

# FIG Working Week 2016



CHRISTCHURCH, NEW ZEALAND  
2-6 May 2016

Recovery  
from disaster

*Presented at the FIG Working Week 2016,  
May 2-6, 2016 in Christchurch, New Zealand*



## Engaging Commercial RTK Network Services: Ongoing Experiences from SmartNet Australia

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Leica Geosystems – Hexagon Geosystems



# SmartNet Aus – Our Services

## SmartNet Aus is a Leica Geosystems and C.R. Kennedy Initiative

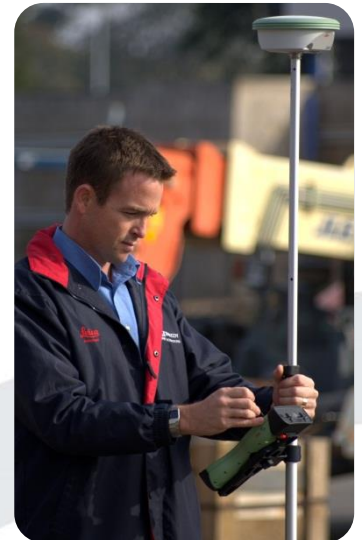
- Largest provider/facilitator of CORS services in Australia since 2009

## Community approach to establish and grow a CORS network

- 570+ CORS sites throughout Australia

## Provide GNSS CORS based services via the Internet

- Real-Time Kinematic GNSS Corrections [cm]
- Differential Code Corrections [dm]
- RINEX downloads for Post-Processing [cm]
- Goals of highest **Accuracy, Reliability** and **Availability**



- when it has to be right

**Leica**  
Geosystems



**SmartNetAus**  
Networking Australia

# Our Services

## Networked CORS corrections, not just single bases

- Offering open standard RTCM messages for greatest **interoperability**

## RTK corrections also supplied in non-proprietary formats

- Provide services to any GNSS manufacturer

## Target various Market Segments

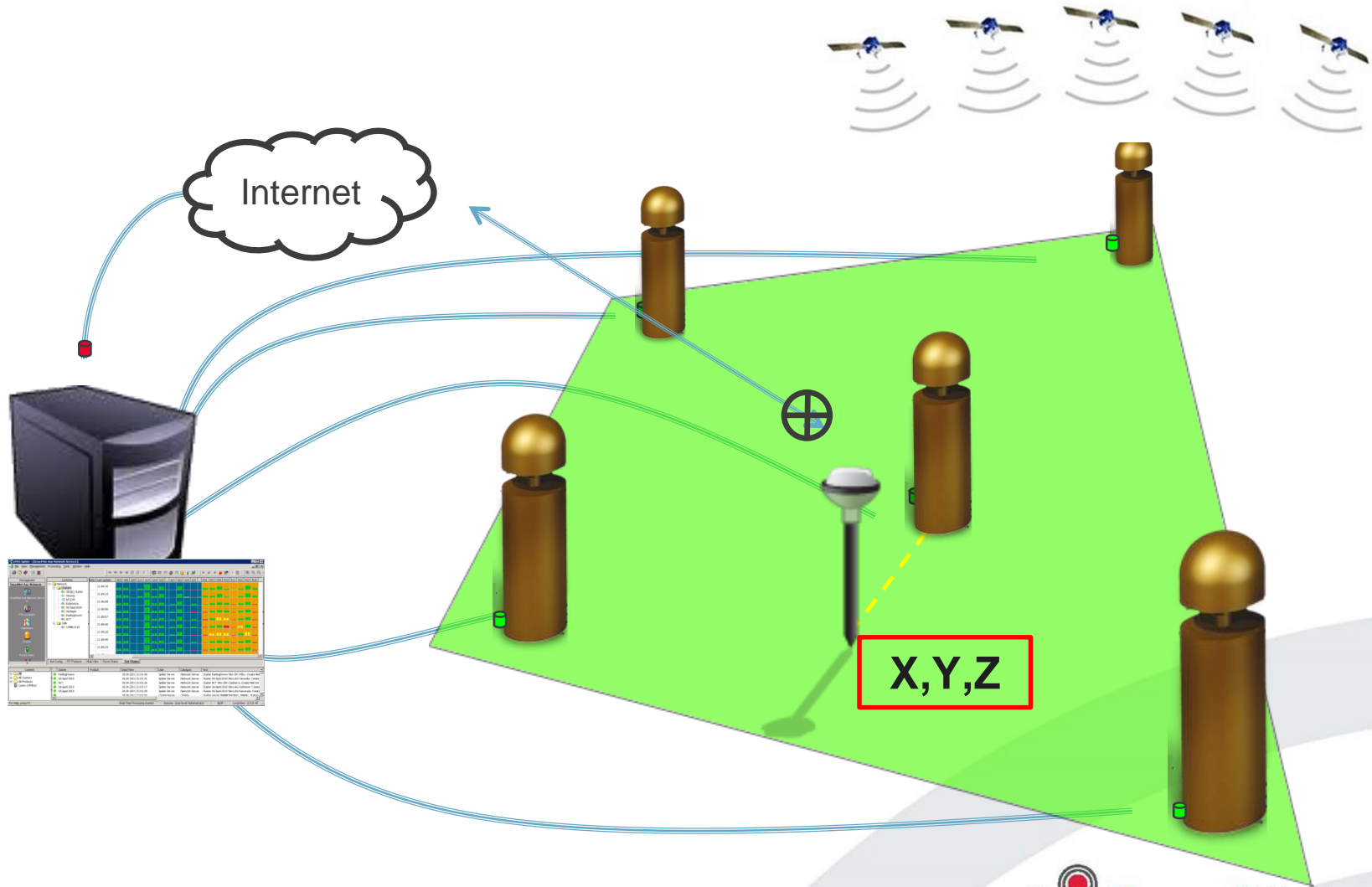
- Survey, Cadastre, Construction & Engineering
- Precision Agriculture, Machine Control & Mining
- GIS, Mapping
- UAV and Intelligent Transportation Systems (ITS)

***Anyone needing accurate GNSS positioning and timing***



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Networking Australia

# CORS Based Services Overview



# Meeting Expectations of CORS Networks



**Stakeholders**



**Surveyor**



**Distributor**

**Who?**



**Machine Operator**



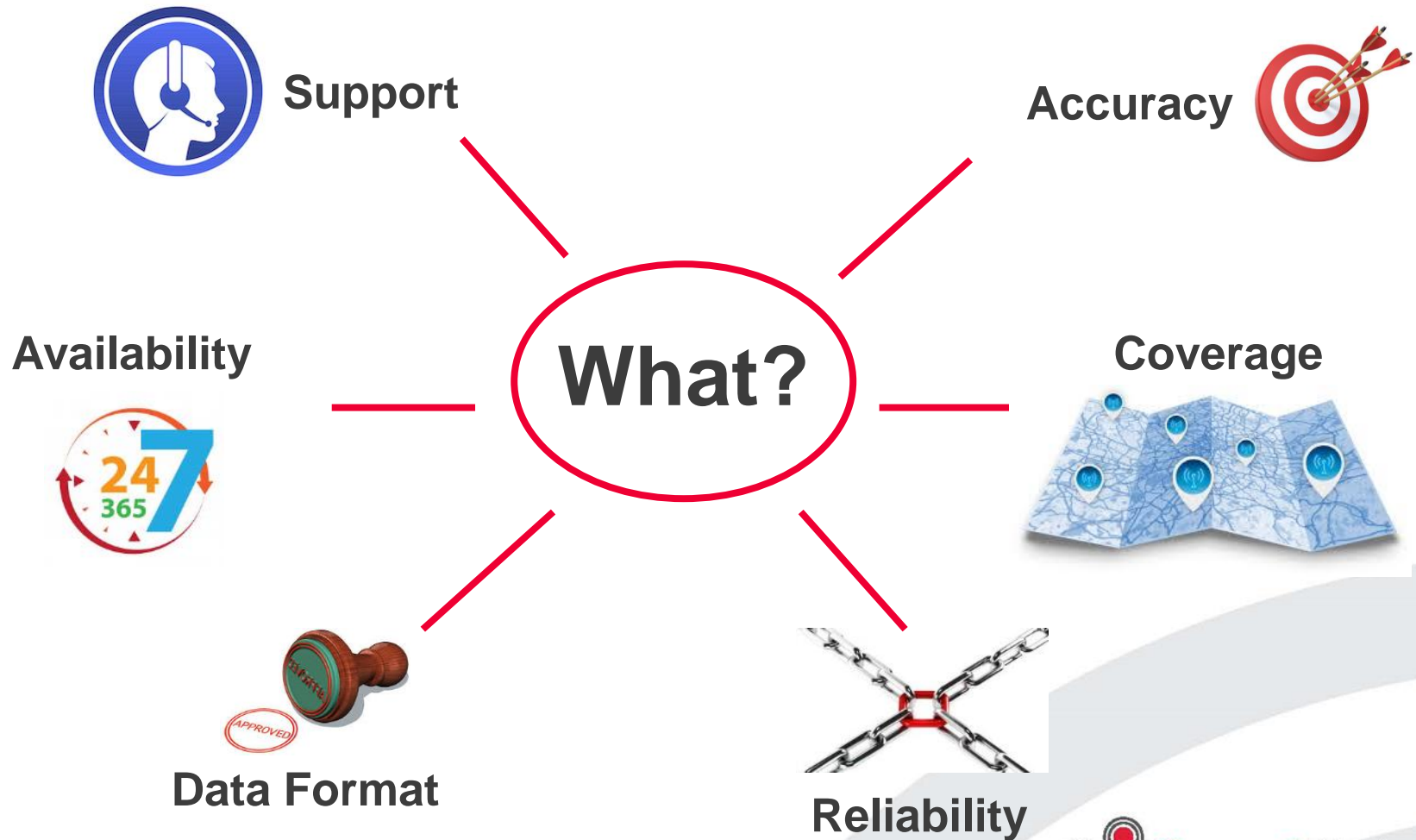
**Asset Manager**



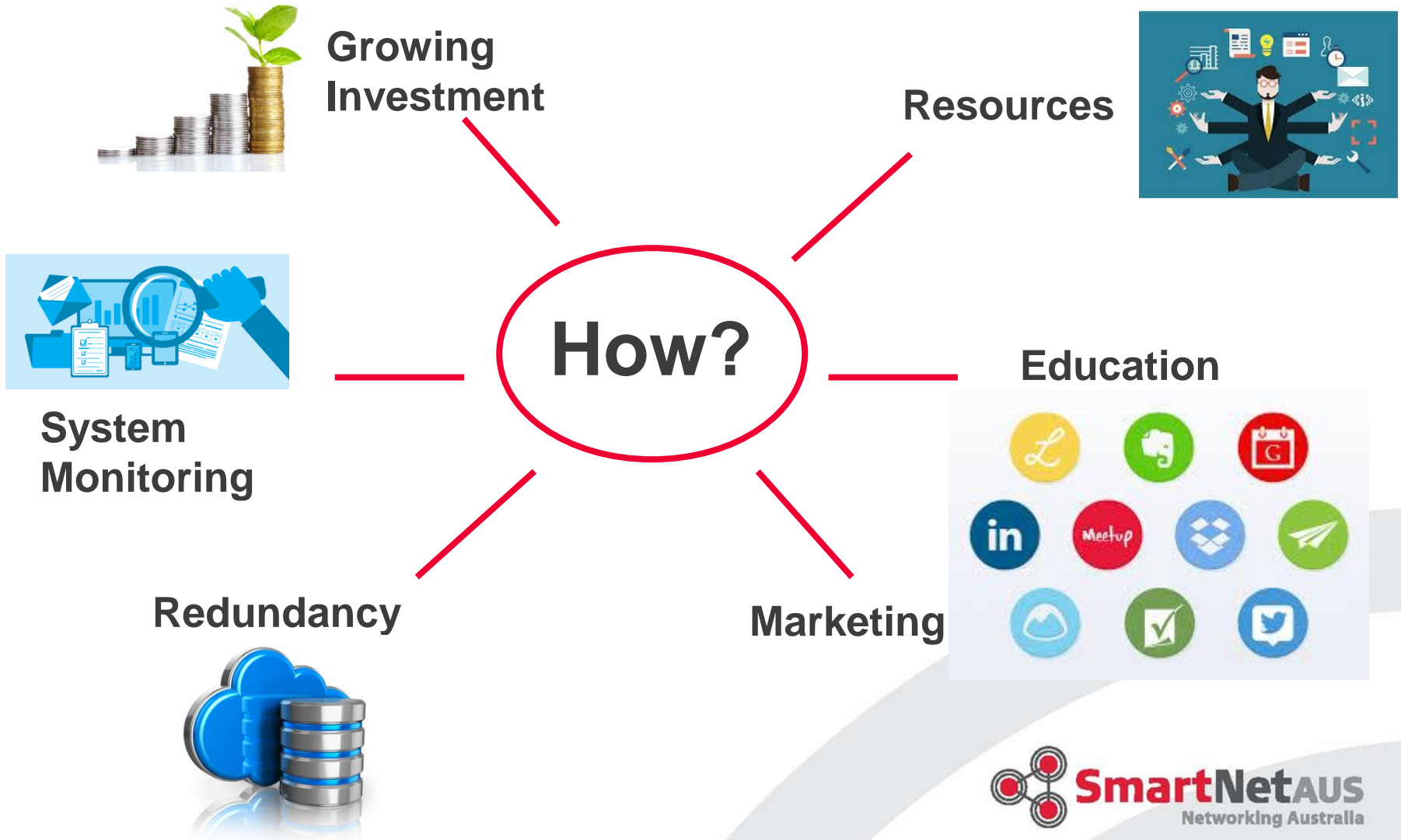
**Farmer**



# Meeting Expectations of CORS Networks



# Meeting Expectations of CORS Networks



# SmartNets around the World [www.smartnet-ww.com](http://www.smartnet-ww.com)



Satellite Positioning Services

Applications   How it works   About us   Contact

Americas



Europe



Australia



Russia



700+ CORS

across 3 countries

[SmartNetNA.com](http://SmartNetNA.com)

1650+ CORS

across 13 countries

[SmartNet-EU.com](http://SmartNet-EU.com)

570+ CORS

across Australia

[SmartNetAus.com](http://SmartNetAus.com)

165+ CORS

across Russia

[SmartNet-RU.com](http://SmartNet-RU.com)



GLOBAL SURVEY

SURVEY & CONSTRUCTION TECHNOLOGY

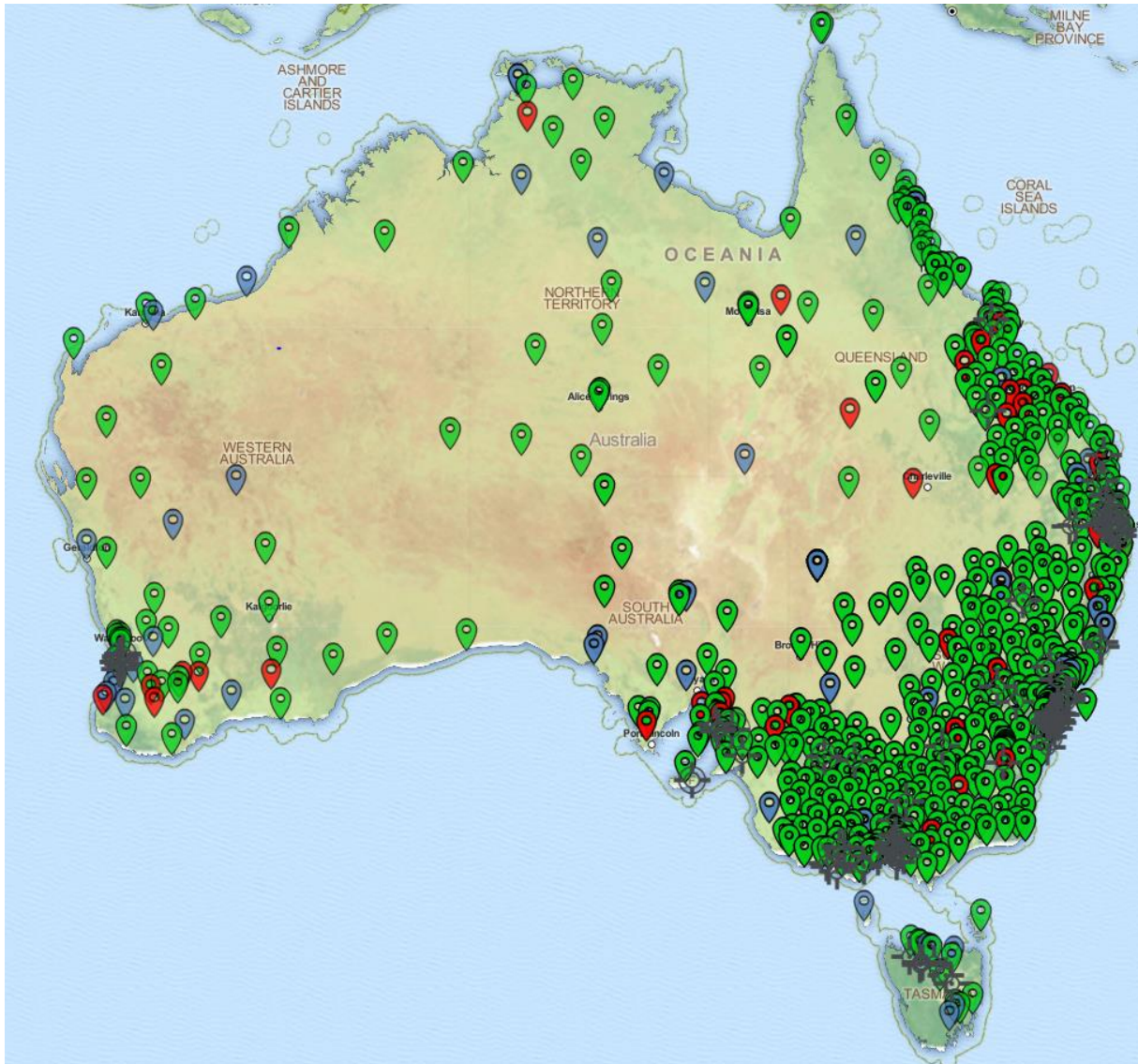
40+ CORS with Multi-GNSS Processing

[SmartFix.co.nz](http://SmartFix.co.nz)





# CORS Coverage – Australia (570+ sites)



## Partners

- Federal Gov't
- State Gov't
- Regional Gov't
- Distributors
- SME
- Education

# Meeting Expectations

## IT Infrastructure

- Own and operate a redundant Virtual Server Infrastructure – hosted in a dedicated Data Centre
- 570+ sites constantly being processed in 45 virtual servers across 5 physical servers
- Continuous growth requires continual investment, as well as redundancy and robustness
- Actions underway to move entire Operational & Invoicing System across to **Cloud-hosted platforms for increased redundancy, reliability & profitability**



# Meeting Expectations

## End User Communications – consider Mobile Phone Coverage



- Continues to expand
- CORS need cellular coverage for end users
- Opportunity for more CORS expansion

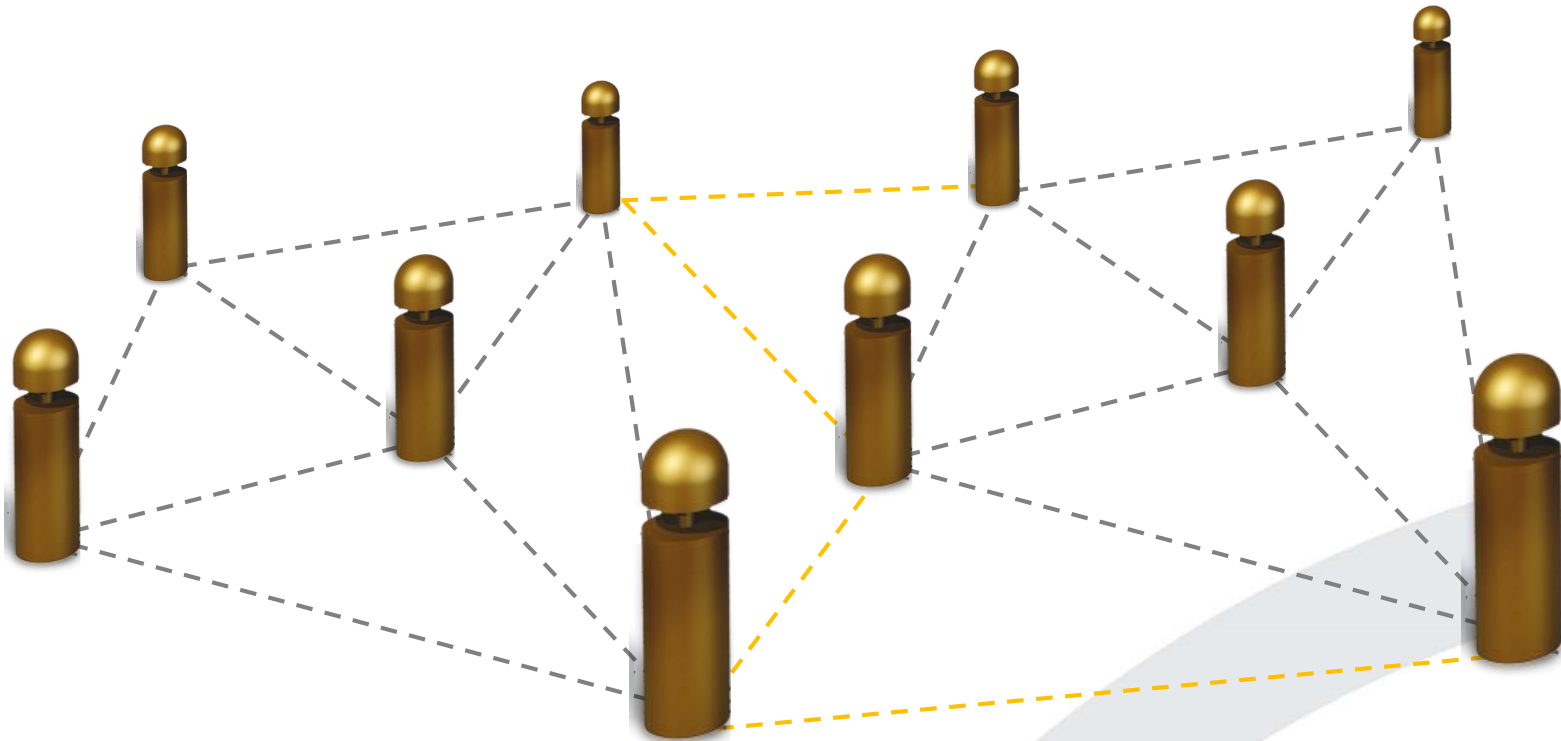
# Meeting Expectations

Smartphones have the capability to 'choke' mobile networks



# Meeting Expectations

Shared Infrastructure – Community Approach



# Meeting Expectations with Shared Infrastructure



Reduced Risks

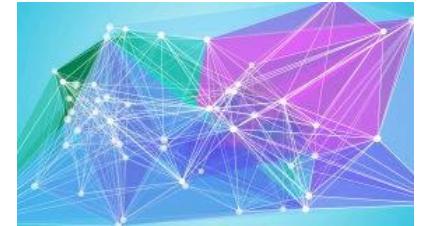


Reduced Costs



Simplification

**Why?**



Increased Coverage

Availability



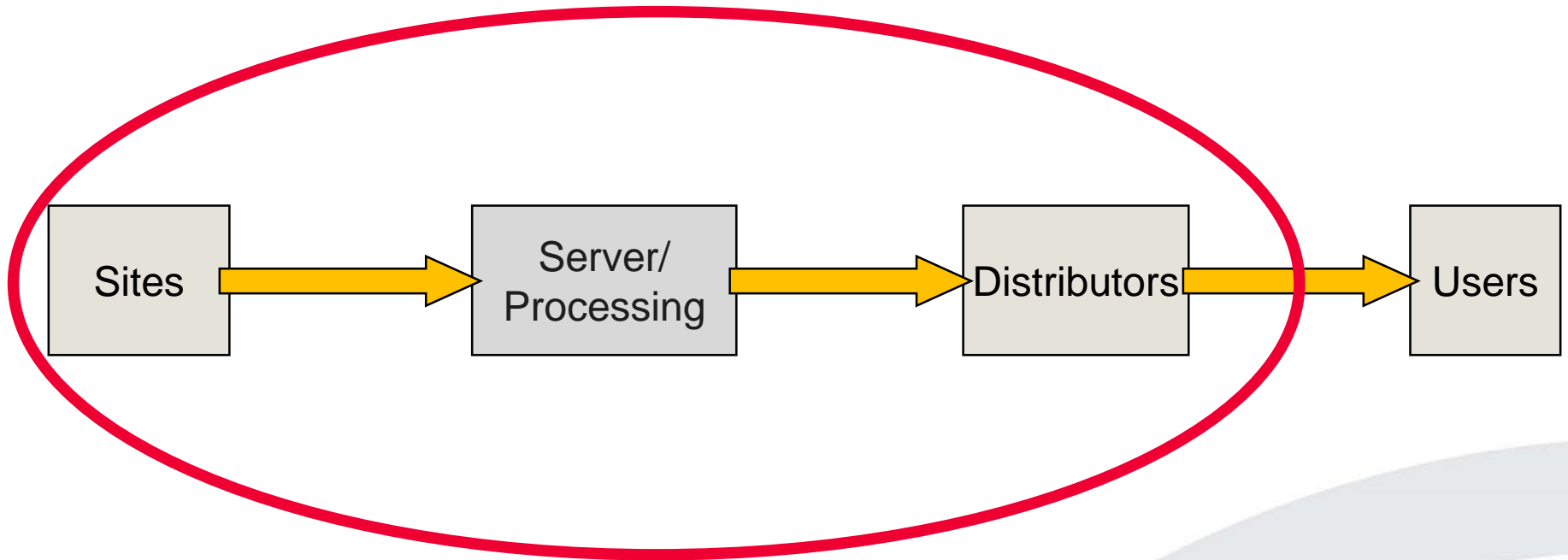
Redundancy



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# Meeting Expectations

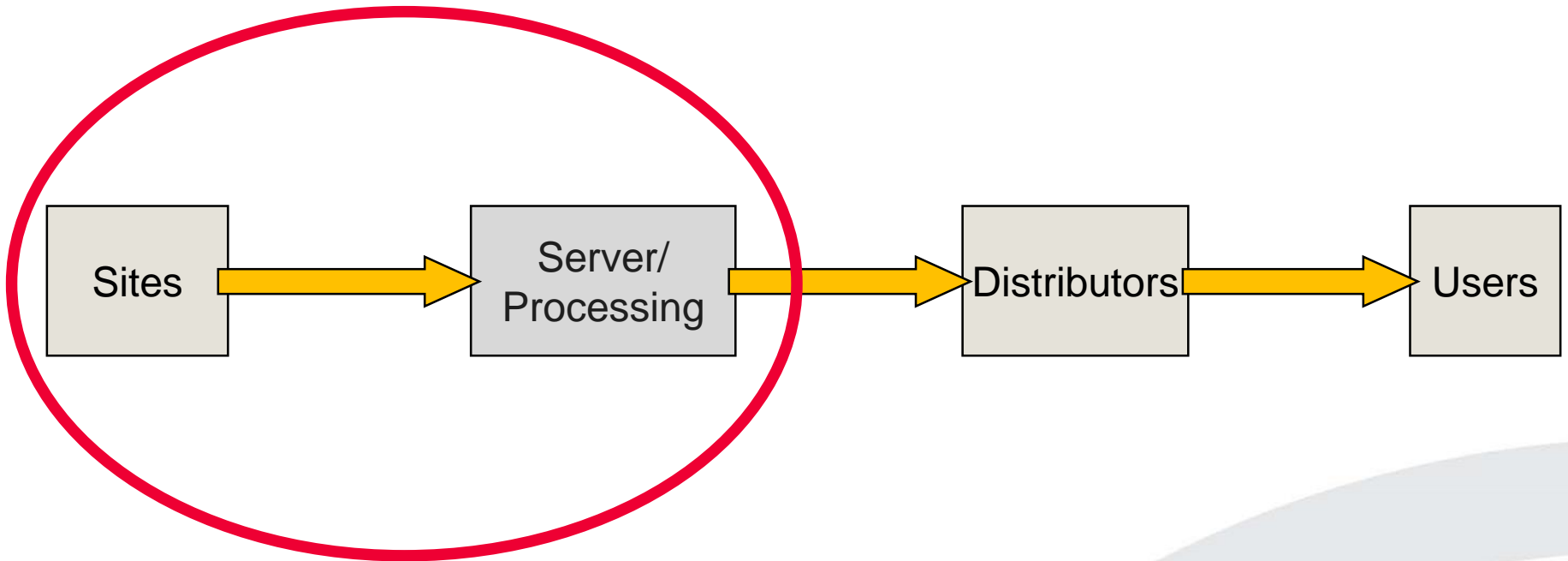
## Business Models – 1) Own Everything



Own Everything

# Meeting Expectations

Business Models – 2) Own Most of it (Upstream)

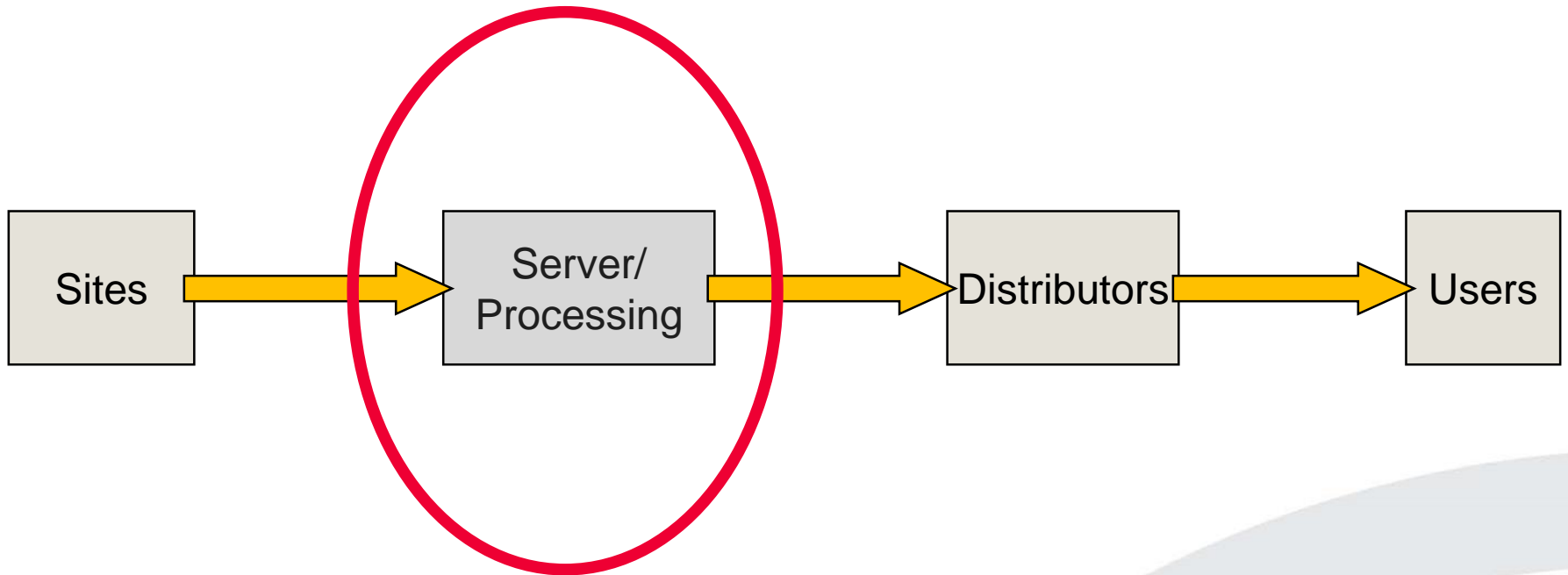


Own Most of it



# Meeting Expectations

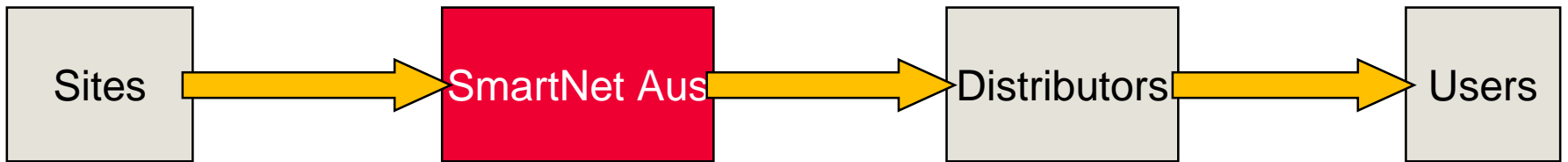
Business Models – 3) Own the Core (the ‘Value Add’)



Own the Core of it

# Meeting Expectations

Business Models – 3) Own the Core (SmartNet Aus)

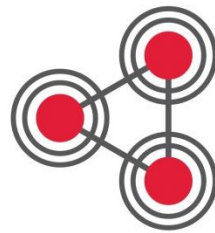


# Concluding Remarks – Commercial RTK Networks

- Commercial CORS providers are experienced in building **Spatial Data Infrastructure (SDI)**
  - **Competent and capable** to advise and manage both the operational and commercial aspects
- **Maximising commercial ROI** of CORS infrastructure
- **Reducing risks** for Stakeholders & Governments
- Maintaining **Quality of Service (QoS)**
  - **Accuracy**
  - **Reliability**
  - **Availability**
- **Increasing the adoption of GNSS technology** into new markets and applications



**Thank You!**



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[www.smartnetaus.com](http://www.smartnetaus.com)