Bright Computing

University of Nevada, Las Vegas (UNLV) Puts its Trust in Bright Computing and Advanced HPC

CASE STUDY

UNLV

University of Nevada, Las Vegas (UNLV) is a public research institution committed to rigorous educational programs and the highest standards of a liberal education. The Nevada Institute of Personalized Medicine (NIPM) is an institute of the University that works to improve individual and systemic health care through translational clinical scientific research, education and workforce training, commercialization of technologies, and job creation.

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— Richard Young, System Engineer at NIPM

The Requirement

Two years ago, NIPM implemented a small system to enable a group of researchers to download and analyze genomic data. The system was designed and implemented by Bright Computing partner, Advanced HPC, and was highly customized to suit the department's requirements.

In 2017, NIPM chose to upgrade the system and again chose to work with Advanced HPC because their work together during the first project gave Advanced HPC a deep understanding of NIPM's system requirements and high expectations.

Richard Young, System Engineer at NIPM, comments; "When working with personalized medicine, there is a lot of data. We wanted a solution that allowed us to access and analyze these vast quantities of medical and genomic data in an easy, time-efficient, and cost-efficient manner. We didn't want a design that was based around a cheap computer with high end GPUs. We wanted a high density based machine with lots of memory and high end dual processors. The design requirements were very specific."

Crucial to the success of the project was an intense three-month planning phase. During this time, Advanced HPC and NIPM worked together to draw up a full set of requirements for the tailor-made supercomputing environment.

The solution

At the heart of NIPM's supercomputer is Bright Cluster Manager, providing single-pane-of-glass management for the hardware, the operating system, a mixture of open source HPC software, and users.

Young approached the project with an amount of skepticism because the existing supercomputer on the UNLV campus was resource intensive, requiring two full time administrators. Not only did the NIPM team did not have the luxury of dedicated admin resources, their staff largely comprised researchers in the medical and bioscience space who didn't have a technical background. Young explains; "It was imperative for

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Bright Cluster Manager to take care of the technology and manage the data. I wanted to be sure that the NIPM team would be free to do their jobs, and wouldn't get bogged down in technical administration. I knew Bright was the easiest management solution available and wanted to be sure that everyone in the team could use it."

Advanced HPC managed the deployment process, getting the new supercomputer up and running in just a few hours. Since implementation, the Bright technology has lived up to high expectations; the NIPM team can submit jobs and process data with ease, and in the efficient manner they were hoping for.

Young has been impressed by the support from Bright Computing and Advanced HPC; "Advanced HPC understood that we are self-funding and therefore had to move fast. I couldn't have asked for more from the team. The Bright Support team has also been extremely helpful, going out of their way to answer questions – no matter how trivial – and work on trouble tickets immediately."

During the evaluation phase, Young was excited at the prospect of using Bright's dashboard and visualization tools. The reality is that he rarely needs to. "Bright takes care of everything. It makes sure the supercomputer is up and running, and everything just works."

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Built for the Future

For NIPM, a compelling benefit of Bright is the ability to burst into the cloud for additional compute power. NIPM has six researchers that each run their own lab. Every lab has its own staff, budget and tools. All users can access NIPM's supercomputing power for free. With Bright underpinning the supercomputing environment, if a lab needs more compute power for a large project, it now has the option to seamlessly burst into the cloud. All of this is managed by Bright's intuitive user interface, Bright View.

Imaging

Working with such a diverse group of scientists, a second important benefit for NIPM has been Bright's imaging feature. Powerful and flexible software image management from Bright has proved essential in NIPM's ability to repeat jobs with the greatest of ease.

Looking to the Future

As for the next phase, NIPM is looking forward to exploring Bright for Deep Learning, to see how the Bright technology can harness the power of its rich data to gain actionable insights into their research.