Profile	**Stefan Pommerening**

Name:	Stefan Pommerening Diplom-Informatiker (Freelancer)
Address:	An der Kappe 171 B 13583 Berlin - Germany
Phone:	+49 – 1577 – 488 7117
Email:	pom@dmsp.de
Web:	https://www.dmsp.de

Education

- Diplom-Informatiker (Technische Universität Berlin), March 1991
- Diploma project in November 1990: "Routing im Message Handling System"
- IT experience / programming since 1984 – Unix systems since 1988
- Agile methodologies: Kanban, Scrum

Experience and Soft Skills

- **Senior Devops Engineer and Cloud Architect**
- **Consulting in Infrastructure Planning and Realization** (Terraform, Ansible)
- Virtualization, Dockerization & Cloud Computing (Amazon/AWS, Rackspace, Vmware ESXi, KVM / qEMU, Hetzner Cloud, VirtualBox, Vagrant, JiffyBox, Linux)
- **Kubernetes** (AWS EKS and bare metal), Docker
- AWS Services used: EC2, Elastic Container Service (ECS), EKS, Lambda, Elastic Beanstalk, S3, Glacier, RDS, DynamoDB, Elastic Cache, Amazon Redshift, Database Migration Service (DMS), VPC, CloudFront, Route53, API Gateway, CodeCommit, CloudWatch, AWS Auto Scaling, CloudFormation, CloudTrail, EMR, Data Pipeline, IAM, Certificate Manager, WAF & Shield, Simple Notification Service (SNS), Simple Queue Service (SQS), Alexa Development Platform
- Linux-based high-availability clusters (HA), Corosync, DRBD, HAProxy
- Leadership of a technical service team (data center services and installations, Siemens AG), but also experienced in working in startup companies, Consultation experience (up to C level)
- Experience in product management, system integration, system test and product line manager for IT / mobile networks (Nokia Siemens Networks)
- Able to work in a team, experienced in Scrum and Kanban
- Practical experience in multi-cultural cooperation, travel experiences (South America, India, China, Japan)
- Languages: German, English, French

Focus

- Docker, Kubernetes (AWS EKS, bare-metal, some GCE), GitOps, AWS Infrastructure Services
- Senior Devops Engineer and Cloud Architect, Consulting in Infrastructure Planning and Realization
- Debian, Ubuntu, SuSE, Red Hat, Package Building (.deb + .rpm), Administration using Puppet or Ansible, Jenkins CI, GitLab CI
- Varnish-Cache for acceleration of web applications (VCL)
(Participation 3rd Varnish User Group Meeting in Amsterdam - VUG3 - at 14./15.02.2011)
- Development and operation of internet / intranet applications
- Python / Bash / Perl / CGI / Shell / JavaScript / Java / PHP / HTML / XML / CSS / C
- TCP/IP, Routing, Firewalls (using Linux IP-Tables), email systems (Postfix, sendmail)

- Preferred regions: Berlin / Brandenburg (or remote)
  international operation depending on project and compensation

Hard Skills

Operating systems and software

- Linux (Debian, Ubuntu, SuSE / SLES, Redhat / RHEL, CentOS, Gentoo), LVM2
- Amazon Web Services / Amazon Cloud (AWS, EC2, CloudFront), Vmware ESXi, KVM / qEMU virtualization, Docker
- Vmware vCenter + Perl API
- Unix (Sun Solaris / Suncluster, HP-UX), C, X Windows
- Microsoft (Windows 7 / 8, Microsoft Office / LibreOffice)
- Oracle VirtualBox VM (Virtualization software, former: Sun VirtualBox)

Architectures

- IBM PC (compatible), Apple Mac / Xserve / Xsan, HP ProLiant
- SUN Sparc (SUN Fire 280 bis 6900 – (auch Hochverfügbarkeitscluster)
- Linux-basierte Hochverfügarkeitscluster, Corosync, DRBD, HAProxy
- Fujitsu Siemens Computers (FSC) Prime Power
- Storage Systeme, SAN, RAID, JBOD, Storage Manager, NAS, Xsan
- Network Architecture Planning / Network Security / Loadbalancing

Networking

- TCP/IP, IPv4, Routing, Firewall, Security, PPP, UUCP, SSL, SSH-Tunnel, OpenVPN
- Email / SMTP / X.400 / MHS
- Apache, Nginx, CGI, HTML, Nginx, Proxyserver / Squid, Varnish-Cache, VCL
- Ethernet Switch/Hub, Router, Verkabelung, Netzwerk Topologien, Routing
- Storage SAN, Fibrechannel, Netzwerk-Konzepte, CIFS / Samba (Smb), AFP, NAS
- ISDN, DSL / ADSL / SDSL
- Telephony / VoIP, Hicom 300 / Hicom 300E
- Monitoring: HP OpenView / ITO, Nagios, Icinga, MRTG, RRD (RRDtool), Munin

Programming

- PHP, Perl / CGI, DBI, Unix / Shell / bash / ksh / csh, C, HTML / DHTML / CSS / XML, Java / JavaScript, AJAX, Web 2.0, VCL, RPM, Subversion / svn, Puppet manifests and providers, Ansible, Terraform
- SQL, LSL, XML-RPC, Mono

Databases

- MySQL / MariaDB / Percona, Oracle, Informix, PostgreSQL

List of tasks performed, and projects carried out

Period: 2018-06 – 2019-09

Senior Devops Engineer / Cloud Architect @ Geeny (IoT Startup, Telefónica NEXT)

Geeny is an IoT platform that brings together a community of businesses with IoT solutions to improve the consumer experience through interoperability. Once an IoT device is connected to the Geeny platform, application providers can start consuming the data provided by the device to create innovative use cases.

- Backing of a Security Assessment of the AWS infrastructure (DevSecOps)
- Introduction of AWS based Kubernetes clusters (EKS), GitOps, Backup/Restore
- Introduction of Gitlab CI/CD pipelines for Kubernetes deployments to multiple clusters
- Introduction of AWX (Ansible Tower) for regular deployments

Period: 2018-02 – 2018-05

Senior Devops / Cloud Architect @ Audibene (Hearing Aids – hear.com)

Audibene / hear.com is an internationally operating audiology company.

- Many projects were to be moved between different AWS accounts while daily business must not be interrupted although different projects are heavily depending on each other.
- Manually configured setups should be coded in Terraform for multiple environments
- AWS services used during this project: EC2, Lambda, Elastic Beanstalk, S3, RDS, DynamoDB, Elastic Cache, Database Migration Service (DMS), VPC, CloudFront, Route53, API Gateway, CloudWatch, AWS Auto Scaling, CloudFormation, CloudTrail, Data Pipeline, IAM, Certificate Manager, WAF & Shield, Simple Notification Service (SNS), Simple Queue Service (SQS)

Period: 2017-10 – 2018-01

Senior Devops Engineer / Cloud Architect @ Geeny (IoT Startup, Telefónica NEXT)

Geeny is an IoT platform that brings together a community of businesses with IoT solutions to improve the consumer experience through interoperability. Once an IoT device is connected to the Geeny platform, application providers can start consuming the data provided by the device to create innovative use cases.

- AWS based Docker platform administered by CloudFormation and later Terraform
- The initial Terraform code was risky and should be migrated into a better maintainable form
- Setup of a Hashicorp Vault cluster with Consul-based high availability backend storage
- Training of the development team on how to use Vault for Docker environments

Period: 2016-10 – 2017-09

Senior Devops / Cloud Architect @ Quandoo (Internet Startup, reservation platform)

Quandoo provides diners with the easiest way to find and reserve restaurants and restaurateurs with a powerful tool to drive utilisation, win new customers and engage with their existing guests.

- Debian linux servers in AWS and local Vmware
- Converting the Puppet based administration to Ansible
- Development support and Continuous Integration using Jenkins CI
- Setup of a SolrCloud with seperate Zookeeper ensemble in Staging and Production
- Further technologies: Docker, Gradle, AWS S3, EC2, VPC, Route 53, IAM, CloudFront

Period: 2013-10 – 2016-09

Senior Systemadministrator @ Vodafone Kabel Deutschland GmbH (ISP, TV)

Support in Administration of a larger server environment (> 1,500 virtual machines, ESXi-based / Vmware). Vodafone Kabel Deutschland is a large cable tv and internet service provider in Germany.

- Suse Linux Server, SLES 10/11
- Realization of a local backup and restore procedure for physical servers (HP ProLiant)
- Implementation of a custom Puppet Type Provider in Ruby for monitoring with Argent.
- Implementation of a web-based bulk VM creator tool using Storage Pools (SDRS) and based on Vmware Perl SDK for ESXi / vCenter.
- RPM Building auf SLES Linux
- Installation of Linux servers (virtual and physical) using Puppet 2 and/or Puppet 3.

Period: 2013-04 – 2013-09

DevOps @ Ampya (Internet startup, Music Streaming / Media)

Setup of a complete integration system for testing the full web presence using automatic deployment from Jenkins. The setup was established using KVM / qEMU virtualization on three physical servers and VPN connectivity. Other tasks included an automatic content backport from the company's live system to the integration system for testing purposes, setup of a monitoring solution using Icinga/Nagios and logfile analysis (for development use) with graylog2 on top of elasticsearch. Also a migration of different puppet environments (live system / integration / development) in one single puppet environment was done. Ampya is a music streaming platform of Magic Internet Musik GmbH (Pro7Sat1 Digital).

- CentOS 6.3/6.4, KVM / qEMU Virtualization, Building RPM Packages, Jenkins Jobs (Scripts)
- VPN over PPP, iptables (Firewall), LVM2, Symfony, eZ Publish
- Varnish-Cache, Nginx, PHP-FPM, Solr 3 / Solr 4, MySQL, bash Scripting, Puppet Manifests
- Monitoring, Nagios / Icinga, PNP4Nagios, Git, Deployment mit Rexx
- Logfile Analysis (Graylog2 + elasticsearch)

Period: 2012-11 – 2013-03

Senior System Administrator @ Tirendo (Internet startup, Car Tires Online Sales)

Take over of the entire externally hosted server environment of the young company. Maintenance, development and migration of the server environment consisting of both physical and virtual servers in different locations.

- Debian Linux 6.0 „Squeeze", Building Debian Packages (Third Party Debian Repository)
- DRBD, High Availabilty & Failover, Heartbeat, OpenVPN, iptables (Firewall)
- Apache, Nginx, Tomcat, MySQL (Percona), PHP5, bash Scripting, puppet manifests
- Rackspace / Cloud / Managed Virtualization, Amazon Web Services / S3 (s3fs)
- Monitoring, Nagios / Icinga, PNP4Nagios, Subversion / svn, Deployment, Dirvish (Backup)
- Logfile Analysis (rsyslogd, Loggly, Graylog2 + elasticsearch), Munin, Cacti

Period: 2012-05 – 2012-10

Senior System Administrator @ Project A Ventures („Startup Builder" / Incubator)

Various tasks in the context of a young Internet startup (Incubator), particularly improving the redundancy and availability of the server environment for a number of Project A Ventures supervised individual projects (examples: Kochzauber.de, Wine-in-Black.de, ...)

- Debian Linux 6.0 „Squeeze", Building Debian Packages (Third Party Debian Repository)
- DRBD (Distributed Replicated Block Device, „Network-based Raid-1")
- High Availability / Failover Linux Clusters (HA) using Corosync, Pacemaker, HAproxy
- Yves/Zed Framework, pound (SSL-Offloading)

- Apache, Nginx, MySQL (Percona), PHP5, bash Scripting, puppet manifests
- Varnish-Cache, Realisierung Varnish Monitoring using Custom Nagios-Plugins
- VMware ESXi / vSphere
- Nagios, Icinga, PNP4Nagios, NoMa, Subversion / svn, Deployment
- Programming of a „Skype bot" for use in automatic deployment processes (PHP5, DBus)

Period: 2011-11 – 2012-04

Senior System Administrator @ Glossybox (Internet startup, cosmetics)

Architecture planning and building the server environment of the young internet startup in Berlin (Beauty Trend Holding GmbH Brand: GLOSSYBOX) in an international environment (Rocket Internet).
The environment used Debian Linux 6.0 (64-bit) systems, Magento, Apache, PHP5, Nginx (as a web server and as a caching solution), MySQL in different forms (replication), WordPress, Joomla. For accelerating and stabilizing the web farm for high traffic situations (promotions, TV appearances) two redundant Varnish caches were installed. Relocation of servers in different regions of the Amazon Cloud (AWS Amazon Web Services EC2 AMI transfer, CloudFront). For monitoring and alerting Nagios / Icinga and Munin were used. Management of domain administration and PCI certification.

- Debian Linux 6.0 „Squeeze", physical servers (HP ProLiant), HDS Storage (NFS)
- Magento, WordPress, Joomla
- Apache, Nginx, MySQL, PHP5, bash Scripting, dsh (distributed shell)
- Varnish-Cache Installation / Configuration & Monitoring
- Virtualization using Amazon Web Services (AWS, EC2, CloudFront), intern: VMware ESX / vSphere, Test systeme: JiffyBox(en)
- Nagios, Icinga, Munin, Subversion / svn, Deployment, Dirvish remote backup

Period: 2011-07 - 2011-10

Operational support in printed media environment (Publishing)

Administrat and monitoring of various IT systems for stable operation in the printed media environment (ZS Betrieb, Axel Springer AG, Hamburg). These included Solaris-based systems on Sun / Oracle and HP hardware, Linux systems (Red Hat, Debian), Windows Server and Apple OS X client systems. The tasks also included the support of the team leader at various organizational tasks such as Storage billing and licensing surveys. Part of the task was the creation of operational concepts, planning and implementation of a graphical monitoring for trend analysis and the monitoring of complex networks. Printed media environments are always very time-critical.

- Solaris, Linux, Windows Server, Apple OS X 10.5/10.6/10.7
- Helios Fileserver (UB2), WoodWing, Fotostation 3
- Storagesysteme (SAN), NAS-Filer (z.B. NDL-21200R, MSA-2100)

Period: 2010-10 - 2011-06

Support in Project „CMS Regelreleases" (Varnish-Cache consultancy)

The T-Online department „portal development" (German Telekom AG, department: Products and Innovation) operates multiple farms of Varnish Cache servers as reverse proxies for access acceleration and backend protection (Apache, Tomcat, CoreMedia, databases). Varnish configurations (VCL) were optimized to further accelerate page delivery. T-Online.de is one of the Top 1000 sites in the world (regarding traffic rank). Another task was to develop a transparent varnish cache monitoring tool which was based on RRD tool.

- Varnish-Cache, VCL, HTTP-Accelerator, Apache, Tomcat, RRDtool
- Linux (Debian, Red Hat, SuSE / SLES), RPM building (SPECS), Deployment

Period: in 2010-10

Software maintenance and update in online publishing business

It was requested to update and expand the agency server I installed lately at Axel Springer AG in Berlin (Customer: Bild.de). In addition, support was requested in developing a backup preparation tool for an image archive system (Visono).

- Agency server: Red Hat Linux, PHP, Perl, MySQL, IPTC7901
- Backup-Preparation-Tool: SuSE Linux, Perl, MySQL, TSM (Tivoli)

Period: in 2010-09

Ubuntu Training: Server Installation & Administation

I prepared and carried out a practical Linux installation training (Ubuntu, virtualized and physical) for company „Ludwig-IT" including „hands-on".

- Installation of operating system (Ubuntu-Linux)
- Differences Ubuntu / Debian
- Harddisk layout / strategies, RAID, LVM
- Kernel compilation and configuration, use of grub
- Mailserver Dovecot / Courier / Exim / Postfix
- ProFTPd, PureFTP
- Apache, MySQL, PHP, Squid, Varnish-Cache
- SysCP for easy administration, installation, configuration
- Data backup (example: LVM snapshot backup of root partition)
- Backup strategies for MySQL databases

Period: 2009-10 - 2010-06

System Manager in Online business (Publishing)

Support of existing and development of new systems (system design, installation, programming and delivery of care / maintenance to the standby team) in the vicinity of the Axel Springer Verlag AG (Axel Springer Media Systems). Main customer was bild.de: The tasks also included the level-2 standby for bild.de and other online products of the Axel Springer AG.

- Solaris, Linux (RHEL, SuSE), Apple OS/X, Xserve, Xsan
- Customer Advice and requirements definition for new systems
- System design, Installation, programming
- Shell scripting, Perl, PHP, AJAX, MySQL, Oracle
- Installation of a specialized SFTP / FTP server in the DMZ of Axel Springer AG used for the delivery of video content for bild.de / world-online.de / morgenpost.de and others
(ReutersG3 automation)
- Development of an agency server for the online editorial of bild.de in virtualized environment
- Administration of the full video workflow of Axel Springer AG and customer advice regarding the further development (i.e. Signiant)
- Redeployment of Solaris-based systems in virutalized environments
- Training a new employee

Period: 2006-04 – 2009-09

Produkt Manager Service & System Integration

Self-responsible and independent execution of services according description, and specifically designated assessable / measurable results. Synchronization and re-target definition with the product line director for unexpected problems that may prevent on-time performance.

Services - Overview:
- Independent and responsible job as a Product Manager Service
-
- Verantwortung über den gesamten Produkt Lifecycle

- Responsibility throughout the product lifecycle
- Expenditure estimation Product Introdution Service (incl. controlling)
- Review of & ensure the serviceability of new products
- Planning of capability packages as part of the product
- Ensure the timely service enabling for TAC-2/TAC-3
- Definition and provision of the service concept
- Adaptation of service processes as needed
- Definition of basic data for calculation BUILD NETWORK & MAINTENANCE
- Control of the internal document review service
- Assessment and reporting of product quality before milestones (esp. B130, B200, B600, B700) in respect of milestone acceptance by the service department.
- Participation in product planning meetings and representing the interests of service.

Period: 2006-03

DSL-Router Hardware RollOut for Lottozentrale Berlin/Brandenburg

Product rollout of DSL and GPRS routers in lottery shops for Telefonica.

Period: 2005-05 - 2006-02

Advised an Internet startup company

An Internet startup company needs web server and online shopping technologies for distribution via the Internet.

The startup company needs a full realization of his ideas on the web. This includes setting up an FTP server, Apache Web server, mail server. A MySQL database is used, the web interface in programmed using PHP. For communication a Domino server is installed on Linux to facilitate the replication of various IBM Lotus Notes clients (office and home office). Simultaneously, the founder is intensively looked after in the first months of management and particularly in various promotional activities (advertisements, flyers, etc). For consultation work included inter alia JourFixe regular spot, canvassing international B2B contacts (especially towards the U.S.), realignment of the business model of photo and video content, organization and conduct of trade fairs including preparation, interviewing and editing.

- FTP, Email
- Apache web service
- MySQL data base
- PHP, Perl, Shell scripts, ImageMagick
- SUN Solaris
- SuSE Linux
- IBM Lotus Notes / Domino
- Management
- Onlineshop / Advertising / B2B Sales

Period: 2004-08 - 2005-05

Consulting a construction company regarding the use of Internet technologies

Advising a construction company in the decision for individual Internet technologies

A construction company had been using no Internet technologies at all. The advice turned out to be an extensive training program.

- Internet technologies in general
- Routing, Firewall, Networking

- TCP/IP, DSL
- Apache web service
- Email / SMTP / POP3 / IMAP
- Linux / Windows / file server
- project planning

Zeitraum: 2003-10 - 2004-07

Project / Interim Management:
Managing an office in the data center operation

Interim management in the task of installation testing and system administration of Solaris-based systems for Siemens Mobile.

Caused by a reorganization Siemens was looking for a responsible person as a team leader for a department consisting of six employees. Being an external employee I was given only the professional responsibility. The tasks were: Network planning and rewiring a data center with about 1600 square meters (no outage!), installation of about 20 new machines (hardware and software, including three Sun Fire 880 cluster and two Prime Power 900 cluster) and introduction of a new backup-restore concept.

- SUN Fire V120
- SUN Fire 280 to 6800
- FSC Primepower 900 Cluster
- SUN Solaris
- Oracle 8i / 9i
- Perl / Shell / scripts
- Support
- Data center management / operations, climate control, room planning, etc.
- Project planning
- Leadership

Period: 2001-11 - 2003-09

Installation testing and system administration of Solaris-based systems

Installation testing and system administration of Solaris-based systems for Siemens Mobile

As part of the installation tests SUN Sparc systems (SUN Fire V120, 280-6800) were completely re-installed, including new application layer. Many systems were high availabilty clusters (SUN Fire V880, 6800, FSC Prime Power 2000). The task also included the care and support of application developers and testers (System Manager), eg in the context of Oracle 8i or 9i. It was also required to install patches and updates (OS and applications such as Oracle upgrades).

- SUN Fire V120
- SUN Fire 280 to 6800
- FSC PrimePower 2000
- SUN Solaris
- Oracle 8i / 9i
- Perl / Shell / scripts

Period: 2001-10 - 2001-11

Responsible for intranet site of the Training Department

Responsible for intranet site of the Training Department.

Create a clear site for the training activities.

- Java / CORBA / HTML / Perl

Period: 1999-12 - 2001-09

Project: Implementation of a Web application with database connection in Unixware environment

Implementation of a Web application for the control of a diagnostic tool with database connection on Telco Platform in Unixware environment (with consulting work for Internet Technologies)

A web interface for a diagnostic tool on a Telco Platform under Unixware was required. This surface used an Informix database for data storage. Moreover Java / JavaScript / Perl / HTML was used for the web interface itself. My job was the coding and managing a team of three developers (project planning and reporting).

- Unixware 7
- Apache Web server
- Java / JavaScript / Perl / HTML
- Leadership, project planning, reporting

Period: 1999-07 - 1999-12

Project Leader System Test of a telco service feature for the CIS

Project Leader System Test of a telecommunications service feature for the CIS in an international project (Austria / Germany), with frequent travels to Vienna.

A feature developed in Austria facility should be tested by the system test. Because of the direct cooperation with the developers frequent trips to Vienna were necessary.

- Hicom 300 / Hicom 300E
- Windows NT
- Project Leadership

Perl: 1999-01 - 1999-06

Development of an online shopping solution in Perl

Programming of a variable-purpose online shops in Perl on SUN Solaris and Linux.

An online shop system should be programmed in Perl, which offers the possibility to use several different online shops with the same software in parallel. For this, a file-based database was used. Part of the software was created in the C programming language and compiled on the target system.

- Linux (Intel) / SUN Solaris (Sparc)
- Apache Web server
- HTML
- Perl

Period: 1998-08 - 1998-12

Intranet Editor Team

A common produdure for the whole of Siemens location in Berlin should be found and uniformly presented in the intranet.

The activity consisted mainly of advising. The many heterogeneous server systems and small island solutions needed to be restructured. Common guidelines needed to be found which allow a clear corporate image without too much regulation.

- PC / SCSI
- Linux / Windows / HP/UX / Solaris
- Apache Web server and others
- HTML
- PPP
- TCP/IP

Period: 1997-01 - 1998-07

Installation and operation of an intranet server

Installation and operation of a Linux server based on a PC with multiple external SCSI hard drives as file servers and intranet servers (Web server). Implementation of a full-text search tool on the file server using glympse. Development of a web spider and a search engine for the intranet in the scripting language Perl. Maintenance of the intranet pages of the International market Hicom 300 / 300E Hicom (test support) ..

To find new ways of cooperation within the department, a Linux server was installed as a common file server. To search the entire database for specific individual keywords a glympse search engine was installed and configured. In addition, a simple intranet Spider in Perl has been programmed. This spider stored keywords and links found in a database. A simple search engine was working on this database. For provision of major documents for the international market introduction a web server was provided.

- PC / SCSI
- Linux
- Samba
- Apache Web server
- Perl
- Glympse
- TCP/IP, Modems, ISDN, PPP/SLIP

Period: 1994-09 - 1996-12

System Integration Test:
International Market Introduction Hicom 300 / Hicom 300E

Establishment of complete test documentation for system integration tests for several international launches of the standard scope of services of the Hicom 300 / 300E Hicom, execution of test activities, and project coordination for test activities on the ground in the country, several short domestic and foreign travel.

For the sales release of the standard software options in the international market by extensive quality assurance measures in the form of system integration tests were required. The task was the extensive documentation creation, and the implementation of testing activities in the test lab in Berlin, largely

implemented by a service from local companies. Just as the care of the foreign service also isolated a site visit was necessary.

- Hicom 300 / Hicom 300E
- ISDN
- HP/UX
- PC

Zeitraum: 1993-10 - 1994-08

System Test for Chinese Signaling No.7
(Project Assistant: work abroad Beijing, PRChina: 1 month)

Establishment of complete test documentation for system test for Chinese No.7 Signaling implementation, the previous test activities as well as coordination and support of the required on-site acceptance tests.

Chinese No.7 signaling protocol is a fully digital telephone switching equipment to network with each other. As part of the international No.7 introduction was a new product for the field test site in China prepared and implemented a formal acceptance test in Beijing. In this project I was from 06/26/1994 to 07/26/1996 in Beijing, China. The acceptance test was passed after negotiations with conditions. The lots involved in the project were from Germany, USA, Turkey and China. Such a distribution of the different time zones enabled us for the immediate implementation of requirements from the last test result, so that normally the next day of the acceptance test, an updated software version was available.

- Hicom 300
- No.7 Signaling
- ISDN
- HP/UX
- PC / Modem

Period: 1992-10 - 1993-09

Integration Test for 7 Digit Numbering

Establishment of complete test documentation for system integration testing for 7-digit numbers (Chinese feature of the Hicom 300). Preparation of all test activities in Berlin, execution of test activities in Berlin and then Munich - partly together or with the support of the developers.

For use as the PBX Hicom 300 needed to plan an expansion of the number 7 digits. The entire, normal performance characteristic of the Hicom 300 had to be extended from six to a maximum before reaching 7-digit phone numbers. As an additional, new feature of the Release Control was first tested on this scale. The tests took place both in Berlin and in Munich.

- Hicom 300
- ISDN
- HP/UX & PC

Period: 1991-04 - 1992-09

Development and implementation of a graphical interface on Apollo / HP

Develop and implement a graphical user interface for a real test environment on HP-Apollo workstation (Apollo / OS) with Sigraph Diatools, later X-Windows.

Converting an existing interface test tools on a Window System to HP-Apollo workstation with the aid of Sigraph Diatools. Test the graphical user interface with developers (users of the test tools). Adding other functionality to customer requirements. Later on further implementation of the surface on X-Windows. Creation of an implementation description. Establishment of complete instructions and documentation for the interface.

- HP Apollo
- Apollo/OS
- Sigraph Diatools
- SUN Workstation / X-Terminals
- X-Windows