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What CxOs thinks about Linux

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I must have looked dumbfounded. I was interviewing one of many CIOs on behalf of a client heavily invested in the Open Source industry. This CxO was energetically philosophical about Linux and how it was the greatest thing to happen in IT since the demise of punch cards.

"Linux is helping me fulfill all my top objectives, and for less money. Linux is the centerpiece of my technology strategy."

I expect such enthusiasm from techies, but it is disconcerting when normally sedate management types become evangelical. And this fellow was not the last exuberant executive I would encounter during my interviews of CxOs. Each evaluated Linux and the impact on their enterprises, and had arrived at the same conclusion – that only Linux could achieve several key objectives in running their departments while contributing to the success of their companies.

This belief is pervasive across all industries. 53% of CIO's plan on Open Source – particularly Linux – being their dominant in-house technology by 2007. CxOs I have surveyed claim Linux deployments are planned at all levels of infrastructure from mainframes down to desktops. This faith in Linux, combined with the fact that only 51% of CIOs think Microsoft is a trustworthy vendor, means even Microsoft's desktop monopoly is vulnerable to the Linux onslaught.

CxOs are paid to think strategically, so it should come as no surprise that their faith in Linux is based on how Linux will improve their technical and business strategy. When it comes to Linux, CxOs believe that four strategic aspects of their operations will be enhanced.

Maximizing staff effectiveness: People are expensive, and CxOs want to maximize their investment in IT staffs. A "Linux everywhere" strategy helps them achieve this on many levels.

Business agility: Technology is now the centerpiece of competitive firms, and thus technology must adapt quickly to changing business, market, and competitive realities. CxOs believe Linux is *the* pivotal technology for improving IT agility and meeting changing business needs.

Simplifying IT operations: Simplifying operations reduces complexity and improves IT support of business, all while reducing IT cost. Wide Linux deployment simplifies operations on many levels.
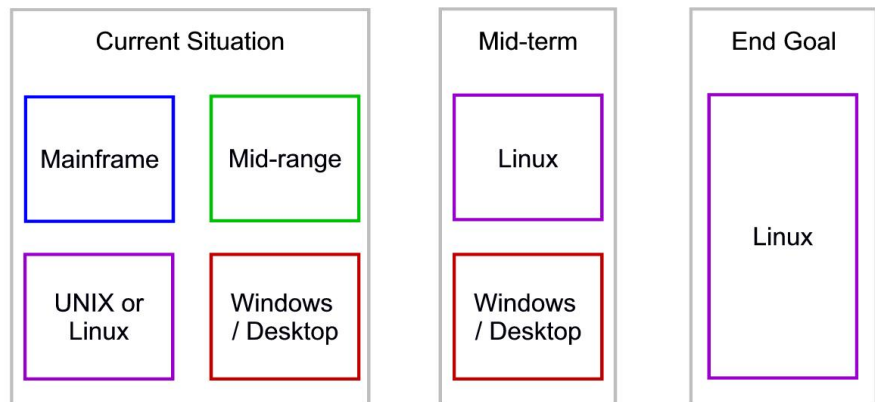
Cost containment: The 1990's saw massively wasteful IT spending. Today CxOs are more frugal and want to contain costs so the remaining budget can be spent on valuable new capabilities. Universally, CxOs perceive Linux as less expensive than other alternatives.

Fewer technologies and smarter teams

The theme echoed by all CxOs I interviewed is that they want fewer technologies in-house, and they want their staffs to be smarter about those fewer technologies. These two objectives are deeply interrelated.

IT budgets are finite, and CxOs can hire only so many technical experts. The average IT department current-ly supports at least four operating sys-tems (Windows on the desktop, Linux and one or more flavors of UNIX for departmental and database servers, and a proprietary OS for mainframes or midrange systems). This means every en-terprise hires and maintains at least four small, specialized groups responsible for their particular architecture, OS, and application software.

Current Situation		Mid-term	End Goal
Mainframe	Mid-range	Linux	Linux
UNIX or Linux	Windows / Desktop	Windows / Desktop	

The inefficiencies of this approach are staggering. Each team knows little if anything about the other operating systems. Cross-platform ignorance creates an inability to find solutions, correct problems, and to apply human skills where they are most need-ed.

This is where Linux is changing the strategic planning of CxOs. Deploying Linux (nearly) everywhere is the first step in reducing the number of in-house technologies, and thus streamlining IT operations. Let's dig a little deeper and see where CxOs are gaining ground by deploying Linux.

Maximizing staff effectiveness

People are an enterprise's most expensive resource. Despite recent shifts in outsourc-ing, IT organizations must find, recruit, train, and utilize experts to meet the demands

that business places on IT. CxOs also realize that their staffs are not as effective as they could be. By having to employ technicians with widely different expertise, individual effectiveness is limited in scope, and the entire IT staff is hindered when responding to demands.

CxOs view Linux as the centerpiece in reducing the number of in-house technologies, and thus the number of different areas of expertise in their staffs. This strategy achieves two related staff skill initiatives:

Skill set consolidation

Deploying fewer technologies means skills shared by IT staffs become consolidated. With a common technical perspective, staffs communicate more effectively through all phases of IT operations. Communications will take less time and lead to fewer mistakes and misunderstandings; and response to problems will be expedited, reducing expense and downtime.

Take for example the situation where a problem develops between two different architectures. Odds are that your mainframe administrators don't view the problem or share the vocabulary that your UNIX gurus do, and that your Microsoft Windows administrators cannot collaborate effectively with the AS/400 squad.

However, if Linux is deployed on most platforms, there is a technical lingua franca. Most CxOs I interviewed have taken advantage of the virtual machine capabilities of their midrange and mainframe systems, added Linux, and use Linux as the common denominator between staffs as well as the center point for all new development.

Skill set portability

When skill sets are not consolidated, skills are not portable. Developers, DBAs, and administrators can work on their platform of expertise, but not on other systems.

This is a major problem for CxOs who want to assign the best topic experts to a task regardless of where the application resides. In a perfect world, your programmers would be able to develop code on desktops, the big iron, or on any system in between.

CxOs perceive a "Linux everywhere" strategy as rapidly facilitating IT skill portability. Using Linux as the core technology on all platforms reduces or even eliminates the difference between platforms. The remaining and relatively minor variations are either easy to learn or can be assigned to a few remaining platform experts.

Business agility

The good news is that CEOs recognize the value of IT and how technology can make their company more agile – better able to respond to changes in the market and to competitive threats.

This is the bad news too, because IT is rapidly becoming the first place the CEO turns to when change is needed. Because of this new level of pressure from business leaders, CxOs see Linux as a source of business agility, both in new capabilities it provides as well as how Linux changes their internal organization.

Platform and vendor choice

In the Bad Old Days, application sets were strongly tied to one hardware vendor or platform. This limited the CTO's selection for the best combination of architecture and software to meet business demands. They were stuck with whatever platform the application vendor supported. Should that platform ever become insufficient, a painful software migration or porting effort were the only options.

Linux was widely adopted by CTOs as their strategic platform because of its availability on mainframe and commodity 64-bit platforms, as well as industry standard 32-bit systems. With the participation of strategic database vendor partners, Linux gave CxOs a choice of platforms for meeting current needs and the unknowable needs of the future. Thus, when the CEO announced a new business initiative, CxOs worried less over what platforms were desirable because the application that solved the business problem was highly portable across many different architectures.

The role of consolidated skill sets in business agility

The primary CxO objective, to consolidate IT skill sets, figures prominently in improving IT's agility in response to changing business mandates. Two agility-related effects of skill set consolidation are deeper understanding of fewer technologies being used, and skill portability. Both improve IT agility.

Let's first look deeper into the IT staff's understanding of technology. Today, most IT professionals lack a "guru" status. None can invest time in learning the intricacies of any one technology, much less the myriad of technologies currently deployed. CxOs know that Linux drives the process of having fewer in-house technologies. The staff-level effect of a "Linux everywhere" strategy is to provide IT workers with more time and training on the few remaining technologies. IT staffs obtain a deeper understanding of their operating system, selected database engines, and programming languages.

Consolidated skill sets create agility because things happen more quickly. Analysis time for new applications drops dra-

Development with Linux

Mainframe

Mid-range

Business Process Expert Developer

Desktop
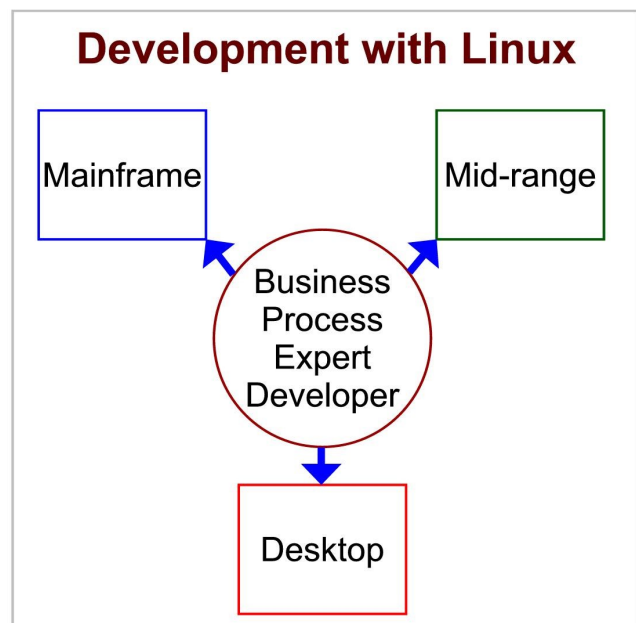
matically since the entire IT department can collaborate on solution identification or creation. Deeper technical understanding also accelerates software development, streamlining coding, testing, and the entire development cycle.

Most important, though may be skill set portability. Technical experts are becoming a commodity while line-of-business IT experts are irreplaceable. For example, CxOs can hire talented C++ programmers who know Linux inside and out – and these people will be nearly useless if they do not understand special aspects of how the company does business as well as the issues, regulations, and competitive realities of their industry.

I once worked in the IT department of Circuit City, and remain amazed at the depth of knowledge about the parts and repair services processes in the retail industry held by a small number of programmers who specialized in a now-obsolete operating system. These people were irreplaceable because of their insights into this area of Circuit City's business, but they could not rapidly be made productive on other in-house operating systems when the time came.

CxOs who have deployed Linux tell me that skill set portability is a central part of their long-range strategy. They plan on eliminating barriers to placing the right person on the right project when necessary. Their application developers will be able to cut code on desktop, midrange, and mainframe computers with little or no additional training past learning Linux and the development tool chain therein. The business intelligence that technical experts possess becomes instantly useful everywhere in the IT department.

Expanded solution set

CxOs believe that Linux will provide the largest and richest set of solutions available. Their faith is well founded because vendors agree.

Vendors strongly support Linux because it expands their markets. Before Linux, a hardware or software vendor was typically tied to a particular platform, so their market and revenues were limited. Now vendors can multiply their revenues with little additional development or R&D expense above their first- time support for Linux. Other vendors have gone one step further by making Open Source key components in their product offerings.

For IT this means two things: solution portability across hardware platforms, and more choices from more vendors. Thus, when business needs create new IT demands, the CTO has a broader set of commercial alternatives from commercial vendors.

CxOs also have an extensive and growing set of alternatives from the Open Source community. IT staffs are routinely tasked with reviewing Open Source options before turning to commercial vendors. Often the solution they are looking for is included in hundreds of packages on a typical Linux distribution CD.

Portable solutions

One of the biggest CxO fears is "solution obsolescence." This most often happens when an application must be moved to another platform – typically for scalability reasons. Since Linux is available across many platforms, and in the case of both of the major Linux distribution vendors is built from a single-source code base, every distribution on every supported platform is functionally identical and interoperable. This gives CTOs the protection from "solution obsolescence" they need in committing to a Linux-everywhere strategy.

Simplifying IT operations

IT is a complex business. With billions of dollars transacting though online systems daily, the greater the IT complexity the greater the risk. CxOs believe Linux will reduce IT complexity, and this will simplify and streamline their operations.

I have already related how IT staffs can be streamlined, their skills growing and becoming portable once Linux is the common operating system. Linux reduces IT complexity on two other important fronts:

Eliminate platform variations

When multiple operating systems are used, each has its variations – even in tools based on "standards." For example, I have seen variations in something as simple as FTP clients that made interoperability impossible and cross-platform scripting useless.

Wide -scale deployment of Linux reduces, and possibly eliminates these variations. This reduction in variation applies not only to the operating system, but also to the development tool chain, utilities, third-party applications, and more. All systems in a Linux-centric network will interoperate appropriately, and in the process, simplify IT operations. Standard operating procedures (SOPs) will be easier to write, exceptions will decline, and an IT department's response to unexpected situations will be uniform.

No cross-platform finger pointing

In a multi-platform environment, things will go wrong. Dissimilar machines will refuse to cooperate. Your platform specialists may refuse to cooperate as well.

I have witnessed extended cross-platform finger pointing sessions between technology dogmatists, while end users and customers were idled. A lack of a common technical perspective, an IT lingua franca if you will, impedes understanding of the problem and a team-focused solution process.

This "finger pointing" problem vanishes when Linux is widely deployed, which at present cannot be done with any other operating system. First, the likelihood of interoperability problems is greatly diminished. But everyone in your IT staff will also contribute to problem resolution because every staff member is intimate with Linux. This means a short time to resolution and less annual application downtime costs.

Cost containment

No discussion of the CxO Linux vision would be complete without mentioning money.

It is old news that Linux is less expensive than all other alternatives. Only Microsoft and their endowed analysts have yet to believe. What is most interesting are the ways in which CxOs expect Linux to contain their technology spending.

Containing cost, not reducing investment

The first thing I noticed when discussing money with CxOs was that they sought cost "containment" as much as cost reduction. The IT industry has experienced several unpleasant shifts in vendor pricing strategies, and CxOs have become wary of committing to proprietary technologies. Thus, CxOs are looking for alternatives that contained costs now and in the future.

That is one of the compelling aspects of Linux and Open Source: any vendor that violates trust with their client can be readily replaced with relatively little effort and expense, since Linux started life (and remains) pretty much a commodity. This creates a price containment pressure on Linux distribution vendors, a situation CxOs are more than willing to exploit.

Beyond cost containment, CxOs universally believe Linux to be less expensive in all phases of the IT life cycle. Reasons for this include:

° **Acquisition and maintenance:** Linux is less expensive to buy, and consolidating platforms and skills will drive maintenance cost down.

° **Operations through streamlining:** Savings are forthcoming from IT staffs that do their jobs better and from operations that are more efficient.

° **Development through standardization:** Software development costs drop when IT skill sets are consolidated and when there are fewer platform variations.

° **Staffing shortages by consolidating skills:** As staff skills consolidate, as the industry provides more Linux-focused employee candidates, and as offshore outsourcing alternatives grow, the cost and risk of staff shortages drops.

° **Errors and downtime:** Consolidated skill sets, eliminated cross-platform variations, and deeper expertise all lead to improved operations and less downtime expense.

But this is only possible if the solution is (nearly) universal. My discussions with IT thought leaders identified that a single operating system running on all popular platforms was the key to achieving the benefits of consolidation, streamlining, and cost containment. That is why IT is forcing the Linux industry away from an x86-server-only mentality.

Conclusion

The way CxOs view it, Linux is an inevitability. They have no hesitation toward adopting Linux as the core technology for servers, and increasingly, for the desktop. One CTO made the insightful observation that Linux "kept the broken UNIX promises" by providing a unified technology that vendors and their internal staffs could grow with.

Guy Smith heads Silicon Strategies Marketing, a marketing consultancy devoted to helping high-technology vendors dominate their markets. He has consulted with technology firms in such diverse fields as high-availability software, interactive television, wireless messaging middleware, pure e-commerce plays, and Collaborative Software Development suites. Smith focuses on guiding his clients through the rigors of developing precise market strategies and educating his clients on both the theory and tactical necessities of their strategic implementations. His marketing expertise is matched by more that 20 years as a technologist specializing in high-availability IT processing.