



Resilient IP linking radio (VoIP) solution deployed for Fire & Rescue NSW

Fire & Rescue NSW
New South Wales, Australia



As part of an upgrade from an ageing analog radio system to a digital P25 system from Tait Communications, Mimomax Wireless were selected as the backhaul, point to point linking solution for Fire & Rescue NSW (FRNSW).

CHALLENGE

The FRNSW requirement called for new digital links between 45 radio sites located in the harsh climates of remote southern NSW.

With environments ranging from Mt Perisher, the highest communications site on the Australian continent, to flat sites located in remote western NSW, FRNSW required a resilient communications solution which would connect

these remote sites to the Communication Centers in Sydney and Newcastle.

Involving some longer links and, at times, severe weather to be accounted for, the Mimomax solution required extensive RF engineering and careful antenna selection at some sites.

SOLUTION

A Mimomax point-to-point network was deployed in a ring topology with dual antenna/phased arrays used at some locations to ensure connections over long paths. Heated antennas were also selected to meet the climatic conditions at sites which experience snowfall through winter.

“FRNSW chose the Mimomax product because of its ability to provide the required capacity and reliability without the need for large antennas which would have added cost to the project by needing tower upgrades. Operating at 400MHz the links have proved to be more tolerant to path obstructions & fading than microwave, and this has allowed links to be implemented between sites that would be difficult at microwave

frequencies,” said Richard Cervený, Communication Systems Officer, FRNSW.

An additional point of difference for the Mimomax solution was that the radio links can also act as both routers and multicast units, offering value for money and less equipment in the network. In addition, the interchangeable nature of the radios meant that units could be swapped out easily and fewer spares carried. Incorporating several diagnostic features for ease of remote fault finding & reporting, the links provided by Mimomax were also configured and tested in the factory prior to deployment to ensure a smooth and rapid roll-out (plug and play).

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RICHARD CERVENY | COMMUNICATION SYSTEMS OFFICER - FIRE & RESCUE NSW

RESULTS

The reliability of the equipment was put to the test during a night of significant snowfalls in the Snowy Mountains shortly after deployment. “The data log from the Mimomax radio link at Crackenback showed that despite the conditions, the link did not fail even once. The worst impact experienced was a 10-15db fade on the link. In my view, this has demonstrated the benefit of installing the heated antenna at these sites and further shows the value of having access to the Mimomax performance logs,” said Cervený.

Critics of links offering lower capacity than microwave often point to the benefit of multi-agency sharing of larger capacity links. The project with FRNSW has highlighted that P25 requires relatively small amounts of bandwidth, proven by combining traffic from FRNSW and the NSW State Emergency Service (SES) over shared Mimomax links. This approach has yielded significant savings to both agencies.

Delivering much-needed coverage, resilience and communications interoperability with other state agencies, the new communications system will support the work of over 13,000 staff at Fire & Rescue NSW.



KEY BENEFITS

- Links act as both routers and multicast units resulting in lower total cost and less equipment in the network
- Radios factory configured and tested in advance for rapid plug 'n' play roll out
- Heated antennas to ensure high availability during harsh winter conditions
- High data throughput allowing combined P25 traffic from two emergency services
- 400MHz links for greater tolerance to fading and path obstructions

ABOUT FIRE & RESCUE NSW

Location: New South Wales, Australia

Industry: Public Safety

Services: FRNSW is one of the world's largest urban fire and rescue services and the busiest in Australia, providing fire, rescue and hazmat services across New South Wales.

ABOUT TAIT COMMUNICATIONS

With almost 50 years' experience in radio, Tait Communications provides critical communication solutions to a wide range of industries across the globe.



About Mimomax

Mimomax develops wireless communications solutions for narrowband channels which enhance visibility and control - right to the edge of our customer's networks.

Our award-winning radios utilize Multiple Input, Multiple Output (MIMO) technology combined with full duplex communications and ultra-low latency to provide our customers with communications solutions which optimize data throughput and provide rapid feedback and control of their mission-critical assets.

Winner of the 2018 UTC IMPACT Award for Mimomax Tornado Radio.

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