OSS Study. Open Source Software on the PC-Workstation of Vienna's City Administration.

MA14

EDP for the City.

CiTY of ✚ Vienna

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Vienna´s IT organisation

16.000 PCs

The Municipal Department 14 (MA 14) is the internal IT service provider for all departments of Vienna´s City Administration (apart from the hospital's organisation) and manages a total of about 16.000 PC-workstations. The departments have access to all of the services and products of MA 14 via a services and products catalogue.

Rich Experience in using OSS

Vienna´s Municipality has been using Open Source Software (OSS) on central servers for about 10 years. Due to the positive record in the server area the Municipal Department 14 has been monitoring the progress in availability of suitable OS products for quite a while.

Linux and OpenOffice.org are sufficiently mature

The latest achievements in the user interfaces of Linux operating systems, as well as office program suites (OpenOfice.org) encouraged a detailed evaluation of its applicability.

The Open Source Software Migration Study (STOSS)

A feasibility study was set up to evaluate whether and to what extend the use of Open Source Software is possible on the PC-workstations of Vienna's City Administration. The study evaluated whether this is recommendable from a technical and functional perspective and from an economical and strategic IT planning point of view.

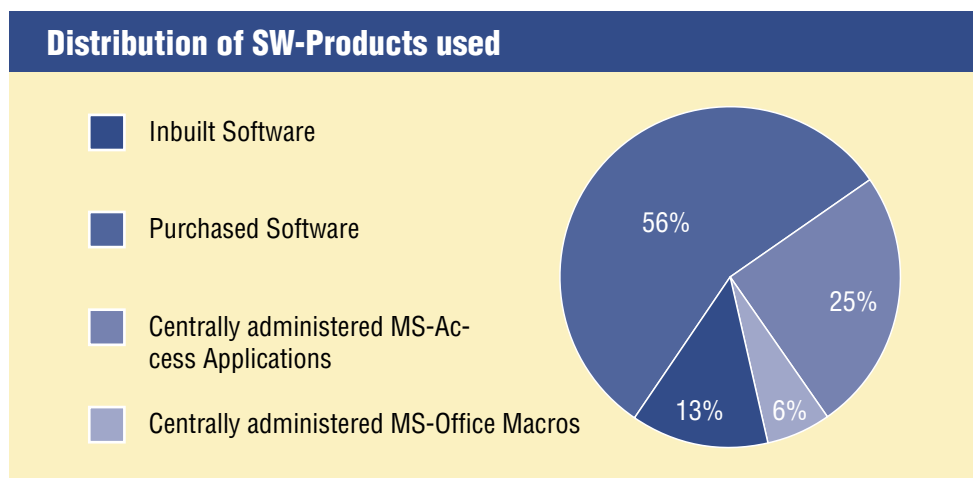## Analysis of the Current Situation

Presently all PC-workstations are equipped with a standard type PC using MS-Windows 2000 operating system and the office program suite MS-Office 2000. The applied user licence agreement allows their use for unlimited time.

Complete Software Survey

The feasibility study included data collection about the software products used on any particular PC in the municipal departments. This data was used for determining the migration potential.

As a consequence of the variety of tasks performed in a city administration, the results of the survey prove the complexity and heterogenity of the software applied.
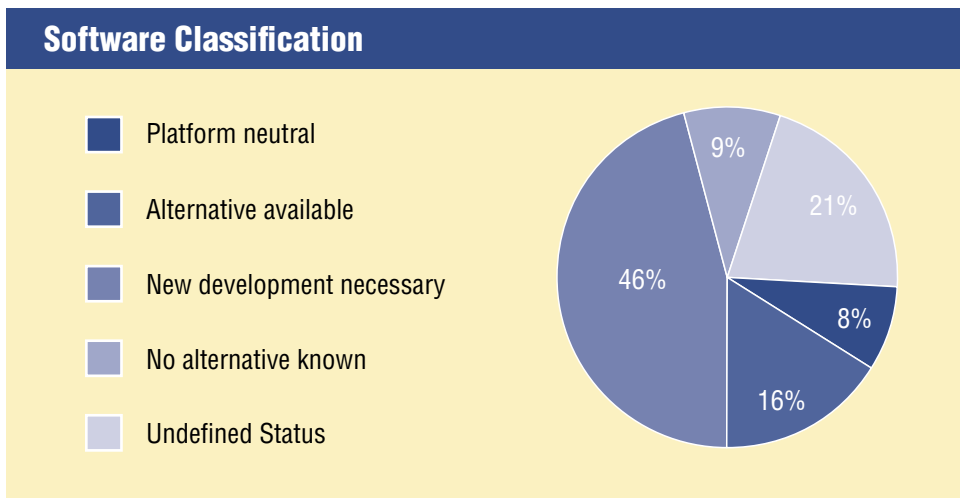
Distribution of SW-Products used

Distribution of SW-Products used

■ Inbuilt Software

■ Purchased Software

■ Centrally administered MS-Access Applications

■ Centrally administered MS-Office Macros

56%

25%

13%

6%

Software Classification

All listed SW products were evaluated whether they can be used on both operating system platforms or if they can be replaced by a functionally equivalent Open Source Software product. The results are as follows:

Software Classification

- ■ Platform neutral
- ■ Alternative available
- ■ New development necessary
- ■ No alternative known
- ▫ Undefined Status

9%
21%
8%
46%
16%

Software-Category	Number of Products
Platform neutral	90
Alternative available	175
New development necessary	500
No alternative known	100
Undefined Status	235
Total	**1.100**

Based on this classification the following numbers of PC-workstations could be migrated:

Identified Workstations

Identified Workstations

Workstations not dependent on applications using features of the Microsoft Office program suite. Such workstations could easily switch over to the OpenOffice.org office program suite.	**7.500**
Out of these 7500 workstations those using either platform neutral software exclusively or software with an identified OSS alternative. The number also includes a smaller number of PCs with maximum one platform dependent program considered to be less critical. These workstations could additionally be migrated to the Linux operating system platform.	**4.800**

For the remaining 8.500 PC-workstations, due to the platform dependent Software installed on these a migration to OSS is not considered feasible for functional and economical reasons.

Technical Feasibility

The technical evaluation proved that PC-workstations using Linux and OpenOffice.org fulfill all common functional requirements and therefore can in general be integrated into the municipal departments IT environment.

Functionality of Linux and OpenOffice.org is sufficient

Since more than half of the PC-workstations use platform dependent software without an appropriate OS alternative available, a long term coexistence of MS-Windows and Linux operating system is inevitable.

Necessary Coexistence of Operating System Platforms

This would remain the case, even if all software products where available on a Linux operating system, as platform migration projects take significant time. It is to be stressed that it is not the characteristics or the quality of the available operating OSS products, but the coexistence of both platforms that requires additional technical and organisational infrastructure.

Scenarios

Three Scenarios

Within the project three scenarios with two different roll-out strategies were evaluated. Included in the investigation were the 7.500 PCs designated for a possible migration.

MS-Windows plus MS-Office

The present practice to equip PC-workstations with updated versions of MS-Windows operating system and MS-Office program suite will continue.

MS-Windows plus OpenOffice.org

On the 7.500 PC-workstations in question OpenOffice.org replaces MS-Offices, still using MS-Windows operating system.

Linux and OpenOffice.org

In addition to OpenOffice.org a maximum of 4.800 out of the 7.500 PC-workstations is also migrated to Linux system platform.

Roll-out Strategies

For the scenarios requiring the change of either only the office programs suite or both the operating system and the office programs, two different strategies for the implementation were evaluated.

Smooth Introduction with Supporting Activities

„Smooth" Introduction

OpenOffice.org and Linux will be introduced as standard products within the range of services and products offered to the municipal departments. The introduction is made in full cooperation and at the individual pace of the various departments. Centrally managed supporting activities enable and promote a broad use of OSS products.

Comprehensive Migration Project

„Project based" Intro-duction

Apart from listing OpenOffice.org and Linux in the products and services catalogue, all PC workstations in question are included in a well defined migration project. The change is to be completed under a strict organisational management in a well defined timeframe.

Strategic Considerations and Risk Assessment

Considerations on the selection of a particular software product cannot be limited to price and performance but must be based on all of the quality criteria. These include the long term protection of investments and the avoidance of lock-in situations towards future technology.

Strategic Aspects of OSS

OSS and Open Standards build an efficient base for a governmental IT policy with a long term perspective. Their open development process and the generous licence terms make them an alternative to traditional offers.

The Risk of Supplier Dependencies

Under the actual market rules all users of IT technology are strongly dependent on dominant suppliers. The municipality as a big purchaser has some significant drawbacks caused by this predominance of single contractors:

- Big suppliers of software are to a high extent able to set their terms and conditions autonomously.
- There are very limited possibilities to influence the technology applied and the

features offered.

- There is little influence on the speed and the content of new releases of commercial SW products.
- It is impossible to assess the security status of the products and the general use of the same products causes additional security risks.
- The customization, maintenance and bug repair remains under the full control of the supplier.

Opposed to this Open Source Software contributes significantly to:

Advantages of OSS

- Reduce the dependencies on external suppliers in the contents offered and the technology applied.
- Reduce the ability of suppliers to capitalise on their predominant market position.
- Improve the quality of information systems in a cooperative development process.
- Reduce cost in the long run by better interoperability between the various components and by the more generous licence terms,
- Facilitate internal and external interchange of data by offering open protocols and interfaces.

For the municipality of the City of Vienna these strategic aspects of OSS are the fundamental reason for its increasing orientation to this type of software.

Dependant on its complexity any IT-project is risk prone. The risks are to be identified and their possible impact must be assessed.

Risks of OSS

The study tackled the following topics and incorporated them in risk minimising precautions:

- The coexistence of two different operating system platforms holds technical risks.
- The multitude of different applications and their combination may unveil problems in technical details that were not visible in the general analysis.
- Supporting measures must be provided in order to strengthen the confidence and improve the acceptance of users and the municipial departments in the new system environment.
- The marketing and support offers which traditional suppliers provide for their commercial products to a high extent need to be replaced by internal skills and new types of relation management.
- Although excellent knowledge on the use of OSS in the server area is available within the organisation, new requirements for PC-workstations will arise.
- The offer of platform independent software is still limited and the future development is hard to predict.
- Though the legal situation of SW patents is still unclear, the opinion of legal advisors is that it may be considered a limited risk only.

The risks listed were incorporated diligently into the recommended proceeding and the remaining possible effects are well justifiable.

Risks are justifiable

Internal experience with the use of OSS in the server area as well as other reports of public administration in the EU showed that such a study cannot limit itself to the functional and short term economical aspects only.

Economical Evaluation

The economical evaluation was based on well established cost of ownership models and was done specifically to the City of Vienna's requirements and a five years evaluation period. In a tailoring process the cost positions relevant for the investigated scenarios were selected from an exhaustive catalogue. Cost items considered neutral in all of the scenarios were excluded so that the results show the relative position of the scenarios to each other but do not give any Total Cost of Ownership (TCO) figures.

Full Costs

The considered costs consist of the budget relevant expenses and internal costs occurring in the MA 14 and in the municipal departments where the users are located.

Budget relevant Expenses

In all scenarios the dominant budget relevant expenses are the licence fees required for all types of application software products.

Internal Costs

For the internal costs the main items are personnel costs for establishing infrastructure, project dispatch and user training. The total amount and the relation between these costs strongly depend on the roll-out strategy.

Cost of Product Listing and Smooth Introduction

Cost of Products

In the investigated five years period the following expenditures are necessary for incorporating these new internal products in the MA 14's catalogue of services and products and secure ongoing product management.

Values in Euro	Expenses	Internal Costs	Total
Internal Product OpenOffice.org	2.500	517.500	520.000
Internal Product Linux	1.000	593.000	594.000

According to MA 14's pricing principles these values exclude the costs arising in the municipal departments when applying these products.

Migration Project

Migration Costs

The three scenarios compared as independent migration projects for the 7.500 PCs under consideration show the following composition of expenditure:

Values in EURO	Expenses	Internal Costs	Total
Continuation MS-Windows and MS-Office	2.450.000	1.750.000	4.200.000
Migration Project OpenOffice.org	1.000.000	5.500.000	6.500.000
Deviation with MS-Windows and MS-Office	- 1.450.000	+ 3.750.000	+ 2.300.000
Migration Project Linux	420.000	10.180.000	10.600.000
Deviation with MS-Windows and MS-Office	- 2.030.000	+ 8.430.000	+ 6.400.000

It is evident that the two migration scenarios show significant savings in the expenses but have considerable internal costs. Therefore a further proceeding should be recommended, that aims for a reduction and more favourable distribution of internal costs over time.

Recommendation

According to the conclusion of the study it is recommended to list the following new products in the 2005 edition of MA 14´s catalogue of products and services:

Introduction of New Internal products

Product OpenOffice.org

- For MS-Windows and for Linux based workstations
- Available in the central internal software distribution and installation tool „ADV Installer"
- Customized to the municipalities requirements including specific documentation
- Guidelines for a smooth coexistence with MS-Office

Municipal departments may internally purchase these alternative products according to their individual requirements.

Product Linux for PC-Workstations

- Customized internal Linux operating system SW distribution
- Specific product description listing the recommended fields of applications by the means of standardised checklists

With regards to the necessary preparations the new products should be available in the 2nd quarter of 2005.

The infrastructure required for the maintenance and the support of these products is to be established internally. The MA 14 and the internal Training Academy (MD-PR/VA) are requested to elaborate offers for consultancy, support and training for both products.

Establishing Infrastructure

The evaluation identified OpenOffice.org to be immediately suitable for 7.500 workstations and out of these a number of 4.800 workstations have Linux immediately applicable.

Potential for Migration to OSS Products

It is recommended to make OpenOffice.org available for all MS-Windows based PC-workstations even if they are using applications with MS-Office as a prerequisite. This fosters the coexistence of both office program suites and guards against interoperability problems.

OpenOffice.org available for all PC-Workstations

Along with the introduction of the new internal OSS products the following measures are recommended:

Internal Supporting Measures

- Binding guidelines for the purchase and development of new software are to be issued to ensure the platform neutrality of a broad spectrum of applications
- To avoid the creation of predictable interoperability problems explicit application and development guidelines are necessary also for existing application programs like MS-Access or for the creation of macros. New SW products are to be tested in both environments.
- A migration path to open document formats based on XML and the proposals of the EU is initiated.
- If the hardware of any of the PC-workstations classified to be suitable for migration is to be replaced, it is recommended to check if the use of OSS is economically sensible based on the results of a standardised questionnaire.
- Broad marketing efforts with a full set of information have to be offered for these new internal products.
- To support the decision making in the municipal departments for OSS products, a well defined feature list and start up consultancy will be offered.
- An internal user community will be set up to share experience and knowledge about the diversity of applicability in the various departments of the municipality.

- The staff members will be encouraged to use the same OSS products privately with their home computers. An appropriate set of operating system plus application programs provided on a distribution CD for free is supposed to reduce reservation and should create training effects.

Summary

In the purchase of new hardware and software MA 14 has stressed platform neutrality for several years to increase its flexibility for future decisions on technology.

OSS is technically feasibly for PC-Workstations

In the meantime Linux and OpenOffice.org have proved to be mature PC standard software products. The study proved that these products can be integrated into the existing IT environment of the municipalities of the City of Vienna.

No Necessity for an overall Migration Project

Due to the updated state of the PC-workstations presently used and the favourable terms of licence contracts, there is no immediate need for a broad software replacement until 2007. Despite of the principle feasibility of a migration, the high number of mutual dependencies and individual application requirements prevent the en block migration of entire departments.

Cooperative Introduction of Products

For the following reasons a smooth introduction of OpenOffice.org by including these products in the internal catalogue of services and products meet the individual functional reqirements much better:

- The existing demand can be fulfilled regardless of the organisational allocation of the relevant PC-workstations
- The cooperative approach improves the premises for the user's acceptance of the new platform and the new interoperability requirements.

Reduced Training Cost

It is expected that this way of migration will primarily address motivated and qualified staff members. Thus training costs are kept low.

New Evaluation in 2006

The experience collected, the effect of the supporting measures and the predictable progress in the OSS-offer make it sensible to newly evaluate the extent and operations for a general migration. This should start well timed before a decision about a superseeding general system platform, which is scheduled for 2007. Mid 2006 is considered to be the appropriate starting date for such an evaluation.

Building up Experience

Up to then a lot of internal know-how and experience will be collected, a higher portion of SW products will be suitable for both platforms and the amount of data in proprietary file formats will be reduced.

Prerequisite for a Migration Project

This recommendation reconfirms the commitment of the Municipality of the City of Vienna to Open Source Software and clearly improves the technical, economical and organisational premises for a subsequent general migration project.

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