

Why MARIN Continues to Choose Bright Technology over Competing Cluster Management Solutions

CASE STUDY

The Maritime Research Institute Netherlands (MARIN) has a dual mission: to provide the nautical industry with innovative design solutions; and to carry out advanced research for the benefit of the sector as a whole. The driving force behind this dual mission is a team of highly motivated and experienced people who maintain the company's leadership position in hydrodynamic and nautical research and development.

By feeding back the results of advanced research programmes into commercial projects, MARIN has created a powerful synergy with the maritime industry. Customers include commercial ship builders, fleet owners, navies, naval architects and offshore companies. At present, approximately 350 people work at MARIN; together they are responsible for a turnover of € 42 million.

“Bright is instrumental to our research at MARIN – it empowers our IT team to make optimal use of the software, while focusing on the research. It is the best tool for the job.”

—Dr. Henk Prins, Manager
Research & Development,
MARIN

MARIN's HPC Requirement

MARIN's research projects are highly complex, involving the analysis of water flow to ensure that ships don't capsize; that they meet their target speed and resistance; and to ascertain that they are safe in the water. Similar projects are carried out for offshore platforms. All computations associated with these research projects require a vast amount of compute power.

With 40 staff running computations on the MARIN supercomputer at any one time, using the latest compute and networking infrastructure is imperative to the MARIN IT team, to ensure that the HPC environment performs optimally and copes with the size and scale of the computations. As a result, the IT department continually strives to develop new compute nodes, to carry out ever-larger computations, faster.

A MARIN supercomputer generally has a lifespan of 5 years, so in 2014, the company set about upgrading their 1,600 core HPC platform.

The HPC Solution

MARIN took the decision to upgrade to an entirely new HPC environment, comprising 4,200 cores, divided over 200 Bull nodes.

With just three IT administrators at MARIN, there was a requirement for a cluster management tool that automated as much of the day-to-day administration as possible, and for the simplicity of a management interface to free the team up to work on research projects. The company carried out extensive market research to find the most robust and intuitive cluster management tool, evaluating a number of competing products.

Maritime Research Institute Netherlands (MARIN)



“Some of our customers seek advice from MARIN on the cluster management solution. We always recommend Bright.”

— Dr. Henk Prins, Manager Research & Development, MARIN

Bright Cluster Manager® had been at the heart of MARIN’s previous three clusters, and once again, the IT team chose Bright to underpin its HPC environment. Bright Cluster Manager seamlessly installed the new cluster onto the Bull hardware, the first implementation of its kind in Europe, getting the new hardware up and running quickly. Bright Cluster Manager includes an intuitive GUI to allow the MARIN IT team to monitor, manage, and health check its entire HPC environment, from a single point of control. The IT team is free to concentrate on managing the research projects, entrusting Bright to send an automatic alert if there is a failure.

“We have a huge HPC platform that is managed by a very small team,” said Dr. Henk Prins, Manager Research & Development at MARIN. “Bright’s easy-to-use management portal makes this possible. ”

By harnessing the power of Bright, MARIN was able to stand up the new supercomputer quickly, and, by coupling the newly available 4,200 cores with the existing 1,600 core supercomputer, MARIN now has access to close to 6,000 cores to run its computations.

The new supercomputer has two key purposes. Firstly, it complements MARIN’s extensive model basins, simulators and full-scale monitoring tools. Secondly, MARIN can now offer customers access to a new virtual facility, called the Maritime Cluster.

Bright Benefits

Bright is the technology enabler - According to MARIN, Bright plays a critical role in the success of its HPC environment. The Bright technology offers a seamless rollout of all nodes, and all software over the nodes. On a day-to-day basis, Bright harmonizes the nodes in the cluster, making the potentially complex task of cluster management “trivial”.

Bright removes the risk of downtime - With advanced monitoring and health check capabilities, Bright helps MARIN to quickly detect problems in the nodes or in the storage network, and enables the team to take a small number of easy steps to deal with any issues that occur before they become critical, keeping downtime to an absolute minimum.

Bright supports MARIN’s efficiency drive - The Bright technology allows MARIN to maintain the cluster with a very small team, while ensuring that the supercomputer is operating as efficiently as possible, to optimize the use of staff and software resources.

Bright is future proof - As so many software processes are automated, Bright makes administration really easy, which means that when new staff join the team they come up to speed quicker, and when staff leave or are off sick, knowledge of the system and best practises don’t disappear.