iiNet: DSLAM Strategy and Results

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Why DSLAMs

- Need to differentiate (500 ISPs in operation)
- Low Brand recognition (East Coast)
- Reduce Cost Base
- Provide protection from Wholesale squeeze
- Cheapest way to deploy Broadband
- Leverages large scale copper network

It fits in with our strategy to build volume and then use infrastructure to reduce cost / develop product

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Current DSLAM network

- 210 Exchanges Built
- 85,000 Customers on iiNet DSLAMs
- 120,000 Ports Deployed
- All States Covered
- Ericsson are our HW partner

Our target is to cover 90% of the metro population by Jan 2007

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The Business Case

There are different models for deployment (inside an exchange, or adjacent), the viability is simply based on customer density (retail or wholesale)

Customers	OPEX Items ($ per month)						Port/mth
	Rent / Power[1]	Tie Cable[1]	Backhaul	Per Port	LSS[2]		
100	2,000	250	4,000	62.50	9		71.50
200	2,000	500	4,000	32.50	9		41.50
300	2,000	750	4,000	22.50	9		31.50
400	2,000	1,000	4,000	17.50	9		26.50
500	2,000	1,250	4,000	14.50	9		23.50
600	2,000	1,500	4,000	12.50	9		21.50
700	2,000	1,750	4,000	11.07	9		20.07
800	2,000	2,000	4,000	10.00	9		19.00
900	2,000	2,250	4,000	9.17	9		18.17
1000	2,000	2,500	4,000	8.50	9		17.50

Note[1]: These are example costs only
Note[2]: Upper limit of ACCC recommendation

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The Business Case

The cost per port (DSLAM) is independent of speed and compares favourably with wholesale pricing models[3]

Customers	DSLAM 24000/1000	Example Wholesale Pricing[3]		
		256/64	512/128	1500/256
100	71.50	22	27.7	50.25
200	41.50	22	27.7	50.25
300	31.50	22	27.7	50.25
400	26.50	22	27.7	50.25
500	23.50	22	27.7	50.25
600	21.50	22	27.7	50.25
700	20.07	22	27.7	50.25
800	19.00	22	27.7	50.25
900	18.17	22	27.7	50.25
1000	17.50	22	27.7	50.25

Note[3]: Source http://whirlpool.net.au/article.cfm/1422

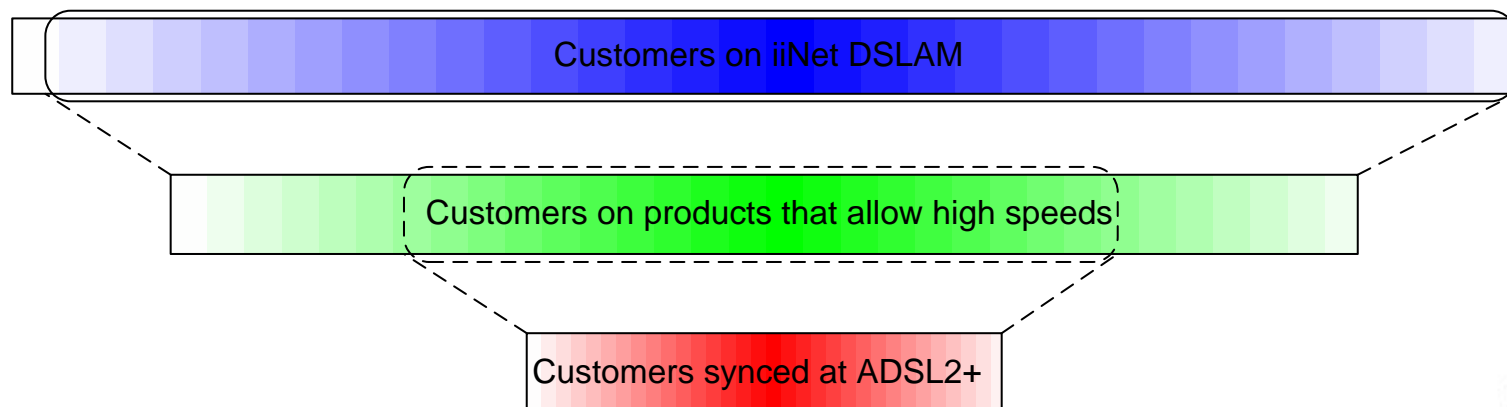connect better

How are they connected
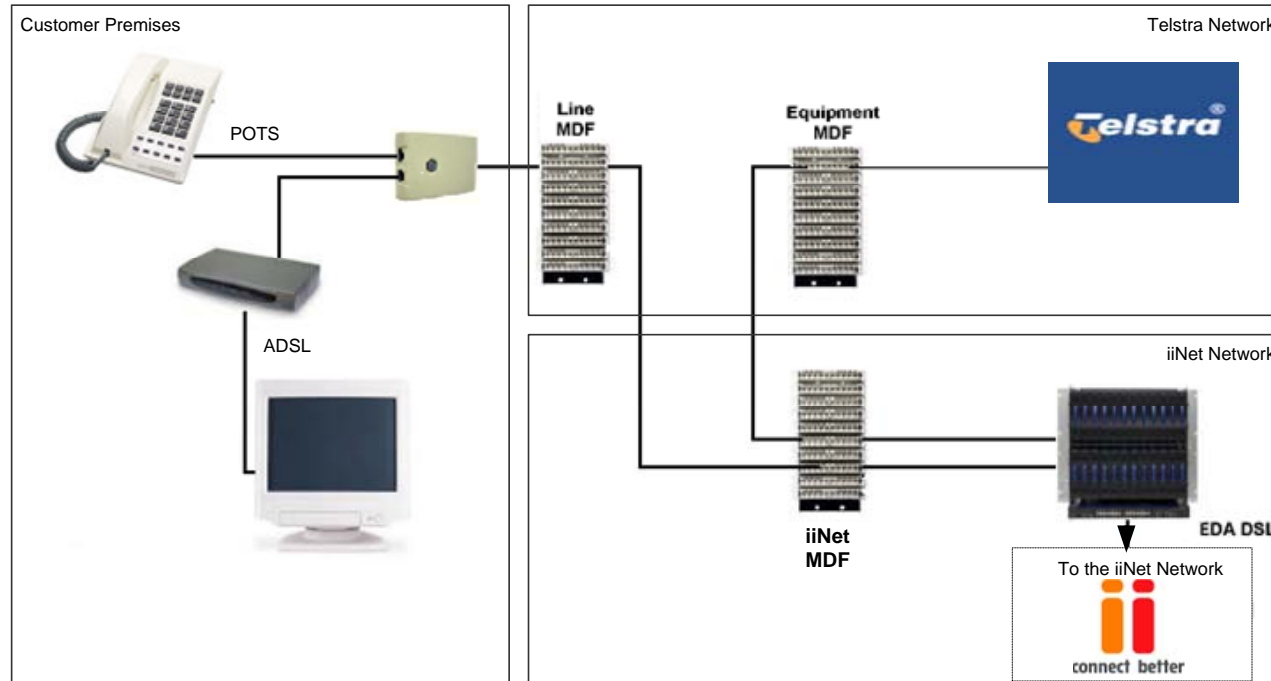
- LSS (line spectrum share – we access the non-voice spectrum)
- We provide the backhaul from the exchange (Fibre, Ethernet)
- Current topology but moving to ULL (unconditioned local loop)
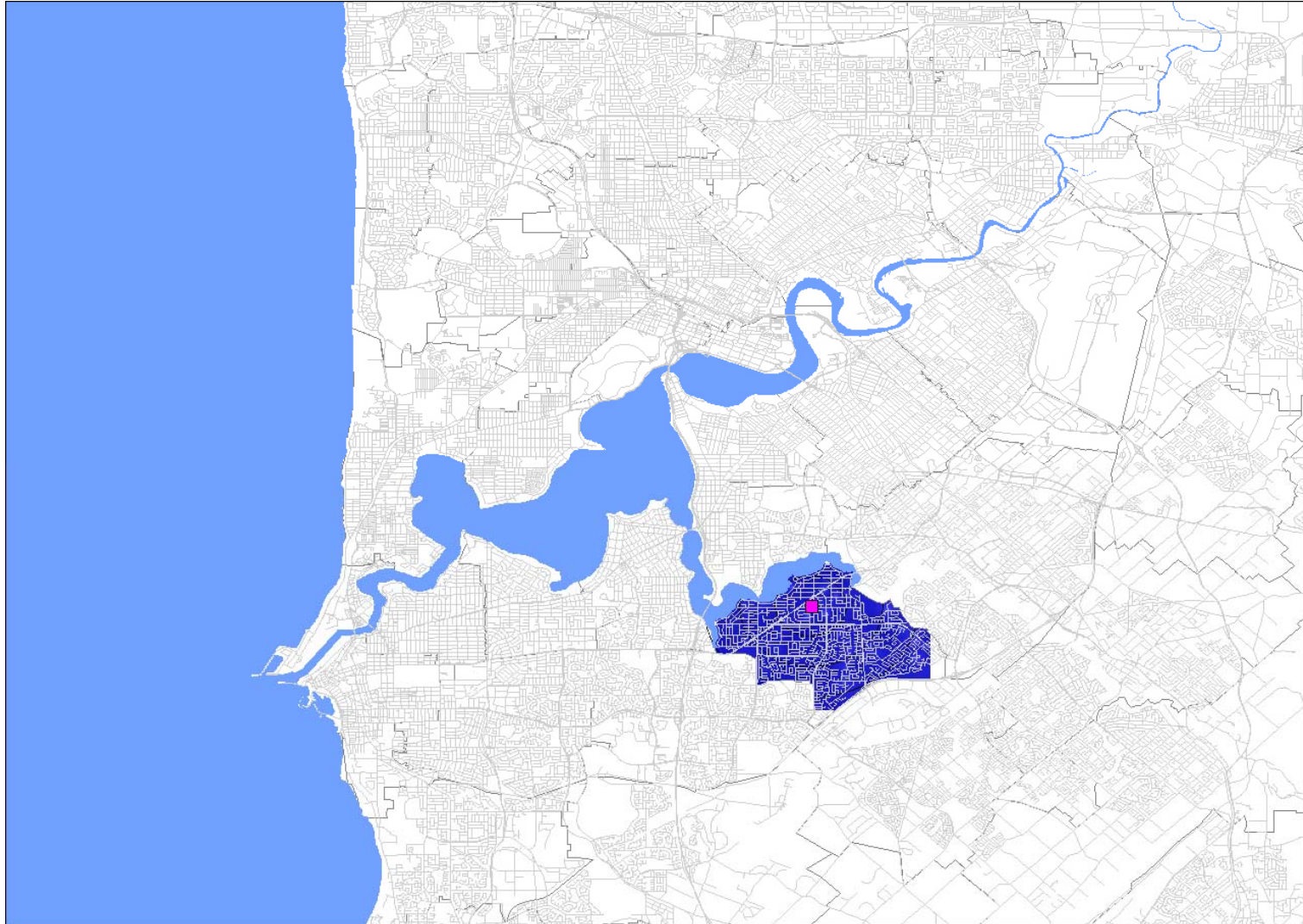
Actual Speed Statistics

Opportunity to look at max attainable DL speeds in different product segments.

- All iiNet DSLAM customers
- All iiNet DSLAM customers that have high speed plans (BB2)
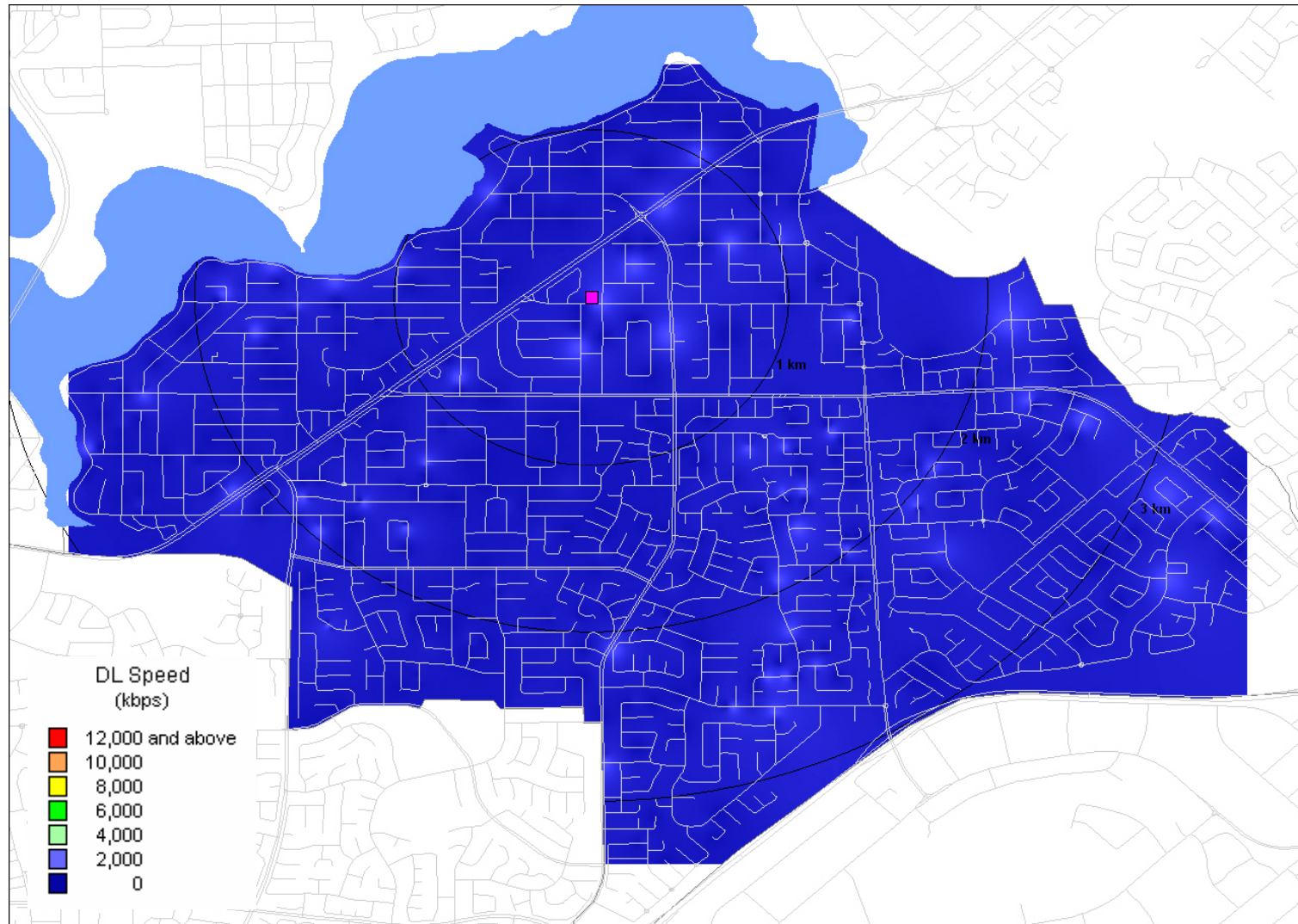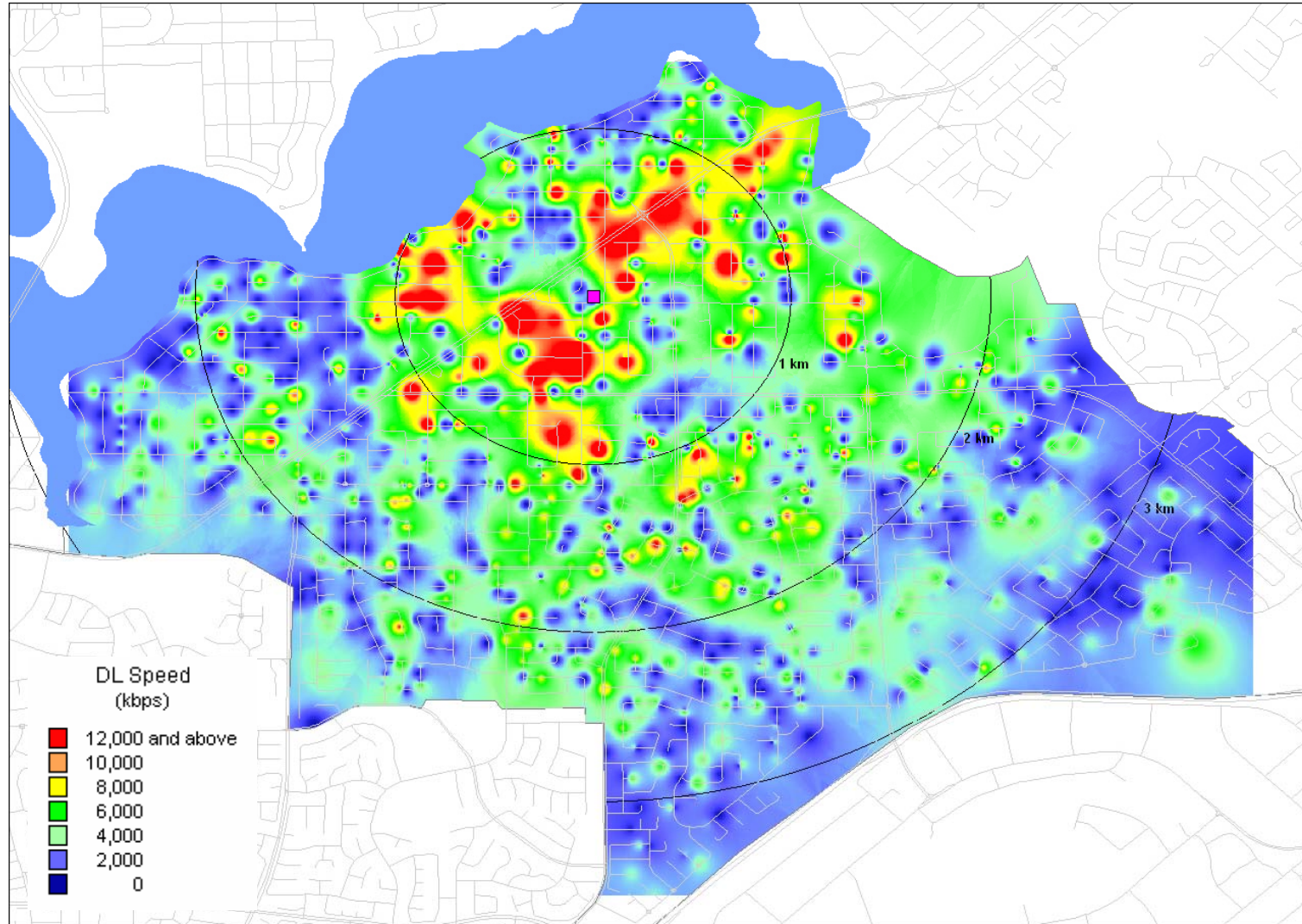- All iiNet DSLAM customers that have high speed plans and Sync at ADSL2+

Customers on iiNet DSLAM

Customers on products that allow high speeds

Customers synced at ADSL2+

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Sample Exchange – Riverton (Perth)

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First – The picture before DSLAMs

Customers on DSLAM (1013)

DL Speed (kbps)

- 12,000 and above
- 10,000
- 8,000
- 6,000
- 4,000
- 2,000
- 0

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Speed vs Distance (LoS)

Riverton all Customers (1013)
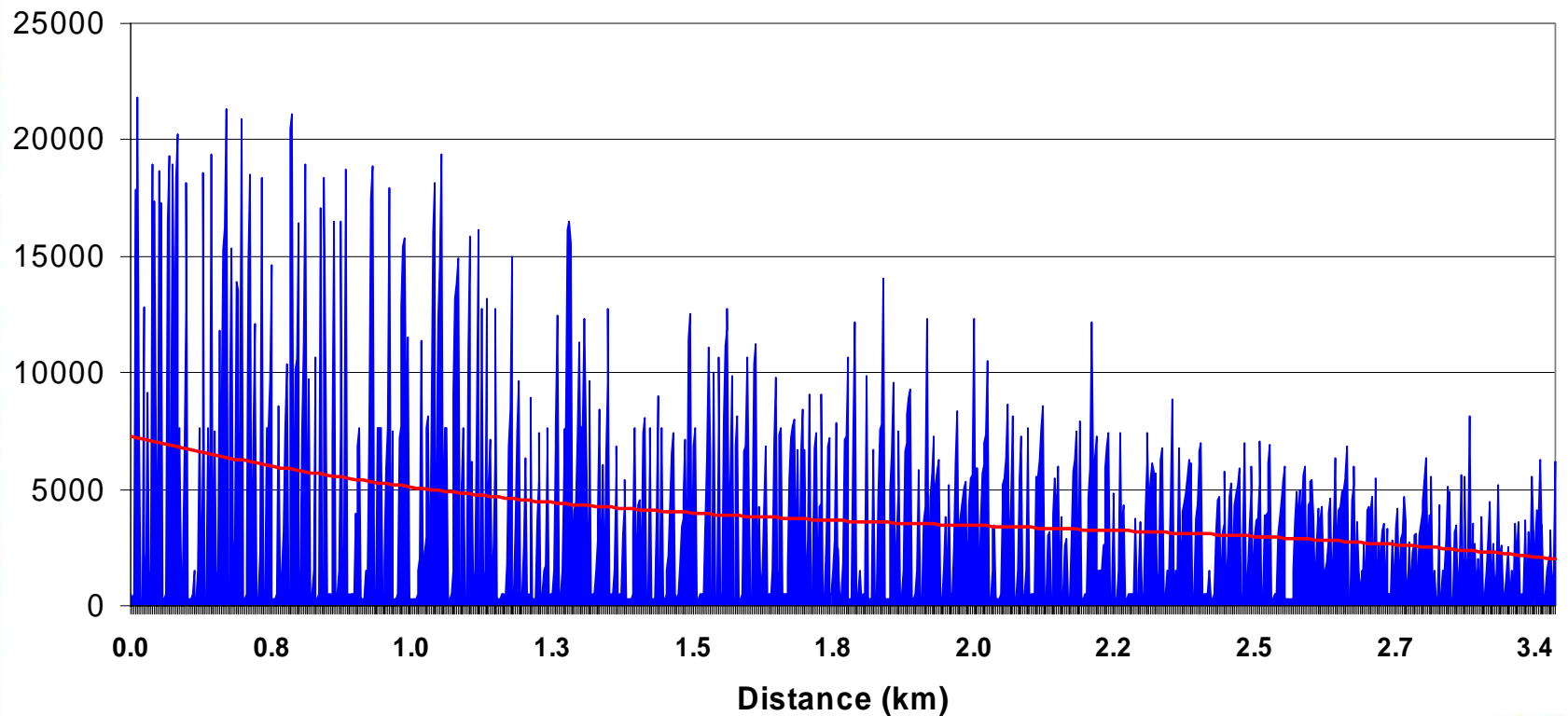
Speed Distribution

Riverton all Customers (1013)

These customers are on the iiNet DSLAM but have not moved to high-speed products – they are still on 1500, 512 and 256 plans

Customers

■ Maximum Attainable DL

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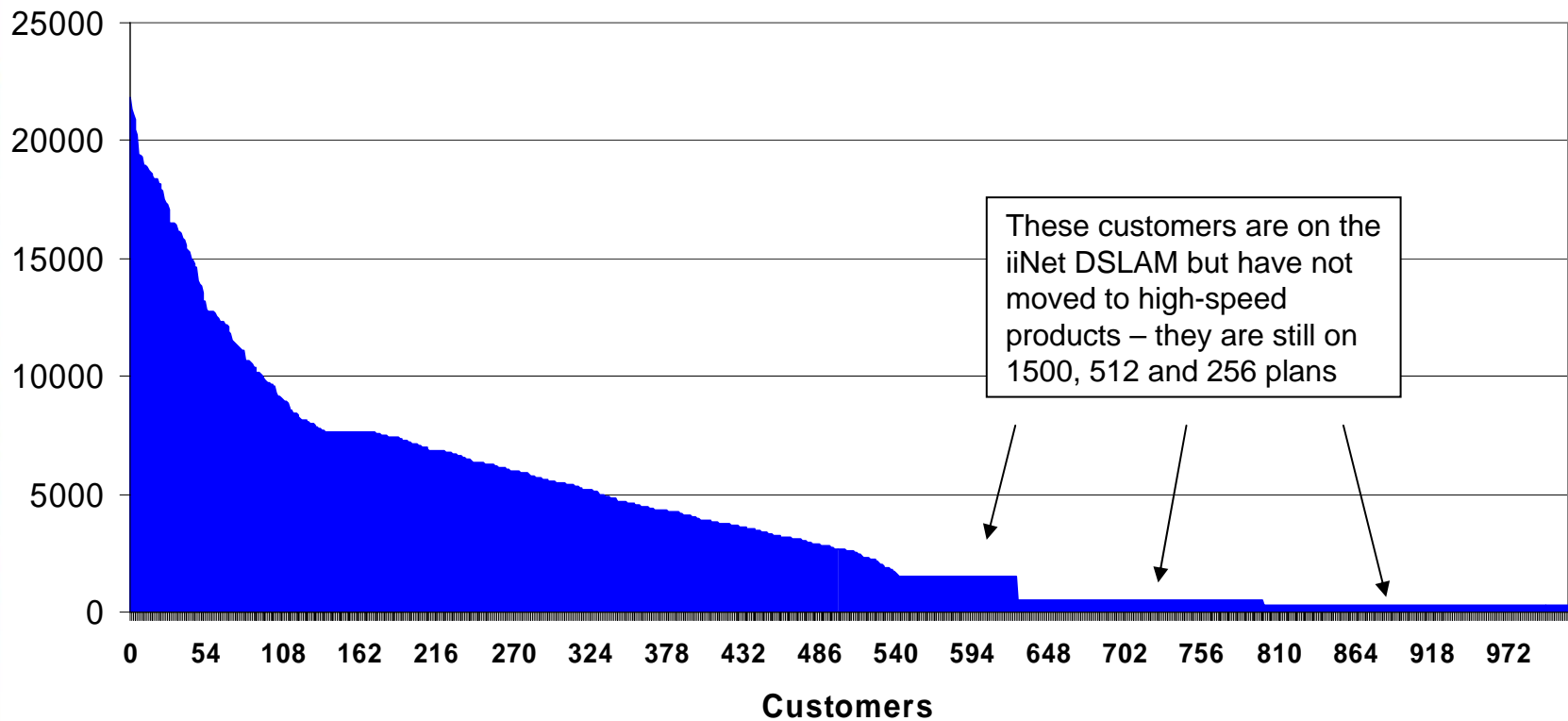
Customers on our BB2 Product (545)

DL Speed (kbps)

- 12,000 and above
- 10,000
- 8,000
- 6,000
- 4,000
- 2,000
- 0

50% > 6800 kbps

75% > 3800 kbps

90% > 2800 kbps

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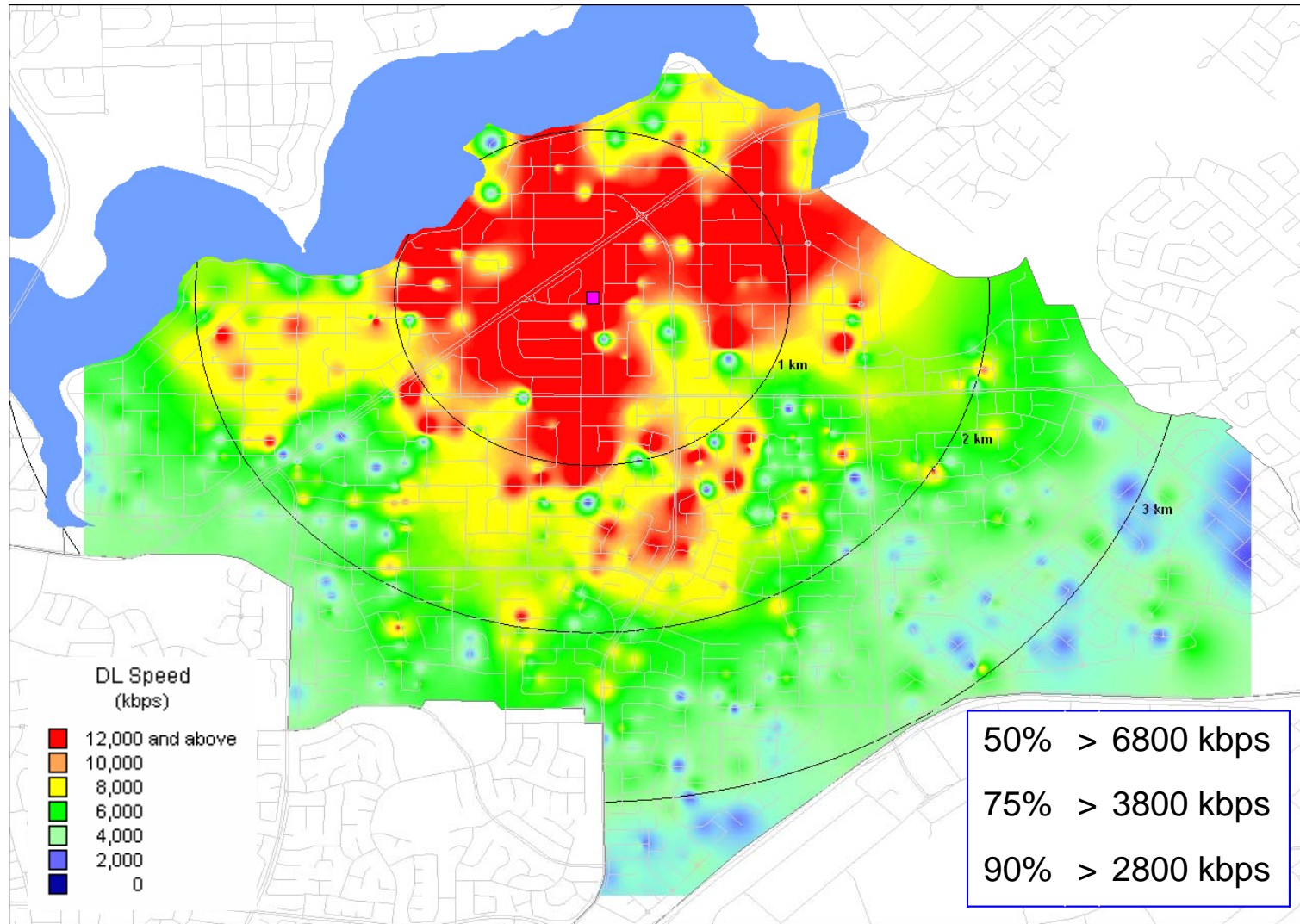
Speed vs Distance (LoS)

Riverton BB2 Customers (545)

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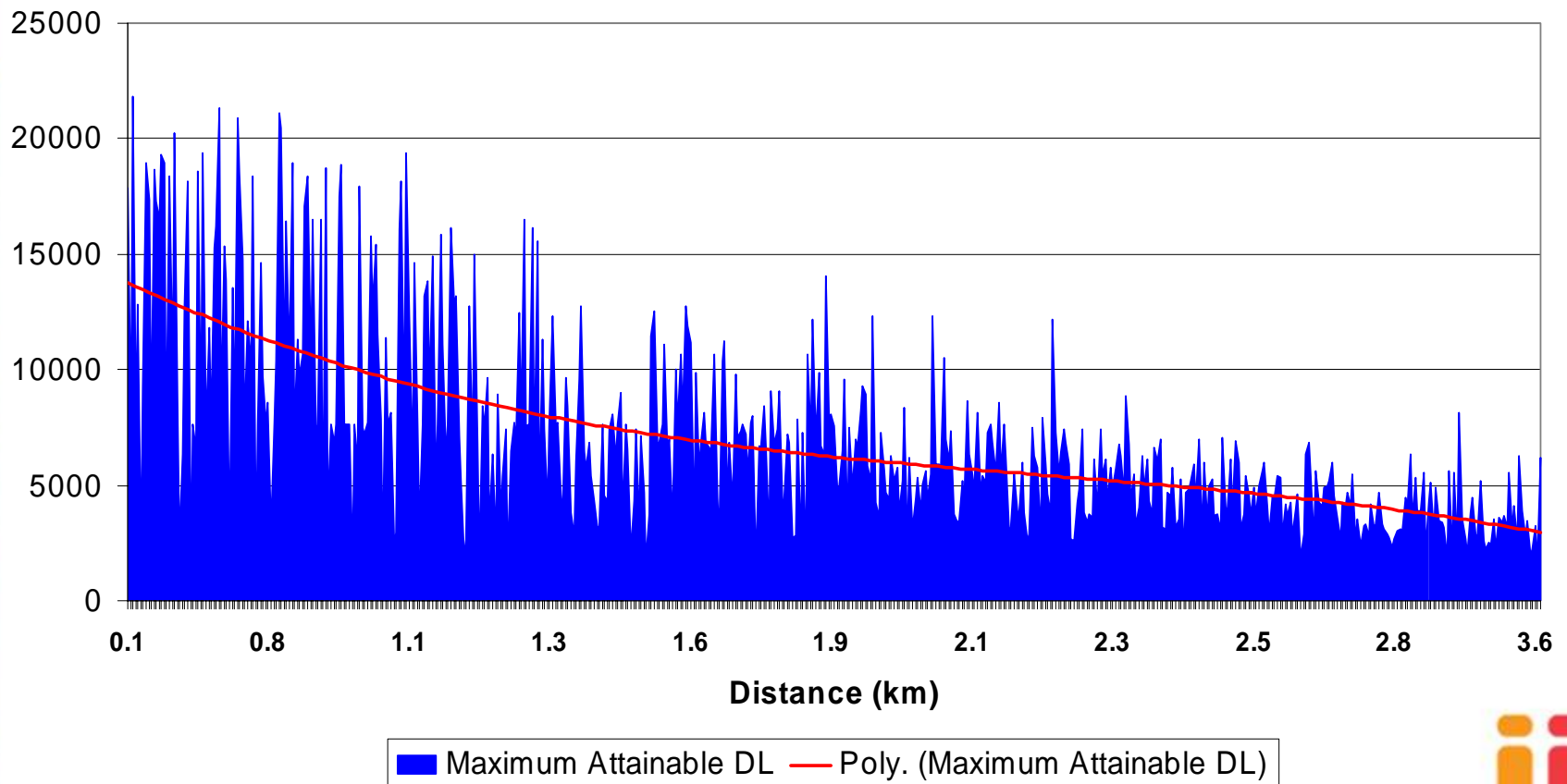
Speed Distribution

Riverton BB2 Customers (545)

50% > 6800 kbps

75% > 3800 kbps

90% > 2800 kbps

■ Maximum Attainable DL

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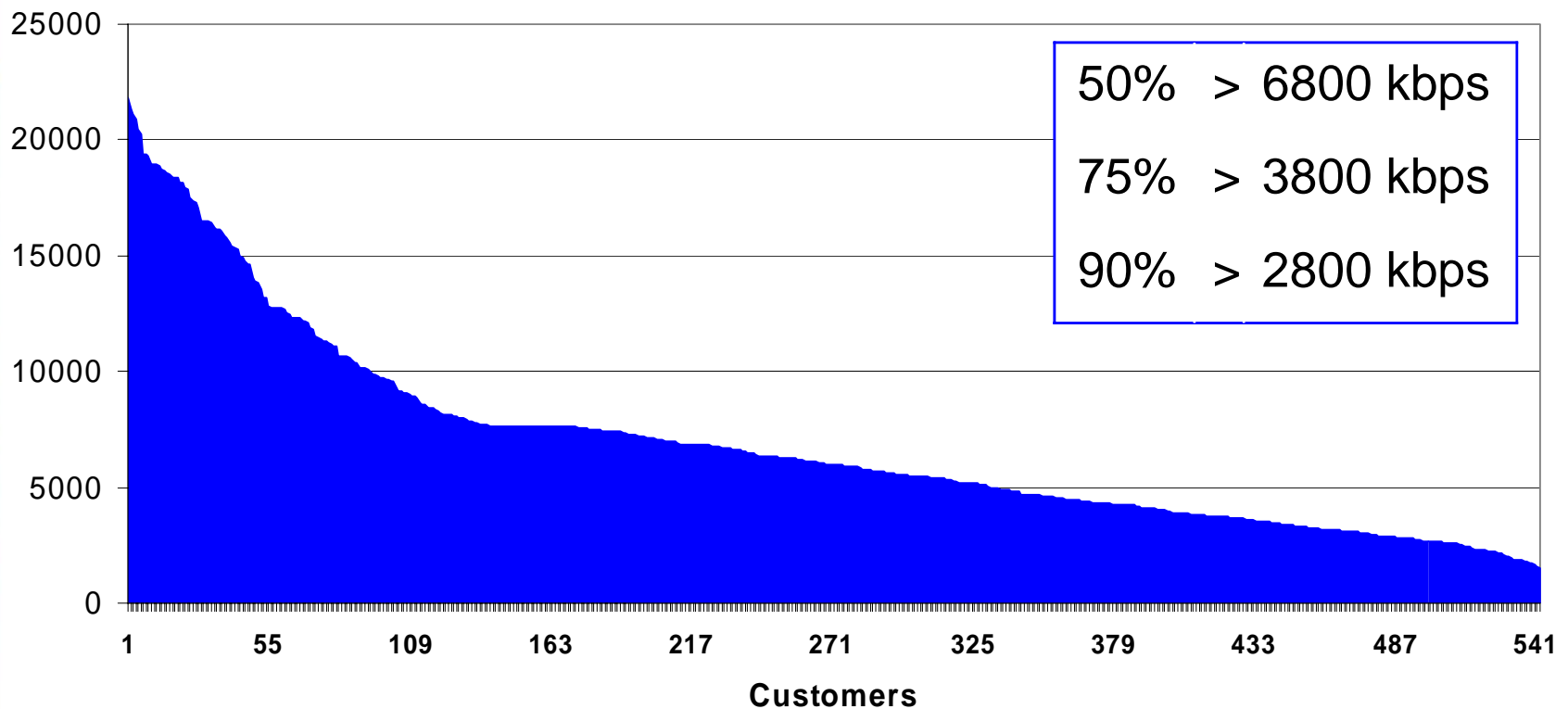
Customers syncing at ADSL2+ (215)

DL Speed (kbps)

- 12,000 and above
- 10,000
- 8,000
- 6,000
- 4,000
- 2,000
- 0

50%   > 9100 kbps

75%   > 5500 kbps

90%   > 3400 kbps

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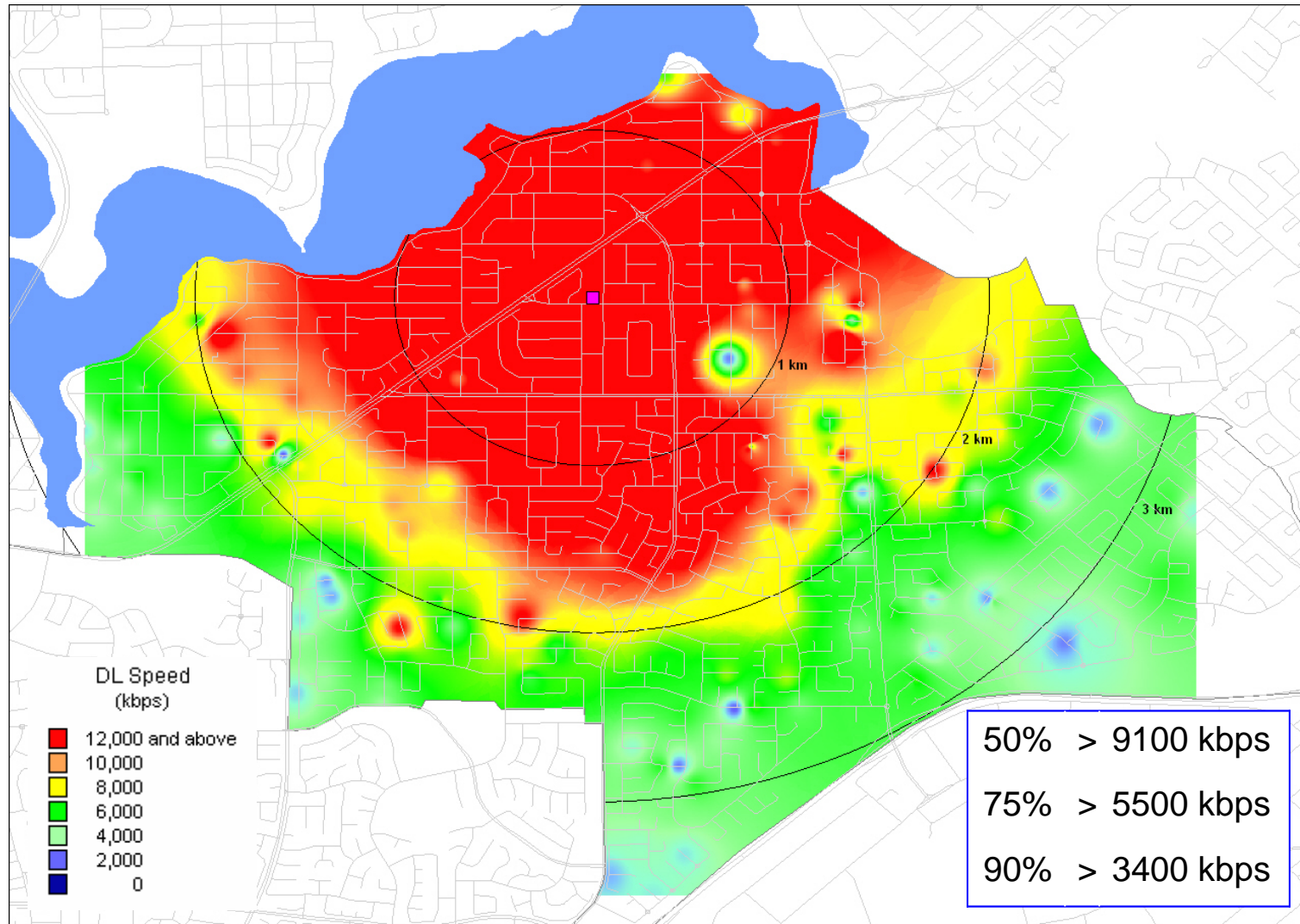
Speed vs Distance (LoS)

Riverton ADSL2+ Customers (215)
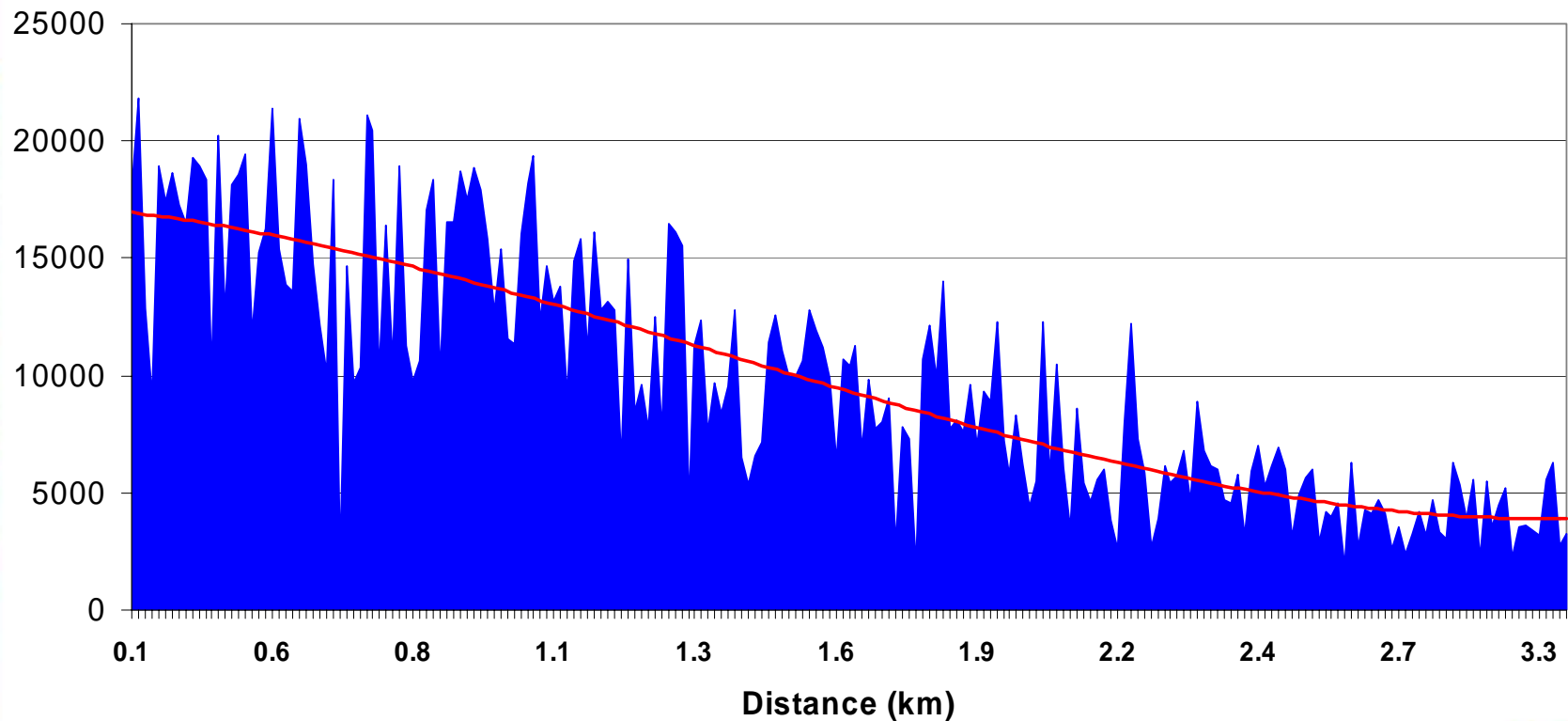
Speed Distribution

Riverton ADSL2+ Customers (215)

50% > 9100 kbps

75% > 5500 kbps

90% > 3400 kbps

Customers

■ Maximum Attainable DL

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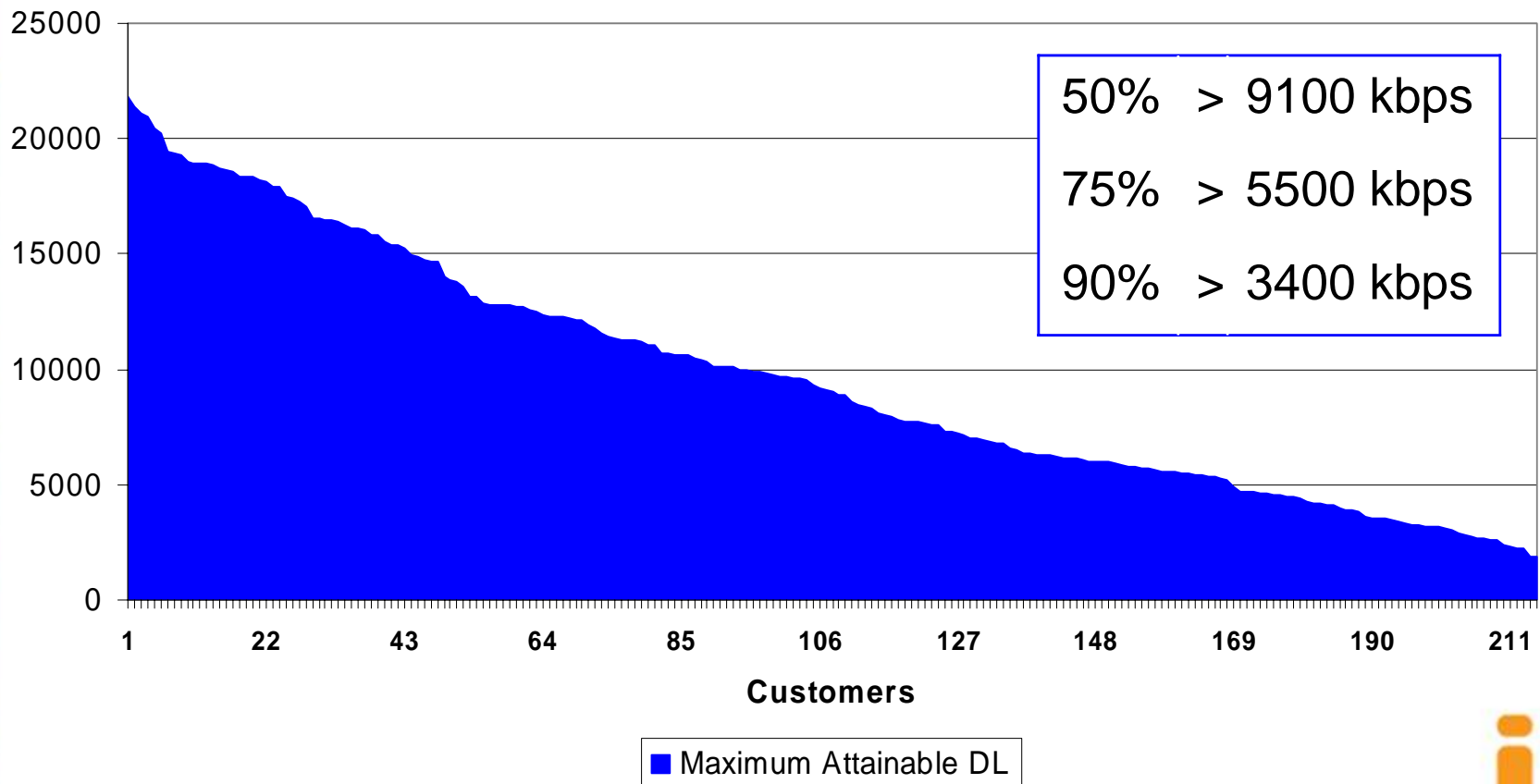
Lessons Learnt

- Do not expect things have been done before (the need to develop new processes)

- Minimal visibility of the build process

- Our Vendor is our partner (develop a collaborative relationship)

- Need different staff (we needed to broaden our skill base, practical skills like PM and Technician required)

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What would we do differently

- Build more capacity per exchange
- Build faster (where possible, go harder)
- Co-ordinate internal activities earlier (develop more products in advance)
- Develop more "self service" tools for customers

Controlled (ADSL2/2+ speeds up to 24,000 kbps)

speed connection **manager**

| Profile	Speed	Description
Safe	ADSL1 Speed up to 8,000kbps	If you have an older modem it may not support ADSL2/2+ speeds in excess of 8,000kbps. So play it safe.
Controlled	ADSL2/2+ Speeds up to 24,000 kbps (FAST)	If you want to push the speed up a little but keep a stable connection. You may need this if you have poor line quality.
Standard	ADSL2/2+ Speeds up to 24,000 kbps (FASTER)	This is our default setting that suits most users. It's still really fast, but usually gives good connection stability.
Thrillseeker	ADSL2/2+ Speeds up to 24,000 kbps (FASTEST)	If you want to push the broadband speed limit. You'll definitely get the fastest speeds possible on your line. But you may hit the occasional speed bump or two.

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Summary – DSLAM Deployment has:

- Allowed us to differentiate on product
- Reduced Cost Base
- Reduced reliance on Wholesale Suppliers
- Provided a building block for Voice (MSAN)
- Mitigate QoS issues for VoIP

  iiNet has the second largest ADSL network in Australia, we will continue to develop and build on this base

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Where to?
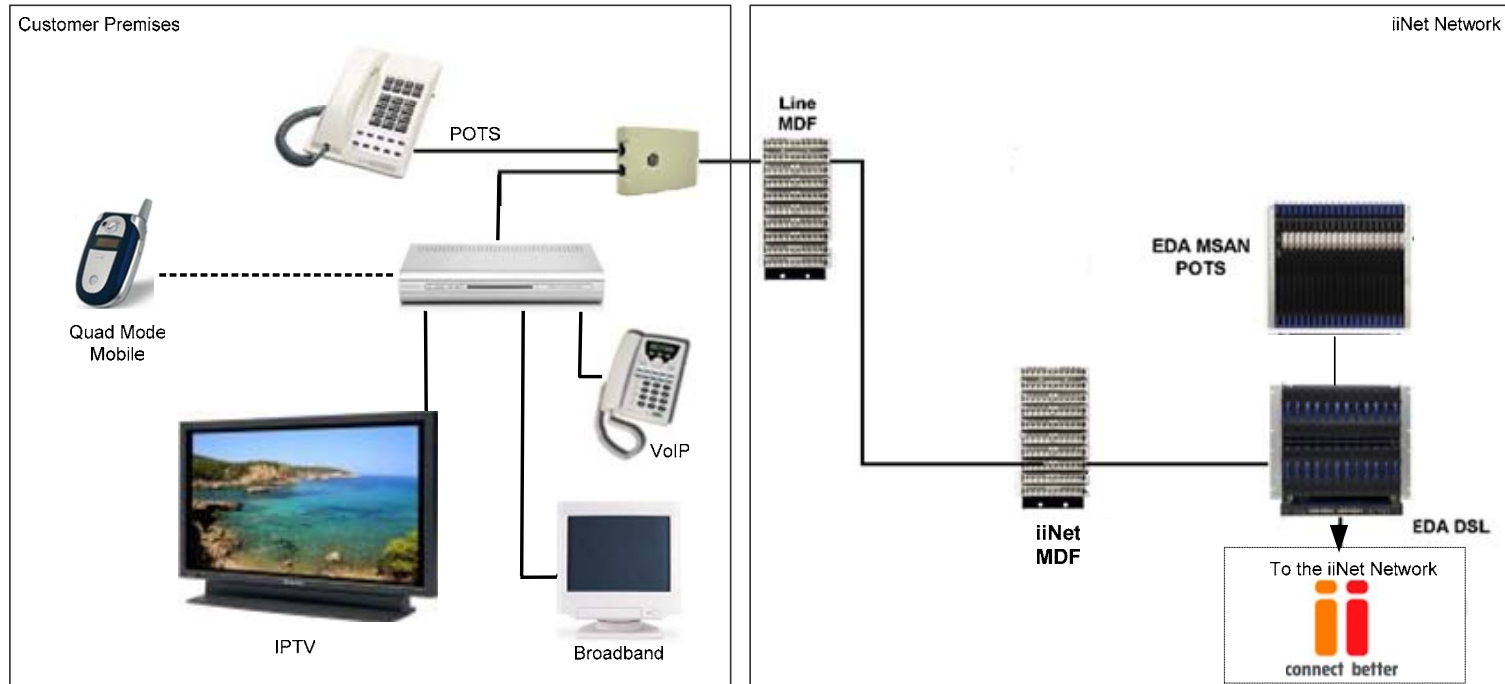
- Primary line Voice (SIP MSAN – current under trial)
- Move to ULL (further reduction in cost base)
- We have the BW to deliver content (VoD, IPTV)

Thank you

Questions ?