

Overview

Pratt & Whitney needed the flexibility to explore design alternatives before building a product, and to reduce the exorbitant costs incurred by physical testing.

Challenge

To lower production costs and speed time to market, Pratt & Whitney needed more compute power. However, they were unable to effectively monitor and manage their computing resources.

Solution

- Platform LSF® software

Results

- With Platform LSF, Pratt & Whitney cut engineering time in half and reduced development costs by almost 60 percent.
- Platform LSF enables Pratt & Whitney to execute thousands of additional analysis jobs that increase the reliability of its products and maximize fuel efficiency.

In an effort to lower production costs and speed time to market, Pratt & Whitney needed to reduce the amount of physical testing done on its products, and increase its computer-aided simulations during the design and development stages. This two-pronged approach would provide Pratt & Whitney with the flexibility to explore design alternatives before building a product, and reduce the exorbitant costs incurred by physical testing.

However, computer aided simulations such as Computational Fluid Dynamics (CFD) and (structural) Finite Element Analysis (FEA) required intensive compute power. And the compute environments needed to run these simulations were too large and complex to administer manually. As a result, Pratt & Whitney faced a workload management issue - they were unable to effectively monitor and manage their computing resources, and could not easily determine which systems were processing applications, and which were idle.

Long before their competitors, Pratt & Whitney recognized the need to adopt cluster computing as the basis for managing their enterprise-wide computing environment. They selected Platform Computing as their partner in distributed computing and began a long-term relationship with an initial deployment of Platform LSF® - a workload management solution that provides transparent, on demand access to enterprise computing resources.

Business Challenge

To reduce the amount of physical testing done, and increase computer-aided simulations during the design and development stages, Pratt & Whitney needed a quantum increase in compute capacity; and the ability to speed up software builds on their in-house coding projects.

A homegrown batch processing solution developed by Pratt & Whitney in the early 1990's provided limited control over their computer resources when there were just 100 desktop systems. But this solution did not scale, and as Pratt & Whitney's reliance on computing resources grew, workload management became increasingly difficult. Resource utilization, overall computing performance, productivity and efficiency were not at optimal levels, and costs were dramatically increasing.

"We could not achieve our current production scale without Platform LSF. It enabled us to dramatically cut both our production time and costs - two elements that we not only factor in, but depend on."

Pete Bradley

Associate Fellow for High Intensity Computing



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Solution

Pratt & Whitney selected Platform LSF to balance workload in its design and development teams to ensure maximum throughput, and ultimately reduced the time it takes to deliver finished products.

Following the initial deployment of Platform LSF, Pratt & Whitney undertook an aircraft engine compressor project. This project formed the foundation for a new era in cost reductions that are today assumed in Pratt & Whitney's design process. The increase in productivity achieved using Platform LSF enabled Pratt & Whitney to halve its engineering time; and reduce development costs by more than 50 percent.

The reduction in engineering time gave Pratt & Whitney the capacity to execute thousands of additional analysis jobs. As a result, Pratt & Whitney substantially increased the engine's fuel efficiency, making the company more competitive.

According to Peter Bradley, Associate Fellow for High Intensity Computing at Pratt & Whitney, Platform LSF increased the company's computing capacity, allowing it to do more computer-aided simulations. With Platform LSF, Pratt & Whitney can effectively manage and control its distributed computing resources, automatically schedule jobs to begin as resources become available, and receive constant, up-to-date information about the state of its computing environment.

"We don't even talk about these kinds of gains any more. Platform LSF made them a part of our business, and we now depend on it," said Bradley.

Today, Pratt & Whitney is recognized as an innovator in distributed computing. While Platform LSF manages 5,000 Sun and Dell desktops and 150 servers across its North American operations (2 locations in Canada and 3 in the United States), Pratt & Whitney's goal is to bring all of its computing resources - more than 15,000 desktop computers and servers - under Platform LSF control.

Customer Site

Pratt & Whitney (www.pratt-whitney.com)

Pratt & Whitney is a leader in the design, manufacture and support of engines for commercial, military and general aviation aircraft, space propulsion and power systems. Pratt & Whitney is a division of United Technologies Corporation, a \$27.9 billion company that includes Otis elevators and escalators, Carrier heating and air-conditioning systems, Sikorsky helicopters and Hamilton Sundstrand aerospace systems.



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About Platform Computing

Platform Computing's intelligent, practical enterprise grid software solutions help organizations optimize IT resources to Accelerate Intelligence™. We plan, build, run and manage grids that link IT to core business objectives, and help our customers improve service levels, reduce costs and enhance business performance. With industry-leading partnerships and a strong commitment to standards, we are at the forefront of grid software development, propelling over 1,600 clients toward powerful insights that create real, tangible business value. For more please visit www.platform.com.



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