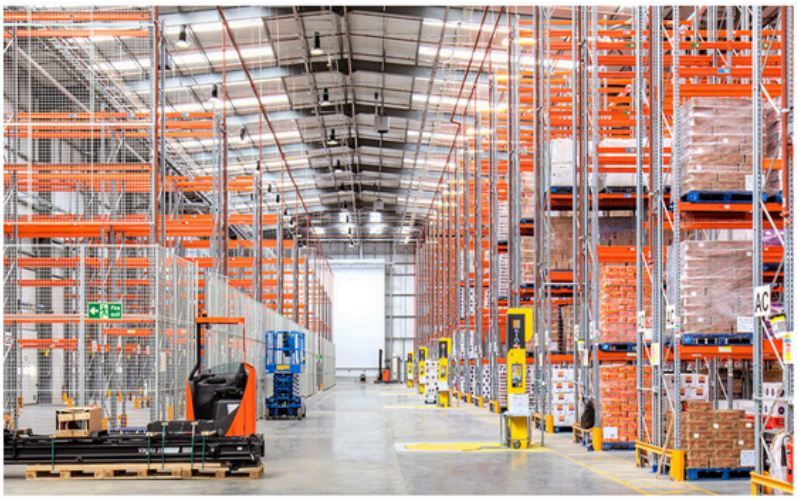
MOBILECORP

IN-BUILDING CELLULAR COVERAGE

CEL-FI CERTIFIED SALES PROFESSIONAL

CEL-FI CERTIFIED ENTERPRISE INSTALLER



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IN-BUILDING COVERAGE

THE STRENGTH TO CONNECT EVERYWHERE

Whether you're in the office, on the warehouse floor, crossing the car park, or even on the move, an IBC solution will have you covered.

Dead zones and blackspots are surprisingly common across Australia, both in regional and remote areas, but also inside buildings in our CBDs and within the urban fringe.

Given that 80% of all mobile calls are made or received indoors, poor reception is frustrating and has a significant impact on productivity and employee satisfaction.

An In-Building Coverage solution will boost signal strength and distribute signal reach within an enclosed space.

In Australia, mobile repeaters - which are the foundation of an IBC solution - must be approved by the ACMA and the carriers for use on their networks. It is crucial to choose a reputable IBC solution provider with certified radio engineers and technicians who can register your devices and deploy a professional and secure network.

Reliable, stable cellular signal for all your inside spaces, even underground

Voice and data connectivity for all your mobile devices, everywhere

4G | 5G enabling IOT use cases and sensors inside

HAVING ISSUES WITH IN-BUILDING CELLULAR COVERAGE?

Many buildings - from brand new modern megaliths to protected heritage housing - were not built with accessing wireless radio waves in mind. It is common to find dead spots within a structure and not just in stairwells, carparks and lifts.
Aside from building materials, the two other main barriers to coverage are mobile network signal strength at site being impacted by cell tower or fresnel zone barriers.

BUILDING MATERIALS

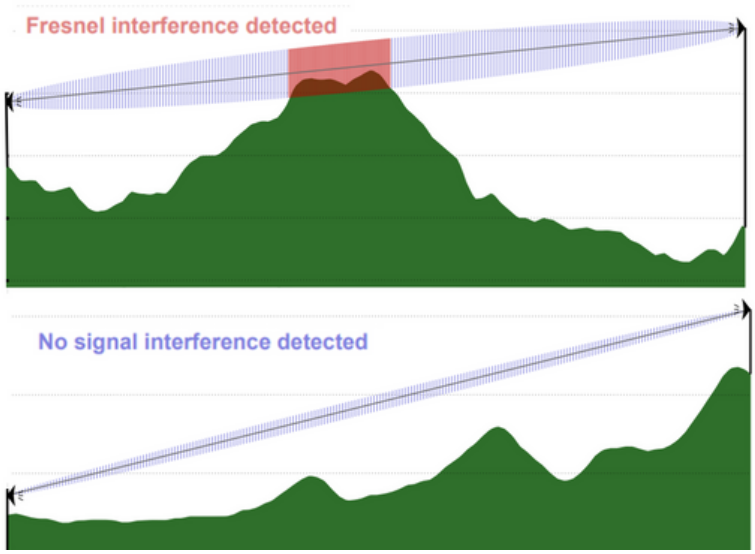
Steel, brick, concrete, and glass - especially LEED glass - all interfere with the radio waves emitted by cell towers. These materials refract and reflect the waves preventing the radio signal from penetrating indoors.
Being underground or in a building surrounded by other high rise buildings may also prove difficult to access a reliable signal.

FRESNEL ZONE BARRIERS

In point to point wireless transmission, it is important for the line of sight between the two points to be free of interference. The 3D elliptical region between the transmit antenna and the receive antenna is called the Fresnel Zone. Any object that impinges on the fresnel zone can disrupt radio frequency signals. This can include natural barriers like hills and trees, or man-made barriers like buildings. Even the weather - rain or wind - can disrupt the signal.

CELL TOWER BARRIERS

The further the distance from the cell tower to the receiving antenna, the weaker the signal will be. 4GLTE will reliably broadcast over an area of 2-5km in an urban area and may reach well over 10km in a less congested rural setting. 5G, operating on a higher frequency with small cell technology, must be much closer to the target, ideally within a kilometre. The signal provided by a tower is not constant. It will fluctuate according to the number of users accessing the signal - this is known as congestion.



COMMON USE CASES
FOR IN-BUILDING SOLUTIONS

Pick an industry, any industry!

Based on the size of the space and the communication requirements of the tenants, MobileCorp will deploy a custom-designed CEL-FI In-Building coverage system for your specific environment.


Corporate Offices

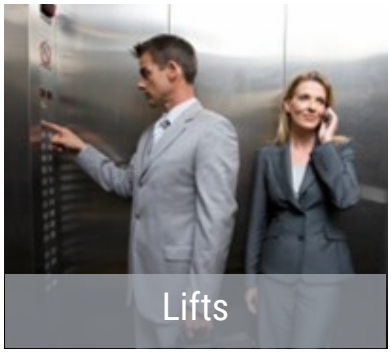

Car Parks

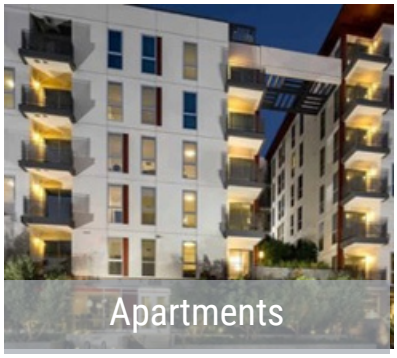

Healthcare & Aged Care


Retail


Education


Hotels & Hospitality


Lifts


Apartments


EV Charging

Government


Warehousing & Logistics


Manufacturing

SOLVING IN-BUILDING COVERAGE

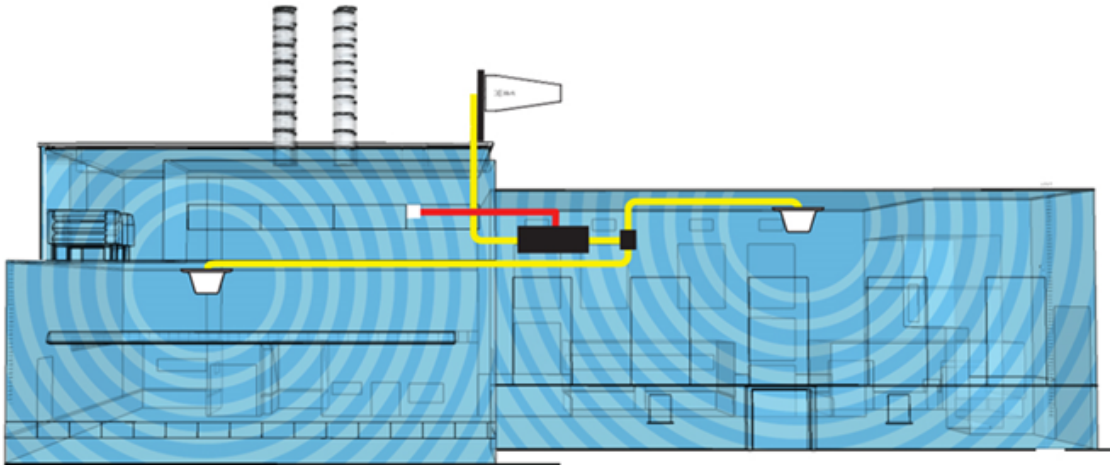
How does it work?

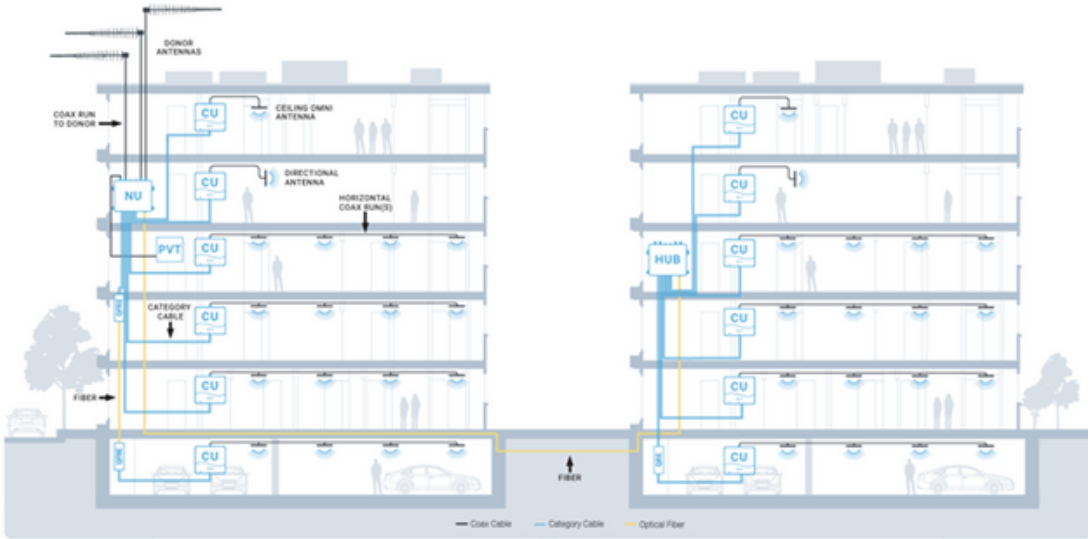
IBC solutions eliminate cellular dead-zones by seeking out the best available signal, boosting throughput and amplifying reach to maximise coverage for mobile device users throughout a space.

There are three parts to a simple IBC solution - the external or donor antenna (1), the network unit (2), and the server antenna (3).

The donor antenna is positioned to access maximum signal from a cellular tower and is usually installed on a roofline or near a window. The signal is transmitted via cabling to the network unit - also referred to as a smart signal repeater. CEL-FI GO repeaters can deliver max signal gain of up to 100 dBi, equivalent to a 1000x uplift. The repeater will amplify the signal and push it via cabling to the server antennas which are placed in the areas of the building with the weakest signal.

Installations across larger areas may require multiple donor antennas, repeaters, splitters, and server antennas. Various categories of cables allow higher throughput. Higher radio frequencies - bands - also allow higher throughput.





WHAT DOES AN IBC SOLUTION COST?

Like most IT solutions the answer to this question is - it depends!

However, we can give you indicative pricing for the key components of a solution so you have knowledge of estimated costs.

When it comes to calculating the cost of your IBC solution, there are three key factors to consider: hardware, installation, and management.

Hardware

In terms of hardware, the costs will not vary widely from one reseller to the next as there is only one manufacturer whose repeaters have been approved for use in Australia by the three national carriers - Telstra, Optus, and TPG Telecom - and the Australian Communications and Media Authority. This equipment is CEL-FI by Nextivity. The cost of hardware for a simple IBC solution with an external antenna, CEL-FI repeater, omni internal antenna, and cables will be around $5,000. For a large warehouse that may require multiple rooftop antennas, splitters, cabling, and 12-15 internal antennas, the cost will be approximately $25,000.

Installation

Installation costs are the most variable aspect of calculating an IBC solution's cost. The cost of installation is mainly labor expenses plus any specialist equipment, such as a scissor lift, that may be required to access the rooftop. Each site is unique, and the cost of installation may vary significantly depending on the size and complexity of the deployment. Some sites may require onsite inductions, SWMS lodgement, Working from Heights certification, police checks, WorkCover, and Indemnity Insurance. Generally, installation costs will range from $5,000 upwards.

Management

With the shift to the cloud, the management of In-Building Coverage solutions has become possible. Managed services can include access to a technical service desk, proactive connectivity monitoring, OTA firmware updates, remote and on-site troubleshooting. The cost of an IBC managed service will vary depending on the number of devices under management and the managed service inclusions.

Ask us for a quote: info@mobilecorp.com.au

MOBILECORP IBC SOLUTIONS

Proven track record connecting Australian businesses

MobileCorp is a leading In-Building Coverage solution specialist and MSP.

Based out of Mascot, Sydney, we design, install, remediate, and manage IBC solutions nationwide. We are certified CEL-FI Enterprise Installers and a Telstra Enterprise Partner.

All of our solutions are built around Nextivity's world-leading CEL-Fi products which are licensed by the ACMA for use with all Australian carrier networks - Telstra, Optus and TPG Telecom (Vodafone).

Combined with our industry knowledge, project management expertise, and deployment experience, MobileCorp delivers IBC projects on time and on budget.

We deploy nationwide with our team of certified engineers and technicians. Recent projects include:

- 2x 20,000sqm warehouses on the outskirts of Sydney
- a 17-floor student hostel in Melbourne
- a high-rise office in Darwin
- the Government agency office building in Canberra
- a heritage-listed Wotso WorkSpace in Sydney Harbour National Park

MOBILECORP

OUR IBC SERVICES

Experts you can count on

Site Assessment

We assess the viability of your site address for 5G or LTE.

Determine the optimal location for external antenna positioning, the bill of materials required, and the cost of installation.

Solution Architecture

Fit-for-purpose In-Building Coverage solution design by MobileCorp certified CEL-FI Enterprise engineers.

Providing you with network diagrams ready for installation.

On-Site Installation

We optimise your signal strength by deploying a professional installation by certified technicians.

We add high gain antennas and high performance cabling. Weatherproof and secure.

CEL-FI Hardware Selection

We ensure you have the best hardware for the job and CEL-FI is not only the best hardware but the only hardware approved for use in Australia.

MobileCorp is a Nexitvity-certified partner and can advise your hardware selection.

Proof of Concept

Tried and tested.

Before going 'all in', pick a representative location and we will help you to set up a PoC.. This will give you all you need to quantify ROI and prepare a business case.

'Wave' Cloud management

We configure the *Wave* application so that you can test, optimise and monitor your connectivity.

Our certified CEL-FI engineers will enrol your devices in *Wave* and train your people..

Remediations and Upgrades

The arrival of 5G and the release of 5G-native smart signal repeaters has expanded the use cases for In-building coverage.

It has also introduced new fit-for-purpose upgrades to existing solutions.

MobileCorp Managed Service

Outsource your IBC network management, device performance, and signal optimisation to the experts.

Australian service desk. Remote troubleshooting and on-site support as required.

DEPLOYING AN IN-BUILDING SOLUTION WITH MOBILECORP

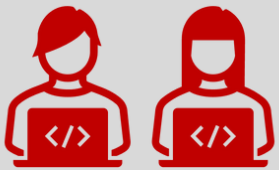
MobileCorp offers an end-to-end IBC deployment service. We proactively project manage your deployment to ensure a seamless installation. At every stage, our experienced technicians are hands-on and obsessed with achieving the best results.

Step 1. Site Assessment

MobileCorp will attend onsite to determine the viability of an in-building coverage solution.
This includes identifying barriers to success, testing signal throughput, and determining the optimal cell tower and antenna placement.

Step 2. Solution Architecture

MobileCorp will design and map out your solution architecture.
A written Proposal with detailed network diagram, bill of materials, installation timeline, and itemised quotation will be prepared.



Step 3. Installation

MobileCorp certified radio engineers will deploy your solution onsite including rooftop antenna installation, cabling, repeater positioning, internal antenna cabling and installation, and testing.

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Step 4. Managed Service

MobileCorp will set up your Wave application and register your CEL-FI devices with the ACMA. Our optional managed service will proactively monitor your connectivity, push firmware updates, navigate cell tower changes, and provide a technical service desk to manage remote and onsite troubleshooting.

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CEL-FI BY NEXTIVITY

MobileCorp deploys In-Building Coverage solutions based on CEL-FI hardware and software products by Nextivity.

NEXTIVITY
Smarter by Design

Why CEL-FI?

CEL-FI products by Nextivity are the only mobile signal repeaters that are legally approved for use in Australia. They are approved for use with all Australian carriers and globally with more than 200 network operators in over 100 countries.

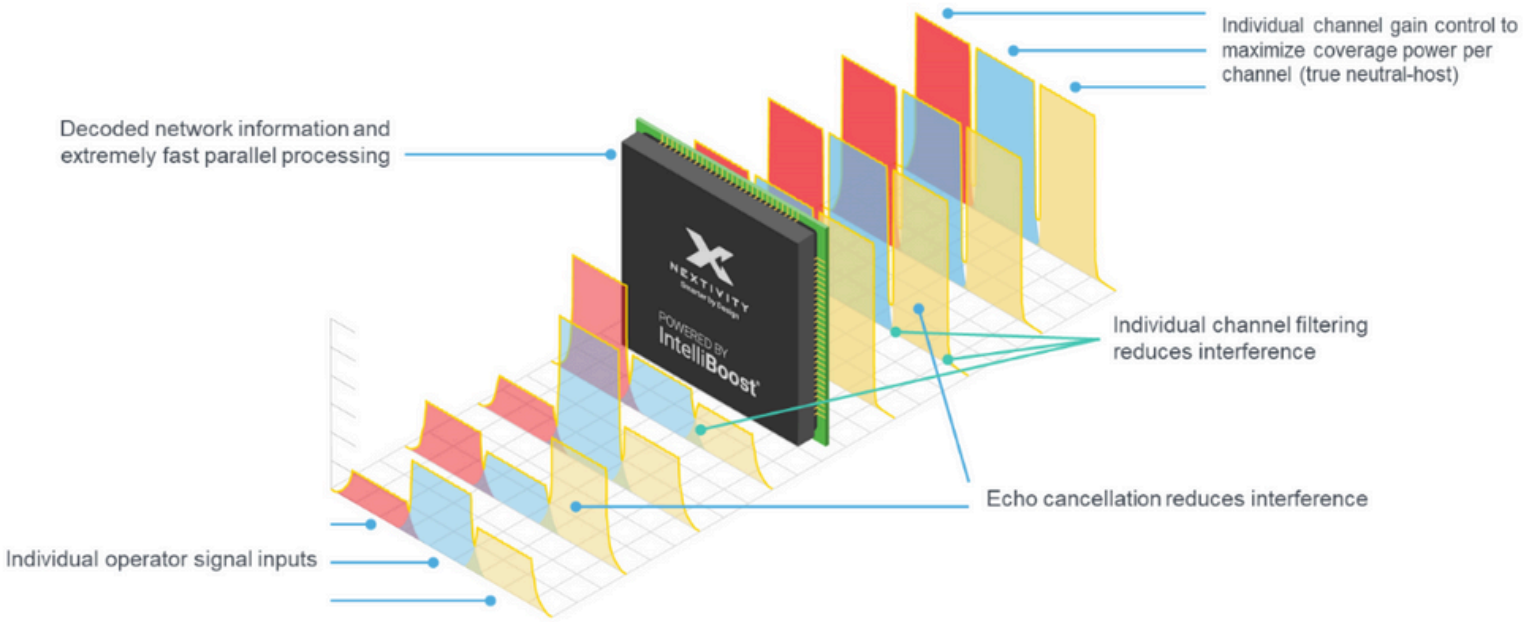
CEL-Fi repeaters are unconditionally network safe. It is illegal to use any repeater that is not approved by the ACMA.

acma
Australian Communications and Media Authority

How do CEL-FI solutions work?

Nextivity's CEL-FI products are built upon the revolutionary IntelliBoost® processor and WAVE software. The IntelliBoost® proprietary chips used in Nextivity CEL-FI cellular coverage solutions provide smart, real-time processing and include multiple patented designs and processes.

The performance of CEL-FI products is unmatched in the industry, CEL-FI devices deliver industry-leading signal gain with 3x the coverage footprint for voice and data.



CEL-FI HARDWARE

CEL-FI is onto its 4th generation of its proprietary IntelliBoost chip which drives its position as the world's leading In-building Coverage solution provider.

CEL-FI GO G51

5G In-Building Coverage just got real! The CEL-FI GO 51 is the world's first 5G-native intelligent signal booster. Compatible with all Australian carrier 5G networks, the G51 can deliver Max Signal Gain of up to 100 dB - 1000x stronger - at stationary sites; and up to 70 dB or 700x stronger for vehicles.

Data Sheet ⟶

CEL-FI QUATRA 4000E

Launched in Australia in mid-2024, the Quatra is a massive leap in cellular signal repeater architecture offering an affordable, all-digital Active DAS Hybrid. The Quatra is designed to amplify up to four carriers simultaneously from the one network unit. This has the potential to reduce both hardware and installation costs.

Data Sheet ⟶

Model	GO G41	GO G51	QUATRA 4000e	ROAM R41 (Vehicle)
Products				
Coverage	4G/5G TDD and FDD	Mid-band 5G NR and 4G	4G/5G	4G/5G
Carrier Switching	Yes (single carrier at a time)	Yes (single carrier at a time)	No, as it's a Multi-Operator Solution	Yes (single carrier at a time)
Max Gain	Up to 100dB	Up to 100dB	Up to 100dB	Up to 100dB
Monitoring and management	Yes	Yes	Yes	Yes
Carrier approvals	Not needed	Not needed	Yes	Not needed
Use Case	GO G41 is perfect for retail stores, branch offices, and large residences	GO G51 is perfect for small-to medium sized buildings, garages, IoT and M2M coverage	larger spaces ~12,000 sqm. Multiple floors, hospitals, factories, schools,	Perfect for nomadic applications and keeps people connect on the water and the road

CEL-FI ANTENNAS

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CEL-FI's outdoor donor antennas bring the power of the macro network indoors (off air). Directional high gain antennas are able to pull signal over large distances (60km+) where clear Line of Sight is able to be obtained. Best used in remote locations or where signal source location is known. Omni outdoor antenna are for use when clear LoS cannot be established but signal exists, or for ease of installation in suburban/regional environments. Pulls signal from 360˚.

CEL-FI's indoor server antennas distribute the signal amplified by the Cel-Fi GO repeater. The majority of internal antennas are wideband meaning they encompass all currently available bands in Australia - 3G, 4G & 4GX- and are 5G-ready.

CEL-FI WIDEBAND DIRECTIONAL ANTENNA

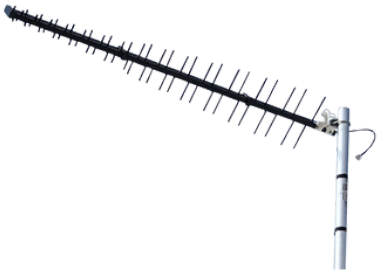
The CEL-FI Wideband Directional Antenna is an outdoor vertically polarised directional antenna; with 10dB gain in the low bands and 11dB gain in the high bands.

Data Sheet ⟶

CEL-FI OUTDOOR LPDA-R ANTENNA

The CEL-FI LPDA-R Antenna offers a powerful 12 to 14 dBi gain (depending on carrier frequency) over 617–4000 MHz and is designed to reduce out of band noise, to improve SiNR and overall signal quality.

Data Sheet ⟶



CEL-FI INDOOR OMNI DOME ANTENNA

The CEL-FI Indoor Omni Dome Antenna is ceiling mounted and receives and transmits signal in a 360˚ pattern. Compatible with the 698 – 2700 MHz frequency ranges that include 3G, 4G and 5G signals. It is ideal for offices and home environments.

Data Sheet ⟶

CEL-FI WIDEBAND PANEL ANTENNA

The CEL-FI Wideband Panel Antenna is an indoor/outdoor cellular wideband directional antenna with 6 dB gain in the low bands and 10 dB gain in the high bands. Able to be wall-mounted,

Data Sheet ⟶

MOBILECORP CASE STUDIES

DON'T TAKE OUR WORD FOR IT. ASK TO SPEAK TO CUSTOMERS WE HAVE SERVED.

Wotso WorkSpace, North Head Sydney

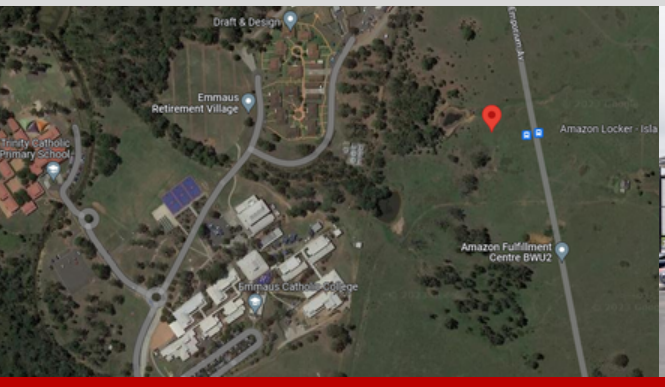
The new Wotso WorkSpace at Sydney's North Head Sanctuary was in a mobile dead zone with zero cell signal available anywhere inside its two heritage buildings. It was not even possible to get a signal outside the buildings. Tradies renovating the site had to use handheld radios to communicate and to make a voice call they had to walk 20 metres up the road. MobileCorp delivered a strong and stable 4G and 5G signal capable of accommodating voice traffic for up to 200 people and reducing the traffic load on the wired fibre network.

Case Study

Xylem Warehouse, Kemps Creek Sydney

The new Xylem warehouse at Kemps Creek on Sydney's western fringe was a greenfield site - literally! The new build is 10,000sqft or about the size of ten football fields and the warehouse footprint extends below ground with a pit for immersive water pump testing. While there was a reasonable 4G signal around the building, the signal on the warehouse floor, underneath the delivery bay awning, and inside the two-storey office alongside the warehouse was patchy and unreliable. MobileCorp deployed a complex CEL-FI GO G41 smart repeater solution which has delivered viable mobile connectivity across the site, boosting protectivity, workplace safety, and employee satisfaction.

Ask for a Xylem reference,



4 OUTCOMES OF MOBILECORP MANAGED SERVICES

SLEEP EASIER - RISK MANAGED

Corporate responsibility demands that communications technologies are audited, managed, and secured rigorously. MobileCorp managed services are delivered with responsive SLAs, responsible oversight, and regular reporting.

HAPPY HUMANS - PRODUCTIVITY PROTECTED

Downtime and disconnected employees are a disaster for any organisation. We offer the reassurance that comes from having one point of contact for all your ICT and IT-related concerns. We provide the tools and the expertise, and we prioritise your people.

READY FOR ANYTHING - SCALE UP & DOWN

The constant rate of change means being agile- able to scale up or down - is critical for growth. MobileCorp solutions are future-facing and our service and attitude is flexible and responsive.

WEIGHT LIFTED - IT UNBURDENED

The beauty of having a MobileCorp managed service is the ability to free up your internal IT resource to concentrate of core business and communications strategy. We provide an extra pair of hands for lean IT teams and we complement your capabilities with our specialist engineers.

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