

# Bell Helicopter Takes Business Intelligence to New Heights with Zend and Infobright



## CUSTOMER:

Bell Helicopter, a Textron Company, is the world's premier provider of vertical lift aircraft, with more than \$3 billion in annual sales.

## CHALLENGE:

With business growth, the limitations of Bell Helicopter's enterprise reporting system to provide business intelligence on demand led to temporary loss of its Earned Value Management (EVM) certification and more than \$40M in withholds on government contracts. The company needed to revamp its reporting system for improved automation and performance while keeping costs under control.

## SOLUTION:

Bell Helicopter chose Zend Server and Infobright's analytic database software for the development and deployment of Premier, a scalable enterprise reporting application that now delivers vital business intelligence from more than 40 data sources in a high availability multi-server environment. Premier was strategic to the company's ability to regain EVM certification and resume large-scale government contracts worth tens of millions of dollars.

Bell Helicopter is the world's leading provider of vertical lift aircraft and the inventor of the first tilt rotor aircraft, a remarkable aircraft that lifts like a helicopter, then flies like an airplane with twice the speed, three times the payload and five times the range of traditional helicopters. In recent years, business intelligence has emerged as a key factor in the company's drive for operational excellence and competitiveness.

To compete for defense contracts over \$20M, Bell Helicopter must meet 32 government-mandated guidelines for compliance with earned value management (EVM) reporting. In-depth project forecasting and reporting during the design and manufacture of complex aircraft necessarily involves large volumes of data drawn from systems across the organization. As business grows and data proliferates, so, too, do end user reporting requirements. This places heavy demands upon enterprise reporting systems to deliver faster business intelligence, and an increased burden for IT and system/database administrators.

When EVM reporting problems arose at Bell Helicopter, leading to instances of late and over-cost aircraft, the company temporarily lost its certification and faced more than \$40M in government contract withholds. Query performance was lagging, and the EVM Systems Group had little visibility into the production environment. Consequently, end user support was labor-intensive, involving manual screen captures and long trial and error troubleshooting sessions to resolve issues over the phone. Meanwhile, VIPs and other business and engineering users were waiting for their data. With the company's explosive data growth, storage was also becoming an issue.

## Zend and Infobright

The EVM Systems Group laid plans to overhaul its enterprise reporting system targeting significant improvements in application responsiveness, high availability, scalability and resource utilization. Software from Zend Technologies and Infobright were brought into the EVM Systems Group's WAMP-based development and production environments, providing much-needed tools for application development and management and database analytics. The group's developers ran the Zend PHP stack and Infobright® Enterprise Edition analytic database on their Windows laptops with local copies of MySQL.

According to Scott Hathaway, Manager of EVM Reporting and Analysis at Bell Helicopter, "We adopted Zend and Infobright for their out-of-the-box capabilities and ease of integration with our multi-server reporting infrastructure. Infobright Enterprise Edition is designed for fast, accurate analysis of large volumes of data, and requires very little administration and no manual tuning to provide a high level of performance."

The Premier application has more than 1500 pages and it draws from a decade's worth of data from 40 different data sources. Uncompressed, there's an estimated 60G of data. On any given day, close to 3,000 Bell Helicopter VIPs, engineers, administrative staff and government clients access Premier's web-based dashboard for on-demand access to real-time and historical HR, financials,

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**Scott Hathaway, Manager of EVM Reporting and Analysis, Bell Helicopter**

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earned value data, cost and schedule information, MRP, quality and other data.

“By deploying Infobright Enterprise Edition, we achieved a dramatic 10:1 data compression rate, and we were able to speed analytic queries on executive dashboards by up to 500 percent, with no indexing, partitioning or database tuning required,” said Hathaway.

“Zend Server and Zend Server Cluster Manager help us automate and streamline application deployment and management, with proactive monitoring, fast and accurate problem resolution, remote debugging, optimization and acceleration capabilities, and scalability,” said Hathaway.

Zend Server’s monitoring provides alerts when performance issues such as slow page loads are detected. From the console, Hathaway’s team has real-time visibility into code behavior in the production environment, and Zend Server’s Code Tracing pinpoints root-cause issues for quick resolution without bringing the Premier application offline or having to re-create the problem. Zend Server’s full page caching and code acceleration help boost application performance without having to touch the underlying code.

For Hathaway’s group, supporting the company’s real-time, nightly, weekly and monthly reporting requirements and heavy use of summary tables was time- and labor-intensive and hard to sync up until they began using Zend Server’s Job Queue.

“We’ve become heavy users of Zend Server’s Job Queue, especially for automated cost and schedule reporting. Now we can load or reload large data on the fly and run queries during loading. Zend Server monitors the application 24x7, so we can run long jobs at optimal times and return later to check the console for results. If there’s a problem, Zend Server will automatically alert us.”

## A Bright Horizon

Since the launch of Premier, Hathaway’s group has extended its use across the Bell Helicopter organization. Based on its initial achievements, Premier has also become a mandated application for use by all of the business units of its parent company, Textron. According to Hathaway, his group was able to scale up Premier to meet increased reporting requirements without an increased hardware footprint. “Using Zend Server Cluster Manager, configuration and set up is automated for us, and we can spin servers up or down, literally in minutes.”

“Our EVM certification has been 100% assured ever since we rolled out Premier. The new application has been so successful that in a report to the U.S. Congress, Premier was recognized as the best application of its kind in the industry. And we’ve just scratched the surface of what we can do.”

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### INFOBRIGHT AND ZEND HELP BELL HELICOPTER DELIVER RESULTS IN JUST FOUR MONTHS:

- 91% improvement for display times for EVM Dashboard
- 96% improvement in query return times for cost reporting across 200 projects
- 98% improvement for SAP data report results
- 94% improvement for project schedule metrics
- Proactive application monitoring and PHP code tracing to enable early problem detection and root-cause analysis for rapid problem resolution.
- Built-in optimization and acceleration to ensure high performance and improved resource utilization.
- Session clustering to achieve a fast, scalable, integrated failover solution for PHP applications.

EARNED VALUE DASHBOARD	COST REPORTS	SCHEDULE METRICS REPORTS	SAP DATA REPORT
<b>Before:</b> 45 seconds to display	<b>Before:</b> 52 seconds to display 1 project	<b>Before:</b> 9 seconds to run	<b>Before:</b> More than 60 seconds
<b>After:</b> 4 seconds to display (with only 4 hours of work and very little tweaking)	<b>After:</b> Less than 2 seconds to access 200 projects	<b>After:</b> Less than 1/2 a second to run	<b>After:</b> Less than 1 second
<b>91% reduction</b>	<b>200x better</b>	<b>94% reduction</b>	<b>98% reduction</b>