Pricing submarine cable capacity for development

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Agenda

1 – What do regulators and policy makers want?

- Why we invest in submarine cables

2 - Time for a paradigm shift in wholesale pricing

- Pricing in abundance

3 - Bandwidth vs traffic pricing

- Two sides of the same coin
- Traffic pricing encourages market entry
- Wholesale operator perspective

4 – Retail competition – two countries on the same cable

- Papua New Guinea
- The Solomon Islands

5 – Concluding comments

1 What do regulators and policy makers want?

External funds for submarine cables

- Asian Development Bank (ADB)
- World Bank (IDA, IFC, IRBD)
- Governments (Australia, NZ)

Targets

- Increase internet penetration
- Affordable internet
- Low cost, high quality I'net
- Economic development

Countries with new cables

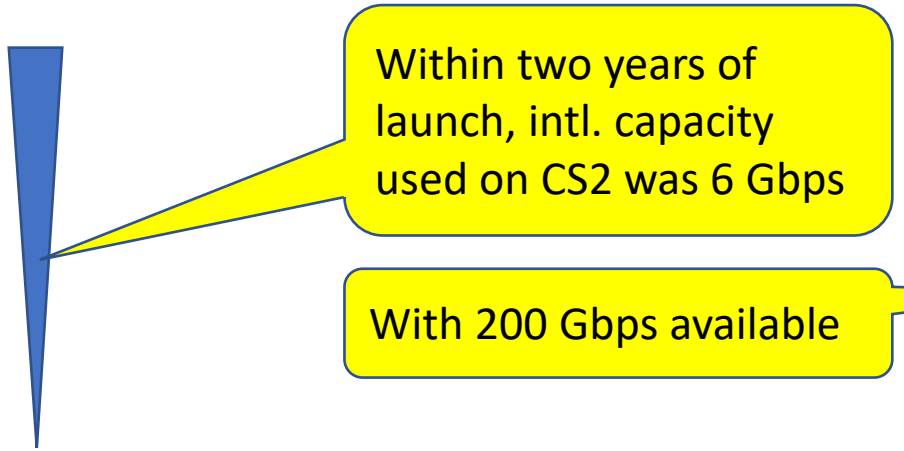
- Papua New Guinea (CS2)
- Solomon Islands (CS2)
- Cook Islands (Manatua)
- Samoa, Fiji, Tonga,
- Kiribati, Nauru, Palau

New cables are a necessary but not a sufficient condition for economic development.

2 – Time for a paradigm shift

Scarce capacity

2G international connectivity - Solomon Islands in 2019



Within two years of launch, intl. capacity used on CS2 was 6 Gbps

With 200 Gbps available

Pricing in abundance

Coral Sea Cable - Solomon Is.

Capacity 20TB Lit 200G 2G in 2019

Why ration bandwidth when capacity is abundant?

2 Paradigm shift - Pricing in abundance

Wholesale bandwidth pricing (Gbps) comes from an era of **scarce** capacity (incl. satellites).
Where capacity is **abundant**, it should be priced on traffic (GB volume) to meet targets.

Targets

- Increase internet penetration
- Affordable internet
- Low cost, high quality Internet
- Economic development

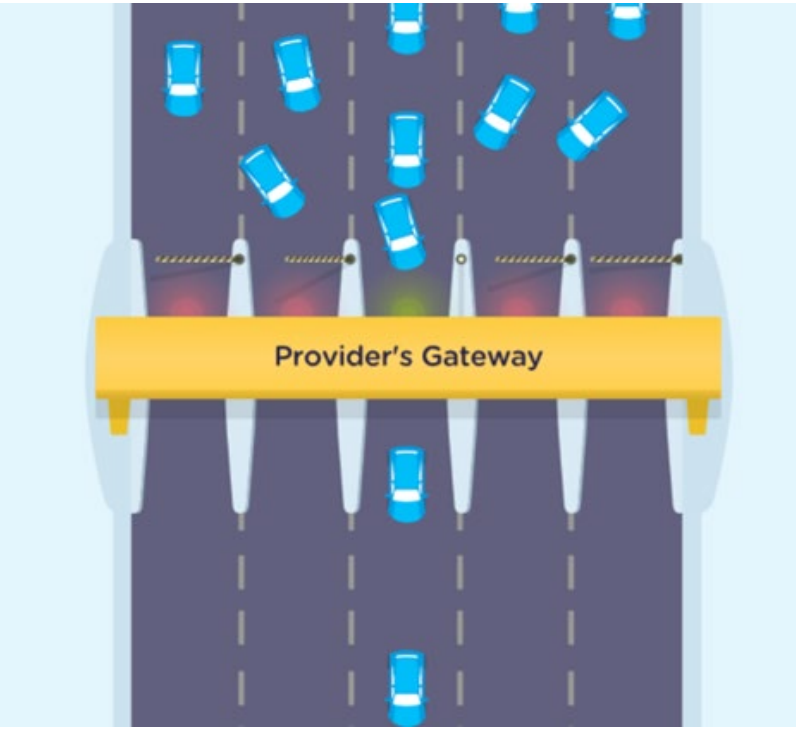
Features	Bandwidth pricing	Traffic pricing
Congestion	Accepted to get low prices	No congestion, bursting OK
Bandwidth (Gbps)	Constrained in step changes	No minimum purchase req'mt
Competition	Favours large operators	Lowers barriers to entry
Speed	Depends on capacity and users	Unlimited speed (Mbps)

Buy enough capacity for peak demand – versus – Pay only for what you use

3 – Bandwidth and Traffic Pricing

Bandwidth pricing

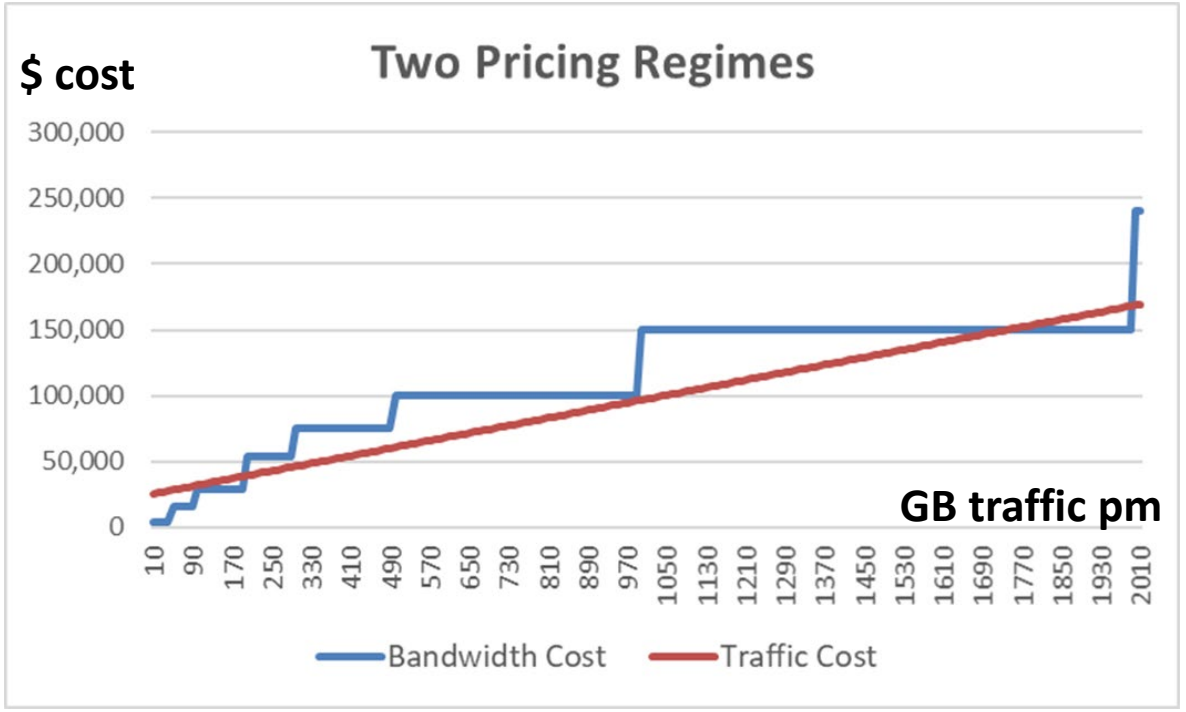
- Cost = f (no. users, speeds, contention, rate card)
- Bandwidth (Gbps) is constrained by PIR
- End user experience degraded with contention



https://www.nbnco.com.au/learn/speed/congestion

Traffic pricing

- Cost = f (traffic)
- Over-provision; cost of 10 Gbps same as 2 Gbps
- Speed unconstrained, spurs traffic growth

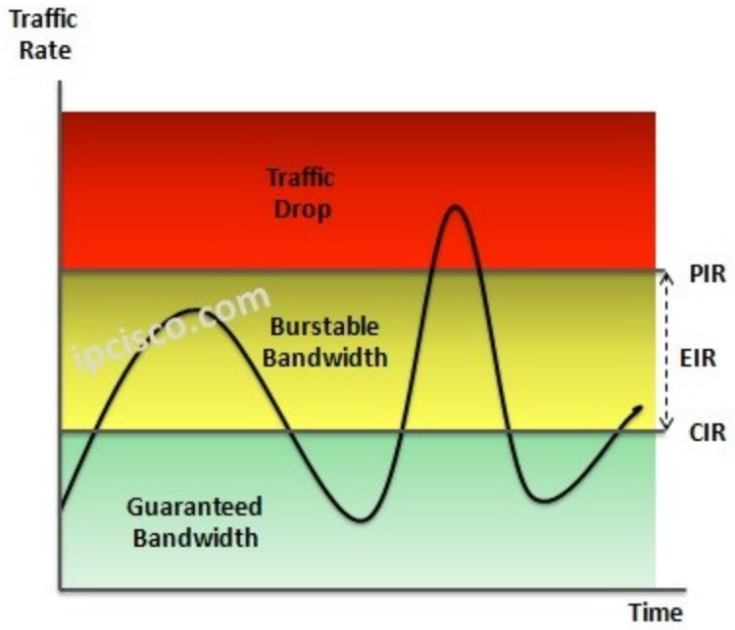


Faster speeds lead to more traffic (a proxy for benefits of connectivity)

3 – Bandwidth management

Bandwidth

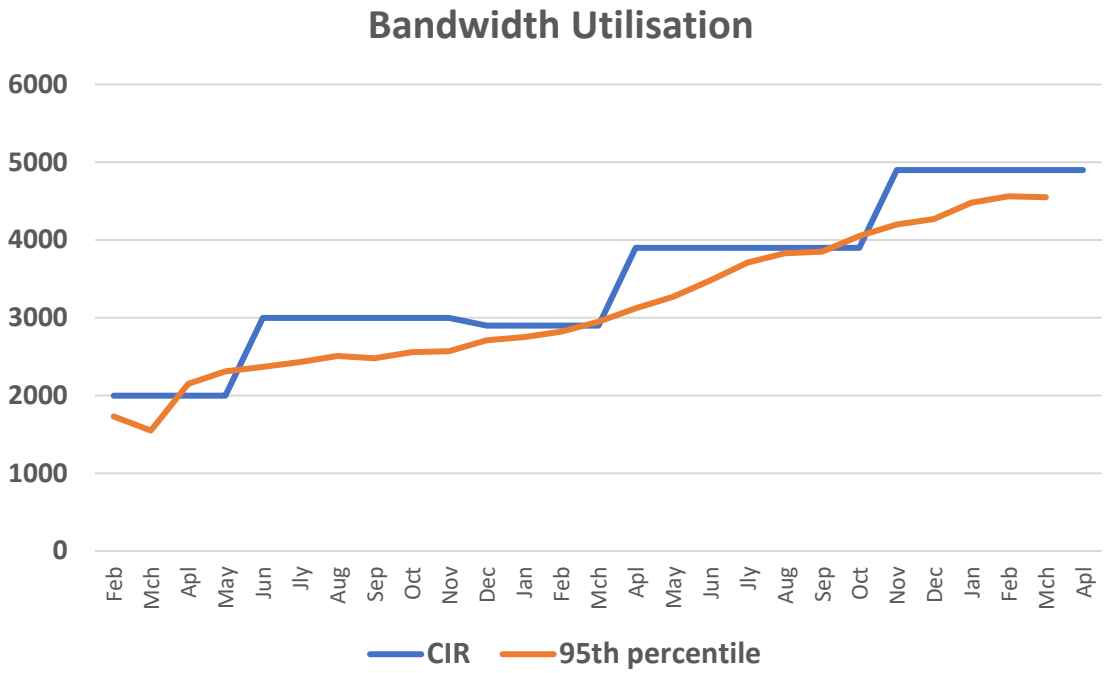
- The Committed Information Rate (CIR) is purchased
- The Permitted Info. Rate (PIR) is burst ceiling



https://ipcisco.com/lesson/cir-and-pir/

Actual example

- Capacity increases in 1 Gbps steps



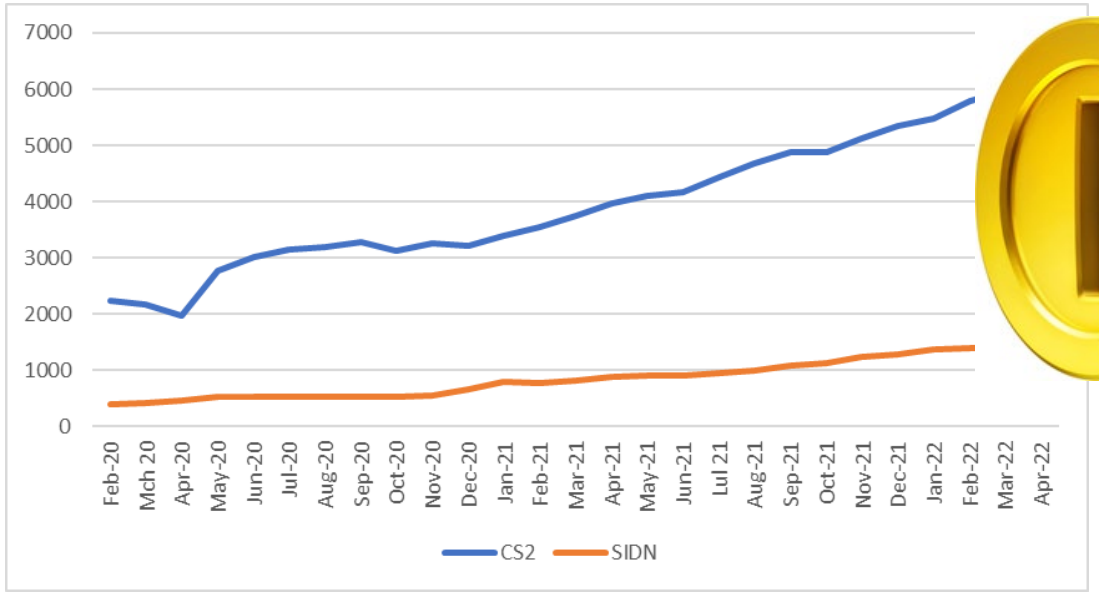
3 – Two sides of the same coin

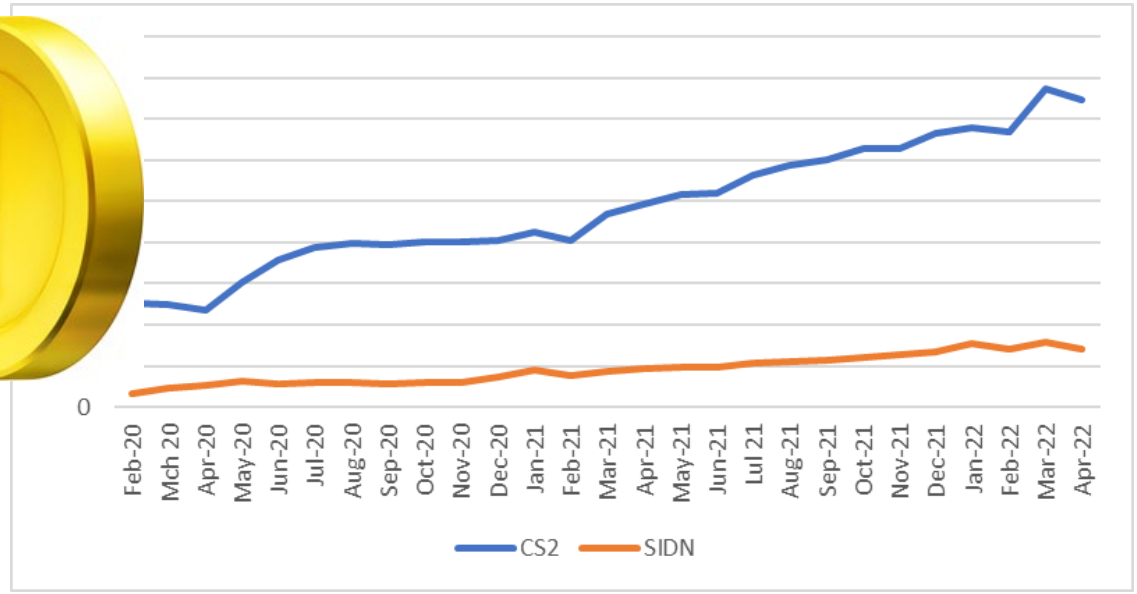
Growth in capacity (Gbps)

- 95th percentile on CS2 and SIDN
- Profitability depends upon utilisation

Growth in traffic (TB)

- Traffic on CS2 and SIDN
- Every byte is profitable - paid for by an end user



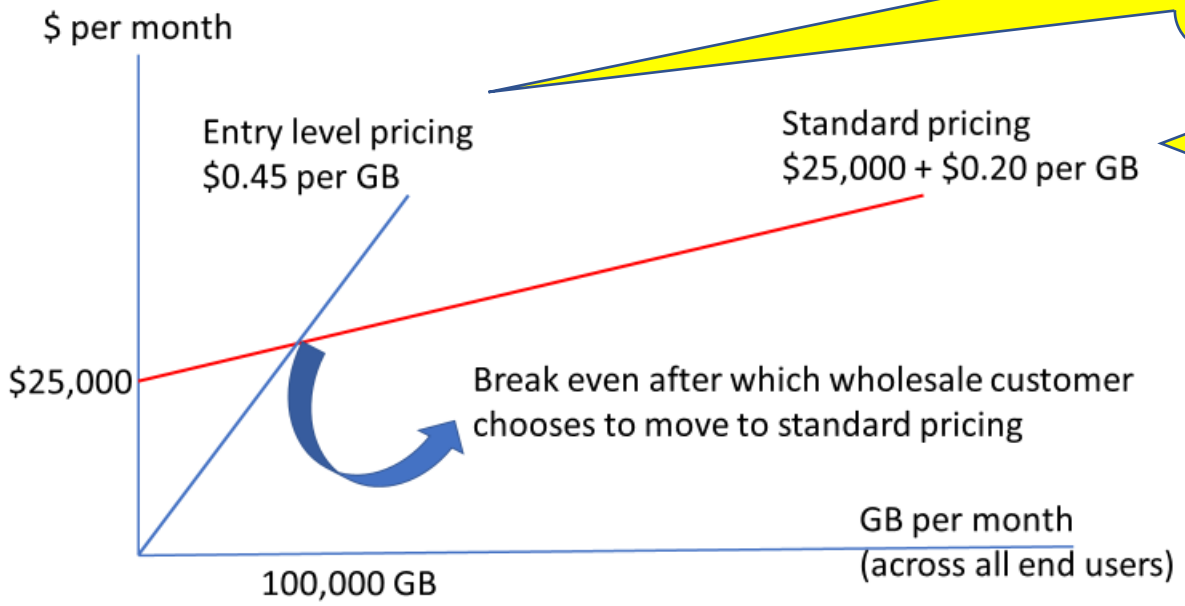


Pricing is a commercial decision – should not be driven by engineering

3 Traffic pricing encourages market entry

The first traffic pricing of submarine cables offers a “Basic” tariff and an “Entry” tariff.
Traditional bandwidth pricing is also offered on the international cable.

“Without entry level pricing on CS2 it would not have been possible for us to get started.” CEO, Pacific Vaizeds,



No capacity constraint.
Uniform unit price.
Simple.

The “Entry” tariff saved the two new entrants struggling to pay for minimum bandwidth.

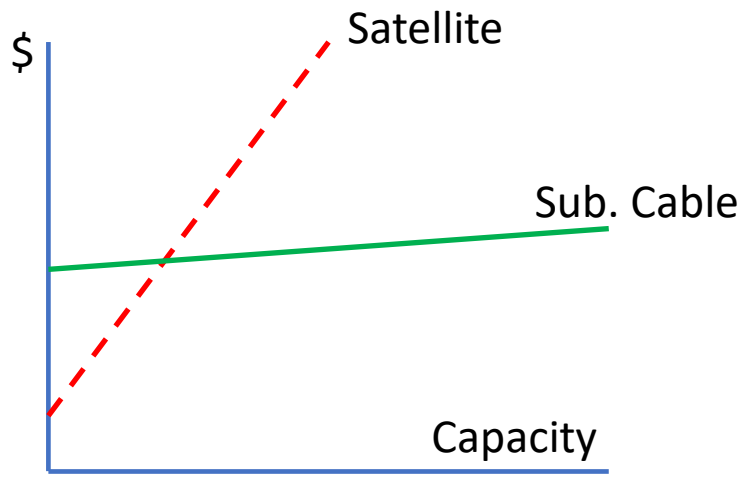
3 Wholesale operator perspective

Opportunities and risks

- ✓ Faster growth in revenue = f (unconstrained speed)
- ✓ No loss of revenue from congestion
- ❑ But revenue less certain than with leases
- ❑ Loss of payments for unused capacity
- ✓ Set and forget provisioning and pricing
- ✓ Traffic pricing suits bursty demand (backup)
- ✓ Apply traffic pricing to cache hosting
- ❖ Government owned? (Development, COVID)

Price competitiveness with satellite

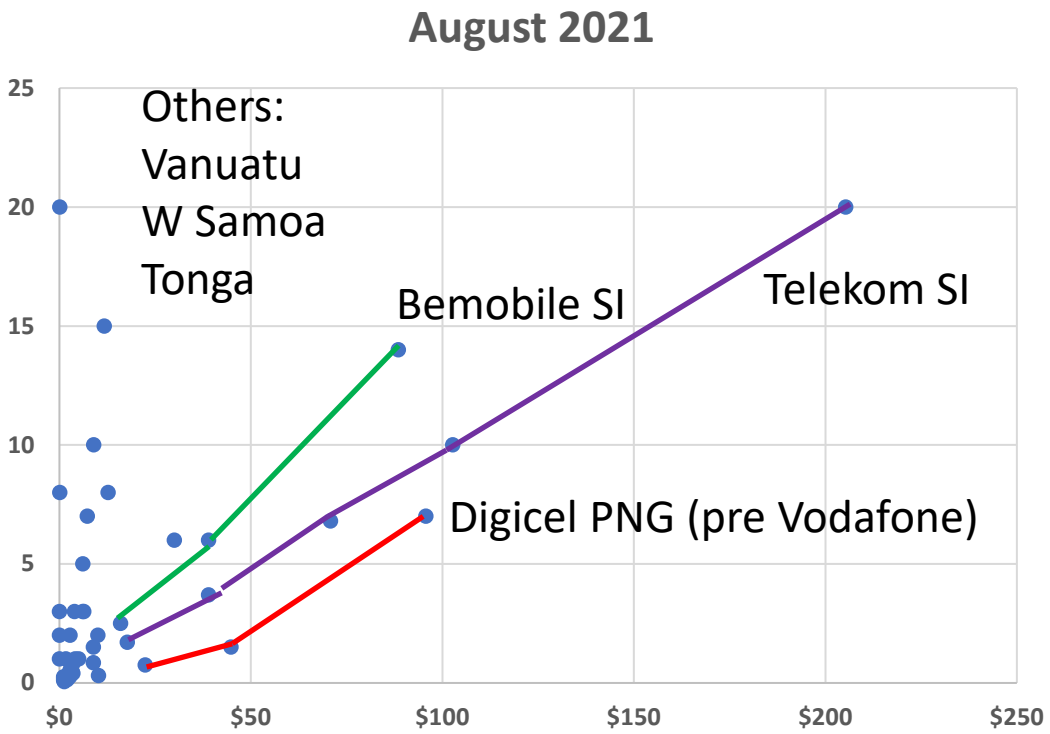
- ➢ Economics different
- ➢ S/Mbps versus $/GB



Banish FUD (Fear-Uncertainty-Doubt): proof of concept in the Solomon Islands

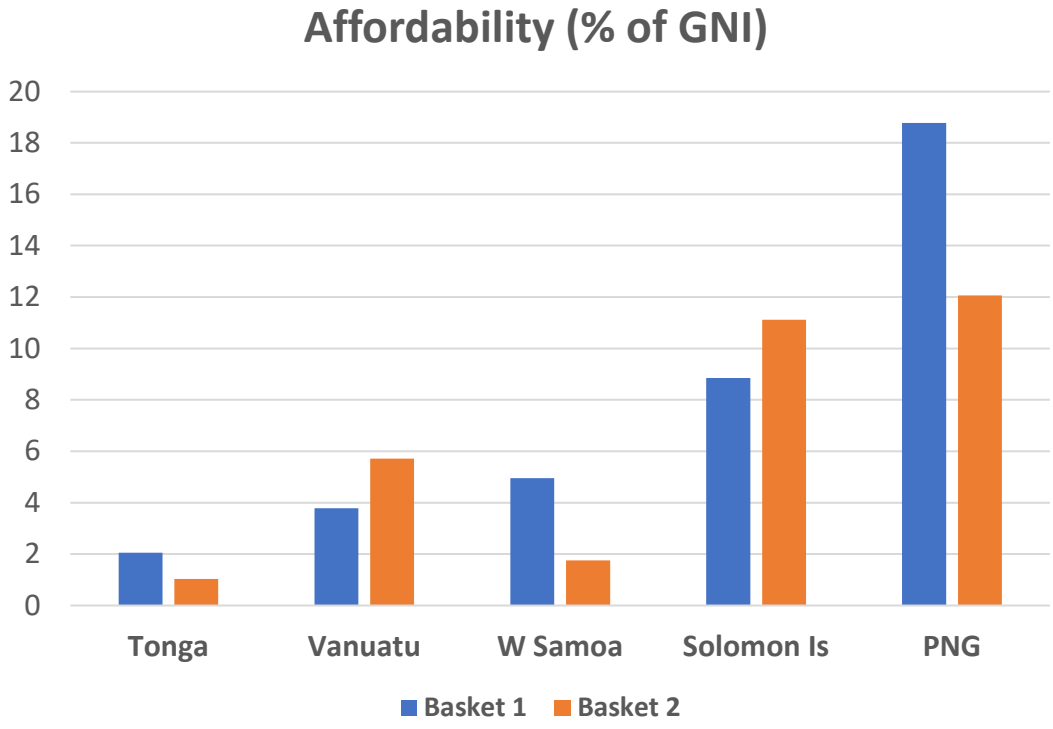
4 – Retail pricing – two countries

Prices (NZ$) vs GB (only)



ICT baskets, 2021

- **Basket 1 = 2GB**
- **Basket 2 = 70 mins, 200 SMS, 500 MB**



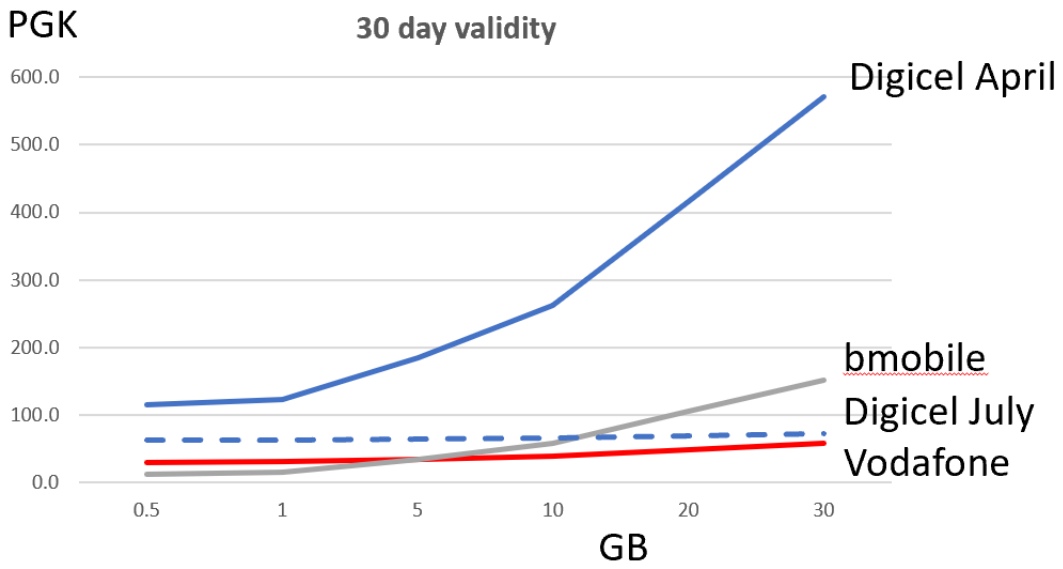
https://www.itu.int/en/mediacentre/backgrounders/Pages/affordability.aspx

4 – Retail competition

"For the past two years, despite assurances that internet prices would come down, smartphone users have not experienced any actual changes in mobile internet data prices." Watson et al, April 2022
https://devpolicy.org/no-fall-in-mobile-internet-prices-in-png-20220419

Papua New Guinea

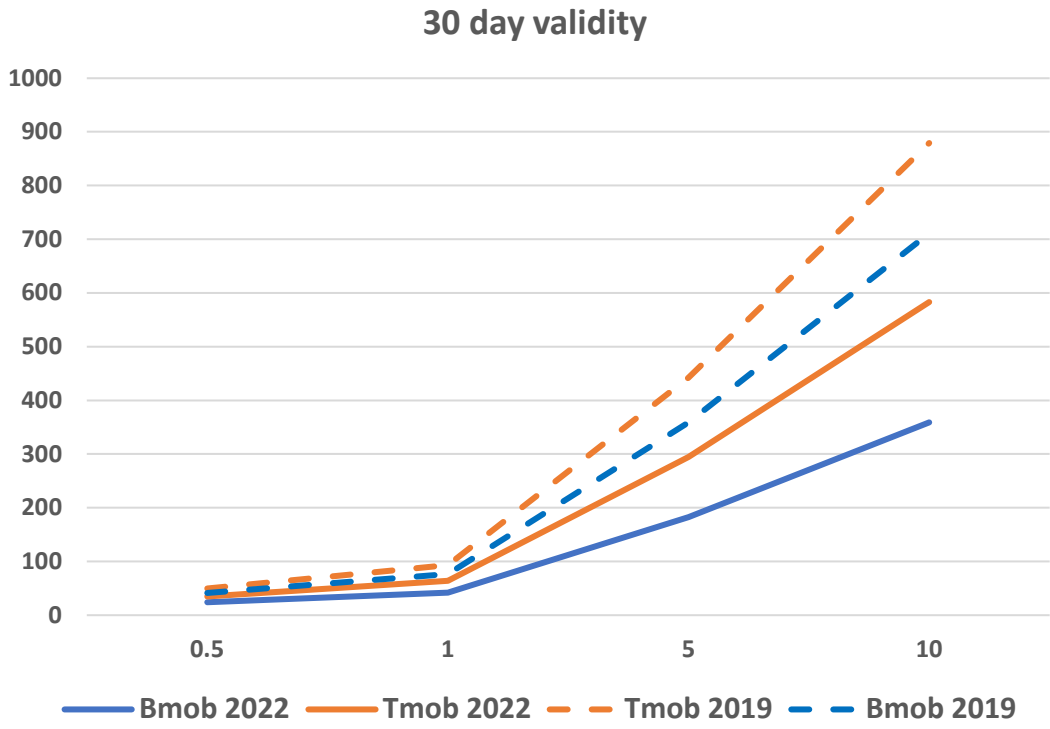
- **CS2 operational in early 2020**
- **No movement until new entry. April vs July 2022**



https://deridder.com.au/png-submission-to-nicta-on-pricing/

The Solomon Islands

- **Movement in prices: 2019 vs May 2022**



Only competition moves prices – not just abundant capacity

Concluding comments:

For regulators and policy makers, traffic pricing

- Improves affordability options and user experience
- Lowers entry barriers and levels playing field = more competition, lower prices
- Unlocks speeds and increases utility of cables

For retail operators

- Demand forecasting risk (e.g. COVID) removed with traffic pricing
- Traffic pricing is simpler and guarantees profitability

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