

How HTG Molecular Diagnostics Leveraged RCH's Proven Cloud Computing Expertise to Improve Dataflow Efficiency and Value

The following case study outlines how RCH Solutions developed and continues to support HTG's cloud-based workflows for data pipelining and 3rd-party integrations, as well as computing at scale for tertiary workloads/analyses.

Challenge

Data Pipelining and Collaboration within a Growing Biotech

HTG is a biotechnology diagnostics company headquartered in Tucson, Ariz. After opening a second (scientific) location at San Carlos, Calif. and expanding its scientific objectives, the need to evolve its scientific computing environment became apparent. The company struggled with dataflows that didn't allow for seamless processing and sought to better move and automate data integrations and workflows from creation to value.

To support this goal, HTG looked to the cloud. However, migrating applications, workflows, and processes from on-premise environments to the cloud requires a unique skill set and the experience to adapt to the specific environment for scientific computing, wherever it may reside.

Specifically, HTG needed Life Sciences compute expertise and execution support to account for the following critical considerations:

- Accommodating the unique needs of the R&D team while balancing the company's data security priorities and protocols
- Transitioning applications, data, and storage to the new environment without disruption
- Managing and sustaining availability
- Generating buy-in and acceptance by the organization's leadership

As expressed by HTG, the priority for this initially proposed engagement was the integration of services and automated bidirectional movement of data generated on-premise, between the Amazon Web Services (AWS) Public Cloud and Seven Bridges, a leading biomedical data company and a key partner for HTG.

Solution

A Proven Computing Partner

Providing targeted IT services exclusively to Biotech and Bio-Pharma organizations since inception, RCH had proven itself a reliable and skilled partner through past projects with HTG's Chief Scientific Officer, who previously led a similar effort for a larger organization. With a team that includes IT and Bio-IT professionals, as well as individuals with advanced degrees in the sciences, RCH was once again called on and uniquely positioned to provide IT services to HTG, both in the near-term and as needs continue to evolve.



About HTG Molecular Diagnostics:

HTG Molecular Diagnostics, Inc. (HTG) is focused on NGSbased molecular profiling. The company's proprietary HTG EdgeSeq technology automates complex, highly multiplexed molecular profiling from solid and liquid samples, even when limited in amount. The primary use of HTG's technology is to empower precision medicine.

To initiate this project, RCH met with HTG's Chief Scientific Officer and others to establish a complete understanding of compute requirements and expectations. In summary, the needs included a sophisticated data and cloud compute workflow, one that could:

- Automatically migrate data generated in San Carlos to a newly established AWS cloud environment
- Support data analysis by Seven Bridges through workflow automation
- Generate and push results back through HTG's AWS environment for streamlined evaluation and analysis in the San Carlos facility

To facilitate this targeted workflow, HTG needed AWS hosted Scientific Compute support to be run against raw-from-on-premise data and interim results data from Seven Bridges. The initial ask in this realm also included compute support for R and Python workloads, and the use of R Shiny.

“RCH is an advocate in computing speak, and science speak.”

– **HTG Chief Scientific Officer**



Results

Faster and More Efficient Data Processing and Collaboration

Over the next 14 weeks, RCH engineered, built, and supported the needed compute services in AWS. Additionally, RCH drove the automation of data movement from on-premises data repositories to the new compute service, and to and from Seven Bridges. Special attention was paid to Information Security, including auditing and tracking of activities within AWS, which was of chief concern for the HTG executive leadership team.

The result was faster and more efficient processing of data. While the initiative was considered “foundational,” as the original objectives did not preclude additional capabilities, scale, or workflows being designed-in and implemented, HTG fully leveraged the depth and breadth of RCH's knowledge and skills to accomplish its compute goals and drive value well beyond the limits of this project's scope.

Overall, HTG found RCH's “fit-for-purpose” approach, in-depth understanding of HTG's challenges and the various strategies to solve for them, and ability to deliver with accountability and transparency, to stand out among other vendors.

According to their Chief Scientific Officer*, “RCH is an advocate in computing speak, and science speak. They understand stakeholders; listen and ask the right questions without jumping to conclusions; support the decision you make and are rigorous in their pursuit to deliver on time and on budget. Finding a partner who can deliver on all of that is a real rarity. In short, you can trust them to help you meet your goal.”

*Note: HTG's Chief Scientific Officer moved on from the company following the completion of this project.

About RCH Solutions

RCH Solutions (RCH) is a global provider of computational science expertise, helping Life Sciences and Healthcare companies of all sizes clear the path to discovery for more than 27 years. Learn more at www.rchsolutions.com.

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Contact the RCH team to learn how we can support your advanced scientific computing and IT needs. discover@rchsolutions.com

