

**An Executive Comparison for the Business User
of the IBM iSeries with the HP e3000
– and Against Unix/Linux/Windows**

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Executive Preview

The iSeries from IBM is most like the HP e3000 of any alternative platform available to those organizations considering transitioning away from the HP e3000. It is especially similar in all the ways that matter for commercial data processing. We will examine these similarities in detail and how they differentiate the HP e3000 and the iSeries from other platforms. However, we can sum up the key similarities between the two (and key differences from other potential transition platforms) by noting that both systems are

- Highly integrated; and,
- Designed for business IT.

The iSeries differs, in a positive way, from the HP e3000 in a number of respects. We will also examine these in detail. However, we can sum up the key differences between the two systems by noting that

- The iSeries has a thriving ecosystem; and,
- The iSeries has numerous leading edge capabilities and IBM continues significant ongoing investment.

Introduction

On November 14, 2001, the IT world changed dramatically for everyone using the HP e3000, MPE/iX and IMAGE. Whether it wants to or not, each organization that has relied on the HP e3000 is embarking on a transition, a transition that will make or break careers, and a transition that if handled poorly could bring down the organization. Each organization must make business critical IT decisions on how to transition to the future.

Each organization has four basic choices to consider for a transition strategy: to "build", to "buy" (replace), to "migrate" (port) or to "stay" (homestead), plus outsourcing and portfolio solutions consisting of two or more of the preceding options. Following HP's announcement canceling the HP e3000, we examined all the transition platform alternatives.

When Hewlett-Packard announced the demise of the HP e3000, we were surprised by the lack of any reasonable solution or strategy for ISVs and SMBs. Initially HP recommended a swift migration to HP-UX. It has since realized (most likely because of the overwhelming disinterest expressed by HP e3000 users) that Linux or Windows might be easier to swallow for some customers. However, the fact remains that none of these options provides the kind of system that HP e3000 ISVs and SMBs had come to take almost for granted. The HP e3000 platform has a solid reputation as one of the most reliable and successful platforms in the industry with its near legendary uptime, unparalleled backward compatibility, seamless network integration, and ease-of-use. It just runs, and runs.

The techno-geek in us pushed us towards Linux, but the businessperson part (25-plus years experience as an IT manager for the author) found Linux, HP-UX and Windows all seriously wanting. After months of research, that included a fact finding trip to Rochester, Minnesota, home of the iSeries division, one system stood out above all, the IBM iSeries (aka AS/400) as being most like the HP e3000 in all the good ways, including near legendary uptime, unparalleled backward compatibility, seamless network integration, and ease of use. We came to the conclusion that for those organizations considering a transition off the HP e3000 to another platform (whether "build", "buy", "port" or some combination) the iSeries from IBM is the best alternative. The iSeries is simply the only system that is like the HP e3000 in all the ways that matter to a business while at the same time going well beyond the HP e3000 with leading edge capabilities.

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The iSeries differs, in a positive way, from the HP e3000 in a number of respects. We can sum up the key differences between the two systems by noting that

- The iSeries has a thriving ecosystem; and,
- The iSeries has numerous leading edge capabilities and IBM continues significant ongoing investment in the iSeries.

Highly Integrated

With Hewlett-Packard's proposed transition solutions, especially its HP-UX and Linux solutions, you have to become your own systems integrator. The OS may come from HP, but the database has to come from another company. The spooler has to come from a third company. The batch scheduler has to come from a fourth company. The compiler likely has to come from a fifth company. The backup software has to come from a sixth company. The workload manager likely comes from a seventh company, etc. This means you have to make sure that everything is on a compatible release. Support comes from multiple companies, so when the inevitable problems do arise, you can easily end up in a finger pointing situation rather than getting your problem solved. "Ease of use" is a phrase never used in describing Unix or Linux systems. Furthermore, a Unix solution invariably requires more specialized technicians (read more cost and complexity) than MPE. The third platform, Windows, is more highly integrated than either HP-UX or Linux, what with a native, though not very powerful, spooler and a powerful RDBMS, SQL Server, available directly from Microsoft. However, even the RDBMS is purchased separately, unlike IMAGE with the HP e3000 and DB2 with the iSeries; thus the user must still coordinate updates. While Windows server is relatively easy to use, it is difficult to use effectively, there are significant security concerns and it is very easy to shoot yourself in the foot in a Windows server environment.

Everything the small ISV or SMB needs is in one integrated package, including OS, database, scheduler, spooler, backup software, compilers, workload management, etc. There is no need to worry about managing releases or support for half a dozen or more core software utility packages. In addition to its native commands and file structure, OS/400 supports POSIX through its integrated file system (IFS) and several shells, and supports the running of AIX binaries using the PASE subsystem. The iSeries also has the same legendary uptime and ease of use as the HP e3000. It too just runs. And runs.

Just as with the HP e3000, a high degree of system integration leads to both a lower total cost of ownership (TCO) and higher stability, reliability, availability and serviceability. In business IT, the most important system software component is the DBMS, more important than even the OS. The HP e3000 and the iSeries come bundled standard with a world class DBMS, as well as a scheduler, a spooler, commercial grade backup software, workload management, etc. Compilers for all the popular languages, tuned to each system, are available from HP and IBM

respectively. For HP-UX and Linux, you have to acquire your DBMS, scheduler, spooler, etc., separately from third parties. Some of these items are available for Windows from both Microsoft and third parties. Others are available only from third parties. Even in the case where a component is available from Microsoft, the customer is responsible for integration and for ensuring synchronized updates, all of which add to the TCO.

Personnel costs are a significant contributor to TCO. Highly integrated systems lead to lower personnel costs. For example, neither the HP e3000 nor the iSeries require a DBA to manage IMAGE and DB2, respectively. However, even HP not only admits, but also strongly recommends, that in a migration to HP-UX with Oracle, you MUST hire a dedicated Oracle DBA.

HP's remaining servers are not highly integrated. In fact, HP's server strategy going forward is at the mercy of Oracle, Microsoft and Intel, while IBM has complete control of all the key components of the iSeries.

The Enterprise version of OS/400 also includes e-business tools and other software such as Websphere Application Server, Lotus SameTime and QuickPlace, BRMS and Tivoli Storage Manager, increasing further the iSeries value proposition.

Designed for Business

“Business computers should serve business without needing an army to run them.” – from the iSeries Nation (<http://www.ibm.com/servers/eserver/series/nation/>) home page. This could easily have been the tag line for the HP e3000 had HP chosen to aggressively market the system. Its users certainly knew it to be true in the same way that iSeries users know it to be true. SMBs transitioning to HP-UX, Linux or Windows will face increased personnel costs because these systems were never designed with the SMB in mind.

Both the HP e3000 and the iSeries were targeted at the SMB server space from day one, long before marketing types were even talking about the “SMB server space”. Unix, Linux and Windows were all originally single user systems that came to the business server space rather late in the game. For example, even today, after more than a decade of promotion as business servers, Unix, Linux and Windows do not contain native batch capability.

The iSeries traces its legacy back to the 1970's, just like the HP e3000. It counts the System 32, the System 34, the System 36, the System 38 and the AS400 in its extended family tree. The HP e3000 changed gradually over the years with only one revolutionary step (going from CISC and MPE V to RISC and MPE/iX) while the iSeries went through several revolutionary stages on its way to becoming the complete system it is today.

As with the HP e3000, the iSeries requires an organization to consider the total cost of ownership over a period of time. Initial Unix, and especially Wintel, hardware costs are lower than the costs for the HP e3000 or iSeries. But when you consider total cost of ownership, HP e3000 and iSeries users know they are getting the better deal.

In canceling the HP e3000, HP forgot that business IT places a high value on reliability, availability and stability in a computing platform. HP is forcing its customers to abandon a platform many have used for fifteen to twenty years or even more for a platform (HP-UX) with an increasingly questionable future. Unless you migrate directly to Itanium (a high risk option in our opinion), you will have to eventually migrate again as PA-RISC is entering its final generation. Furthermore, many observers question the viability of Itanium and even of HP-UX long term. Itanium is finding much slower acceptance than expected in the face of stiff competition from AMD's Opteron chip technology. Intel has recently been forced to add 64-bit extensions to its

IA-32 architecture in response to the success of Opteron, further clouding the future of Itanium. HP-UX is increasingly becoming merely a high-end niche market OS as both Linux and Windows eat up the low- and mid-range Unix market. Michael Capellas's prediction while he was President of HP is coming to fruition even faster than he probably thought, "You are going to see Windows and Linux absolutely eviscerate the midrange proprietary Unix." Note that you do not hear much talk about "open systems" anymore. This is another failed IT magic bullet. Compare Unix, Linux and windows to the iSeries where IBM customers are still able to run twenty-plus year old System 36 code on the latest iSeries boxes.

Another way the iSeries aids business IT is as a consolidation platform. Unix, Linux and Windows each do some things well and each has its place in IT. With the iSeries you can consolidate and/or manage all these platforms on one iSeries system.

Thriving Ecosystem

HP said it cancelled the HP e3000 because the ecosystem had shrunk to an unsustainable level. The iSeries ecosystem thrives like no other. There are over 500,000, and perhaps as many as 750,000, AS400s and iSeries systems in use today worldwide by as many as 250,000 separate organizations. There were probably never more than 50,000 to 60,000 HP 3000s in use worldwide at any time. For the SMB looking to replace its existing HP e3000 applications, there is a huge stable of thousands of application packages available for the iSeries (consider <http://www-1.ibm.com/servers/solutions/finder/CSFServlet.wss?mvcid=campaign&packageid=1000&campid=C274JC>).

There is a wealth of information about the iSeries, most of it free, on the Internet. For example,

IBM Sites

- IBM iSeries main site (<http://www.ibm.com/servers/eserver/series/>)
- ISeries Nation (<http://www.ibm.com/servers/eserver/series/nation>)
- Online iSeries Infocenter (<http://www.ibm.com/servers/eserver/series/infocenter>)
- IBM iSeries Redbooks (<http://publib-b.boulder.ibm.com/Redbooks.nsf/Portals/AS400>)
- HP e3000 to iSeries migration site (www.ibm.com/servers/eserver/series/midrange/index.html)

Independent sites

- COMMON (<http://www.common.org>) is “an international professional association serving the global community of organizations and individuals who have an interest in IBM technology.” Various memberships are available.
- Search400.com (<http://www.search400.com>) is the “ultimate resource for the iSeries professional.” Membership is free.
- Midrange.com (<http://www.midrange.com>) provides a “large number of resources (all free) to user and developers of the IBM iSeries.” Midrange.com hosts a number of iSeries specific list servers, including midrange-L, which is similar to HP3000-L in its hay day but without all the off-topic rants. It averages several hundred postings per day.

- MC Press Online (<http://www.mcpressonline.com>) “seeks to be the world's leading provider of educational and training materials for IBM eServer iSeries professionals.” Membership is free.
- ISeries Network (<http://www.iseriesnetwork.com>) is a “comprehensive collection of resources supported by Penton Technology Media, publisher of iSeries News.” There are various levels of free and paid membership.

Leading Edge Capabilities and Ongoing Investment

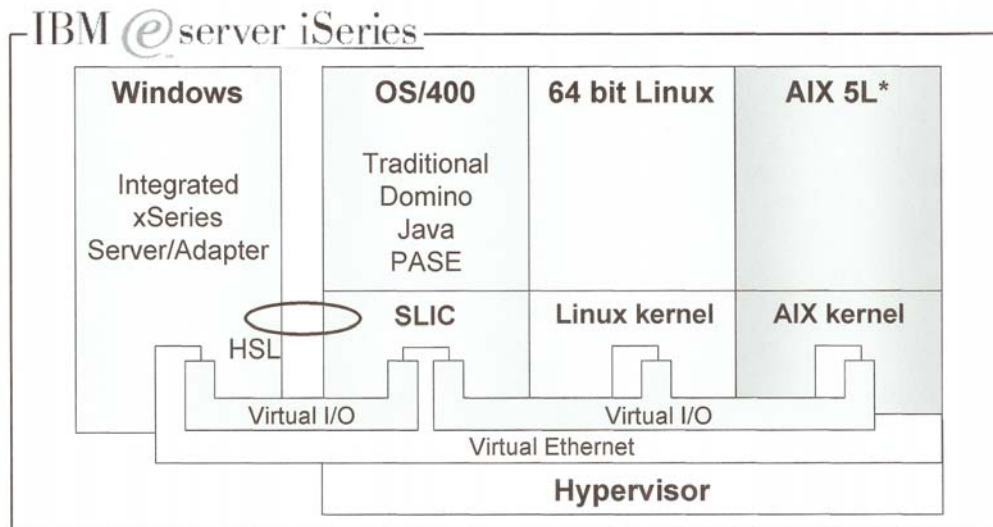
The iSeries is what the HP e3000 could have been if HP had continued to invest in it over the last decade. We will examine some of the leading edge features available only on the iSeries among all possible transition platforms.

One of the most common misconceptions about the iSeries is that it is just an RPG (and maybe Cobol) machine, probably because of its System 3x roots. The iSeries of today can concurrently run multiple operating systems, run J2EE Web services, integrate with .Net, host Web applications, run open source software and host data warehouses. In a tree-tiered architecture, the iSeries can fill the role of the front-end Web interface server, the middle tier business logic server and the back-end database server. In an InfoWorld article (October, 2003) an IT director is quoted, "Our shop runs 11 Linux servers and a Windows server on the iSeries, its RPG applications and Lotus Domino. We also support our Web sites via Apache on the iSeries and use mySQL and PHP as part of our Web services development. We also use the iSeries for network-related services, including for DNS, firewall, proxy servers anti-virus and spam filtering, and Samba print and file services." Clearly, the iSeries is much more than just an RPG machine.

Many applications originating on Unix can be ported to run natively on the iSeries through use of OS/400 PASE (Portable Application Solution Environment). OS/400 PASE provides binary compatibility with a broad subset of AIX 5L, IBM's Unix variant. PASE is a native (on the iSeries) implementation of AIX shared libraries, not an emulation environment. Many Unix applications can be ported rapidly and easily to the iSeries using PASE.

Utilizing logical partitions (LPARs), the iSeries can run multiple independent instances of OS/400, Linux and, later this year with the release of the V5R3 version of OS/400, AIX, all on one physical system, thus greatly reducing TCO for the organization. You can also manage Windows servers and applications from the iSeries with the integrated xSeries server and integrated xSeries adapter. Manageable iSeries storage area networks for Windows users are also possible. The diagram below from IBM shows how it all comes together in a single box.

Integrated, versatile workload management



- Lowering IT costs across multiple operating environments
- Virtualizing resources for increased efficiency and simplified operations
- iSeries will support AIX in a partition in 2004*

* Statement of direction

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The iSeries scales from a small single processor workgroup server to a multiprocessor mainframe class system. Combining this raw performance with LPARS gives the savvy IT organization the opportunity to consolidate multiple independent servers and operating systems onto one hardware platform,

- Reducing the support burden,
- Increasing reliability,
- Reducing management complexity,
- Reducing total cost of ownership, and,
- Centralizing key services such as backup and recovery.

IBM is expected to announce in 2004 dynamic allocation of resources, including memory and processors, across LPARs. When AIX in LPARs becomes available, also in 2004, talk will likely pick up about the pSeries (IBM's Unix system) being rolled into the iSeries, with the iSeries and OS/400 managing the whole thing. While nothing is guaranteed, the future of the iSeries looks robust.

Developers can use the Eclipse-based Websphere Development Studio Client (WDS) for iSeries to work on everything from web services to J2EE applications to legacy code maintenance. Java on the iSeries is not an afterthought, like it is on the HP e3000. Java for the HP e3000 was a one-man skunkworks project, while on the iSeries Java is an integral part of the environment. The iSeries has built-in support for Kerberos authentication, SSL, digital certificates, VPN capabilities and LDAP services.

OS/400 uses the concept of an Auxiliary Storage Pool (ASP) to organize disk on a system. This is similar to User Volumes in MPE/iX. However, IBM takes the concept even further with the Independent Auxiliary Storage Pool (IASP). An IASP is a collection of disk units that can be brought online or taken offline independent of the rest of the storage on a system, including the system ASP (think MPE/iX system volume set) and user ASPs. An IASP can be marked *private*, indicating it is connected to a single system, or *switchable*, indicating it can be switched between two systems or partitions in a clustered environment.

The iSeries had already supported the PCI bus architecture for some time when HP finally introduced PCI support for the HP e3000. This was just before it cancelled the HP e3000 product line. At about the same time HP was canceling the HP e3000, IBM was introducing the next generation PCI-X bus architecture support for the iSeries.

A key component of IBM's computing vision is autonomic computing where a system includes self-configuring, self-healing, self-protecting and self-optimizing technologies. The iSeries has been at the forefront of IBM's implementation of its vision.

The capacity-on-demand paradigm is a marriage of business concerns with technology. Few businesses have a constant demand for processing power. At certain times of the month and/or year the business needs more processing capacity than at other times. Businesses have been forced in the past to buy more capacity than they need, meaning that expensive processing power is lying idle much of the time. On/Off capacity upgrade on demand provides for temporary capacity increases to meet specific demands. You pay for what you use. For example, the iSeries can be scheduled to activate extra processors during month-end accounting cycles or holiday selling cycles. When the scheduled time is over, the number of processors in use drops back to normal. Currently the iSeries capacity-on-demand can be specified manually or

according to a predetermined schedule. Coming soon, the iSeries will support dynamic capacity-on-demand.

iSeries processors and memory are dynamically taken offline when errors are detected. The iSeries Performance Advisor monitors performance metrics and provides tuning proposals to increase efficiency. Capacity planning tools analyze performance data, giving estimations of workload growth. The iSeries automatically spreads data across disk storage to improve performance while also supporting dynamic archival and retrieval of objects, based upon their usage, to improve throughput.

The iSeries is the only platform combining all these leading edge capabilities. And, IBM continues to invest heavily in the iSeries, thus leading to the expectation of even more leading edge features in the future.

Executive Summary

In evaluating a transition strategy, whether build, buy or port, we have concluded that of all the available transition platforms, the IBM iSeries with OS/400 and DB2, is most like the HP e3000 with MPE/iX and IMAGE in all the ways that matter to a business. Furthermore, the IBM iSeries is representative of what the HP e3000 could have been had HP not stopped making significant investments in the platform. The iSeries is highly integrated, is designed for all business environments, has a thriving ecosystem and is supported by significant ongoing investments from IBM. Do not believe any of the FUD coming from HP. The iSeries is here for the long haul and will continue to evolve to meet the needs of the business IT community. The iSeries is not your father's System 3x or even AS400. What is it? It is the ideal target platform for HP customers looking to transition away from the HP e3000.