COMPUTE, CLOUD AND STORAGE – CHALLENGES AND SOLUTIONS TO NEXT-GENERATION OFFSHORE ACQUISITION

March 2024

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oceanology international 2024
12-14 MARCH 2024
LONDON, EXCEL

ET WORKS

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ET WORKS - A LITTLE ABOUT US

Who we are...

ET Works is a leading provider of IT and Information Management solutions and services to the Energy Sector across the globe

What we do...

We help our customers on the journey of Business-IT transformation, with a focus on technology innovation, enterprise cloud solutions and Information & Data Management

WE PUT THE END-USER AT THE BEGINNING

- **OUR HISTORY** stretches 30 years, nurturing the relationship between people and technology and the data that connects them. We have helped create innovation in HPC, storage & tape technology, and Geoscience Services. Now a leader in Next-Generation Software-Defined solutions with specialist technical skills in hyper-converged platforms, multi-cloud, DevOps, and self-service automation
- **OUR AMBITION** is to achieve smarter, faster and more flexible work by continuously innovating with Evolutionary Technology that Works
- **OUR ACHIEVEMENT** is developing technology solutions that make life easier and better for people
- **OUR METHODOLOGY** remains resolute: be strategic and open, and to connect with the people needs

PEOPLE WHO MAKE I.T. WORK

- Delivering industry leading I.T. solutions & services for over 30 years, across the UK, Norway and South Africa
- 700+ enterprise projects delivered across multiple industries, 98% clients retained
- Strategic partnerships with many of the world's leading technology providers

ISO 27001 CERTIFIED
British Assessment Bureau

ISO 9001 CERTIFIED
British Assessment Bureau

GEOSCIENCE SERVICES

Data management
Application support
Project Consultancy & Administration
Records Management
Information Management
Seismic and well data loading
ArcGIS and mapping
Geodetics and surveying

NUTANIX CLOUD CHAMPION × Rubrik Technical Professional RTP rubrik × citrix Partner Silver Solution Advisor

NUTANIX · rubrik · citrix · assured data protection · Microsoft · FUJITSU · SPECTRA · PANASAS · Infortrend · SEAGATE · CLOUDIAN · Hewlett Packard Enterprise · HYCU · ARISTA · IBM · wasabi · vmware · Lenovo · intel · NetApp · NASUNI · Acronis · ARCTIC WOLF · SCALE COMPUTING

OUR CUSTOMERS

I.T. is an enabler to the business - it allows and helps the business to achieve its needs

IT WORKS

K.I.S.S.
KEEP IT SIMPLE, STUPID

"Systems should be as simple as possible. Wherever possible, complexity should be avoided in a system—as simplicity guarantees the greatest levels of user acceptance and interaction"

Kelly Johnson – Lockheed Martin Skunkworks

What we are trying to do in the Oceanographic data acquisition space is already complicated enough. Where we can, we need to keep it simple

AGENDA

01 Situation

02 Problem

03 Implications

04 Needs

05 Solutions

THE SITUATION

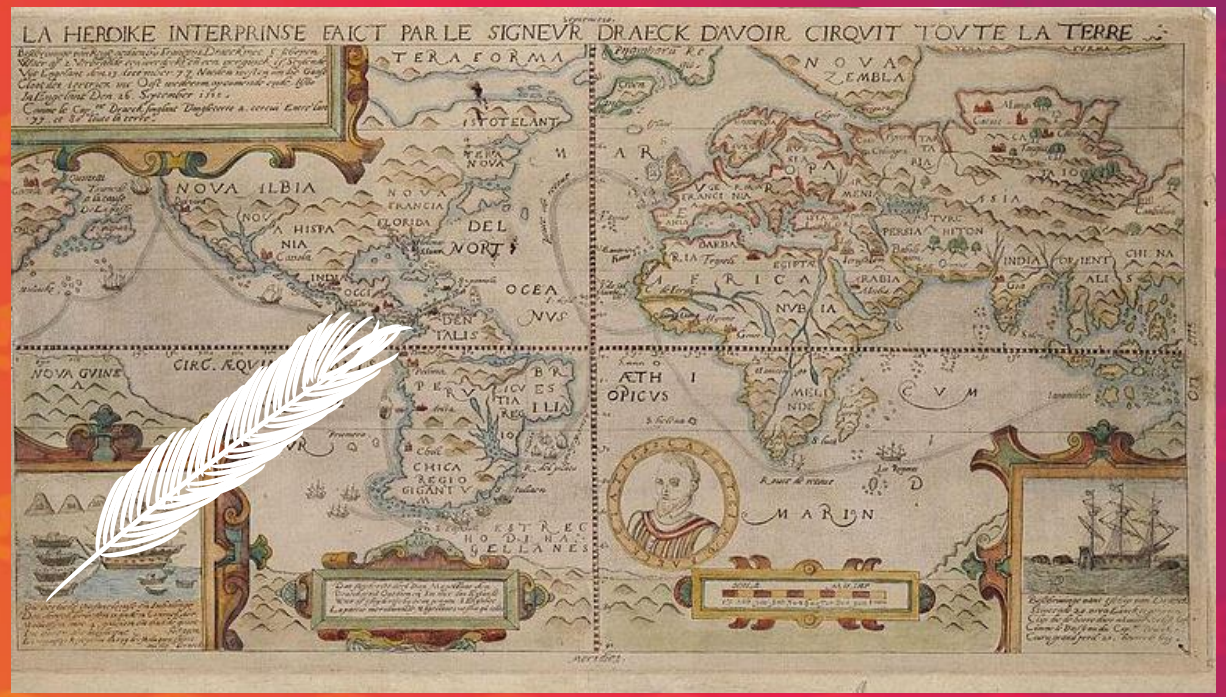
Remember, Ginger Rogers did everything Fred Astaire did. But backwards and in high heels…

What are the challenges in offshore data acquisition that we now face?

What elements can we control to make life easier for ourselves?

How can we simplify the dance?

A STORY OF TWO PARTS – THE DATA AND THE SUPPORTING IT



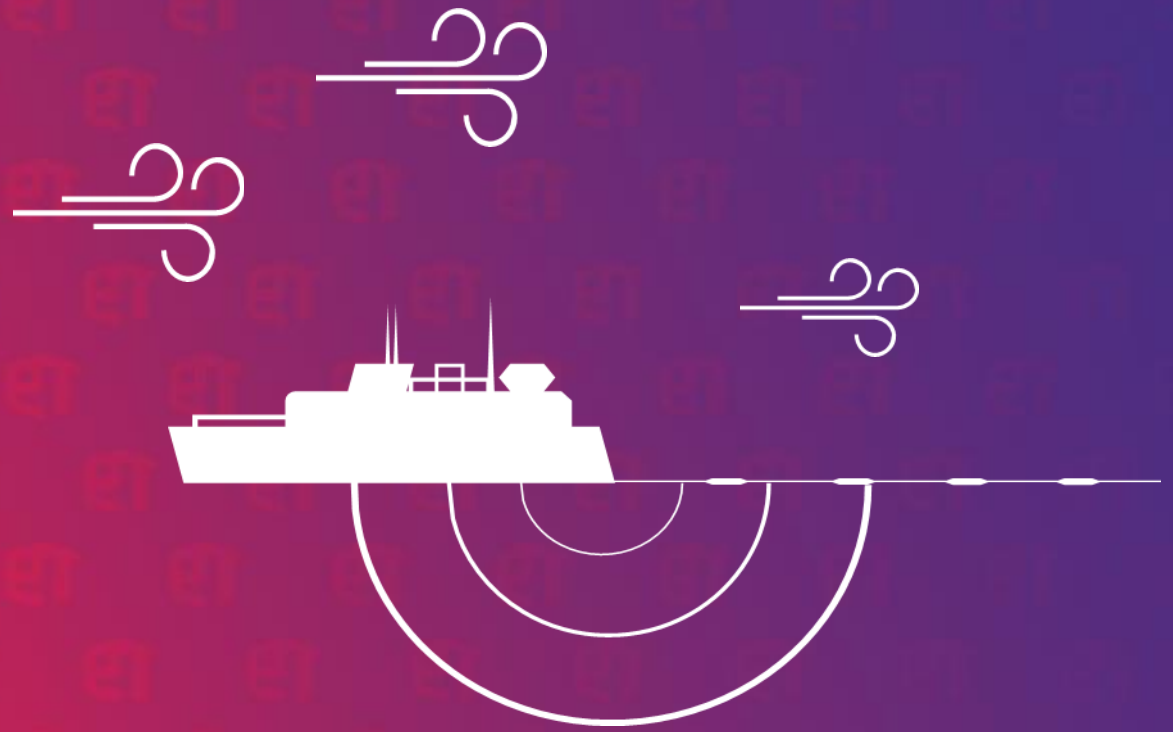
DATA IS THE KEY…

Data has always been there…
From the early days of mapping the oceans, continents and trade routes to the modern acquisition of MBES, seismic, bathymetry, water-column and environmental data

PROBLEMS AND CHALLENGES

What are the headwinds? What challenges can we hope to control…

- Dataset sizes are increasing – TB to PB scale
- Dataset complexity increasing – multi-azimuth, multi-vessel, multi-component
- Speeds and feeds – data processing
- Asset loss – sale and lease back of vessels
- Vessel technology changes – AUVs, USV/ASVs, Drones
- Client requirements – Cloud delivery, Data retention and QC
- CAPEX budget cuts
- Global data movement and mobilisation
- Client expectations – faster more secure data delivery to any office or DC



IMPLICATIONS AND NEEDS - DATA GROWTH……

01100101 01110100 00100000 01110111 01101111 01110010
01101011 01110011 00100000 01100001 01101110 01100100
00100000 01110011 01110101 01101110 01101100 01101001
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01100111 01100101
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01010100 01100101 01110010 01110010
01111001 00100000 01010000 01110010
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01100101 01110100 01110100

Over the last two years, the amount of data Fugro collects for an average offshore wind farm has increased from 40 TB in 2020 to 100 TB in 2022

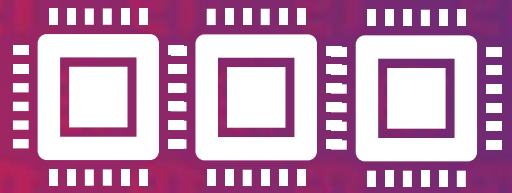
Fugro's first wind-farm project collected 3 Mb

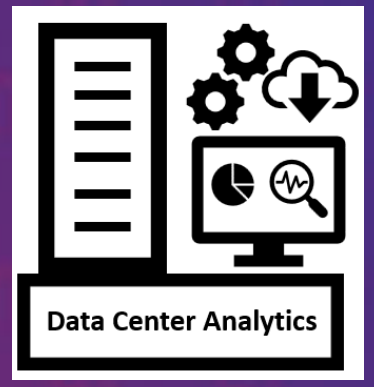
Appreciating the size and complexity of data growth - the 'data challenge' is going to be critical for business success in our industry over the coming years

....AND I.T. COMPLEXITY

Increased data complexity and size runs the risks of uncessessary increases in I.T. complexity

- Increased CPU i/o requirements – increased processing
- Data analytics – AI and ML
- Distributed teams – global organisations
- Armour against cyber security risks
- Reduce I.T. architecture complexity and sprawl
- Handle needs of sensor and vessel complexity
- Balance capex versus opex on our I.T.
- Global I.T. installs and mobilisation

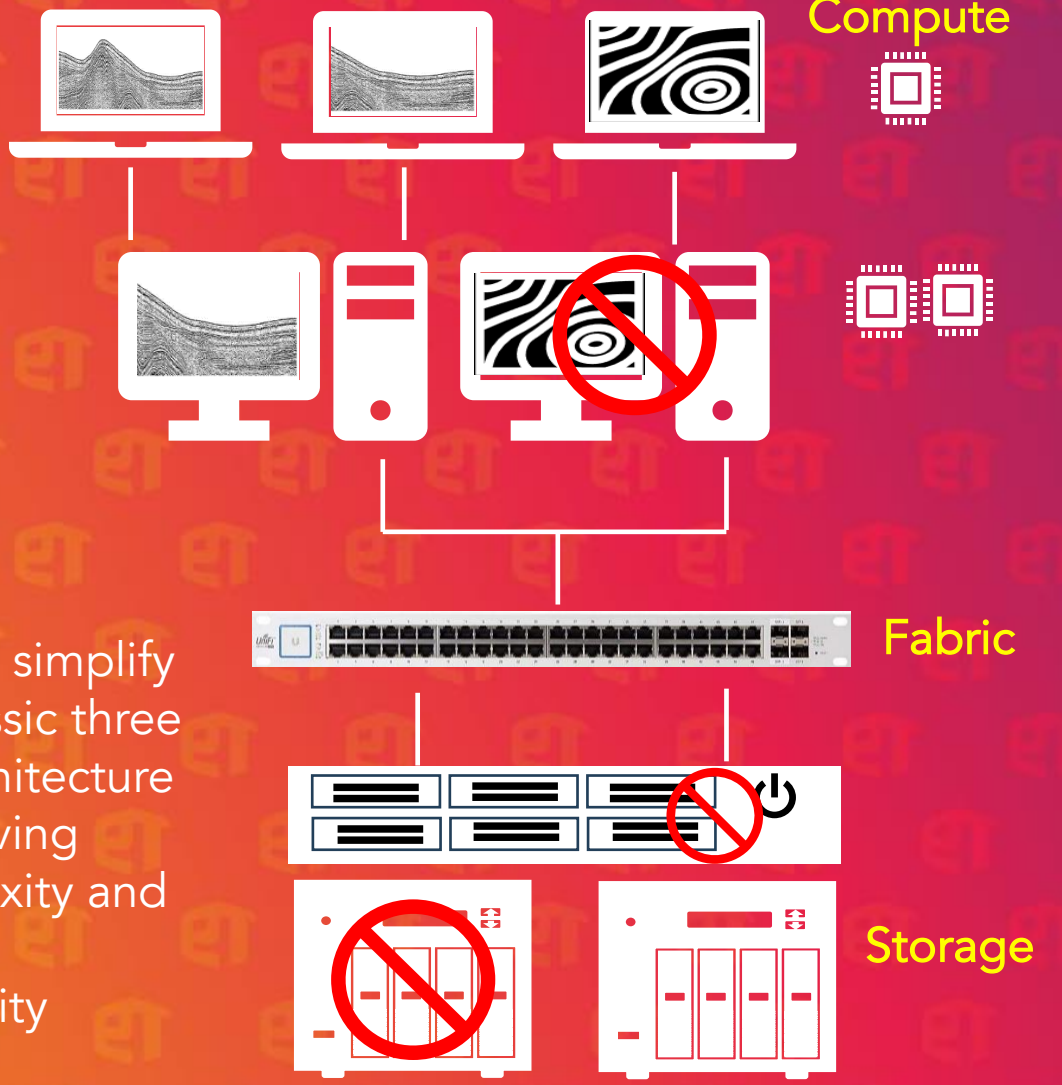




SOLUTIONS – I.T

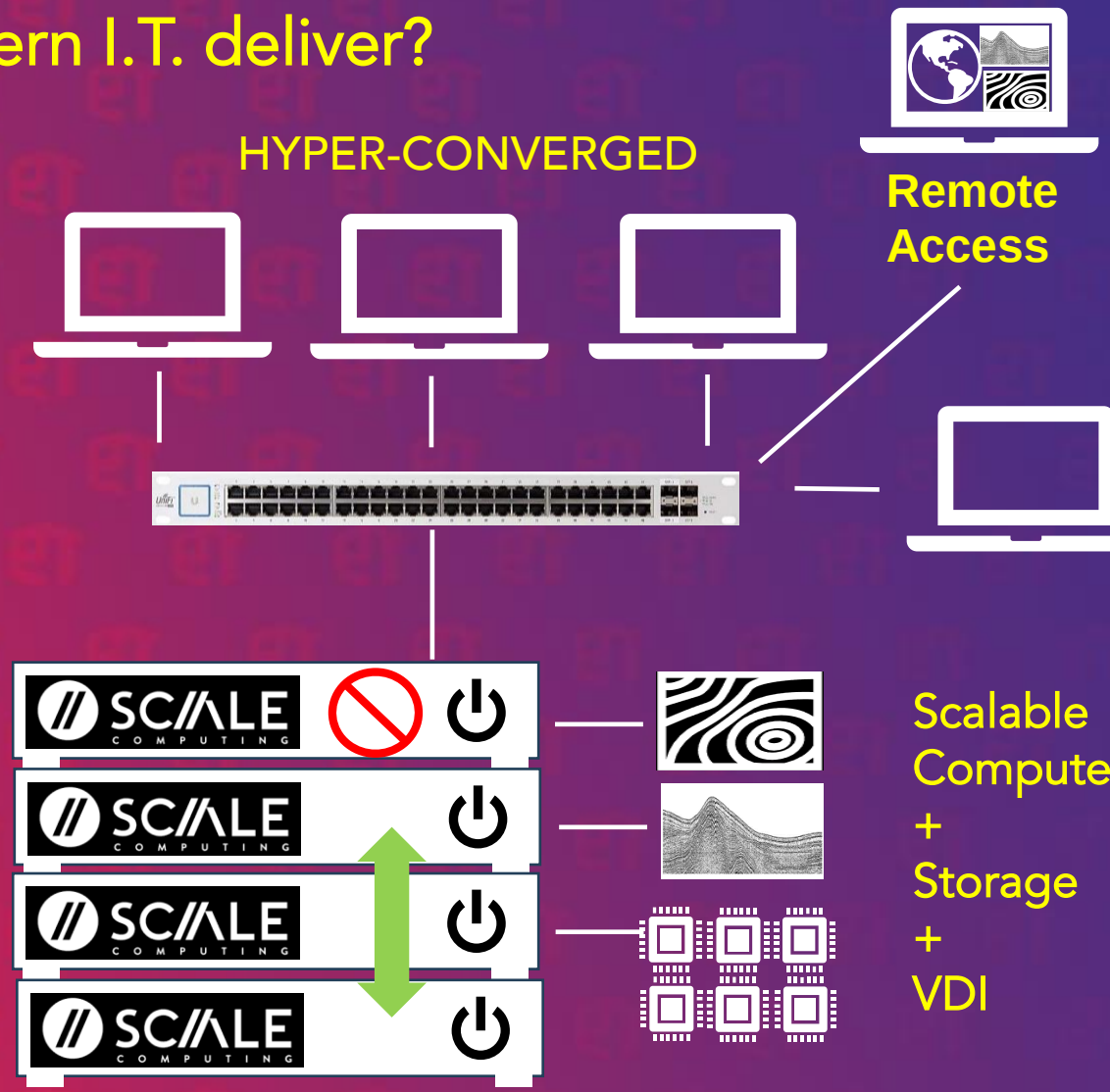
How might I.T. be redesigned, what can modern I.T. deliver?

CLASSIC 3 TIER



We can simplify the classic three tier architecture – removing complexity and lack of scalability

HYPER-CONVERGED



Using hyper-converged architectures– gives us increased resilience, lower costs and minimised failure points

MITIGATION EFFECTS OF ADVANCED NEXT-GEN I.T.

ENHANCED PROTECTION OF ENDPOINTS

- Mitigate system failures – ‘blue screen of death’
- Mitigate stolen or lost systems
- Mitigate systems against cyber-attacks, ransomware, viruses
- Mitigate issues from accidental system damage

SOLUTIONS - DATA

Hot-swappable edge optimised storage, removing issues of commodity NAS or USB storage and data transfer for large TB+ datasets

- Fully scalable - TB to PB.
- Agnostic connectivity - USB-C, Thunderbolt, PCIe, SAS, iSCSI, Fibre Channel
- Easy system mobilization and set-up – plug and play
- Storage mobility - Hot swap - move data systems from Edge to Processing Centres to Client
- High I/O – on unit processing
- Unified, secured enterprise grade solution – any data type, any capacity, any connectivity
- Vessel technology changes – AUVs, USV/ASVs, Drones – multiple LYVE form factors and sizes
- Improves Total Cost of Operations
- Full OPEX model – low entry fee, reduced overheads, zero maintenance costs, zero CAPEX costs
- LYVE Cloud and S3 compatibility to any Cloud target
- Fully managed logistics and ingest

A secure disk storage system for transferring bulk data from edge acquisition systems and devices & integrate to a unified data experience - Edge to Datacentre to Cloud

Optimize usability – an intuitive user experience for data & data handling

DATA DELIVERY
Reduce the time and overhead to deliver data to your customers and users

SIMPLIFIED DEPLOYMENT
Reduce operational complexity and overhead

EASE OF USE
Designed for use by non-technical operators

RELIABILITY
Built on Seagate - full data protection - mitigate data loss

Reduce operational costs & create standard data delivery processes

Full OPEX model – low entry fee, reduced overheads, zero maintenance costs, zero CAPEX costs

PERFORMANCE
Significantly improve upload and download speeds

SECURE
Data is secure & encrypted whilst in motion and at rest

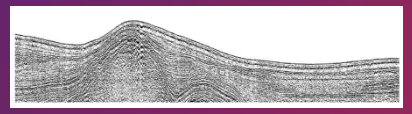
Reduce time and provide competitive advantage - accelerating delivery of data to end customers & users.

LYVE™ CLOUD
Secure public cloud storage with zero access fees

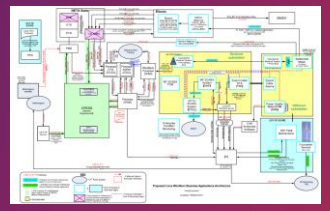
Ease & flexibility in data service delivery & deployment

IT SYSTEMS FOCUS & INNOVATION – BUILDING THE NEXT-GENERATION SOLUTIONS

FEED / Ground Model development and Interpretation

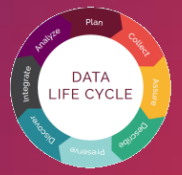


SCADA and Edge Compute



Mapping and Geomatics

Data Management



Rest of the World

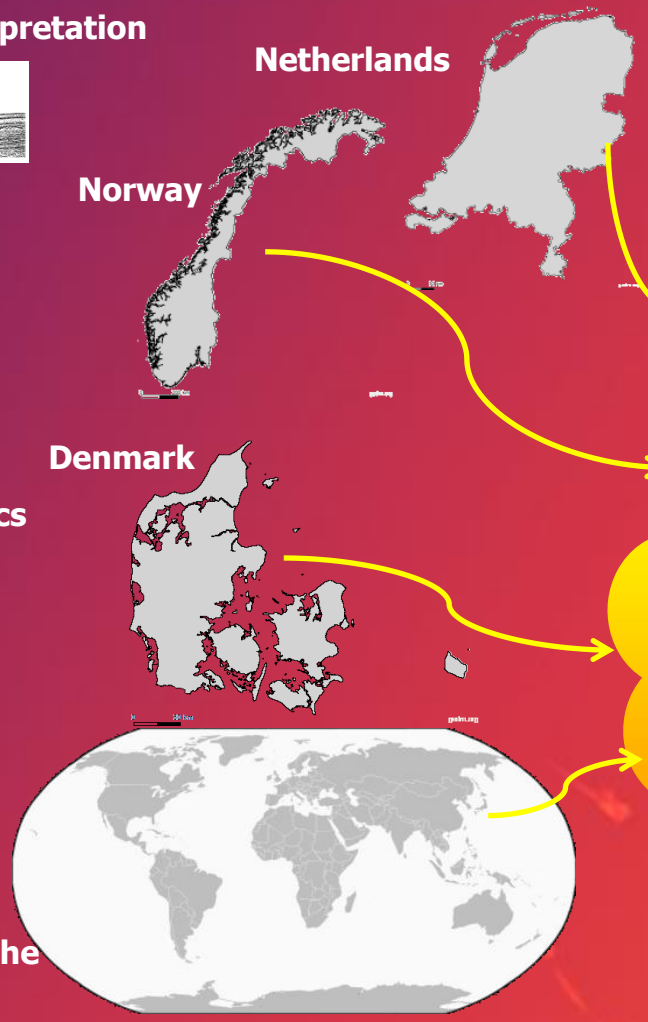
Desktops and Office

Installation / operations and remote sites

Netherlands

Norway

Denmark



Development of new hybrid cloud infrastructure and remote working / VDI solutions scalable from ~10 users to 10,000 users

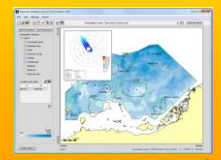
- Single Application Instance – apps stored and managed centrally
- Data hosted in one location – zero duplication
- VDI compute – CPU and data co-located
- Enhanced data compliance – all data stored centrally
- Connect from anywhere – move pixels not data

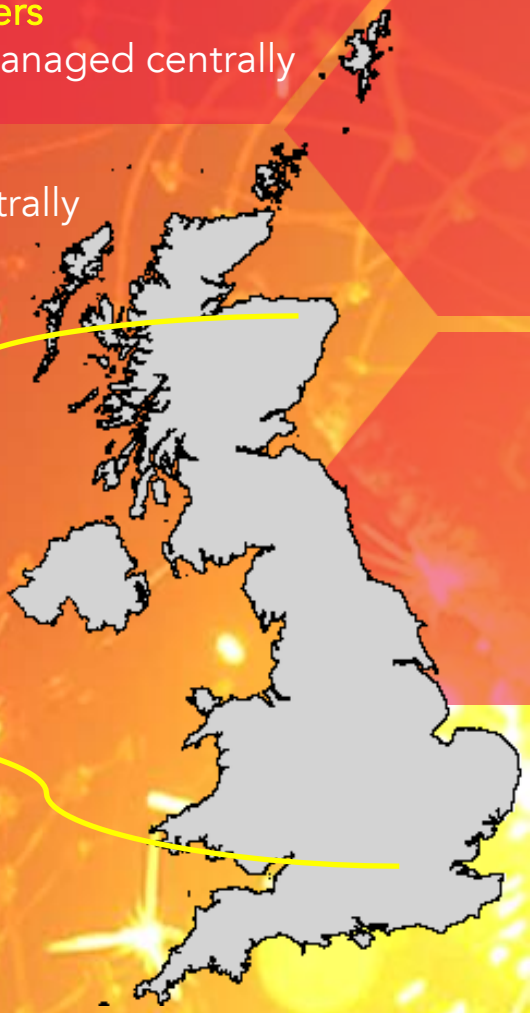
Petrel
Shared earth—critical insight

Fledermaus 8.4.1

PETROSYS

ArcGIS





- Enhanced collaboration
- Virtual teams – allow power users to work together and mentor
- Increased simplicity – decreased costs
- Lower TCO

Evolutionary Theory – The Red Queen Hypothesis

"Now, here, you see, it takes all the running you can do, just to keep in the same place"

Alice Through the Looking Glass

THANK YOU

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ET Works
Evolutionary Technology