

Linux – the IT-Evolution

Linux – the composition of the words Linux and Munich – is the official name for the open source project of the municipality of the German city Munich.

Evolution describes the goal of the city – a modern IT-environment adapted to the needs that will arise in a slow but continuous development process.

Introduction

At the general meeting of the city council on May 28 in 2003, members of various parties voted for a shift of the IT infrastructure of the municipality of the German city Munich towards open source software.

The basis for this decision is a compulsory and forthcoming shift to a new operating system. The support for Munich's current operating system - Microsoft NT 4.0 – ended as Microsoft decided to discontinue the support for this operating system. Consequently there is no guarantee that new software applications and new hardware will work under the “old” operating system.

By changing to open source software, the city council hopes to achieve an independence from proprietary software companies - especially an independence from proprietary operating systems and office software - and to increase the competition within the software market as well as a consolidation of software protocols and data format standards.

The decision to migrate to open source software was not exclusively based on economic and technical reasons. Strategic goals were considered – especially the independence from software companies – as well as qualitative goals, such as improving software security. The municipality expects to achieve its strategic goals more efficiently with open source software.

With regards to this decision, a migration concept plan was elaborated by the municipality with the aid of the know-how of two external companies – Suse/Novell and IBM.

The starting point

The following table shows the IT situation of the municipality of Munich before the migration:

| | |
|---|--|
| <i>1. Number of computers that have to be changed</i> | about 14.000 |
| <i>2. Number of users</i> | about 16.000 |
| <i>3. Application software on the clients</i> | Microsoft Windows NT 4.0 and Microsoft Office 97/2000 |
| <i>4. Number of software products</i> | about 300 |
| <i>5. Number of applications</i> | about 170 (excluding host-based applications) |
| <i>6. Centrally controlled applications</i> | Databases, Fileservice, E-Mail-, Calendar, Fax and Directory-Server |

Table 1: *IT situation of the municipality*

Overall, the municipality has 17 IT administration centres, with independent data processing and different requirements for support, operation and user administration. Purchase and strategy is arranged centrally, operation and planning is arranged locally. Software allocation, security management and user support is not standardised.

First Steps - Concept

The detailed concept for migration possibilities was prepared by all members between June 2003 and May 2004, and supports the basis for the decision of the city council. The concept aims to identify the migration costs, training options for the staff as well as suitable open source products, and examines the technical feasibility of a shift to open source.

Different project groups were formed to get the required results, as shown in Table 2.

| Project group | Important Assignments |
|-------------------------------|---|
| <i>Client configuration</i> | <ul style="list-style-type: none">- definition of the products and configuration of the basis client- formulation of the administration plan |
| <i>Testing and validation</i> | <ul style="list-style-type: none">- constitution of a testing and validation centre- formulation of a testing plan |

| | |
|--|--|
| | <ul style="list-style-type: none"> - definition of testing procedure and documentation - recommendation of the computer hardware |
| <i>Training and initiation</i> | <ul style="list-style-type: none"> - conception of a training and implementation plan (user based) - formulation of a plan for a supervision for the user after the training (aftercare operation) - definition of the training costs |
| <i>Migration plan</i> | <ul style="list-style-type: none"> - determination of the file formats and standards - review of the actual software situation - creation and evaluation of migration scenarios - determination of fixed costs and variable costs (technical) |
| <i>Central infrastructure and services</i> | <ul style="list-style-type: none"> - creation of migration recommendations for the allocated central services from the Munich department for information and data processing (“Amt für Informations- und Datenverarbeitung”) - determination of fixed costs and variable costs |
| <i>Communication</i> | <ul style="list-style-type: none"> - communication strategy - information and information change of the parties hetero - reduction of fears of the employees |

Table 2: *Migration project groups*

A project management controls and directs the groups and reports the results to the city council.

The concept showed important consequences that will be considered in the migration process. Due to current deficits in the IT infrastructure, the migration provides the opportunity to establish new, efficient structures and processes. According to the municipality, the shift can only be successful if all the software partners concur. Open source software has to be adapted and applications have to be redeveloped. A coherent implementation requires a customisation of the applications.

On the 16th of June in 2004, the city council of Munich decided to migrate to open source software on the computer clients and started an open competitive bidding. The decision was based on the migration concept and a client study. The client study was created by the consulting agency “Unilog Management” in 2002/2003 and supported by the department for information and data processing of Munich. The aim of this study was the determination of

alternative configuration possibilities for the desktop systems in consideration of technical feasibility, cost effectiveness and qualitative-strategic consequences.

Considering strategic goals and qualitative aims, the client study concludes that a pure open source software strategy is most suitable. A pure open source software strategy provides particular advantages in terms of effects on the IT organization (including IT enterprise and IT employee management, complexity of the system environment) as well as in terms of compliance with further strategic goals (compliance with open standards, independence from individual software companies, IT flexibility, acquisition independence, acquisition continuity, safety of capital investment and standardised clients).

Migration process

The following figure gives an overview over the elaborated migration scenarios for applications during the concept phase:

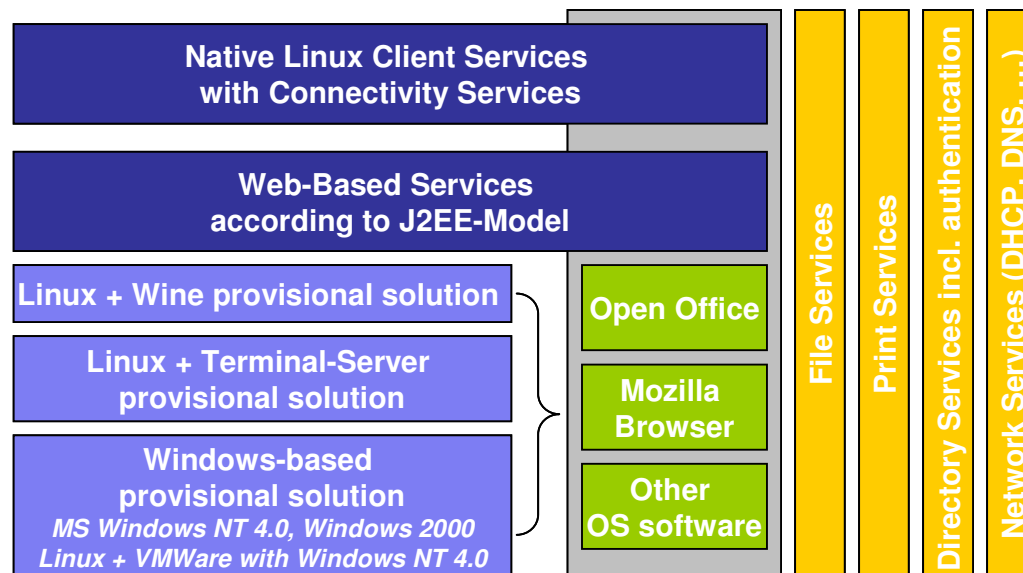


Figure 1: *Migration scenarios for applications*

The city council decided unanimously on a “soft” migration over 5 years. The first administration’s work places will be changed against the defined basic client in late 2004. The migration will be realised mainly through internal employee capacities without compromising on-going activities.

An operation with emulation systems for Windows applications (e.g. VM-Ware, Terminal servers or Wine) shall not be used in principle, except for cases where no other solution can be found. The long-term goal is a complete shift to pure open source software without the use of software emulation applications. A parallel use of two different operating systems (open source and proprietary systems) is regarded as critical by IT administrators. However, the administration of two different systems would be highly demanding on IT administration. For this reason it was determined that existing systems based on proprietary software will be used until the end of their life-cycles. Simultaneously, open source applications that can replace existing proprietary software will be developed. Web-based applications will be created. This implementation makes the applications independent from any operating system and ensures a less complicated shift to other operating systems.

The migration team assumes that as a consequence of developing market trends, more and more hardware and applications will be available for open source systems. In general, workstations that are less problematic will be replaced first.

Due to the fact that numerous office application files are based on proprietary formats and that the open source office application “Open Office” can read most existing Microsoft Office files, a migration to open formats will proceed slowly. Until now, open file formats and standards have not been defined by the migration teams.

Key to the success of the migration is a well-defined communication between the migration teams and end-users. Employees were informed through intranet presentations, introduction seminars, flyers, demonstration systems and personal discussions about the new system, which is scheduled to replace the majority of the proprietary computer systems by 2008. The goal of the information dissemination is to decrease employee fears and reservations about the use of open source software. Employee training starts with the beginning of the first client replacement.

Evaluation

The migration decision of the municipality of the German City Munich is a clear political statement. But until now, the success of this shift to open source is an open question. The next few years will show how the elaborate plans can be implemented and if the objectives of the municipality can be reached. The decision to encourage a soft migration over 5 years seems to be a rational consequence of the technical and economic complexities involved.

PDF version of this case study

References

Homepage of the LIMUX project

<http://www.muenchen.de/Rathaus/dir/limux/89256/index.html>

Client study

http://www.muenchen.de/vip8/prod2/mde/_de/rubriken/Rathaus/40_dir/limux/publikationen/clientstudie_kurz.pdf

Introducing the Linux project

http://www.muenchen.de/vip8/prod2/mde/_de/rubriken/Rathaus/40_dir/limux/publikationen/linuxtag_englisch.pdf