

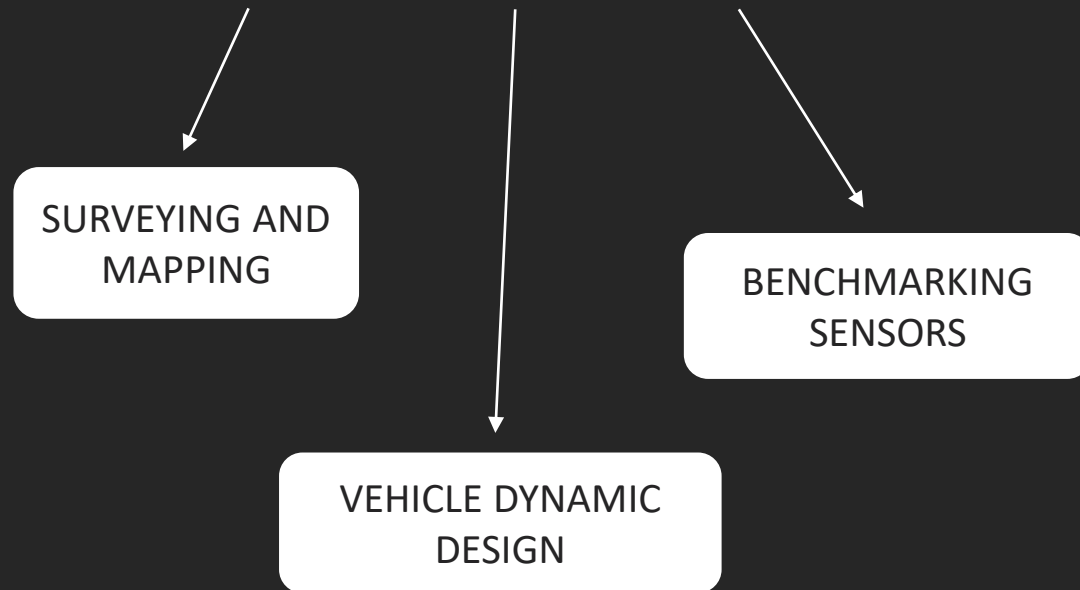
Richard Sands, Application Engineer  
Oxford Technical Solutions

# Generic Aiding: Flexible inputs to an Inertial Navigation System



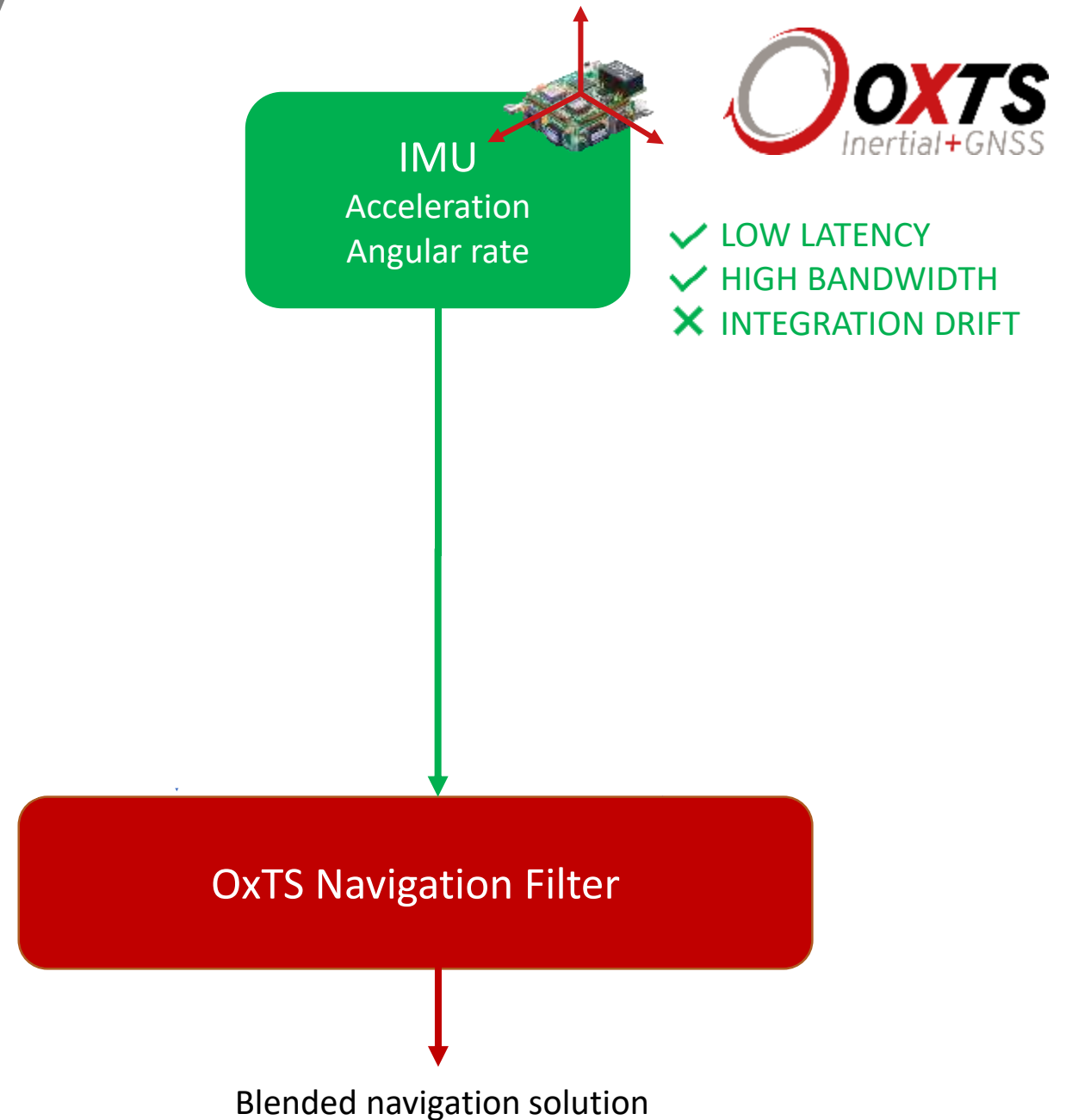
# Why use an Inertial Navigation System?

- Absolute position accuracy of 1cm
- 250Hz inertial measurement rate
- Pitch, roll and heading accuracy up to  $0.03^\circ$



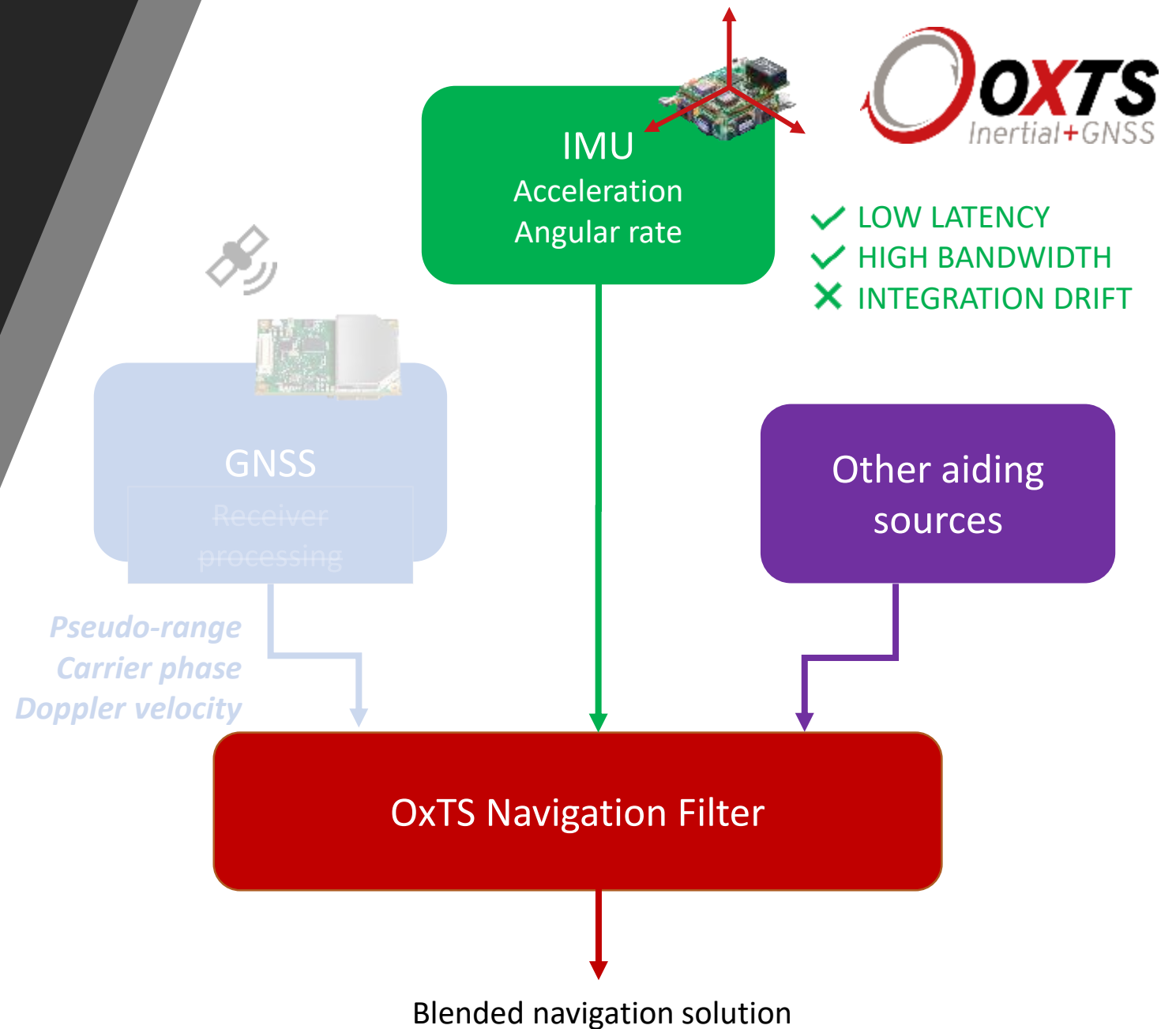
# How our INS works

- Blend of GNSS and IMU
- Uses raw GNSS observables (ignoring receiver solution)
- Each satellite in view is individually integrated into our solution
- Solution still updated when <4 satellites in view



# Generic aiding

- Interface to add additional inputs to Navigation Filter
- Fast and convenient to add new sources of information
- Can be used to both supplement and replace GNSS



# Indoor navigation

- Simple and precise absolute positioning system
- Position accuracy < 1 cm
- Uses OxTS Generic Aiding interface

Other aiding sources



Detects laser reflection from series of surveyed retro-reflective strips



# Application Engineering Team

- We develop bespoke applications using the OxTS Navigation Engine
- Love exploring new opportunities and sectors
- Keen to realise full potential of our core technology in the UK Space Industry and beyond

Other aiding sources

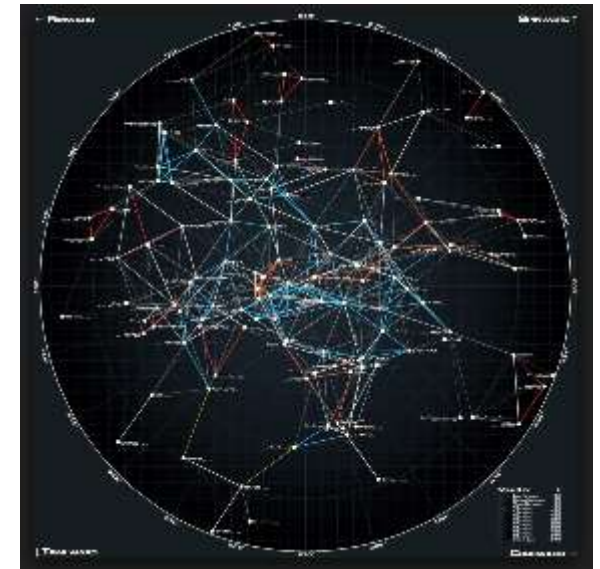


Wheel speed encoder



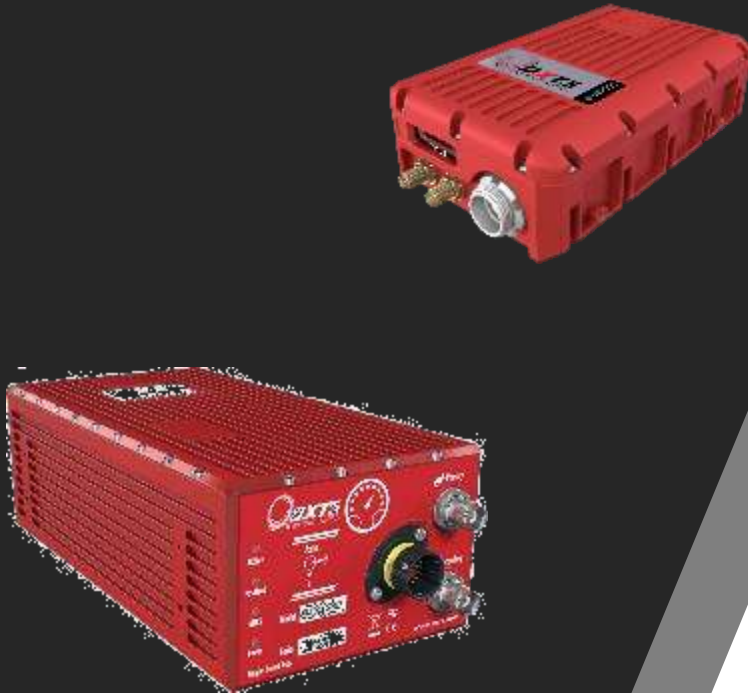
Surveyed reflective strips

Our next generic aiding input...?



# Summary

Oxford Technical Solutions



- Our Inertial Navigation System is centred around its IMU
- IMU integration drift is corrected by GNSS, or other inputs, for an accurate absolute position
- We have a Generic Aiding interface to our Navigation Filter

## Thank you

Richard Sands, Application Engineer

[rsands@oxts.com](mailto:rsands@oxts.com)