NASA, Navy Buy Massive Supercomputers

Market is growing for high-powered systems, IDC says

BY PATRICK THIBODEAU

U.S. government agencies announced purchases of two large supercomputers last week, including a massive 10,240-processor system for use by NASA that will likely be ranked among the world's most powerful computers.

The NASA system, from Silicon Graphics Inc., is based on Itanium 2 processors running Linux. The other system, an IBM supercomputer purchased by the U.S. Naval Oceanographic Office uses 2,944 Power4+ processors and runs IBM's AIX version of Unix.

The Navy declined to disclose the value of its deal with IBM. NASA's system will cost about $50 million, somewhat of a bargain price because Intel Corp. and SGI, among other vendors, will be studying the system as part of a research agreement, a NASA spokesman said.

The two sales may prompt IDC to slightly increase its high-performance technical computing market numbers in its next forecast, said Chris Willard, an analyst at the Framingham, Mass.-based research company.

IDC last week said that the market for systems used in research and technical computing grew 14% to $5.6 billion last year and will keep growing at an annual rate of 6.5% through 2008, when the market is expected to reach $7.6 billion. Commercial users are typically in the automotive, pharmaceutical, and oil and gas industries.

But the market for the largest systems, such as those purchased by NASA, is due to grow only 2% annually until 2008, from $771 million to $849 million. "There is only so much money the world is willing to spend on this class of computers," said Willard.

The NASA system, which will be used for space exploration and global warming research, is a very-large-node cluster, made up of 512-processor systems with shared memory and a single instance of the Linux operating system.

MAAS DIGITAL/CORNELL/NASA/JPL

ONE APPLICATION of the SGI supercomputer at NASA is a 36GB high-definition anitmation of a Mars mission.

InfiniBand I/O technology is being used to connect the 20 512-processor systems that make up the supercomputer, which will be housed at NASA's Ames Research Center in Moffett Field, Calif. It's expected to be operational in November.

The Navy's IBM supercomputer is a cluster of 368 IBM eServer p655 systems. It's slated to go online in September and will allow the military to run larger and more detailed weather and ocean models, including one that depicts the earth's surface. The supercomputer will also be able to handle more disparate data generated by buoys, satellites and other sources, said Steve Adamec, director of the Naval Oceanographic Office's Major Shared Resource Center at the John C. Stennis Space Center in Mississippi.

U.S. government agencies tend to buy a variety of supercomputing systems, and Stennis Space Center, where the IBM system will be housed, is indicative of that diversity. In addition to running older IBM systems, the center has systems made by Cray Inc., Sun Microsystems Inc. and SGI. **48525**

Sun Aims to Attract HP-UX, Windows Users to JES

Some users hail pricing model; others not so sure

BY PATRICK THIBODEAU

In an effort to broaden its reach as a middleware vendor, Sun Microsystems Inc. plans to make its Java Enterprise System available on Windows and Hewlett-Packard Co.'s HP-UX by the end of the year.

Sun's pricing model for the integrated software stack of 14 back-end services — $100 per employee per year — is particularly appealing to companies that provide hosting services to large numbers of external users. Canada's Saskatchewan Telecommunications Holding Corp., which has about 3,800 employees, is one example.

Curt Smith, general manager of the Regina-based telecommunications provider, said the pricing model allows him to provide JES-based services such as messaging and calendaring functions to external customers on a hosted basis, without having to pay additional software-licensing costs to Sun. Smith's cost remains fixed based on the number of employees at his company, so external customers can tap into JES services at no extra charge.

Smith said that his company was attracted to JES because it provided integrated and tested services, and the pricing model is an added benefit because it fixes his costs. "The price works for us, and the model works for us," he said.

But that isn't true for the *The Atlanta Journal-Constitution*. The newspaper is a Sun hardware shop but is using BEA Systems Inc.'s Web applications server.

Bruce Bowles, a technology manager at the newspaper, said he met with his Sun representative about six months ago and discussed JES. Bowles said he asked how the vendor's per-employee pricing would account for all of his part-time workers, who bring his workforce total to about 10,000 people, but he never got an answer.

A Sun spokeswoman said that JES pricing applies only to full-time employees, not part-time or contract workers.

The pricing model for the bundled applications "is a great idea, but that pricing model is not necessarily going to work for every business," said Bowles. Regardless, he added, "I'm not going to replace my investment in BEA."

JUST THE FACTS

Java Enterprise System

- **STACK INCLUDES:** Web and application services, network identity services, portal services, communication and collaboration services, availability services, security services
- **SUPPORT:**
  - **Current:** Solaris on Sparc, Opteron and Xeon, Linux
  - **By end of year:** Windows, HP-UX on PA-RISC
- **PRICE:** $100 per employee per year

Analysts said Sun had no choice but to extend its JES model to include support for Windows and HP-UX. The stack currently operates on Solaris and Linux systems, and Sun is considering making JES open-source.

"Sun needed to port to other operating systems if they were ever going to be a serious contender in the middleware space," said Shawn Willett, an analyst at Current Analysis Inc. in Sterling, Va. The ability of JES to operate on other systems is "pretty much a requirement for large corporate sites, who can't all be running Solaris everywhere," he said.

One JES user, Fotis Karonis, director of IT and telecommunications at the Athens International Airport in Greece, is running Solaris systems on 64-bit Sun hardware. Karonis said he sees both advantages and disadvantages in running JES on Wintel systems.

Advantages include lower-cost hardware, leveraging the existing Windows expertise of systems administrators, and uniformity in hardware and operating systems administration, he said. But among the disadvantages are duplicate technical support in running JES in two environments and Windows security concerns, Karonis added.

Karonis said the stack is meeting his expectations. "JES offers a rich and open development environment where we can integrate most of our airport-specific applications and systems," he said. Regarding making JES open-source, Karonis didn't seem to think it would matter. "JES is already open enough for developers," he said.

Whether Sun's pricing model makes sense for users depends on a number of variables, including which applications they use in the middleware stack, said Thomas Murphy, an analyst at Meta Group Inc. in Stamford, Conn. If an IT shop is interested only in Web development tools, for instance, then it may want to go with IBM's WebSphere or use the open-source Apache Tomcat.

In any case, Sun's JES pricing model does "shake up the market" and is something IT managers should consider, Murphy said. **48521**