ADTRAN

Submission to the Senate Select Committee on the National Broadband Network

ADTRAN Networks Pty. Ltd.
April 30, 2009

1 Introduction

ADTRAN welcomes the opportunity provided by the Senate Select Committee on the National Broadband Network (NBN) to present a perspective on the network access architecture required to support the goals of the NBN plan.

In light of the Federal Government's decision to cancel the Fibre to the Node (FTTN) RFP and pursue building an NBN based on a Fibre to the Premise (FTTP) architecture, we thank the Senate Select Committee for the opportunity to provide input based on our extensive experience in developing equipment for broadband network architectures.

ADTRAN is the top domestic equipment supplier of broadband solutions in the USA with deployments in all eight of the Tier 1 carriers and over 100 of the Tier 2 and Tier 3 service providers. ADTRAN also ranks in the top 10 broadband equipment providers in the world, according to Synergy research. In addition, ADTRAN is ranked the top global supplier of environmentally hardened broadband solutions.

ADTRAN has significant knowledge of Australian telecommunications networks. For example, ADTRAN solutions are widely deployed throughout Australia in over 3,000 points of presence in Telstra's network.

We understand that the original RFP process of the National Broadband Network has been abandoned. The committee heard presentations from a number of industry stakeholders on the NBN process. It received more than 50 submissions from 38 parties – both NBN proponents and opponents – and was preparing its final report when the Federal Government scrapped the process earlier this month. Apparently, the decision has been made to build out FTTP networks to +90% of subscribers with a target to deliver 100 Mbps of bandwidth. The 10% balance of customers that will not qualify for FTTP will be provided with Wireless data connections at 12 Mbps of bandwidth.

Given our extensive experience, we believe that in order to achieve the objectives and goals set out by the NBN to have a viable business case and address the highest level of broadband to all Australians, the scope of solutions needs to be extended beyond the proposed FTTP and Wireless network architecture.

In this submission, we introduce a Fibre to the Distribution Point (FTTDP) architecture that delivers FTTP and also provides the option in the last 500m to use the existing copper infrastructure to deliver up to 80 Mbps. The benefits of this architecture include the following:

- Maximum Return on Investment
- 80-100 Mbps to all broadband subscribers
- Flexibility in Deployment
- Reuse of Existing Infrastructure
- Lowest CapEx Investment
- Aesthetically unobtrusive (small physical profile)

2 Background

Governments and telecommunications carriers worldwide have recognized the need to transform legacy wireline networks into high-speed data delivery platforms. The ramifications of the social and economic benefits have been debated but can no longer be ignored. Business and consumer dependence on high-speed Internet based services is now reaching similar levels to utility services such as electricity, water and telephone. The demand for increased bandwidth over a wider coverage area poses significant challenges to the network operator.

Despite the increase in demand, network operators have struggled to find solutions that can result in a sustainable business case. Fibre must be deployed deeper into the network to satisfy the bandwidth requirements but the closer it gets to the end user the more costly it becomes.

It is recognized by the Australian government that FTTP is cost prohibitive for full broadband coverage. Whilst the target of 90% coverage is admirable, even that goal is aggressive given our experience in broadband deployments. The Federal Government is proposing to deploy Wireless broadband to deliver up to 12 Mbps to the homes and businesses that cannot be addressed by FTTP. We believe this creates a significant broadband gap between the 100 Mbps FTTP services and the rest of the nation.

An FTTx network architecture is available that will allow Australia to achieve a more complete objective of 80-100 Mbps to every home and business.

3 Fibre to the Distribution Point

The key challenges with any new technology investment in the Australian Broadband Infrastructure are as follows:

- **Cost** – Achieve the goal of providing high bandwidth broadband in the most cost effective manner.

- **Deployment** – Accelerate the availability of broadband to underserved regional and rural communities.

- **Environment** – Make use of technologies that provide minimal environmental and visual impact.

- **Economics** – Maximum return on investment (ROI).

ADTRAN has established a leadership position in supplying broadband equipment for deployments throughout the world. Our success has largely been achieved by working with carriers and service providers in understanding their network needs and developing solutions that take into account the existing network limitations yet gracefully introducing new technologies in a common sense manner.

Both the FTTP and FTTN network architectures provide significant benefits. However, both have serious limitations. While FTTP delivers the maximum bandwidth, the economics are challenging and prohibitive in certain serving areas. FTTN delivers better economics but is limited to leveraging the existing infrastructure at substantially lower bandwidth. The ideal solution is to leverage the best elements of both architectures to deliver the best economics whilst maximizing bandwidth to the subscriber.

The following is a brief summary of FTTx architectures and benefits:

- FTTN – Satisfies the original NBN requirement of 12 Mbps per subscriber. This solution has the best economics over a greater serving area.

- FTTP – Satisfies the government proposal of 100 Mbps per subscriber to 90% of the population. This solution has the most challenging economics and creates a broadband gap between for the homes and businesses not covered.

- FTTDP – An advanced hybrid of both architectures delivering 100 Mbps per subscriber where feasible. It delivers the most flexibility to minimize cost and delivers 80 Mbps to all subscribers not addressed with FTTP.

4 FTTDP – GPON

The following diagram is an illustration of the proposed architecture using GPON to deliver broadband services. Note that the distribution point is an environmentally hardened solution which can be installed in a variety of outside plant locations. The illustration below depicts an underground deployment where the FTTDP is deployed in a pit. Other potential installations include outside plant cabinets, telephone poles, bolted to existing housings, etc.
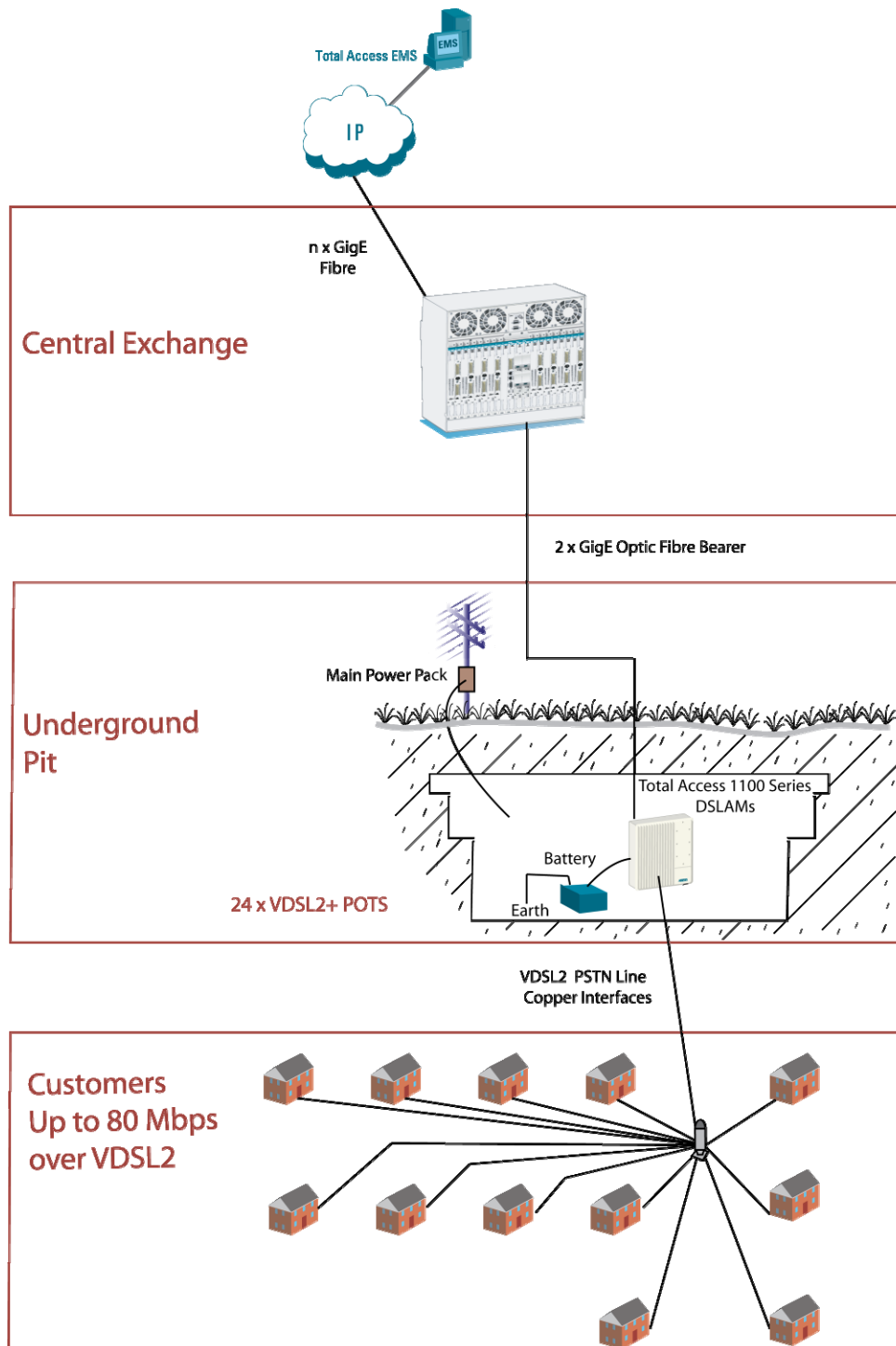
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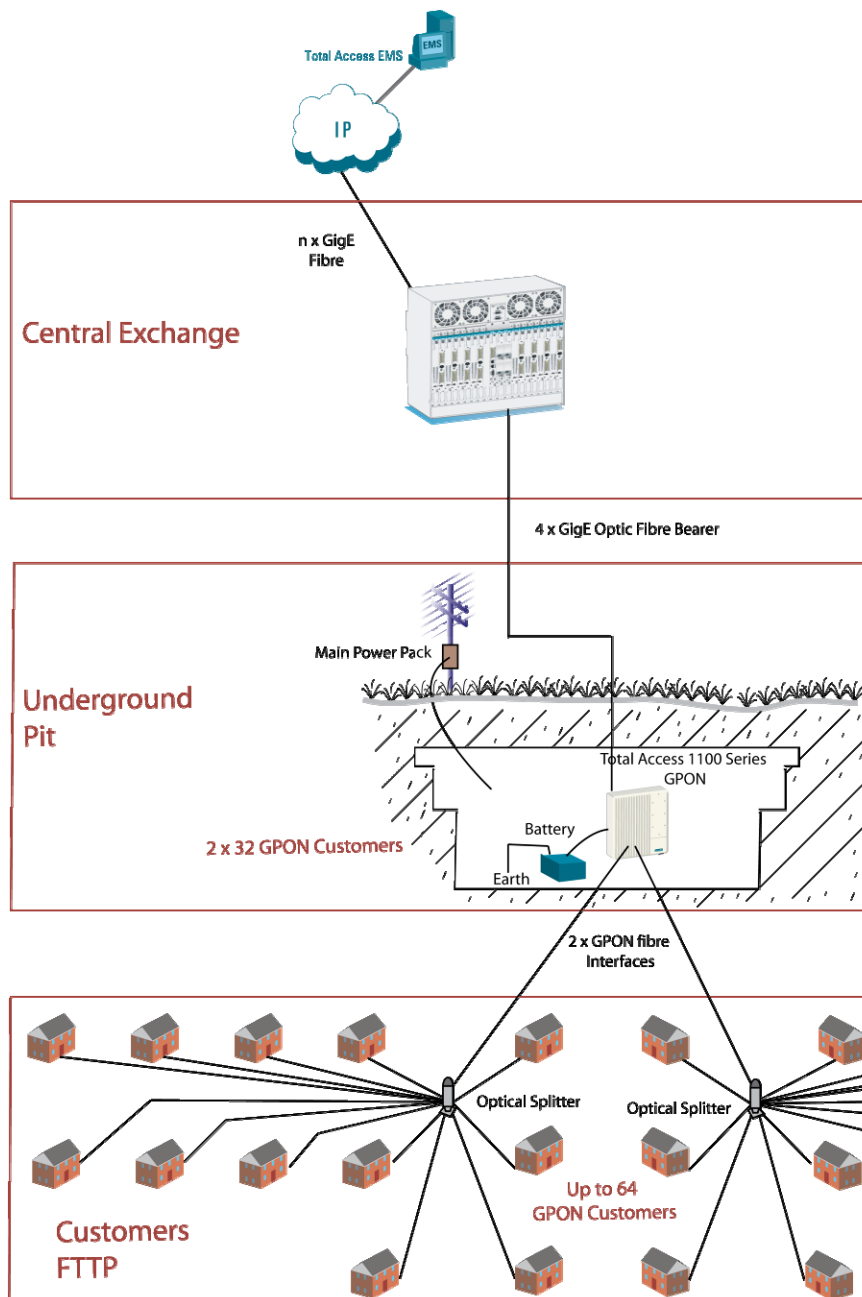
5 FTTDP – VDSL2

The following diagram is an illustration of the proposed architecture using VDSL2 to deliver broadband services. Once again, the distribution point is an environmentally hardened solution, which can be installed in a variety of outside plant locations.

6 Conclusions

The FTTDP architecture is the best of both worlds. It allows the service provider to deploy fibre (GPON) to all subscribers where economically feasible. In areas where delivering fibre all the way to the residence or business is not economically feasible, the service provider has the option to leverage the existing infrastructure using VDSL2 to provide 80 Mbps to the subscriber.

7 About ADTRAN

ADTRAN, Inc. is a leading global provider of networking and communications equipment with an innovative portfolio of more than 1,700 solutions for use in the last mile of today's telecommunications networks. Widely deployed by carriers, distributed enterprises and Small- and Medium-sized Businesses (SMBs), ADTRAN solutions enable voice, data, video, and Internet communications across copper, fiber, and wireless network infrastructures. ADTRAN solutions are currently in use by every major U.S. service provider and many global ones, as well as by thousands of public, private and governmental organizations worldwide. ADTRAN is headquartered in Huntsville, Alabama, with sales offices strategically located throughout the United States and around the world.

Every ADTRAN product is backed by an industry-leading warranty, best-in-class telephone technical support from our team of degreed engineers, and is eligible for free firmware updates. Our products are recognized within the industry as being easy to install, use and maintain — greatly reducing the field support normally required to keep your network connected. The simplified installation and operation of an ADTRAN solution means added value, a lower total cost of ownership — and a connectivity solution you can count on. ISO 9001 and TL9000 certified, ADTRAN employs consistent quality processes from initial product design to the final unit testing to exceed customer expectations. The company distributes its products through a network of domestic and international value-added resellers and distributors.