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Competitive Snapshot

The Future of the High-Volume Server Ecosystem

Linux or Solaris 10: Which Will Challenge Windows?

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ABSTRACT

Over time, the market for servers has developed into a robust and very competitive marketplace. In earlierdays, specific attention was given to the underlying hardware and software platform as well as its vendor as in many cases the availability of solutions was inherently intertwined with a specific systems vendor. Ecosystems of channel partners, developers, ISVs, etc., developed around these solutions not only to support the current implementations but also to cultivate interest in long-term support for the platform and its users. The availability of a wide range of solutions and partners to deliver and support them became a critical decision criteria in server purchase decisions.

Today the marketplace has coalesced around two server camps. One is high-end, single-source solutions that are focused on a specific set of workloads. The other is high-volume servers sourced from multiple suppliers, with myriad applications and developers, and that support a variety of workloads throughout organizations.

For a volume server to be successful as a platform, it must, by definition, have volume. This is predicated upon wide market support by many entities at many levels of engagement. These servers must have a thriving ecosystem of market participants to maintain their volume position. Microsoft Windows Server on Intel x86-based hardware is one example of a successful high-volume ecosystem that has developed over many years with many participants. Conversely, industry consolidation has reduced the number of competitive high-volume platforms. Vendor-specific UNIX solutions that once featured dedicated ecosystems have fallen prey to high-volume economics with their specialized applications being deployed on high-volume platforms whenever practical. This, combined with open standards and Open Source, have captured mindshare that has helped drive Linux to become the lingua franca of alternative operating systems to Windows Server.

The importance of ecosystems to customers is growing, and Open Source is playing a significant role in shaping the high-volume server ecosystems of the future. In this report, we examine the role of the ecosystem and its participants with respect to Linux. We also present survey data illustrating the importance of the ecosystem with respect to operating system deployments in organizations and why it is likely there is only sufficient customer demand to support one open high-volume alternative to Windows. We conclude by examining how Linux and Open Source technology are increasingly playing a role in organizations of all stripes.

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TABLE OF CONTENTS

The Importance of the Ecosystem

The ecosystem supporting any platform is comprised of several constituencies. Through market forces, standards bodies, business partners, etc., these participants help define the opportunity for a given platform. Hardware/Systems Vendors, Developers, Independent Software Vendors, and Sales Channel Partners, as well as End Users and User Communities, all play a critical role. While systems vendors still make direct sales to the marketplace, they tend to target a small number of large strategic accounts. To reach the rest of the market, systems vendors rely upon business partners and third parties to cultivate demand and support for a platform. Without this virtuous circle of innovation and support, a server platform will not be able to achieve, let alone maintain, a high-volume position in the marketplace. For example, a strong ecosystem has developed around the industry standard platform, namely the x86 architecture, and the Windows OS. Likewise, we have seen the rise of Linux as a standard platform with commensurate marketplace support. Conversely, ecosystems change with time: consider the Open Systems/UNIX vendors of the 1980s and 1990s. With vendor consolidation in the marketplace, many such ecosystems have contracted, if not faded altogether from a volume server position.

At the same time, Open Source has made a substantial impact on developer and user behavior, as well as marketplace expectation. User communities' growth and influence, as reflected in the many Open Source projects, is increasing. The Linux OS has benefited considerably, as these communities have acted as a check against members of the ecosystem becoming too enamored of their respective market positions. Open Source communities demonstrate the need for key technologies that have become essential, if not priceless, in the marketplace. Countless standard infrastructure technologies, once only commercially available, are now available as Open Source projects. As a result, many are choosing Open Source solutions to maximize organizational value, flexibility, and efficiency. For many, Linux is the torchbearer for Open Source. However, Linux's success is also driven by the widespread support it garners from the marketplace overall.

What Is the Value Proposition of the Platform Ecosystem?

The basic value proposition of any ecosystem is to drive platform availability, customer choice, and user options, and to ensure continued vendor and partner investment and support for the long haul. A successful ecosystem will support the applications end users require, and encourage their long-term growth and success through validation of the platform as a vibrant, multi market, and state-of-the-art solution. The various marketplace constituencies, e.g., vendors, developers, channel partners, end users, etc., are not always in optimal alignment, which leads to missed opportunities and less-than-best practice deployments. Ecosystem forces work to collectively correct diverging behavior that may emerge from a vendor or faction within the ecosystem.

A successful ecosystem will drive multiple vendor support for a platform, which in turn will drive choice for customers. This is made manifest by VADs, VARs, SIs, and others who aggregate demand for applications and hardware availability from multiple vendors. These partners offer the support and training services from multiple parties and design their own platform support offerings as well.

An ecosystem highlights the need for ongoing innovation in best practices, keeping the platform competitive, and delivering ongoing dynamic value to the customer. A growing ecosystem will illustrate the value of investing in the platform and will encourage training and skill development to ensure the next wave of professionals with the requisite skill sets will be available when needed. Likewise, a contracting ecosystem reflects decreased investment as well as the risk of shifting to a market niche position and yielding any driving position it once commanded.

With this in mind, there are certain components needed for the creation and long-term viability of a high-volume server ecosystem. We believe the following must be evident for an ecosystem to thrive:

- There must be multiple vendors supporting the underlying hardware and software.
- There must be a variety of sales strategies and support including direct vendor sales, indirect channel partners (VARs, VADs, SIs, etc.), and a variety of third-party support, training, and maintenance suppliers.
- A broad range of infrastructure and middleware applications must be available from vendors as well as from Open Source and other industry communities.
- A broad range of horizontal line-of-business applications as well as vertical industry specific applications must be available from vendor and Open Source suppliers.
- Solution bundles must be available that supply any combination of hardware, software, services, and financing.
- A well articulated future roadmap for the platform hardware and software, with broad acceptance from user, developer, and industry communities is essential.
- The skill set to deploy and operate the platform must exist within the IT community and investments must be made by higher education and training services to future proof the platform by increasing the number of professionals with the requisite skills.

What Does the User Community Think about Platform Ecosystems?

To understand what role the ecosystem plays on buying and future investment patterns, we fielded a two-part study reaching 202 IT professionals who were responsible for purchasing or influencing the deployment of high-volume server platforms in organizations with 250 or more employees. These participants were recruited from a panel of 13,000+ members and were asked to participate in a web-based survey regarding the importance of the ecosystem with respect to high-volume server purchases, the value that ecosystems provide end users, and their importance in future technological investment decisions. We re-contacted ten participants for a followup telephone interview to garner further details and c0lor commentary about perceptions of the ecosystem's role in high-volume server deployments.

Business Partners Are Vital

It is clear, but should be of no surprise, that channel partners play a key role in delivering technology into the marketplace. In our survey, over 60% of respondents indicated their organization purchased high-volume servers from a VAR, 45% purchased from a SI, and 36% from a VAD. Only 11% indicated that their organization purchased from another supplier, which typically would be a direct sale from a systems vendor (Figure 1). This suggests that third-party sales channels are the primary touchpoint for end-user interactions and are therefore a critical component of the ecosystem. Thus, the support of these sales partners is essential for the success of any given platform. In an era of diminishing if non-existent IT staff, the guidance offered by these partners is increasingly driving operating system decisions.

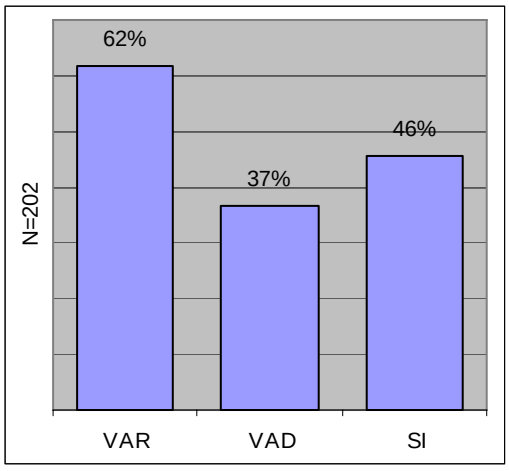

Figure 1: Purchase Sources

Third-Party Certified Support

While much attention is focused on the initial acquisition of a server, most organizations quickly realize that there is much more involved than just the hardware itself. The need for local, easily accessible support is a paramount consideration. When asked to rate the importance of the availability from a variety of third parties offering certified products, support, and hardware systems, the average rating was 4.03 out of 5 (1 = low; 5= high.) In fact, 76% of respondents rated this as either somewhat or extremely important to their organization (Figure 2). When asked to rate the flexibility of support options offered, the average importance rating was 4.29, with 89% percent of respondents rating this as somewhat or extremely important. One organization commented, *"Support is absolutely critical. Regardless of the application you're given... something always happens."* This would suggest that third-party support is a vital part of the ecosystem as well as the need for solutions focus to technology as opposed to the traditional point product approach.

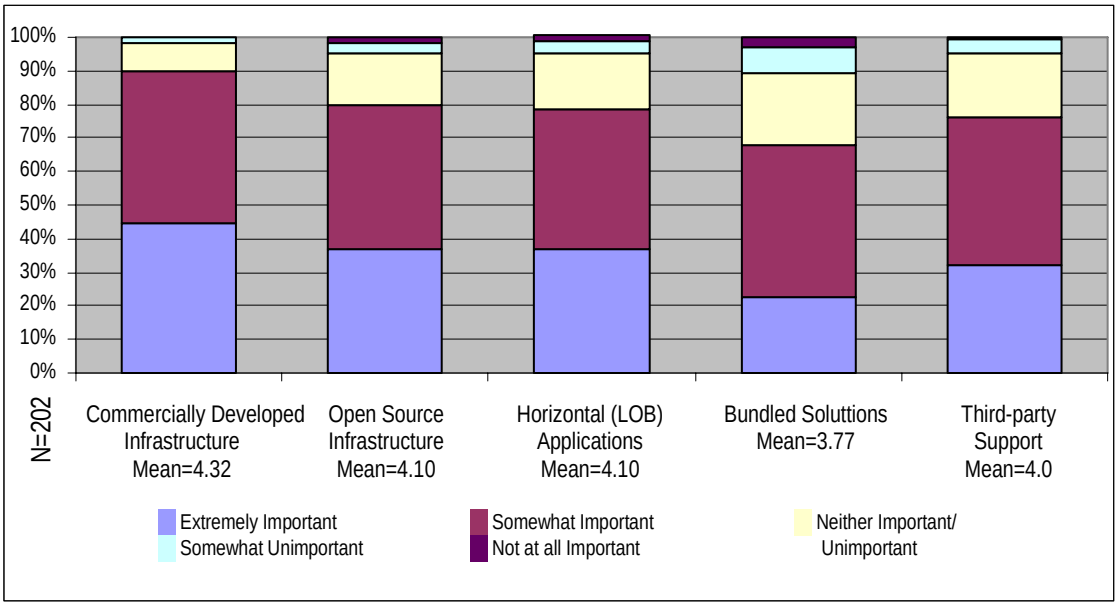

Figure 2: Importance of Key Deployment Factors

Software Availability

When asked the importance of commercially available infrastructure/middleware software to their organization's high-volume server deployments, 90% of those surveyed rated this as somewhat or extremely importance, yielding an average importance rating of 4.32 (Figure 2). The equivalent Open Source software was also very highly rated with an average importance of 4.10, or 80% of respondents indicating it was somewhat or extremely important to their organization. To some this may seem high, but remember some very popular open source applications, like Apache web server, are running on nearly 70% of web servers with many deployments on both Windows and Linux.

Horizontally focused line-of-business applications also figure prominently in many organizations' IT solutions. When asked the importance of these applications to their organizations, survey participants rated the average importance at 4.10, with 79% indicating the availability of these applications was somewhat or extremely important in their organization's choice of computing platform (Figure 2). Collectively, this illustrates another component of the platform ecosystem, namely key infrastructure and line of business applications, without which a platform will not thrive.

Integration, Testing, and Installation

There are organizations with the technical wherewithal to integrate server solutions; however, for many this integration proves too time consuming or is beyond the skill set of inhouse talent. When asked the importance of the solution bundles supporting a combination of hardware, software, services, etc., 67% of respondents rated this as somewhat or extremely importance in their organization's decision to deploy a given operating system, with an average importance rating of 3.77 (Figure 2). This reflects that organizations are inclined to make use of the integration, testing, and installation skills of technology providers and rely less on in house-created solutions. It also reinforces the notion that third parties are an important part of the ecosystem, especially with respect to delivering a complete solution.

Linux as a High-Volume Server Platform

As we discussed earlier, several factors foster healthy and vibrant ecosystems. From the survey, we also note that many of these factors are highly rated by the individuals within organizations responsible for high-volume server deployments. This section discusses highlights from the survey demonstrating the level of commitment that has been made to Linux as a high-volume server platform.

Surprisingly, 113 of the survey responses indicated a *strategic commitment* to the Linux platform on either RISC- or x86-based hardware (Figure 3) and these responses are captured below. This represents over 50% of the survey population, and is a significant statement of direction for the marketplace and puts the various ecosystem partners on notice that Linux-focused offerings will be a substantial opportunity going forth.

Migration of Workloads to Linux

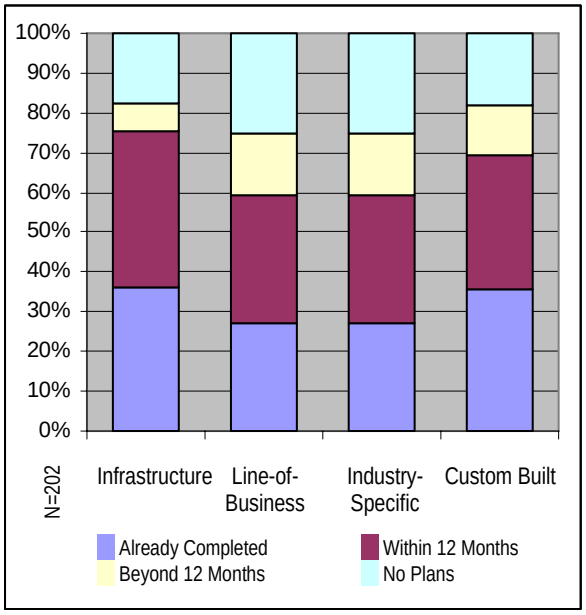

Figure 3: Migration to Linux

Deployments by organizations are the ultimate marketplace measure of a platform's popularity and support. Regardless of the level of vendor and community investment, if end users do not deploy, these supplier investments are moot. We asked our survey participants about their organizations' plans for deployment and migration of workloads to Linux. As we see (Figure 3), a significant number have already migrated various workloads to Linux, and the workloads are more than basic infrastructure software. A couple of the reasons stated for this platform by one organization were the reduced cost of OS maintenance agreements and the rapid availability of bug fixes and patches. Another indicated that they wanted to *"consolidate as much as possible and it is very easy to manage multiple servers on Linux."*

Over the next year, we see a sizeable number of horizontally and vertically focused lines of business applications as well as inhouse developed applications that are planned to be migrated to Linux. At a minimum, a quarter of these line of business workloads have already been migrated and in aggregate, roughly half are planned to be migrated over the next year. This runs

counter to conventional wisdom that states that Linux is fine for basic infrastructure, but that no organization would run mission critical applications on the platform.

Channel Partners' Influence for Linux

Channel partners figure prominently in Linux deployments: 84% of all organizations surveyed indicated the role of these partners was somewhat or extremely importance in the choice to invest in a given platform (Figure 4). For organizations with a strategic commitment to Linux, this importance is even greater with 94% of Linux on RISC and 87% Linux on x86 users giving this same rating. One organization stated that they would trust their partner's opinion, but would ask about the specific advantages, disadvantages, and cost for an OS. Given this, the influence of channel partners such as VARs, VADs, and SIs, cannot be underestimated and the survey responses show that they clearly are leading organizations and their strategies to Linux.

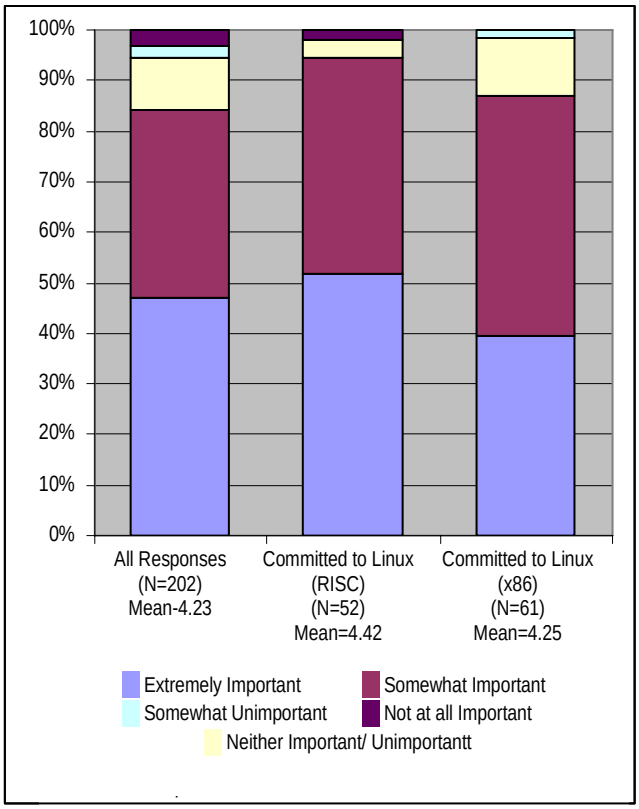

Figure 4: Channel Partners' Influence

Commercial Certification of Hardware and Software

Further, when asked the importance of third-party support, certified products, certified hardware, etc., over 80% of organizations rated these as somewhat or extremely important. Initial forays into Linux-based infrastructure were largely limited to organizations that had integrated disparate Open Source technology into a home-built solution; however, it seems that the value of commercial certification and support channels for Linux is very high. This is very similar to historic patterns in the marketplace overall and is reflective of the value ascribed to ecosystems.

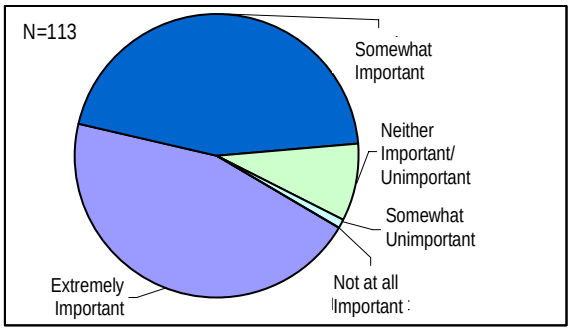

Figure 5: Importance of Open Source Software Availability

Availability of Open Source and Vendor Source Software

At present, about 90% of organizations indicating that they have made a strategic commitment to Linux rate the availability of Open Source infrastructure and/or middleware technology as a somewhat or extremely important factor in their decision to deploy the Linux platform (Figure 5). In fact, 45% of the organizations rated this as extremely important. One organization stated, "*Our primary driver in moving to Linux is cost, and the availability of open source software is key to this.*" Another organization stated that as part of its decision-making about an OS, it examines

which applications are out in the market, and who else is using them to gauge whether there is marketplace support.

At the same time, we are finding that those expectations are not limited to Open Source infrastructure. Of these same organizations, 90% (RISC) and 85% (x86), rate the availability of commercially developed infrastructure and/or middleware software as somewhat or very important. Of these, 44% (RISC) and 30% (x86) state this is extremely important in their deployment decision. Hence, organization's expectations include a combination of Open Source and commercially sourced solutions, even at what some would consider the basic level of infrastructure technology.

Line-of-Business Applications

Linux has emerged as a viable platform for line-of-business applications. On average just over 80% of organizations rate the availability of line-of-business applications on Linux as a somewhat or extremely important factor in their decision to deploy Linux (Figure 6). One organization commented that the availability of LOB applications that were stable and could meet uptime requirements for internal clients was a primary driver in their Linux migration. Another commented, "*The availability of these applications indicates critical mass for the platform.*" A different organization stated it perceived that since Linux has been growing in the market, not only are more vendors porting to Linux, but they are also improving the applications.

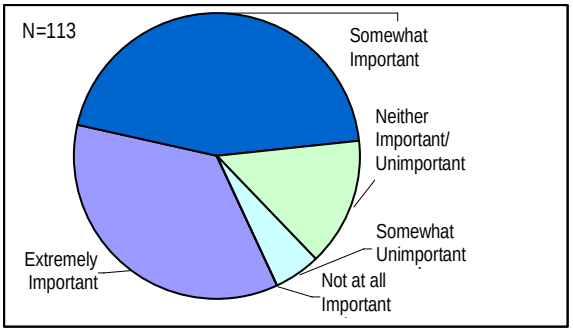

Figure 6: Importance of LOB Applications

ISV, Developer, and User Community Support

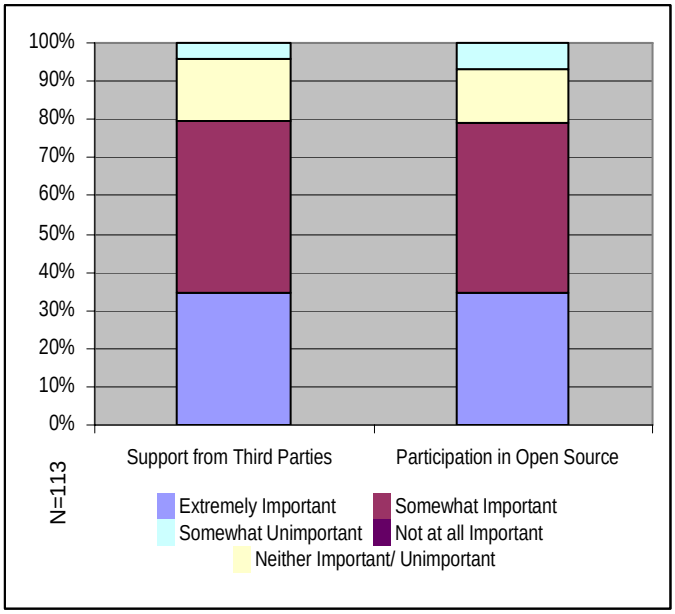

Figure 7: ISV, Developer, and Open Source Contribution

Similarly, when asked the importance of having numerous ISVs', developers', and user communities' support for the operating system, 80% of organizations gave this same rating (Figure 7). One organization stated, "*As the community becomes larger, we get a much quicker turnaround time for getting a solution for any issue we encounter.*" Additionally, just under 80% of organizations rate a vendor's participation in and contribution to Open Source initiatives as somewhat or extremely important. Another organization commented, "*If you sell it, you should get behind it. And if you're not going to stand behind it, don't sell it.*" We note that organizations have the expectation of access to a variety of applications from multiple vendor and open sources. Hence, a commitment to Linux as a platform does not preclude the use of commercial source software.

What It All Means

A vibrant ecosystem is essential to drive high-volume server platforms. From our research, we see that the value ecosystems provide is a major purchase consideration for organizations. Ecosystems have developed around many platforms over the years; however, ecosystems change with time. The marketplace consolidations of the past few years have set platforms such as PA-RISC, MIPS, and Alpha out to pasture while others such as SPARC no longer have the widespread multi-vendor investment that is essential for their success in the volume server space. Further, Sun has ceded the high-volume, low-end of their product line to Opteron-based servers, forever relegating SPARC to low volume. Other platforms such as POWER and Itanium are players in the server market, but their focus is not the high-volume server opportunity, but rather the highest performance server opportunity.

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Times and Ecosystems are Changing

As we have entered the twenty-first century, we witness a market with a single dominant hardware platform for volume servers, namely Intel's x86 architecture, and two high-volume software platforms, Linux and Windows. The high-volume market has coalesced around de facto standards that are driven by market acceptance and volume. This is reflected by the survey results showing that 60% of organizations have made a strategic commitment to Windows Server, 47% to Linux, but only 11% of respondent's organizations have made a strategic commitment to Solaris 10 on x86 hardware.

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In addition, our survey shows that an equal number (25%) of organizations have migrated older Solaris applications to Linux as Solaris 10. From this we see that those who were taking a wait and see approach to Solaris 10 are defecting in substantial numbers, despite the fact that for many a hardware change from SPARC to another platform is required. Many are likely making the switch to Linux because it requires no more migration steps than migrating from Solaris on SPARC to Solaris 10 on Opteron, and the advantage of the Linux ecosystem is significant.

Despite Sun taking Solaris from SPARC to lower-cost x86 platforms, customers still do not appear to view Solaris 10 as either a high-volume or strategic platform.

Linux and Windows each have at least four times the market penetration of Solaris 10 on x86, with a solid plurality if not majority. Despite Sun taking Solaris from SPARC to lower-cost x86 platforms, customers still do not appear to view Solaris 10 as either a high-volume or strategic platform. Given Sun's declining market share, it is difficult to envision Solaris 10 as a high-volume server platform, especially on x86 hardware. Similarly, although IBM and HP are experiencing growth in new UNIX servers sales, these businesses are predicated on server platforms (Itanium and Power5) that are focused on high performance, and were never envisioned as high-volume.

Key Thoughts for the Present

Based upon our findings from the survey along with the behavior of end users, enterprises, and the marketplace overall, we offer these thoughts regarding the high-volume server market:

- An active and vocal user community combined with growing vendor support makes for a healthy and vibrant ecosystem.
- A vibrant ecosystem is a leading indicator of future deployment patterns.

- Organizations look for the value that ecosystems provide and this is a major factor in purchase consideration.
- In an era where enterprises are seeking to reduce IT staffing, the substantial influence of channel partners such as VARs, VADs, and SIs cannot be underestimated.
- The support of channel partners such as ISVs, VARs, VADs, and SIs for Linux is very high and these partners are shaping organizations' strategies in favor of Linux, as are many user communities and Open Source projects.
- 84% of all organizations surveyed indicated the role of these partners was somewhat or extremely importance in the choice to invest in a given platform.
- Today there is a single dominant hardware platform for volume servers: Intel's x86 architecture, and two high-volume software platforms: Linux and Windows.
- Over 50% of the respondents taking part in the survey indicated that their organization has made a *strategic commitment* to the Linux platform.
- Linux boasts the support of the Intel x86 architecture as well as RISC, and mainframe hardware, making it one of the broadest deployable platforms on the market today.
- A commitment to Linux as a platform does not preclude the use of commercial source software.
- Organizations expect to operate a combination of Open Source and commercially sourced solutions, and to access a variety of applications from multiple sources.
- Over the next year, a sizeable number of business and inhouse-developed applications are planned for migration to Linux. This counters previously conventional wisdom, and demonstrates that in current perception, that Linux is good not only for basic infra-structure, but for an organization's mission-critical applications as well.

Overall, we see that Linux has progressed considerably from its tinker toy days of the past to become a mainstream commercially supported platform. Our survey findings illustrate the broad base of support for Linux from many industry participants beyond just systems vendors such as IBM, and HP. Hence, we see the high level of industry participation necessary to position Linux as a vibrant multi-vendor platform with a thriving ecosystem well into the future. While Windows is largely married to the x86 architecture, Linux has broad ecosystem support for this as well as other platforms including RISC, Itanium, and the Mainframe. Linux is a strategic platform for a substantial part of the marketplace: one on which commercial expectations are being laid. Organizations that are considering strategic investments in their high-volume server platforms are well advised to take note of the broad industry support and accompanying ecosystem offered by Linux with respect to their plans for future IT investments.