

BAI Communications
Bringing the connection to our world

onair

December 2015

FEATURE

INTRODUCING BAI COMMUNICATIONS

Delivering innovation
globally

ARTICLES

CONNECTING QUEENSLANDERS ■

One of the world's
first LRDR systems

MIMO IN THE METRO ■

The challenges, intricacies
and successes

SBS CHANNEL LAUNCH ■

Upgrade project delivered
ahead of schedule

Introducing BAI Communications



The BAI Group is proud to announce the rebranding of the company to BAI Communications: a global company that designs, builds and operates highly available communications networks – broadcast, radio, cellular, Wi-Fi and digital – for our customers across Australia, Asia and North America.

Comprised of Broadcast Australia, Hostworks, BAI Canada, Transit Wireless and RFE, BAI Communications' global expertise has been demonstrated on a range of worldwide projects including:

- » Delivering, ahead of time and within budget, the significant project to restack all TV transmission services in Australia to allow the sale of spectrum to mobile phone carriers.
- » The design, construction and operation of the ABC and SBS digital radio services in Australia's five major capital cities.
- » The design and construction of the DTV network for ABC and SBS.
- » The operation and maintenance of the NSW Government Radio Network (GRN), one of the world's largest government radio networks.
- » The launch of pioneering long-range technology that will take digital high frequency radio communications to 1.5 million square kilometres of Queensland.
- » The design, construction and operation of cellular and Wi-Fi networks on the subways of New York and Toronto.
- » The design, installation and maintenance of the Hong Kong Mass Transit Railway (MTR) for more than 15 years.

Our people are immensely proud of the services we deliver.



bai communications

In addition to providing radio and television broadcast services, BAI Communications plays a huge role in providing critical communication services for emergency services, government and private networks within Australia.

In 2011, BAI Communications collaborated with Ergon Energy to deliver its new digital voice radio and narrowband data communications system, providing uninterrupted voice and digital communications in times of need, covering an area greater than 177,000km.

Our people are immensely proud of the services we deliver. We combined technical expertise with an unwavering commitment to placing our customers and the community at the heart of everything we do.

BAI Communications is committed to excellence, innovation and collaboration – values that are crucial to our delivery of high-availability network solutions. As the communications industry continues its explosive growth, these company values will be at the forefront of our day to day operations.



Image courtesy of NSW Ambulance

CASE STUDIES

Since 2013, BAI Communications have been operating and maintaining the NSW Government Radio Network (GRN), servicing more than 30,000 users from 30 government agencies including the Ambulance Service of NSW, Fire and Rescue NSW and the NSW State Emergency Service.

This partnership was successfully tested during the October 2013 Blue Mountains bushfire disaster when BAI Communications provided enhanced two-way communications capacity at some sites and deployed standby power facilities during this critical time.

Long Range Digital Radio system world first in Western Queensland

Pioneering technology developed by BAI Communications - to be launched this year - will bring digital radio communications to almost one million square kilometres of Queensland for the first time.



The Long Range Digital Radio (LRDR) System expects to extend digital coverage to more than 83.3% of Queensland's geographic area and 99% of its population, or around 1.5 million square kilometres, from Dirranbandi and Cunnamulla in the inland south, Mt Isa in the state's west, and Cooktown in the Far North.

This new technology has the potential to improve the capabilities of organisations that rely daily on radio communications, such as the police, fire, ambulance and government departments that cover a broad and remote geographic spread.

BAI Communications National Business Development Manager (Australia) Ashley Marshall said his team was incredibly proud to have developed project-ready technology, which will enable client to operate at the cutting edge of global digital communications.

"Developing user-friendly, state-of-the-art communications systems which can service such a large, remote region is incredibly challenging," Mr Marshall said.

"The world-first technology will interconnect well-developed Eastern Queensland radio communication networks with an LRDR system deployed in Western Queensland.

"It will be tightly integrated into P25 radio communications networks, the type used by police, emergency services and utility providers. These types of organisations all around Australia will benefit from this cost optimised coverage and capacity augmentation.

"The deployment of the new system will enable actions such as remotely supporting isolated field workers operations, communicating via voice over long distances and sending encrypted digital data communications.

"The software defined nature of the system means that it has a high level of interoperability with external and internal technological and communications systems.

"To date, BAI Communications has used all-Australian content and suppliers and will endeavour to support Australian businesses throughout each additional phase."

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Equality in Engineering – encouraging passion

Lithika Vinu, Radio Frequency Systems Engineer, Broadcast Australia is the most recent BAI Communications staff member to speak about her experiences as a female engineer – and how she hopes one day her son will be proud of her work.

When Lithika announced to her family that she would be studying a Bachelor of Engineering majoring in Electrical Engineering at the Madras University in India, her family were very supportive.

“My father tried to encourage me to become a doctor instead, but I knew that wasn’t me,” Lithika said.

“It’s not that women aren’t interested in becoming engineers, it’s that they often end up entering a different profession, whether that’s from family influence or because they see engineering as being male-dominated.

“I would love to walk into a university one day and see a more equal male-to-female ratio of engineering students.”

Working as an implementation engineer for Broadcast Australia, Lithika travelled all over the country – rarely spending time in the office.

“I can’t think of another field of work that would have seen me visit the Pinnacles in Nambung National Park, live in the bustling Karratha at the height of the mining boom or travel around the stunning Queensland outback,” she said

“My most memorable role to date would have to be as a Project Manager on the Spectrum Restack Program, an award-winning project that managed the restack work for all national and commercial television services on behalf of the Commonwealth.”

Now mother to a young son, Lithika is no longer travelling the country with BAI – but hopes that one day her son will be proud of his mother’s work in a male-dominated industry.



“My little boy is too young now to understand what I do at work, but it is my dream that when he is older he will be proud to know his mum is an engineer.”

FlexNet no drop in the ocean

Australian utilities are set to benefit from communications infrastructure that is already conserving water and saving electricity internationally, when Sensus and BAI Communications join together to bring the Sensus FlexNet technology to Australia.

The FlexNet solution – which identifies leaks and outages in real-time – delivers all the data utilities need to reliably and cost-effectively supply water and energy to their customers.

Malcolm Keys, Director, BAI Communications said the technology was an example of how BAI and Sensus could successfully combine their core skills and strong record of accomplishment in delivering reliable wireless networks.

“BAI Communications and Sensus have specifically designed this infrastructure to realise the vision of Australian utilities to build a customer-focused utility for the future,” Mr Keys said.

BAI’s engineering and operational excellence has produced a system that will operate seamlessly and self-sufficiently in all conditions, including Australia’s frequent natural disasters.

“A stronger network will improve service delivery and consistency for customers and reduce maintenance costs for utilities,” Mr Keys said.

With a focus on preventative repairs, the FlexNet system has the potential to save the water industry \$700 million per year from the current \$1.4 billion reactive repair and maintenance costs.

FIVE MINUTES

WITH SARAH



Sarah Baker, Account Director, Public Broadcasters

How will your previous experience at BAI help you in your new role as BAI Account Director, Public Broadcasters?

I've worked in many areas at BAI, most recently as General Manager, Customer Service Group where I looked after the NOC, Public and Commercial Broadcaster Account Teams, Restack BSSC and Business Intelligence Teams.

Throughout, I've worked hard to build strong relationships with our public broadcaster customers that are based on open and honest communication. This has allowed us to understand their unique challenges and work proactively to meet their needs.

What goals have you set for yourself in this role and what are you most looking forward to achieving?

We will continue to build our reputation with customers for quality delivery and value by treating the customer the way we want to be treated. This means proactively anticipating their needs, removing their pain points and working with them to identify new ways in which BAI can help them deliver content to their audiences.

We are focused on driving internal efficiencies to ensure our services remain affordable.

What is the biggest challenge the National Broadcasters face in the next five years and how can BAI support them?

Producing high quality local content is expensive and our National Broadcaster customers must constantly drive efficiencies to find new means of investing in it. They must also continue to develop their digital presence, upon which their future relevance depends.

BAI can help broadcasters by working with them to exploit new technologies to keep FTA broadcast relevant. We are focused on driving internal efficiencies to ensure our services remain affordable. We can also help the Broadcasters meet their Contract Governance responsibilities by providing targeted information in a trusted format, thus allowing them to divert resources from administration towards content.

Transit Wireless Cellular and Wi-Fi services extend to the Bronx

Work has commenced on phase 4 of the 7-phase project to wire all 279 underground Metropolitan Transportation Authority (MTA) stations, with Transit Wireless expanding the wireless, public safety and Wi-Fi services to 37 additional stations in the Bronx and Manhattan.

The completed work has already brought underground connectivity to 47 million MTA customers monthly – allowing riders to stay connected throughout their entire journey as well as improving public safety by providing immediate access to E911 assistance.

Transit Wireless CEO William Bayne said the connection of the third borough to the network marked an important step in the project.

“We’ve launched phase 4 of the rollout almost a year ahead of schedule – and we would not be where we are today without critical support from our wireless carrier partners and our strong relationship with the Metropolitan Transportation Authority,” Mr Bayne said.

To date, 144 of the 279 MTA stations have been connected to the Transit Wireless network, with the final stations expected to be completed in 2017. A full list of connected subway stations can be found at www.transitwireless.com



MIMO in the Metro

One year on from the successful design and delivery of one of the world's most advanced confined coverage networks, Radio Frequency Engineering (RFE) have released a white paper detailing the many challenges, intricacies and successes of such an enormous engineering undertaking.

When Hong Kong's Mass Transit Railway (MTR) began works to extend their existing Island Line system to service three additional underground stations, RFE were brought on board to build a Distributed Antenna System (DAS) that would allow uninterrupted data services of up to 300Mbps.

The network, founded on a multi-band 2G, 3G and 4G (800-2700MHz) DAS, features multiple input multiple output (MIMO) long term evolution (LTE) technology to boost capacity and reduce data traffic congestion.

The multi-band wireless coverage services the Sai Ying Pun, University and Kennedy Town stations, including 3km of dual-bore tunnels, entrance gates, station platforms and passenger lifts - giving MTR customers a seamless wireless data experience.

The main challenge for the RFE team was designing a sophisticated network that would minimise the interference that occurs as a result of transmitting and receiving simultaneously on the same cable and antenna network.

To manage any potential interference, RFE calculated the signal levels for all sectors that would result in minimum interference without affecting users then designed the network to deliver those precise signal levels.

To find out more about RFE's 15 year history working with Hong Kong's MTR visit: <http://www.rfe.com.hk/>



Broadcast Australia successfully boosts SBS capacity for new channel launch

Broadcast Australia successfully completed capacity enhancement field works for SBS's terrestrially-delivered digital television network ahead of schedule and in support of its newly launched 24-hour dedicated food channel, Food Network.

SBS Manager for Transmission and Regulatory Services Clive Morton thanked Broadcast Australia Project Manager, Tom Palfreyman for his role in the early delivery of the SBS 19-23 Mbps regional upgrade project.

"Tom's excellent project management was evident at every step of this significant project, which involved configuration upgrades to expand the transmission capacity at 318 sites across Australia by 4 Mbps," Clive said.

"Working closely and diligently with the SBS team and other key vendors such as Optus, Tom seamlessly coordinated the state-by-state switchovers across 12 districts, concluding the program of works one month ahead of schedule.

"Tom also ensured SBS was fully informed at all stages, so we could in turn inform our audience and other stakeholders of any potential impacts."



Clive also applauded Broadcast Australia Engineering Team Leader Steven Naumovski, SBS Account Manager Masoud Rasouli and the all the district teams for their excellent support throughout the project.

RFE receives Gold Quality Award for MTR projects



RFE has earned the coveted Gold Quality Award in the Hong Kong MTR Projects Quality, Safety, Environmental and Stakeholder Engagement Awards Presentation Ceremony for its work on the radio systems of MTR West Island Line (WIL) and South Island Line (SIL).

RFE Managing Director Paul Chan said the award was recognition of RFE's out of the box thinking when it comes to design.

"Not only did RFE complete the cellular systems for the West Island Line within a five-day turnaround in time for the grand opening, we

also reconfigured the Fire Services Department (FSD) radio system at South Island Line to allow for early inspection in a practical and economical way," Mr Chan said.

It's not the first time RFE has been awarded for its work on the projects, previously winning the bronze award in the same category in 2013.

The cellular coverage and radio services, which cover MTR operation as well as the FSD and the Hong Kong Police, are essential for railway operation and on time line opening.

RFE has been partnering with MTR to provide radio systems since 1997 and is a leader in the tailored design and integration of wireless subway and confined space coverage systems.

Pictured above (L-R): Esmond Cheung, RFE Engineering Director; Agnes Yan, RFE Quality Manager; Paul Chan, RFE Managing Director; Brian Kwong, RFE Project Manager for 761 Contract; Dr. Philco Wong, MTR Projects Director; WK Lam, RFE Senior System Manager.



While the small New South Wales town of Cumnock celebrated its 150th birthday on 18 October, the Broadcast Australia-operated Cumnock 2CR Radio Transmitter opened its doors for the first time in ten years.

The last tour of the facility was in 2005, celebrating the ABC's Country Hour Program's 60th anniversary.

Most local residents had never been up close to the tower, which is inland New South Wales' largest transmitter site, broadcasting the Country Hour program as far as Wilcannia, more than 600 kilometres west of Cumnock.

President of the Cumnock Progress Association Don Bruce organised the tour of the facility, and it was hosted by Chris Howe, Regional

Manager NSW/ACT, Broadcast Australia. Also in attendance was Brooke Daniels, local Program Manager for ABC Central West.

Pictured above: Don Bruce, President of the Cumnock Progress Association and Chris Howe, Regional Manager NSW/ACT, Broadcast Australia and members of the tour group.



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