since 2000 around half a billion people have gained access to electricity in India, with political effort over the last five years significantly accelerating progress. In addition, the country was already on track to achieving universal household electricity access by the early 2020s, yet Prime Minister Modi has now moved up this target to the end of 2018. This will improve the lives of over 230 million people.

While this next "last mile" challenge will be not be easy to meet, particularly in a country as large and geographically diverse as India, the social and economic benefits are significant.

For a start, electric lighting makes the use of candles, kerosene and other polluting fuels for lighting redundant, not only saving money (and providing more light) but also seriously improving health. Electricity can increase productive hours in a household leading to positive outcomes on education and economic well being. It can also spur innovation and lead to entrepreneurial micro businesses ventures, and in time lead to greater agricultural yields. Benefits also flow to the likes of schools, banking and medical services.

National Broadband Networks

- Vision
- Policy
- Execution
- Leadership

Let’s take a look at the supply side economics

How do you attract content/service providers into your country?

- Demand (Population x Internet penetration x disposable income)
- Ease of deploying into your country
  - Regulatory/Licensing
  - Availability of Infrastructure
  - Willingness to interconnect
- Cost/Benefit Analysis

Case Study: Content Provider X is considering a POP in your country

Currently served out of Singapore

- Peak Capacity = 100Gbps
- Cost per meg = USD$0.5
- Latency = 50ms
- No regulatory requirements

Total Cost = USD50K/mth

Proposed POP

- Backbone Cost for 100G = USD$300,000
- Incumbent Telco cost per meg = USD$2
- Latency = 10ms
- High regulatory requirements

Total Cost = $500K/mth

Is the performance improvement worth USD$5.4M per year to X?

Assuming the infrastructure is available to support the customer, how do we incentivize X to deploy in your country?

Submarine Cable Investments in South Asia

RFS	Name	Landing points in South Asia	Consortium Members
2023	MIST	India	NTT + Private fund
	IAX	India, Sri Lanka	Undisclosed
	IEX	India	Undisclosed
	2Africa	Pakistan, India	Meta + Club
2024	Raman	India	Google + Landing partners
	Africa-1	Pakistan	Club
2025	SMW6	Bangladesh, Sri Lanka, Pakistan, Maldives	Club
2026	SING	India	Undisclosed

India is leading the way
Hyperscalers wants to invest

Source: https://www.submarinecablemap.com/

Apricot: Google, Meta + Club
Bifrost: Meta + Club
ECHO: Google, Meta
ADC: Club
Topaz: Google
SJC-2: Meta + Club

Open vs Protectionist Market

Protectionist

Open Market

- High barrier to entry
  - Cost
  - Complex licensing/regulation
- Low competition
  - Incumbent mindset
  - Higher pricing, lower volume
- Innovation not required

- Low barrier to entry
  - More Foreign Direct Investments
  - Simple policies and licenses
- Highly competitive
  - Higher volumes, lower pricing
- Differentiation by Innovation

Summary

Regulate in moderation

- Regulate what cannot be solved by, or become problematic in free market economics
  - E.g. Anti-competitive behaviour, discriminatory access, road openings, ESG commitments, universal service obligations, taxes and subsidies, labour regulations, etc
  - Note: Lowered margins due to competition is not a problem – volume will make up for it!
- Simple and Stable Policies

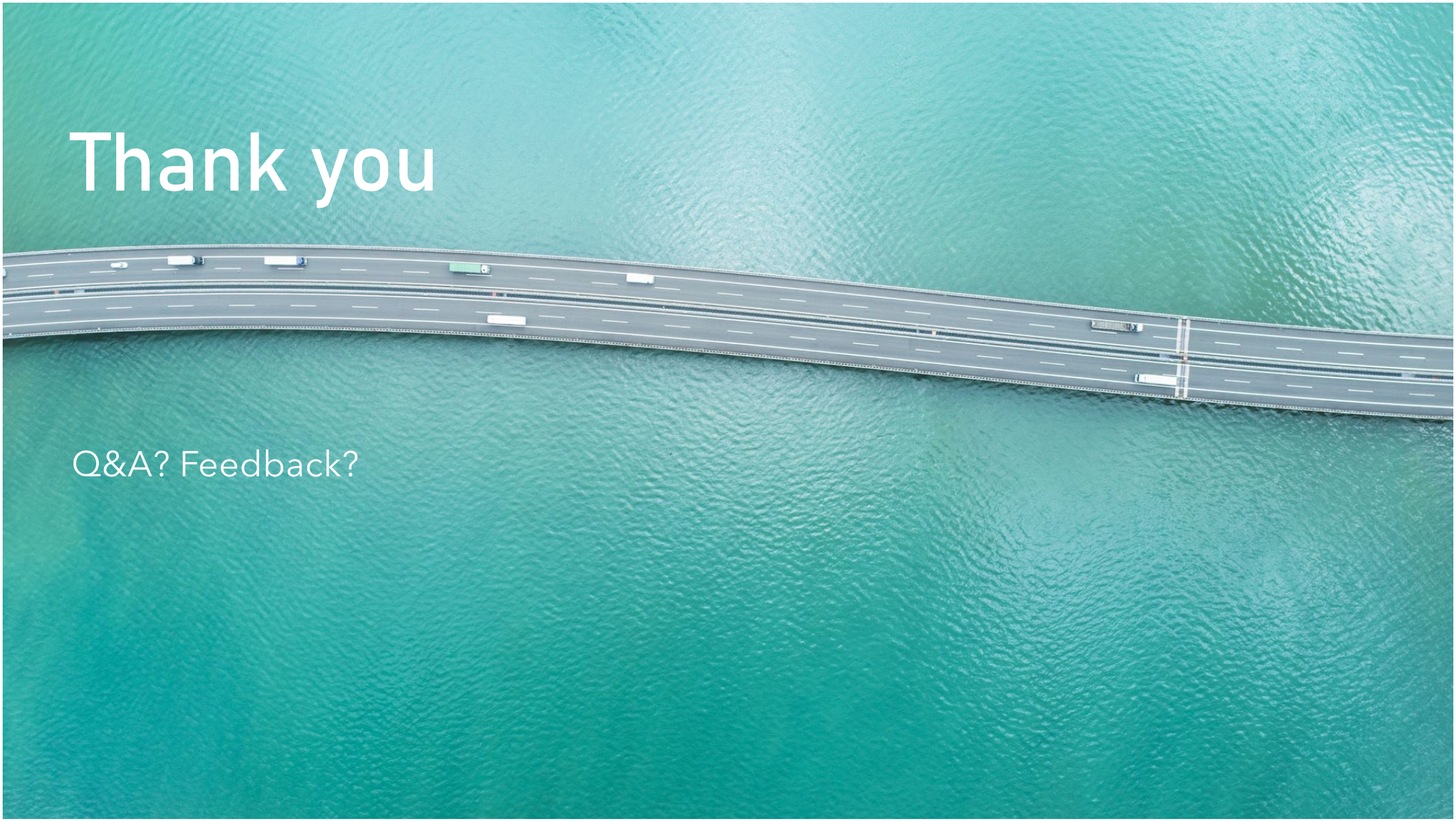
Investment in People

- Education and Equipment

Investment in Infrastructure

- National Broadband Network
- Attract foreign investments
  - Data centers
  - Internet Exchanges
  - Terrestrial and Subsea cable systems

Make it easy for local and international companies to succeed together!


Thank you
Q&A? Feedback?

Backup slides

Cost of broadband

Country	Size (sq km)	Population (total)	GDP per cap	**Fixed broadbar**	Cost of bas	Ex rate	Cost of umlimited broa		% Capita GDI
Afghanistan	652,230	39,835,428	502	0.10%	afn8000				
Bangladesh	147,570	166,303,498	1,935	6.10%	Tk600	85.00 BDT	$7.06	5M ICC	4.4%
Bhutan	38,394	779,666	3,041	0.40%	BB2199	70.00 BTN	$31.41	No Unlimied	12.4%
India	3,287,263	1,393,409,038	2,104	1.70%	Rs499	77.50 INR	$6.48	40M Airtel	3.7%
Maldives	300	543,617	10,244	11.80%	MVR1490	15.42 MVR	$96.63	50M Dhiraag	11.3%
Nepal	147,181	30,385,580	1,174	4.40%	Rs1100	120.00 NPR	$9.17	200M World	9.4%
Pakistan	796,095	225,199,937	1,543	1.10%	Rs1000	200.00 PKR	$5.00	10M PTCL	3.9%
Sri Lanka	65,610	21,413,249	3,874	8.30%	Lk2617	200.00 LKR	$13.09	2M Dialog	4.1%
China	9,596,961	1,397,720,000.00	11,641.00	33.60%	108	6.38	$16.93	30Mbps CT	1.7%
Hong Kong SAR, Chin	1,108	7,550,000	48,230.00	38.50%	108	7.77	$13.90	1000M Smar	0.3%
Indonesia	1,904,569	276,360,000	4,123.00	0.04	200000	14,384.00	$13.90	40Mbps Indil	4.0%
Philippines	300,000	111,050,000	3,390.00	7.20%	999	50	$19.98	30Mbps Sky	7.1%

Cost of fixed broadband vs internet penetration