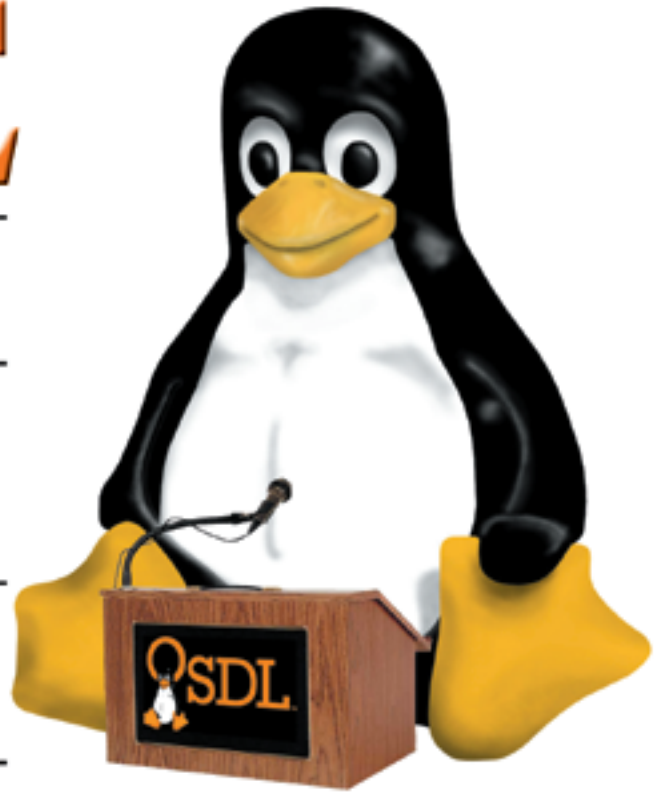


STATE OF THE LINUX DESKTOP



OSDL and Desktop Linux

– Hype Meets Reality



BY PHILIP PEAKE

ABOUT THE AUTHOR

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Linux has come a long way, quite quickly over the past couple of years. It has moved from a system usable only by those willing and able to spend time installing, configuring, and re-configuring again to systems that are sold by a wide variety of distributors, some of which have specialized desktop distributions. The list includes distributions such as Red Hat, Novell, Mandrake, Debian, and several others for specific geographies. They all install about as easily as any other OS that doesn't come pre-installed from a machine maker.

The Linux system (kernel plus utilities) has proven itself to be reliable enough and powerful enough to take over many of the data center functions previously run on proprietary Unix systems, as well as some part of the standards-based services running on Microsoft Windows servers. Where the Linux system is meeting resistance is as a general-purpose desktop system. This article looks at some of the reasons why this is the case, where Linux is currently a good fit, and where it still has progress to make. This article also takes a quick look at where the desktop may be going in the coming years.

The OSDL Desktop Working Group (DTL) is looking at ways to accelerate the adoption of Linux on the desktop. Exactly how, and the current state of its progress is discussed.

Home versus Enterprise

At first glance, a typical desktop from just about any Linux distribution would appear to offer most of the functionality needed on the client, and for some applications, indeed it does. For example, for a home user, the tools are available for browsing the Internet, exchanging e-mail, managing finances, creating and managing a variety of documents and work well. Even game playing is becoming better developed – although no one will claim that this particular area doesn't have a way to go yet.

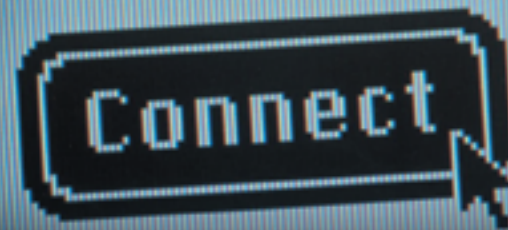
Probably the biggest inconvenience of desktop Linux for home users is support for Microsoft proprietary and other IP-encumbered multimedia formats. In many cases, Linux distributors address this problem by shipping non-Open Source components to support these file formats.

In the enterprise, although the same (or at least very similar) requirements exist, there are additional complexities that make the rapid and widespread adoption of the Linux desktop, in its current state, much more difficult. Much depends on the specific desktop area being targeted. Some areas are much easier than others. For example, for software developers, as well as a number of other technical workstation users, the adoption of a Linux desktop poses few problems. This is particularly true when the move is from a Unix desktop to a Linux desktop.

The primary issue is scalability when it comes to large, enterprise-wide deploy-

ments involving potentially thousands of users. A small problem that can be surmounted by a single user becomes insurmountable when magnified to a larger scale. Where deploying Linux desktops as they exist today becomes problematic for the enterprise are principally:

- **Integrating with existing authentication and authorization systems.** For example, Active Directory deployments. Enterprises want a single repository for this information.
- **File fidelity when transferring documents back and forth between systems.** OpenOffice compatibility with Microsoft Word is good, but it isn't 100%, and multiple round trips between systems can result in lost or changed information.
- **Reliance on extensions of basic tools,** especially Office tools with macros, VBscript, etc. embedded in them. In many organizations this reliance on vendor-specific extensions is a major inhibitor to change.
- **Centralized administration of systems and applications.** The manageability of desktop systems is very important in most enterprise environments. This extends from basic system configuration changes to installing and configuring applications, and centralizing that configuration information. Most organizations want to continue to use the processes and tools they currently use rather than adopt an entirely new set.
- **Lack of enterprise-specific applications,** perhaps the most obvious example being a centralized calendaring system that lets members of the organization view and interact with each other's calendars.
- **Availability of third-party applications.** Many of the major building blocks of systems deployed in the enterprise are available in one form or another, but there is a widespread reliance on a plethora of lesser applications for which open source replacements do not exist. Unfortunately, this gap is unlikely to be filled by Open Source development because many of the apps in question are, well, to be blunt, boring, and hold no real challenge or interest for typical Open Source developers. A number of others are highly specialized, requiring a large investment to replicate, and still others are encumbered with various IP restrictions. A number of other issues face independent software vendors



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(ISVs) when they begin to look at the Linux desktop market:

- *Binary compatibility/stability.* A binary built on a specific version of any given Linux distribution may not work on other versions of that same distribution, or on any given version of a competing distribution. ISVs are very reluctant to make the investment in thorough testing on multiple distributions/versions, and even less so to support different versions of their products on multiple distributions/versions.
- *Lack of a good widely known Integrated Development Environment (IDE)* impacts the productivity of engineers, who are already at a disadvantage in moving to a new environment (Linux) from their preferred environment (Windows).
- *Multiple desktop environments.* Having two desktop environments commonly in use and the fact that the technologies underlying each of them are different

The Future of Desktops

There's currently considerable debate about the future of the monolithic general-purpose desktop system. In the enterprise and among ISVs there's a tendency to view the future as having most applications hosted on centralized servers, and having very little, if any, logic hosted on thin desktop clients. This architecture has many advantages in terms of maintainability, reliability, availability, and controllability.

The biggest disadvantage to centralizing applications and their data in this way is that disconnected use (laptops) becomes more difficult. However, with high-speed connectivity becoming more prevalent, even in aircraft, disconnected use is slowly becoming less of an issue. In developing countries, there's little or no legacy network infrastructure, so wireless and fiber-based high-speed connectivity is on track to ubiquity.

Another attraction of the thin client to developing countries is that the system

will then become possible to identify key inhibitors preventing successful adoption, as well as specific technologies that are either not present, or have some deficiencies when applied to enterprise environments. Working with Linux distributors, existing Open Source development communities, and, if necessary, creating new development communities via OSDL Special Interest Groups (SIGs) the hope is to accelerate Linux development in specific areas that will permit more rapid adoption on the enterprise desktop.

After deliberating it was decided that attempting to address all five of these usage models would be too broad for the team to tackle realistically. It was decided that the Advanced Workstation usage model had by far the most complexity and broadest scope, but actually only reflected a small percentage of desktops in most enterprises. The initial work thus focused only on the first four usage models.

It rapidly became obvious that one of the most important limiting factors for the enterprise was the availability of commercial software. After some investigation it became obvious that:

- For many applications, there is little hope of Open Source replacements, mainly because they either address very specific needs, or address needs that because they are boring or detail-oriented wouldn't be candidates for a typical Open Source community project.
- Many of the obstacles facing ISVs are the same issues facing general enterprise users.
- A large proportion of the problems are also problems beyond the ISV and enterprise user communities.

So one of the prime areas of focus has become enabling ISVs on Linux, since this addresses not only fundamental issues, but issues of more general interest.

In February of 2005 DTL produced a document that in itself isn't meant to be complete, but simply a snapshot document of the work to date. This DTL 1.0 Capabilities document is available on the OSDL Web site.

In March of 2005 DTL held a strategy meeting in Boca Raton, Florida to review its progress to date and to further refine its focus. Work on that is still continuing. 🟡

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“Linux needs apps but there's little hope of Open Source replacements for many applications”

and incompatible is a big problem for ISVs. Just how big depends on what facilities the application needs. For example, the system used to notify applications of “events” that are of interest to them is different and incompatible between Gnome and KDE. This results in poor integration of an application when run under a windowing system other than the one it was written for. Reliance on run-time support from an alternative desktop system also means that much of that desktop system needs to be installed for the application to operate at all.

The combination of these problems often leads organizations that consider deploying Linux desktops in existing environments to reconsider, often abandoning the idea, or limiting the deployment to a few isolated uses.

These problems, in general, don't exist for a newly established organization, of course, unless there's a lot of interaction required with other organizations with alternative infrastructures.

can be bought for much less, especially if we extend the model to include ultra-thin clients, which are more in line with the financial abilities of the inhabitants of those countries.

The Linux Desktop Working Group

The OSDL Desktop Linux Initiative (DTL) is a workgroup comprised of OSDL members and dedicated OSDL staff. The initial work involved determining a set of usage models that would accurately represent most desktop uses over a broad range of enterprise use. The group eventually decided on five usage models:

- Single function
- Transaction worker
- Basic office
- Technical workstation
- Advanced workstation

The group's intent is to create a list of the capabilities that a desktop system must have to successfully address each of the usage models. Once the required capabilities are understood and clearly documented, it