Red Oak Consulting
Expert advice, exceptional delivery

ROMS MANAGED SERVICES

Trusted, preferred, and respected across sectors

About Red Oak Consulting

- UK's leading digital transformation consultancy for HPC, AI, and Cloud.
- Experts in creating tailored, scalable, and future-ready technology solutions.

Expertise

- 150+ years of combined experience across research, engineering, and cloud.
- Specialists in guiding full digital transformation journeys.

Core Services

- Strategy: Cloud/HPC vision, roadmaps, cost analysis, business cases
- Delivery: Application optimisation, migration, system builds, support
- Engineering: Workflow/data analysis, benchmarking, real-time analytics

Why Choose Red Oak Consulting

- The UK's leading experts in HPC, AI, and Cloud transformation
- Deep understanding of research environments, including climate modeling, CFD, and data science
- End-to-end solutions with a focus on sustainability and cost efficiency
- Specialists in Research Software Engineering, DevOps, and TCO modelling

Proven Results

- Delivered 145+ HPC projects and 40+ cloud solutions
- Managed £45m–£500m in procurement value
- 100% client satisfaction and retention
- 99% on-time project delivery

150+ years of combined experience across research, engineering, and cloud

Case Study

Met Office

The Client

- Founded in 1854, the UK's national weather and climate agency.
- Provides aviation forecasting for two-thirds of global flights.
- Collects and analyses global climate data for energy, utilities, and renewables.
- Supports governments, businesses, and emergency services with weather-related decision-making.

The Challenge

- **End-of-life HPC infrastructure:** The Met Office's on-premises supercomputer was nearing obsolescence, facing limitations in power, space, and scalability.
- **Data overload:** Processing billions of daily weather observations from global sources required a more efficient system.
- **Strategic shift needed:** A comprehensive understanding of High Performance Computing (HPC) market trends and data archive usage was essential.

Red Oak's Role

- **Strategic consultancy:** Red Oak's senior team, including Richard Lawrence, guided the Met Office through a transformative process.
- **Data analysis:** Conducted in-depth assessments of data usage to inform future infrastructure decisions.
- **Vendor engagement:** Facilitated discussions with potential suppliers, including Microsoft, to explore innovative solutions.
- **Cloud transition:** Provided expertise in transitioning to a cloud-native HPC model, enhancing scalability and efficiency.

The Outcome

- **Cloud adoption:**
  The Met Office became the first UK government organisation to implement a cloud-based HPC system for weather and climate modelling.
- **Microsoft partnership:**
  Awarded the cloud contract to Microsoft, leveraging Azure's capabilities for enhanced performance.
- **Operational improvements:**
  Achieved greater flexibility, scalability, resilience, and security in data processing.
- **Long-term collaboration:**
  Red Oak Consulting has supported the Met Office's HPC stability for over 15 years.

For more detailed information, you can read the full case study here:
https://www.redoakconsulting.co.uk/case-study/met-office/

Case Study

Lloyds Register

The Client

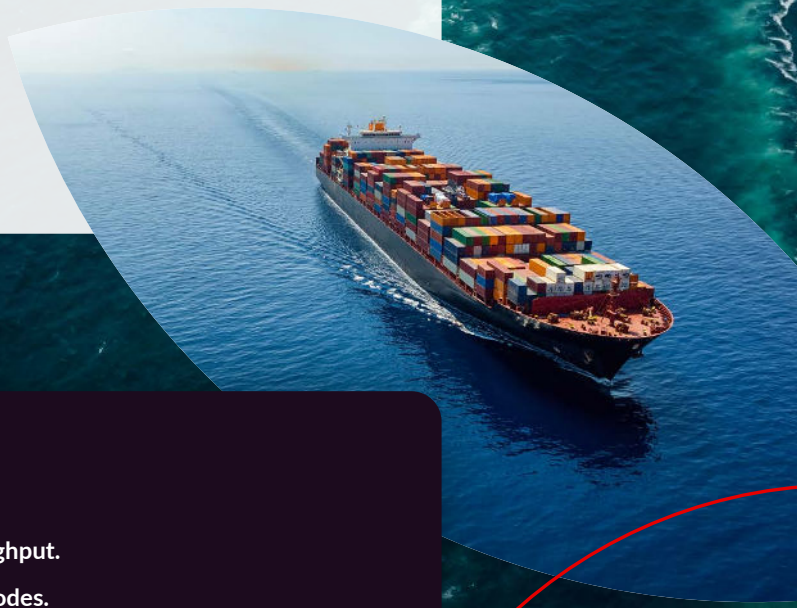
- One of England's most iconic organisations, founded in 1760.
- Provides global certification, compliance, and consultancy—especially in marine and offshore sectors.
- Uses HPC for critical simulations like ship behavior in waves, cargo capacity, and efficiency.

The Challenge

- Transition from on-premises HPC to a cloud-based Azure solution.
- Manage high global demand for HPC use.
- Optimise costs, reliability, and scalability of HPC operations.
- Legacy setup was inefficient—often used like high-end workstations.

Red Oak's Solution

- Engaged with stakeholders to understand pain points and future needs.
- Rebuilt HPC environment from scratch, adding ROMS (Red Oak Managed Services) and a ticketing system.
- Migrated to a new cloud cluster, launched April 2023.
- Implemented Azure spot nodes with custom scripting to reduce cost and rerun evicted jobs.
- Enhanced support and HPC maturity across LR's global offices.



The Results

- **Increased efficiency through improved computational throughput.**
- **Cost savings via reduced hardware, space, and use of spot nodes.**
- **Greater stability and reliability for simulations and modeling.**
- **Improved user experience and support structure.**

"Red Oak Consulting has proven to be a reliable and knowledgeable partner in the realm of HPC... Their tailored solutions perfectly aligned with our requirements."

Lloyd's Register

For more detailed information, you can read the full case study here:
https://www.redoakconsulting.co.uk/case-study/lloyds-register/

Industry insights by our leading experts

Dairsie Latimer

Key Early Questions When Running a Proof of Concept in The Cloud

Once the success criteria and associated test cases have been defined, the PoC solution(s) can be engineered. The test environment should be as close to a production system as practicable. This has interesting implications for Cloud PoCs, especially if you do not already have a current Cloud presence. Understanding how this is configured and any data required for the PoC is moved to and made available in the Cloud can be a key technical challenge and potential blocker to the PoC.

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Nick Skingle

Atlanta SC24 Reflections

The AI revolution has seen a focus on data and data storage solutions. Those vendors that were new kids on the block now seem to be well established. There are some really interesting software solutions for enhancing storage performance and utilisation from established vendors such as DDN with their announcement of Infinia and some really interesting developments from companies such as Storj and Hammerspace. If anything, storage is taking more of a centre stage and is a very competitive space.

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James Page

Mastering CycleCloud

After deploying your CycleCloud host and creating a cluster using one of the built-in templates, you might wonder what's next. While these templates provide a functioning scheduler and compute nodes, the compute nodes typically will only have a base operating system, often one of the Azure HPC images, with no further customisation or software installed. Customisation of your cluster is a key step in making the most out of your Cloud HPC and can be the difference between the success and failure of a production service.

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Manveer Munde

HPC Storage Costs On-Premises Vs Cloud

Consequently, cost savings can be made on the above Cloud prices which are not conceivable on-premises. PAYG costs are greatly inflated and reserved Cloud storage capacity trades flexibility for considerable discounts. Taking all of this into account, for a smaller HPC environment, a Cloud-based scratch storage system begins to compete with its on-premises counterpart and when combined with some of the clear benefits of Cloud, it is often the case of 'when' to migrate to the Cloud rather than 'whether'.

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Paul Ingram

F1 Whitepaper

Creating a championship winning car is not just about having a fast car with good aerodynamics. As F1 has evolved, teams have found that attention to the smallest detail can make the difference between finishing first or second, or scoring points, and not scoring points. No two races are the same, even if they take place on the same track; there will always be differences in weather conditions, wind speed and direction, and also which tyres to use and when to change them during a race. There will also be events such as engine failures, crashes etc. How all of these events and variables are handled by each team falls in to two main categories, each having their own compute requirements; car setup and race strategy.

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