

UNIX Server Solutions: Driving Customer Choice in the Enterprise

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Today's enterprise environment must respond quickly and accurately to changing market demands, which in turn requires an IT infrastructure that is flexible and capable of integrating a multitude of cutting-edge technologies. IT vendors, including manufacturers, business partners, and ISVs, ought to keep this requirement in mind, meanwhile leveraging existing and thriving technologies to improve customer business success.



The Need for End-to-End Solutions

ISVs in particular are responding to the need to enable businesses to be more nimble and responsive. Many of these software vendors are extending the proven model of ERP (Enterprise Resource Planning) to create what are being called Enterprise Application Services (EAS), which allow companies to control supply chains from customer to back-office applications to manufacturing and back again to customers.

EAS has the potential to become a huge factor in the everyday enterprise-wide computing environment. Unlike ERP, which handles many back-end functions, EAS extends the model, creating a seamless, end-to-end on-demand business paradigm. ISVs such as PeopleSoft and SAP have created EAS applications that not only handle day-to-day operational issues, but also reach out from the customer to the supplier, marrying ERP functionality with CRM and supply-chain management.

On-Demand Access to Mission-Critical Data

Distributed computing is beginning to make its mark and will become a more prominent player in everyday organizational computing in 2003. Wireless access to computing resources, for example, is already becoming a reality, as developers realize that strict, terminal-based client access to back-end systems simply isn't enough anymore. Disciplines such as medicine, the military, homeland defense, and manufacturing can take advantage of wireless communications to better run their operations. Doctors, for example, can look up a patient's history using a PDA or other wireless device rather than looking at a chart or using a station-based terminal. This type of access to back-office data saves both time and money.

Minimizing Inventory through a Streamlined Workflow

A key issue facing customers today is the need to control inventory. One way to minimize inventory is to, for example, buy the raw materials necessary to produce a final product on the day the product is manufactured. When a buyer comes to a Web site and orders the final product, the company can batch it with other orders, send out requests to suppliers for raw materials to arrive within 24 hours and build the final product the following day. Only 48 hours after the placement of the initial Web order, the order is shipped to the customer. Plus, all of this is done automatically, from the original contact with the customer, to the electronic payment, to the ordering of the raw materials, to the scheduling of the manufacturing, to the shipment of the finished product, to the follow-up e-mail to the customer.

Open Standards - The Foundation of Effective Business Applications

Driving the development of these types of applications are open standards such as Java, Java2 Platform Enterprise Edition (J2EE), XML and SOAP, which allow easier object-oriented application development and portability. In the case of a wireless application, several computing components must be connected, including the wireless device, whether a PDA or cell phone, the application logic and the back-end database (or multiple databases). More specifically, in a wireless data-access solution, for example, an application environment such as WebSphere Everyplace Access and WebSphere Application Server processes the request from the wireless device by sending it to the application server's business execution logic, which would know how to query and parse the data, securely access the correct data servers, format the requested data to fit the footprint of the querying device, and respond through the wireless service provider from which the wireless device would receive the information.

Because open standard languages, operating systems, and technologies play a large role in enabling new levels of infrastructure capabilities, aligning oneself with a manufacturer and/or service provider that is committed to open systems and standards remains key. IBM, along with its alliance partner community, exemplify this commitment. Rather than concentrating on proprietary development and operating environments, IBM and ISVs alike embrace portable solutions that span UNIX and Linux-based platforms. AIX (IBM's version of UNIX) and Linux are key components in IBM's current and future vision of the IBM eServer pSeries UNIX server offerings.

The UNIX-Linux Question and IBM's Strategy

AIX 5L represents IBM's most strategic UNIX operating system - and will continue in this capacity as far as this fast-changing industry would dare to speculate. AIX 5L includes an unprecedented level of UNIX and Linux flexibility which is why the "L" is part of the AIX name. IBM realized, years ago, that while UNIX will continue to play a critical role in future infrastructure requirements there is an inherent need to align UNIX and Linux - at times within one operating environment. AIX 5L is the culmination of this requirement, allowing customers to create virtual UNIX and Linux workload partitions within a single AIX 5L environment.

The next evolution of UNIX and Linux on pSeries servers was to offer native "Linux-Ready" server offerings. Currently, the IBM eServer p630 and p650 Linux Ready Express Configurations are the result of these efforts. A bold move to be certain, and one that might leave industry pundits scratching their heads; however to IBM, this AIX/Linux integration is simply a matter of economics, especially considering that a significant number of pSeries customer are already running Linux, in addition to AIX, to support their enterprise.



Why is IBM so pro-Linux? Linux makes it easier for customers to migrate between competing servers. Linux applications are based on open-source development, and consequently can run on any supporting platform. The Apache Web server, for example, is the most widely used Web server in the world. While Apache runs on AIX, it's also at home in the Linux computing environment. So by supporting both AIX and Linux (currently SuSE across the pSeries line, although Red Hat will be supported across all POWER4 pSeries servers beginning in the third quarter of this year), IBM is giving its customers the best of both worlds - and an easy way to migrate from other platforms to pSeries solutions. AIX supports open-source applications like Apache, and many customers use it for that. Linux, however, takes it to the next level since it comes from the open-source community. IBM, in effect, gives customers a tremendous amount of choice, so customers are not necessarily tied down. IBM provides a full, open and portable environment, from the applications to the operating system itself.

The Optimum Environment for Application Development

Because AIX and Linux support open standards, application developers can create the business logic and data application once and simply move it from one operating system to another with little or no porting involved. It is primarily a matter of recompiling. Notably, four components are involved in developing an application that delivers services such as those in a wireless data-access application model: business logic, data access and presentation, application management, and the deployment environment. The first would likely involve Java, which results in portable business logic; the second would involve technologies such as XML (which intelligently formats the information) and transcoding, which recognizes the characteristics of the device to which it's sending the information; the third, an application environment such as IBM WebSphere Application Server that supports Web serving and Web services, and intelligently manages the security and execution of the inquiry and data; the fourth, AIX or Linux, is the environment in which the application server and application are actually deployed, with a focus on performance and reliability.

Because so many open standards are employed in this type of application development, including business logic, presentation access, application serving of Web solution and Web services, and the deployment environment, customers can easily move from one supported platform to another. If the application is developed for Linux instead of AIX, it can be moved with little cost or disruption to the business from a PC server to a pSeries, which brings us back to why IBM would support the open-source Linux on the pSeries.

Lowering the Cost of Ownership

Linux is considered one of the fastest growing operating environments in the industry. To be successful in this market acceleration of Linux, IBM works with the open source community to ensure Linux exploits the pSeries 64-bit POWER4 processor architecture. By doing this, IBM provides optimized support for both AIX and Linux. IBM can now go to customers and say, "With today's application environment, it's very straightforward for you to re-platform to pSeries. And if you want, you can even run Linux and AIX on the same pSeries server." Of course, similar benefits apply to current pSeries users. They can move their Linux applications off PC servers or other platforms to a partition on an existing pSeries, thereby lowering their administrative and ownership costs. Since so many applications are written with portability in mind -- much of it native to Linux -- customers are assured that their application investments will be leveraged well into the future, especially as Linux continues to grow in capability.

The POWER in Portability

By offering the choice of either AIX, Linux, or both, as the case may be, IBM leverages the investments in not only its own development efforts but also those of its customers and ISVs. As a result, applications developed for either AIX or Linux can run on a pSeries box, giving ISVs and customers more options in developing and running applications. Of course, the easy portability of applications written for Linux and AIX raises some questions, the most notable of which is why prospective customers would choose pSeries over other platforms that also run Linux. One of the primary reasons is the pSeries 64-bit operating environment, which allows memory-intensive applications to run



more efficiently. Some Java-based programs, for example, do not run as well in an Intel-like 32-bit environment because of memory constraints. In a 64-bit environment, customers can fit all of that application into memory, and run it much faster. Another reason is that IBM has installed its new POWER4 chips in all of its new pSeries servers, from the high-end to the entry level. With the introduction of the POWER4 chip, IBM now has a single, crisp, balanced design that offers extremely good commercial integer and floating point performance.

In addition, IBM continues to strengthen the pSeries offerings, citing the platform's reliability, availability and serviceability (RAS) coupled with the new high-performance 64-bit POWER4 chips in high-end, midrange, and entry-level pSeries models. Based on a commitment to openness, power and portability, changes to the pSeries platform and its supporting applications promise to be both evolutionary and exciting.

A Flexible Approach to Enterprise Computing

Regardless of the industry (education, manufacturing, life sciences-you name it), IBM is positioning the pSeries platform to support it. This becomes particularly clear when considering IBM's support of Linux. By giving customers, both current and new, the choice of AIX, Linux or both, IBM continues to drive a flexible approach to enterprise computing. Furthermore, by creating a platform that's open, portable and powerful, IBM has opened the doors for developers to create new applications representing the next evolutionary step in application development.

Of course, AIX and Linux as operating environments are only part of the story. Value adds such as on-demand partitioning, self-managing systems and improved RAS are other technology chapters pSeries developers continue to re-write and improve for enhanced customer infrastructure success. Whatever the case, customers have positive changes to look forward to both in 2003 and beyond, as one related technological advancement necessarily leads to the next.

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