Bright Computing
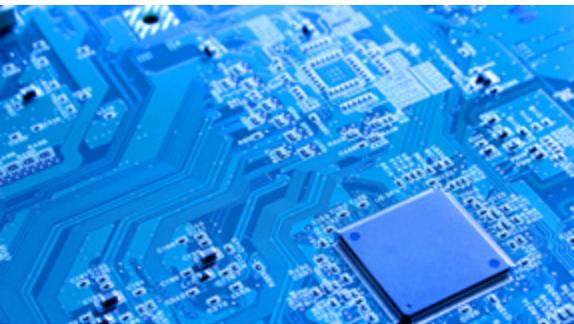
European Electronics Company Deploys Dynamic Data Center
Single pane of glass management for HPC, OpenStack and Big Data

CASE STUDY

This European electronics company has been a long-term user of Bright Cluster Manager, having started with a modest 4 node HPC cluster back in 2013. With hundreds of nodes now in production, Bright is working closely with the company to drive innovation and agility by leveraging Bright's Big Data and Bright OpenStack solutions.

"Bright has helped us create a truly dynamic environment where we can run a very mixed workload and manage a mixed hardware environment."

The Challenge

In 2013, the company built its first cluster to support a growing requirement for an efficient, easy to manage high performance computing (HPC) environment. Bright Cluster Manager was chosen to deploy the complete cluster over bare metal, and manage it effectively.

In 2015 the company hired a new head of HPC, who recognized that the organization would benefit greatly from expanding, strengthening and improving the HPC environment. He laid out ambitious plans for the company's infrastructure, with Bright technology playing a fundamental role.

The Head of IT had a team of just 3 people to support 10,000+ staff and over 30 different applications, so he placed a major emphasis on implementing technology solutions that would automate and streamline processes within the business.

The Solution

The company chose to maximize resource utilization by deploying a dynamic data center to handle HPC, big data, and OpenStack cloud computing over a shared clustered infrastructure. It chose Bright Cluster Manager, and Bright OpenStack for the ability to manage all of its clustered resources from a single management interface.
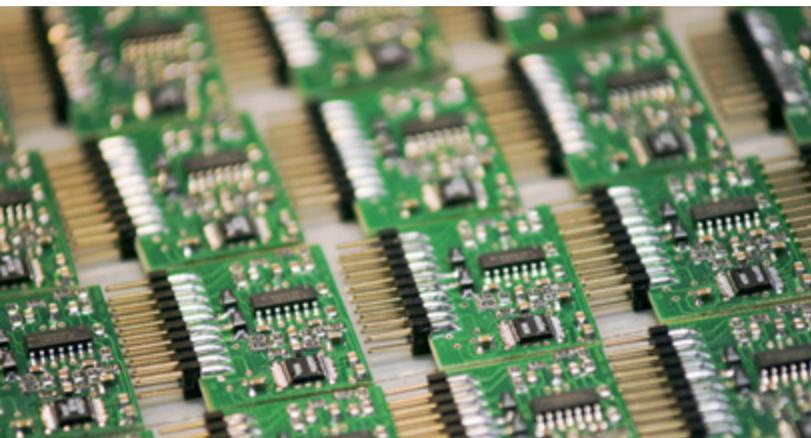
Bright for HPC
The user community is diverse; the HPC environment is called upon for mechanical analysis and fluid dynamics, as well as multiple research projects in the fields of chemistry and optical analysis. Since 2015, under the management of Bright technology, the company's clustered environment has quadrupled in size; from less than 80 nodes when the head of HPC joined the company, to more than 250 and over 5,000 cores today. Over the next 18 months, the plan is to double in size again.

Bright OpenStack

Most of the company's computations are carried out on Linux, however there is still a dependency on Windows-based engineering applications within the organization. To ensure that Windows could be integrated and managed as part of a common platform, the company has deployed Bright OpenStack in an innovative way.

The company designed its infrastructure to give Windows its own execution platform, which sits within the Linux-based infrastructure, all managed by Bright Cluster Manager and Bright OpenStack. Servicing their Windows-based application needs with a common Bright infrastructure management solution, means that the Windows execution platform can be monitored, provisioned, and health-checked by Bright, in just the same way as the rest of their high performance infrastructure.

Bright for Big Data

With algorithms getting more complex and the data mountain rapidly building, the company realized that more compute power was needed so that big data analysis techniques could be used to deliver deeper insight to their design process.

One option was to build a separate cluster for big data, but the company recognized the increasing convergence of big data and HPC and turned to Bright to bring big data into the existing HPC environment, thereby managing both HPC and big data workloads from the same familiar Bright user interface.

By addressing their appetite for deeper insight by leveraging the breadth and power of Bright, the company is now in able to manage all workloads from a single point of control. With Bright, the company has easily deployed big data frameworks onto the Bright infrastructure, giving end users a consistent experience, and enabling the IT team to deliver this emerging technology with minimal disruption to the business and without the need to hire more staff.

The Result

According to the head of HPC, Bright gives the company a huge advantage. Bright's expertise has enabled the company to explore and expand into OpenStack and more recently big data in just a few days, which has minimized the risk of investment, and saved significant time and money.

The company cites another major benefit of Bright in that they can provision, monitor, and manage everything from a single pane of glass; from Linux to Windows, from OpenStack to big data to HPC. The head of HPC explains; "With Bright, we can run many different applications on the same environment – whether it's Hadoop or Spark or a classic HPC workload or Windows, we launch it as a normal job on common infrastructure". Additionally, the company now has the freedom to choose best-in-class hardware, and make the vendor choices that provide them with the best value for money and most innovative capabilities.

He adds; "Users are not aware of the underlying infrastructure; to them it doesn't matter. They launch a job and the environment is stood up for them to run that job. Bright accepts any workload that you throw at it. We don't want to manage six different clusters – we want a single, big cluster that can scale up and down as jobs come in. Bright gives us that."

> "Bright gives us the flexibility we need, it is easy to deploy and use, and it makes our clustered infrastructure incredibly easy to manage."

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