



# Capability Profile

CommTel Network Solutions







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# Welcome

In 1998, the Directors identified the need for a specialist value added reseller that could provide quality communications systems and services that were more appropriate and better suited to mission critical and industrial applications.

As a result, CommTel was formed and with it, a set of important principles that have been the cornerstone of CommTel's success.

These principles are listed below:

- We are a customer focused organisation and we highly value our customer relationships
- We only offer quality solutions that have been tested and proven to our high standards
- We support our solutions for the long term (life of the products)
- We only provide equipment/solutions that add real value
- We invest in local development to maximise our value-add and ensure our solutions are optimised for local conditions, standards and needs.

Being a Value Adding Reseller (VAR) and not the Original Equipment Manufacturer (OEM) has enabled CommTel to develop close and collaborative relationships with the industries in which it works.

As a result, many success stories have been achieved from CommTel's partnership between customer and technology suppliers and in a number of cases, new successful products have been developed and marketed.

Today we offer a broad spectrum of value added services, including technology selection, system design, engineering, product verification, project management, installation, after sales support, advanced spares and training.

As proof of our commitment to provide support for the long term, today some 90% of CommTel's business comes from return customers. Some of these have commenced rebuilding networks originally provided by CommTel 10 to 15 years ago.

CommTel is a leader in technology in its field and to ensure it remains a leader, the Directors have implemented a number of research and development initiatives, to accelerate development of next generation communications technologies and services.



**Robert Green**  
Chief Executive Officer



**Gerald Molenkamp**  
Chief Technical Officer





A modern office interior with wood-paneled walls and glass partitions. In the background, there is a meeting area with a table and chairs. A poster on the left wall mentions 'TODAY', 'STAFF BRIEFING', and '24'. A wooden reception desk is in the foreground on the right.

## **Our Vision**

To be a leading international provider of advanced and engineered solutions for mission and business critical networks

These are delivered through partnership with customers, a highly skilled workforce, excellence in professional services and innovation

# About CommTel

CommTel Network Solutions is an Australian owned company providing turnkey communications networks, both within Australia and internationally.

As a leading international provider of communications design, supply, integration and support in the dedicated and industrial networks sector, we have unsurpassed experience and knowledge that our customers rely on.

We specialise in the delivery of mission and business critical networks in the Mining, Oil and Gas, Transport, Utilities, Carrier and Public Safety sectors.

CommTel's key to success is in developing long-term relationships with, both customers and suppliers.

We ensure our customer's investments in network infrastructure are protected for the life of their network.

With capabilities covering the entire project life-cycle, we offer a broad range of value added services, from technology selection, system integration, design, engineering, project management and product verification, through to after sales support, spares management and training.

CommTel maintains a strong and diverse network of technical experts to ensure our products and services are responsive, fit for purpose and flexible.

We have also developed a dedicated system laboratory, equipped with infrastructure to support technical ServiceDesk inquiries and customer solution development.

## CommTel's capabilities include:

### Professional Services

- Network design, optimisation and technology selection
- Multi-vendor system integration
- Integration Services
- System configuration, installation, testing and commissioning
- Training and Learning programs for technology, equipment and systems
- Business and Technology Consulting
- Project management and engineering support

### Operational Support Systems

- Network Management and Operational Support Systems (NMS/OSS)

### Support Services

- After sales support
- 24x7 ServiceDesk for technical enquiries
- Warranty, equipment repair and software support
- Advanced spares management

# Corporate Structure

CommTel is comprised of 4 registered entities.

**CommTel International Holdings Pty Ltd**  
ACN 169 402 304 / ABN 87 169 402 304  
Registered Address: Melbourne, Australia

**CommTel Network Solutions Pty Ltd (Australia)**  
ACN 082 646 017 / ABN 75 082 646 017  
Registered Address: Melbourne, Australia

**CommTel Network Solutions Limited (Europe)**  
CN 9077538  
Registered Address: London, UK

**CommTel Network Solutions Limited (New Zealand)**  
NZBN 9429037151492  
Registered Address: Auckland, New Zealand

Dunn & Bradstreet has rated CommTel of having a very low risk of experiencing financial distress and is significantly better than the industry average.

With this rating, Dun & Bradstreet has recognised CommTel's achievements, selecting CommTel as a recipient of the Import/Export Wholesale Award.





# Our Markets

CommTel specialises in design and development of systems and networks that meet the stringent requirements of mission-critical industries. These sectors are undergoing a process of evolution, from existing legacy networks to delivering a range of next-generation applications. In most cases, this necessitates substantially higher bandwidths and a review of the overall network architecture.

A key challenge is in developing and adapting networks to meet new demands, while at the same time continuing to support existing operations.

CommTel has extensive expertise in this area. We understand the importance of having robust management systems to assist in the operation and maintenance of these advanced networks, giving operators the tools they need to work pro-actively and respond to events in real time.

Each one of our customers has particular needs that require compliance with industry-specific standards. These can range from IEC61850 compliant networks for electricity companies, to EN50121-4 compliant networks that meet the requirements of railway track-side equipment.

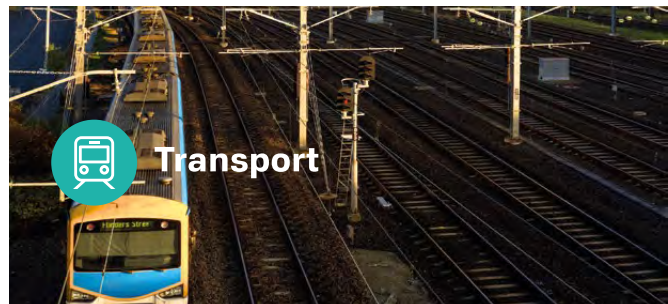
CommTel has an appreciation for industry-specific requirements and standards. We select products and develop solutions to meet the requirements and standards.



**Oil & Gas**



**Electricity Utilities**



**Transport**



**Carrier**



**Mining**



**Public Safety**

# Operations Management

CommTel operates under an integrated management system covering Quality, Health and Safety, Environment and Security.

## Quality Assurance

Delivering an outstanding customer experience, all-the-time and everywhere, encompasses the following fundamental principles:

- We view quality through the eyes of our customers
- We create remarkable customer experiences through exceptional people, products and services
- We drive improvement through focus, measurement and accountability

CommTel's comprehensive and proactive quality management system is evident at all levels of the organisation.

Our quality management system has been certified by a SAI Global against the ISO 9001 standard.



## Health & Safety



CommTel strives for excellence in health and safety management. Our management systems provide the framework to help identify and minimise potential hazards, risks and anything that adversely affects our employees, communities, environment and resources.

CommTel is committed to:

- Complying with applicable environmental, health, safety and security laws, and to meet customer and community needs and expectations
- Identifying and assessing opportunities to reduce workplace hazards and risks
- Promoting employee involvement at every level of the organisation
- Monitoring performance for continual improvement
- Providing the appropriate resources to honour our commitments

Our Health and Safety Management System has been certified by a SAI Global against the AS4801/OHSAS18001 standards.



## Environment

CommTel is committed to conducting business in an environmentally aware and responsible manner. In order to ensure that our practices are conducted with minimal environmental impact, we work in close cooperation with our business partners to achieve this. We continually look to improve where possible.

CommTel actively takes part in the following:

- Assess eco-footprint to identify impacts and move towards more sustainable practices
- Identify waste streams and options for more effective waste management
- Use its objectives and targets to continually improve its environmental performance
- Setting and reviewing objectives and targets
- Seek appropriate licenses/permits from Environmental Protection Authorities.
- Improve education/awareness
- Notify relevant authorities in the event of a major environmental impact

We are progressing towards the independent certification of our system to ISO14001 standard.



## Information Security



CommTel is well aware of the importance of Network and Information security and has implemented a framework to proactively manage security risks.

Given our involvement in the design, integration, construction and support of our customer's networks, we have in place systems and processes to:

- Consider security as part of our design process
- Manage security of our physical and virtual facilities
- Assess and monitor the suitability and behaviour of employees
- Assess the security characteristics of our products, software and partners

We are progressing towards the independent certification of our system to ISO27001 standard.



# Technology & Services

CommTel brings together global expertise and the latest technology, helping to meet the growing demands of our customers.

We have taken a fresh approach to how we partner and what technologies are selected. Combining the latest technologies, with innovation from the industry, we strive to deliver world class reliability and security, whilst exceeding customer expectations.

Supply agreements with key partners allows CommTel to expand our technology offerings, whilst ensuring long-term access to the latest products, technologies and services. We can draw from the knowledge and innovation our partners offer, to bring customers world class products.

This approach allows CommTel to offer long-term viability and support for customer networks. Equipment is fully supported end-to-end from installation to commissioning and for the life of the network. This allows customers to benefit from the investment in their networks.

CommTel has extensive technical knowledge and expertise in a range of technologies and products.

## **Our Technology offering includes:**

### **Core & Access Network Equipment**

- IP-MPLS and MPLS-TP Core Network Infrastructure
- Layer 2/3 advanced switches, high end GE and 10GE switches
- Industrial Ethernet switches
- Broadband - DSLAM (ADSL, SHDSL, VDSL equipment)
- ATM - Ethernet interworking
- Mobile Broadband - LTE
- Radio - Tetra, Mesh radio

### **Security Solutions**

- Next generation firewalls
- Security assessment audits
- Consulting services

### **Transmission & Multiplexing Equipment**

- PDH Multiplex equipment
- PDH Microwave radio, in the 7 to 38 GHz range
- SDH Multiplex transmission equipment, STM-1/4/16/64
- DWDM and CWDM equipment to 100G Wavelengths
- Microwave Radio (access & trunk radio) equipment, in the 6 to 38 GHz range

## **Network Management & Operational Support Systems**

- Vendor Specific & Vendor Independent Network Management Systems
- Resource & Asset Management
- Trouble ticketing systems
- Reporting services
- Business dashboards
- Analytics
- Bespoke software development

## **Communications Support Infrastructure**

- Fibre Distribution Frames and Cable Accessories
- Hybrid Power Systems (Diesel, Solar, Wind)
- Self contained equipment shelters
- Self Supporting communications towers to 65m

## **Our Services offering includes:**

- Business & technical consulting
- Technology selection
- System architecture development
- System & detailed design
- System configuration & integration
- Validation, verification & testing services
- On site logistics & installation
- Project management
- Documentation
- Network operations
- Technical support (24x7)
- Software maintenance
- Software development
- Spares management & repairs
- System & technology training



# Our Businesses

CommTel's core businesses are structured into functional teams, each offering a varied selection of products and services.



## Supply & Solution Development

The Supply & Solutions development team is responsible for the assessment, selection, performance verification, sourcing and technical knowledge development for the various telecommunications solutions demanded by our customers.

The team works closely with the end-customers in creating conceptual designs, optimised to meet the demanding requirements.



## Rapid Site Solution

The Rapid Site Solution (RSS) team provides a unique semi-permanent, self-contained communications hut, which incorporates a self-supporting radio tower up to 65m.

The solution was developed by CommTel to address the need in the mining sector for a communications hut and tower that can be implemented on site rapidly (typically 10 days) without the need for concrete,

providing a self-supporting tower up to 65m with cyclone rating, diesel generators, solar power, batteries, security and fire systems, all managed under a common management platform.

The design was developed in conjunction with the mining industry and incorporates compliance with local OH&S requirements.



## Operational Support Systems

The Operational Support Systems (OSS) team is a specialist unit focusing on the development, integration and implementation of Network Management Systems (NMS) and Operational Support Systems (OSS).

Our approach is multi-technology and multi-vendor, giving customers an end-to-end view of their network infrastructure.

We focus on enabling a network to efficiently deliver business benefits through systems integration and automation. This can range from advanced fault prediction and alarm management, to strategic asset management and planning.



## After Sales Support

The After Sales Support team offers flexible multi-technology and multi-vendor support services. We take an end-to-end view of networks, helping you to resolve issues quickly and completely.

Our unparalleled expertise in building and supporting critical communications infrastructure gives CommTel the experience to solve your network problems.

We provide customers with After-sales support including 24x7 ServiceDesk, software/firmware upgrades, repairs, advance spares and training services.

Our dedicated training facility and lab in Melbourne can cater for up to 12 trainees.



## Professional Services

The Professional Services team are responsible for CommTel's Consulting, Project Management, Integration and Engineering services. The business unit which takes the lead role for customers requiring network systems supported by substantial project services.

CommTel has developed a strong project management capability to support our overall service offering, and to manage our suppliers and contractors.

Our services offering includes technical consulting, system design, integration, installation and operations. These services span the breadth of technology offered by CommTel from the design of a microwave radio link to the development of a network and information security strategy.

We have also nurtured a management culture which is based on a disciplined and structured management process. This ensures that decisions are made based on sound information and in accordance with CommTel's quality management system.

We provide system assembly, racking, cabling and test services which are provided in our world class integration centre.

The integration centre has 600m<sup>2</sup> of integration facility. The area is a secure, clean room environments, incorporating anti-static flooring, air conditioning with filtered and dehumidified air and overhead DC and AC power.

## Training

The Training team provides and delivers an extensive portfolio of technology, product and systems training courses.

Courses are designed to enhance the various skill levels of participants from introductory through to advanced. Courses can be tailored to suit the requirements of an organisation or customer.

We work primarily from our dedicated training facility and laboratory at CommTel's head office in Melbourne, Australia, but can also deliver training at remote sites or at customer facilities.



CommTel's Dedicated Training Facility in Melbourne, Australia.

# Track Record

## Mine Site Communications Infrastructure



With falling commodity prices, mine-site automation projects are being deployed to reduce mine operating costs while maintaining the highest standards of worker safety and environmental control.

These automation projects require a significantly enhanced communications network, delivering ubiquitous coverage to the mine, even as the mine develops.

A key challenge is the construction of robust equipment shelters, power supplies and towers to support this enhanced communications need. The traditional approach to deploying this infrastructure is to engage several separate contractors, and to co-ordinate on-site activities between them.

Given the challenging and remote environment, coupled with a mandate to

minimise the number of workers on-site at any one time often results in significant cost and schedule overruns.

The RSS delivered a positive-pressure, air-conditioned equipment room, which was fully constructed off-site. This was integrated with a hybrid power solution, consisting of diesel and solar power, managed by a single controller.

The RSS also incorporated a 55 metre cyclone-rated communications tower. The tower is of an advanced design, using an innovative anchoring mechanism, thereby eliminating the need for substantial concrete footings.

CommTel currently holds patents for RSS Design and Technology.

## High-speed Radio Backbone for remote Australia



As gas networks become increasingly sophisticated, there is need for greater levels of communication to the well head. In some cases, organisations are assessing the benefits of building a private LTE infrastructure to deliver high-speed Ethernet to both fixed and mobile end points.

With broad plans such as these, there is a need for a high-capacity, reliable backbone

network, capable of transporting a wide range of critical and non-critical services.

In working with its customer, CommTel consulted, designed, supplied and integrated a high-capacity microwave radio network, spanning over 600 km. Our solution replaced an aging and unreliable microwave radio network.

By using the latest technologies, we were able to increase capacity by an order of magnitude while concurrently improving end-to-end service availability. By implementing a robust and reliable transport network, the customer is able to focus on automation and efficiency projects to deliver greater value to the business.

## Mission Critical Services over BT 21CN



Electricity transmission and distribution utilities have an extensive communications requirement for both their operational and corporate needs. Utilities meet this communications need through a combination of private and 3rd party infrastructure. In the UK, the largest 3rd party supplier of communications infrastructure is British Telecom (BT).

As BT undergoes its 21CN network modernisation program, the legacy

communications interfaces currently used by the utilities are being decommissioned.

CommTel worked closely with a UK energy company to support the seamless migration of mission critical services to the 21CN.

The key challenge was in transporting a TDM E1 service over a 3rd party packet-based network, while achieving an end-to-end latency of less than 3ms.

CommTel developed a solution which translated the existing legacy interfaces to Ethernet, and managed the jitter and latency constraints without the need for an external synchronisation source.

Our robust and small footprint solution allowed the migration to the 21CN to occur without a redesign, rebuild or overhaul of the existing utility infrastructure. This dramatically minimised capital expenditure and effort required on-site.

## Building a High-speed Nationwide Network



When building large scale, complex telecommunications infrastructure, planning, design, pre-configuration and testing are necessary elements of a successful project.

CommTel's extensive integration facilities and technical staff were key in the successful deployment of a nationwide DWDM network.

Over a two year period, CommTel integrated and tested over 3000 DWDM nodes,

delivering services ranging from 10G, 40G and 100G. With the integration being performed in Australia, we were able to rapidly respond to changing project priorities and reallocate equipment to meet urgent requirements.

The end result was successful deployment, delivered on schedule and on budget.



# Track Record

## Supporting Advanced Communications Infrastructure



Modern Railway utilities have developed extensive telecommunications infrastructure to meet their growing corporate and operational needs. These networks have been built over many years and are comprised of a broad range of technologies and vendors. A key challenge for the modern railway utility is in supporting such a complex network in an effective manner.

The customer's network consisted of technologies including PDH and SDH multiplexers for controlling mission critical rail infrastructure, MPLS routers, switches and security appliances for its corporate and CCTV infrastructure, a state-wide DWDM optical transport network, and a comprehensive Network Management

capability. CommTel provides a single point of engagement for support across the entire telecommunications infrastructure.

This has delivered tremendous benefits, as complex support cases which span multiple technologies are managed via a single interface.

CommTel's support service extends beyond the management of trouble tickets, and includes a proactive engagement to assist with overall network planning, migration and strategy. We are providing assistance with managing the transition from legacy infrastructure, and have been engaged in determining the strategic direction of the network.

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## Upgrading Public Safety Networks



Public Safety organisations are struggling to keep pace with the rapidly expanding technological and threat landscapes, in many cases, with limited financial resources.

While there is an active discussion about delivering mobile broadband capability to Public Safety Agencies by 2020, there is an urgent need to maintain and enhance existing capability in a cost effective manner.

CommTel has been working with its customer to evolve a state-wide TDM-based network to deliver higher-speed Ethernet services over existing infrastructure. This approach has substantially extended the life of the existing asset base, supporting a cost-effective upgrade within a fraction of the time needed for a complete redevelopment.

CommTel worked closely with its vendor partners to develop customised and specific functionality to meet stringent latency and jitter parameters for the network. As part of the CommTel approach, the entire network was preconfigured, staged and tested at our facility, guaranteeing that the migration of the live network would proceed smoothly. By staging and testing, we identified numerous design issues, which were resolved prior to deployment.

## Asset Management



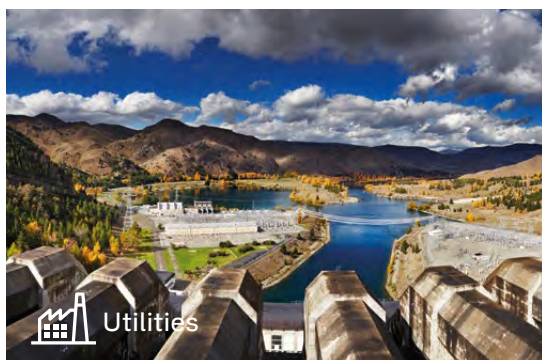
Electricity utilities have an extensive telecommunications network, consisting of cables, devices and equipment rooms, delivering an extensive suite of services and applications. As these networks have grown, there is an increasing demand for an asset management platform in order to better manage network inventory and support network planning.

CommTel has worked closely with its customer to implement a state-of-the-art

asset management platform, including the migration of data covering over 190 sites, 1,400 equipment racks, 4,500 devices and over 14,000 routing points. The asset management platform has also integrated with the network management platform, allowing on-the-fly validation of the information contained within the asset management platform. This delivers confidence to all users that the asset data is up to date and can be trusted.

The overall result is that improved accuracy and reliability of network data has enhanced the effectiveness of the operations and maintenance teams. They have greater visibility of the network assets, and the ability to overlay physical assets (cables) with active assets (communications devices) and logical services (VPN, E1). In addition to now being able to rapidly assess and determine the operational impact of a network fault, the customer is able to more effectively develop network designs and compare multiple scenarios in order to optimise network roll-out.

## MPLS-TP for Mission Critical Infrastructure



In New Zealand, electricity generators manage Hydro, Geothermal, Thermal and Wind Turbine power stations in mostly remote parts of New Zealand. A particular customer needed to provide secure communications for multiple services - SCADA, control systems, corporate LAN and video surveillance between several power stations in a region.

Security is paramount in the Electrical industry and our customer wanted to avoid using traditional Layer 2 VLAN's for separating each service over shared links.

As Electricity Generators, communications is not the customer's core business, so operational simplicity and ease of use were also significant factors in selecting the best communications technology.

CommTel worked closely with our customer to select an MPLS-TP solution. MPLS-TP offered a number of advantages for our customer including:

- The ability extend firewall zones to remote sites without physical deployment through creating secure "pipes" for each service.
- The ability to "nail up" bandwidth per service, eliminating frequent capacity monitoring on shared links.
- The simplicity afforded by MPLS-TP allowing rapid provisioning of the network with minimal training and support.
- MPLS-TP was an ideal fit for our customer's needs and is proving to be a winner in the migration from traditional TDM to IP-based technologies.



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