Broadband Australia 2008 Presentation
28 July 2008

Representatives of EFTel Limited (**ASX: EFT**) were invited to speak on VDSL2 at the Broadband Australia 2008 Conference. The presentation was made on Friday afternoon, 25 July 2008.

Attached is a copy of the slides from the presentation,

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Evolving Existing Networks Beyond ADSL2+

Broadband Australia 2008: EFTel VDSL2 Case Study

Evolving existing networks beyond ADSL2+

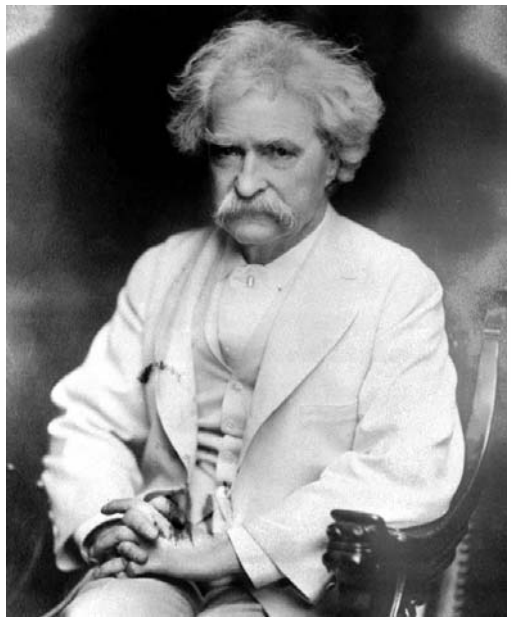
Format for Presentation

- **Simon Ehrenfeld**
- The Tier 2 ISP, its options and choices
- Projecting the impact of VDSL2 technologies on the Australian Broadband Market
- Implications for the Consumer and Enterprise Markets
- **Luke MacKinnon**
- Delivery of VDSL2 on existing networks
- Potential obstacles to VDSL2 deployment
- Effect of VDSL2 speeds on alternative network builds

FTTN Reality Check

- FTTN Build will not happen quickly
- FTTN provider will not be afforded the opportunity to monopolise the market
- Tier 2 providers are here to stay

"News of our death has been greatly exaggerated"



EFTel: Tier 2 ISP

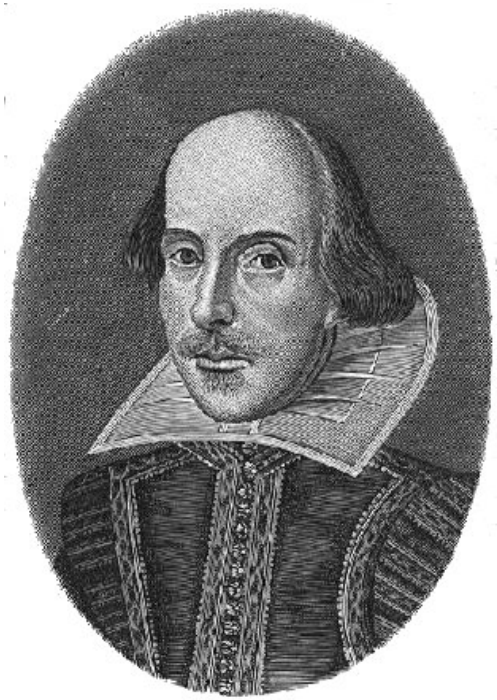
- 10 year+ history
- 100,000+ services
- Traditional heavy reliance on wholesale suppliers rather than own infrastructure
- One of ~10 Tier 2 ISPs in Australian market
- Tier 2 ISPs service approx 30% of the market

Challenges for Tier 2 ISP

- Evolving consumer demand for higher speed services, driven by media rich content demands
- Limited wholesale availability of ADSL2+
- No road map beyond ADSL2+
- Incumbent supplying ADSL2+ retail while refusing to supply ADSL2+ wholesale.

The Tier 2's Options

"To build or not to build, that is the question."•



The Tier 2's Options

- "Buy" and have your path beyond ADSL2+ dictated by your wholesale partner, including the margin you will achieve

- "Build" and take control of your path beyond ADSL2+, bringing clarity to your services road map and empower innovations that are far less constrained by bandwidth. Thinking beyond ADSL2+…..

Building for ADSL2+ and beyond

- Any build option needs to do the following:-
  - Leverage existing infrastructure
    - No large scale capital replacement → MSAN
  - Leverage existing commercial environment
    - Utilise ULL/SSS to maximise the return on capital
  - Allow quick migration of existing services at minimal cost to maximise return and minimise disruption to end users
  - Accommodate the bandwidth needs of tomorrow → VDSL2

EFTel's Choice

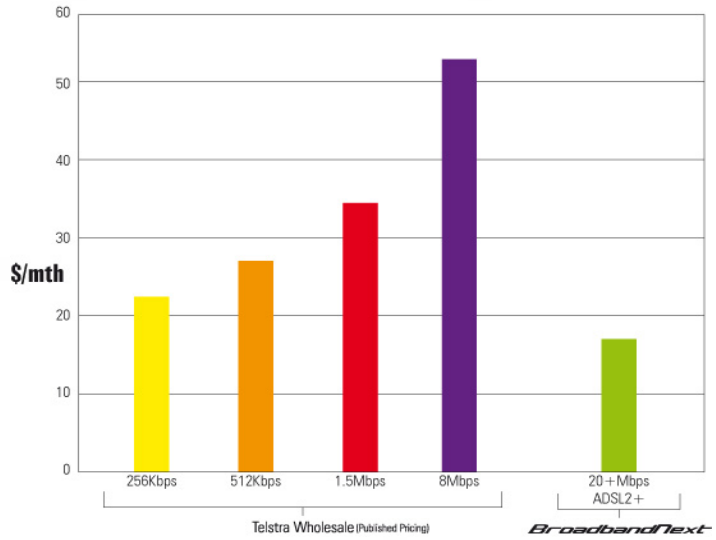
BroadbandNext

Australia's next generation broadband network

On 1 November 2007, EFTel announced a nationwide rollout of the latest and most advanced xDSL technology, VDSL2.

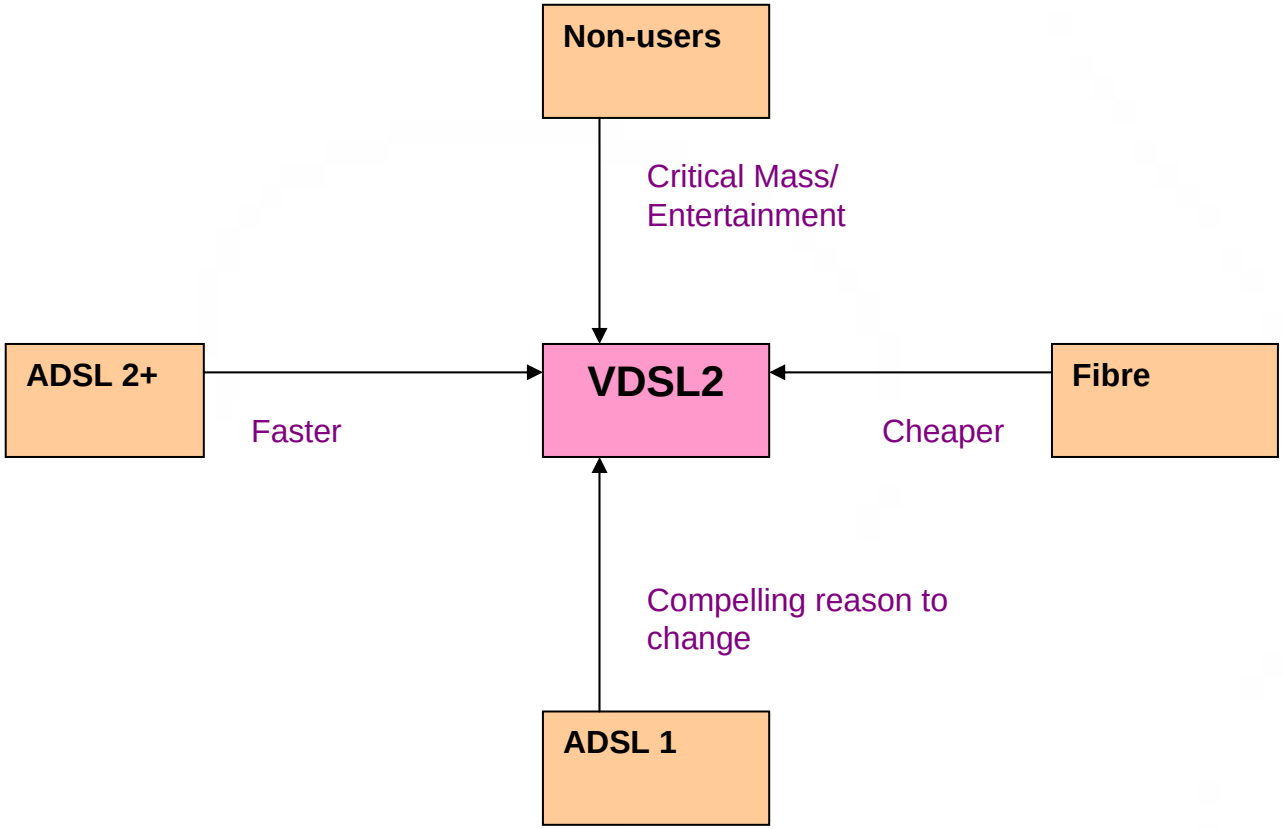
Built on a Multi-Service Access Node (MSAN) network, it delivers a variety of technologies, including:

- VDSL2
- ADSL and ADSL2/2+
- SHDSL
- PSTN (standard fixed-line telephony)
- VoIP (Internet telephony)



Impact of VDSL2 on the Broadband Market

Drivers of users from other platforms to VDSL2



Implications for Consumers - Passive

- **Entertainment** – true Multiplay
  - IPTV
  - VOD

Bandwidth Requirements

- HDTV 8Mbps
- SDTV 2Mbps
- VOD 6-10Mbps

Implications for Consumer - Active

- **Increased Online Interactivity**
  - Videoconferencing / Video Telephony
  - Gaming
  - E-learning
  - VoIP
  - Increase in content rich Blogging, Vlogging changing the traffic profile
  - True enablement of ASP services, e.g. Office Suites, Personal Content Management suites

Implications for the Enterprise Market

- **As Users**

- Increased capacity to virtualise operations (e.g.videoconferencing, shared whiteboards)
- Changes in IT governance, architectures and infrastructure
- Changing IT cost patterns

- **As Providers**

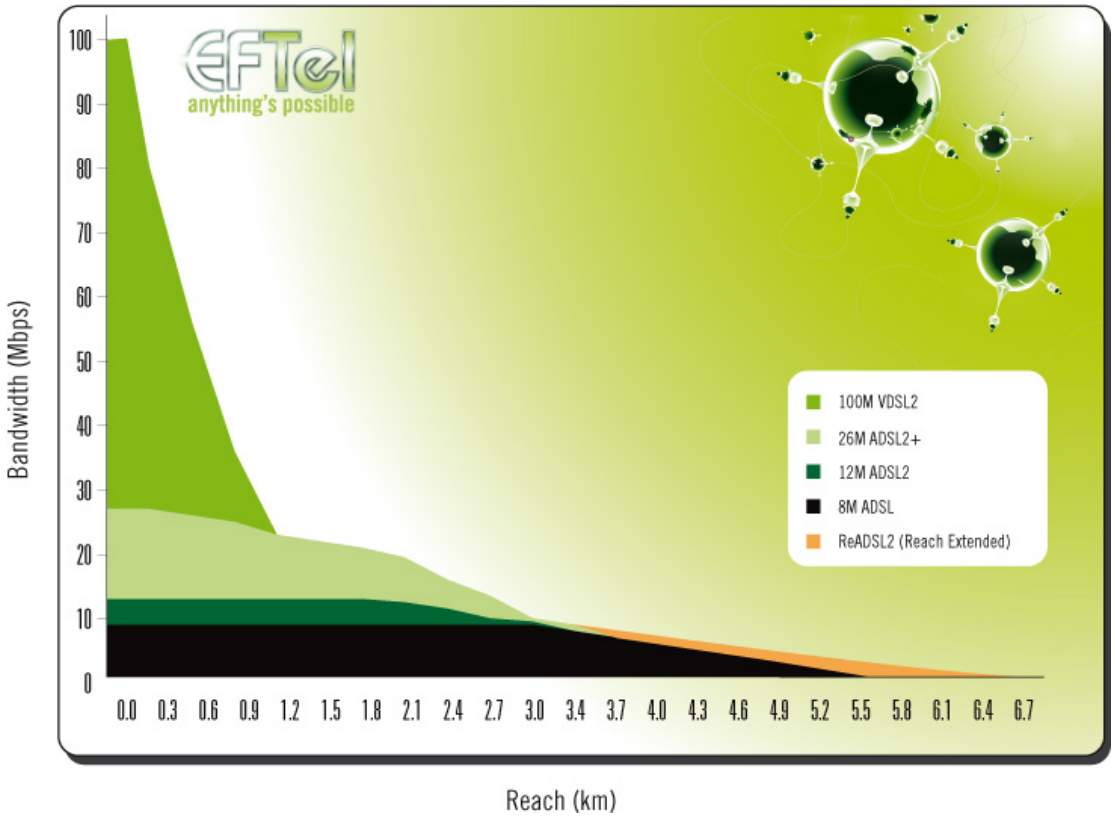
- Media rich digital shop fronts
- Content and applications that cater to a wider variety of speeds at the consumer end.
- Increased Importance of Online business

Delivery of VDSL2 on existing networks

- Exchange based deployments
  - Would be possible if exchange prioritised as per current code.
- Node/Cabinet based deployments
  - Can co-exist with exchange based deployments with minimal performance impact if powered down
  - Could exist in the node only if given priority over any exchange based deployment
- MDU based Deployments
  - Common deployment with no impact on node or exchange based deployments.

Technical Issues

- Best performance closer to exchange
- Vastly superior to ADSL2+ up to 1.2 km
- Somewhat superior to ADSL2+ beyond 1.2 km.



Technical Issues

- Power = interference
  - Increase power, increase reach
  - Regime for peaceful co-existence of ADSL2+ and VDSL2 is possible
- Carrier capability
- Network Topology
  - FTTN/FTTC
- CPE install base
  - Modem upgrades will be required

Regulatory Issues

- VDSL2 and ACIF C559:2006
  - Deployment State A
    - Exchange Based Priority
  - Deployment State B
    - Node Based Priority
- Commercial interest vs. technical outcomes
- National Broadband Network (NBN / FTTN)
  - Winner takes all?
  - Separation?
  - Exchange copper cut or not?
  - Self Regulation or Enforced Regulation?

Advantage of VDSL2 over alternative network builds

- VDSL2 has been designed to co-exist and be backward compatible with other DSL services.
- VDSL2 offers superior bandwidth per km.
- VDSL2 has been designed with the transmission/broadcast of latency sensitive data streams like multicast IPTV or streamed VOD.
- Compared to all wireless alternatives VDSL2 does not suffer a contended last mile.

Quick Comparison

Technology	Bandwidth	Reach	CapEx	Last Mile Contention
VDSL2	30 – 100 Mbps	1.2kms	Low	No
ADSL2+	8 – 24 Mbps	3kms	Low	No
ADSL	Up to 8 Mbps	5kms	Low	No
WiMAX	2 – 12 Mbps	10kms	High	Yes
3G	2 – 24 Mbps	2 – 10kms	High	Yes
FTTP	100 – 200 Mbps	N/A	Extremely High	No

FTTN & FTTP

- **FTTP: Fibre to the Premises is the logical progression of FTTN**
  - FTTP is struggling for viability in Europe
  - FTTP is unlikely to be viable in Australia for a very long time

- **FTTN: The node is the furthest any viable fibre rollout is likely to go in Australia**
  - even then, only with enormous government subsidies and/or regulatory protection

Where to for VDSL2?

- **VDSL2**
  - Can be deployed at exchanges when ratified
  - Can co-exist with current technologies
  - Should co-exist in exchange and node based deployments to get the maximum speed to the maximum number
  - Is ready to be supported by various carriers
  - is **the** technology of FTTN

At a minimum, VDSL2 should be added to C559 with transitional arrangements to support node based deployments.

Another FTTN Reality Check

Italy	Australia
~ 4,000 exchanges	~ 4,000 exchanges
~ 200 people per sq km	~ 3 people per sq km –most densely populated state is Victoria ~ 20 people per sq km, and approaching size of Italy.
~ 60,000 nodes	~ 80,000 nodes
3 years to plan, 5 years to build	?
VDSL2 targeted to reach 75% of population	VDSL2 targeted to reach 98% of population
Estimated at $20 billion	???

"Sometimes we stare so long at a door that is closing that we see too late the one that is open"

Further Information

Visit

- www.broadbandnext.com
- www.vdsl2.com.au

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