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Presentation to the Australian Information Industry Association

Mike Quigley
NBN Co

12 August 2010



1. What are we building?

- Coverage
- Product construct
- Industry positioning

2. What the NBN delivers

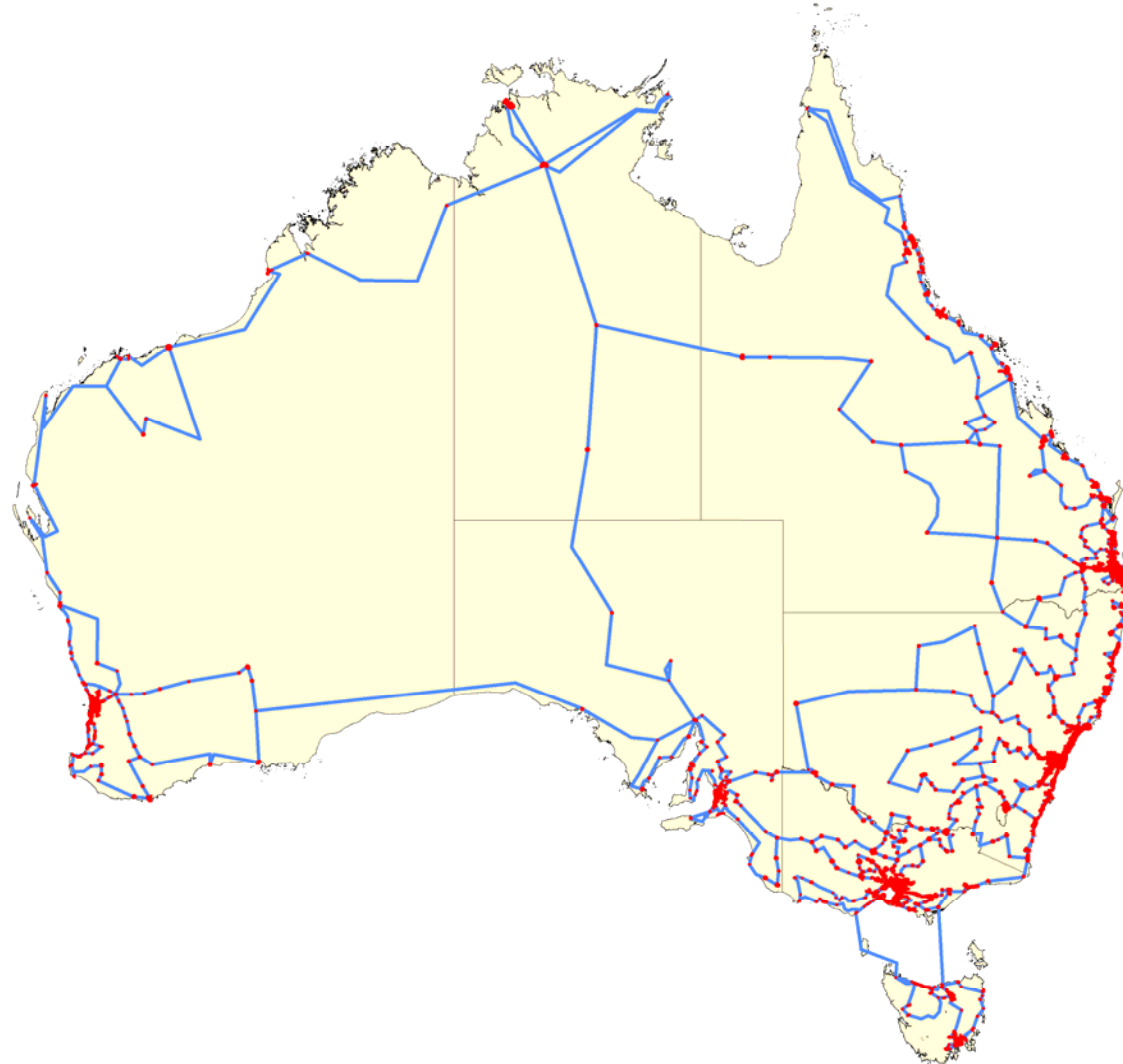
- Ubiquity and standardisation
- High peak throughput (Speed – Mbits/sec)
- High sustained throughput (download – Gbytes/months)

3. Technology capabilities

- FTTP
- Fixed wireless
- Satellite

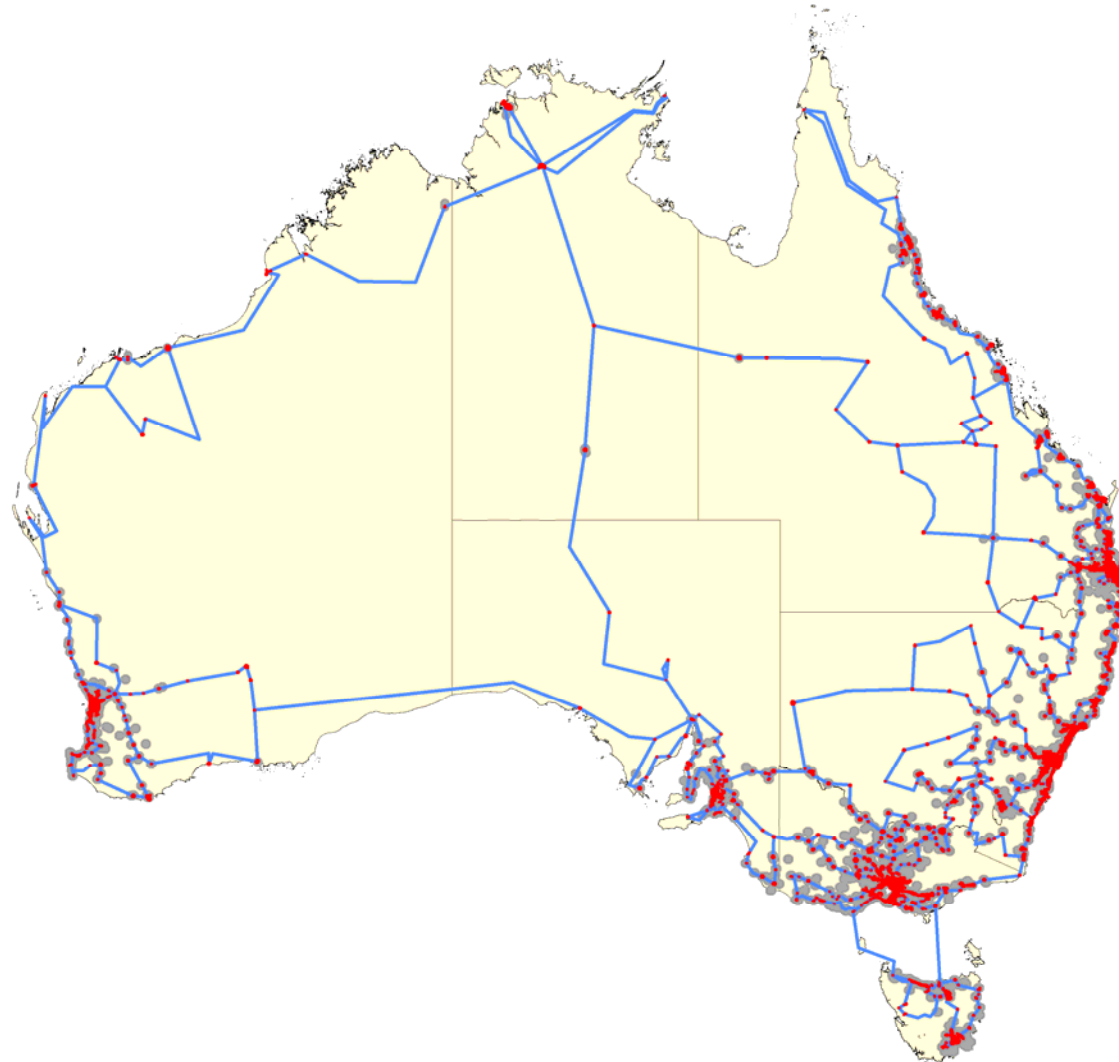
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93% Fibre Coverage



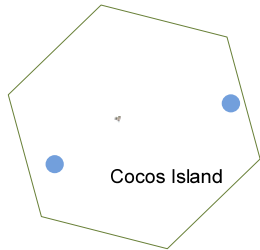
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93% Fibre + 4% Wireless



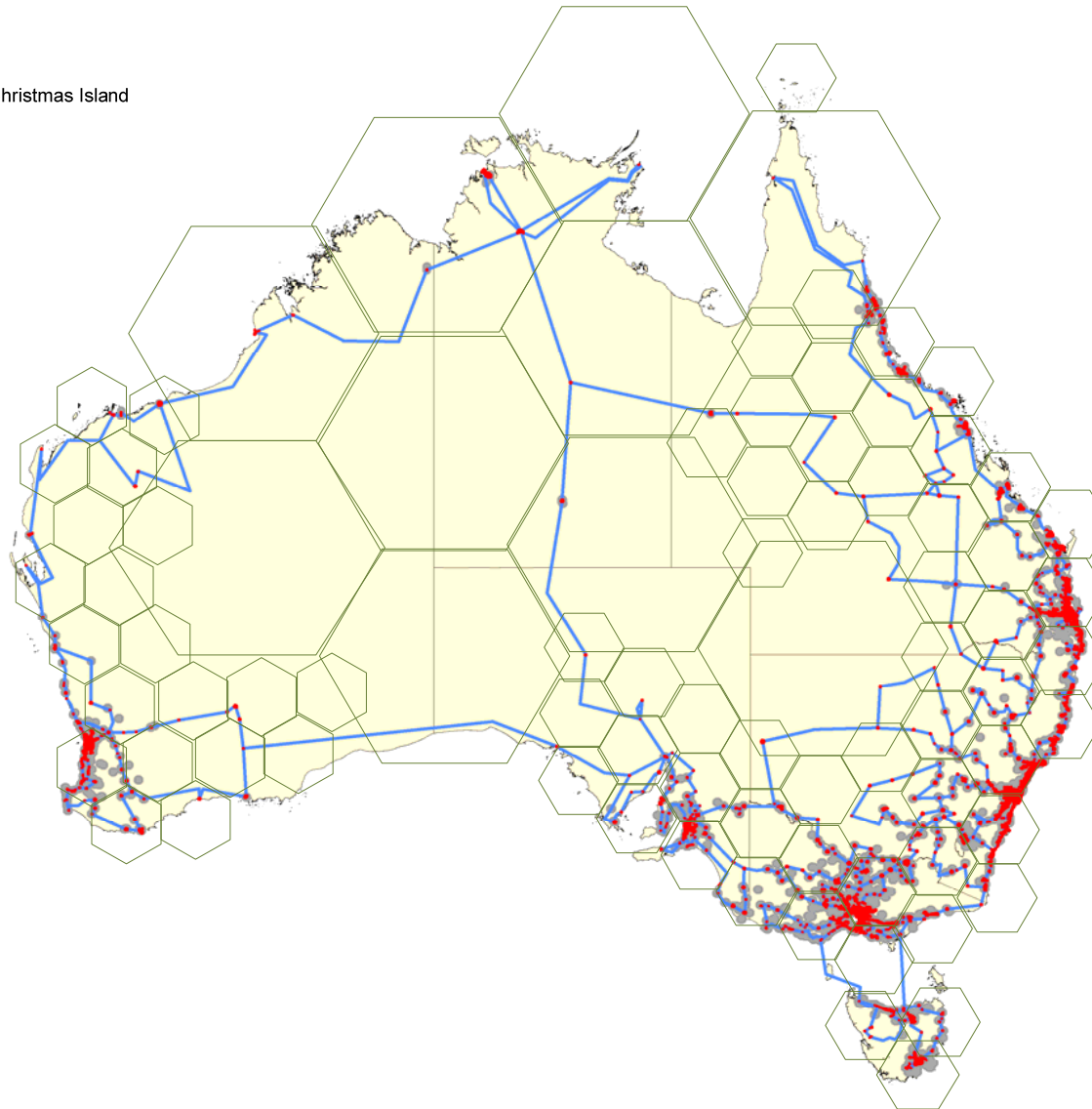
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93% Fibre + 4% Wireless + 3% Satellite



Christmas Island

Cocos Island

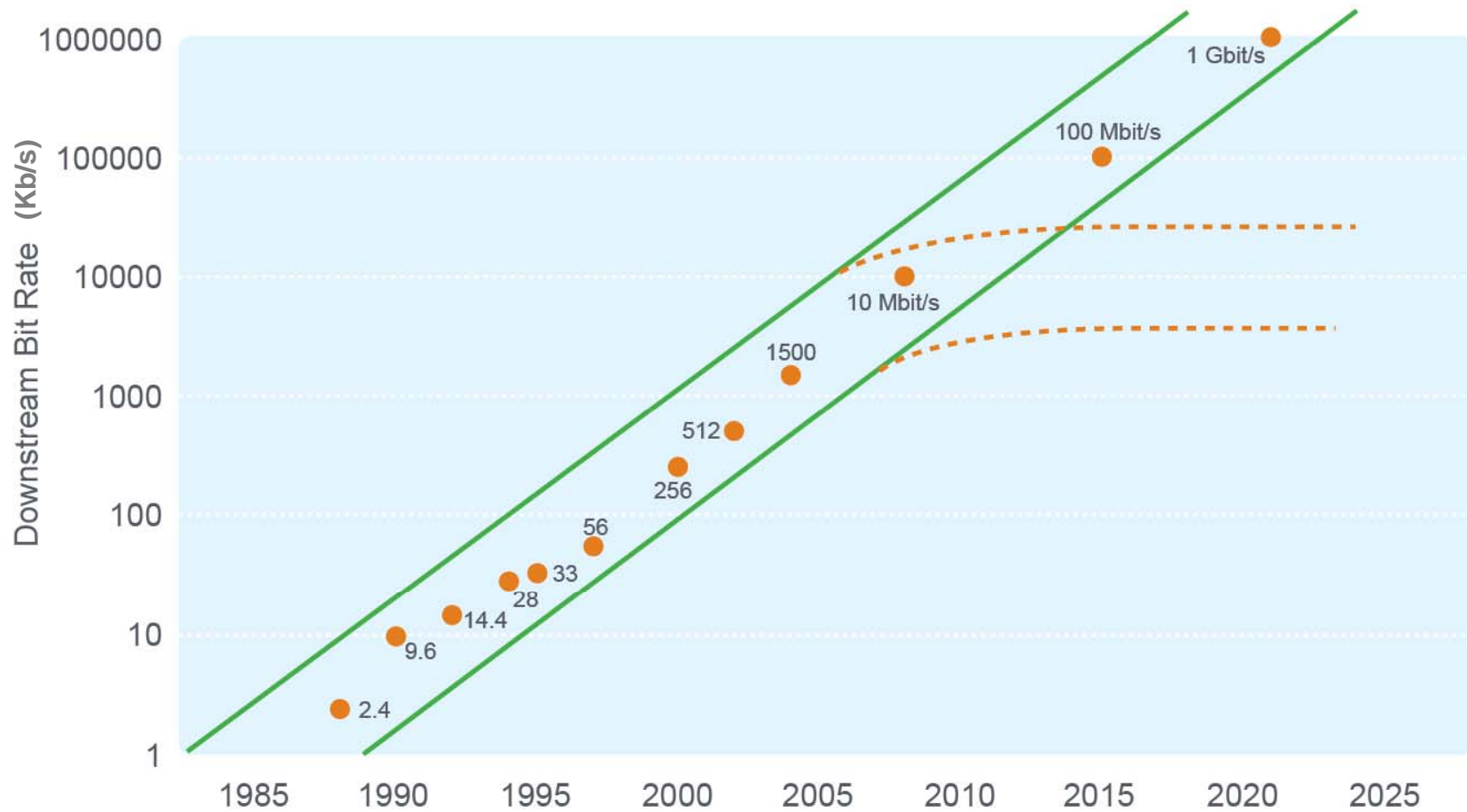


Norfolk Island



Lord Howe Island

Fixed Bandwidth Demand

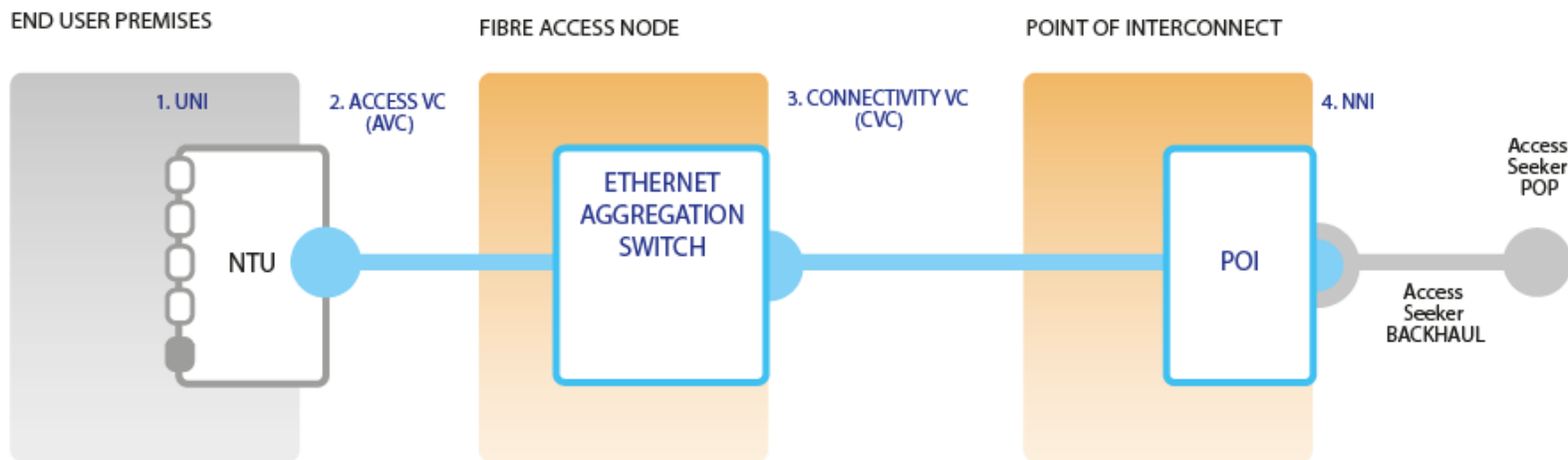


Fibre Product



AVC Speed Options (Mb/s)	
PIR	CIR
12 / 1	1 / 1
.	.
.	.
1,000 / 400	100 / 100

CVC Speed Options (Mb/s)	
10 / 10	
.	
.	
.	
10,000 / 10,000	





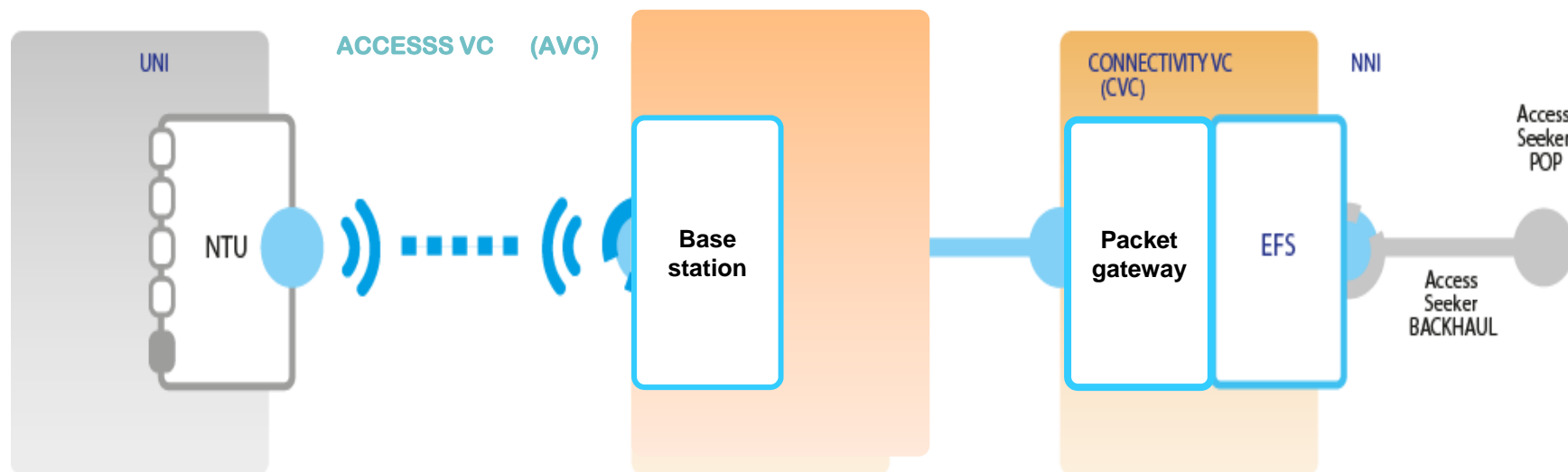
Fixed Wireless Product

AVC Speed Options (Mb/s)
PIR
12 / 1
.
.
12 / 4

CVC Speed Options (Mb/s)
10 / 10
.
.
10,000 / 10,000

END USER PREMISES

POINT OF INTERCONNECT

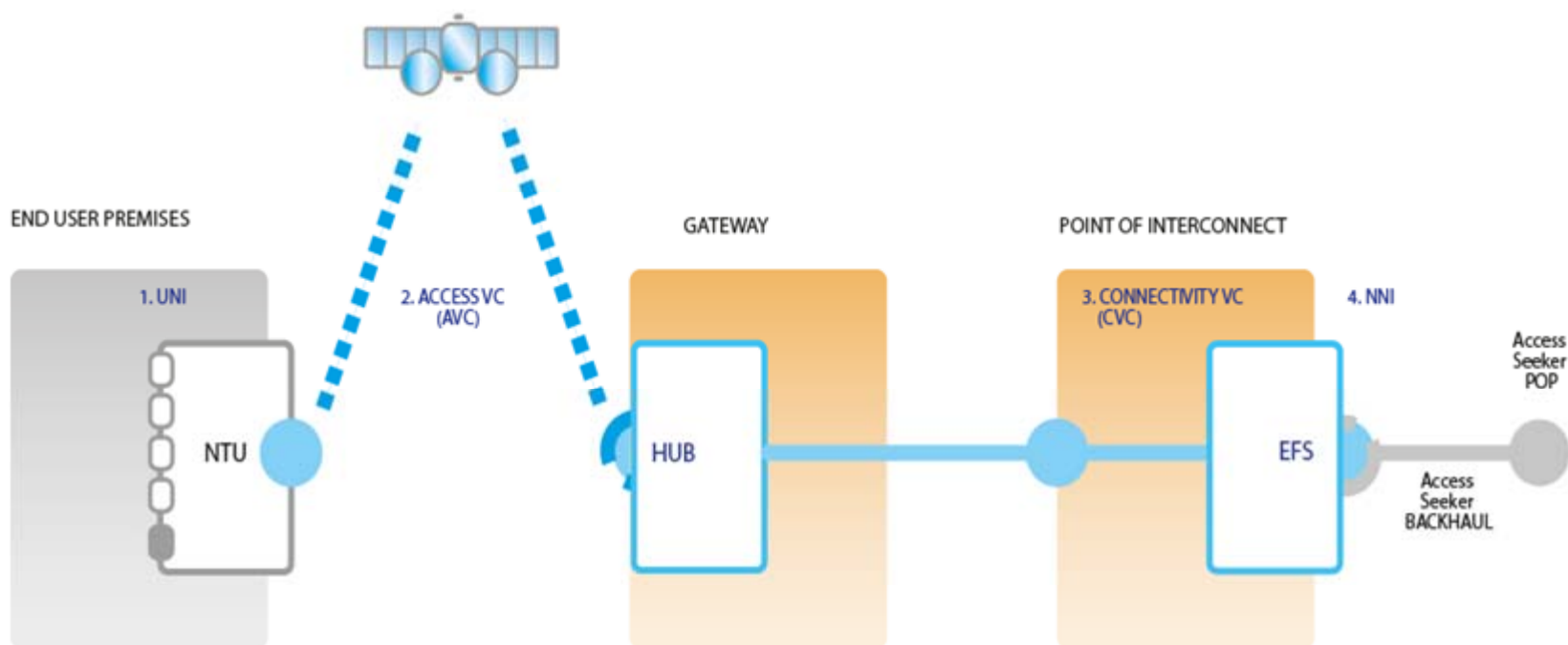


Satellite Product

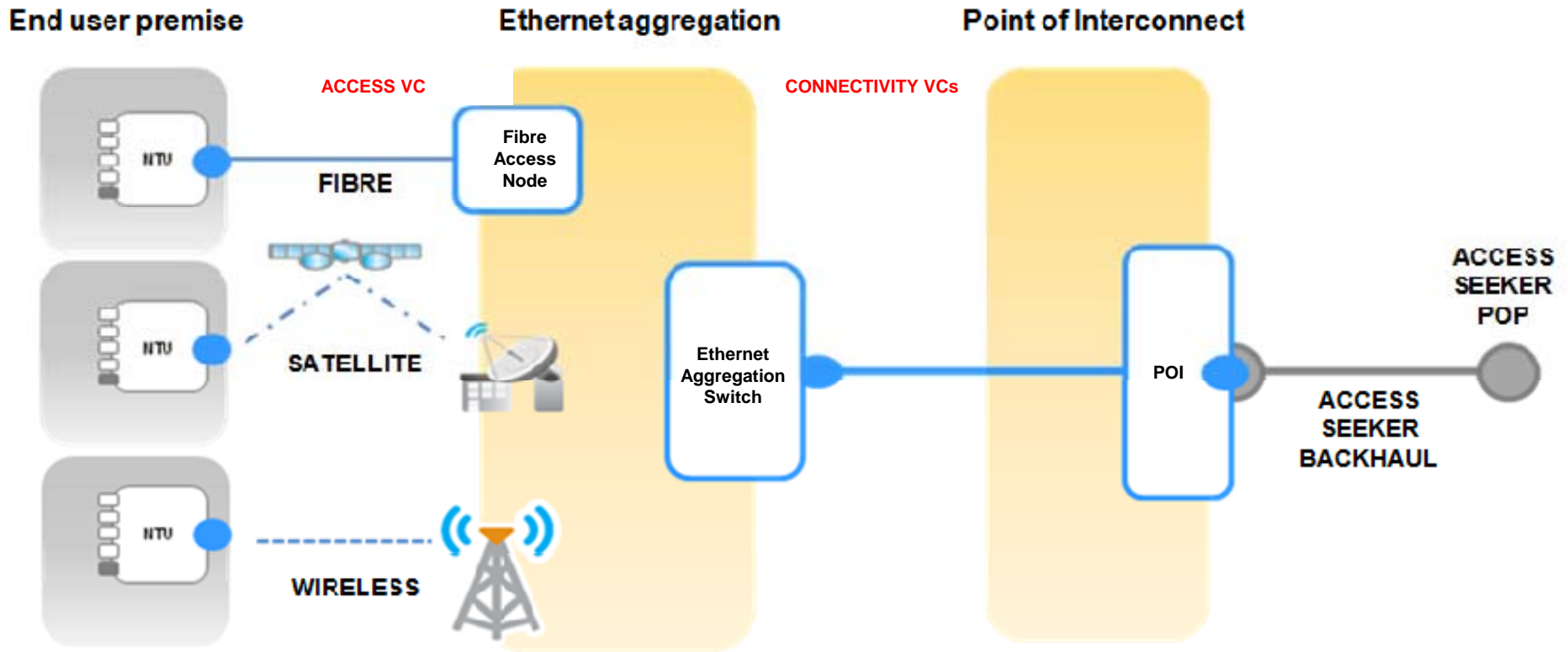


AVC Speed Options (Mb/s)
PIR
12 / 1
.
.
12 / 4

CVC Speed Options (Mb/s)
10 / 10
.
.
.
10,000 / 10,000

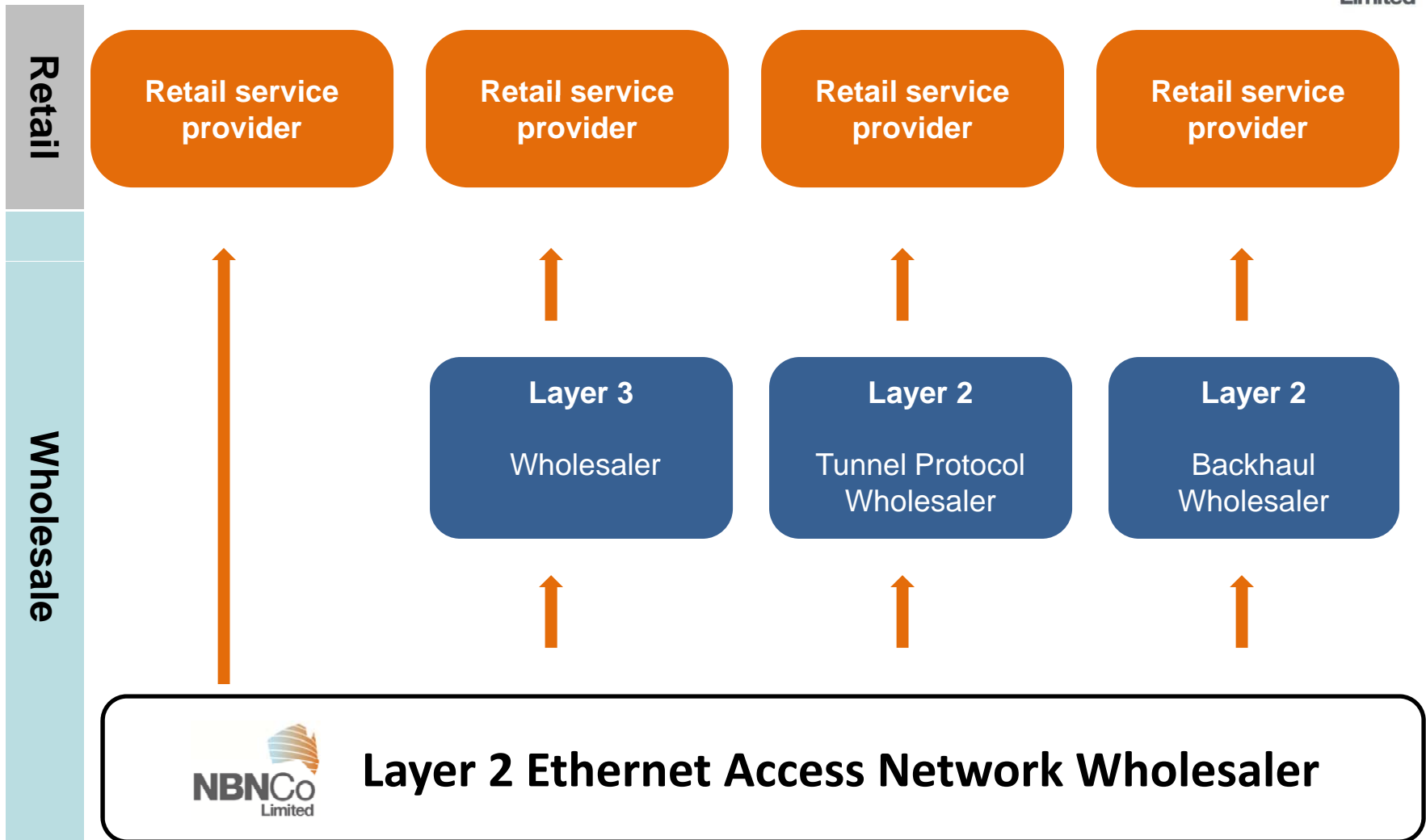


Three technologies – one access seeker interface





Industry positioning



Ubiquity and Standardisation



- Service Providers will be able to reach any customers in a region, using any of the three technology platforms
 - From the same Point of Interconnect
 - From the same network interface (NNI)
 - Using the same BSS interface
 - Using the same processes
 - At the same price for same/similar product
- Ubiquity with standard products/processes is critical for public applications such as eHealth and eEducation

As important as the speed and throughput improvements

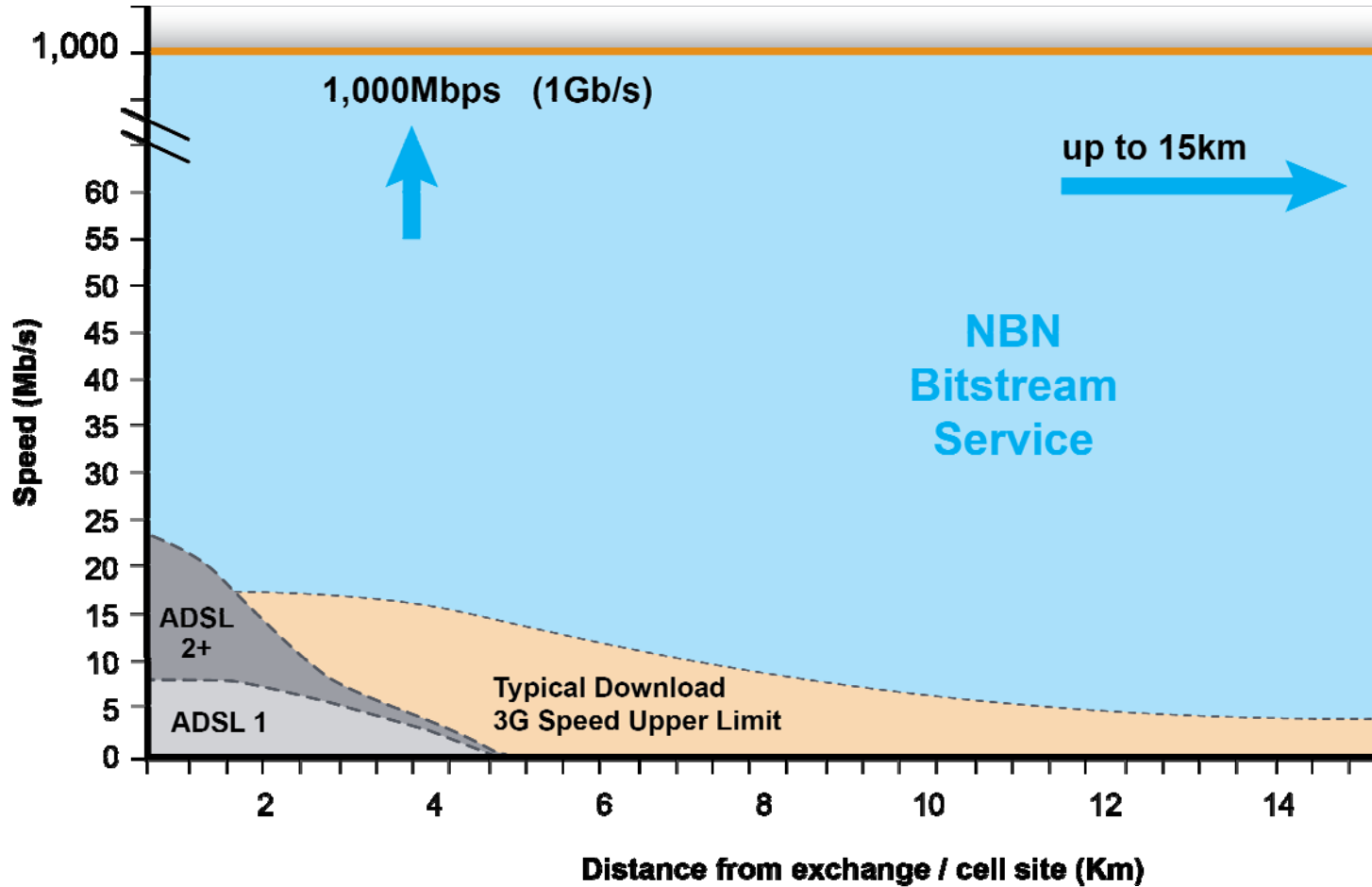
Peak vs Sustained Throughput



Technology	Speed (Mbits/sec)	Approximate Dimensioned Downloads (Gbytes/month)
NBN FTTP	12 – 1000Mb/sec	2,000 GB/month
NBN Fixed Wireless	12 Mb/sec	100 GB/month
NBN Satellite	12 Mb/sec	60 GB/month
Existing ADSL	8 - 24 Mb/sec	20 GB/month
Existing 3G Mobile	21 Mb/sec	6 GB/month
ABG Satellite	1 Mb/sec	3 GB/month

Source: NBN Co internal estimates

Access Technology Capabilities



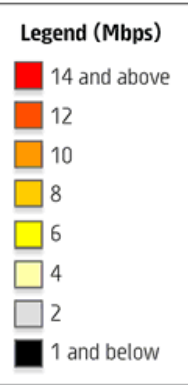
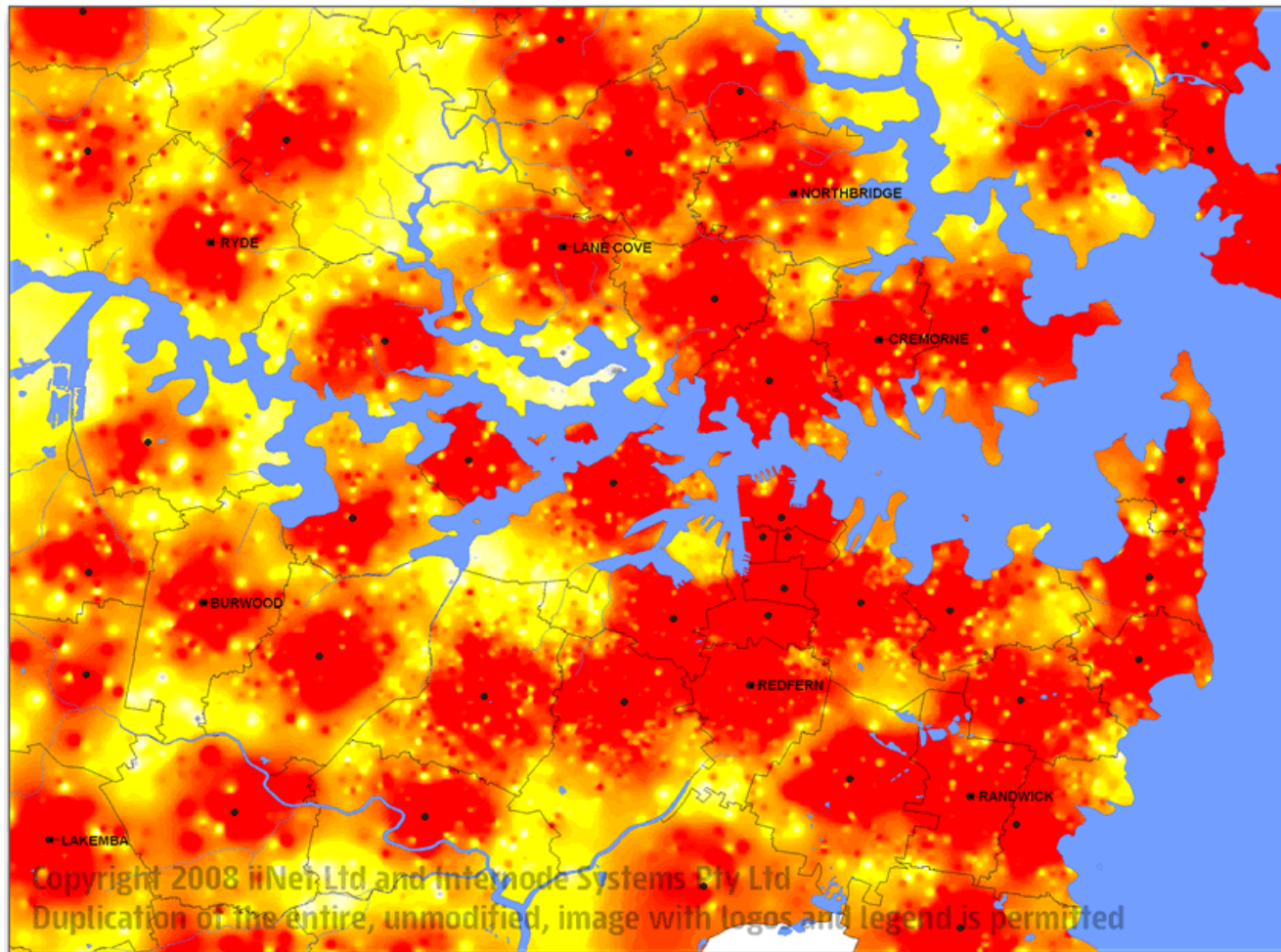
Ideal radio conditions, single user per cell, speeds assume dual carriers, distances assume operation in 850 MHz band
Fibre path distance from NBN Co FAN site to end-user premise
ADSL curves shown illustrate theoretical maximum speed vs distance characteristics according to relevant standards



Combined ADSL2+ Speed Distribution - Sydney



Internode



customer percentile max down (Mbps)

10%	19.4
20%	17.3
30%	15.3
40%	13.2
50%	11.9
60%	9.6
70%	7.5
80%	5.7
90%	3.8

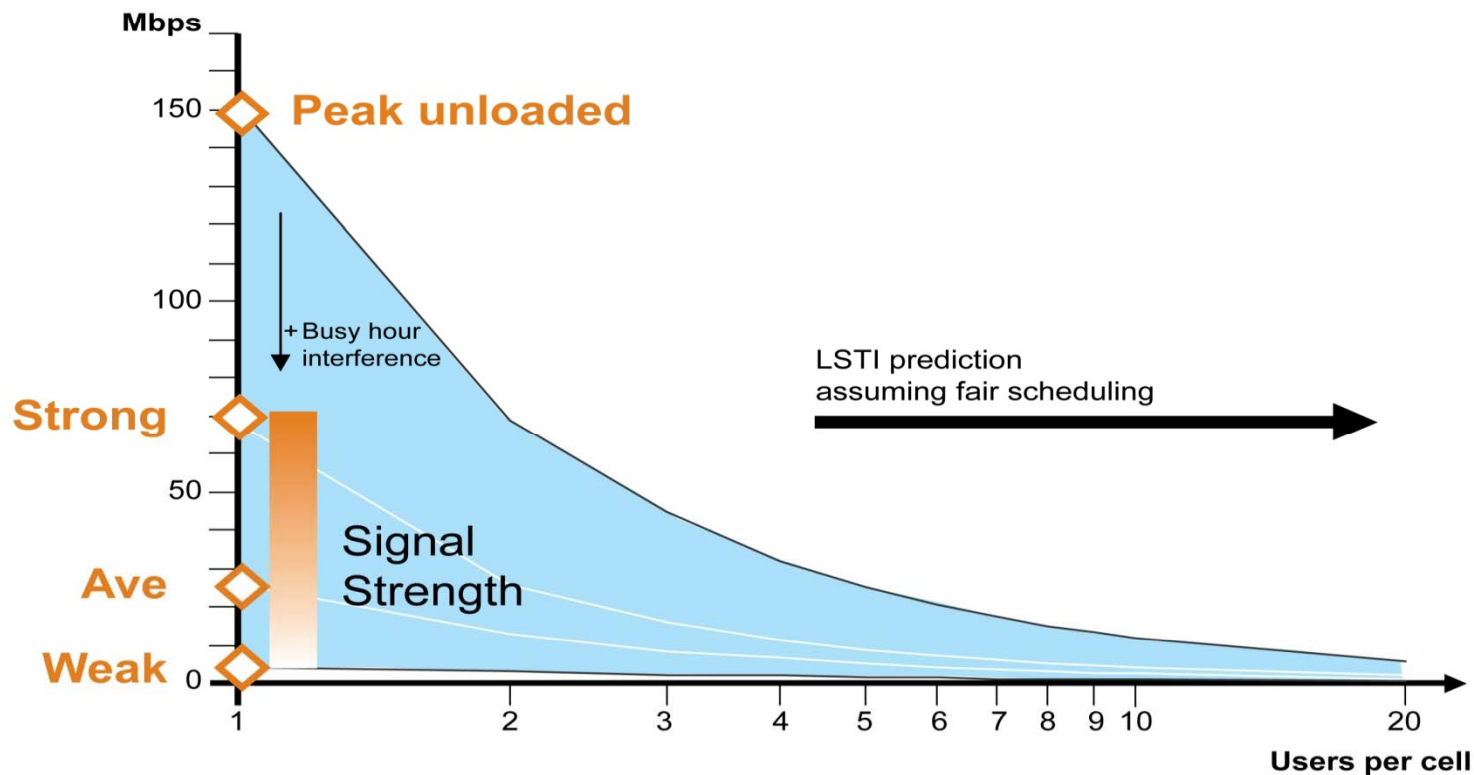
sample size > 16,000

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Wireless – distance and contention effects



LTE proof of concept peak rates



Notes: 2x20MHz, 2x2 MIMO
Source: LTE/SAE Trial Initiative (Oct 2009)

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Broadband Plans



Technology	Download (Gbytes)	Average Price (\$/month)
ADSL 2+	10	\$30
	30	\$50
	200	\$90
3G Wireless Broadband	2	\$20
	8	\$39
	20	\$100

HFC vs GPON



	Total Capacity per Shared Segment (Mbps) ¹		Typical Homes per Shared Segment ²		Average Capacity in Mbps / Home ³	
	Downstream	Upstream	Today	With Node Splitting	Downstream	Upstream
HFC	2,400	120	120 - 200	70 - 120	20 - 34	1 -1.7
GPON	2,500	1200	32	N/A	78	38

Notes:

1. Assumes Downstream - 665MHz, 6MHz channels @ 256QAM for theoretical downstream capacity of 3,900Mbps and a practical capacity of 2,400Mbps.
Upstream - 60MHz, 6.4MHz channels @ 32QAM for theoretical upstream capacity of 180Mbps and practical capacity of 120Mbps
2. Assumes ~20% penetration of a typical 600 to 1,000 homes-passed cable segment today, and 35% penetration of a typical 200 - 350 homes-passed cable segment with Node Split technology (est. technology availability 2013 - 2014)
3. Assumes Node Splitting Technology

Source: "Australian HFC Infrastructure Technology & Capability Assessment" – NBN-TE-CTO-015 v1.1

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