



PUND-IT, INC.

MARKETPLACE UPDATE

AUGUST 8, 2005

Beyond TCO – The Unanticipated Second Stage Benefits of Linux

By Charles King

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With Linux supporting ever-increasing numbers of business applications and mission critical workloads, executives are beginning to realize the operating system's essential technical, business, and economic benefits. This report focuses on those issues, and pays particular attention to the emerging, often unanticipated second stage benefits that leading edge Linux users enjoy today.

Overview

Linux' initial popularity and success among businesses is easy to understand. Organizations appreciated its minimal or non-existent licensing fees, along with the utilitarian hardware support that allows the Linux operating system (OS) to be adapted for a range of business needs. The bottom line pragmatism that inspired the initial uptake of Linux point products has evolved to support increasing numbers of mission-critical workloads. But as organizations expand the areas and business processes where they use the OS, intriguing new, often unanticipated second stage Linux benefits are becoming increasingly apparent. That may be all to the good for companies that have invested the time, effort, and budget necessary to make Linux a significant part of their IT infrastructures, but should others care?

Absolutely. Over time, IT solutions' features, performance, and benefits become increasingly predictable and dependable. With businesses focusing more and more, some virtually exclusively, on bottom line results, definable second stage benefits offer the means for them to more accurately evaluate the strategic impact of the Linux platform. As a result, Linux' second stage benefits are likely to advance greater interest in the OS, placing it front and center in the view of corporate users instead of relegating it to behind the scenes supporting roles. Is that enough to spark and sustain the next round of Linux adoption? Perhaps so and especially among those businesses that recognize how they can use Linux to pursue, acquire, and maintain a competitive advantage. We believe leading edge Linux adopters are already enjoying the fruits of such second stage benefits today.

Defining Linux Benefits

Linux' first stage benefits are relatively well-known and understood since its emergence as a business IT solution. While some second stage benefits simply extend or expand those initial benefits, others appear to arise from new and often unexpected sources. To better understand these second stage benefits, Pund-IT, Inc. created a study designed to examine how businesses implement, utilize, and benefit from their Linux implementations. With the assistance of IBM, Pund-IT conducted comprehensive research with three participating enterprises, all of whom were leading-edge adopters that significantly utilized Linux business solutions for no less than 18 months. Those participants, Alliance UniChem CZ, Boscov's Department Stores, and Zahid Tractor, answered a range of in-depth questions concerning their IT environments and Linux implementations, the reasons for their Linux deployments, the benefits they planned

for and those they received, and their future expectations. We further discuss the study methodology in an appendix following this report.

The established first stage benefits of Linux include minimal initial acquisition costs, as well as a significant reduction or elimination of ongoing software licensing costs compared to proprietary solutions. Linux allows users to choose lower cost hardware or extend the life of existing systems, potentially enhancing hardware ROI. Due to its support of a wide number of platforms, Linux also helps free businesses to choose the hardware solutions that best meet the needs of their business applications and workloads. Perhaps most importantly, at least among businesses, is the notable support Linux enjoys among key IT vendors and consultants. While joining the Linux club was once a newsworthy event, it has since become a simple part of doing business for the vast majority of IT vendors.

What exactly are second stage Linux benefits? Some are simply expansions of first stage benefits while others arise from longer term tactical and strategic issues such as Linux' adoption for or adaptation to new business and IT processes. Linux-based server and workload consolidation relates to this, as does using the OS to better scale applications and server capacity to meet business needs. Both demonstrate how Linux can help to spark the success of strategic IT and datacenter consolidation efforts. Linux can also help simplify a variety of IT management efforts, enhancing IT staff performance and lowering system management and maintenance costs. But second stage benefits extend well beyond IT efficiency. Linux is enormously popular among IT staff members, many of whom are at the beginning of their careers, as well as with IT educators in universities and technical institutions worldwide. This has resulted in Linux playing a significant role in the recruitment and retention of IT staff and managers.

Linux at the Leading Edge - Case Studies from A to Z

How do these second stage benefits work in real world business settings? From the responses, our study participants' benefits became clearer after they converted a significant number of IT and business processes to Linux. The following case studies discuss how three leading edge Linux organizations planned and executed their migrations, as well as the benefits they achieved.

Alliance Unichem CZ

Alliance UniChem CZ s.r.o. is part of Alliance UniChem plc. Alliance UniChem plc is Europe's second-largest pharmaceutical wholesaler, its third-largest pharmaceutical retailer, and the fifth-largest international player in its industry. The company's 240+ warehouses supply more than 85,000 pharmacies, hospitals, and health centers in 12 EMEA countries, and it also owns and operates over 1,100 pharmacies in five countries. Alliance UniChem CZ began its Linux deployment in 2002 with a data warehouse and logistics system project designed to replace the existing Wintel solution. Internal IT staff provided all project support, and the company exclusively utilized the SuSE Linux distribution.

The initial goals of the project were to capture cost/savings benefits, improve IT efficiencies, and make Linux central to the Alliance UniChem CZ's IT strategy. Only one month elapsed between the initial migration and the company's decision to pursue

additional deployments. Since then, Alliance UniChem CZ has deployed Linux solutions for 100% of its infrastructure processes and applications, and business applications. The company is also planning to move the vast majority of its desktop applications and workloads to Linux.

Along with achieving its initial tactical and strategic goals, Alliance UniChem CZ strongly realized a number of significant second stage benefits including the abilities to match applications with the hardware best suited to them and to scale applications as needed without porting to a new OS. The company also noted that it was able to optimize cost performance provided by its Linux migration across a value chain that included business partners. It reported significant financial savings related to IT staff and management efficiencies including reductions in the number of system administrators and the time and budget required for IT staff training, and an overall reduction in the cost of systems upgrades. Alliance UniChem CZ also said it had achieved notable technical benefits associated with application reengineering and workload consolidation, standardizing onto a single set of system administration and security management tools, and reducing system maintenance time and effort.

The company reported realizing a number of unanticipated second stage benefits from its Linux deployments. Leading the list were significantly lower costs and time required for the migrations than the company planned. In addition, Alliance UniChem CZ found notable the resourcefulness of the IT staff that planned and implemented the migration efforts. Overall, the company believes that Linux has enhanced business performance and is essential to achieving its strategic objectives. As a result, Alliance UniChem CZ said Linux is now its preferred platform for all future IT deployments.

Boscov's Department Stores

Headquartered in Reading, Pennsylvania, Boscov's operates over 40 department stores and outlets in five eastern states. Boscov's interest in Linux began in 2001, when the company was updating its mainframe environment with a new IBM zSeries z900 server. Faced with an increasingly unsustainable Wintel client/server environment, the company deployed its file/print workloads onto a Linux instance on the z900 in a project planned and implemented by in-house staff. This effort's success inspired Boscov's to move its IBM DB2-based invoice processing system to the z900, as well. To date, the company has deployed the workloads from more than 65 Wintel servers onto its z900 mainframe, all of which utilize the SuSE Linux distribution.

The initial goal of Boscov's Linux implementation was to capture cost/savings benefits through simplifying its client/server infrastructure and avoiding future costs associated with the purchase of Wintel servers and software licenses and the hiring of IT support staff. The result was so successful that the company began planning additional deployments three months after the initial migration was completed. To date, Boscov's estimates the financial benefits from its Linux deployments at more than \$2 million.

Along with these initial benefits, the company has strongly realized significant second stage benefits. In particular, Boscov's noted an enhanced ability to better consolidate server and application workloads in the Linux/mainframe environment, which provided ancillary benefits in enhanced system administration efficiencies and savings realized. As a result, the company also noted its ability to optimize these cost-

performance benefits across a value chain that included its business partners. In addition, Boscov's enjoyed benefits from scaling applications as needed without porting to a new operating system, and more easily meeting dynamic workload requirements. It also noted that Linux had significantly helped ease overall system maintenance efforts and costs.

Like Alliance UniChem CZ, Boscov's reported a number of unanticipated second stage benefits. The company was pleasantly surprised at the sheer amount of Linux support that was available. The company worked closely with IBM, SuSE, and Lavanta during its deployments, and also became an active member of the Linux community. Most important to Boscov's was how quickly it began seeing financial returns from its Linux investment. As a result, the company is planning migrations of its ERP, CRM, and SCM workloads to mainframe-based Linux instances, and will further increase its use of Linux over time.

Zahid Tractor and Heavy Machinery

Based in Jeddah, Saudi Arabia, Zahid Tractor is a supplier of heavy and industrial equipment used in construction, manufacturing, shipping, the oil industry, ports, airports, steel works, and transportation. The company also operates more than 30 facilities offering machinery and parts, and standard and emergency maintenance services. After becoming interested in deploying Linux, Zahid began training for IT staff and managers, and followed that with a detailed TCO comparison of Linux and the company's existing Windows 2000 server environment.

Zahid initiated its Windows-to-Linux migration in 2002, as part of a planned unified Open Source software strategy that aimed to improve IT flexibility, reliability, and security. The company completed Phase 1 of the effort in Q1 2003 with the primary support of its internal IT staff. Zahid chose the Red Hat Linux distribution for the effort, and also utilized Fedora and white box solutions. The company considers the migration a success, and is considering future Linux expansions including the possible replacement of Windows Office applications with either OpenOffice or StarOffice solutions.

Along with achieving its initial goals, Zahid Tractor also realized a number of second stage technical benefits related to Linux. According to the company, the shift to Linux has strongly improved its ability to pair applications with the hardware best suited to them, to add processing capacity to meet dynamic workload requirements, to scale applications as necessary, and to consolidate server and application workloads. Utilizing Linux has also helped to significantly reduce downtime and eased system maintenance time and effort. Zahid also credits Linux with helping the company optimize cost-performance across a value chain that includes its business partners.

As with the other study participants, Zahid Tractor noted a number of unanticipated second stage benefits resulting from its Linux deployment. The willingness and ability of Windows administrators to accept Linux and upgrade their skills to support the new OS was a pleasant surprise. Additionally, the freedom to choose from available Open Source business applications has contributed to speedy deployment of core solutions (i.e.: Typo3, osCommerce, SugarCRM, egrouppware). Zahid found exposure to the local Linux community to be a positive, and said that Linux has enhanced its ability to attract new talent to its IT department. The company also noted that the success

of its effort increased its standing among local businesses, which regard it as a Linux leader. Zahid Tractor expects to increase its usage of Linux over time, and believes the OS is essential to the company achieving its long term strategic objectives.

Points to Consider

The three case study participants’ qualitative responses provide a window into the common practical issues and efforts surrounding enterprise-class Linux deployments. In a sense, the participants’ most obvious similarity was their dissimilarity. Alliance UniChem CZ, Boscov’s, and Zahid Tractor are three very different companies in diverse industries and markets widely separated by geography. All pursued notably dissimilar Linux deployments: Alliance UniChem CZ followed a direct path designed to utilize Linux strategically across its entire IT infrastructure. Boscov’s tactically leveraged Linux across its mainframe environment to consolidate datacenter processes. Zahid approached its Linux migration incrementally following extensive IT staff training and detailed financial analysis.

Figure 1: Second stage benefits realized by study participants: Because each customer implementation is unique, the nature and degree of the benefits realized will vary. However, we believe organizations can use these factors and categories as guidelines to build the business and IT case for Linux.

Second stage Linux benefits	Alliance UniChem CZ	Boscov’s	Zahid Tractor
a. Better match applications & hardware	X		X
b. Better scaling of applications	X	X	X
c. Optimize cost performance across a value chain	X	X	X
d. Better meet dynamic workloads		X	X
e. Consolidate server workloads		X	X
f. Consolidate application workloads	X	X	X
g. Increase IT staff efficiencies while reducing the number of administrators	X	X	
h. Reduce IT management costs	X	X	
i. Reduce IT staff training costs	X		
j. Reduce system upgrade costs	X		
k. Reduce system maintenance cost, time, and effort	X	X	X
l. Reduce system downtime			X
m. Standardize on one set of tools	X		

Despite these notable differences, all three companies embarked on their Linux migrations for essentially similar reasons; to improve their IT infrastructures, lower costs, and increase efficiency. Despite facing significant challenges, all three succeeded in their efforts, reaching or exceeding the goals and results they planned. All

realized significant second stage benefits that resulted in improved IT capabilities, enhanced staff performance, and reduced effort and costs. All enjoyed unexpected benefits, from lower migration costs and quicker ROI to the ability to leverage the skills and resourcefulness of their in-house IT staff. All reported notable benefits from working with and participating in the Open Source community, and all plan to expand or accelerate their usage of Linux solutions in the future.

Next Steps

This is fine and good, but what do the results of the Second Stage Linux Benefits study mean for practically-minded business people? First, the participants' responses suggest that companies should take a somewhat broader view of their Linux implementation strategies. Instead of focusing exclusively on migrating individual applications, we would suggest they consider migrating entire application portfolios to Linux. By doing so, organizations could more quickly achieve some of the substantial second stage benefits realized by respondents. Based on the results of this project we recommend that businesses expedite or accelerate their transitions in order to shorten the "time to money" realized from Linux initiatives. The common realization of second stage benefits by all of the participants suggest that Linux' benefits are no roll of the dice but a safe bet whose odds of success are increasingly calculable.

Additionally, while the issue was not discussed specifically with the respondents, we noted that a common theme extending across all three case studies was the role Linux played in enabling or enhancing the kind of dynamic, heterogeneous IT environments that IBM describes as On Demand. Linux' long support of multiple hardware platforms is central to this issue. The cross-platform portability of Linux appears to extend the flexibility, scalability, and cost benefits of dynamically sharing IT resources through clusters, grids, and virtualization. As a result, the ability to drive increasingly complex and sophisticated workloads that is a key to Linux' second stage benefits is also critical to the OS playing a central role in the IT Infrastructures companies require to become on demand businesses and capture competitive advantage

Mission Accomplished?

The bottom line pragmatism that inspired the initial uptake of Linux point solutions is evolving as Linux supports an ever-increasing range of mission-critical workloads. As Linux makes its way further into the marketplace, intriguing new, often unanticipated second stage benefits are becoming more apparent, and should be increasingly predictable and dependable over time. These second stage benefits are already delivering particularly significant technical and business advantages to leading edge Linux users. The three companies that participated in our study, Alliance UniChem CZ, Boscov's, and Zahid Tractor, have realized the primary Linux benefits they originally planned as well as second stage benefits including incrementally improved IT and business capabilities, enhanced IT management capabilities, and the ability to better attract and retain IT staff.

The respondents' experiences suggest that Linux has reached a point where both its first and second stage benefits are easier to analyze and predict. These are critical issues for businesses attempting to accurately determine the value of Linux deployments. Additionally, Linux' cross-platform portability extends the flexibility, scalability, and cost benefits of dynamically sharing IT resources, offering an on-ramp to IT infrastructures that respond to changing business needs. Based on the results of this project, we recommend that companies expedite or accelerate their Linux transitions

in order to shorten the "time to money" they realize from these initiatives. In all, we believe Alliance UniChem CZ, Boscov's, and Zahid Tractor have helped to clarify the critical issues surrounding and first and second stage benefits available from enterprise Linux migrations.

Appendix: Overview Study Methodology

Pund-IT, Inc. with IBM's assistance designed and conducted comprehensive research, including in-depth interviews with IT executives and managers that provided the information underlying this report. The parties recognize that the case studies describing them do not constitute statistically valid proof points. At the same time, we believe the participants' detailed, qualitative responses offer a window into the practical issues and effects surrounding enterprise Linux deployments.

The three respondents, Alliance UniChem CZ, Boscov's Department Stores, and Zahid Tractor and Heavy Machinery, are leading edge Linux adopters that have deployed Linux as a significant part of their IT infrastructures and utilized the OS for 18 months or longer. The participants provided responses to the questionnaire, as well as follow-up information that elicited details concerning their IT environments and Linux deployment experiences.

The questionnaire consisted of three parts that discussed participants IT environments, issues related to their Linux adoptions, and the second stage benefits and future expectations that resulted. Study participants provided specific details regarding their unique experiences. In addition, they responded to some issues and statements by indicating levels (1 to 5) of criticality, impact, importance, benefit, and accuracy. Participants quantified the financial impact of Linux migrations by estimating significance and/or dollar amounts.

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Contact:

Pund-IT, Inc.

Phone: 510-909-0750

E-mail: charles@pund-it.com

Web: www.pund-it.com