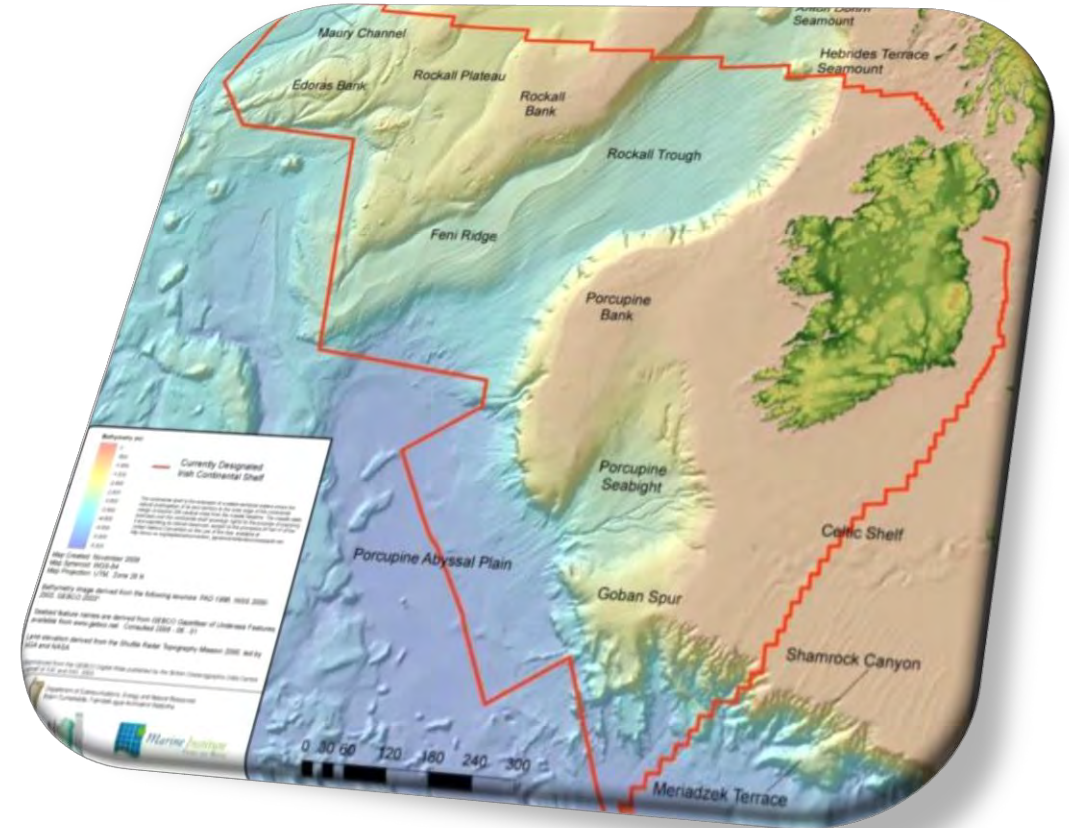


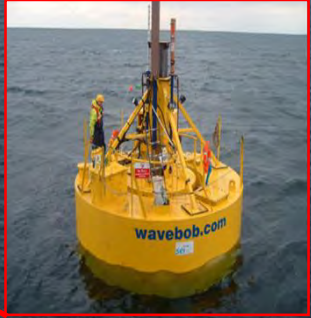
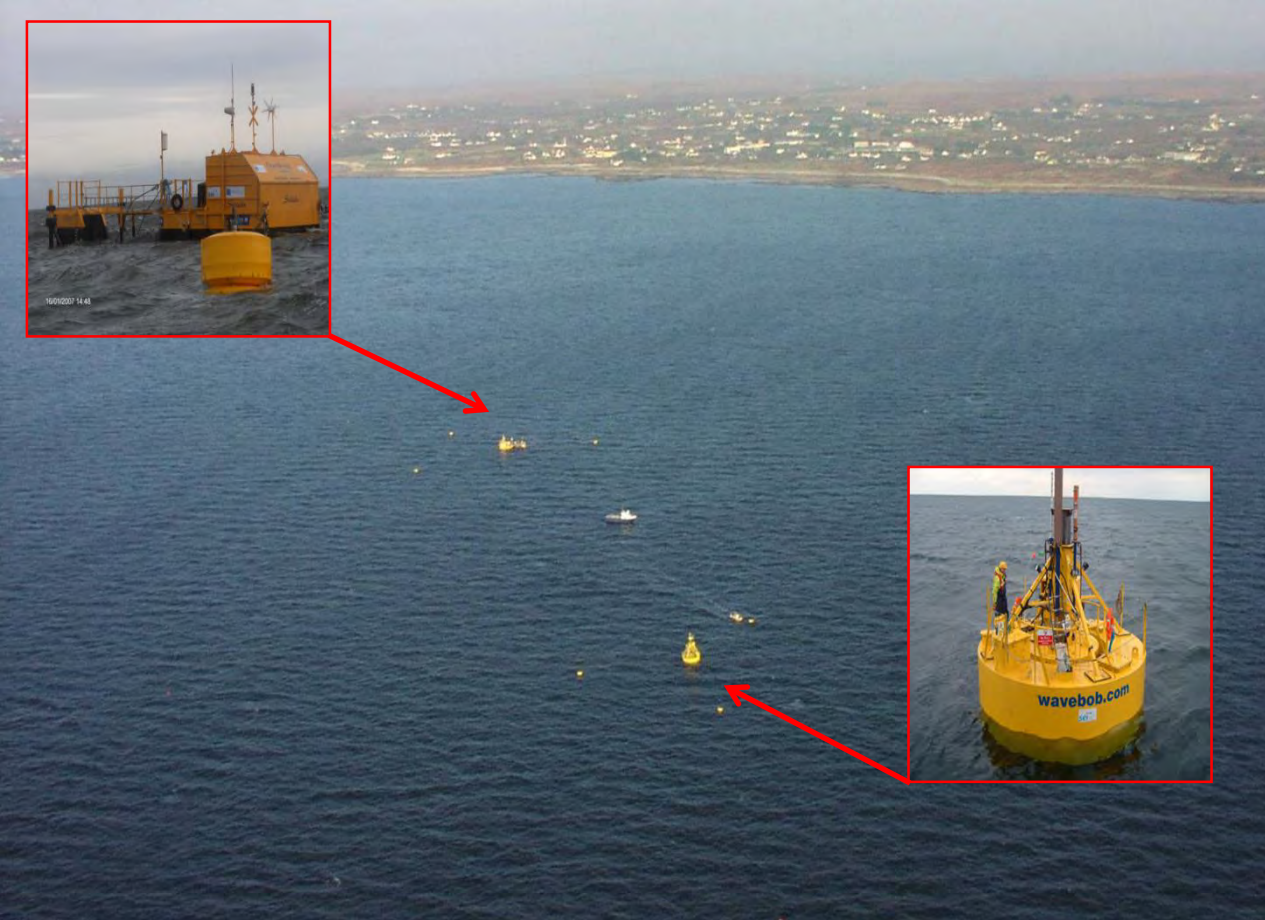
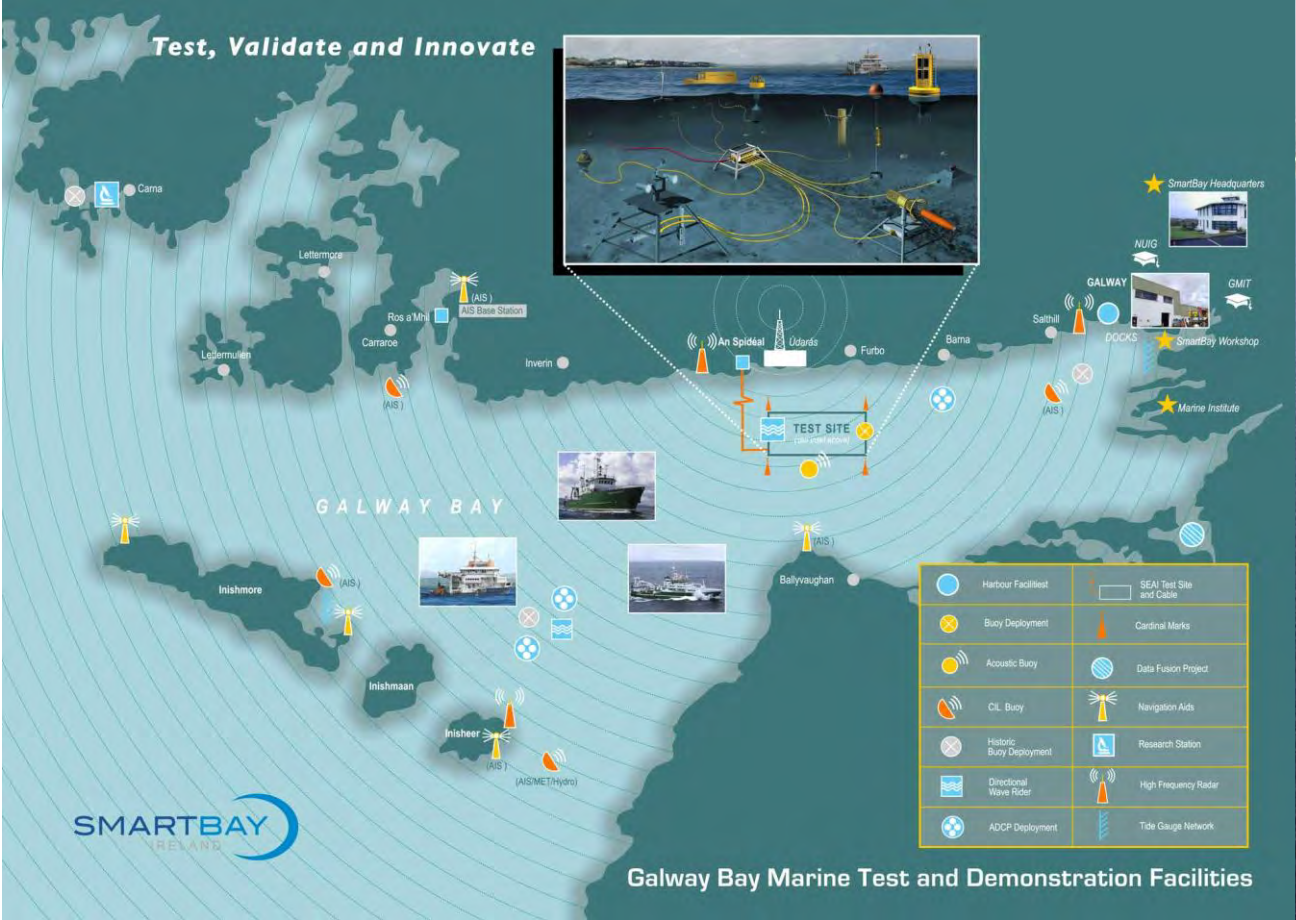
Adding Big Data's Velocity to Oceanographic Data Systems

Adam Leadbetter, Damian Smyth,
Rob Fuller, Eoin O'Grady
Marine Institute, Ireland

IMDIS Conference, Gdansk, Poland
12th Oct 2016



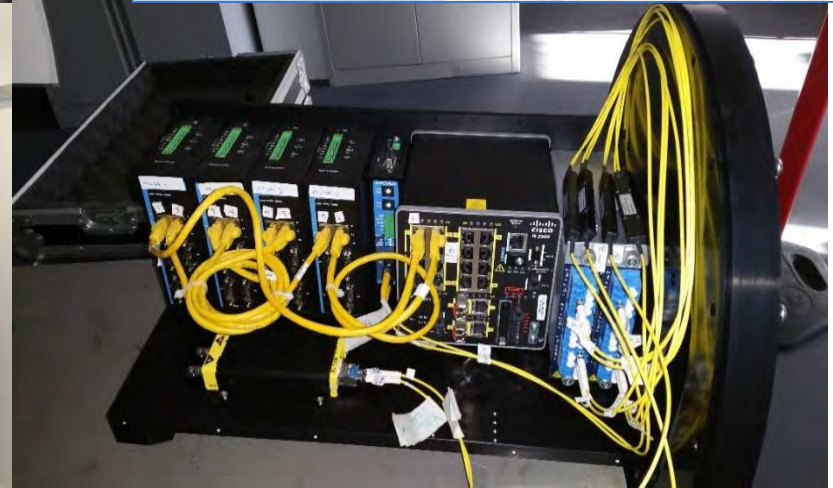
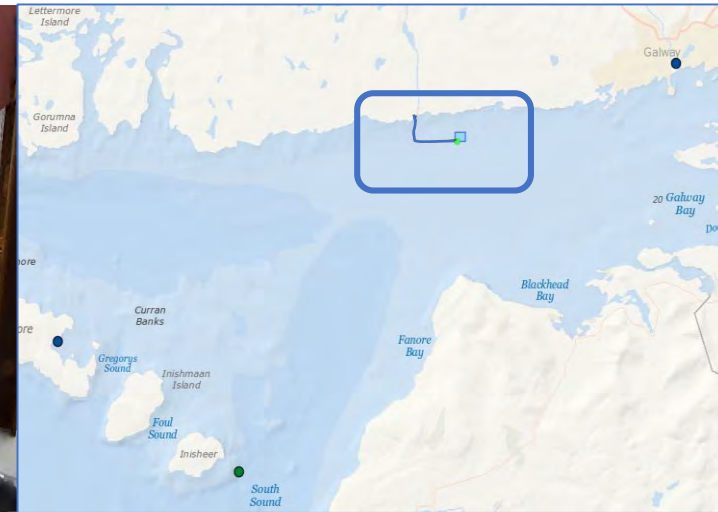
The Galway Bay Test Site



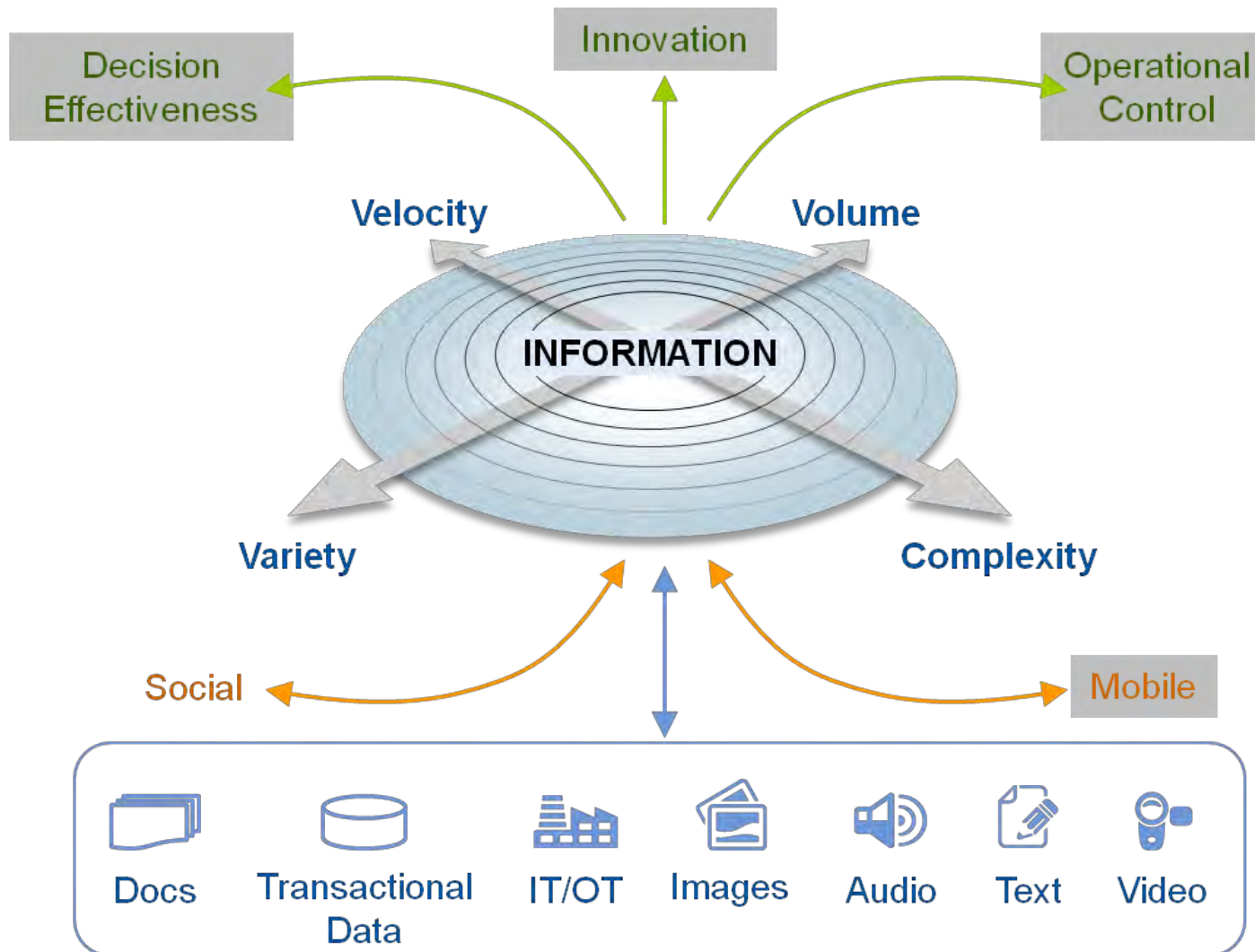
Galway Bay Subsea Observatory



Funded by the SFI research infrastructure award



The Big Data Paradigm



Source: Gartner

Enterprise Systems

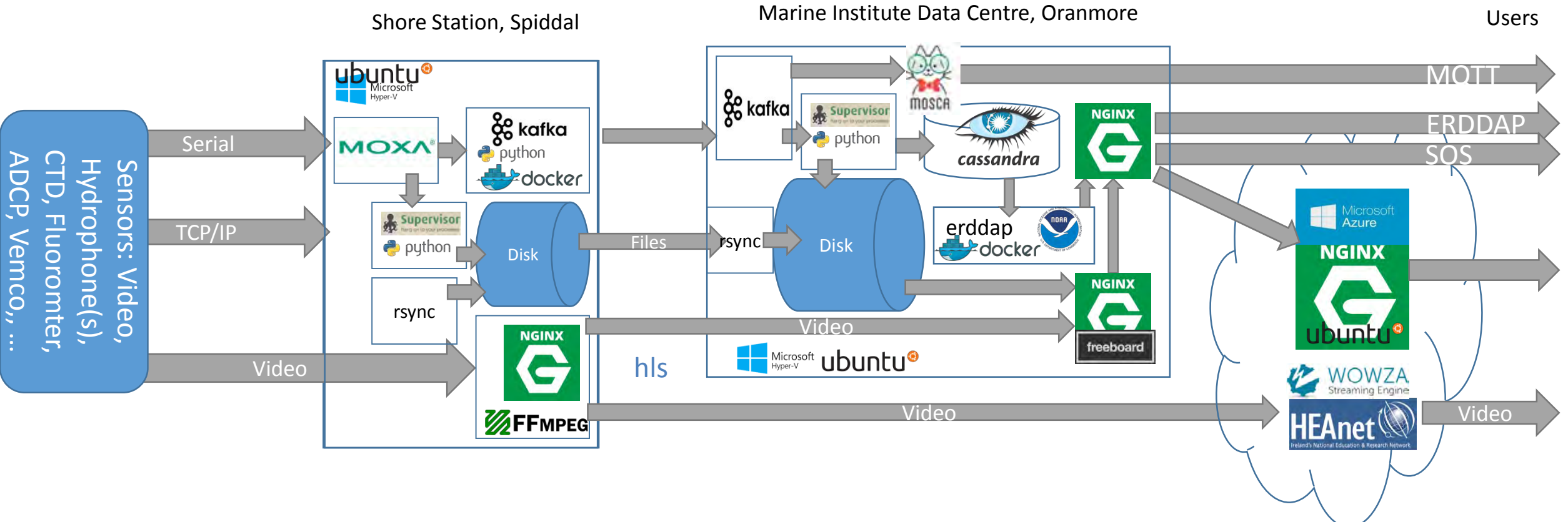
Source :Innovation Value Institute

“Velocity”: The speed at which data are acquired, processed and made available is key to Big Data

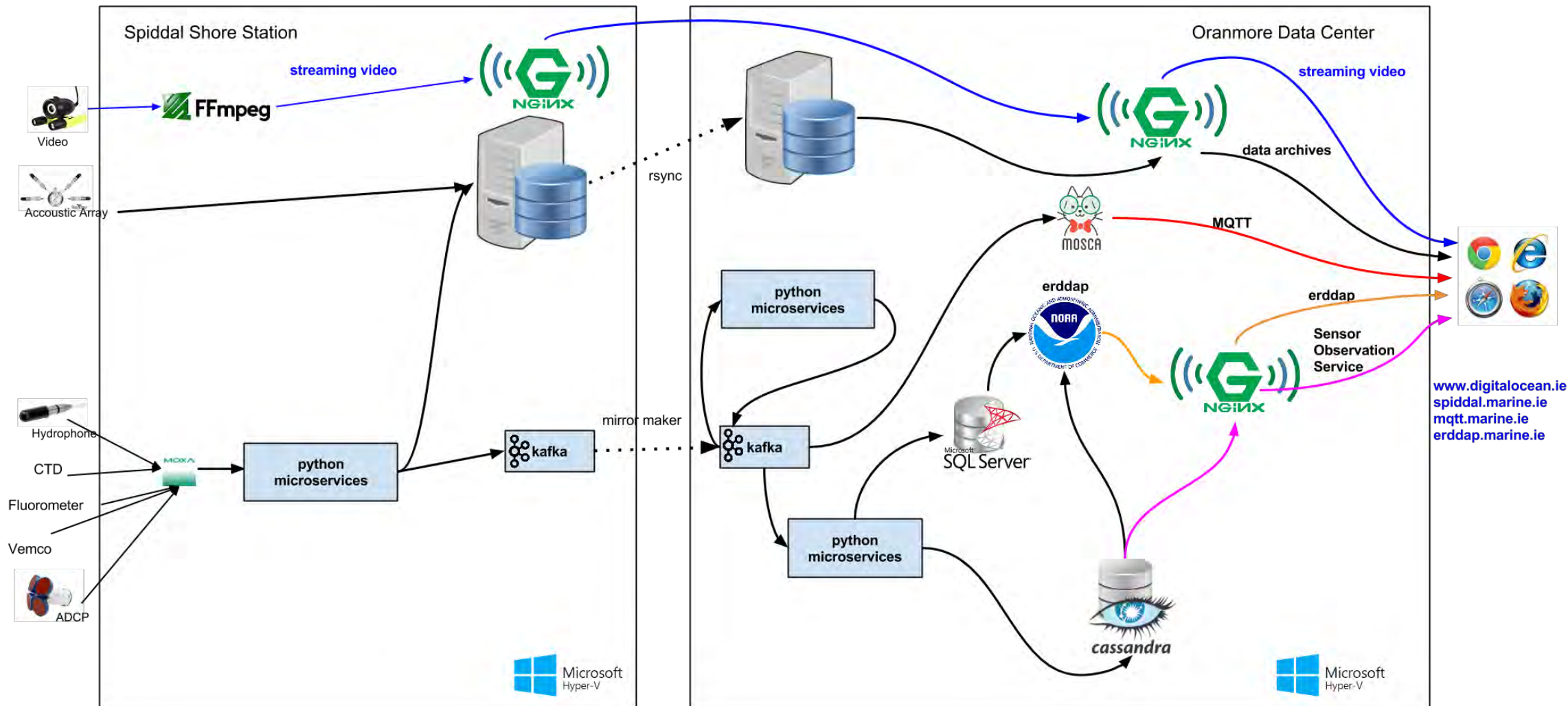
The 5V's of Big Data

1. **Volume**: the quantity of data
2. **Variety**: the type and nature of the data
3. **Velocity**: the speed at which the data is generated and processed
4. **Variability/Complexity**: inconsistency of data
5. **Veracity**: the quality of data

Data System Architecture Overview



Data System Architecture Overview



Data Access & Standards



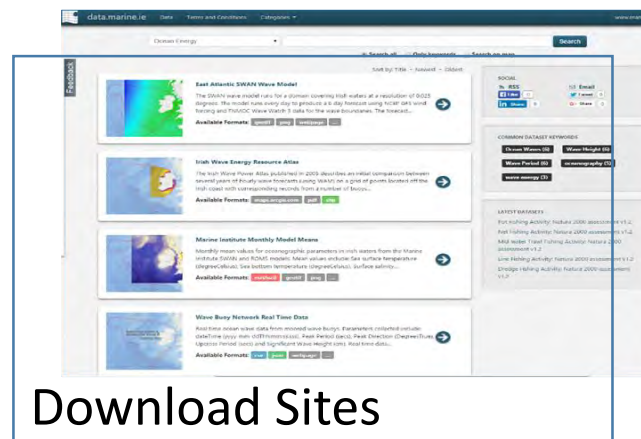
Dashboards & Widgets



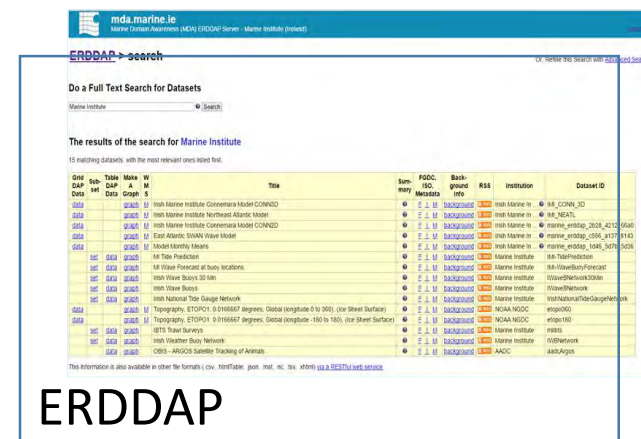
MQTT



SOS

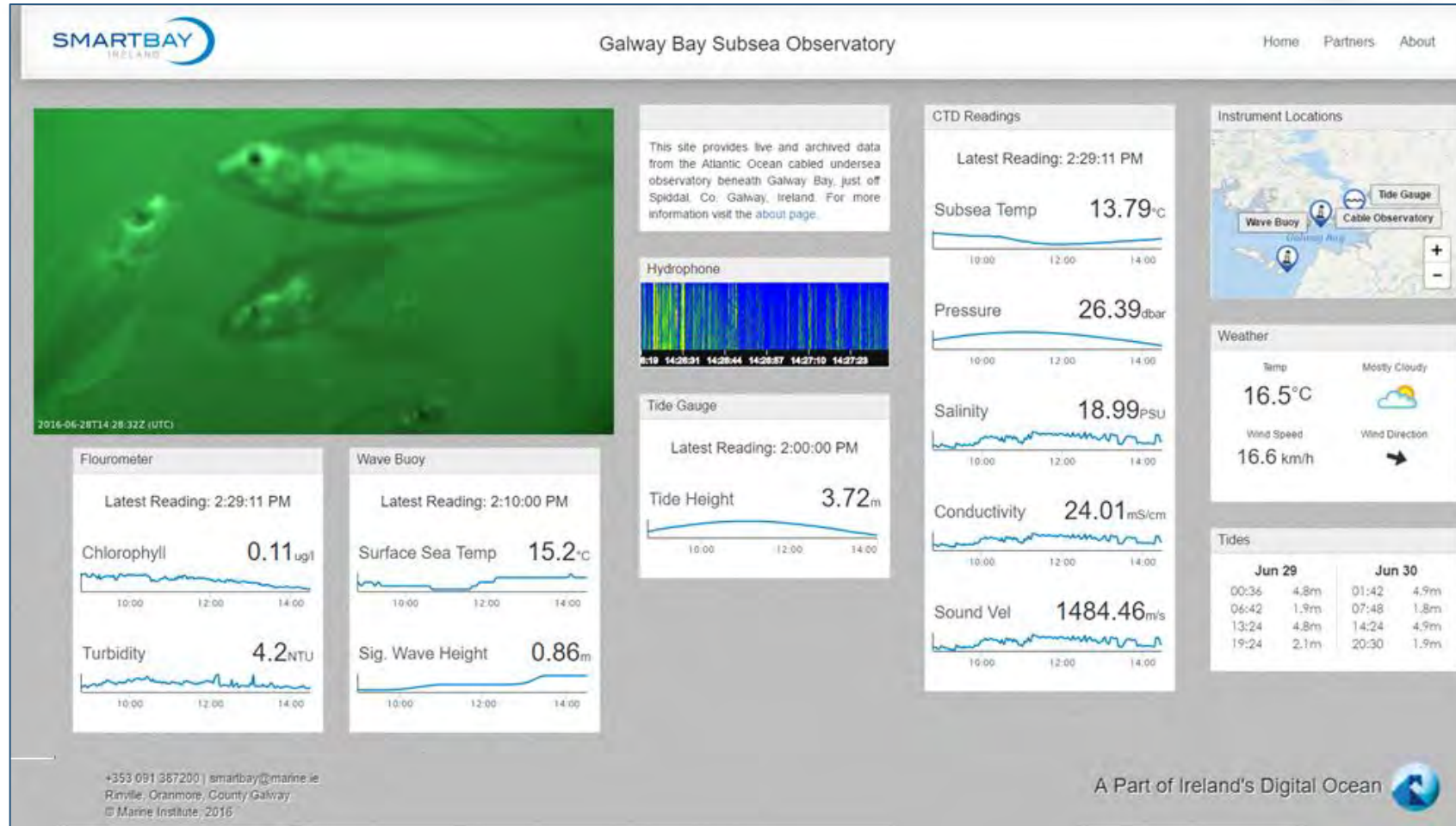


Download Sites



ERDDAP

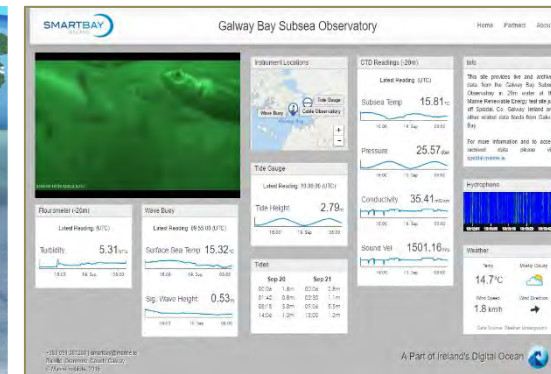
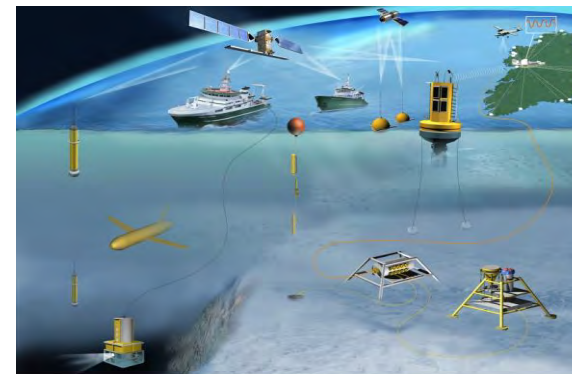
Subsea Observatory Online



<http://smartbay.marine.ie>

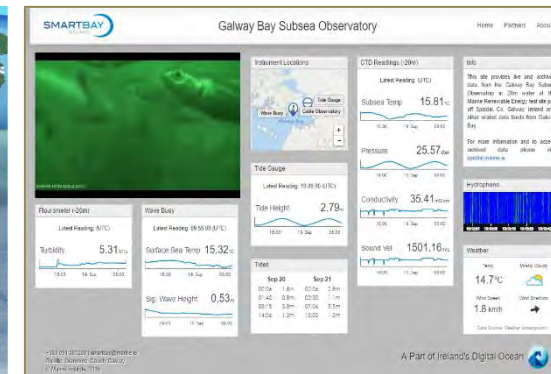
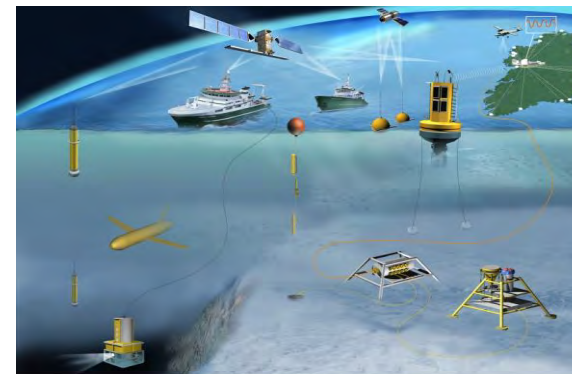
Summary

- Oceanographic systems are evolving
- While there is **further work** to do in the **standardisation** of data messages..
- **Open-source “big data” technologies** and **standards-based approaches** can be applied to process and publish **streaming oceanographic data**.
- The capability to make data available in a **timely** and **standardised** way will enable a range of new **real-time** analyses supporting sustainable marine development.



References

- Cox, S., Taylor, P. (2015). OM-JSON - a JSON implementation of O&M. Presentation to the OGC Sensor Web Enablement Domain Working Group, Nottingham, UK, September.
- Intergovernmental Oceanographic Commission of UNESCO. 2013. Ocean Data Standards, Vol.3: Recommendation for a Quality Flag Scheme for the Exchange of Oceanographic and Marine Meteorological Data. (IOC Manuals and Guides, 54, Vol. 3.) 12 pp. (English.) (IOC/2013/MG/54-3)
- Leadbetter, A., Cheatham, M., Shepherd, A., Thomas, R. (2016) Linked Ocean Data 2.0, in Diviacco, P., Leadbetter, A., Glaves, H., Oceanographic and Marine Cross-Domain Data Management for Sustainable Development, Hershey, PA: IGI Global.



Thank you

Subsea Observatory Online:
<http://smartbay.marine.ie>

Email:

eoin.ogrady@marine.ie
adam.leadbetter@marine.ie

Galway Bay Subsea Observatory Partners

Operational Partners:



This programme has been made possible through the support of the following organisations:

