

ECONOMUSE

Pricing in Abundance

Traffic pricing applied to submarine cables

There is not much more that I can say about Australian National Broadband Network (NBN) pricing. But recently I had the good fortune to apply the principles of traffic pricing – which I have been urging for the NBN since 2009 – to the new submarine cable for the Solomon Islands. It provides an example of why pricing for abundance is better than pricing to reflect, or worse, to create scarcity.

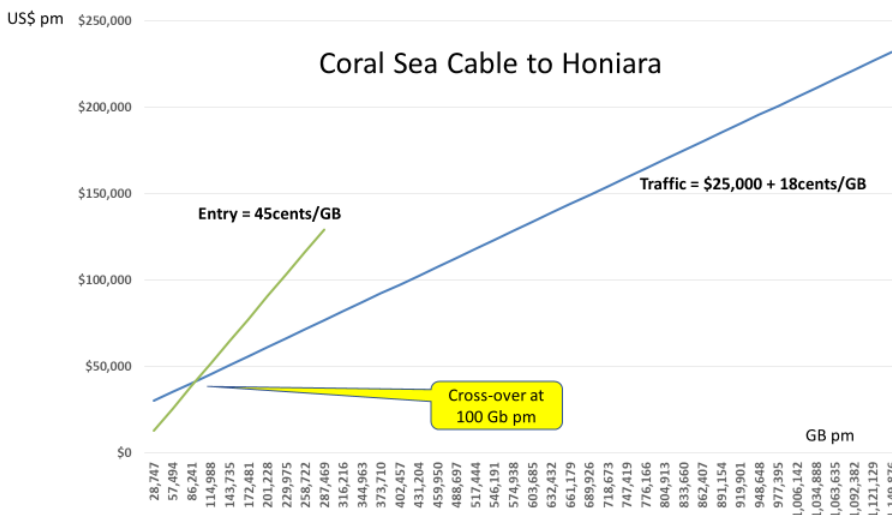
Until this month, international connectivity was provided to the Solomon Islands by satellite. Used capacity was less than 2Gbps (2G). The new Coral Sea submarine cable to Honiara has 20,000G capacity with 200G lit now (half for protection against a fault in the Optical Line Terminal). This doesn't mean that the submarine highway built by the Solomon Islands with the generous support of the Australian Government is too big. Simply that submarine capacity comes only in one size these days: VERY BIG.

Transmission capacity is normally sold on throughput, measured in G (Gigabits/per second). **Bandwidth pricing** divides up the fixed bandwidth of an international pipe into fractions that are sold. Each buyer is guaranteed a throughput speed and can use as much or as little of the purchased potential capacity as they choose. But any capacity not used is typically not available for sale to others.

Traffic pricing charges for what is sent through the pipe - like charging for water by litres. Traffic pricing is very simple: just a fixed fee per month for connection plus x cents per Gigabyte (GB) of data (with zero rated off-peak traffic).

With traffic pricing, the cable operator does not sell ports: it sells GB of traffic with no

restrictions. It could separate its wholesale customers traffic to measure GB pm by using different ports for each customer. And it would put each customer's traffic through ports provisioned with more capacity than they need because they are charged



for GB not G. It costs the cable operator no more to provision 10G than, say, 2G for a

customer. This allows much higher (uncontended) speeds and generates more traffic.

The indicative traffic pricing shown above includes a self-selecting entry-level price. This lowers barriers to entry compared with bandwidth pricing where capacity is purchased in lumps of 100Mbps or more so that the unit price of used capacity depends upon utilization. This means step changes in purchase requirements discourage smaller operators and cause all operators to use contention to get more out of limited capacity, degrading end-users' experience. They buy only what they think they can nearly fully use with bandwidth pricing.

With traffic pricing, bursting is encouraged. No traffic is dropped. No ISP needs to contract for a specified capacity. ISPs are charged only for the traffic they actually sell. More available speed means more traffic; people simply use more in the absence of delays and poor performance.

Uncertainty for wholesale customers is reduced with traffic pricing. With bandwidth pricing, customers have to forecast the number of customers, the mix of promised speeds and set contention ratios to throttle demand. They get cost certainty, but at the expense of possibly paying too much or having to scramble to provision enough capacity. With traffic pricing, there is no capacity uncertainty and wholesale customers do not have to target fill ratios for purchased bandwidth. Every byte is profitable because it is caused by and charged to a retail customer. And, because there is no step change in required purchase capacity, that there is a strong incentive to increase demand without needing to degrade the user experience.

Traffic pricing was developed by TransACT for its bid to use its existing VDSL network for the NBN. Gigabyte usage would be charged and all available speed bestowed. But the NBN decided that "*CVCs can be used as proxies for usage charging*" [p103, NBN Corporate Plan, Dec 2010] and charge for speed.

The CVC is only a pricing construct which imposes artificial scarcity by requiring wholesale customers to purchase capacity as if it were bandwidth. That was a mistake. RSPs have been buying as little bandwidth (CVC) as needed to meet busy hour performance.

Initial cable pricing in the Solomon Islands is based on traditional bandwidth pricing because the traffic pricing approach was developed late in the process of a commercial launch. But there is a lot of interest in switching to this new approach.

While a submarine cable is a single pipe and not the local distribution network offered by the NBN, the principles of pricing for abundance are the same. It is a tragedy that the NBN has turned abundance into scarcity by capping speed (AVC) and withholding capacity (CVC).

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