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Ross Halgren

Telco Product & Engineering Manager
Business Development & Sales Support
Telecommunications Network Architect
NBN Architecture & Access SME

B.Sc., 1975, University of Sydney
B.E. Elec.(Hons I), 1977, University of Sydney
M.E., 1991, University of New South Wales
Post Grad. Dip. Management, 1998, MGSM
Member IEEE, Member Warren Centre ICT

Overview

I am an experienced Telecommunications professional having commenced my engineering career in communications equipment design & development, targeted at packet & circuit switching and optical transmission applications. This evolved to product management & business development for complex technical sales. With decreasing opportunities in the Telco equipment industry in Australia, my career evolved in the direction of Telecommunications Network Architecture, Design & Analysis involving multiple communications technologies with recent focus on the National Broadband Network (NBN).

Since 2010, I was involved in many facets of the NBN, including planning, high-level design, detailed design, analysis, education and training. Employed as a Broadband Design Manager for Kordia Solutions, I was seconded as a consultant into NBNCo on several occasions, amounting to 18 months in total. I was also deployed by Kordia as a consultant to a Tier 1 carrier to review and verify for their key customers, the robustness of their core DWDM, SDH, Ethernet, MPLS and Signaling Networks.

My aggregate experience covers distributed switching products & systems for Command, Control & Communications applications; optical transport networks; fibre backhaul products & networks for Fibre to the Node (FTTN) and Hybrid Fibre Coax (HFC); DWDM transit network planning & design for NBNCo; FTTP high-level design for NBNCo; analysis of Service Delivery Partner performance for NBNCo; analysis of Kordia & Downer FTTP field-verification performance; and the preparation and delivery of a NBN course to final year tertiary students covering NBN Services, Architecture, Transit Backhaul, FTTP, FTTN, HFC, Wireless & Satellite Access Networks and associated job opportunities.

Through this broad experience, I have accrued the ability to see the big picture and then drill down into the details, combining multiple communications technologies to develop innovative product & network solutions. Due to the complex nature of the products & systems developed, I would often directly promote these to end-customers through a combined business development and sales support role.

Telecommunications & Management Experience

I have accrued my experience through both large and small organisations, including most recently Haltec & Kordia Solutions and previously: Redfern Broadband Networks (RBN); Amalgamated Wireless Australasia (AWA); and the Royal Australian Air Force (RAAF). From 2008-2014, I provided communications design and consulting services to private companies, Government bodies, Tier-1 Carriers and NBNCo as a Haltec Consultant and as a Broadband Design Manager for Kordia Solutions.

2011 – 2014 Kordia Solutions

During this period, I provided design, consulting and Subject Matter Expert (SME) services to NBNCo, a Tier-1 Carrier, the Government and Industry across various facets of Australia's telecommunications networks. Examples of projects undertaken include:

➢ Led a Kordia QA team to analyze and report on the Kordia & Downer field-verification performance for the Downer Z5 FTTP project and to upload the corrected field data to SpatialNet;

➢ Consultant to NBNCo construction, analyzing their Service Delivery Partner's field verification and detailed FTTP designs - preparing comparative cost performance tables & graphs;

➢ Undertook for Kordia Solutions, the system level product design and documentation of a tactical, 2Gbps fibre-microwave transmission solution for Greenfield FTTP backhaul and then undertook the Business Development role of pricing and promoting this solution to NBNCo;

➢ Worked with a small Kordia team within NBNCo to undertake the high-level design of several FTTP access networks using the Biarri FTTP auto-routing tool, corrected the auto-routed designs in MapInfo and documented the designs in the form of FTTP Network Design Documents (NDDs).

➢ Designed and documented for DBDCE, a range of IPTV/GPON and IPTV/LTE DTV & Internet solutions for towns in the Optus/NBN satellite shadow, enabling a NBN migration path;

➢ Led a small team within NBNCo Planning & Design, to undertake the initial planning & design of Ethernet/Coherent DWDM backhaul transit ring networks. At the end of the 9 month consultancy, I then trained NBNCo's new transit network team of 11 staff in the technical issues and processes.

1998 – 2014 Haltec Consulting

Haltec Enterprises is my own professional Consulting company which I formed in 1998. As such, I have been responsible for my own Business Development, Sales Management, Contract Management and Project execution. Projects that I have undertaken for various clients include:

➢ Prepared a shared WiFi infrastructure & carrier-access business case for a shopping centre owner;

➢ Prepared and delivered a NBN Services, Architecture, Multi-Technology Mix (MTM) Access Network and Job Opportunities course to final-year tertiary students;

➢ SME for New Zealand Crown Fibre Holdings regarding their Ultra-Fast Broadband (UFB) network;

➢ Detailed design review of an Australian Tier-1 carrier's optical transport & signaling networks, looking for any single point of failure in their network/equipment design or installation;

➢ As a consultant to a New Zealand department, I undertook the Network Modeling and Cost Analysis for a Tier-1 carrier's FTTN and Inter-Office DWDM networks in New Zealand;

➢ Awarded a business development contract by Monash and Edith Cowen Universities to promote a proposed Fibre to the Premises Collaborative Research Centre, I prepared business and technical proposal documents and then travelled around Australia and to Korea gathering financial and in-kind support from Telecommunications Carriers, Australian Industry, Korean Industry, State and Federal Government departments.

➢ Technical audit of a 100 Gbps DWDM start-up company for a regional technology investment firm;

➢ Technical audit of a mission critical switching system for an Australian air-defence comms supplier;

1999 – 2007 Redfern Broadband Networks (RBN Inc.)

In 1999, the start-up company, RBN was seed-funded by Australian Photonics Pty Ltd to target the global Ethernet/DWDM transmission & switching market.

RBN Career Highlights

➢ As a co-founder of RBN, I was first employed as RBN's Chief Engineer and recruited a small team of hardware & software engineers to develop a prototype Ethernet/DWDM platform, supporting 8 x bi-directional Gigabit Ethernet channels on a single fibre strand. Being a start-up company, we each undertook multiple technical and business roles. I prepared marketing collateral to promote the product before we took it to a conference & exhibition in Baltimore USA where the product was demonstrated and promoted to US Carriers, Enterprise customers and Investors. We all shared a sales role - promoting our product and our company's capabilities. Subsequently through our efforts, one of the US investors who we had met at the exhibition led a funding-round, with RBN raising of US$28 million to develop Metro DWDM products for the global Carrier & Enterprise markets. A 64 wavelength, carrier-grade, Metro DWDM ROADM platform was subsequently developed by a larger RBN team of up to 140 staff at its peak. We demonstrated and promoted this product in 2001 at Supercomm in Atlanta, just before the global optical networking market crash.

➢ During its subsequent 7 years of operation, RBN designed, developed, manufactured and sold CWDM & Next Gen. SONET/SDH Muxes & Mini-MSPPs to backhaul FTTN, HFC & Wireless access networks in harsh outside plant environments, requiring innovative design solutions.

➢ As RBN evolved from its start-up phase to organic growth phase, my experience and roles evolved from Chief Engineer to Network Architect to Product Manager. By 2005, RBN had scaled back to 35 Australian, 1 US and 1 UK staff, so as Product Manager, I also undertook the Business Development role for the AsiaPac region. This involved updating collateral, preparing sales plans, chasing sales opportunities with existing customers such as NSW State Rail and going to Hong Kong on several occasions to support our agents there. In Hong Kong, I would attend customer meetings where I promoted the RBN products to new customers such as Macau Telecom and China Light & Power, as well as existing customers such as PCCW. These were complex systems sales, so it was really me who was doing the selling and the local agents were learning the process. As a result, we sold RBN's products as systems for both Macau Telecom and China Light & Power.

➢ From 2005 onwards, I would also visit and support our US and UK sales staff several times a year to bring them up to speed on the latest RBN product features and to present these new features to existing and potential new customers. RBN's agreement with AFC had ceased so RBN was now supplying products directly to Sprint. I would take the lead initially while our sales staff got up to speed on the new product features and then for later customer visits, I would let them take the lead. To manage the AsiaPac, US and UK sales, we all used salesforce.com as our CRM system.

➢ In 2008, RBN's products, IP and customer accounts were sold to Sorrento Networks in the USA, after which I (through Haltec) consulted to Sorrento to transfer RBN's technology, documentation and to create integrated product collateral for Sorrento.

➢ In 2007, I managed the rapid development of a CWDM PON trial for Ericsson's customers, that overlaid 3 x GbE point-to-point services using RBN's CWDM & Mini-MSPP products onto their GPON & RFoG (effectively HFC) access network;

➢ In 2004, I transferred to the UK for 6 months to support the system design, management integration, marketing, sales and deployment of RBN's CWDM and SONET/SDH Mux and Mini-MSPP products with Marconi / Ericsson's higher-end DWDM and MSPP/MSSP transport platforms. This was a similar role to the AFC sales support role. Again, these were complex product and systems sales to Carriers, Utilities and Enterprise customers, so in many cases, Marconi needed me to lead the RBN product sales presentation to their customers;

➢ In 2003, I transferred to the US for 12 months to support RBN's partner AFC in the system design, marketing, sales and deployment of RBN's managed CWDM ring networks for inter-connecting Inter-Office Facilities and fibre pair-gain backhaul for AFC's existing customers and for new customers having an interest in RBN's products alone. Sprint was the largest Independent Operating Company (IOC) in the USA and with my technical knowledge and sales support to AFC, Sprint standardised on RBN's CWDM product for backhauling their Fibre to the Node (FTTN) Access Networks. This was a big win for both AFC and RBN. These were complex product and systems sales, so in many cases, AFC needed me to lead the sales presentation to their customer.

1979 – 1998 AWA Limited

AWA's Defence, Aerospace, Networks, Communications & Research Divisions provided the foundation of my electronics & communications engineering and product management career.

AWA Career Highlights

➢ From 1989 to 1998, I was the product manager and network architect for AWA Defence & Aerospace's optical fibre based MILNET2000 product for applications such as Naval shipboard communications systems. With my extensive overseas contacts in the FDDI standards forums, I subsequently took on the Business Development role for MILNET2000, leading to volume sales through my efforts to Singapore Technologies for their Shipboard Integrated Communications System (SICS) and to Telephonics in New York for their new fibre-based TCOMMS airborne communications system. Telephonics first deployed TCOMMS with AWA's MILNET2000 backbone for the British Aerospace mid-life upgrade of the RAF NIMROD-2000 coastal surveillance aircraft and subsequently into various AWACS mid-life upgrades and a US Military Helicopter program;

➢ In 1994, I architected a turn-key system design for Telstra's first Video-on-Demand over ADSL Pay TV trial, using the AWANET-100 product as a 96-channel MPEG video switch, ABC's DCART as a MPEG video server, Amati DMT-ADSL (2Mb/s) modems; and NTL MPEG-1 encoder and decoders. This was for a $1.5million turn-key Telstra contract that AWA Communications had won;

➢ From 1989 to 1998, as Manager, AWA LAN Products, I led a team of engineers to develop AWA's 100Mbit/s FDDI-2 packet & circuit switching fibre-optic communications ring technology. Applications included 2nd generation Command, Control & Communications (C3) systems targeted by AWA Defence & Aerospace. I defined the architecture of the AWANET-100 product which was then commercialized by AWA Defence & Aerospace for the TAAATS Australia-wide Air Traffic Control system - under subcontract to Thomson-CSF. I also worked with CelsiusTech engineers in Sweden to define a new FDDI-2 upgrade to their Base System 2000 C3 System for Navy ships;

➢ In 1985, I was seconded by AWA to Holland to support the IKL/HDW, Philips, Signaal and AWA bid for the RAN New Construction Submarine (NCS) bid. Signaal recognised the benefits of the AWA fibre-optic ring technology as the basis of a data bus for their proposed 4th Generation Combat System. For the NCS bid, I worked with the Signaal engineers in Holland to design a "MILNET" data bus which would integrate the various sonar sub-systems, communications sub-systems, fire control sub-systems, distributed processor cabinets and Multi-Function Consoles;

➢ While working as an engineer in AWA's Communications Research Lab, I developed 30 Mbit/s, fault-tolerant, hybrid packet & circuit switching fibre-optic communications ring technology for voice, audio and packet data integration. With my architectural support, this was subsequently commercialized by AWA Defence & Transmission Division into their 1st generation AWANET-30 product which was first deployed as the Radio/Intercom Switching & Control System for the Sydney Police Centre and then for the RAAF Base Tindal Air Traffic Control System.

1977 – 1978 RAAF

➢ As Radio Officer, 486 Maintenance Squadron for the C130 (A, E, H) Hercules transport aircraft, I managed 50 radio, intercom & radar maintenance technicians and provided what was then the latest semiconductor technology training to technicians in readiness for the new C130H introduction to the RAAF. I also developed a Medevac intercom system for the C130 to overcome aircraft noise.