NEW ZEALAND INSTITUTE FOR THE STUDY OF COMPETITION AND REGULATION INC.

PRESENTATION TO INTERNET NEW ZEALAND ULTRAFAST BROADBAND WORKSHOP

May 19 2010

Bronwyn Howell & Dave Heatley

General Manager & Research Principal

http://www.iscr.org.nz; bronwyn.howell@vuw.ac.nz

CONTEXT

In Q3 2009-10, the average speed of broadband connections sold worldwide fell for the first time ever (PointTopic)

- increasing uptake of mobile connections (data sticks, Kindle, iPhone, iPad, etc.)
- increasing maturity of Western World fixed broadband market – the marginal adopter is a laggard (diffusion exceeds 50% of addressable market)

The proportion of disposable household income spent communications and information goods and services has altered little over the past 30 years (Galbi)

- higher fixed broadband spend must come from some other area (e.g. mobile broadband? TV content? newspapers? books and e-books? music?)

UNDERPINNING ASSUMPTIONS

‘FibreCo’

- ‘open access’, ‘dark fibre’ 100Mbps symmetrical
- ‘nationwide’
- regional monopolies
  - regionally-specific cost structures (high vs low densities)
  - regionally-specific differential prices?????
- structural separation, ownership limitations across layers
  - Layer 1 - ‘dark fibre’ connections, non-discriminatory pricing
  - Layer 2 - differentiated wholesale products
  - Layer 3 - retail relationship
- electricity analogy
  - Layer 1 = electricity lines companies
  - Layer 2 = ???????
  - Layer 3 = electricity retailers

COMPETITION IMPLICATIONS

Not being implemented in a competitive vacuum

- over 60% of addressable household (90% business) internet market already has broadband connections
  - FibreCo customers must substitute from existing technologies
  - likely long in advance of the development of applications necessitating additional capacities of fibre (at least at 100Mbps symmetrical at level of every household/business)
- potential to expand existing network capacity not yet exhausted
  - Telecom – FTTN will deliver 10Mbps nationwide by 2012; VDSL technologies can deliver in excess of 100Mbps symmetrical from the cabinet
  - TelstraClear –DOCSIS 3.0-enhanced cable can deliver in excess of 200Mbps (both up- and down-stream)
  - Vodafone – mobile speeds increasing monthly
  - satellite
  - power lines???

THE COMPETITIVE REALITY

Except in Japan and Korea, 100Mbps symmetrical is the exception rather than the rule for retail FTTH connections (Data from OECD, 2009)

- Dansk Bredband (Denmark) (kbps)
  - 512/512; 2000/2000; 10,000/10,000; 20,000/20,000; 25,000/25,000; 50,000/50,000; 100,000/100,000
- Elisa (Finland)
  - 1000/1000; 2000/2000; 5000/5000; 10,000/10,000; 50,000/50,000; 100,000/100,000
- KPN (Netherlands)
  - 30,000/3000; 50,000/5000; 60,000/6000
- Verizon (USA)
  - 10,000/2000; 20,000/5000; 20,000/20,000; 50,000/20,000

THE COMPETITIVE REALITY

The key to successfully selling FTTH connections in a competitive market is to make FTTH look as much like ADSL and cable as possible!!!

- almost all Layer 2 investment is duplicating existing functionality available on copper, cable and other infrastructures

Why? Consumers are smart!

- why pay more for functionality already available/perfectly acceptable for existing applications on existing infrastructures?

The key to selling any infrastructure with high fixed costs is effective price discrimination (e.g. Ramsey Prices)

- selling the same thing to different customers at different prices
- or separating customers' willingness to pay by some other dimension (e.g. network speed)
- which is exactly what (unregulated) competitors (i.e. mobile) do

OBSERVATIONS FROM THE MARKET

When offered a range of (flat-rate) plans

- e.g. different speeds under flat-rate tariffs

price-sensitive customers will stay on congested, low-speed and low-cost plans, whilst less sensitive ones will substitute to more expensive plans

- even if applications used do not necessitate its capacities

Plan speed variety becomes a proxy for customer segmentation by willingness to pay

- not necessarily a signal that faster speeds are necessary
  - under flat-rate plans, must offer a tangible 'benefit' from a different service to induce consumer to pay more
  - more (and higher) speeds = finer discrimination

THE ECONOMICS OF FIBRECO

Rapid cost recovery relies upon signing up as many customers as fast as possible

- but what to do about existing purchasing relationships?

Australia

- NBNCo will not compete with Telstra
  - purchase will enable managed migration of customers from ADSL to fibre
- but what about the 20% of broadband customers buying cable?

New Zealand

- no clarity yet whether Telecom will be a competitor or component
- TCL cable has 7% of broadband market

PRICE DISCRIMINATION AND FIBRECO ECONOMICS

Price discrimination matters at more than just the retail level

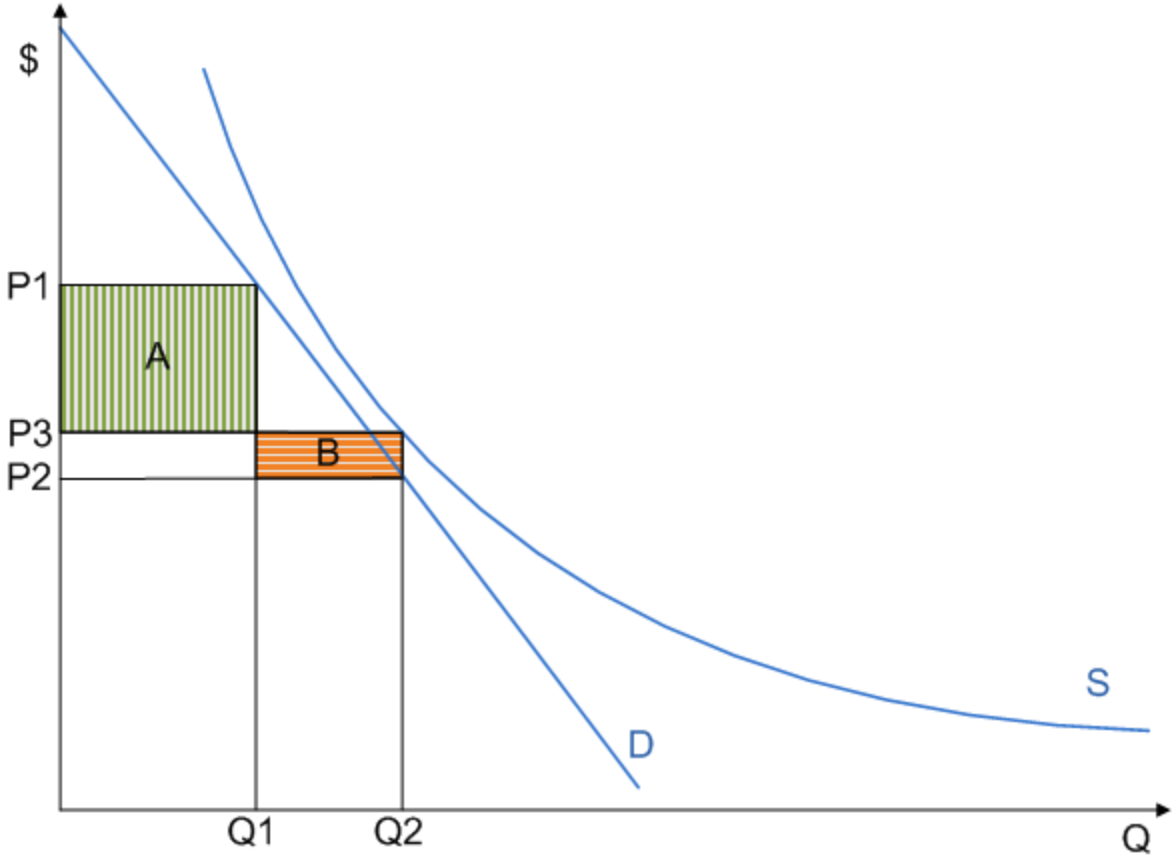
Price discrimination is a classic means of underpinning the case to invest early (i.e. when demand falls below the cost curve) in natural monopoly network infrastructures (very high fixed and sunk costs and negligible marginal costs)

- price discrimination increases welfare
- FTTH fixed cost allocations:
  - Layer 1 70%
  - Layer 2 20% to 25%
  - Layer 3 5% - 10%

The majority of the welfare gain available from price discrimination for the fibre network lies at Layer 1

- yet Layer 1 is the layer where price discrimination is absolutely forbidden under the NZ arrangements

WELFARE-ENHANCING PRICE DISCRIMINATION IN NATURAL MONOPOLY



1. High fixed (sunk) costs means average cost declines as quantity produced increases (S)
2. Demand (D) falls below Average Cost (S)
3. No single price at which supply meets demand – the good will not be produced (welfare generated = 0) or delayed until demand grows
4. But with price discrimination Q2 units delivered at average cost per unit P3 (economies of scale)
 - Q1 sold at price P1 (surplus A)
 - Q2-Q1 sold at price P2 (loss is B)
 - as long as B > A, production is **both profitable AND welfare-enhancing** compared to the single price counterfactual
5. Enables NM good to be sustainably produced (i.e. without subsidy) earlier (i.e before demand matures) than under single price

EVEN MORE ECONOMICS OF FIBRECO

Under structural separation of Layer 1 and Layer 2, in the absence of price discrimination, subsidies must be even greater to induce layer 1 construction

Layer 2 providers can practice price discrimination (by offering different speeds) but separate ownership means surpluses generated will not be used to offset L1 costs (connections sold at 'single rate')

- rather, surpluses generated can be extracted as 'free profits' by Level 2 operators

Not a problem for NBNCo in Australia

- controls both Layer 1 and Layer 2
- better management of subsidies between layers

IN SUMMARY

Single price for Layer 1 infrastructure means subsidy must be higher to induce its construction ahead of genuine demand for the faster service emerging than if price discrimination is allowed.

Alternatively, retail prices (Layer 3) will be higher under non-discrimination at Layer 1 than under welfare-maximising price discrimination by an integrated layer 1 and 2 provider

BEGS THE QUESTIONS

When is the right time to invest in FTTH?

- are we investing too soon/for the wrong reasons in NZ?
- should government be funding the duplication of services already feasible (and/or offered) on existing private-sector investments?

Should we be revisiting the assumptions of a structurally separate ‘dark fibre’, ‘open access’ Layer 1 infrastructure sold at ‘non-discriminatory’ prices

- imposing all of the competition-based costs of a natural monopoly infrastructure whilst denying the monopolist the opportunity of engaging in the one truly welfare-enhancing activities afforded to natural monopolists?