Out of Technology Gridlock

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For years, Josh Levine had to settle for boring meetings with his Unix vendor, Sun Microsystems. Sure, there were some exciting times there at the beginning back in 1998, when E-Trade was first shopping for Unix computers to run its custom online trading system. Levine could pit Sun against the other Unix vendors like IBM and HP. But once E-Trade decided to go with 60 Sun boxes at $240,000 a pop and a $25,000 yearly maintenance fee on each, the fun and Levine's leverage was gone.

All Unix vendors have their own versions of Unix designed to run solely on their hardware. "All their strategies are based on proprietary operating systems. Once you buy the hardware, you can't move," Levine says.

Now, when Levine wants to buy some new hardware, he can have a party and invite everybody. That's because he replaced those 60 Sun boxes with 80 $4,000 Intel servers (which became commodities long ago; they're virtually identical no matter who you buy them from) and a commodity operating system, Linux, which is supported by all the major Intel hardware vendors. The Intel boxes are less powerful than their Unix counterparts, so Levine just bought more of them. And since Linux is based on Unix, his support people easily made the transition.

The fun is back in Levine's procurement life.

"We get to manage the vendor as opposed to the vendor managing us," he says. "Now they compete on performance and price; they can't hide behind an operating system. And we've cut out the maintenance fees we had to pay on the Unix machines. That's huge. That's a sea change. "Linux is about leveling the playing field across all the hardware vendors," he says. Levine moved to Linux cautiously. He looked over the possible savings (which he estimates at $13 million in the first year) for a few years before leaping. Though Levine has an IT staff of 650, including 350 developers, he bought full support contracts from Raleigh, N.C.-based Linux distributor Red Hat and IBM. "It's possible that open source is supportable without a major vendor," he says. "But our feeling has been that without major vendor support, we're gambling, and there's no use gambling. So we held off until HP, IBM and Sun stepped forward and said they were going to support it vigorously."

Even with that support, Levine tested the Linux system in parallel with his old Unix system for six months before switching over in March 2002. It's run with just a couple of minor hitches since then, he reports.

At Daimler-Chrysler, CIO Unger deployed Linux to kill the three supercomputers that the company uses to run crash simulations. She turned the three into 108 Intel servers running Linux, all whirring away on the crash dummies' misfortunes.

"We expected cost savings, but we were surprised at how big they were: 40 percent for hardware, software and service combined," she says. But then Unger saw something she didn't expect: an application performance improvement of 20 percent. "Everyone thinks you just do this because of cost reduction, but we're seeing other factors." Besides improved performance, the machines are simpler to manage. Based on the U.S. experience, Unger did the same thing to Daimler-Chrysler's Mercedes crash simulation center in Germany, with the same results.

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A3.1 What do you understand by “technology gridlock”? What were Levine’s problems and what did Levine do to solve his problems?

ANSWER

The term “technology gridlock” is commonly used to describe a situation whereby you are locked to a particular technology and deprived of choices to adopt and implement other technologies, unless you abandon the existing one and start anew.

PROBLEMS - From the reading, Levine was really caught in a "Sun Microsystems" technology gridlock and his problems at that time were:

(1) stuck with no choices in the upgrade path for his Unix servers because the particular Unix he was using is proprietary to Sun Microsystems and can only be run on a Sun hardware box (server)

(2) faced with too high a cost to upgrade his Unix servers (hardware) because it was tied up with Sun Microsystems who put up a very high price for the server boxes

SOLUTIONS - Levine solved his problems by doing the following:

(1) buying new and much cheaper hardware for his servers, replacing the 60 boxes of Sun based servers (at $240K per Sun server) with 80 boxes of Intel based servers (at $4K per Intel server) and thereby avoiding the yearly maintenance payment to Sun of $25K per Sun server.

(2) having all the new servers run on Linux, a commodity Unix-like operating system instead of the previously proprietary Sun Unix operating system. The Linux software can be obtained for free (zero cost) with all the "4 freedoms" described by the Free Software Foundation (FSF) and is also open sourced.

(3) signing up for full support contracts with Linux distributor Red Hat and with hardware vendor IBM. In this case we can safely assume that Levine purchased the Intel servers from IBM (i.e. IBM servers packaged with Intel CPUs inside) and then installed the Red Hat version of Linux ("Red Hat distro") based on the facts that he signed up for support contracts with both IBM and Red Hat, respectively.

A3.2 Describe your strategy in order to justify to your company’s management (Board of Directors) regarding the move to alternative hardware and software.

ANSWER

In general, the justification strategies for making the switchover or move to an alternative hardware and software platform are by providing facts and convincing the Board of Directors of the cost effectiveness, flexibility and long term benefits to the organization in the planned move.

Some of the facts are summarized below (in fact most are extracted from the MISP Mini Case in this question itself):

(1) Hardware cost – Intel processors are commodity items so are packaged by many different companies to become server boxes. Because of the many different suppliers of the hardware, the price offerings will be low through competitive bids.

(2) Software cost – Intel processors run on the Linux operating system, which is a free and open source operating system. Linux is maintained by a very active developer group and has a very big user base worldwide. The current versions are very stable, comparable and in some areas better
than the proprietary unix operating systems.

(3) Flexibility - It is easy to convert the server boxes to run either Windows or Linux, that is when required for specific applications. In the long run, the server boxes can be downgraded or upgraded cost effectively to run other applications, again either running Linux or Windows.

(4) Economical – Intel server boxes are simpler to manage. Due to the lower prices of Intel server boxes over vendor proprietary boxes, hardware infrastructure is scalable economically – can be sized suitably and expanded according to the needs of the organization. For being commodity items, maintenance and replacement of hardware will be economical. Server parts are easily available and affordable.

(5) Support – Because Linux is similar to Unix, existing staff do not need to be extensively retrained. And with a large user base for Linux there is a lot of technical support ‘freely’ available, for example, from the internet, user groups, discussion forums etc.

(6) Performance - When the combination of hardware and software are configured and tuned properly, we may get significant improvements in application performance over proprietary systems, as had been reported by others.