

OSIS International aims to clean up with IBM @server OpenPower



Overview

■ The Challenge

Create an inexpensive, round-the-clock monitoring solution for offshore structures, designed to detect and measure oil spills, then relay information to decision-makers; deliver a high-performance, high-reliability surveillance solution

■ The Solution

Intelligent rig- and ship-mounted sensors, relaying information to a central database running under Red Hat Linux® on an IBM @server OpenPower 720 server with two POWER5 processors

■ The Benefit

Fast, reliable, cost-effective central server enabling improved operational insight, faster clean-up of oil spills, lower insurance costs and easier access to exploration activity in sensitive marine areas

Cleaning up the oceans

OSIS International (www.osis.biz) is a start-up company funded by the Danish Environmental Protection Agency, the Danish Energy Authority and the European Union. Based in Denmark, OSIS was established to help tackle the problem of oil discharges – both accidental and deliberate – from offshore structures such as oil rigs and tankers.

Casper Kvitzau, Project Coordinator at OSIS, says: “Our goal was to provide a cost-effective way to ensure compliance with environmental legislation, using technology to bring offshore areas under closer scrutiny. Our Oil Spill Identification Sensor – OSIS – is designed to measure the area and volume of oil spills from offshore structures, providing real-time information via a satellite link to our central server.

“We needed a high-performance server for Linux that would be both cost-effective and reliable, and we selected IBM @server OpenPower 720 as the best solution for our requirements.”

The power to make a difference

Despite widespread rules preventing the discharge of oily waste, it is estimated that more than 500,000 tons of oil are released into the world’s seas and oceans every year (National Research Council, US National Academy of Sciences, 2002).

Local environmental agencies use surveillance flights to police their waters, but their high cost and limited scope mean that they can cover only small areas. Even with satellite images, it can be difficult to trace the source of an oil spill.

The prototype of the OSIS system has completed a six-month offshore trial, detecting dozens of deliberate spills simulated using rape seed oil. The prototype sensor uses a dual-frequency sensor system together with rule-based pattern recognition software to detect and calculate the area of a spill. Additionally, sophisticated on-board software algorithms calculate the exact thickness of the spill, enabling volume estimation.

“We needed a high-performance server for Linux that would be both cost-effective and reliable, and we selected IBM @server OpenPower 720 as the best solution for our requirements.”

*Casper Kvitzau, Project Coordinator,
OSIS International*

When a spill is detected, the pre-processed data collected by the offshore sensor is transmitted via satellite to the central OSIS server, which automatically alerts the relevant authority or offshore operating company. During the trial period, the central server was running under Red Hat Linux on generic hardware, and will now be migrated to the new OpenPower server.

Jacob Eisenhardt, R&D Executive at OSIS comments, “We anticipate heavy demand for our commercial services, so we aimed to implement a central server that could scale up rapidly and cost-effectively, and that would provide excellent database performance. The POWER5 architecture of the IBM @server OpenPower server offered the best price-performance ratio of the solutions we considered, together with easy scalability.

“Thanks in part to the large L3 cache on the POWER5 processors, early tests show that the OpenPower 720 delivers excellent performance for database queries. The long roadmap of the POWER architecture was also important – we want to ensure the continuity of our solution on this platform.”

“For OSIS, one of the key selling points of OpenPower was the ease of creating virtual servers.”

*Jacob Eisenhardt, R&D Executive,
OSIS International*

One server, multiple possibilities

Built on a mainframe-inspired hardware platform and tuned for the Linux operating system, the 64-bit IBM @server OpenPower systems deliver high performance, reliability, availability and scalability – at highly competitive price-points. Virtualization Engine technology enables OpenPower systems to be divided into multiple virtual servers as small as 1/10th of a processor and with entitlements in increments of 1/100th of a processor.

Says Jacob Eisenhardt, “For OSIS, one of the key selling points of OpenPower was the ease of creating virtual servers. This feature will enable us to run production and test systems side-by-side on the same physical machine, so that we can test upgrades accurately before rolling them out across the production environment.”

Strong systems, reliable service

When the OSIS system is fully operational, information generated by offshore sensors and compiled on the OpenPower system will be presented to users in graphical form, via a secure Web Services connection.

OSIS has implemented an IBM **@server** xSeries 346 server with two Intel® Xeon® processors to act as the Web server. Customers can either use a standard Viewer Client built by OSIS, or can make use of Web Services to integrate the data into their own applications.

“We anticipate that our sensors will be implemented around the globe, serving customers in practically every global time zone,” says Jacob Eisenhardt. “The availability of our systems is therefore at a premium. We are confident that our selection of IBM **@server** OpenPower and xSeries servers is the right choice for delivering the reliable service that our customers will need.”

Casper Kvitau adds, “The strength of the IBM brand, and its reputation for highly reliable hardware, is likely to help us in marketing the OSIS solution to the oil sector, which has a reputation for expecting the best possible quality of components.”

Reaping the benefits of compliance

While the OSIS system is primarily designed to assist in the enforcement of environmental regulations, it also offers several potential advantages for the operators of offshore structures. The ability accurately to measure the thickness of any oil slick will assist greatly in directing clean-up resources, enabling faster and more thorough damage-limitation in the event of a spill.

“Oil companies are now very focused on environmental issues, so a tool like OSIS could offer significant PR benefits when the worst happens,” comments Casper Kvitau. “Furthermore, by introducing our technology, they will be able to demonstrate greater accountability, and may be able to access environmentally-sensitive ocean areas that are currently off-limits for oil exploration. Finally, we anticipate that insurers will be able to offer lower-cost policies to oil companies who make use of 24/7 offshore surveillance.”

With the IBM **@server** OpenPower 720 system, offering class-leading Linux performance and availability, OSIS is confident that it can offer its future customers fast, reliable information about the environmental impact of their business activities.

“Oil companies are now very focused on environmental issues, so a tool like OSIS could offer significant PR benefits when the worst happens.”



IBM United Kingdom Limited

PO Box 41
North Harbour
Portsmouth
Hampshire
PO6 3AU

The IBM home page can be found at **ibm.com**

IBM, the IBM logo, the eServer logo, eServer, OpenPower, POWER5 and xSeries are trademarks of International Business Machines Corporation in the United States, other countries, or both.

Intel, Intel logo, Intel Inside, Intel Inside logo and Intel Xeon are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Other names and brands may be claimed as the property of others.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Linux is a trademark of Linus Torvalds in the United States, other countries, or both.

Other company, product or service names may be trademarks, or service marks of others.

IBM and Red Hat are separate companies and each is responsible for its own products. Neither IBM nor Red Hat makes any warranties, express or implied, concerning the other's products.

References in this publication to IBM products, programs or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM product, program or service is not intended to imply that only IBM's product, program or service may be used. Any functionally equivalent product, program or service may be used instead.

All customer examples cited represent how some customers have used IBM products and the results they may have achieved. Actual environmental costs and performance characteristics will vary depending on individual customer configurations and conditions.

IBM hardware products are manufactured from new parts, or new and used parts. In some cases, the hardware product may not be new and may have been previously installed. Regardless, IBM warranty terms apply.

This publication is for general guidance only.

Photographs may show design models.

© Copyright IBM Corp. 2005 All Rights Reserved.