



SUBSEA TECHNOLOGY

Acoustic and Optical Communication Networks Enabling New Emerging Concepts for AUV Operations

AUT 2019

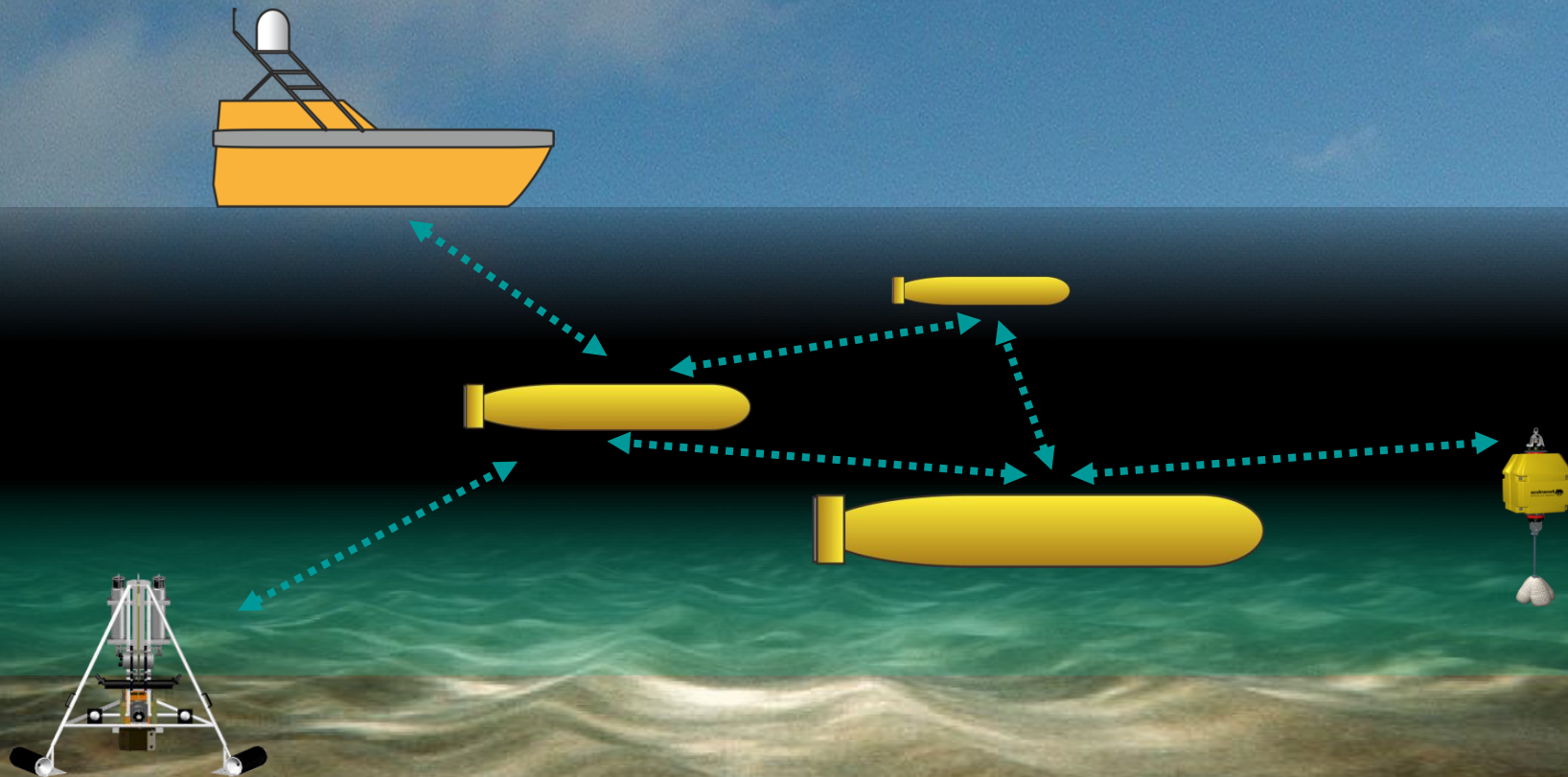
Anthony Gleeson

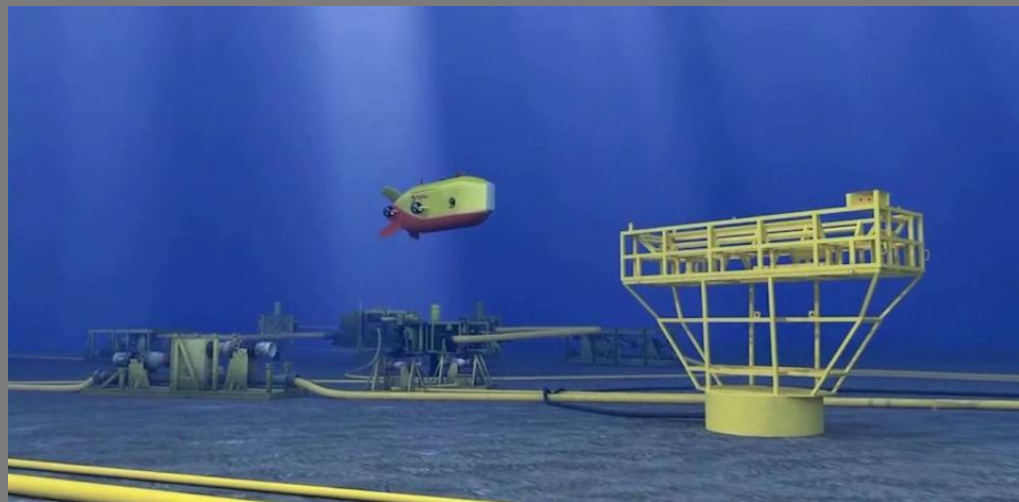
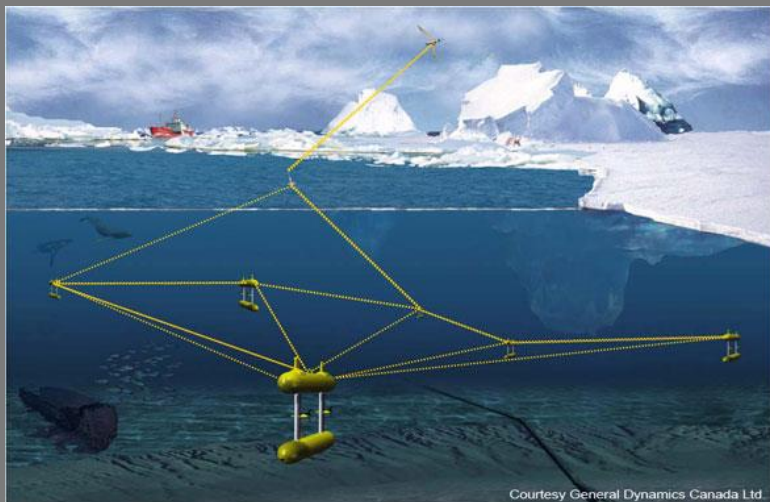
VP Sonardyne Asia

**POSITIONING
NAVIGATION
COMMUNICATION
MONITORING
IMAGING**

Sonardyne International

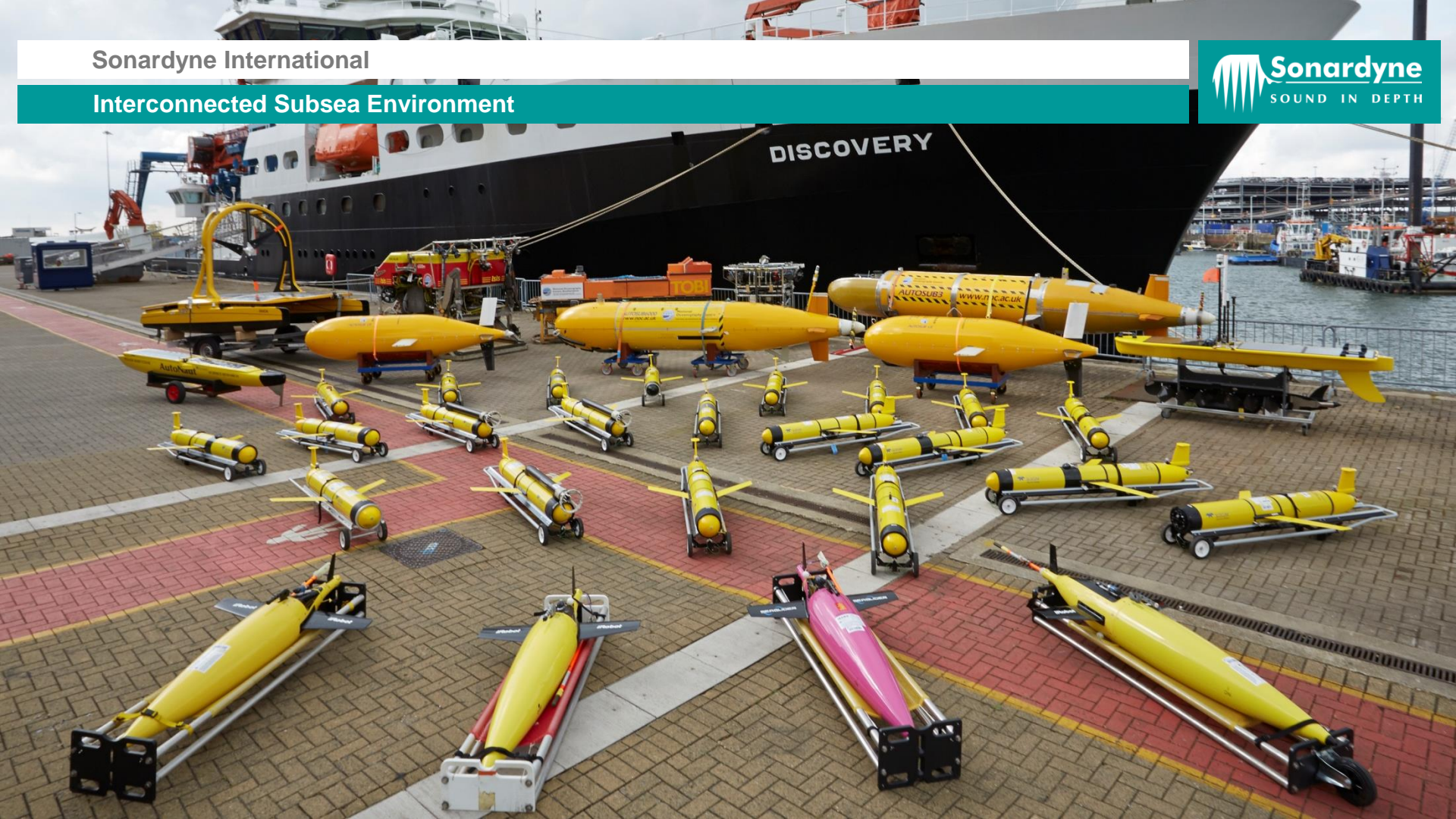
Interconnected Subsea Environment





Sonardyne International

Interconnected Subsea Environment



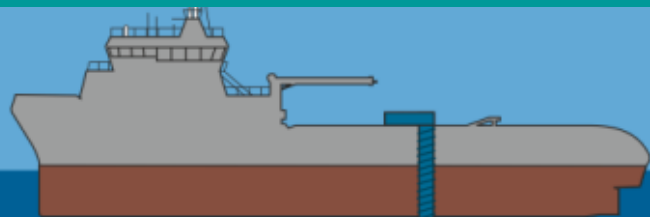
AvTrak 6

AUV Tracking & Communications

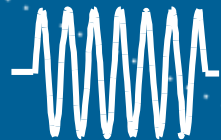


“Today we can track and communicate
across full Ocean depths.”

Positioning Solutions for AUV Operations



Tone

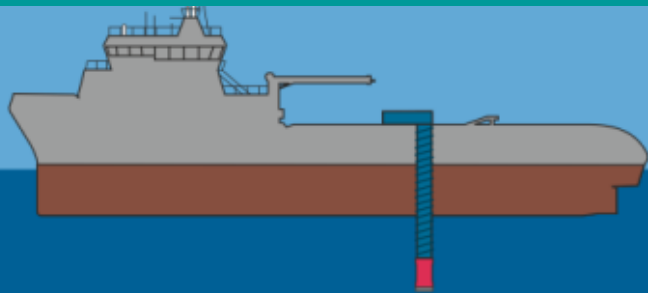


30cm resolution



USBL





Sonardyne Wideband® 2



Better than 0.1% range accuracy 1cm resolution and telemetry



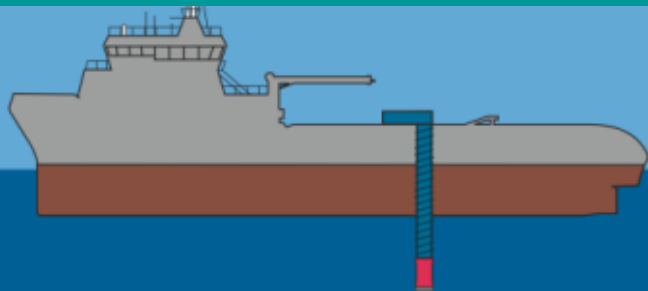
USBL

AvTrak 6

AUV Tracking & Communications



“We Communicate and Share Critical Data”



Sonardyne Wideband® 2



Track

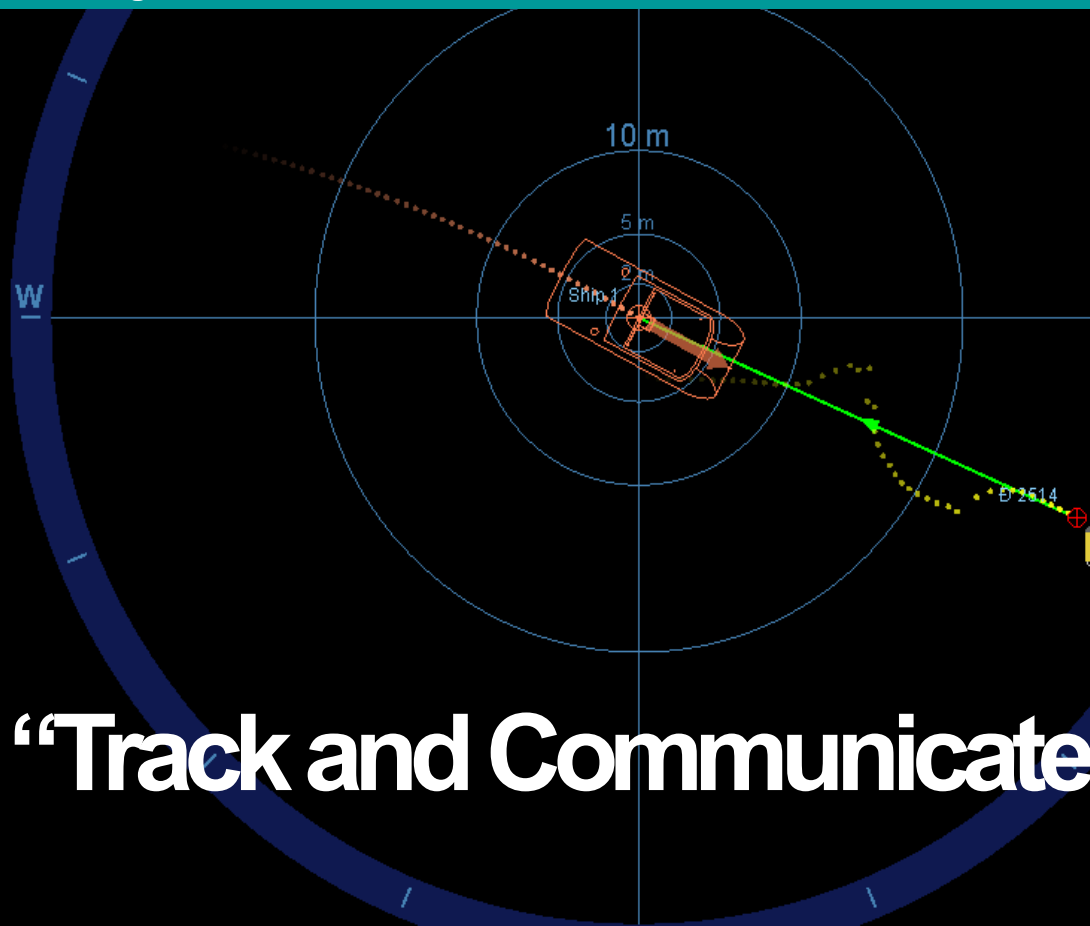
Exchange Data



USBL

AvTrak 6

AUV Tracking & Communications



Battery: 95%
Status: Green
Mission: W4
Lat: 50.33503°
Long: -4.160042°

“Track and Communicate with AUV”

- Use established 6G family of Ranger 2 USBL
- Track position of USBL and update AUV in next cycle
- Increase ping size to share data to surface and back to AUV
- Range accuracy better than 6 m at 6,000 m range
- Use any of 658 available addresses

Track and Control your AUV

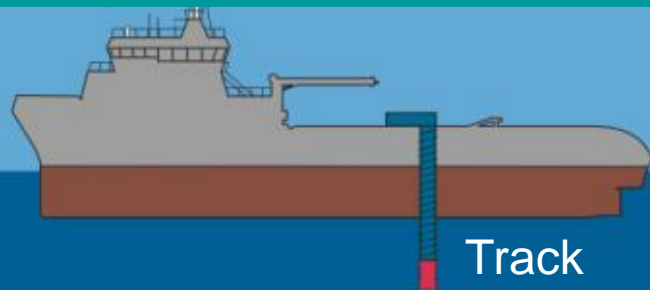
AvTrak 6

AUV Tracking & Communications



“Surveying for Diamonds!”

Positioning Solutions for AUV Operations

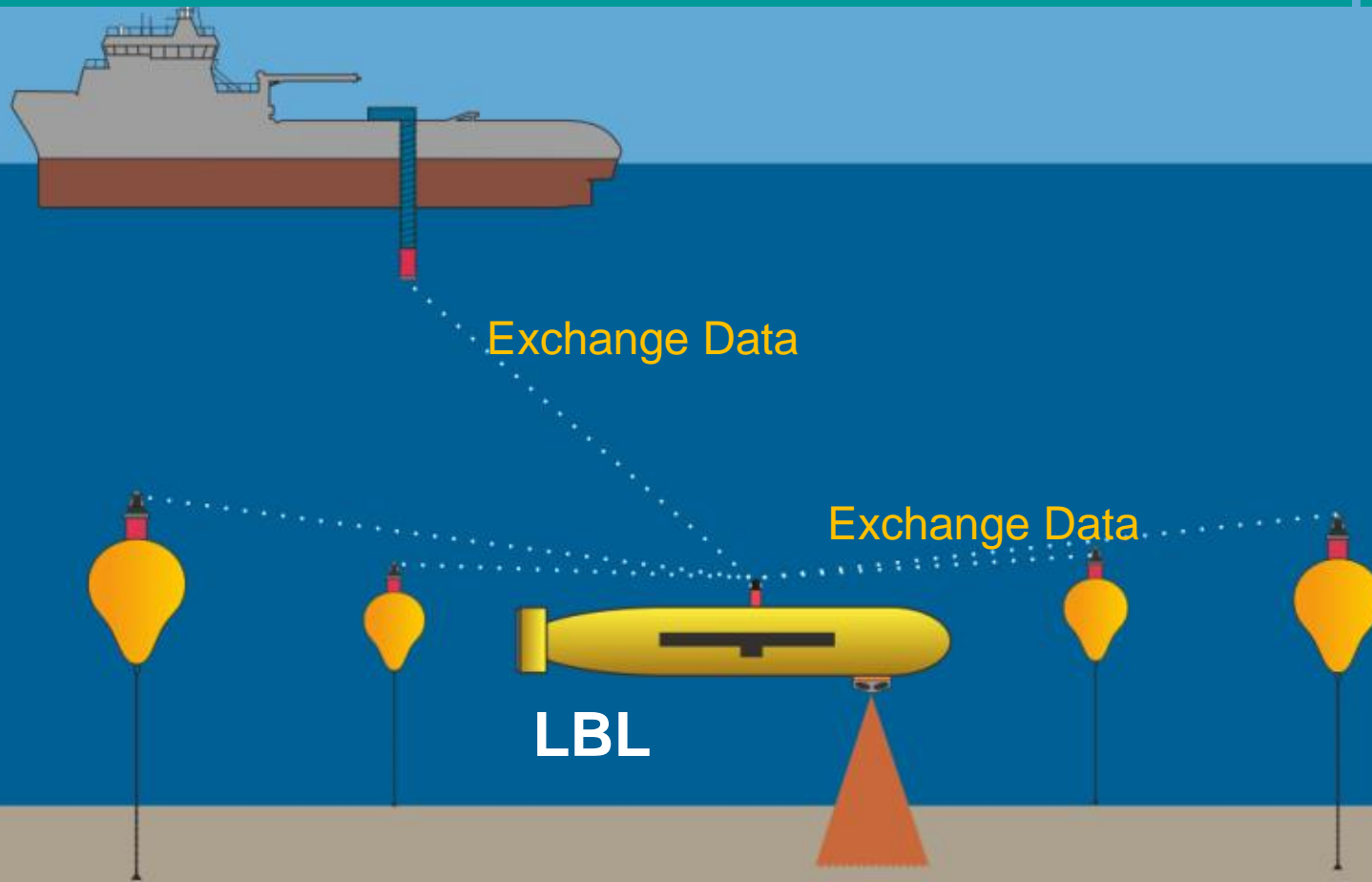


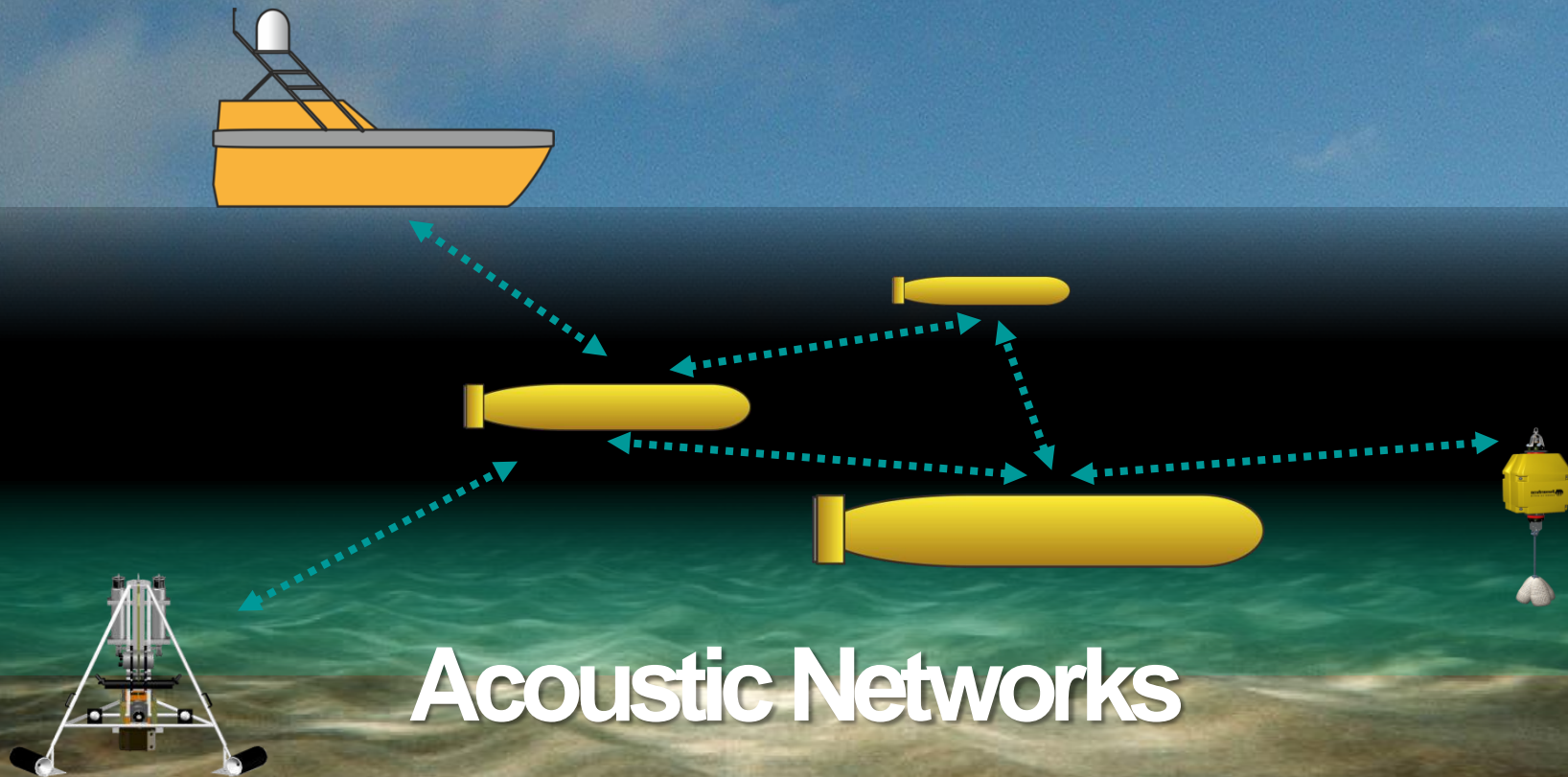
Track

Exchange Data: Share all AUV positions



Positioning Solutions for AUV Operations

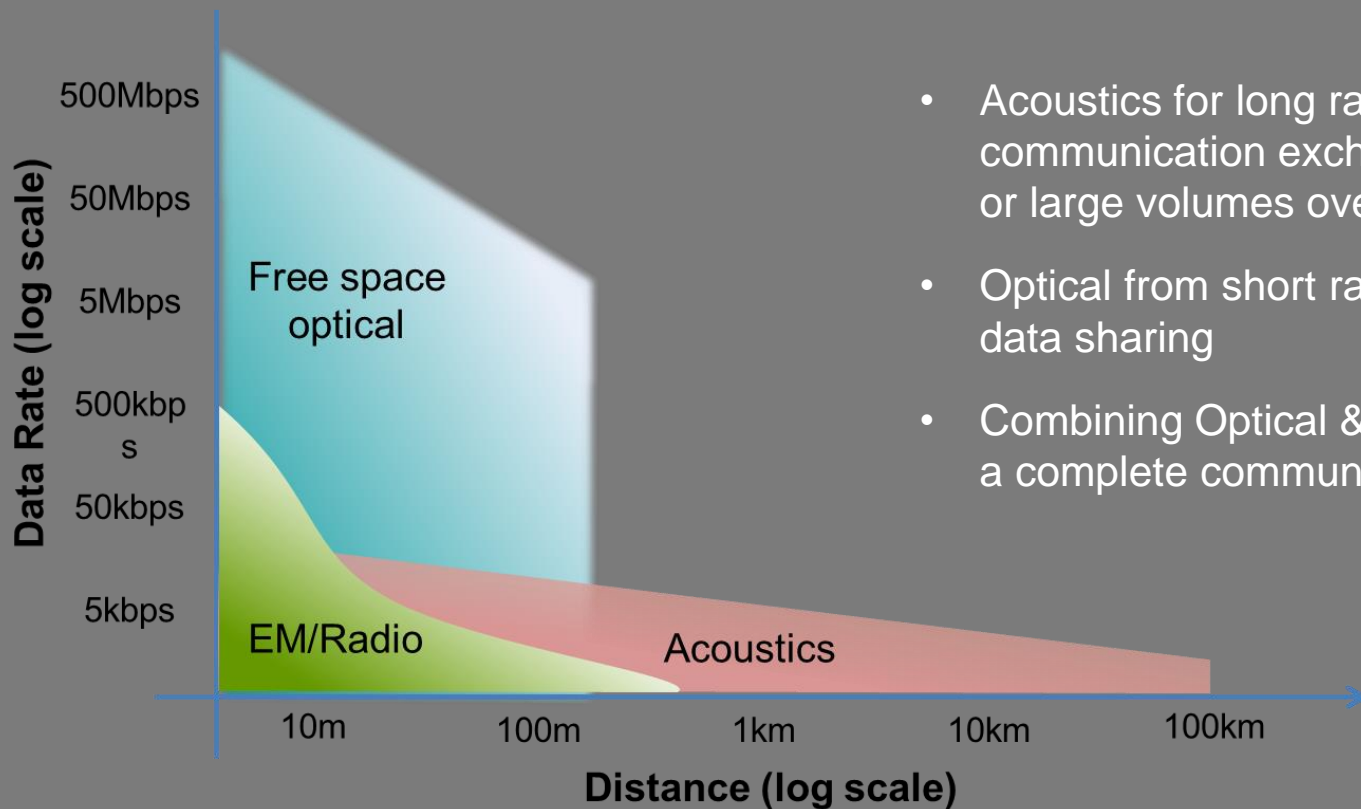




- AvTrak 6 Transceivers can communicate with other 6G instruments
- Common Interrogate a Fleet of AUVs from Surface or from AUV
- Range to other 6G instruments
- Harvest Data
- Share Data

Develop new concepts of operation

Optical & Acoustic



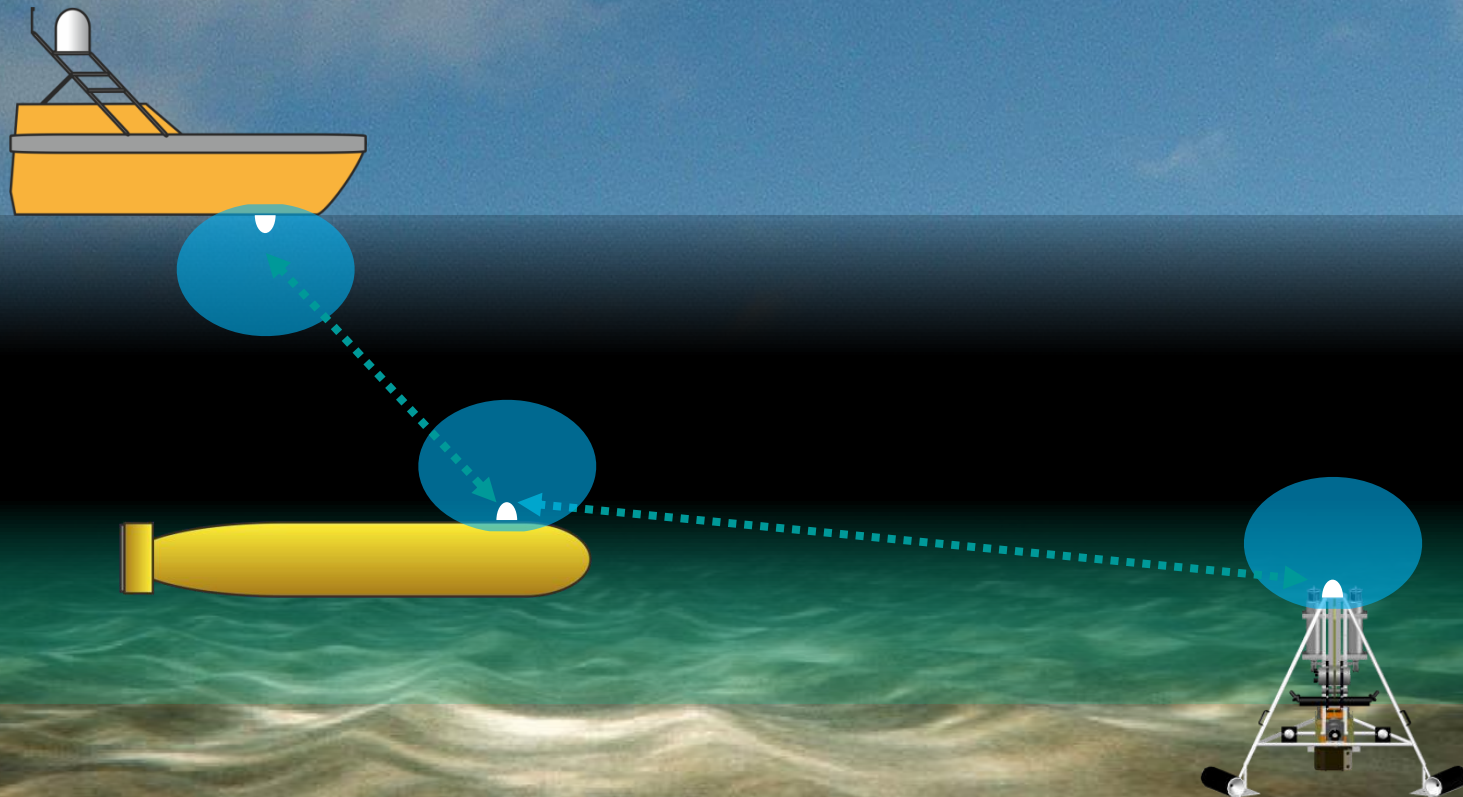
- Acoustics for long range and reliable communication exchanges of vital data or large volumes over longer times
- Optical from short range for large volume data sharing
- Combining Optical & Acoustics provides a complete communication solution



**“Share large volumes of data over hundreds
of meters!”**

BlueComm

Ready to Support Future Concepts of Operations



BlueComm

AUV Communications and Control

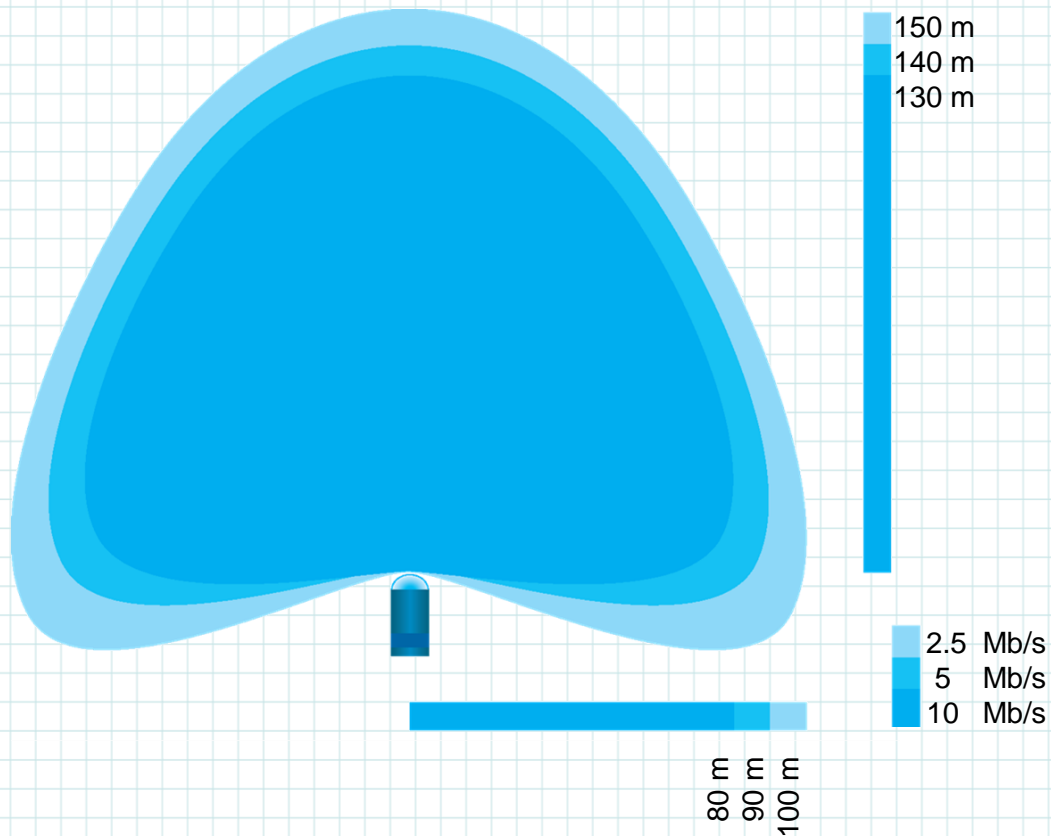
The background image shows a yellow Autonomous Underwater Vehicle (AUV) being lowered into the ocean by a large blue crane on a ship's deck. The AUV is cylindrical with a white grid on its front and the name 'NEREUS' on its side. It is suspended by a chain and green slings. Four crew members in safety gear are visible on the deck, managing the operation. The water is dark and choppy.

“Communicate and Control”

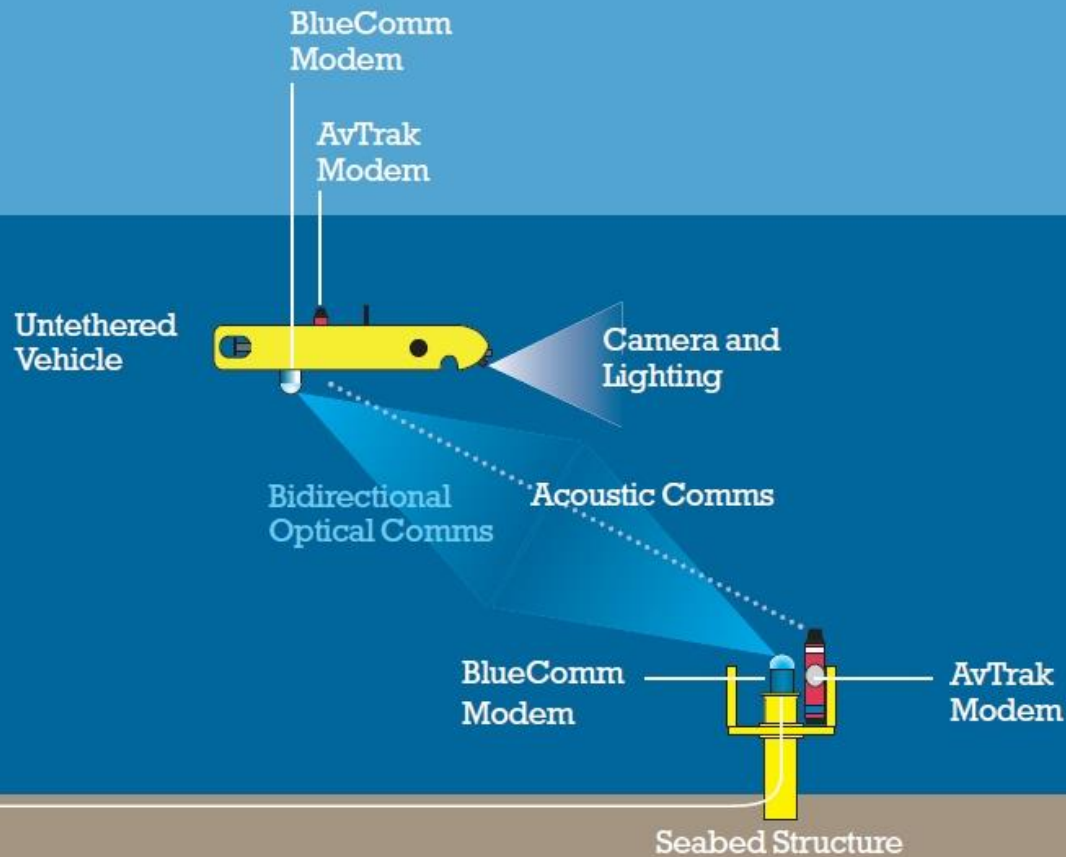


BlueComm 200

150m Max range
1-12.5 Mbps
Omnidirectional

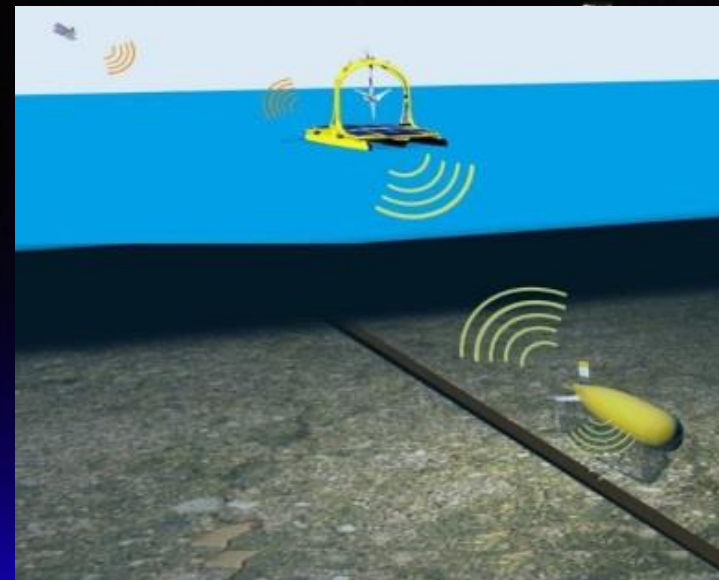


Combined Optical & Acoustics for Data Harvesting

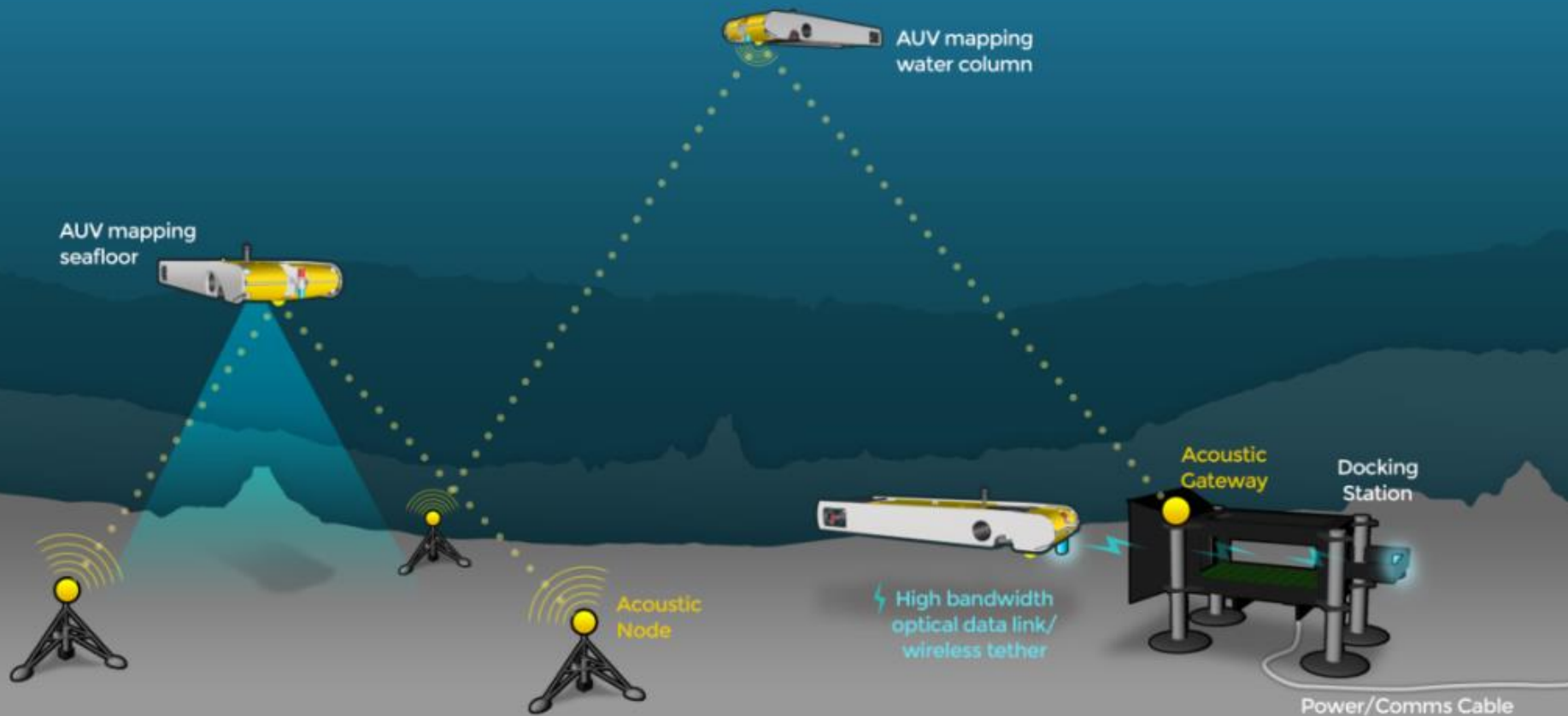


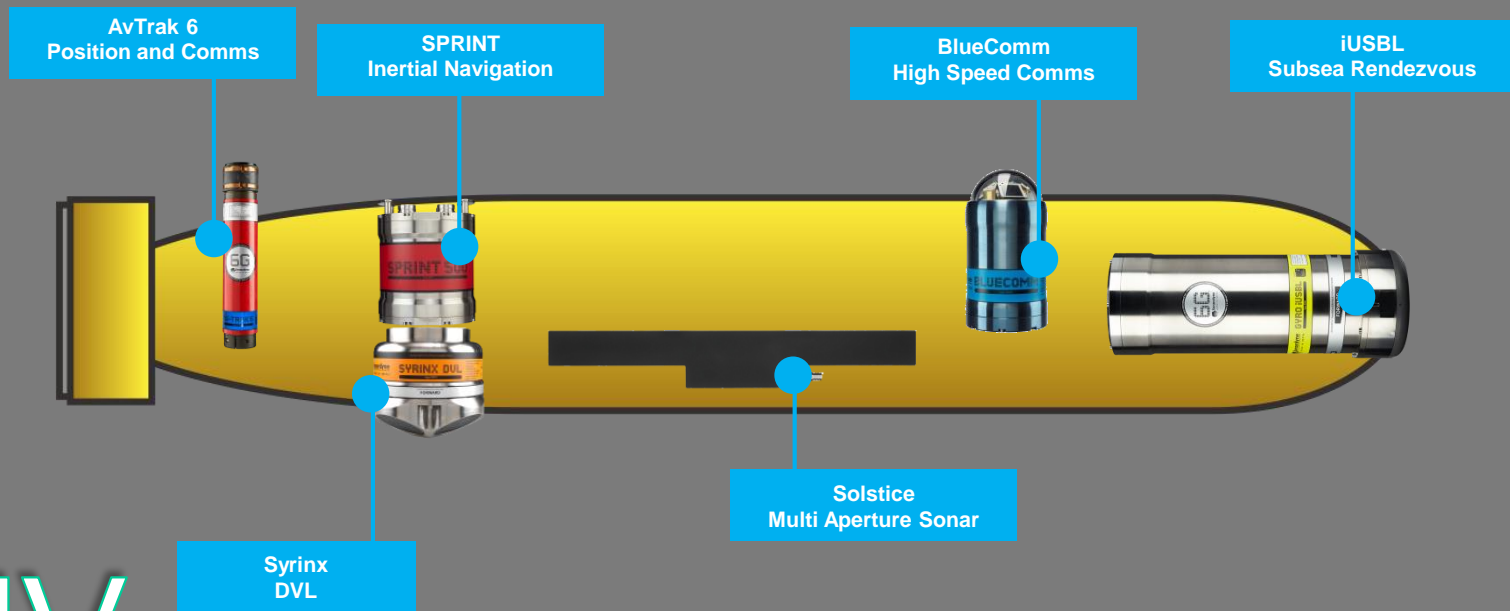
ASSSS – Combined USV and UUV Operations

First of its Kind



RESIDENT AUV SYSTEMS





AUV

BlueComm

Combine with AvTrak 6 to Cover All Communication Needs



“Optical & Acoustic – Play Video”



Overview

70+

The number of countries where we operate

10mm

Positioning accuracy of 6G acoustic technology

20Mb/s

The speed we can transfer data subsea

100%

Deep water fields where Sonardyne technology is used

275

Sonardyne employees worldwide

45

The age of our company

10,000

Transducer manufactured each year

156,000

Total square footage of our facilities

12,000m

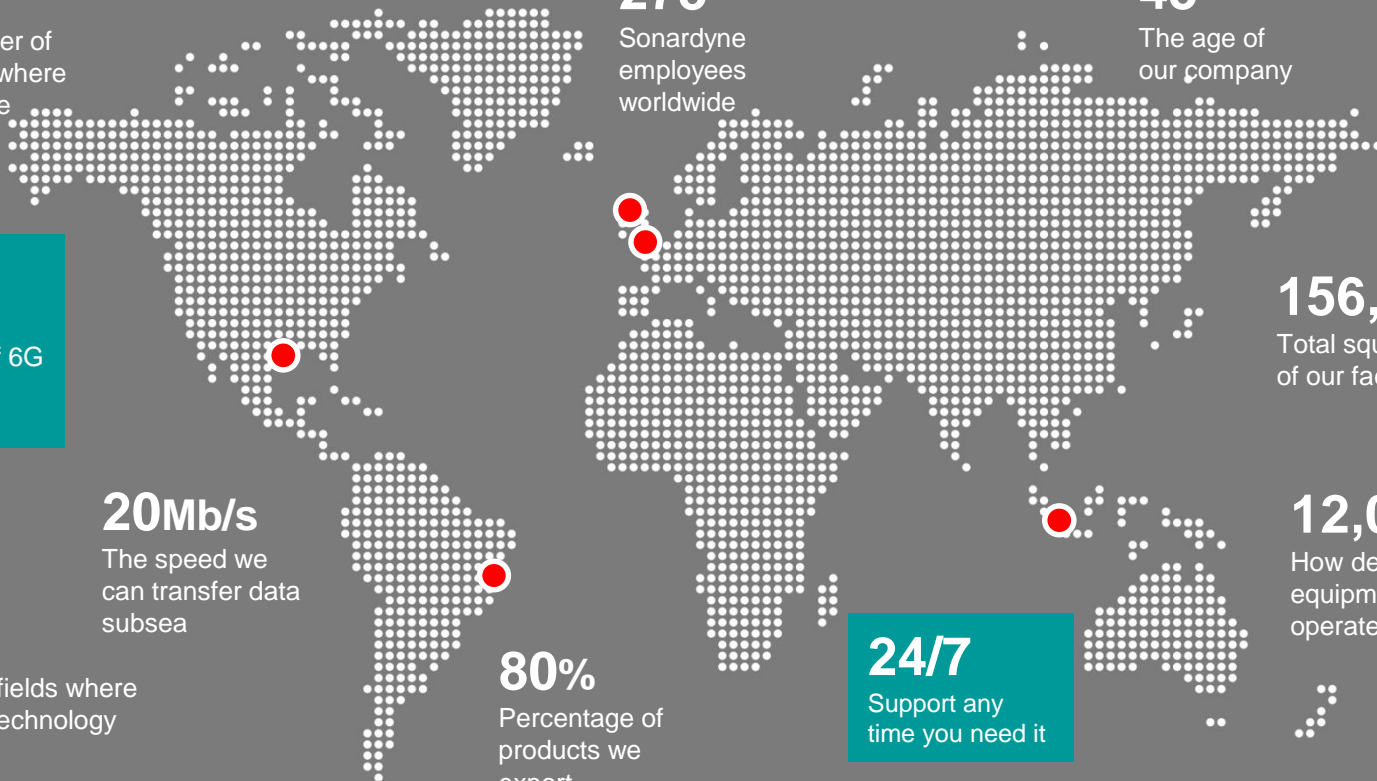
How deep our equipment can operate

24/7

Support any time you need it

80%

Percentage of products we export





SUBSEA TECHNOLOGY

Thank you for your time today
Any questions?

SONARDYNE.COM



POSITIONING
NAVIGATION
COMMUNICATION
MONITORING
IMAGING