

THE CONNECTED FIREFIGHTER: Critical Communications for the 21st Century Firefighter

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Operational Communications
Fire and Rescue NSW



What is a Connected Firefighter?

FRNSW Commissioner Paul Baxter and Emergency Services Minister David Elliott launched Connected Firefighter at the ESA on Friday, 15 October 2021.



It is FRNSW's component of a NSW Government interagency initiative in response to recent operational experiences, including the 2019-20 bushfires.



The Connected Firefighter program is an investment in IT systems delivering leading-edge communication technologies to help keep our firefighters and community safe.



Upgraded hardware and new technologies will give firefighters access to 'best-in-class' communications.



Nine new or upgraded communication technologies will be rolled out during 2021-2023.



Connected Firefighter



A Mobile Technology initiative designed to:



Enhance

field-based mission-critical voice communications

Establish

field-based mission-critical data communications

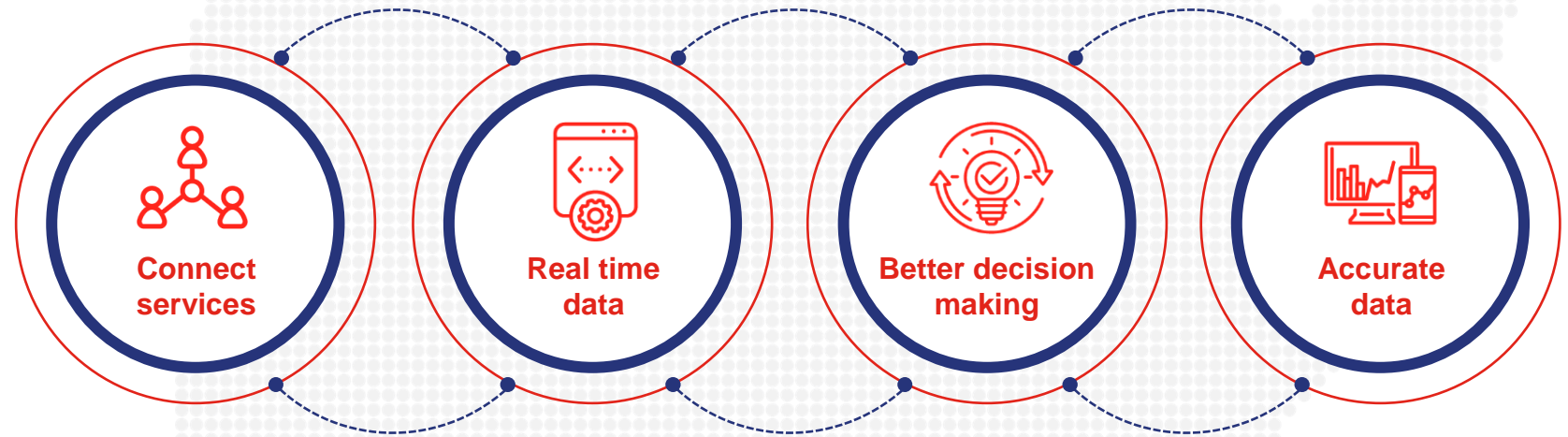
Provide

better mobile information access to individual commanders and firefighters



Why?

These technology advancements will:



keep us safe by being able to connect with each other, other emergency services agencies, and the community during major incidents

deliver access to real time data to improve situational awareness

facilitate better decision-making and information sharing, enhancing our preparedness

provide instant access to accurate data

PREPARED FOR ANYTHING



Benefits

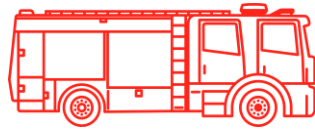
Increased collaboration & connection with emergency services agencies & the community



Vehicle Radio Replacement
Provides access to the expanded Public Safety Network (PSN) & the upcoming VaaN comms technology.



Mobile data terminals (MDT) rollout
Provides access to incident response coordination

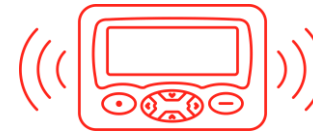


Vehicle as a node (VaaN)
Provides radio, 4G & satellite “fail-over” options during comms network outages. Wi-Fi hub to provide personnel with connection to vehicle comms options.



Cell on wheels (cows)
Provides radio, 4G and satellite comms options when infrastructure is down for extended periods. The “Mesh” devices will extend radio comms into areas where coverage is usually impaired (e.g. buildings, tunnels & ships).

Portable radio replacement
Provides access to the expanded Public Safety Network (PSN) & the upcoming VaaN comms technologies.



Two way pagers
Provides two-way paging & 4G options for improved callout & response notifications



Benefits to FRNSW

Connected firefighters are safer & more effective



- Using the most accurate information available, this will futureproof our ability to communicate, plan, prepare, respond and learn.
- Technology projects within Connected Firefighter are chosen based on their ability to adapt and evolve with the latest technological advancements; each able to support new requirements.
- Embracing cutting edge technology within emergency services helps us to stay better connected before, during, and after incidents.



Firefighters

- Improved communications using 4G and satellite SmartConnect technology
- New appliance communication bugs with wi-fi to maintain communications;



Management Teams & Operational Comms

- Consistent and reliable communication
- Real time information improving situational awareness, decision making and support



Fleet Management Unit

- Remote device upgrade(s)
- Proactive vehicle maintenance and support



Benefits for Community

Connected firefighters are safer, and more effective



Community

- More coordinated and timely responses.
- Earlier access to information and communications in times of major emergencies.

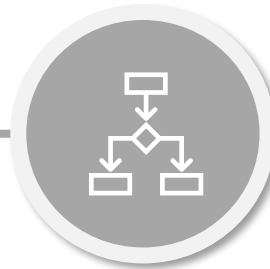


Other emergency services

- Increased collaboration and connection with emergency services agencies and the community.
- Earlier awareness, able to stay in touch and remain up to date throughout the emergency.
- Better coordinated and transparent multi-agency responses.

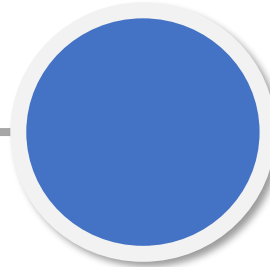


TWO-WAY PAGERS



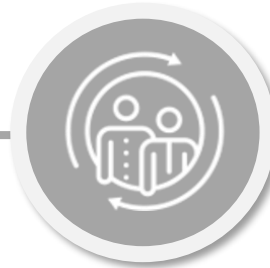
Coverage

Providing coverage across both paging and 4G networks.



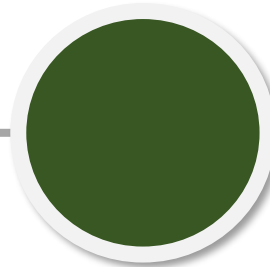
Resilience

Ensuring on-call firefighters can be notified of incidents even if one network is down or congested.



Two-way Communications

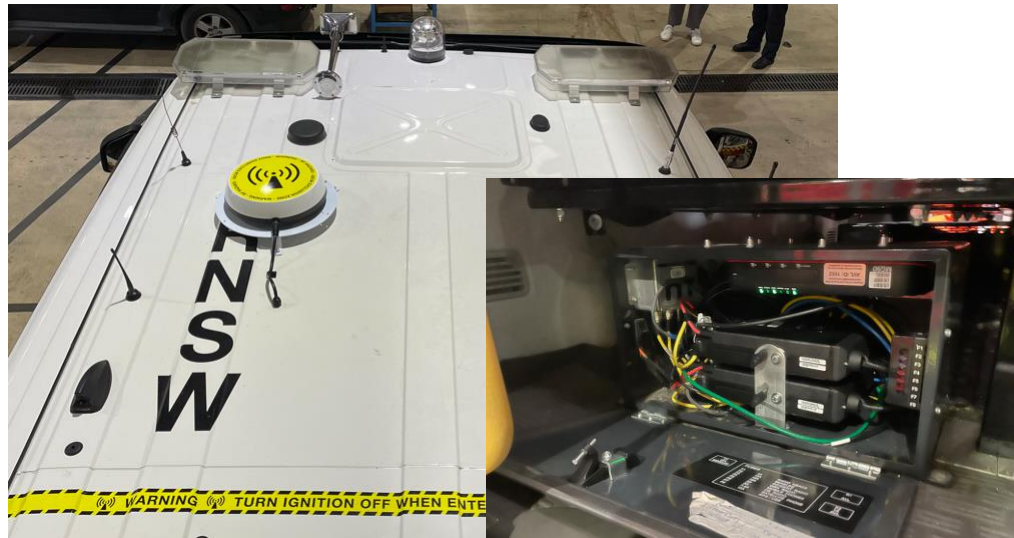
Giving our Retained (On-Call) Firefighter's the ability to acknowledge page and indicate response.



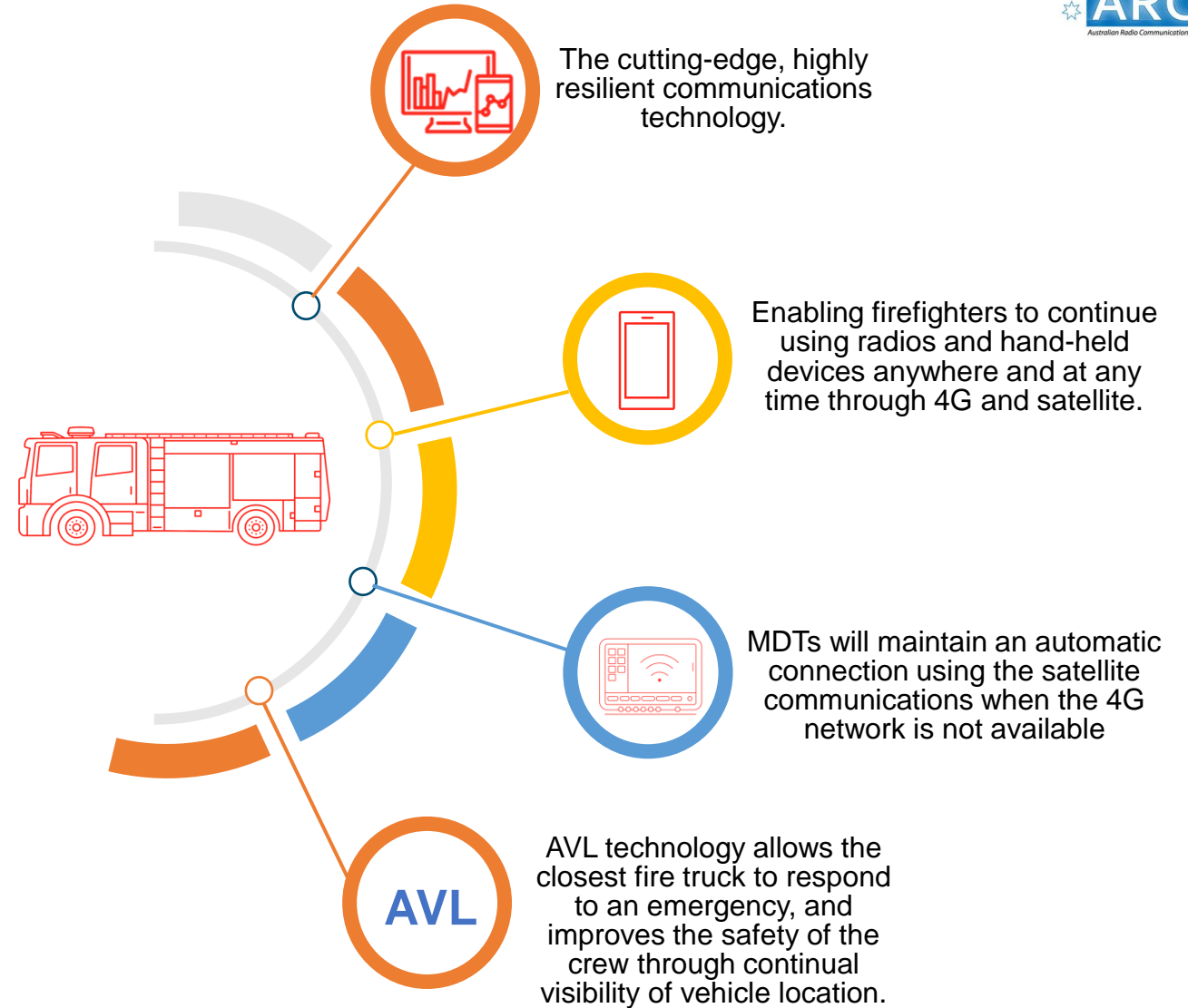
Critical Decisions

Ensuring FireCOM oversight and planning of resources.

Vehicle Communications Hub

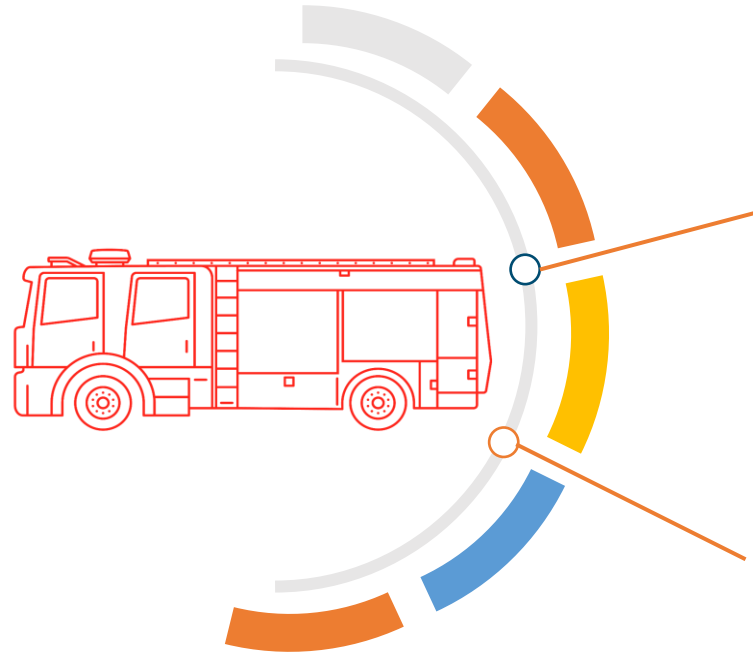


The Vehicle Communications Hub provides critical voice and data communications and upgraded Advanced Vehicle Location (AVL) technologies.



Smart Connect

Smart Connect utilises the Vehicle Communications Hub hardware to further extend coverage and capacity of mission-critical voice communications.



VEHICLE RADIOS



Able to maintain contact using 4G mobile and satellite communications when the PSN is not available.

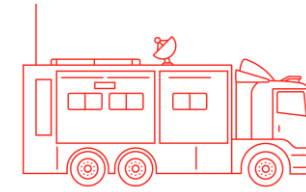
PORTABLE (HAND-HELD) RADIOS



Able to access to 4G and satellite network via the vehicle's Wi-Fi bubble and other available IP routes.



Mobile Command Centre (MCC)



Upgrades include a full replacement of IT and communications, providing Incident Management Teams (IMT) with the facilities and technology needed to direct complex activities during major emergencies and events.



Advanced technology in the MCCs provides valuable, real-time information for the critical decision-making and coordination needed for the response teams involved, often across multiple emergency services agencies.

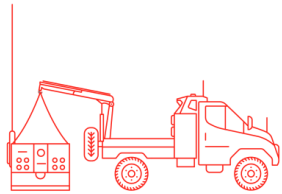


Ability to receive and share a range of information including visual (drones), voice (radio and phone) and data (from ESCAD, MDT's, and CnC) for on-site coordination and management of incident response.



Cell on Wheels (CoWs)

Utility vehicles delivering portable modules, making it possible to maintain radio communications through 4G and satellite when the PSN is not available, with an advanced antennae extending the range of connectivity, and power generators to support response teams for extended period during major incidents.



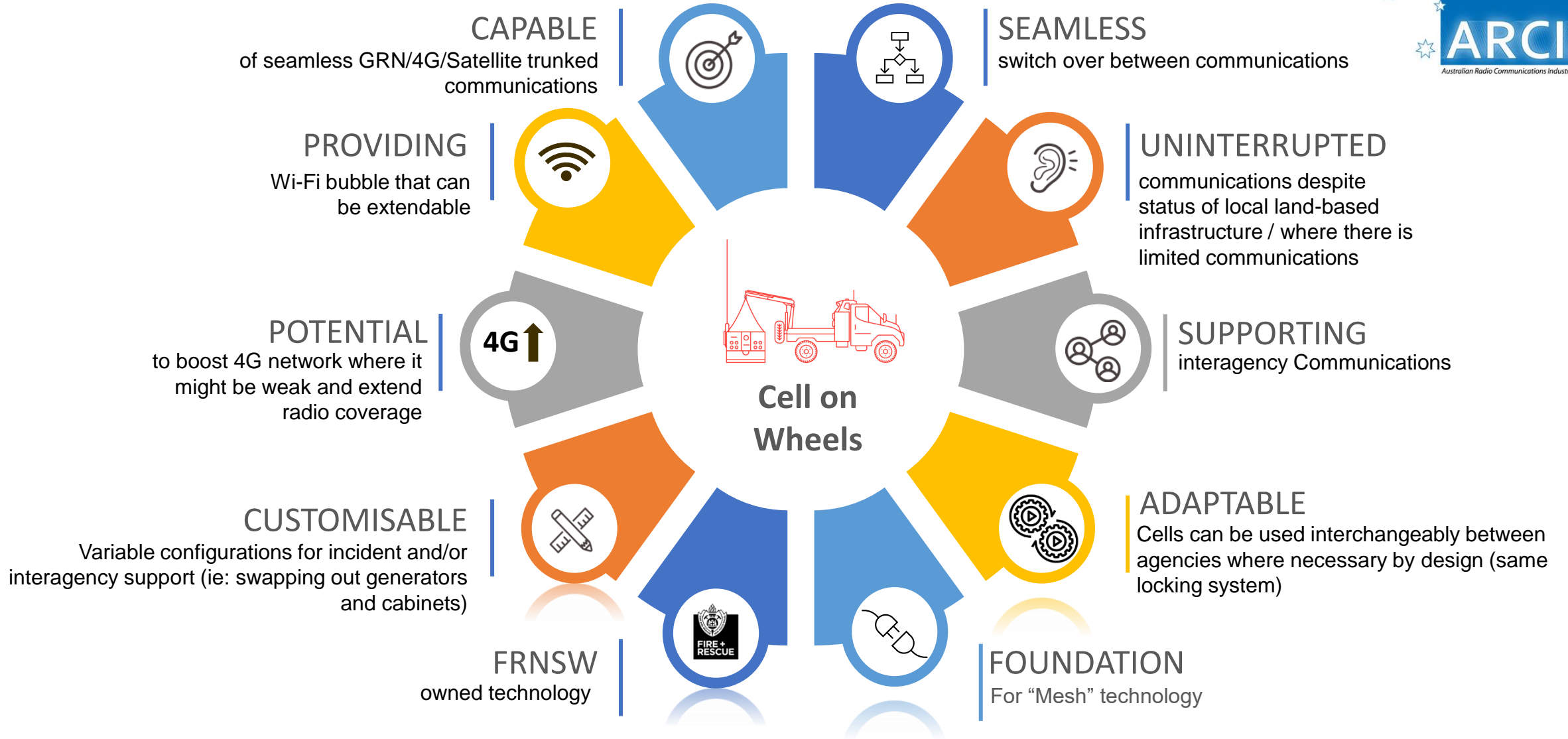
PSN RADIO CELL

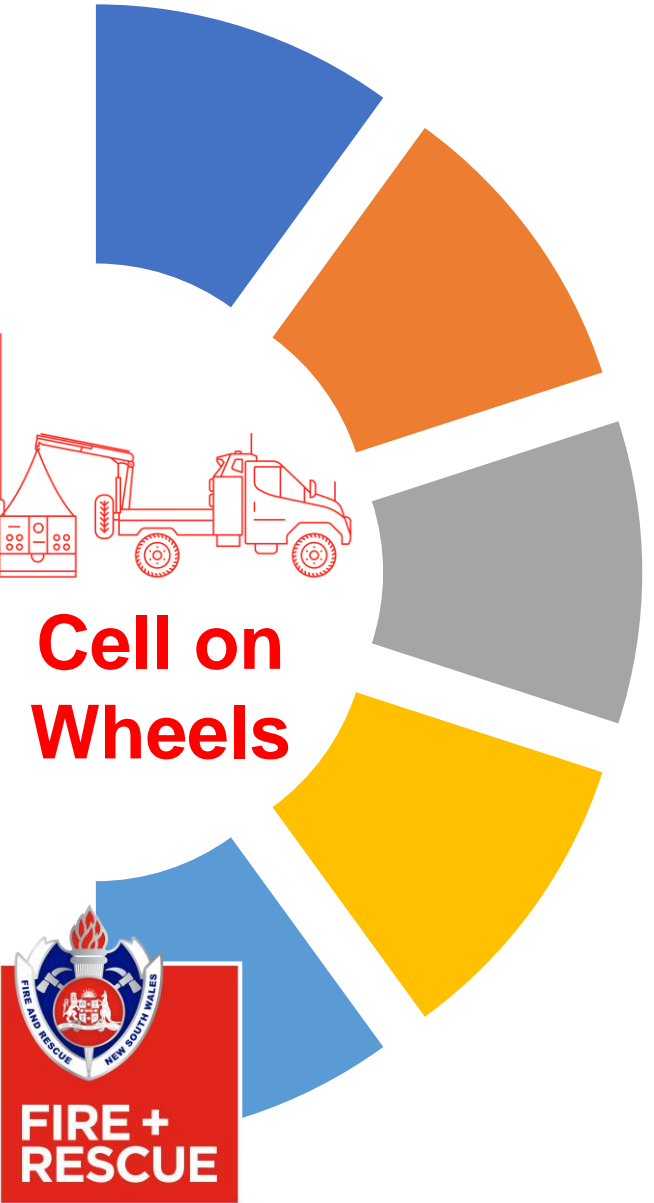
temporary radio infrastructure that provides access to the NSW Government's Public Safety Network (PSN) used for emergency services communications.

TACTICAL CELL

provides access to internet services, extended Wi-Fi and local radio repeater capability, using 4G and satellite technologies.

CoWs



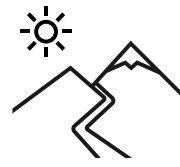
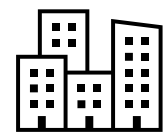


MESH TECHNOLOGY

Emerging
ground-
breaking
technology
capable of
extending
communication
deeper into
areas where
coverage is
often not
achievable...



Such as tunnels,
underground and
inside buildings.

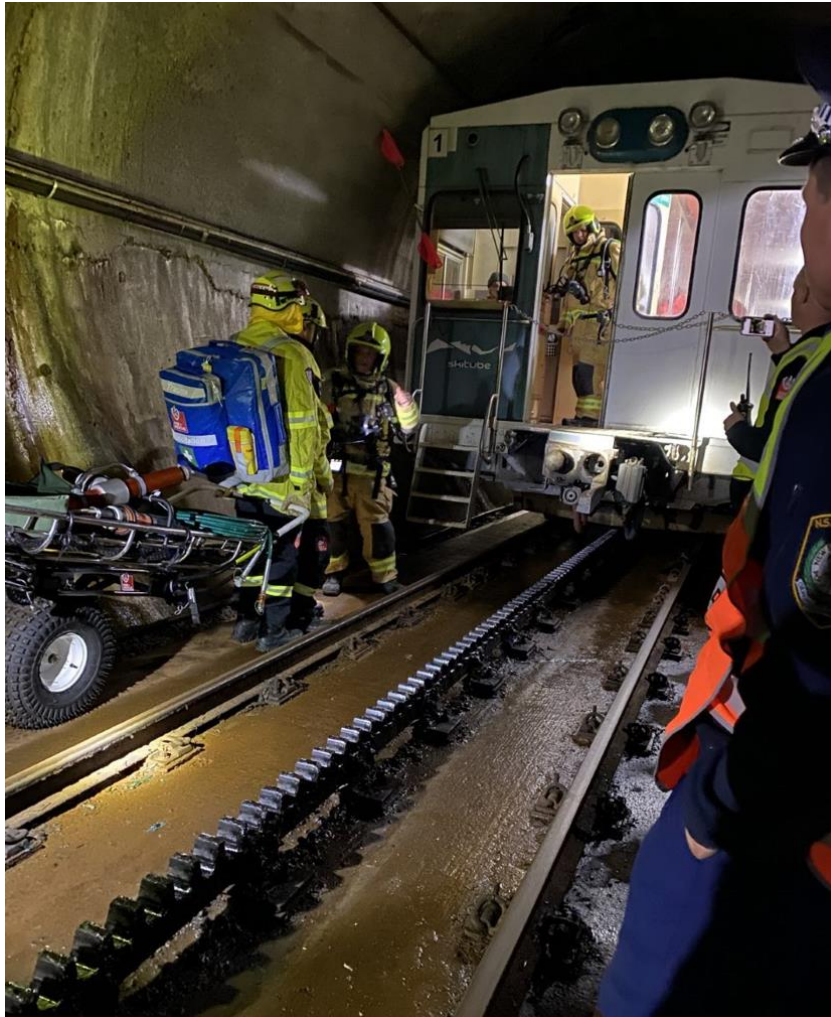


It can also be
used to
supplement
areas of limited
connectivity due
to remote
geography or
commercial
carrier failure.

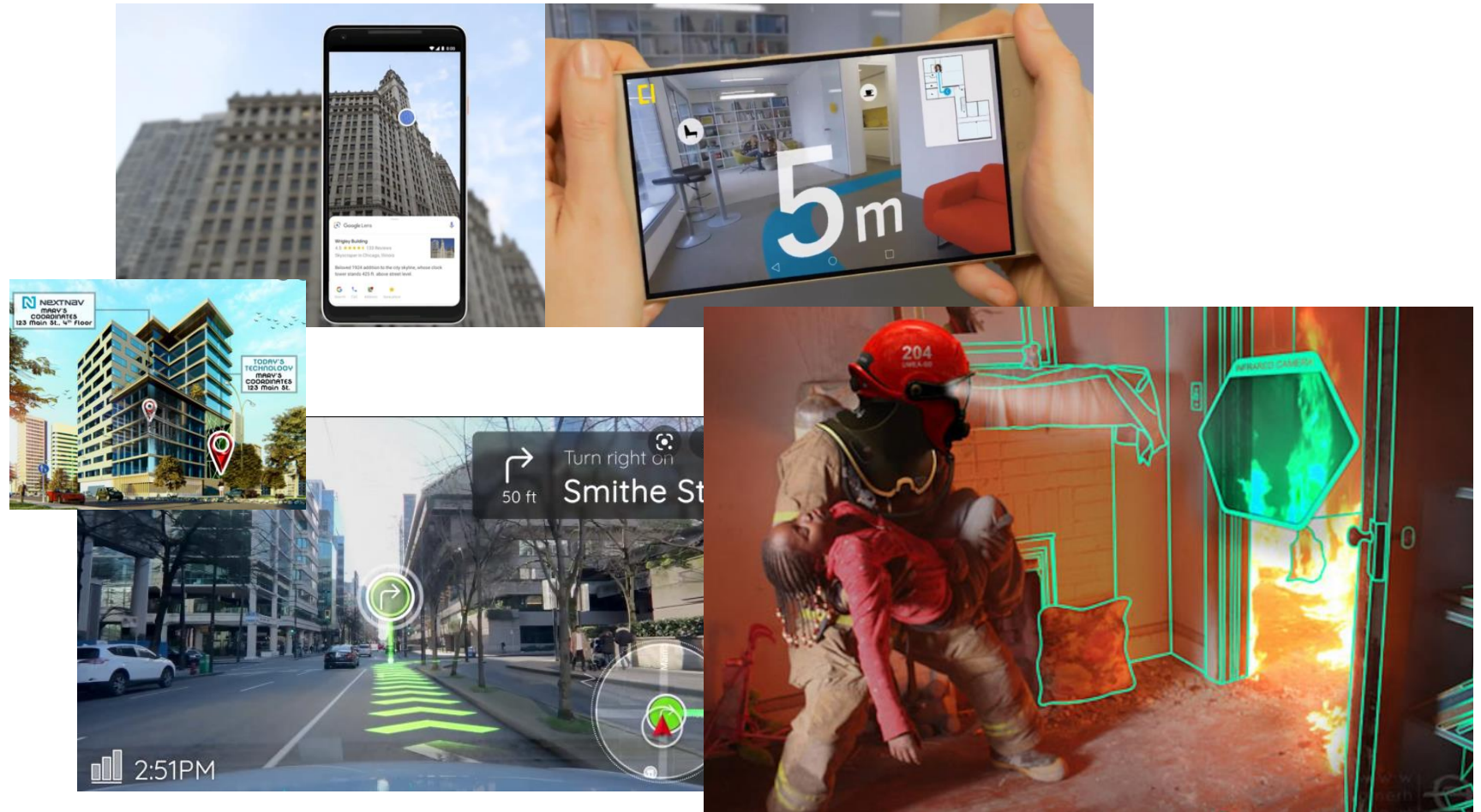


This technology
ensures
emergency
services
personnel have
the power and
communications
equipment they
need to remain
operational in
difficult
circumstances.

Mesh Communications



The Vision: The Connected Firefighter using Augmented Reality



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