The HudsonAlpha Institute for Biotechnology Shifts Primary Data Storage to Quobyte Software-Defined Storage System

The enormous data demands of genomic research required an affordable solution with radical improvements in manageability and scalability.

SANTA CLARA, CA, January 31, 2023 -- Quobyte Inc., the deploy-anywhere software storage provider, today announced that the world-renown HudsonAlpha Institute for Biotechnology will use its technology to meet the exponentially growing data demands of its production IT system. HudsonAlpha, a nonprofit organization based in Huntsville, Ala., is dedicated to improving the human condition around the globe through discovery, education, and economic development in the genomic sciences. The main campus includes nearly 50 biotech companies and consists of 152 acres located within Cummings Research Park, the second-largest research park in the nation.

Life Sciences is one of the world's most data hungry industries. Being able to deliver affordable storage performance and capacity to satiate that appetite is key to its success. In genomics, data volumes are increasing at an incredible rate–Statista notes that from 2009-2014 the field created 1 petabyte of data, in the following five years that number exploded to 20 petabytes. [1]

Traditional parallel file systems and data appliances are proving inadequate to the task of supporting the massive data requirements of these modern workloads.

1. https://www.statista.com/statistics/1085166/genomics-data-increase-worldwide-in-gb-per-year/

For example, while individual drives can offer exceptional performance they are throttled by NFS' single-stream processing, and an appliance based approach holds users hostage to the physical limitations of enclosures. With Quobyte's software-defined storage HudsonAlpha was able to provide scale-out performance on any commodity, off-the-shelf platform.

"If we had a new project come online and we needed another petabyte of storage, we could literally order a couple servers, put them online in a matter of minutes, and have that capacity available to the Quobyte file system," explained Richard Johnson, Systems Architect, HudsonAlpha. "If we were dealing with storage appliances, those abilities would be a lot more constrained."

HudsonAlpha had another need that Quobyte is uniquely able to solve–the ability to provide direct API-accessed information. This provided a real-time view of data and storage usage helping ensure the correct level of provisioning and chargeback for each of the organizations it serves.

"With my background in 3D protein structure alignment it has been a real pleasure working through the evaluation process with HudsonAlpha," said Björn Kolbeck, CEO, Quobyte. "To keep pace with the possibilities of genomic research you have to remove the data clogs from the system—that's why we founded Quobyte, to rethink data storage to enable it to handle these previously unimaginable volumes of data."

HudsonAlpha's 4.5 petabyte production system now runs on a Quobyte clustered software-defined storage system. It is made up of 26 storage nodes each with 22 x 16TB hard disk drives, 2 x 8TB SSDs, and a 1.6TB NVMe drive, and connected to the network with dual 100GbE ports.

About Quobyte
Founded in 2013 by former Google employees and high-performance computing experts, Quobyte is dedicated to bringing HPC scale-out and hyperscaler operations to the enterprise. Backed by over a decade of research, Quobyte's next-generation

parallel file system core serves low-latency and high-throughput workloads within a single system. Quobyte offers enterprise IT the benefits of modern storage for generation scale-out with unlimited performance, automatic transparent failover, and non-disruptive updates.

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