crc•si Spatially Enabling Australia and New Zealand

Satellite-Based Augmentation System (SBAS) Testbed Demonstration Project Update

November 2017

43•pl

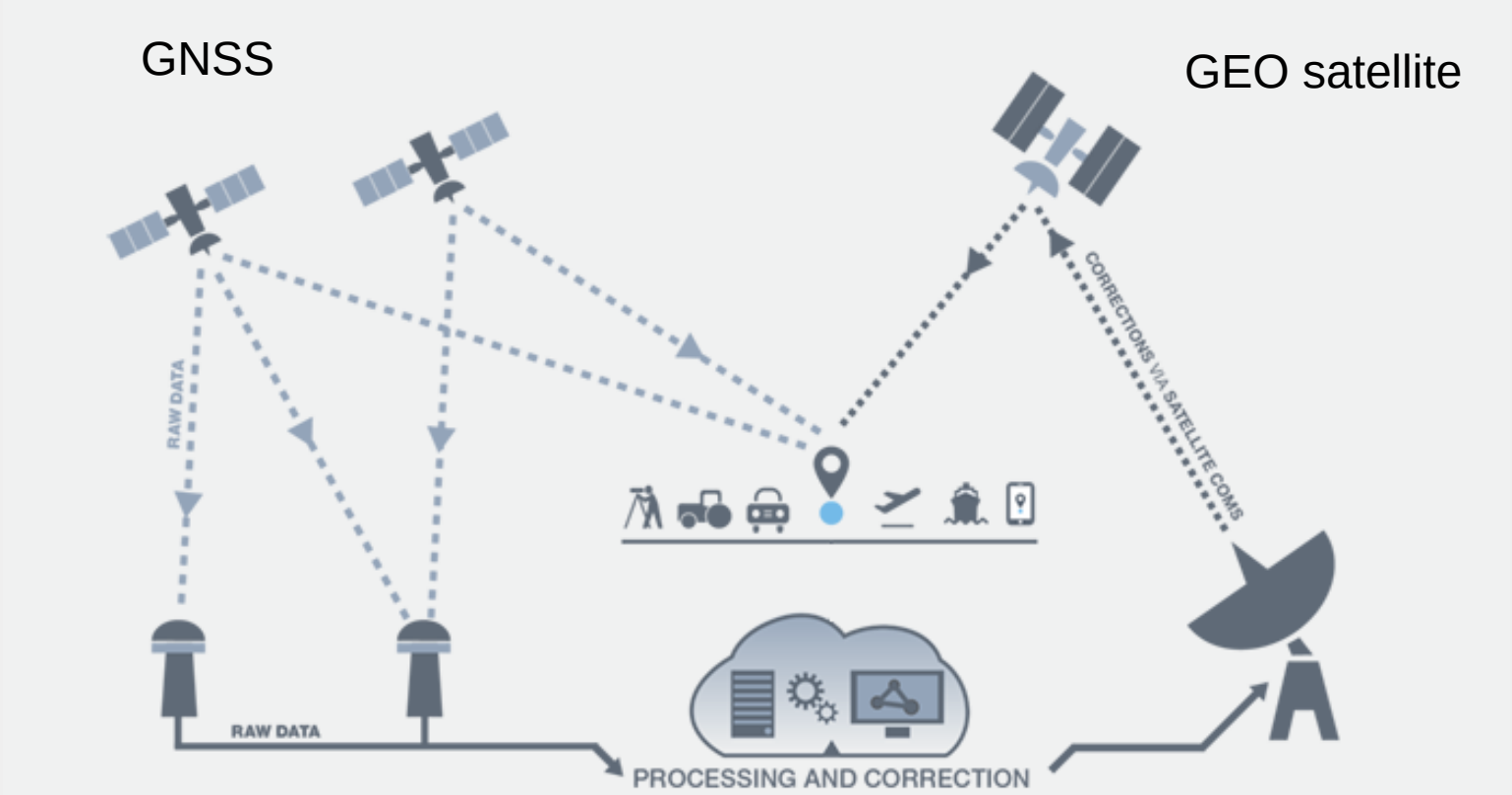
Australian Government
Department of Industry, Innovation and Science

Business Cooperative Research Centres Programme

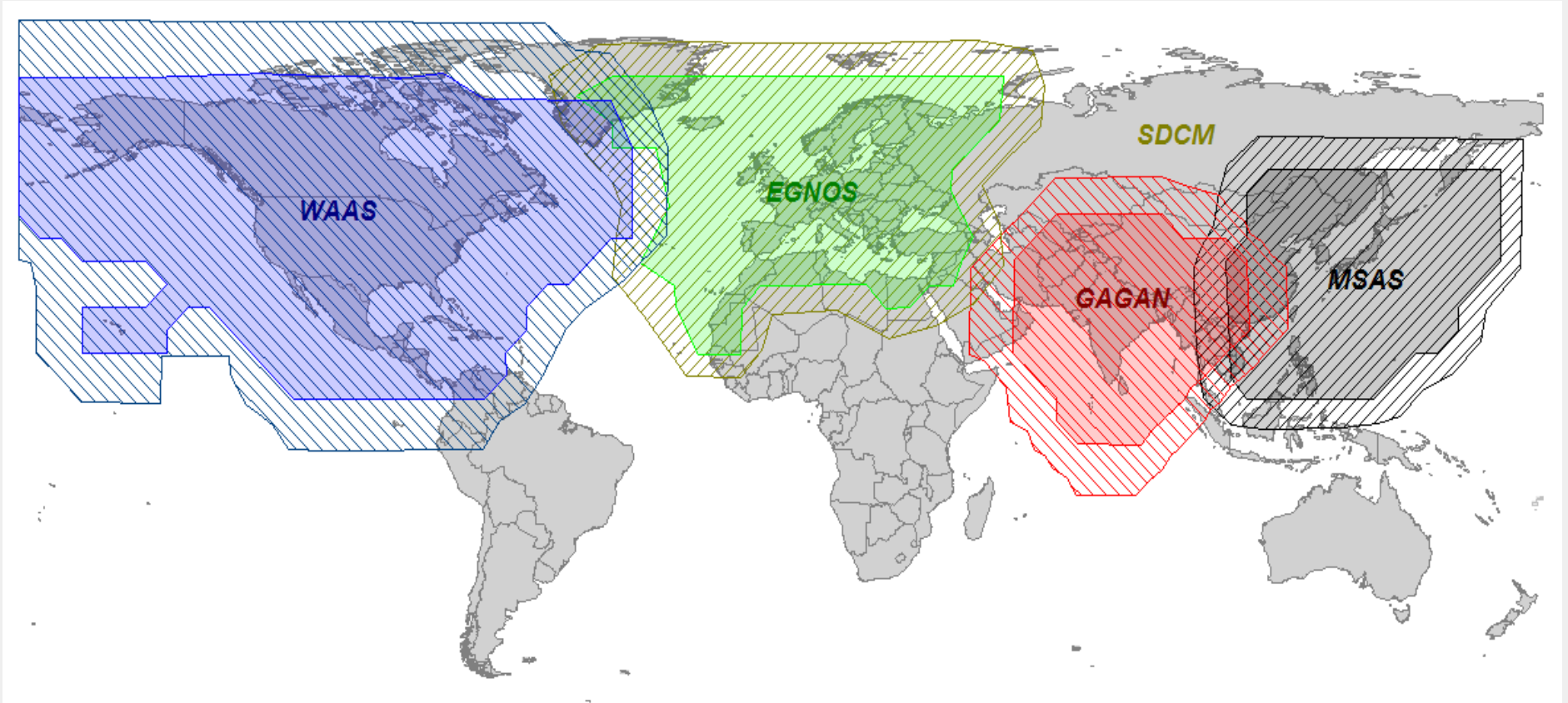
Overview

- What is SBAS?
- Why have a SBAS testbed?
- What is the SBAS testbed?
- Details on some projects
- Project hardware
- Project status
- Conclusion

What is SBAS?


GNSS
GEO satellite
RAW DATA
CORRECTIONS VIA SATELLITE COMS
RAW DATA
PROCESSING AND CORRECTION

SBAS worldwide



Why have a SBAS testbed?

- SBAS infrastructure is expensive

- **2011 Australian SBAS Report:**
- *Consideration of any future investment in SBAS would need to be a part of a whole of Government approach with the significant cost considered against potential benefits across a range of industries*

Project Background

- $14 million invested from ANZ Governments

- The project will demonstrate the potential safety, productivity, efficiency and environmental benefits of these SBAS technologies which provide more accurate positioning information across a variety of industry sectors

What is the SBAS testbed?

inmarsat
The mobile satellite company

LOCKHEED MARTIN

Land Information New Zealand
Toitū te whenua

Australian Government
Geoscience Australia

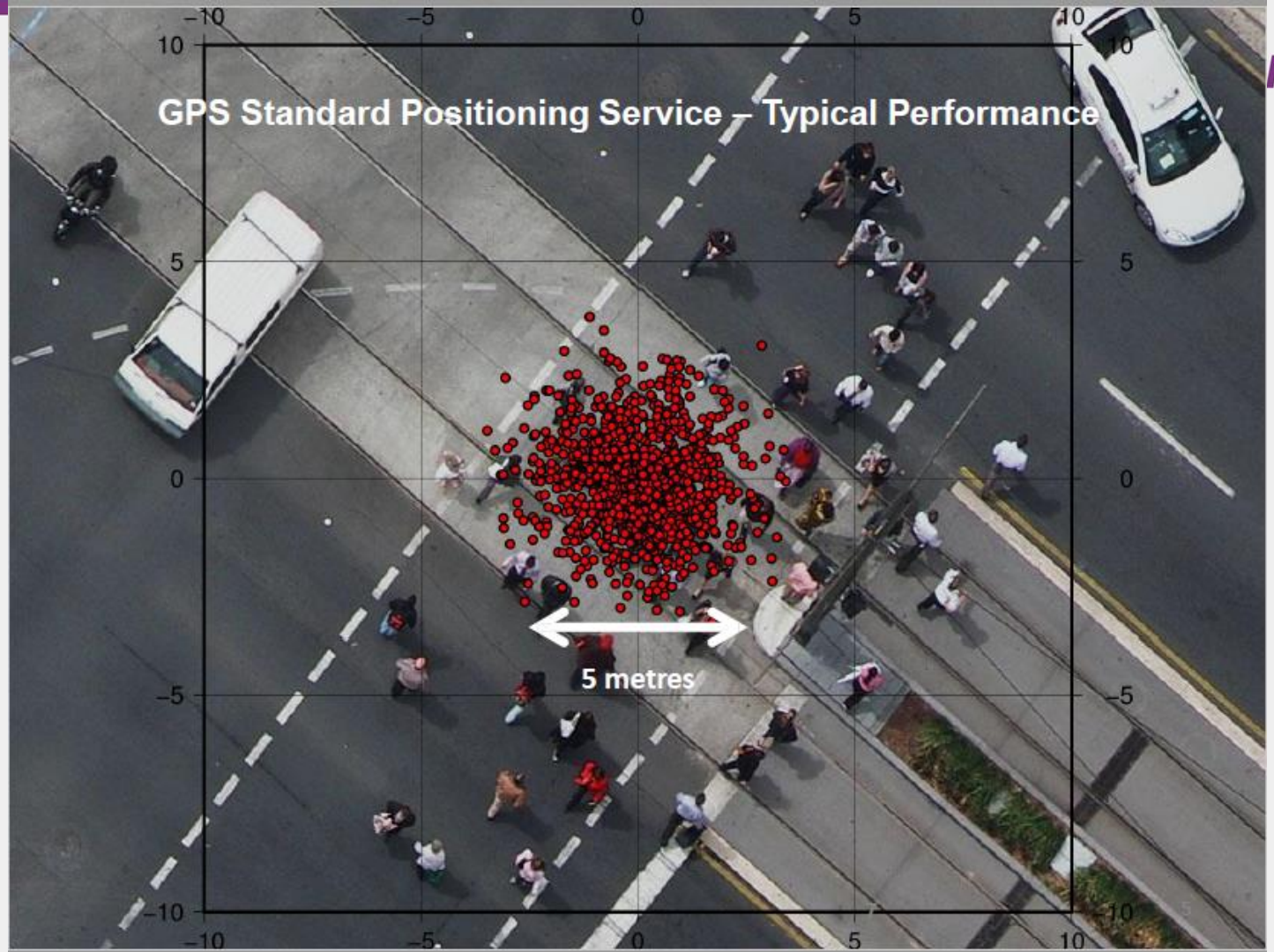
gmv
INNOVATING SOLUTIONS

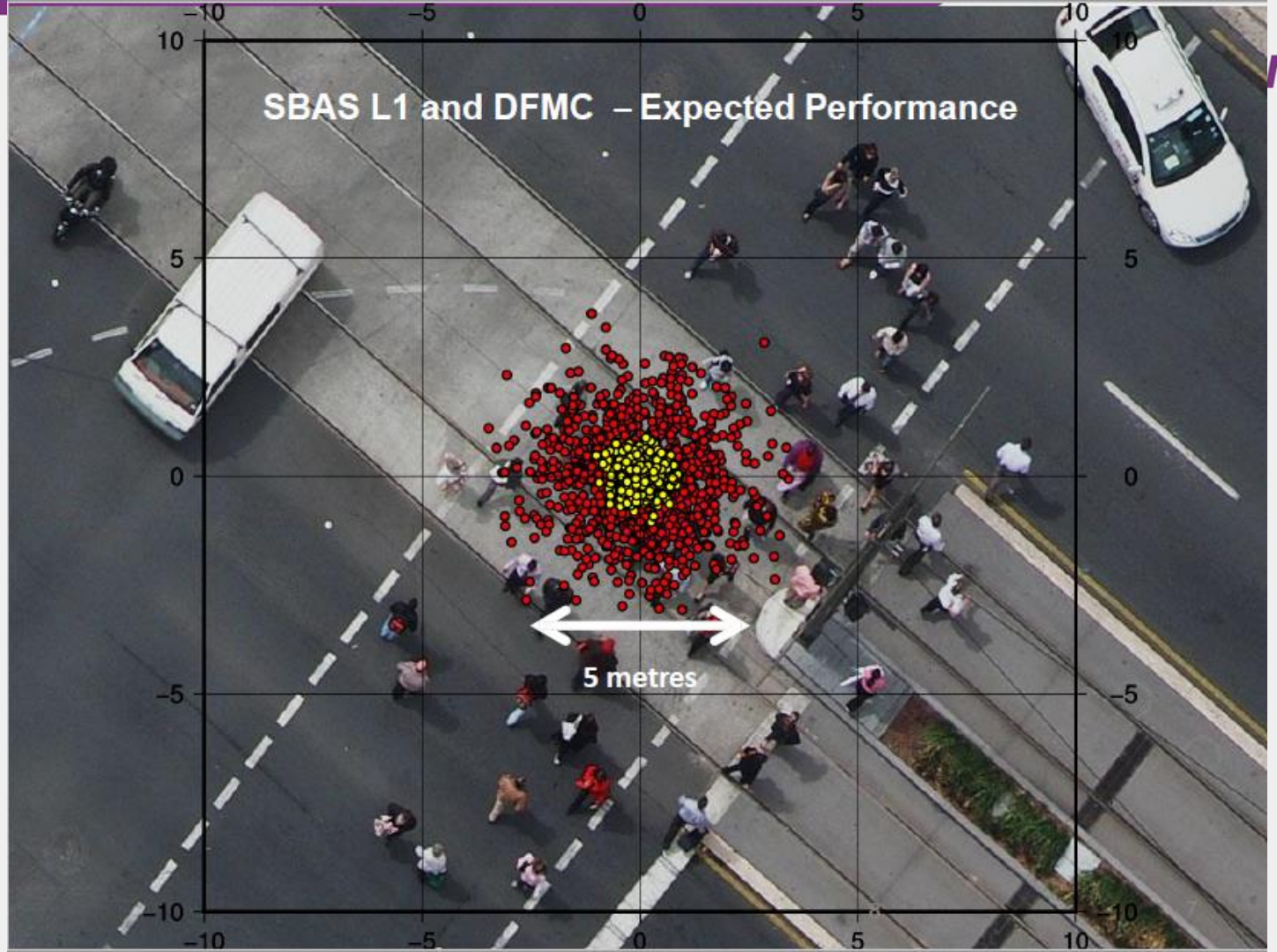
What is the SBAS testbed?

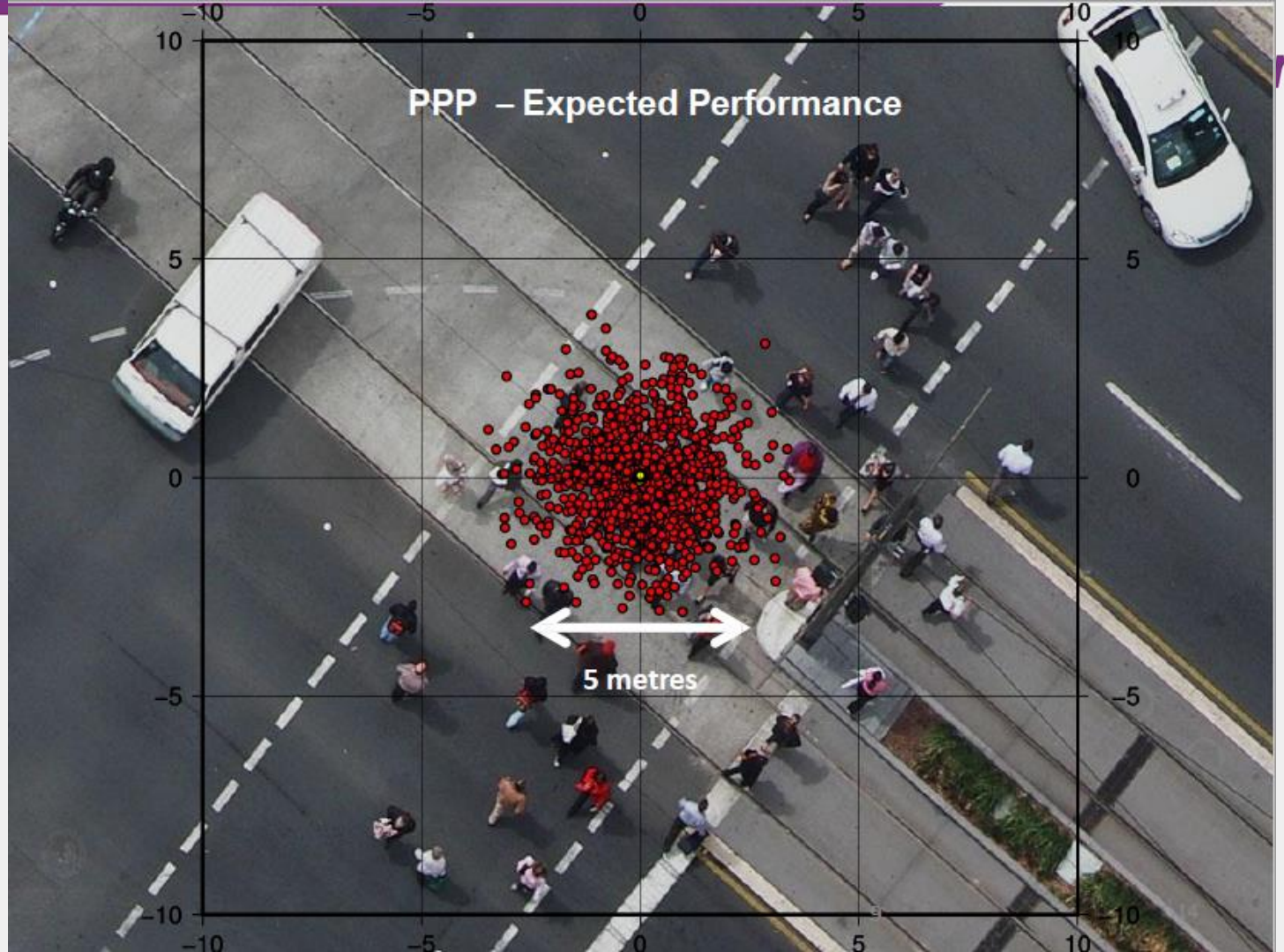
- Three different signals are being trialled:

ALL SIGNALS ARE NOW LIVE

WORLD FIRST TEST OF DFMC SBAS


GPS Standard Positioning Service – Typical Performance
5 metres
10
5
0
−5
−10
−10
−5
0
5
10

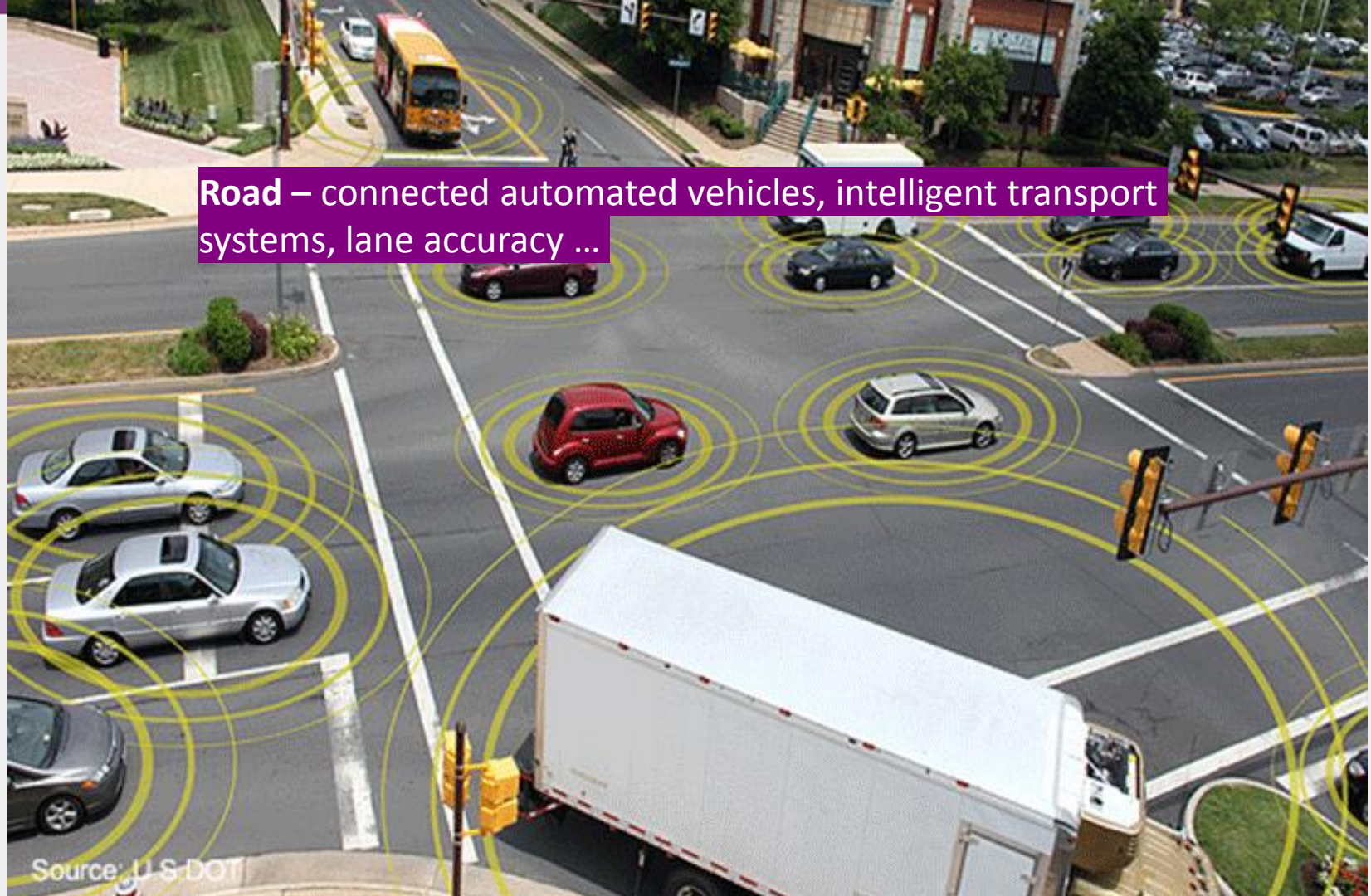

SBAS L1 and DFMC – Expected Performance
5 metres
10
5
0
−5
−10
−10
−5
0
5
10


PPP – Expected Performance
5 metres
10
5
0
−5
−10
−10
−5
0
5
10

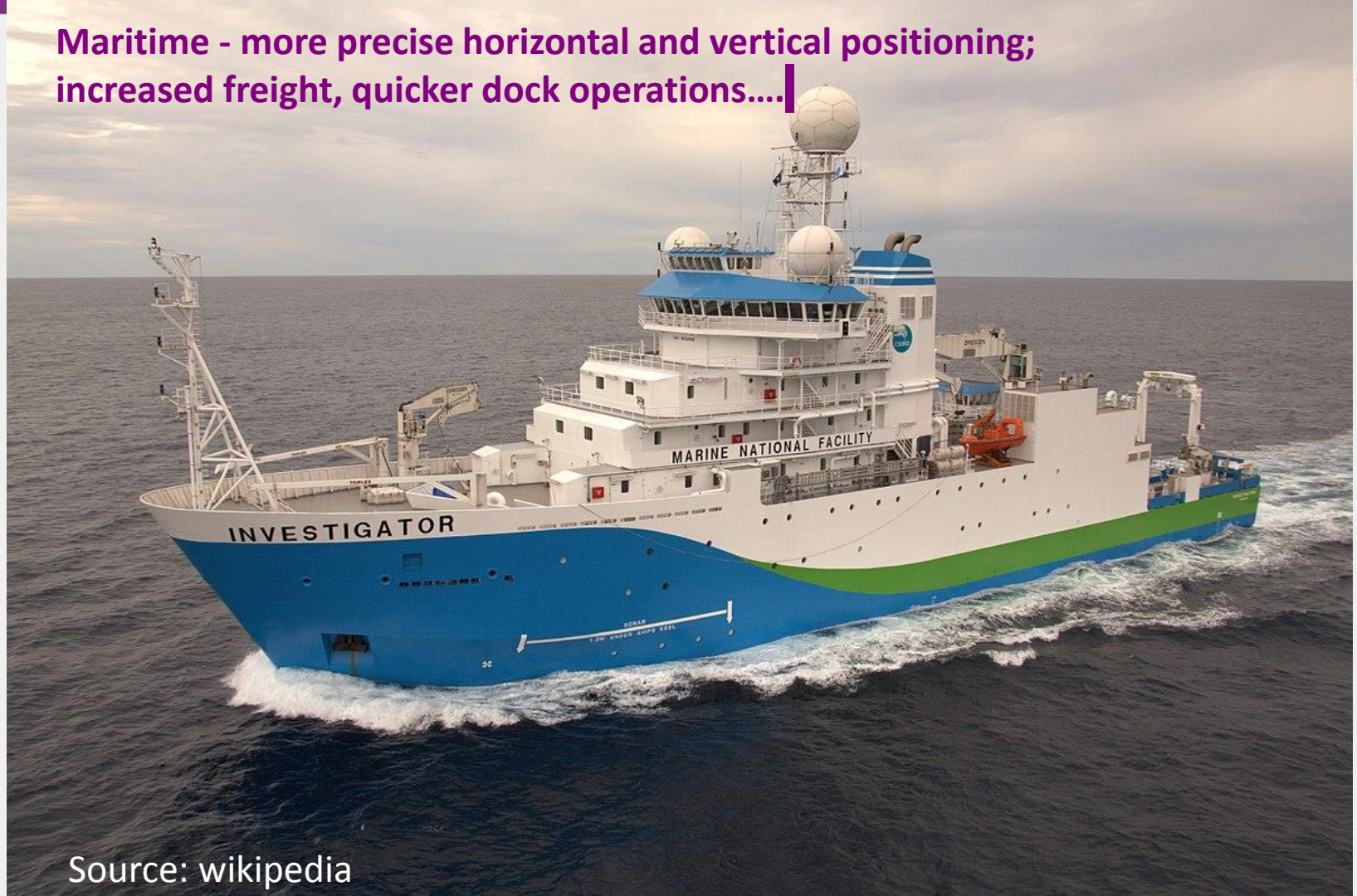
Demonstration Projects - Sectors

- Agriculture
- Spatial
- Aviation
- Construction
- Maritime
- Consumer
- Rail
- Utilities
- Resources
- Road

Agriculture – livestock tracking, precision farming and other


Road – connected automated vehicles, intelligent transport systems, lane accuracy …
Source: U.S. DOT

Maritime - more precise horizontal and vertical positioning; increased freight, quicker dock operations….



Source: wikipedia

Hardware

Now

Early 2018

Project Status

- 30 projects in work; 11 signed contracts so far
- Projects across ANZ with industry, academia and government
- Economics consultant engaged analysing the economics benefit of SBAS
- Majority of benefits will be seen in 2018

Summary

- 30+ projects in ten sectors across ANZ
- Projects and testing has started
- Significant benefits have been identified and applications will be demonstrated in projects
- Full project results expected in 1H 2019

Thank you. Questions?

For more information, contact:

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Useful SBAS project information:

www.crcsi.com.au/sbas

http://www.ga.gov.au/scientific-topics/positioning-navigation/positioning-for-the-future/satellite-based-augmentation-system/profiles