

PRODUCT-RELATED INDUSTRY BENEFITS OF THE NBN

AUSTRALIAN COMPUTER SOCIETY - TELECOMMUNICATIONS

ROSS HALGREN

26TH OCTOBER 2012

Disclaimer

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This is NOT what this presentation is about



Photo courtesy of
theage.com.au July 4, 2012

Impact of the NBN on ICT Jobs & Exports

NDC Industry Focus

The Government's NBN "Industry Plan" has focused on the Network Design & Construction (NDC) Industry. This is where the lion's share of the NBN expenditure & Australian-content resides. Unfortunately, there are few challenging ICT jobs and export opportunities in this industry segment

Applications Research

Has been a focal point for the multi-national equipment suppliers - choosing to support Applications research in Australia rather than the R&D of "exportable" ICT products and enhancements

Australian Industry Participation (AIP)

Following industry lobbying, there was a renewed focus on AIP with NBN Co purchasing more locally designed, developed and manufactured ICT products to support the NBN roll-out. However, ICT products that are simply manufactured-under-license offer fewer ICT jobs and export opportunities compared to locally designed & developed ICT products (whether manufactured in Australia or not).

ICT Product R&D

Support for local ICT Product industries (with a focus on the "C" in ICT) has been somewhat limited since there has been no Government mandate to leverage the NBN to enhance NBN-related product developments, associated ICT jobs and exports of such products to the global broadband markets

Suppliers of Locally Designed &/or Manufactured Products

Passive Equipment

- Warren & Brown Technologies
- Madison Technologies

Fibre Cables & Components

- Prysmian Cables & Systems
- Corning Cable Systems
- Optimal Cable Services

Active Equipment

- NEC Australia
- Finisar Australia

Software

- Biarri
- SPATIALinfo
- Kordia Solutions
- Benchmark Estimating

Note: This is a non-exhaustive list of Australian ICT products employed to build the NBN and associated Backhaul Networks. There are bound to be other ICT products designed and/or manufactured in Australia and used as part of the NBN rollout. Information about such products was not made available to the author prior to the preparation of this presentation.

Warren & Brown Technologies



History and Achievements

1921

Established as a Precision tooling manufacturer in **Melbourne**, Australia.

1986

Commenced relationship with Telstra in manufacturing of the first Coaxial Cable Strip Tool. Today almost 700 Products under Purchase Supply Agreements.

2006

Key supplier for one of the worlds first FTTH projects in Amsterdam, Holland

2011

Awarded A\$180 million NBN Contracts for High Density Fibre Optic Frames & Outlets.

Presentation material courtesy of:
Ben Ciardullo , Marketing Manager, Warren & Brown Technologies

Warren & Brown Capabilities

Long established Aussie company supplying Telco products and solutions around the world

Australian based R&D department focused on product development

Australian (Melbourne) ISO9001 Quality Manufacturing facilities

Manufacturing facilities and sales office in Philippines, India, Thailand & Vietnam

Capabilities in Plastics extrusion, fibre termination and product assembly



Warren & Brown – NBN Products



Optical Fibre Distribution Frames (ODFs) and Sub-racks



Optical Fibre Wall Outlet (to be installed in customer premises)



Optical Fibre Ducting Raceway

Warren & Brown – Impact of NBN



Additional 30 employees since NBN contract

Over \$4 million spent in Facility expansion and upgrade

Addition of employees to R&D and technical areas

Opportunities to supply telecom products into the Australian Resources sector

Potential export opportunities created in Europe & SE Asia

Greater awareness for Australian Technology companies

Company wide growth



Madison Technologies (Brisbane)

\$30 Million, initial 5-Year contract

To supply Premise Connection Devices (PCDs) to NBN Co.

PCD termination point

Installed on the external wall of the house or MDU to provide a termination point for the lead-in fibre cable from the NBN network

10M PCDs over 10 years

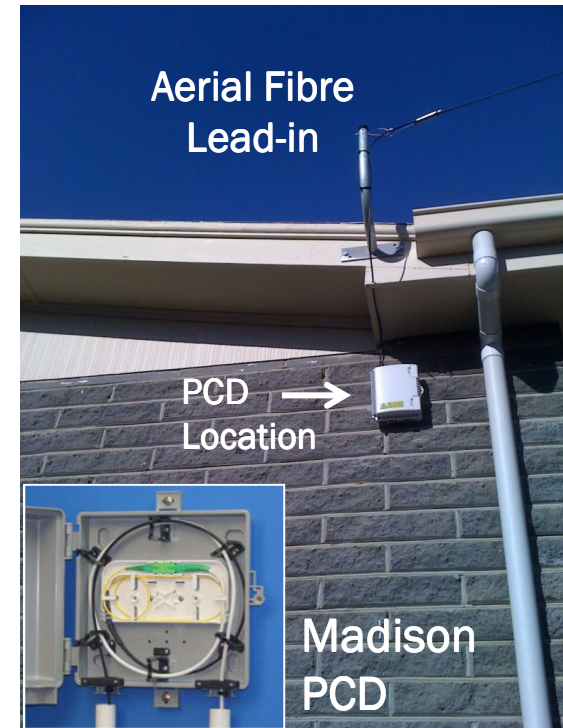
Initially supplied to the NBN by Madison Technologies and the US Company TE Connectivity

A leading supplier since 1995

Madison has been a leading supplier of PCDs to all of the major Telcos, Foxtel, Western Power and TransAct, with models to suit twisted pair copper cable, coaxial cable and fibre cable.

Investments and job growth

Investment in injection moulding tooling, production machinery, logistics, warehousing, project and supply chain management over the next 5 years will create >12 new jobs. The PCD is 100% Australian developed, designed and manufactured by Madison (also a 100% Australian Company).



NBN Australian Industry Participation (AIP)

The Parliament of the Commonwealth of Australia
Review of the Rollout of the National Broadband Network
Third Report, Joint Committee on the National Broadband Network, June 2012, Canberra

Chapter 4 – Contracting

- 4.48 The NBN Co requires all **contracts over \$20 million** to develop Australian Industry Participation (AIP) plans identifying local businesses and how they will be engaged by the third party. The NBN Co also stated that ‘certain contracts include specific requirements for local manufacture of certain equipment such as fibre optic cable **after a certain transition period from overseas supply**’. NBN Co did not provide examples of such contracts.
- 4.49 To meet these AIP requirements, the contracting company must engage local supplies or ‘**demonstrate local production capabilities and activities** to the satisfaction of the NBN Co’. For example, Ericsson (the contractor for the construction, operation and maintenance of the wireless network) has engaged local businesses including Netcom and local wireless construction contractors.
- 4.50 AIP plans are **not required for construction or installation services** which, by their nature, use 100 per cent local content or, contracts for the supply of equipment like satellites which have ‘unique global sources’.

Prysmian Cables & Systems (Sydney)



\$300 Million, initial 5-Year contract

to supply 72 - 864 Fibre, Termite & Rodent-Resistant Underground Fibre Cables to NBN Co.

Downturn of Copper Telephone Cable Market

Downturn in production of traditional twisted-pair telephone cable required a new business focus

\$10 Million Investment

In a new fibre-cable manufacturing plant in Dee Why with a fibre-cable R&D centre in Liverpool NSW

First 12-fibre ribbon cable facility

Established in Australia 18-months ago

Transit, Distribution & Local fibre network cables

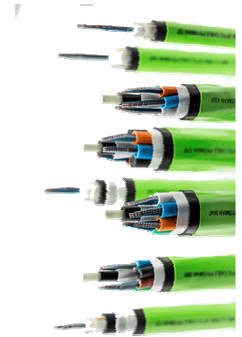
Production capacity

By Jan'13, the Dee Why facility's annual cabling capacity will have increased to over 2 million kilometres of glass-fibre which is equivalent to rolling fibre out around the globe once every week

Presentation material courtesy of:
Llyr Roberts, CEO Prysmian Group (ANZ)

Prysmian Cables & Systems (Sydney)

Process Design & Manufacturing growth has required **50 new employees** with multiple disciplines. These include:



- Process Design and Production engineers;
- Machine Operators;
- Logistics Specialists;
- Electricians and Fitters;
- Field Engineers;
- Customer Service Staff.

The Prysmian Group, with headquarters in Milan Italy, view Prysmian Australia's involvement in the NBN as incredibly **strategic** for positioning Prysmian with key customers around the globe.

Prysmian Cable Manufacturing Process 1



Dee Why, NSW
Cable Manufacturing Facility

Local Colour Coding of
Individual Fibre Strands from
Prysmian sister companies in US & Europe



Prysmian Cable Manufacturing Process 2

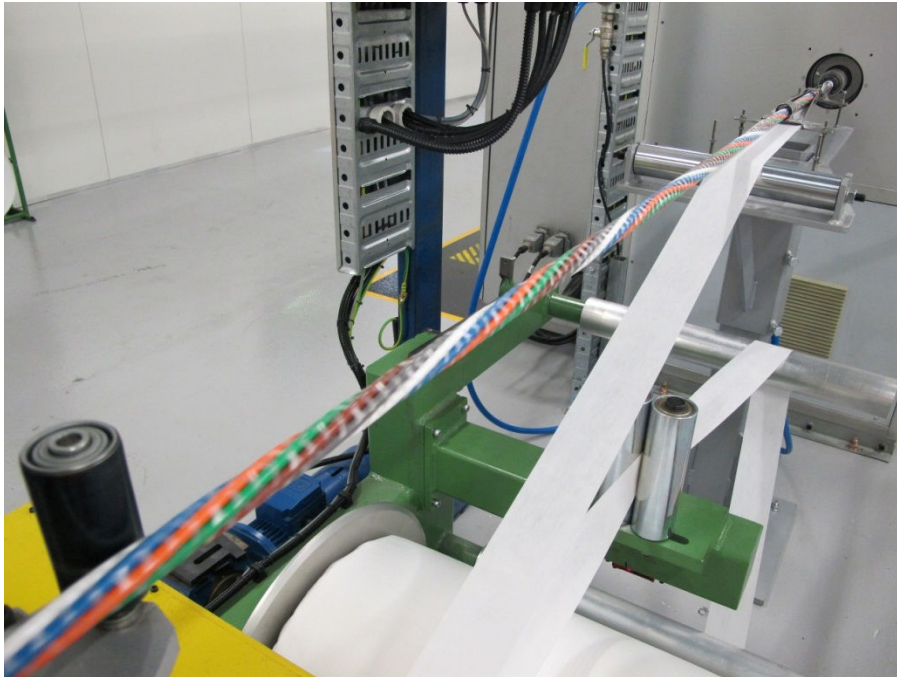


Combining Individual Colour-Coded
Fibre Strands into 12-Fibre Ribbons

Combining 6 or 12 Ribbons
into 72 or 144 Fibre Colour-Coded Tubes



Prysmian Cable Manufacturing Process 3



Combining 6 Colour-Coded Tubes,
GRP Strength Member & Yarns

Applying NBN-Green
Termite-Resistant Nylon Sheath



Prysmian Cable Manufacturing Process 4



Finished 864-Fibre
Distribution Cable on Drum

Prysmian 864-Fibre Cable Structure



72 - 864
Fibre
Cable
Products

Corning Cable Systems (Melbourne)

Primary Supplier

of optical fibre cable and hardware for the NBN, including their patented FlexNAP system for splice-less aerial & underground drops

\$400 Million, Initial 5-Year contract

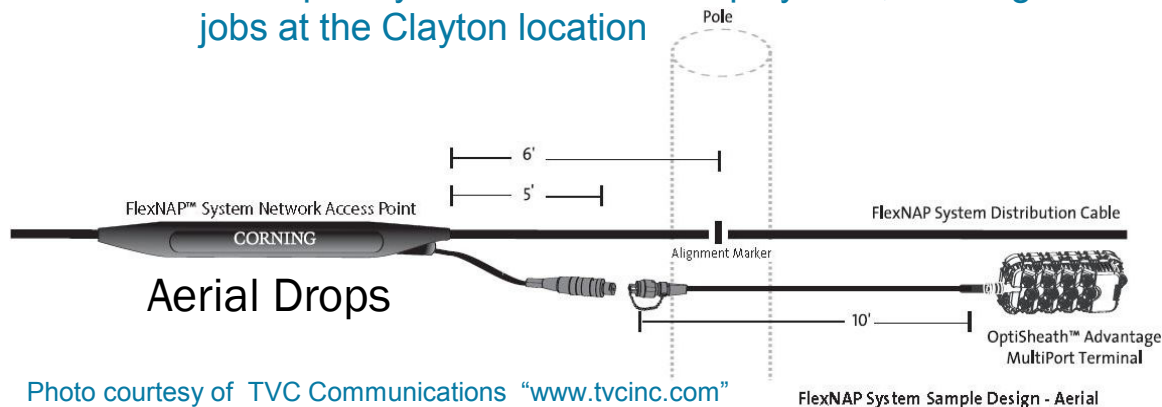
to supply Underground & Aerial Fibre Cables and associated passive equipment to NBN Co.

\$25M Investment

The size and scope of the NBN project has justified Corning USA to invest in new technologies, equipment & training at their Clayton VIC. facility

≥300 new jobs

In the peak years of the NBN deployment, Corning Cable Systems Australia expects to add at least 300 jobs at the Clayton location



Underground Drops



Photo courtesy of "nbexplained.org"

Optimal Cable Services (Melbourne)



Optimal Cable Services is an Australian owned manufacturer and supplier of **Fibre Optic Cable and Connectivity Products**.

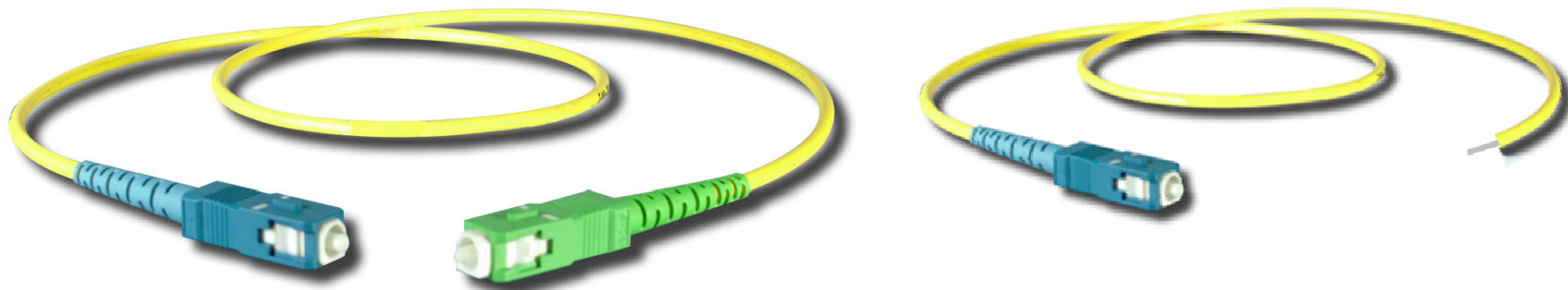
\$110 Million, Initial 5-Year contract to supply Premises Fibre Cables for NBN

With **purpose-built manufacturing facilities**, Optimal has grown to deliver high quality fibre optic cables in accordance with the ISO 9001 Quality standard

Close partnership with OFS (USA)

NBNCo's AIP requirements will result in more local manufacturing by Optimal

Connectorised Fibre Patch Cords & Pigtails

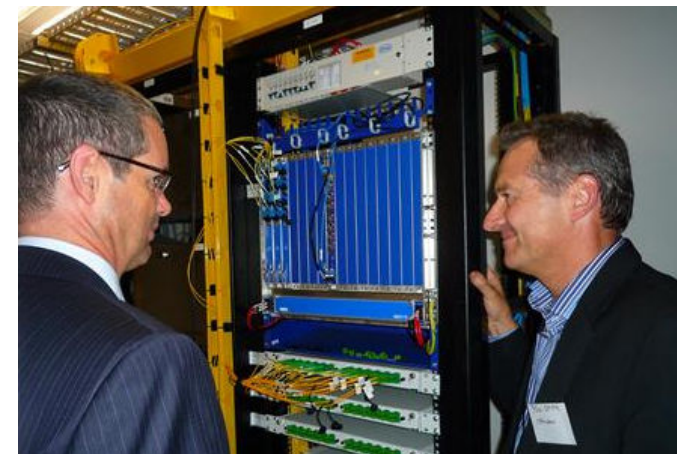


NEC Australia (Melbourne)

Prior to the NBN, NEC Australia designed, developed & manufactured Gigabit Passive Optical Network (GPON) equipment for the Japanese & Asia-Pac FTTP markets

In early 2010, NEC Australia and OptiComm (a Hills Industries Australia joint venture company), won a Contract with NBN Co Tasmania to deploy the 1st Release FTTP sites

As a result of this local industry success NEC Australia & OptiComm were joint-winners of the 2010 ACOMM Partnership for Growth Award



The Result of No Product Industry Plan or Mandate

July 2010 – NEC Australia lost out to Alcatel-Lucent (ALu)

for the role of NBN Co's lead GPON and Ethernet aggregation equipment supplier for the mainland Australia FTTP rollout. ALu GPON equipment was neither designed nor manufactured in Australia

NEC moves FTTP / FTTN R&D back to Japan

thus eliminating a significant ICT import replacement and export opportunity for Australia

67 staff (many ICT) made redundant

from NEC Australia's Melbourne R&D base – more than half of its local workforce

ALu Australia cuts 100 jobs

Notwithstanding the initial \$85M deal with NBN Co (imported products offer less local content)

May 2012 – NEC GPON equipment to be removed

The NBN ramp-up has been difficult (only 700 premises connected in Tasmania), consequently, it could no longer justify retaining the small installed base of NEC equipment, so it is being replaced with ALu GPON equipment

Information sources: "Aussie vendors plan staff cuts as tenders sort out winners, losers", [commsday.com](#), July 1st, 2010; [Computerworld](#), 25 June, 2010; & [zdnet](#), May 24, 2012

Finisar Australia (Sydney)

Australia a leader in Optical WSS products

Finisar Australia (ex Engana) demonstrates to the sceptics what Australian ICT professionals are capable of achieving. Finisar Australia today exports the most advanced Wavelength Selective Switch (WSS) products to Finisar International for the broadband long-haul and metro fibre networking markets



One of the Two Leading Global Suppliers

With 40% global market share, Finisar Australia is one of the two leading suppliers of WSS Products to the global market, the other being JDS Uniphase in the USA

NSW 2011 Exporter of the Year

100% of Finisar WSS products are exported from Sydney to the global market via global Telco equipment suppliers

≥300 ICT, Admin & Manufacturing Staff

Finisar in Sydney employs over 300 multi-disciplinary staff, including optical, electronics & software engineers; technicians; production workers; marketing & sales staff



Andrew Bartos, General Manager, Finisar Australia, which was awarded 2011 NSW Exporter of the Year, with Barry O'Farrell, Premier of New South Wales (courtesy exporttowards.gov.au)

The Need for a 10-20 Year Investment Vision

NBN Applications

Some of Finisar Australia's WSS products will come back to Australia as part of integrated broadband fibre network solutions. Some may be part of the NBN Backhaul & Transit Networks – but we may not be privy to where unless this information is revealed by the suppliers of Telco equipment to Australia

Finisar's 300+ Experienced Staff did not drop out of a Vacuum

It is unlikely that Finisar Australia would exist today if it wasn't for previous Government CRC & Government supported Seed-Fund investments made 10-20 years ago to boost the research and development of Photonics & ICT technologies in Australia, these being the training ground for Australia's current base of engineering and software professionals

Where is the Next Finisar Australia going to come from?

It is unlikely that a replication of Finisar Australia's success in the broadband products market will be seen again in similar or other ICT product markets without a similar 10-20 year bipartisan investment vision and product industry support by current and future Governments

Currently no Government Vision for a Broadband Product Industry

There is currently no Government vision or mandate for Australian-resident industry investment in NBN-related ICT product R&D and hence an uncertain future for our current ICT-Telco professionals

Biarri (Brisbane & Melbourne)

Australian owned & operated “Commercial Mathematics” Company

Established in 2008

Helps businesses operate more efficiently & profitably

by providing business analytics and mathematics-based optimisation tools for a variety of applications including: vehicle routing; vessel packing; logistics optimisation; & fibre network design

Initial \$6.5 million licensing contract

from NBN Co for network optimisation software that could reduce construction costs by up to 20% (\$200 / premise) with an 8-year contract extension option

Low-cost Fibre Network Designs

For NBN Co, Biarri software quickly generates low-cost fibre network designs based on the requirements of the NBN reference architecture. It can determine optimal fibre area boundaries, the position of fibre hubs, and the layout and route of distribution and local fibre

Information sources: Biarri website and itnews, Jun 27, 2011, NBN Co taps 'commercial maths' for network design

Biarri - Fibre Optic Network Design Tool

Inputs: Reference architecture
Target geography (GIS data)

Engine: Network design optimiser
minimizes construction cost
and design effort
Generates demand by node

Outputs: Feasible & optimised network
Fibre network layout

Benefits: Huge reduction in design
effort (man-years to man-days)
Quickly quantify impact of
architecture and component
changes



SPATIALinfo



Australian Spatial Software Company

In the spatial business since 1981 (formerly ARC Systems)
First Telco inventory “product” created in 1986

Software exporter since 1994

Global Communications Market Focus

NBN Co’s PNI Provider

SPATIALinfo selected as NBNCo’s Physical Network Inventory (PNI) Software Provider

2-Year, Initial \$ Multi-million supply & support contract

End-to-end network design and inventory management

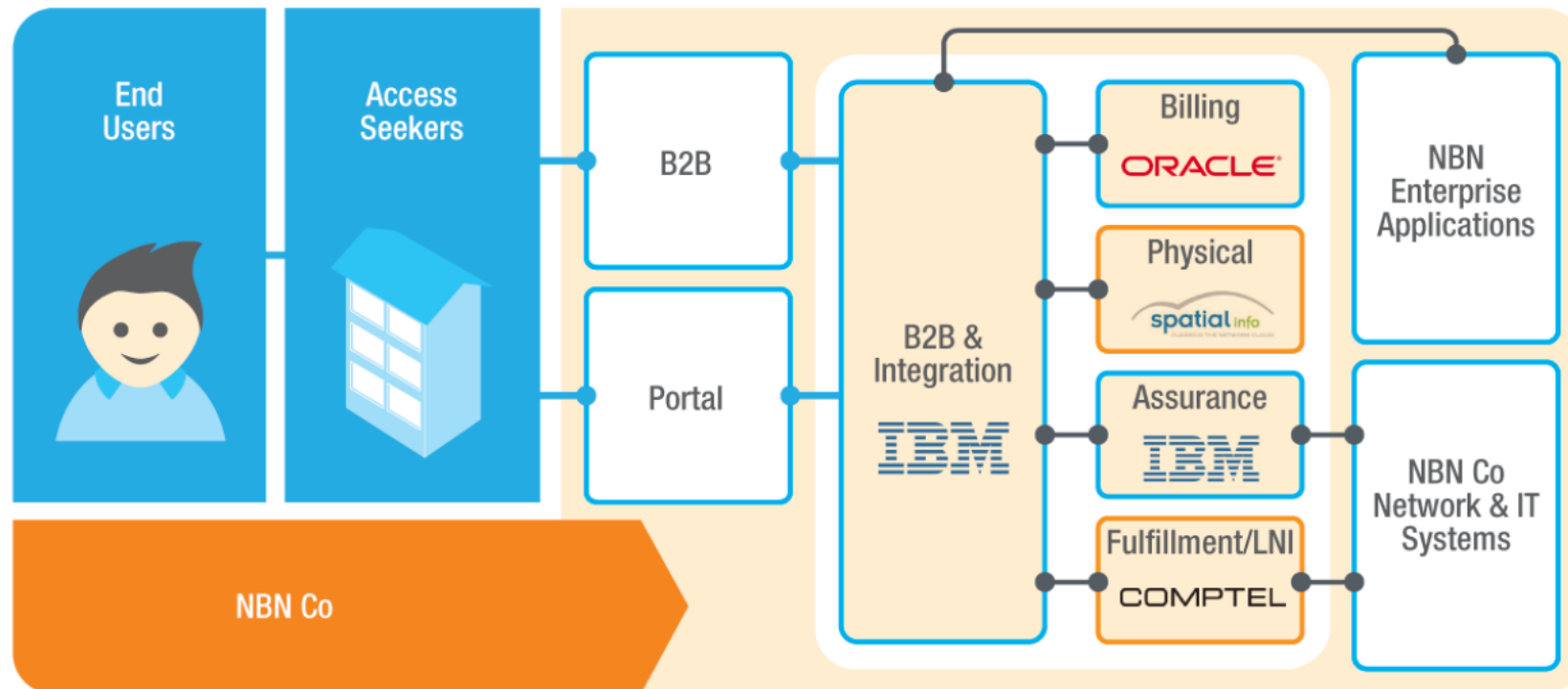
provided by SPATIALinfo’s Integrated product suite

Presentation material courtesy of:
Tony Cotter, Managing Director, SPATIALinfo Pty Ltd

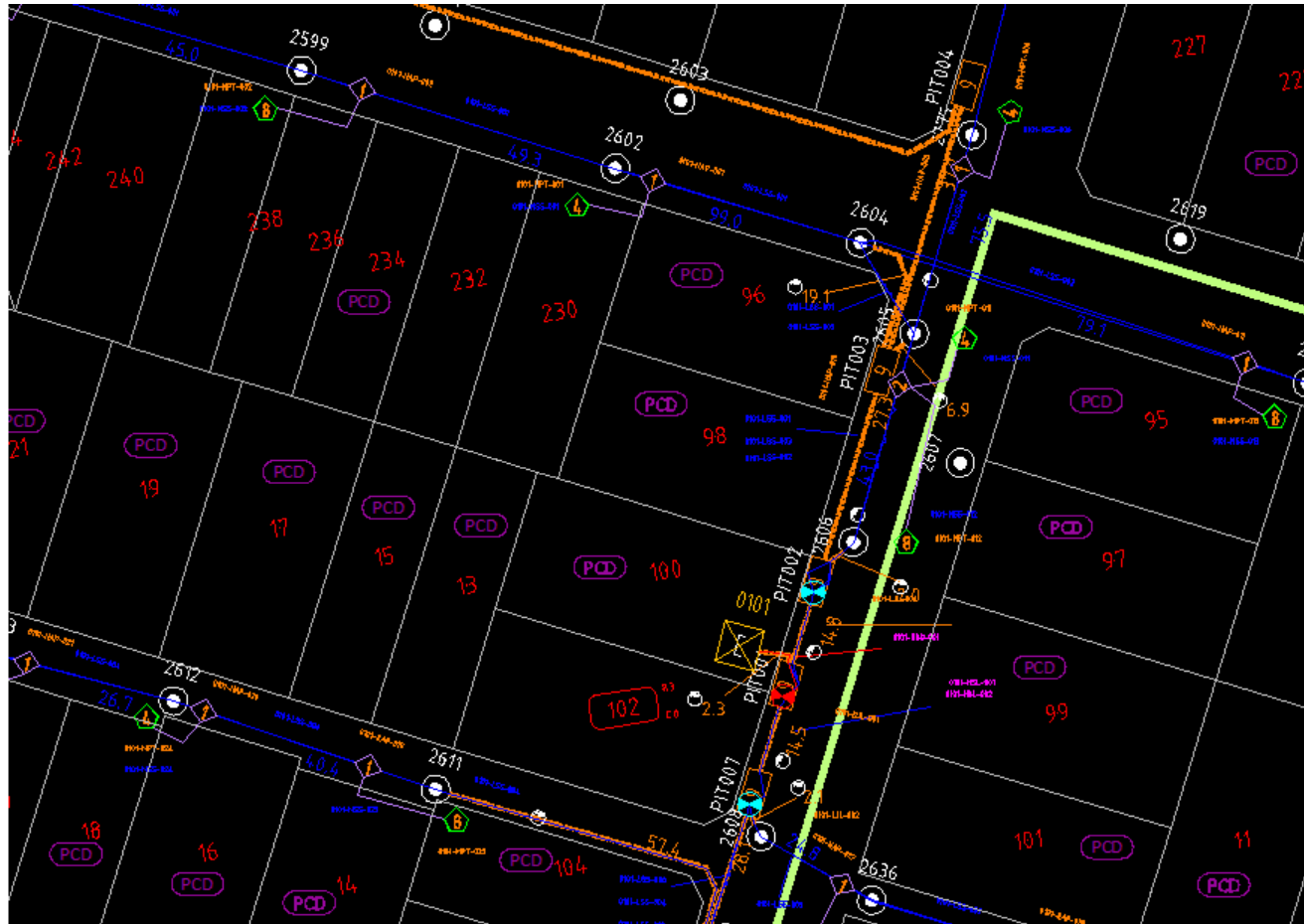
SPATIALinfo at NBN Co



SPATIALinfo's software products allow NBN Co to manage assets from the network planning and design phase through to construction by tracking each element of the network as it's built. As each phase of the network goes live, SPATIALinfo's software will enable access to the exact digital network maps that the network design engineers use, thereby allowing field technicians to connect premises to the network promptly and to address network issues quickly and accurately.



Typical SPATIALinfo Design Layer



Mockup of a typical Network Design courtesy of:
Tony Cotter, Managing Director, SPATIALinfo Pty Ltd

SPATIALinfo Business Model



Export product from Australia

Looks like a US company in North America

North American Customers – **Comcast**, Rogers, Shaw, Charter and 40 others

Sales model is highly mixed – direct, partners, channels and integrators

Using delivery partners

Using strategic data migration partners

SPATIALinfo Case Study – Comcast



Started by winning first “franchise” area – **Seattle WA in 2003**

Massive HFC network – 51 million homes passed

27 million premises connected

1 million km of cable sheath (4 x NBN)

3rd largest issuer of IP addresses on the planet, after the US Government and China

SPATIALinfo engaged to migrate all legacy network inventory systems to spatialNET



Kordia Survey Tool (KST)

First developed by **Kordia Solutions** in **Sydney** during the design phase for the first-release NBN site in Townsville

Can be used on a **iPhone or iPad**

The **app** was developed organically as engineers worked out what served them best in terms of using image, audio, video & data to **survey a NBN rollout** site. The data was collated and then transmitted in real-time from the field to the Kordia NBN database

KST applications now being extended to the survey and design of other carrier, utility & energy/resource networks



Benchmark Estimating (Nowra NSW)

Privately owned Australian company formed in 1996

With HQ in NSW and main International offices in UK & Spain
Employs over 50 staff

Develops and supports estimating software

Supports mobility and cloud based solutions running on a Citrix Platform

2,000 customers across many industries

Including ICT, civil, construction, government, manufacturing, rail, road & utilities

Awarded a software and services contract by NBNCo

Designed to streamline estimating processes and optimise the cost of projects undertaken as part of the NBN rollout

Software licenses, development and consulting services

Provided by Benchmark Estimating will be integrated with NBN Co's other business systems. Benchmark Estimating will also provide training for users throughout Australia

Importance of Investment in Local Product R&D

20% Local Content for ICT Products

Locally designed, developed &/or manufactured ICT products currently represent approx. **20%** of the value of all ICT communications products purchased to build the NBN

Mostly Manufacturing-Under-License

A large proportion of this 20% Local Content is manufacturing-under-license, either from a parent overseas company or another overseas company and most likely will not result in exports

Locally Designed & Developed ICT Products Needed

Only locally designed & developed ICT products (whether manufactured here or not) are likely to lead to export wealth for Australia and associate growth in interesting and challenging ICT jobs

Governments Need to Support Local Product Industries

If a Government Enterprise is created to invest in new Telco infra-structure where Private Industry won't, then to be consistent, they should also support more locally developed & exportable products to help build it – or at least the next generation of equipment to go into it.

We should not let the NEC's of Australia slip through our hands due to complacency. This is especially needed to provide a better future for our engineering graduates rather than losing them overseas or wasting their talent on less challenging network design & construction activities.

Product Related Benefits of the NBN

Network Design & Construction Industry Jobs

The lions' share of the **18,000 jobs** created by the NBN relate to the Network Design & Construction Industry. Relatively few of these jobs offer rewarding opportunities for tertiary-trained ICT professionals and neither ND or NC offer great export potential and increased ROI for Australia's NBN investment

ICT Product & Manufacturing Jobs <3% of total NBN jobs

Less than 3% of these new jobs are related to the development &/or manufacturing of ICT products in Australia. Such products offer more rewarding ICT & manufacturing job opportunities and exports of locally developed products could have increased the ROI for the NBN and further justified its mission

FTTP or FTTN based NBN

Whether the current Labor Government continues with FTTP or a Coalition Government changes the NBN to a mix of FTTN and FTTP, this makes little change to the next generation of communications equipment that needs to be developed. This is because today, GPON, P2P FTTP and VDSL / Copper access network solutions all share a common multiplexing & switching platform. Australian-resident product companies could support the development of the next generation of cards for these platforms.

The change to FTTN will however affect the current business opportunities and ROI for the passive fibre component and fibre cabling companies mentioned in this presentation. To maintain or better the current NBN AIP percentage for ICT products, the Coalition will have to require more local R&D and/or manufacturing involvement from the FTTN and FTTP equipment suppliers

Product Related Benefits of the NBN

A great opportunity still exists

for the Government to leverage the total \$40 Billion NBN investment in fibre, wireless & satellite broadband to create leading-edge ICT products for the ever-growing, global broadband market

ICT Products are readily exportable

to the global market through appropriate channels, resulting in a sustainable NBN Product Industry post NBN rollout (in 8-10 years time)

Network Design & Construction capabilities

are less exportable from Australia and the 18,000 or so design & construction jobs are not sustainable post NBN rollout

We just need a Labor or Coalition Government **mandate** to support and promote an Australian NBN “Product” Industry on the back of the NBN investment