Qualitatssicherung der Masseninstallation von IBM Clients for e-Business fur Windows 2000

Albin Gruber

Abstract

This thesis describes methods to assure the quality of the mass rollout from IBM Clients for e-Business for Windows 2000. The Client is based on the operating system Microsoft Windows 2000, including additional IBM- specific applications and system configurations, and is configured according to the respective place of system installation. Installation as well as configuration of the IBM Clients throughout Austria is carried out by the NWSM department in Vienna. During this thesis, the steps required for this process were manually conducted and controlled, including detailed analyses. The occurring error rate was documented by IBM internal statistics and showed improvement potential regarding the automation as well as quality inspection and assurance of selected and error-prone processes.

The introductory chapters of this thesis attend important concepts and basics of the operating systems Microsoft Windows and Linux, a free Unix distribution and their mechanisms for installation, extension and distribution. Therefore this thesis provides information on basic aspects of versioning and software lifecycles. It deals with various methods for the minimization of error rates in software development as well as versions management of particular software components with the help of Software Configuration Management (SCM). Besides that, concepts of software configuration as well as advantages and disadvantages and their completely different implementation in the operating systems Windows and Linux are presented. Furthermore basic concepts are demonstrated to Windows programming including the Windows Application Programming Interface (Win32 API), IBM Open Classes and design guides for planning and implementing user interfaces.

Based on the concepts presented in the introductory chapters and on the quality assurance objectives demanded by the NWSM department, various solution possibilities and their advantages and disadvantages are discussed. Furthermore, this thesis provides information on implementing the Quality Assurance Tool (QAT) software and its components. As a development environment IBM Visual Age for C++ 4.0 was used. Important components like registry editing, readout of system information, report generation and layout of the graphic user interface will be discussed in more detail.

The last section of this thesis deals with the productive implementation of the tool. Advantages and disadvantages of the application as well as improvable aspects are discussed. Current IBM internal cost calculation figures are compared to those figures predicted by the application with the help of an economic efficiency calculation. Results show that mere error rate reduction to 0% of defective installations and configurations - time effort reduction per rollout not considered - leads to considerable cost reduction. Subsequently, an outlook to some future prospects and design concepts for the improvement of operating system stability is given.