

# The Linux influence

Think of an organisation with 500 computer users. The license cost for any proprietary Operating System with an Office Suite for 10% of their users will approximately amount to \$400,000 for five years. Add another \$50,000 for five years anti-virus software licenses and it will become \$450,000. Wouldn't it be nice if the organization had to only spend \$630 instead?



Habib Bank AG Zurich (HBZ) uses SuSE Linux as its main desktop now. Of course, HBZ has learned a lot by trying out the older versions of Linux and trying out other distributions, but as of now, the latest SuSE Linux 9.3 offers almost everything one needs to switch away from proprietary environments. It comes with OpenOffice 1.1.3, which is a mature Office Suite with Microsoft file compatibility and PDF outputting capabilities. Additionally, several options are available for Internet browsing and email (I personally prefer Konqueror as a browser and Kontact as a PIM that includes e-mail, address book, calendar, organiser, notes and news).

It is worth mentioning that HBZ runs only one Banking Enterprise Application, hPLUS written purely in Java. Nowadays, it is common knowledge that if you use Java for development, then it doesn't matter what Operating System you use.

Now, let us consider other real-life scenarios. Not everybody is running Java applications so they cannot switch to another Operating System overnight. One can still consider a complete switch if the applications are browser based. If that is not the case, try WINE, a software application that enables one to run Windows applications in a Linux environment. If you are still not lucky, you should look at the option of running a mixed environment where those

who are unlucky can still stick to their proprietary environment.

Another option is to look for Linux applications that can replace you applications running in the proprietary environment. Here, one needs to research and evaluate what is available, some additional work is required but it can however be a rewarding exercise. Certain programs can work in the Linux environment just by recompiling it with minor modifications (for instance, programs developed using Delphi or Qt libraries). Also, one should consider the mixed environment options here. For example, if your organisation uses AutoCAD; only a handful of users may be modifying the drawing files and others are only viewing the drawings. In this scenario, one can use Linux clients for viewing purposes since Linux has free software to view AutoCAD files, thus saving on the number of AutoCAD licenses. (If you are looking for an alternative to AutoCAD, look at LinuxCAD [www.linuxcad.com](http://www.linuxcad.com) or QCad [www.ribbonsoft.com/qcad.html](http://www.ribbonsoft.com/qcad.html))

So far, we have been talking about the desktops. I chose to talk about it first because a lot of people (including some Linux enthusiasts) think that Linux is not ready for the Desktop. I highly recommend you have a look at SuSE Linux 9.3 to reconsider this view.

Now consider back-end options available in Linux.



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Whether you want a DNS server, Web server, a Mail server or DHCP server, Linux comes with the best programs - your proprietary ones cannot even compete with most of them. Here, if you have any proprietary applications. Then one needs to consider certain options. For example, if you have a proprietary database application, then consider the following: if the application just uses the back-end as a database server, then see if this database is available on Linux or not. (Most commercial database like Oracle, Sybase, Interbase etc. are available on Linux). Please note here that the client application as not doing to be affected by this switching. If the clients are connecting to the database using any standard based mechanisms such as JDBC or ODBC, then one even think about changing the database to an open source database like PostgreSQL or MySQL (In this case, some work may be involved to convert the database logic such as Stored Procedures and Triggers if used). If the front-end applications need a Windows File Server back-end, then Linux can very well be used there too. Samba (part of Linux distribution) comes to our help here.

At Habib Bank AG Zurich, the most important and unique use of Linux at the back-end is the Linux Virtual Server (LVS) technology. HBZ has modified it to suite its specific secure banking environment, however, this is a great technology for anyone who wants to have a highly scalable and fault-tolerant back-end for all sort of TCP and UDP based applications. Internally, HBZ calls this technology MIMs (Multiple Inexpensive machines) because one can set up a highly scalable and fault-tolerant environment using off-the-shelf inexpensive machines (PCs). Proprietary technologies equivalent to MIMs may cost hundreds of thousands (or even millions) of dollars. LVS combined with other open source projects such as Mon, Heartbeat, etc. can be used to create various clustered environments. More details on LVS and related projects can be obtained from [www.linuxvirtualserver.org](http://www.linuxvirtualserver.org).

One thing to note here is that LVS is not for HPC (High Performance Computing). If your requirements are such that you need to utilise Linux for HPC, have a look at various HPC clustering solutions available under Linux.

Here is the list of other areas

where HBZ usesLinux: WAP Server, ATM Controller, UAE Central Bank ATM Switch, hPLUS Schedulers (more than 100 different processes including Blacklist Monitoring, Compliance Monitoring, Processing of Web and Mobile Transactions etc.).

So many people ask me personally to suggest the best development environment. I repeat here what I generally tell them,

"Use Linux, Java, XML technologies with an open source database such as PostgreSQL and you don't need anything else."

If you specifically ask what Application Server I like, I say Tomcat (Tomcat is not a full-fledged J2EE environment, but I don't need all those features to run what I develop).

And finally, here is a dirty trick: A Dubai based firm wanted to license all their pirated software from Microsoft. Microsoft said they have to pay about \$ 50,000/- to get the licenses. A Linux firm told them that they can switch to Linux and they will charge them only \$ 10,000/- as a SPECIAL case. The lesson here is that you always "use" Linux to reduce your software license fees!