



SOLUTION OVERVIEW:

Accelerating Scientific Computing with DevOps and Automation

UNIQUE COMPUTING NEEDS FOR SCIENTIFIC COMPUTING

Scientific computing (also computational science) is a rapidly growing multi-disciplinary field that leverages large-scale data-driven science enabled by extensive computational resources. Organizations leveraging scientific computing to drive research innovation have unique requirements to process complex workloads: they need to quickly analyze massive data pipelines, store even larger datasets and share that data with external collaborators.

Cloud computing is the underlying technology that enables Enterprises to develop scientific computing capabilities; effectively managing the complexity, cost and security of cloud resources is critical for organizations to rapidly achieve results from their investments in this space.

RCH: WE FACILITATE SCIENTIFIC COMPUTING

RCH is an Information Technology Consulting provider that delivers Scientific, Engineering, and Technology solutions to help organizations stay focused on their science instead of managing the supporting technologies that enable that scientific discovery.

“Embracing DevOps allows us to leverage the scalability of the Cloud to answer research questions quickly and cost-effectively.”

RCH learned that leveraging DevOps practices accelerated their ability to deliver Cloud High-Performance Computing (HPC) capabilities for their customers, but the demands of those customers with regard to data protection, security and compliance required specialist cloud technical resources to be allocated across teams. Without automation and tooling in place, each project required extensive manual setup, configuration and ongoing management, increasing the time and cost it takes to deliver answers.

RCH knew that how they setup and maintained research computing environments would be critical to their customer’s success so they looked for a solution that was equal in agility and innovation to the research teams using them. Unfortunately, most products in the space had design principles that did not fit well with their use case. Those solutions fell into two categories:

- Solutions that only check current configuration and issue warnings about what is not working.
- Solutions that abstract away the cloud provider’s native tools to simplify management.

Auditing type solutions that identify common configuration issues and issue warnings, were great at highlighting issues, but did very little to alleviate resource constraints; while the cloud abstraction tools were a non-starter because the scientific computing & data science teams value flexibility of iterating through infrastructure requirements vs. being confined to pre-defined solution blueprints. Using native tools also allows these teams timely access to the latest generation of cloud capabilities.

What they needed was tooling that would immediately setup environments based on industry best practice security configuration, automate common operational activities and allow the technologists and scientists to use the native cloud tools and APIs that they were already familiar with.

TURBOT: AUTOMATE YOUR CLOUD, ELEVATE YOUR TEAM

Turbot delivered to RCH (and their customers) a Software Defined Operations platform with automated guardrails that ensures cloud infrastructure is secure, compliant, scalable and cost optimized. Turbot enabled RCH’s DevOps teams to start each project with a Cloud environment that was configured to meet each customer’s unique compliance, security and audit controls, while allowing the researchers, data scientists and cloud team to use native cloud APIs and consoles.

TURBOT FEATURES

<i>Initial Deployment</i>	<ul style="list-style-type: none"> • 500+ Pre-defined Guardrails & Policies mapped to GxP, HIPAA, NIST, & more. • Automation of end-to-end best practice VPC networking stacks. • Enterprise integration of IAM provisioning.
<i>Ongoing Configuration Management & DevOps</i>	<ul style="list-style-type: none"> • Point & Click configuration of complex automations. • Cross-Account Cloud CMDB Search & Discovery. • Manage configuration changes, prevent drift, and ensure OS hardening.
<i>Threat Detection & Response</i>	<ul style="list-style-type: none"> • Monitor events, notifications, and automatically remediate specific incident types with Real-Time, Automated Cloud Operations. • Full-stack Identity, Access & Permissions with time-limited elevated access.

DEVOPS ACCELERATES SCIENTIFIC DISCOVERY

Turbot’s Software Defined Operations platform and RCH’s skilled resources work together to enable data scientists and core researchers to leverage the power of DevOps and cloud computing without compromising enterprise security or data protection requirements. Connect with us for a free whitepaper and ask for a demo to see how we can do the same for you: <https://turbot.com/connect/>