



ENERGY FOR A NEW TOMORROW

JEFF DAVIS, SENIOR SYSTEMS PROGRAMMER

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FAST FACTS	
Industry:	Engineering
Platform:	Linux
Hardware:	Dell Workstation Beowulf 128-node cluster
Challenge:	Expanding use of three-dimensional geophysical modeling technology in connection with the search for new crude oil resources requires supercomputing power -- but must be cost effective.
Solution:	Instead of leasing supercomputers, Amerada Hess uses an array of desktop computers running Red Hat Linux
Benefits:	Leasing supercomputers would have cost a million dollars a year -- Amerada Hess gets comparable results with Red Hat Linux for around \$100,000 -- saving some \$900,000.

ENERGY!

The vital force of the modern world -- and the hunt for its raw materials carries humanity to the furthest reaches of the globe, the most forbidding depths of the ocean floor.

But before you can find those energy sources -- you need to know where to look. And that's where advanced computer technology is making a difference -- technology which draws its own energy from the power of Red Hat Linux.

One of the world's leading independent energy companies is on the cutting edge of this sophisticated technology -- or perhaps we should say "the drilling tip." Three-dimensional geophysical modeling, using specialized proprietary software, helps specialists at Amerada Hess Corporation in their never-ending search for new sources of crude oil -- allowing them to become familiar with the geology and the geography of drilling fields before a single bit is sunk. It's an impressive display of technology in action -- and one would imagine that it might take an impressive bank of supercomputers to handle the billions of computations behind the textured images on the screen.

But at Amerada Hess, those sophisticated applications are running on ordinary desktop computers.

And those computers are running Red Hat Linux.

To start with, Amerada Hess ordered 32 Dell Precision WorkStation 410s to power its new Red Hat Linux Beowulf cluster. These worked so well that the company soon added another thirty-two units -- along with a Dell PowerEdge 1300 used as a Red Hat Linux file server. By late summer 2000, the company was running a total of 160 dual processor Dell workstation 410s.

Jeff Davis is the Senior Systems Programmer at Amerada Hess, and he's a committed believer in the power of Red Hat Linux -- the power to handle the job at hand, and the power to save an impressive amount of money for the company. "We would have spent approximately a million dollars a year leasing supercomputing technology to do the same sort of work," says Davis. "But with Red Hat Linux, the total one-time cost of purchasing the equipment and setting everything up has come to about \$100,000. It's an inexpensive operating system running on inexpensive equipment -- and it's doing the same work!"



And, Red Hat Linux has proven itself time and again as cost-efficient in operation. To cite just one example of this, Davis points to Red Hat Linux's "Kick Start Installation" feature. "Kick Start has been a big help," he affirms. "Just the installation work alone could be overwhelming with a system of this size. But with Kick Start Installation, no problem. It's an easy job!" The system started large and is continually expanding.

"We are looking to add 40 more Beowulf supercomputer nodes this year, bringing us to about 240 systems and 400 processors." says Davis. "We also have replaced an SGI PowerChallenge with 3 Dell PowerEdge Servers, basically replacing a million dollar system with about \$50,000 worth of Dell servers."

With a product as impressive as Red Hat Linux, word tends to spread fast through a company, and Amerada Hess is no exception. "We're looking closely at all aspects of our company for ways in which we can put Red Hat Linux to use," says Davis, "and this is quite a change from not so long ago. A year ago, some people in the company might have dismissed the idea of using Linux -- but now, those same people are standing up to ask 'should we be looking into Linux?.' I attribute this totally to the success we've had with Red Hat. The naysayers in the company are fast becoming converts!"

Amerada Hess is an energetic company -- seeking out the energy sources to keep our world on the go.

And with Red Hat Linux, they've found an operating system with the energy they need to move ahead!

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