

Title : Letting in Linux
Source : Arabian Computer News – www.itp.net
Dated : December 2001

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Letting in Linux

By **Greg Wilson**

Linux, propelled initially by strong grassroots support and more recently by vendor backing, has changed the landscape of the operating system market. The benefits of using an operating system that essentially costs nothing in itself, that can breath life back into what would have previously been considered defunct hardware and that has widespread ISV support are obvious. Recent market figures estimate that Linux has claimed around 30% of the server market.



Habib Bank AG Zurich, is deploying Linux to the desktop, says Syam Pillai, vice president information technology.

However, for many users in the region Linux isn't really on the radar. IBM is doing its best to galvanise the local Linux movement by attempting to provide a loose form of leadership to tie together the disparate development projects ongoing across the region.

Big Blue has also pledged to deliver an Arabised version of Linux by mid-way through next year. The vendor, which has already spent US\$1 billion in migrating its applications to Linux, is currently in the midst of localising the different components of its WebSphere platform and migrating them to Linux.

Speaking last month, Dr. Ahmed Tantawy of Cairo-based Technical Competency Centre, admitted, "the Linux business in the region isn't that large." But he added, "it's growing... [and] there is a great interest."

Regardless of growing interest, lack of support, low awareness and few localised applications remain a significant barrier to entry for many local organisations. Apart from IBM and Red Hat's recently established local presence no other vendors are taking an active role in promoting the Unix-like operating system. Other hardware players such as Dell and Compaq aren't even actively promoting Linux locally because they don't see a strong business need.

Consequently, the impact of Linux on the local market has barely been noticeable, with only a handful of organisations taking the plunge and investing in the development and deployment of Linux solutions.

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However, Habib Bank AG Zurich (HBZ) is bucking the trend and has put its faith in the hands of its 15-strong development team as it embraces Linux. After three years of working with Linux as a development platform, Habib Bank is in the process of migrating its 400 users in the UAE to the open source OS. "We're using this as a replacement for Windows at the desktop," says Syam Pillai, vice president information technology, Habib Bank AG Zurich. "At the desktop it is a very cost effective solution," he adds.

Currently, the bank has migrated approximately 300 of its users to the Red Hat distribution of Linux. Although HBZ intends to migrate the rest of the UAE user population to Linux, there is no firm timetable to do so. Pillai explains this is largely to do with limited IT resources. "The others haven't been converted because they are up in Abu Dhabi and Sharjah," says Pillai. "It's not because we don't want to convert them, but we don't have the people to do it just now."

The migration of the user community to Linux has been made easier by the already limited use of Microsoft products at the desktop. 90% of the user base is using the bank's core banking application, which has been developed in Java since 1996.

Consequently, "we're just replacing Windows on the client machines with Linux... There is no change in the application — that remains the same. Very few of [the users] — maybe 10% — are using other applications, such as spreadsheets. For that purpose users can either run StarOffice or K-Office which is part of the Linux distribution," explains Pillai.

Habib Bank's Dubai-based IT shop, which is responsible for the IT infrastructure in eight other countries is already investigating the possibility of migrating the other users to Linux at the desktop. Work has already begun in the Isle of Mann and Switzerland branch offices. "We are in the process of converting these users," comments Pillai. "Some people are using Windows and it will take some time to convert them because we don't have people there to install [Linux] and train them. It's going to be a gradual process," he adds.

By extending Linux to the desktop, Habib Bank is taking its use of the open source OS into uncharted territories, even by international standards. On a global scale Linux's penetration at the desktop level is estimated at just 1.5%.

However, the bank's IT team is confident that its strong history of internal development will enable it to deliver the solution, reap the cost benefits and make an impact on the bottom line. Over the course of the last three years, more and more of the bank's systems have been switched to run on the Linux OS. "The ATM controller was one of the first things we migrated... because this was under the control of the IT department there was no support issue when migrating," says Pillai. "The application interfaces — such as the currency rate interface, the Web interface and the WAP interface — are all running on Linux," he adds.

The only other operating system running in HBZ's environment is Sun Solaris. The corporate bank operates Sun's Unix hardware to run its Sybase database. "We aren't running any of Solaris' features — we are just running the Sybase database," says Pillai.

The extensive use of Linux has also helped the bank reduce its hardware expenditure. Until last year, the bank was still using 286 machines in some places to run a character-based module of the bank's core banking application. "The application we designed was suitable for running host machines. We found that we had to buy fat machines, just because Windows needs fat machines," says Pillai.



According to Dr. Ahmed Tantawy, the Linux movement in the local market is gathering momentum. This should be boosted when IBM completes Arabisation work during 2002.

However, the same 'fat' Intel machines are now running Linux. The additional memory of the Intel boxes accelerates the performance of the Java applications running on the open OS. "We are finding ways to utilise those resources. We have found that Java under Linux runs better than Java under Windows," he adds.

Habib Bank owes its platform independence to the extensive Java development that has been ongoing since the mid-90s. The bank's entire IT infrastructure is based on a n-tier architecture, with every single application — even down to the app that prints cheque books — internally developed using Java.

The bank's core banking application consists of 18 software modules handling different core elements of the business. The suite of self-contained applications — internally described as 'the banking enterprise' — handles "everything from the tellers to the Internet banking application," says Pillai. "If it's not in the banking enterprise it means we don't do that service just yet."

The internal programming work also stretches to the development tools, which the 15-strong IT team built from early Java Development Kits (JDKs). Prior to the introduction of Java in 1996, the bank had been developing its banking applications using a mixture of C++ and a more robust proprietary language called hPLUS. The migration from hPLUS to Java was "relatively easy," as there was strong similarities between the programming languages. However, the bank felt the need to develop its own Java tools that were optimised for the existing architecture. "We wanted to mimic the architecture in Java, so we started writing our own tools," explains Pillai. "We brought one virtual machine that interpreted our hPLUS byte-code into Java so that we didn't have to re-write everything from scratch."

Since the initial conversion to Java, the bank's IT team has constructed its internal Java component framework, which enables it to pull together already existing elements of code to rapidly deliver an application. The development cycle has been cut "tremendously," says Pillai. "We saw the freedom of Java, we saw a language that was going to be supported by the industry. We saw the capability that Java gave us to accelerate development time and help simplify the architecture," he adds.

The strict adherence to Java development has resulted in a strong sense of platform and vendor independence. Although different from most other organisations in the region, Pillai believes the internal development mantra has resulted in a more reliable and closely integrated IT architecture. "We have avoided any dependence on standalone applications," says Pillai.

"Many banks have multi-vendor dependencies... when they want to make changes to their environments they have to be careful not to disrupt other systems. That is one of the major differences here — by having everything developed in Java we are not dependent on any vendor sessions [code]... any machine can run the [core banking applications,]" he adds.

Pillai shrugs off suggestions that internal development is both a time-consuming and expensive road map to follow, particularly with the Internet pressuring businesses in all areas to deliver solutions rapidly. In October 2000, Habib Bank AG Zurich development team delivered SMS banking, secure WAP services and Internet banking to its customers. More recently, HBZ became the first bank to offer an online letter of credit.

The timely delivery of such services proves firstly that the internal development track does work and secondly, that the HBZ's architecture is both flexible and scaleable. "The IT architecture has to be decided on... in our environment if the architecture doesn't support something then we don't introduce the service," says Pillai.

"We can't just deploy an application outside the architecture... [Our] approach might take a little longer, but we know that when we actually deliver the solution we will reap the rewards quickly," he adds.

Maintenance of the bank's strong development programme the skills of its developers is vital. Considering the local dearth of Linux and Java development skills one would assume that the corporate bank had invested heavily in training. However, HBZ has bucked the trend and relies on information available on the Internet and the ingrained computing science knowledge of its development team. According to Pillai, much of the available local training isn't up to scratch. "If you have that basic computing science knowledge, you can learn technologies without taking expensive courses," says Pillai. "A typical example is Java — if you want to learn Java the best place to go is the Internet and Sun's site."

With in-house expertise being relied on to support the existing environment and prepare for the introduction of further services there is always going to be pressure on IT resources. In terms of support, Habib Bank does hold a support contract with Sybase and it has "a good working relationship with Sun." However, as the entire architecture has been developed in-house, HBZ already believes it has the best support personnel available.



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