Mitarbeiterprofil

Name:	Thomas Boor
Born:	08.08.1959
Education:	electrical engineering studies education as business programmer
it experience since:	1988
Methods:	Objektorientierte Analyse und Design mit UML und Coad & Yourdon, Strukturierte Analyse und Design, ISOTEC, Datenbankdesign (ER-Modellierung) und -Normalisierung
Hardware:	IBM DataBlades, Sun Fire, Sun Netra, SNI RM- & MX-Serie, IBM RS/6000, SUN SPARCstations NIXDORF TARGON /35, IBM /370, PCs
Operatiungsystems:	AIX (bis 6.1), Sun-Solaris 10, Linux (Ubuntu., SuSe. Arch- Linux, Mint), SINIX SVR4 (bis Rel. V.4.3), UNIX SVR3, DG-UX 5.4, SCO-UNIX 3.2, SunOs 5.4, MS-DOS/WINDOWS, VM/SP, MVS/ESA
Programming-Languages:	C++, C, Python, php (lua, Java, perl)
Networks:	TCP-UDP/IP, BSD-Sockets, ONC-RPCs, RMI/JNDI, CMX
Protokolls:	SIP, SDP, RTP, RTCP, Radius, SNMP, http, Soap
DB-Systems:	DB2V9-Vista, Informix Online bis 10.0, Oracle 7.3, Postgres, mySQL, ddb4, CICS, VSAM, MS-SQLServer, MS-Access
Development-Tools:	Eclipse-SDK, Sun-Forte-IDE, Together, Rational Rose, dia (UML-Tool) SNiFF+/Emacs, div. UNIX-Shells & tools scons, git, gerrit, jenkins, redmine, confluence/draw-io omniORB, omniORBpy
Publications:	PolarPlot - Plotten von Funktionen in Polarkoordinaten mit Sharp PC-1500/CE-150 Würzburg, 1987 (Vogel-Verlag, NE: T.Eikenkötter) vi-Referenzhandbuch - Das Lehr- und Nachschlagewerk zum UNIX-Standardeditor München, 1996 (Verlag Prentice Hall, NE: Hutter/Pribas)

Projektarbeit

(Angabe in umgekehrt chronologischer Reihenfolge)

Design and Implementation of a generic SNMP-Requestor

Duration	06/2018 - 09/2018
Trade	**Telecommunication**
Role	**Developer**
Customer	**IBM NGN CC**
Task(s)	Tool, to read via bulkwlk partial SNMP-trees and have an abstaction-layer with tables, rows and scalars on that data.
	Der Customercqan use the API of the tool in self written templates to have a look according to own reuirements with no softwware-changes needed.
	Mass-oprators, lambda functions and arithmetic basics for tables-data.
	Programmdocumemntation with pydoc, Users manual with confluence and draw-io.
Methods	UML
Programming-Language(s)	Python 2.7
Operating-System(s)	Suse-Linux
Tools	umbrella, plantuml, confluence, draw-io, cq-web
/etc	Scrum

Extension of a CallLimitingServers with Call-Attempt Limit

Duration	03/2018 - 06/2018
Trade	**Telecommunication**
Role	**Developer**
Customer	**IBM NGN CC**
Task(s)	Extension of a Call-Limiting-Servers by callrate-limiting. So, the number of established calls of a principal can be limited to the ordered number.
	Design-Documentation with UML-V2, Interface-Design documented with AsciiDoc, coding using C++ V14.
	Regression test suite to check reliabiliy and memory usage on massiv call requests of lots of users in parallel.
Methods	UML
Programming-Language(s)	C++
Operating-System(s)	Suse-Linux, ubuntu
Tools	umbrella, plantuml
/etc	

Accounting-Gateway for Telecom-Provider, project in parallel

Duration	03/2018 - 09/2018
Trade	**Telecommunication**
Role	**Entwickler (LeadDeveloper)**
Customer	**IBM NGN CC**
Task(s)	Extension of an existing accounting-gateway by multicasts conrolled by configuration. So, dependend on the content, accounting pakets are sent to several backend-systems via UDP (usual for RADIUS-protocol). Asynch-response-handling via epoll.
Methods	UML
Programming-Language(s)	C, C++, python, perl,
Operating-System(s)	Suse-Linux, ubuntu, omvs
Tools	umbrella, plantuml, mq-series, db2
/etc	

Access-Platform for Telecom-Provider

Duration	04/2017 - 03/2018
Trade	**Telecommunication**
Role	**Developer**
Customer	**IBM NGN CC**
Task(s)	Refactorierung of an Online-Provisioning-Solution of an Access-Platform with IP- und QOS-settings for ip accessors.
	Integration of different input sources, like XML-file, MQ-Series-Requests or udp-requests.
	Using IBM-DB2 and IBM-MQ-Series in C++, Version 11, different UNIX-Systems and Open-MVS.
	New Outlet of provisioned principals via XML/SPML to store data at a LDAP-Database (Nokia C-NTDB).
Methods	UML
Programming-Language(s)	C++,
Operating-System(s)	Suse-Linux, ubuntu, omvs
Tools	Git, umbrella, gerrit, jenkins, mq-series, db2
/etc	scrum

Business-Telefone-Platform for SIP-Trunks and PBXe

Duration	10/2016 - 03/2017
Trade	**Telecommunication**
Role	**Developer**
Customer	**IBM IP-Factory**

Task(s)	**Distributed Build-, Distributions- und Testsystem**

python tool to establish a distributed deploy- and Test-System auf linux-Rechnern inkl. verschiedenen, virtuellen Systemen (docker, lxc, virtual-box, vm-ware).
Integration of scons, git, gerrit und jenkins in den workflow.
Configuration of load-sets per json files.

Visualising progress with generated websites, using flask und ajax.

Componententest with CORBA-Environment (omniorb for python), to control all parts of a test suite from a single, local control-file.

Re-engineering of an account-spoolers
Refactoring an existant account-spooler, sending RADIUS-Pakets with UDP from spool-files of different clients.
Housekeeping of respondeed or timed-out requests.

Integration of a snmp-Interfaces to establish Remote-control.
Adjustements in code to meet C++-Version 11

Methods	UML
Programming-Language(s)	C++, python
Operating-System(s)	Suse-Linux, ubuntu
Tools	umbrella, gerrit, jenkins, confluence/draw-io, redmine
/etc	

IOT (Internet of things)

Duration	10/2015 – 09/2016
Trade	**Environment**
Role	**Architect of development, Team with 3 developers**
Customer	**Kontip GmbH**
Task(s)	Integration of a SIP-Stack within the Bridge, development of an Applicatzion-Server-Proxy which delegates all messages decoded by the Stack to the IOTF and proceeds the message flow with the response from the IOTF. So, sensors and actors connected via a SIP-Gateway (e.g. an Internet-Router) can be handled, too (beside Art/LORA messages). Software-Design with UML, Development in C++ under Linux of an application-server for the "internet of things", acting as a bridge between the LORA-Network-Server – talking JSON via Websockets – and the IBM-IOT-Foundation (BlueMix), talking REST and MQTT. Designed for some 100000 Devices acting as Sensors and/or as actors. Multithreaded-Solution. Software-Design with UML, Development in C++ under Linux of an application-server for the "internet of things", where up to 100.000 sensors/actors are connected to via gateways (fritzbox, raspberry, LORA-wireless net) and can be monitored via SIP-SUBSCRIBE oder controlled via SIP-MESSAGE by an arbitrary number of clients. Communication with sensores/actors encoded in JSON, communication with monitoring clients using XML-Bodies in SIP-NOTIFYs. Multithreaded-Solution.
Methods	UML
Programminglanguage(s)	C++
OS	Suse-Linux, ubuntu
Tools	umbrella, gerrit, jenkins, confluence/draw-io
/etc	

Telefone-Provider-Platform for SIP-Trunks and PBXs

Duration	08/2014 - 09/2015
Trade	**Telecommunication**
Role	**Developer**
Customer	**terravoice.eu, managed by KONTIP / TSI GmbH managed by IBM**
Task(s)	**Application Function for the feature ClosedUserGroup (CUG)** Internal Apllication-Function to realize the "Closed User Group"-feature in a SIP-Telefone-Provider-Plattform. Parse MultiPart-Bodies i XML-Format, evaluate content and check against configured values to result to an acceptance or a decline **Enable DS-Field-Support (QoS) in some Communications-Libraries** Enabled setting of DSCP/TOS once on newly created communication-connections or as Ancillary-Data for Per-Paket-Qos, with IPv4 and IPv6. For ancillary-Data detection code on receiver-side (IPV6_RECVTCLASS, IP_RECVTOS) by parsing the cmsghdr. Applied libraries for TCP, UDP, Radius, Diameter, http, MGCP **Re-writing of a phone-number-porting-server for up to 200 millions of numbers** Re-Design and re-development of a porting-server, which was based on DB/2 before. Because of the huge number of entries to be managed and the required performance-boost a BigData-solution (totally InMemory instead of a rel. DB) was choosen. Servers are cascaded in a tree to act as a cloud. Functional and regression-tests written also in C++, part. using the boost-library
Methods	UML
Programming-Language(s)	C++
Operating-System(s)	Linux
Protocols	Diameter, SIP, RTP, SDP, protobuf, TCP/UDP
Tools	Git, Confluence, phabricator, ClearQuest, umbrella, gerrit, jenkins
/etc	

Design, Implementaion and maintenance for a MRF (Media-Ressource-Function)

Duration	10/2009 – 03/2011 and 03/2012 – 07/2014
Trade	**Telecommunication**
Role	**AD (Architect of development) mit 4 Entwicklern**
Customer	**IBM NGN Center of Competence / terravoice.eu**
Task(s)	**Design and Implementation of an IMS-Media-Ressource-Function (MRS)**

IMS-conformant MRF to stream audio- and video-assets, Detection of DTMF-Events, Evaluating incoming RTCP-Responses and to Proxy voice-Rtp-data to an Voice-Recognituion-System (IVR).
Beside streaming single streams to single receivers, the MRF can stream to multiple receivers like a video-installation with an array of screens.
Assets to stream can be read at once or partially on demand.
With a tool all the assets ar deployed to all instances of the MRS.
Multiplexing of Live-Streams with a ringbuffer as Asset-Quelle.
According to the IMS-Modell the MRF is realizes as a Controller and a process, which act in n:m-relation.
Jobs-submitting per SIP-INVITE or via library-Funktion.
Multithreading-Solution.**.**

Rework of an existing MRF with lots of new features
- IPv4 & IPv6 Streams from one application process
- dynamic memory management for local media files
- Proxiing Unicast-Live-Streams
- IGMP-Multicast-joins to proxy T-Home-Entertain-Media as Unicasts
- Writing of RADIUS-Accounting Packets
- Handling of Pinhole-Requests, to open Firewall-Connection (local IP/Port and remote IP/Port)
- Test-Website using webrtc, ajax, javascript and Java-applet to send a pinhole request from users machine
- DSCP (Differentiated services code point) settings per configuration to fulfill QoS requirements.

Design and Development of a dynamic memory Management for the MRS
For the new Media-Resource-Server (MRS) a dynamic Memory-Management has been requested, to minimize the ressource at partial access for any asset for multiple users.
Slice-oriented read-aheads, advising assumed next requested areas via posix_fadvise, to have the data in parallel read into the disk-cache to make the next read seamless.

Methods	UML
Programming-Language(s)	C++, python

Operating-System(s)	Ubuntu-Linux, SuSe-Linux, IBM-AIX
Tools	Git, scons, OpenOffice, asciidoc, doxygen, ClearQuest/Case, gstreamer, vlc
Protocols	SIP, RTP, SDP, TCP/UDP
/etc	

Launch of an Onlineshop for a Bicycle-Store

Duration	08/2013 – 09/2013, project in parallel
Trade	**Retail**
Role	**Designer and Developer**
Customer	**Radhaus Bürgstadt**
Task(s)	Evaluation of some free CMS. Final decisions to use *Shoppingcart* (opensolution.org). Translation (from en to de), Code-maintaining, versioning. New Graphic-themes, Payment-Types, Administration-Tool and more. Editing of Diashows for retailers youtube-channel.
Methods	
Programming-Language(s)	php
Operating-System(s)	Ubuntu-Linux, MS-Windows-7
Tools	shoppingcart, gimp, Typo-3
/etc	Google+, youtube and facebook-Presentation for the dealer.

Internet-Access-Plattform

Duration	01/2013 - 09/2013
Trade	**Telecommunication**
Role	**Entwickler**
Customer	**IBM Deutschland GmbH**
Task(s)	**Evaluation of nested Virtualization using vmware hypervisor ESXi and Platform-Deployment**

Evaluation of nested Virtualization using vmware hypervisor ESXi and Platform-Deployment

Evaluation of vmware-Hypervisors (ESXi-5.0 and 5.1) to check their ability to run nested.
The reason for nesting: to deploy a complex platform wirh n-locations and m-hosts on one physical machine to reduce hardware expenses.
Branches of the nesting tree:
ESXi-5.0 -> ESXi-5.1 -> VM(with SuSe-sless11/64)
ESXi-5.0 -> ESXi-5.0 -> VM(with SuSe-sless11/64)
ESXi-5.1 -> ESXi-5.0 -> VM(with SuSe-sless11/64)
Deployment of applications on the Vms at the leafs.

Extension of Application-Monitoring for a distributed Internet-Access-Platform

Design and development of monitoring components for new applications and hosts of the platfrom.
Central components interacting with TIVOLI-NETVIEW (for graphical presentation of the platform-status) written in C and Rexx, running under IBM z/OS. Remote components written in perl, running under z/OS, zOS-UNIX, zLinux, AIX and SuSe-Linux, which invoke snmp-commands to retrieve MIB-OIDs or which invoke requests of the monitored applications to measure avalability, rúntime & latency and failure rates.
Definition of new Views and groups in TIVOLI for the new monitorng-components.

Methods	
Programming-Language(s)	C, Rexx, perl
Operating-System(s)	vmware ESXi, SuSe-sles11, AIX, z/OS-UNIX,
Tools	ClearCase, git, IBM IMM
/etc	

Development of an Intranet-Tool for a Web-based payment-system
Customer: Ticketcorner AG
Trade: Ticketing
Design of the user interface as a part of the technical documentation. Standalone-Tool in python to invoke the functions 'authorize', 'commit' and 'retrieve' with http or https. Definition of the database relations for retrieval.

Duration:	2 Months (05/06 – 06/06)
operating system:	debian-Linux, Windows XP
programming languages:	Python 2.4
Database:	mySQL 5.0
IDE/Tools:	Idle, cvs

Development of a gateway to transmit RFID-carddata to an admittance system
Customer: Qivive GmbH
Trade: Ticketing
Design of the interface, UML-design papers, Programming of an asnychronous gateway to transmit the RFID-Data as whitelist data.

Duration:	1 Month (05/06)
operating system:	Sun-Solaris 10
programming languages:	C++
Database:	Postgres 10
IDE/Tools:	Eclipse 3.0, cvs

Design and implementation of a WebService for an internet distribution system
Customer: Qivive GmbH
Trade: Ticketing
Design of the WebService-Interface according to the features of the distributing system. Setup of the technical infrastruture with tomcat-webcontainers and axis-SOAP-engines. Programming of the WebServices as an ejb-client to an ATG-web- and EJB-container. Testdrivers in java and python. Unittests with java, loadtesting with python-clients. Writing of an executive summary, interface description, testcase collections and installation guide with openoffice.

Duration:	13 Months (02/05 – 03/06)
operating system:	Sun-Solaris 8, Windows XP
programming languages:	java 1.4, Python 2.3
Database:	Informix 9.1
IDE, tools:	Eclipse 3.0, ant, tomcat, axis, xerces, versioning with cvs

Software development for an internet application, search and payment modules

Customer: Qivive GmbH
Trade: Ticketing
Development for an internet application, programming of a fast searchengine with different search criterias and flexible handling of the search results.
Programming of all components from the JSP-sceendefinitions down to the database.
High performance due to the absence of any EJBs.
Enhancement of the payment solution for an access to the Swiss Post.

Duration: 4 Months   (10/04 - 01/05)
Operating system: Sun-Solaris 8
Programming languages: java 1.3.1
IDE/Tools: Sun-Forte, ant, CVS

Design and implementation of a document generator

Customer: Qivive GmbH
Trade: Ticketing
Design of a meta-language to be embedded into programm code of different languages to generate program documentation out of the sources.
Imbedding of external images and textual information. Output as pdf documents.

Duration: 4 Months   (05/04 - 09/04)
Operating system: MS-Windows-XP
Programming languages: Python 2.2
IDE/Tools: Python-IDE "Idle",
                                       Reportlab-Toolset for PDF

Programming of an videograbber with motion detection

Customer: n.a.
Trade: n.a.
Coding of a videograbber (cyclic grabbing of still images) with persistance in the filesystem with the jpeg-library for a security company.
Includes motion detection with several strategies for edge detecting, each realized as a decorator to be chained as configured.
Edge detectors included: binomial laplace filter, roberts-cross-operator, erosion and dilatation.
Configuration with a web-interface (python-scripts as cgi)

Duration: 6 Months   (11/03 - 04/04)
Operating system: Suse-Linux
Programming languages: C (due to customers requirement), python-cgi-Scripts

Porting and enhancement of a gateway between an inventory system and a distribution system

Customer: Qivive GmbH
Trade: Ticketing
Porting from Sinix to Solaris, enhancement of the design due to higher performance requested. Use of a new, fast cache-mechanism.

Duration: 8 Months   (08/02 - 03/04)
Operating system: Sun-Solaris 8
Programming languages: C++ incl. STL
IDE/Tools: no IDE, Standard-UNIX-Tools, cvs

Design and Implementation of a high speed cache under Solaris 8
Customer: START Informatik GmbH
Trade: Ticketing
Design of a cache-mechanism usign ipc-ressources for administrative information and largefiles for the data. Combining of conventional hashing and of closed hashing.
Access to the cache via api or network (tcp).
Testprograms in C++ and python.
Documentation of concepts, program and installation with html.
Duration: 3 Months   (04/02 - 06/02)
Operating system: Sun-Solaris 8
Programming languages: C++, Python 2.0

Implementation of a gateway between an inventory-system and the internet
Customer: START Informatik GmbH
Trade: Ticketing
Design of a distributed system with parallel access via tcp to the inventory system.
Multiple communication processes on different hosts for easy scalability.
Programming language independend interface (used wirh java, C++ and python-frontends).
Programming in C++ (incl. STL) using different design patterns
Duration: 9 Months   (07/01 - 03/02)
Operating system: SINIX V.4
Programming languages: C++

Design and implementation of a multiplexer to connect more than 8000 Windows-Clients to an UNIX-application
Customer: START Informatik GmbH
Trade: Ticketing
Design with UML of a multiplex-system to meet the needs of the quantity structure with lowest ressource-usage (less than 50 communication processes).
Programming in C++ without STL, some java-applets to visualize the systems state.
Python scripting to manage the documentation.
Duration: 6 Months   (01/01 - 06/01)
Operating system: SINIX V.4
Programming languages: C++, Java, Python

Design and development of a systems library as an easy to use framework
Customer: START Informatik GmbH
Trade: Ticketing
Design of a library with the six packages:
- **Event** (for event driven programming)
- **InterProcessCommunication** (OO-Wrapper for the operating system mechanisms)
- **Network** (TCP, UDP and Stream-Sockets for C++ in a class hierarchy)
- **Communication** (universal communication classes for different layers)
- **Processing** (Framework to flow control)
- **Contextdatabase** (network database, realized with the above packages)

UML-Design, programming in C++ under Linux and ReliantUnix.
Contextdatabase and other testprograms to demonstrate the usage of the framework.
HTML-documentation with Together

Duration: 4 Months   (09/00 - 12/00)
Tools: Together 4.1
Operating system: Linux, ReliantUnix 5.4
Programming languages: C++

Implemetation of a UNIX to host connection for the EXPO-2000
Customer: START Informatik GmbH
Trade: Ticketing
Design and implementation of a gateway between a BS-2000 host and an UNIX-Ticketing-Systen.
Communication via TCP/IP; Process model with a Dispatcher and multiple Co-Processes, running on a server-cluster.
High performance requirements managed successful.

Duration: 10 Months   (11/99 - 08/00)
Operating system: SINIX V.4
Programming languages: C++

Writing of the WebPages for a horse-ranch
Customer: n.a.
Trade: n.a.
Writing of the static HTML-Pages, Converting of photos and movies from older media to electronic media.
Managing of all the stuff from requesting the domain up to maintain the site in the first month. Training of the users.

Duration: 2 Months   (09/99 - 10/99)
Tools: vi, PhotoImpact, RealVideoGen, ws-ftp

Systemprogrammíng in a client-server project
Customer: START Informatik GmbH
Trade: Ticketing
Design and implementation of different libraries to use UNIX-Mechanisms in C++, like record locking, streams, sockets and others. Programming of wrapper classes.
Design of a tool to measure the program flow to analyze the performance of C and C++ leagcy systems.
Writing the documentation as HTML for an intranet.

Duration: 4 Months   (05/99 - 08/99)
Operating system: Linux, div. UNIX SVR4
Programming languages: C++

Design of a POS-Gateway
Customer: START Informatik GmbH
Trade: Ticketing
Design of the gateway to connect an existing POS-Solution to a Ticketing-System.
Definition of the interfaces.
Production of UML-Diagrams for the system.

Duration: 4 Months   (01/99 - 04/99)
Tools: Paradigm-Plus, Visio

Implementation of communication gateways
Customer: START Informatik GmbH
Trade: Ticketing
Design and implementation of a framework library to connect a UNIX-System
to a BS-2000 host according to RFC1006 (ISO over TCP).
Programming of some gateways based on that library.
Leading the team of four developers.

Duration: 3 Months   (10/98 - 12/98)
Operating system: SINIX SVR4.3
Programming languages: C++ mit STL

Systemintegration and regressiontest in a telecom project
Customer: IBM Deutschland GmbH
Trade: Telecommunications
Definition and writing of automated regression tests, programming of a generator to generate EDIFACT-datasets with the shell.
Problem reporting with IBMs TeamConnection.
Assessment of architecture and programming of an external partner.

Duration:	9 Months	(01/98 - 09/98)
Operating system:	AIX 4.1, Windows-NT 4.0	
DATABASE:	Oracle 7.3	
BK-System:	LotusNotes 4.6, TeamConnection V2.0, MS-Office 95	

Buildup of the quality management for a software development project
Customer: START Informatik GmbH
Trade: Ticketing
Definition of a software engineering process model specific to the company.
Writing of the UML-based documentation templates for each phase.
Constitution of quality rules, templates for testscenarios in four phases.
Defining the programming styleguide for C++ and embedded sql.
Conceptual design of a problem reporting tool.
Management of the activities of the QM-group (6 staff members),
Setup and leading of workshops and reviwes.

Duration: 6 Months (07/97 - 12/97)

Design and implementation of a distributed message passing system
Customer: START Informatik GmbH
Trade: Ticketing
Design of a distributed OLTP-system for UNIX-Systems.
TCP/IP-network communication, inter process communication with shared memory (lockes with semaphores), process oberving and loadbalancing for parallel services.
Design of an api-collection (with three abstraction layers) for the application programmers.
Analysis and design with UML. Source-Management with SNIFF+, versioning with rcs.
Writing of html documentation, shell generator to create man pages.

Duration:	12 Months	(07/96 - 06/97)
Operating system:	SINIX SVR4.3, SunOs 5.4, SCO-3.2, LINUX	
Programming languages:	C++	

Design of a clearing system for multiple mandators
Customer: START Informatik GmbH
Trade: Ticketing
Analysis in cooperation with the product management.
Design of a light-weight-paradigma to realize clearing programs with C++ and esql-c.
Programming of some clearing programs.
Documentation in html.
Duration: 9 Months   (10/95 - 06/96)
Operating system: SINIX SVR4.2
DATABASE: Informix-Online 5.0
Programming languages: C++, (INFORMIX-) ESQL/C

Integration of PointOfSales-Terminals into a ticketing system
Customer: START Informatik GmbH
Trade: Ticketing
Analysis and Design with the Coad/Yourdon Model.
Connecting the POS-Terminals via the serial interface, network communication with the acquirer via X.25
Duration: 9 Months   (01/95 - 09/95)
Operating system: SINIX SVR4 (bis Rel. 2), SCO-3.2
Programming languages: C++

Implementation of an adress administration for a local tourism organisation
Customer: TZH, Hamburg
Trade: Tourism
Implementation of an adress administration based on an existing midrange solution.
Using MS-Access as database system with storage of the database on an unix host.
Access of the Windows frontends to the database via PC-NFS.
Design and programming of the MS-access application.
Duration: 4 Months   (09/94 - 12/94)
Operating system: SINIX SVR4, MS-Windows
DATABASE: MS-ACCESS 2.0
Programming languages: MS-ACCESS-BASIC

Design of the cubical pricing system for a ticketing system
Customer: START Informatik GmbH
Trade: Ticketing
Design of the pricing system with sales and cancellation transactions.
Objectoriented analysis and design with the Coad/Yourdon model.
Definition of Classes and Interfaces, implementation of the system.
Duration: 7 Months   (02/94 - 08/94)
Operating system: SINIX SVR4
DATABASE: Informix-Online
Programming languages: C++

Shellscript programming and setup of the software packaging with pkg
Customer: START Informatik GmbH
Trade: Ticketing
Programing of shell scripts. Writing of the pkg metafiles and of somes scripts to collect dynamically created files of the system.
Duration: 4 Months   (09/93 - 01/94)
Operating system: SINIX SVR4 (bis Rel. 2), SCO-3.2

OLTP-System for several applications for a travel organizer
Customer: START Informatik GmbH
Trade: Ticketing
Design and programming of a distributed OLTP-System with ist own ORB.
Communication via TCP/IP and remote procedure calls.
Duration: 18 Months   (02/92 - 08/93)
Operating system: SINIX SVR4, DG-UX SVR4, SCO-Unix
Programming languages: C++

User interface for a logistic system
Customer: Siemens AG
Trade: Transport / Logistics
Design of the user interface with an 3GL tool
Duration: 2 Months   (12/91 - 01/92)
Operating system: SINIX V.2
DATABASE: Informix-SE
Programming languages: Rosi-SQL

Clearingsystem for an airline
Customer: Condor Flugdienst GmbH
Trade: Transport / Logistics
Design and implementation of an clearing program to clear affiliated airlines.
Duration: 3 Months   (08/91 - 11/91)
Operating system: AIX
DATABASE: ddb4
Programming languages: C
Tools: Quantum-Catcher, UniScreen, DR-GEM

Marketing-Information-System for an airline
Customer: Condor Flugdienst GmbH
Trade: Transport / Logistics
Design and implementation of an customer information system with integrated adress marketing and mail services.
Training for the users, Writing of an user guide.
Duration: 9 Months   (01/91 - 01/91)
Operating system: UNIX SVR3, AIX
DATABASE: ddb4
Programming languages: C
Tools: UniScreen, DR-GEM, Standard-UNIX-Tools

Clearing system for telecom services
Customer: IBM Deutschland GmbH
Trade: Telecommunications
Writing and executing of systemtest scenarios,
programming JCL, CLISTs and Edit-Macros on an IBM /370
Duration: 12 Months   (01/90 - 12/90)
Operating system: MVS/ESA, VM/SP
Tools: CMS, ISPF/PDF, SCRIPT/VS, DCF

Maintenance Tool for telecom services
Customer: Deutsche Telekom
Trade: Telecommunications
Programming in Cobol, writing test scenarios, documentation
Duration: 6 Months   (07/89 - 12/89)
Operating system: MVS
DATABASE: VSAM, CICS
Programming languages: DELTA (Cobol)
Tools: ISPF/PDF

Clearing system for DATEX-P
Customer: Deutsche Telekom
Trade: Telecommunications
Programming, testing.
Duration: 2 Months   (05/89 - 06/89)
Operating system: MVS
DATABASE: VSAM, CICS
Programming languages: DELTA (Cobol)

Administration software for construction projects (DB)
Customer: Deutsche Bahn
Trade: Transport / Logistics
Design and programming of an PC application
Duration: 5 Months   (12/88 - 04/88)
Operating system: MS/PC-DOS
DATABASE: dBase III+
Programming languages: CLIPPER, dBase III+
Tools: SPF/PC, Saywhat!?, R&R-Reportgenerator