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Department of Computer Engineering

**COM 299 Industrial Training I
Report**

Mehmet Ali TEPELI

**All-for-One Steeb AG
Gottlieb Manz Str. 1, D 70794 Filderstadt-
Bernhausen-Germany**

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Confirmation

Mehmet Ali Tepeli
Student

Ümüt Parlar
Industrial Training Supervisor
Computer Engineer

Arzum Karatas
Assistant

Yavuz İnce
Industrial Training Assistant

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Abstract

I completed my internship at All-for-One Steeb AG. This firm is at Stuttgart, Germany. The firm has different vendors Bensheim, Dortmund, Frankfurt, Hamburg, Karlsruhe, Munich, Weingarten, Berlin, Düsseldorf, Heilbronn, Memmingen, Stuttgart, Brussels, Regensdorf, St. Gallen, Luxembourg, Wien. Center is at Stuttgart, Filderstadt.

The firm has many departments which names are CoA (Cloud and Office Applications), Operating Systems, Infrastructure, SAP Basis, SAP Application, Development, Networks. I worked at CoA, SAP Basis, Development, Networks.

1. Introduction

I completed my internship at Stuttgart, Germany. The firm's name is All-for-One Steeb AG. This firm serves SAP Services. But firm has different departments Networks, SAP, Cloud An Office Applications, SAP Development, Service Desk, Operating Systems, Infrastructure. Firm has two datacenters at Frankfurt. I visited there and I worked too. I worked different departments because internship students in Germany must work different departments in firms.

First week, I worked Cloud An Office Applications. We configured Exchange 2010 Services on a Server which belongs to one of the customer with my colleague Alexander Beck. Then we installed software in a Customer Citrix Farm.

At the end of the first week, we configured a SmartHost for an SMTP Server. We had small team meeting. I prepared my presentation, it was my task for this department.

Second week I worked at SAP Development. It is programming department for SAP. I worked with Rosenauer Hansgeorg who is the teamleader of this department.

First two days I improved myself on ABAP Workbench. Then I did some Abap Applications. I presented my task and completed successfully.

Third and fourth week I worked at Networks Department. I worked with Gero Beck who is the teamleader of this department.

First week Gero Beck gave some informations about General Network Design. That was the most fructuous weeks for me. I configured real switches and routers on Cisco Packet Tracer and GNS3. I went to Frankfurt with Network Team and Operating Systems' teamleader for visiting datacenters and cabling in there. We did some applications on Wireshark about packages.

At the end of the week I presented my project which is about Site-to-Site IP Sec VPN.

Fifth week I worked at SAP Basis Department. I worked with Ümüt Parlar and Mustafa Dönmez.

First two days learned how to install SAP System on a PC. Ümüt Parlar gave some general informations about Databases (Max DB, HANA, MS-SQL, DB2, Sybase), technical structure of Oracle 11.2, Backup, Recovery, Point in Time Recovery.

I worked with Mustafa Dönmez about Database Architecture and Using Max DB and Oracle on SAP System.

At the end of the we used and configured SAP GUI.

2. Company Information

All-for-One Steeb AG has vendors all over the Germany and Europe. Bensheim, Berlin, Dortmund, Frankfurt, Düsseldorf, Hamburg, Heilbronn, Memmingen, Munich, Karlsruhe, Stuttgart, Brussels, Regensburg, St. Gallen, Wien, Luxembourg vendors are at different regions of Europe.

All-for-One has over 1000 employees at different places. At the above you see that they work at Stuttgart.

6 Network

10 Cloud Services

6 Infrastructure

43 SAP Technology

40 SAP Project

90 Development

12 Operating Systems

200 Consultants

Service Managers (Key Account Manager).

All-for-One provides SAP Services for companies. SAP Basis Department uses different Databases. They use and provide Max-DB, MS-SQL, HANA databases.

SAP Development Department uses JAVA and ABAP Programming Environment. But they prefer ABAP rather than JAVA. Because JAVA has performance issues. JAVA is not ready for SAP yet.

But the main area of the firm is SAP Services. However they also provide Network, Cloud Services, Operating Systems. These services work coordinately with SAP Departments.

All-for-One Steeb AG Stuttgart is the biggest company of the Baden-Württemberg state for its sector. Endorsement of the firm is 186,3 Mio and Profit of the firm is 13,7 Mio per annum.

2.1. Supervisor Information

Ümüt Parlar ,Informatics Department at Stuttgart University ‘1996’.His professions are Cisco Engineering, Network Design, Networking

He is working at SAP Basis Department. He knows concepts of databases and designs of MS-SQL, Oracle Database, HANA.

umut.parlar@all-for-one.com

Gottlieb-Manz Str. 1, 70794 Filderstadt-Bernhausen, Germany.(+49 711 788 07 488)

2.2. Training Team Members Information

1-Alexander Beck

He graduated Informatics Department at Stuttgart University ‘2000’.

His professions are Remote Desktop, Exchange Server 2010, Citrix Xen App.

2-Rosenauer Hansgeorg

He graduated Informatics Department at Stuttgart University ‘1999’.

His professions are Software Engineering. ABAP, C, Eclipse Java Server Faces.

He works All-for-One Steeb AG since it opens.

3-Ümüt Parlar

He graduated Informatics Department at Stuttgart University ‘1996’.

His professions are Cisco Engineering, Network Consultant. He works SAP Basis Department.Oracle,MS-SQL,DB2,Sybase,Max-DB.

4-Gero Beck

He graduated Informatics Department at Stuttgart University ‘2001’.

He worked at Alcatel. He works there since 2 years.

His professions are Cisco Engineering.GNS3,Cisco Packet Tracer, Network Design

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3. Training Work

I have done different main projects due to I worked different department.

I configured Citrix Farm and I installed a program which name was Personal Office at Cloud an Office Application Department.

I configured Cisco Routers and Switches at Network Department. My main project is that department is Site-to-Site Security VPN at the end of the week.

I did some ABAP applications at Development Department. Mr. Roseanauer gave me a project which is about Personal Stuff and their Salaries. The procedure is I must use inheritance on that project.

At SAP Basis Department they gave me general information about SAP, and Databases Architecture, Introduction to SAP Clients, Transport Management System, Transaction Codes. An Installation NetWeaver AS ABAP 7.03 Version of PC.

3.1. Main Project

My main project at Network Department is Site-to-Site IP Security VPN. Before I did this project I take courses from Gero Beck, Martin Feurer, Ümüt Parlar, Michael Mamelow ten days. I finished this project 4 days.

A virtual private network (VPN) extends a private network across a public network, such as the Internet. It enables a computer to send and receive data across shared or public networks as if it were directly connected to the private network, while benefiting from the functionality, security and management policies of the private network.

First I found some VPN samples on Internet. I draw my VPN to Visio. Then I started the configuration based on GNS3.

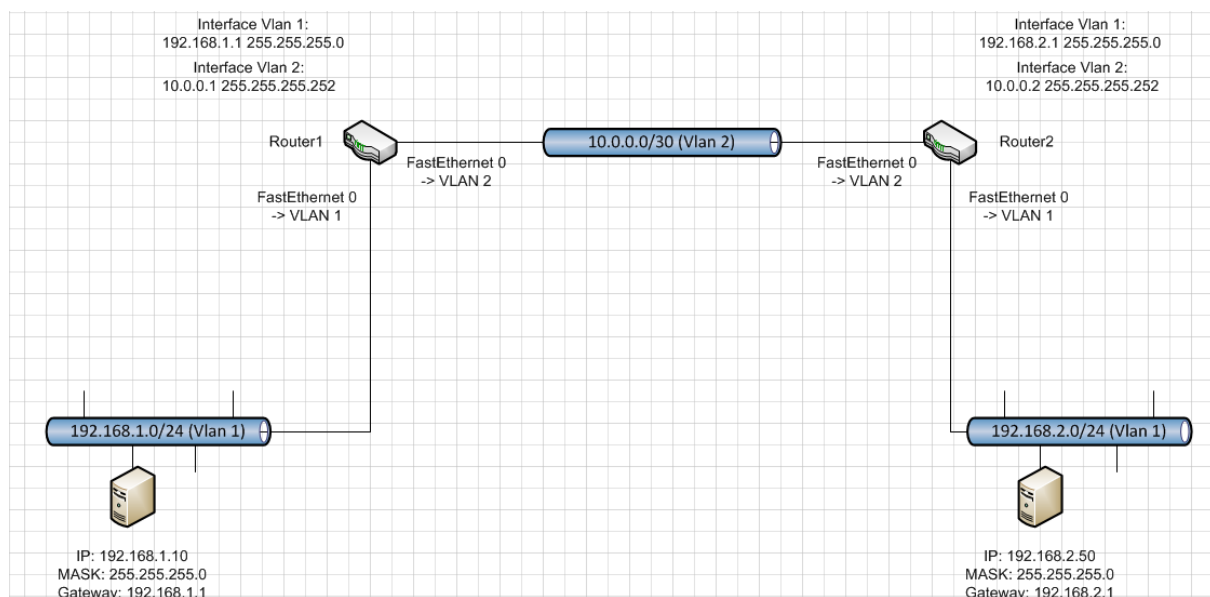


Figure 1: My technic drawing VPN Connection based on MS-Visio

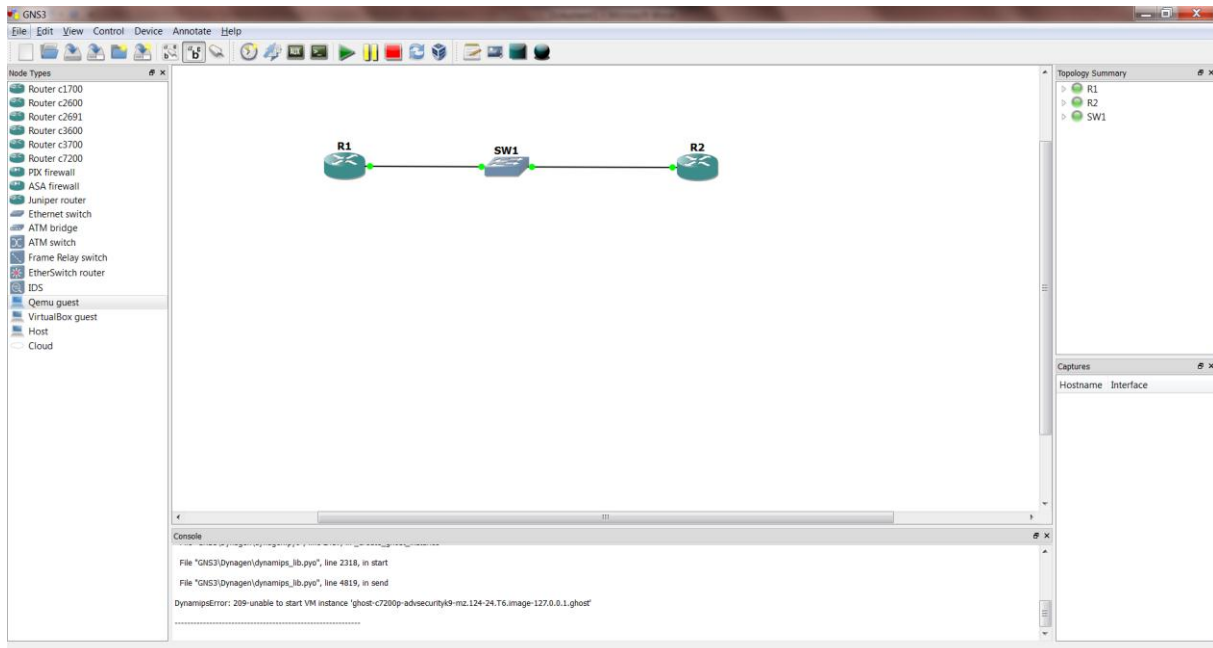


Figure 2: VPN Connection based on GNS3

Here is some important part of my project.

Router1

crypto isakmp policy 1

hash md5

authentication pre-share

crypto isakmp key cisco123 address 10.0.0.2

!

!

crypto ipsec transform-set RouterIPSEC esp-des esp-md5-hmac

!

crypto map toRouter2 1 ipsec-isakmp

set peer 10.0.0.2

set transform-set RouterIPSEC

match address 100

protected vrf:

local ident (addr/mask/prot/port): (192.168.1.0/255.255.255.0/0/0)

remote ident (addr/mask/prot/port): (192.168.2.0/255.255.255.0/0/0)

inbound esp sas:

spi: 0x70EDD016(1894633494)

transform: esp-des esp-md5-hmac ,

Above scheme is about for configuration procedures about Router 1. Firstly I encrypted Router1. For security. Then I defined IP address gap for users.

Router2

```
crypto isakmp policy 1
hash md5
authentication pre-share
crypto isakmp key cisco123 address 10.0.0.1
!
!
crypto ipsec transform-set RouterIPSEC esp-des esp-md5-hmac
!
crypto map toRouter1 1 ipsec-isakmp
set peer 10.0.0.1
set transform-set RouterIPSEC

local ident (addr/mask/prot/port): (192.168.2.0/255.255.255.0/0/0)
remote ident (addr/mask/prot/port): (192.168.1.0/255.255.255.0/0/0)
```

This configuration procedure about for Router2. First I encrypted router for security. Then I gave the IP gap for users who wants to connect.

Router 1

```

R1
router1#sh crypto ipsec
router1#sh crypto ipsec sa
router1#sh crypto ipsec sa

interface: FastEthernet0/0
  Crypto map tag: toRouter2, local addr. 10.0.0.1

protected vrf:
local ident (addr/mask/prot/port): (192.168.1.0/255.255.255.0/0/0)
remote ident (addr/mask/prot/port): (192.168.2.0/255.255.255.0/0/0)
current_peer: 10.0.0.2:500
  PERMIT, flags=(origin_is_acl,)
  #pkts encaps: 4, #pkts encrypt: 4, #pkts digest 4
  #pkts decaps: 9, #pkts decrypt: 9, #pkts verify 9
  #pkts compressed: 0, #pkts decompressed: 0
  #pkts not compressed: 0, #pkts compr. failed: 0
  #pkts not decompressed: 0, #pkts decompress failed: 0
  #send errors 1, #recv errors 0

local crypto endpt.: 10.0.0.1, remote crypto endpt.: 10.0.0.2
path mtu 1500, ip mtu 1500, ip mtu idb FastEthernet0/0
current outbound spi: 41921883

inbound esp sas:
  spi: 0x70EED016(1894633494)
    transform: esp-des esp-md5-hmac ,
    in use settings = (Tunnel, )
    slot: 0, conn id: 2000, flow id: 1, crypto map: toRouter2
    sa timing: remaining key lifetime (k/sec): (4398679/2795)
    IV size: 8 bytes
    replay detection support: Y

inbound ah sas:

inbound pcp sas:

outbound esp sas:
  spi: 0x41921883(1100093571)
    transform: esp-des esp-md5-hmac ,
    in use settings = (Tunnel, )
    slot: 0, conn id: 2001, flow id: 2, crypto map: toRouter2
    sa timing: remaining key lifetime (k/sec): (4398680/2792)
    IV size: 8 bytes
    replay detection support: Y

outbound ah sas:

outbound pcp sas:
router1#
    
```

Figure 3: Router 1 A Configured

```

R1
router1#sh crypto ipsec
router1#sh crypto ipsec sa
router1#sh crypto ipsec sa

interface: FastEthernet0/0
  Crypto map tag: toRouter2, local addr. 10.0.0.1

protected vrf:
local ident (addr/mask/prot/port): (192.168.1.0/255.255.255.0/0/0)
remote ident (addr/mask/prot/port): (192.168.2.0/255.255.255.0/0/0)
current_peer: 10.0.0.2:500
  PERMIT, flags=(origin_is_acl,)
  #pkts encaps: 4, #pkts encrypt: 4, #pkts digest 4
  #pkts decaps: 9, #pkts decrypt: 9, #pkts verify 9
  #pkts compressed: 0, #pkts decompressed: 0
  #pkts not compressed: 0, #pkts compr. failed: 0
  #pkts not decompressed: 0, #pkts decompress failed: 0
  #send errors 1, #recv errors 0

local crypto endpt.: 10.0.0.1, remote crypto endpt.: 10.0.0.2
path mtu 1500, ip mtu 1500, ip mtu idb FastEthernet0/0
current outbound spi: 41921883

inbound esp sas:
  spi: 0x70EED016(1894633494)
    transform: esp-des esp-md5-hmac ,
    in use settings = (Tunnel, )
    slot: 0, conn id: 2000, flow id: 1, crypto map: toRouter2
    sa timing: remaining key lifetime (k/sec): (4398679/2795)
    IV size: 8 bytes
    replay detection support: Y

inbound ah sas:

inbound pcp sas:

outbound esp sas:
  spi: 0x41921883(1100093571)
    transform: esp-des esp-md5-hmac ,
    in use settings = (Tunnel, )
    slot: 0, conn id: 2001, flow id: 2, crypto map: toRouter2
    sa timing: remaining key lifetime (k/sec): (4398680/2792)
    IV size: 8 bytes
    replay detection support: Y

outbound ah sas:

outbound pcp sas:
router1#
    
```

Figure 4: Router 1 A VPN is set it up.

Router 2

```
R2
10.0.0.2      10.0.0.1      QM_IDLE      1      0
router2#
router2#sh crypto ipsec sa
interface FastEthernet0/0
 crypto map tag: toRouter1, local addr. 10.0.0.2
 protected vrf:
 local ident (addr/mask/prot/port): (192.168.2.0/255.255.255.0/0/0)
 remote ident (addr/mask/prot/port): (192.168.1.0/255.255.255.0/0/0)
 current_peer: 10.0.0.1:500
 PERMIT, flags=(origin is acl,)
 #pkts encaps: 9, #pkts encrypt: 9, #pkts digest 9
 #pkts decaps: 4, #pkts decrypt: 4, #pkts verify 4
 #pkts compressed: 0, #pkts decompressed: 0
 #pkts not compressed: 0, #pkts compr. failed: 0
 #pkts not decompressed: 0, #pkts decompress failed: 0
 #send errors 0, #recv errors 0

 local crypto endpt.: 10.0.0.2, remote crypto endpt.: 10.0.0.1
 path mtu 1500, ip mtu 1500, ip mtu idb FastEthernet0/0
 current outbound spi: 70EDD016

 inbound esp sas:
 spi: 0x41921883(1100093571)
 transform: esp-des esp-md5-hmac ,
 in use settings =(Tunnel, )
 slot: 0, conn id: 2000, flow_id: 1, crypto map: toRouter1
 sa timing: remaining key lifetime (k/sec): (4439085/2639)
 IV size: 8 bytes
 replay detection support: Y

 inbound ah sas:

 inbound pcp sas:

 outbound esp sas:
 spi: 0x70E0016(1894633494)
 transform: esp-des esp-md5-hmac ,
 in use settings =(Tunnel, )
 slot: 0, conn id: 2001, flow_id: 2, crypto map: toRouter1
 sa timing: remaining key lifetime (k/sec): (4439084/2637)
 IV size: 8 bytes
 replay detection support: Y

 outbound ah sas:

 outbound pcp sas:
router2#
```

Figure 5: Router 2 ,Configured

```
R2
router2#
router2#sh run
router2#
router2#
router2#
router2#
router2#
router2#
router2#sh crypto ipsec sa
interface FastEthernet0/0
 crypto map tag: toRouter1, local addr. 10.0.0.2
 protected vrf:
 local ident (addr/mask/prot/port): (192.168.2.0/255.255.255.0/0/0)
 remote ident (addr/mask/prot/port): (192.168.1.0/255.255.255.0/0/0)
 current_peer: 10.0.0.1:500
 PERMIT, flags=(origin is acl,)
 #pkts encaps: 9, #pkts encrypt: 9, #pkts digest 9
 #pkts decaps: 4, #pkts decrypt: 4, #pkts verify 4
 #pkts compressed: 0, #pkts decompressed: 0
 #pkts not compressed: 0, #pkts compr. failed: 0
 #pkts not decompressed: 0, #pkts decompress failed: 0
 #send errors 0, #recv errors 0

 local crypto endpt.: 10.0.0.2, remote crypto endpt.: 10.0.0.1
 path mtu 1500, ip mtu 1500, ip mtu idb FastEthernet0/0
 current outbound spi: 70EDD016

 inbound esp sas:
 spi: 0x41921883(1100093571)
 transform: esp-des esp-md5-hmac ,

router2#
router2#
router2#
router2#
router2#
router2#
router2#
router2#
router2#
router2#
router2#sh crypto isakmp sa
dst      src      state      conn-id slot
10.0.0.2 10.0.0.1 QM_IDLE      1      0
```

Figure 6: Router 2 A VPN is set up.

Cloud and Office Applications Department

I installed a Personal Office Software into Customer Citrix Farm. Before I start installation I eject and closed from Citrix Farm. Then I start and configure. Before I start this project I take courses from Alexander Beck, Marcus Brückner, Harald Gemeinsam and the team leader of

this department Benjamin Ott. This course includes Active Directory, Exchange Server 2010. At the end of the week I gave course Differences Between Citrix Xen App and Windows 2012 Remote Desktop Session Host at Cloud Applications' team meeting.

Configuration of Citrix Farm

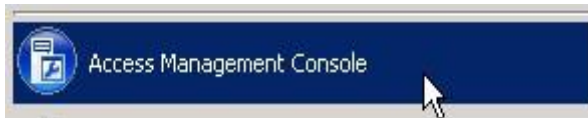


Figure 7: Select Access Management Console on Start Menu

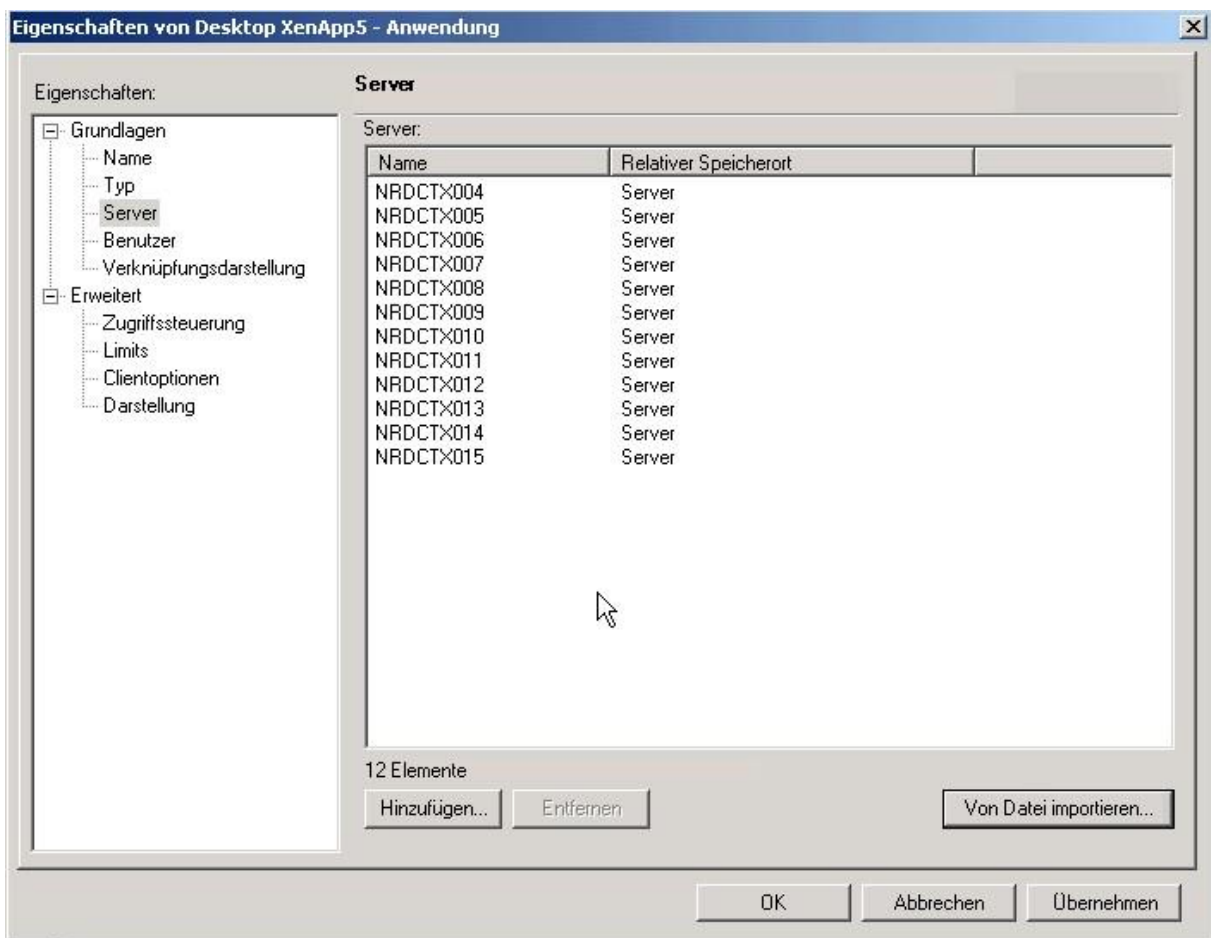


Figure 8: Overview of Citrix Farm

Desktop						
Server						
Server						
Server	Produkt	Version	Service Pack	Betriebssystemtyp	TCP-Adresse	
NRDCTX002	Citrix XenApp für Windows, ...	5.1	0	Windows Server 2008	10.251.21.198	
NRDCTX003	Citrix XenApp für Windows, ...	5.1	0	Windows Server 2008	10.251.21.197	
NRDCTX004	Citrix XenApp für Windows, ...	5.1	0	Windows Server 2008	10.251.21.196	
NRDCTX005	Citrix XenApp für Windows, ...	5.1	0	Windows Server 2008	10.251.21.195	
NRDCTX006	Citrix XenApp für Windows, ...	5.1	0	Windows Server 2008	10.251.21.203	
NRDCTX007	Citrix XenApp für Windows, ...	5.1	0	Windows Server 2008	10.251.21.204	
NRDCTX008	Citrix XenApp für Windows, ...	5.1	0	Windows Server 2008	10.251.21.205	
NRDCTX009	Citrix XenApp für Windows, ...	5.1	0	Windows Server 2008	10.251.21.206	
NRDCTX010	Citrix XenApp für Windows, ...	5.1	0	Windows Server 2008	10.251.21.207	
NRDCTX011	Citrix XenApp für Windows, ...	5.1	0	Windows Server 2008	10.251.21.208	
NRDCTX012	Citrix XenApp für Windows, ...	5.1	0	Windows Server 2008	10.251.21.209	
NRDCTX013	Citrix XenApp für Windows, ...	5.1	0	Windows Server 2008	10.251.21.177	
NRDCTX014	Citrix XenApp für Windows, ...	5.1	0	Windows Server 2008	10.251.21.143	
NRDCTX015	Citrix XenApp für Windows, ...	5.1	0	Windows Server 2008	10.251.21.145	

Figure 9: Overview Of Customers Servers

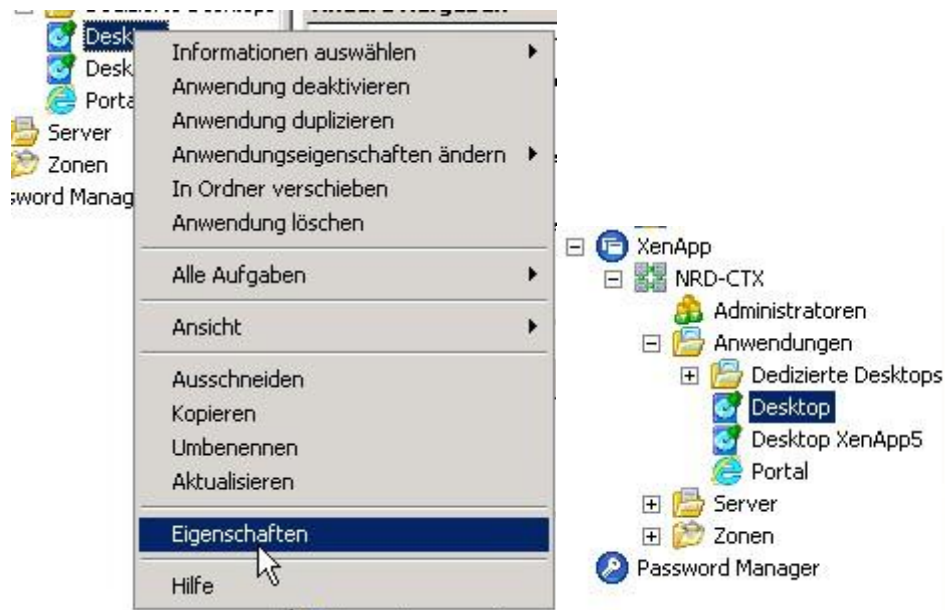


Figure 10: Entered Properties of Customer Citrix Farm

Benutzer							
Name	Benutzer	Sitzungs-ID	Anwendung	Typ	Status	Clientname	Anmeldezeit
ICA-tcp#0	mscholz	2	Test_Desktop_...	ICA	Aktiv	NB609	03.07.2013 08:36:
ICA-tcp#2	asawatzky	5	Desktop_NrdCt...	ICA	Aktiv	NB599	03.07.2013 15:01:
ICA-tcp#0	rmueller	2	Desktop_NrdCt...	ICA	Aktiv	NB530	03.07.2013 14:42:
ICA-tcp#7	erossmann	9	Desktop XenApp5	ICA	Aktiv	SA296	03.07.2013 06:54:
ICA-tcp#15	fmuller	17	Desktop XenApp5	ICA	Aktiv	NB525	03.07.2013 07:55:
ICA-tcp#22	hgoebel	24	Desktop XenApp5	ICA	Aktiv	PC502	03.07.2013 08:44:
ICA-tcp#0	mainzdp	2	Desktop XenApp5	ICA	Aktiv	SA039	03.07.2013 05:13:
ICA-tcp#19	mw2metall	21	Desktop XenApp5	ICA	Aktiv	SA145	03.07.2013 08:17:
ICA-tcp#1	nrdadm	3		ICA	Aktiv	MGTWTS001	03.07.2013 15:18:
ICA-tcp#8	rhwpax	10	Desktop	ICA	Aktiv	SA012	03.07.2013 07:08:
ICA-tcp#9	sstork	11	Desktop XenApp5	ICA	Aktiv	PC501	03.07.2013 07:22:
ICA-tcp#23	walts1	23	Desktop XenApp5	ICA	Aktiv	SA189	03.07.2013 09:12:
ICA-tcp#20	wghawo	22	Desktop XenApp5	ICA	Aktiv	SA263	03.07.2013 08:38:
ICA-tcp#12	wgstuckert	14	Desktop	ICA	Aktiv	SA021	03.07.2013 07:45:
ICA-tcp#6	wichern3a	8	Desktop	ICA	Aktiv	SA127	03.07.2013 06:28:
ICA-tcp#6	Arche11	8	Desktop XenApp5	ICA	Aktiv	SA115	03.07.2013 06:22:
ICA-tcp#20	bdeuer	22	Desktop	ICA	Aktiv	SA200	03.07.2013 08:22:
ICA-tcp#5	cfalkenberg	7	Desktop XenApp5	ICA	Aktiv	NB570	03.07.2013 08:39:
ICA-tcp#7	ikoch	9	Desktop	ICA	Aktiv	SA317	03.07.2013 06:58:
ICA-tcp#15	jugts	17	Desktop XenApp5	ICA	Aktiv	NB539	03.07.2013 07:55:
ICA-tcp#24	kschmidt	26	Desktop XenApp5	ICA	Aktiv	SA725	03.07.2013 09:22:
ICA-tcp#24	kschmidt	26	Desktop XenApp5	ICA	Aktiv	SA725	03.07.2013 09:22:
ICA-tcp#12	...	...	Desktop XenApp5	ICA	Aktiv	NB238	03.07.2013 03:22:
ICA-tcp#1	...	...	Desktop	ICA	Aktiv	SA313	03.07.2013 08:28:
ICA-tcp#2	...	...	Desktop XenApp5	ICA	Aktiv	NB210	03.07.2013 08:35:
ICA-tcp#20	...	...	Desktop	ICA	Aktiv	SA500	03.07.2013 08:55:
ICA-tcp#1	...	...	Desktop XenApp5	ICA	Aktiv	SA112	03.07.2013 08:55:
ICA-tcp#1	...	...	Desktop	ICA	Aktiv	SA112	03.07.2013 08:55:

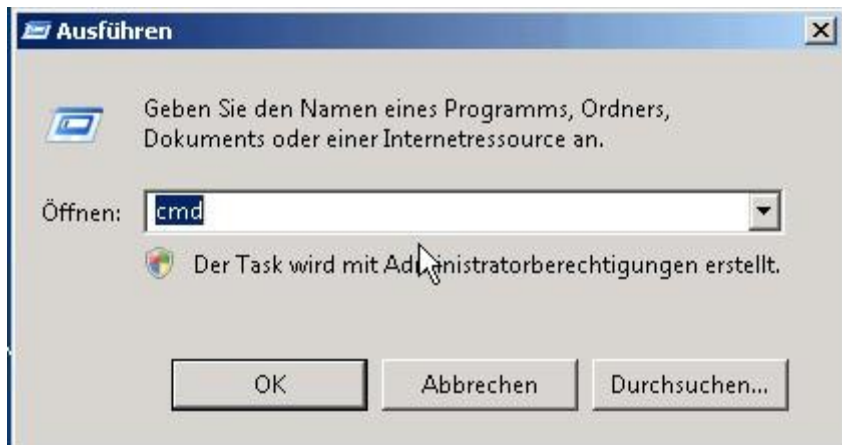


Figure 11: Citrix Update Software

This figure views Citrix Update Software.

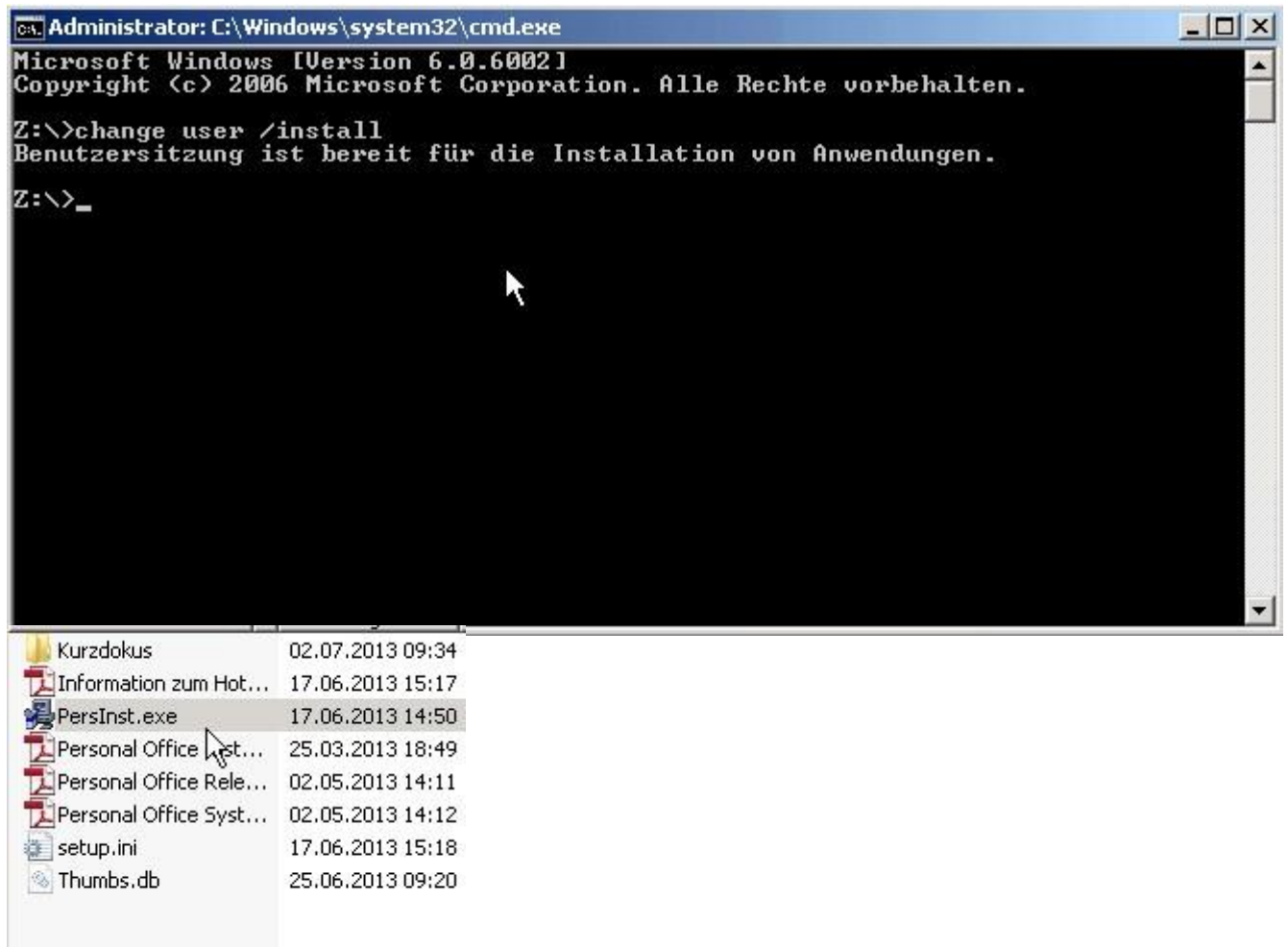


Figure 12: Start to Install Personal Office Software

This figure about to start to install software. We selected Software which we install. Then we started installing to destination servers.

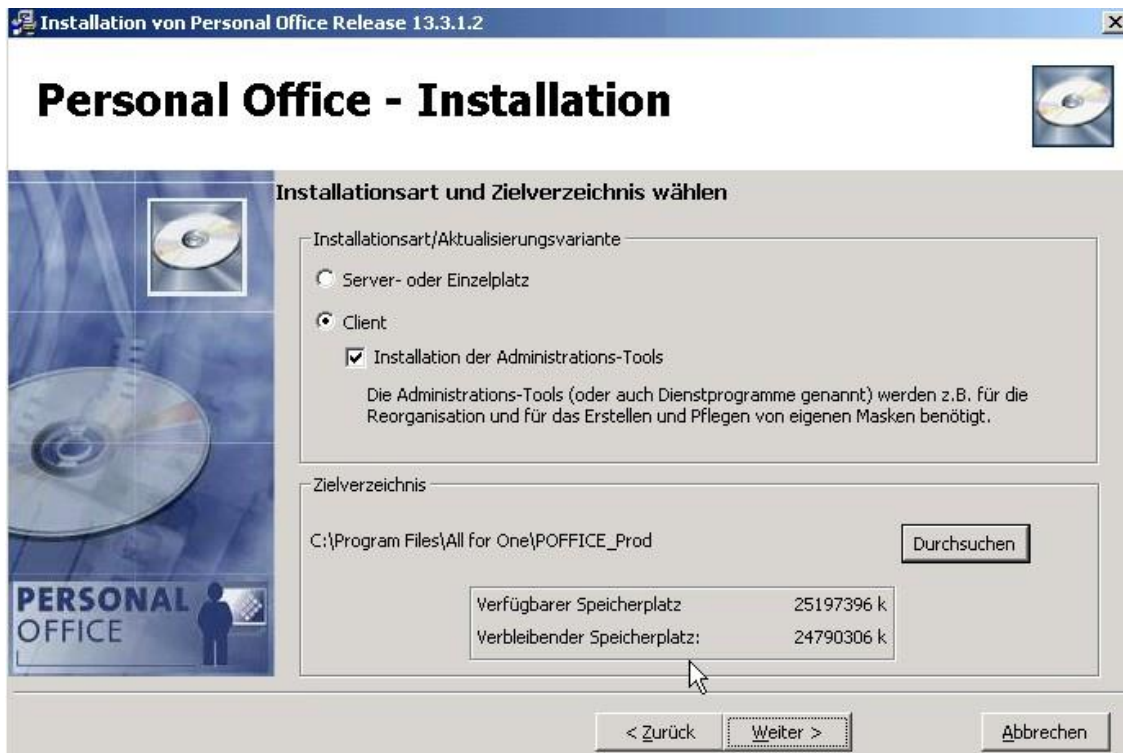


Figure 13: Overview of Software



Figure 13 : Steps of Installation



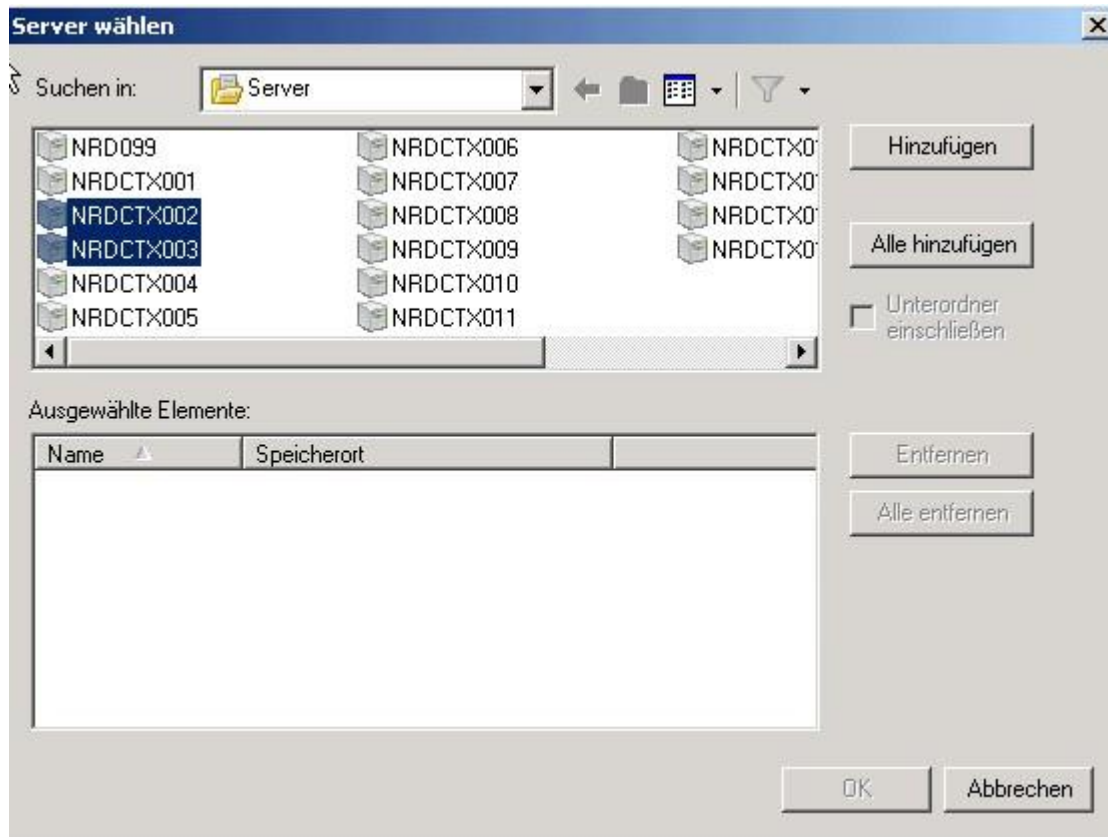


Figure 14: Discarding Servers from Citrix Farm

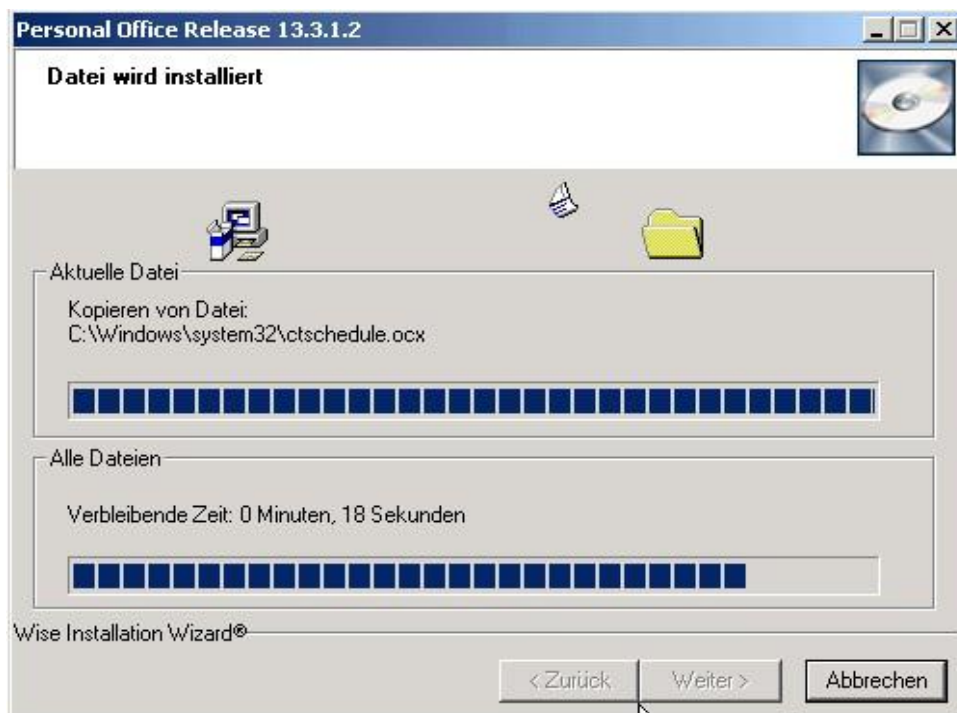


Figure 15: Installing software into the Servers

ABAP Development Department

ABAP (Advanced Business Application Programming, originally *Allgemeiner Berichts-Aufbereitungs-Prozessor*, German for "general report creation processor") is a [high-level programming language](#) created by the German [software](#) company [SAP](#). It is currently positioned, alongside the more recently introduced [Java](#), as the language for programming the [SAP Application Server](#), part of its [NetWeaver](#) platform for building business applications. The syntax of ABAP is somewhat similar to [COBOL](#).

ABAP is one of the many application-specific fourth-generation languages ([4GLs](#)) first developed in the 1980s. It was originally the report language for [SAP R/2](#), a platform that enabled large corporations to build mainframe business applications for materials management and financial and management accounting.

ABAP used to be an abbreviation of *Allgemeiner BerichtsAufbereitungsProzessor*, German for "generic report preparation processor", but was later renamed to the English *Advanced Business Application Programming*. ABAP was one of the first languages to include the concept of *Logical Databases* (LDBs), which provides a high level of abstraction from the basic database level(s).

The ABAP language was originally used by developers to develop the [SAP R/3](#) platform. It was also intended to be used by SAP customers to enhance SAP applications – customers can develop custom reports and interfaces with ABAP programming. The language is fairly easy to learn for programmers but it is not a tool for direct use by non-programmers. Knowledge of relational database design and preferably also of object-oriented concepts is necessary to create ABAP programs.

ABAP remains as the language for creating programs for the client-server [R/3](#) system, which SAP first released in 1992. As computer hardware evolved through the 1990s, more and more of SAP's applications and systems were written in ABAP. By 2001, all but the most basic functions were written in ABAP. In 1999, SAP released an object-oriented extension to ABAP called ABAP Objects, along with R/3 release 4.6.

SAP's current development platform [NetWeaver](#) supports both ABAP and [Java](#).

This department is the hardest for me. Because programmer works so hard and they interested me so less. I generally worked with the team leader of this department Rosenauer Hansgeorg. He gave me some documents and book PDFs about ABAP Programming. I learned by myself. First day he gave me a project about using inheritance with personel record and salary calculation. He told me about creating ABAP projects and ALV-Grid table.

In this department my project is calculating employees' salary with using inheritance. Firstly I connected my SAP account which is given by the firm. I write transaction code(se80) for accessing ABAP Development Workbench.

The program is for calculating salaries of employees who are different experiences and works different departments.

Variables are contingent upon me. I defined names and their experiences and their positions.



Figure 16: Connecting SAP Server

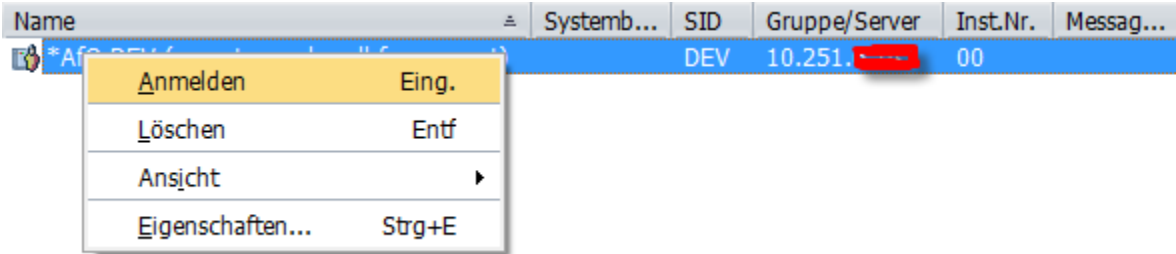


Figure 17: Register with Right Click

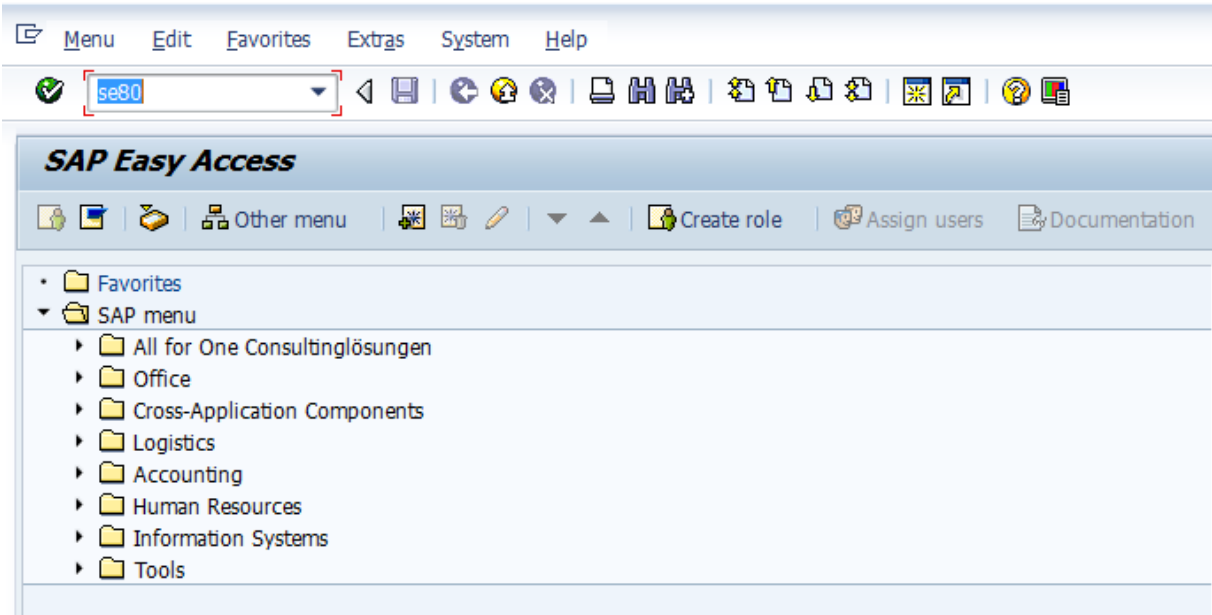


Figure 18: Writing Transaction code se80 to attain ABAP Workbench

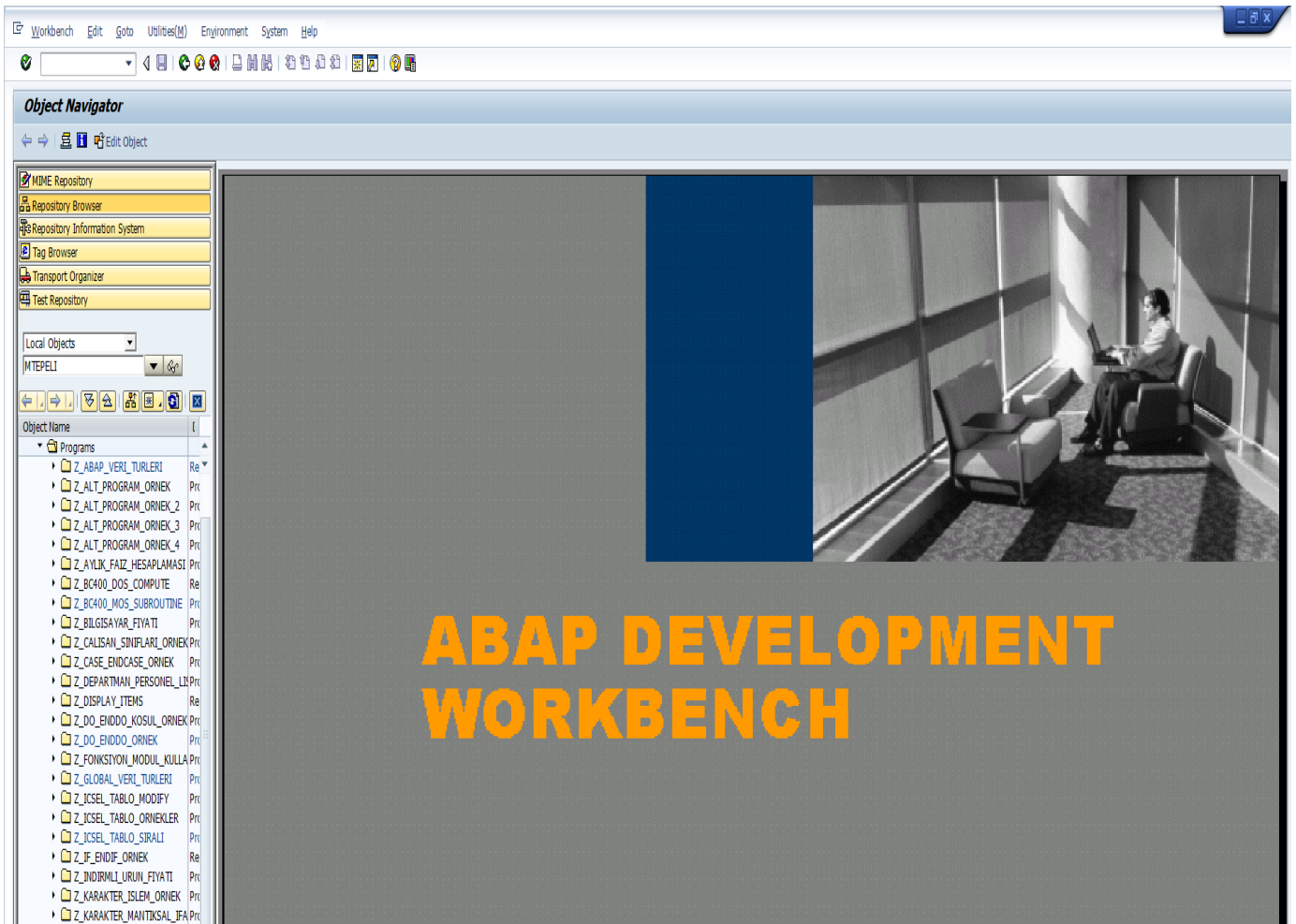


Figure 19: Overview of ABAP Development Workbench

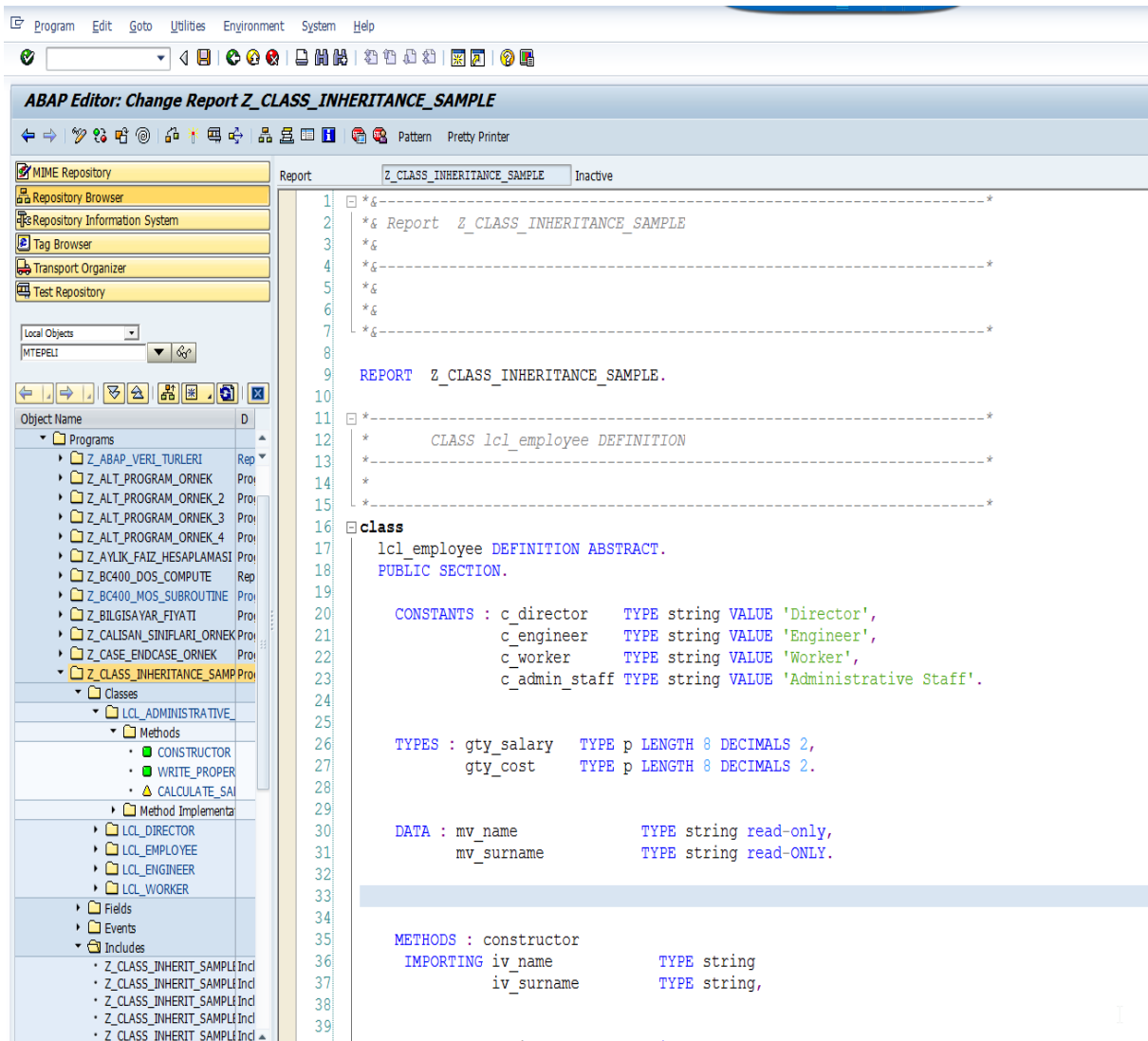


Figure 20 :Head of my Programming Project.

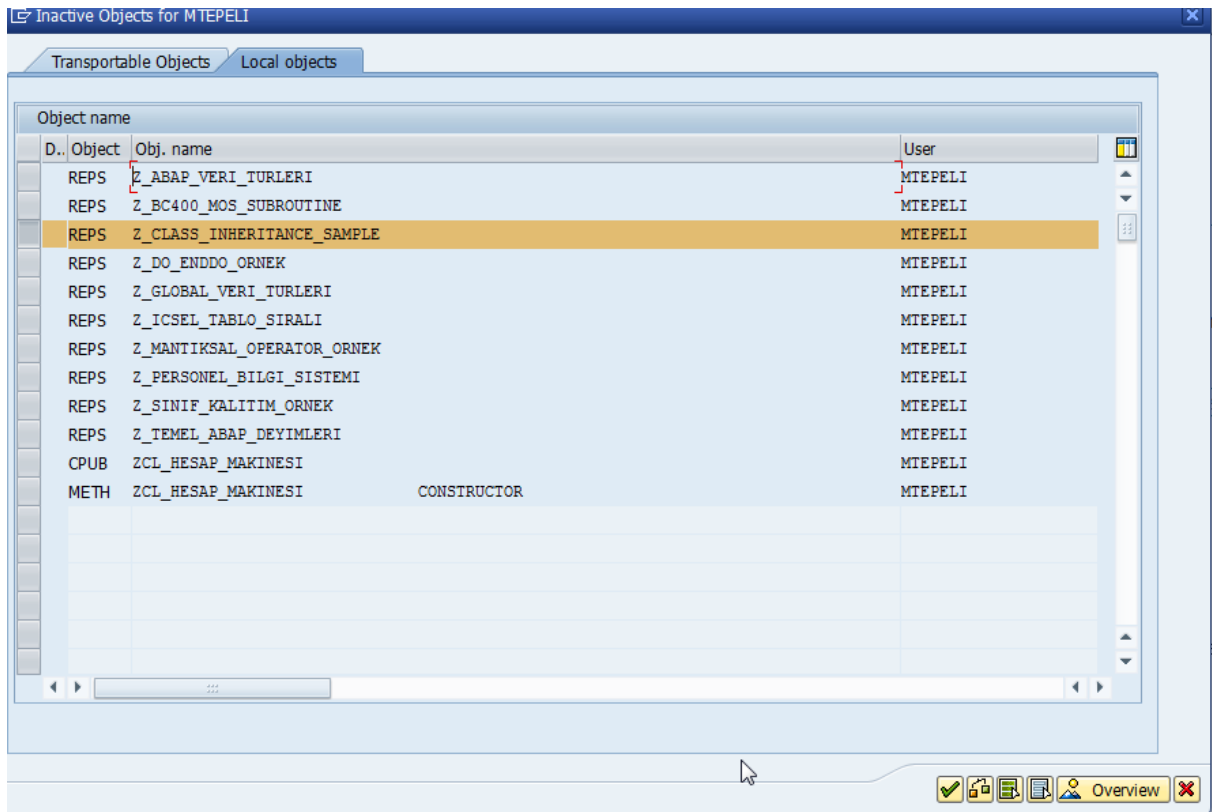
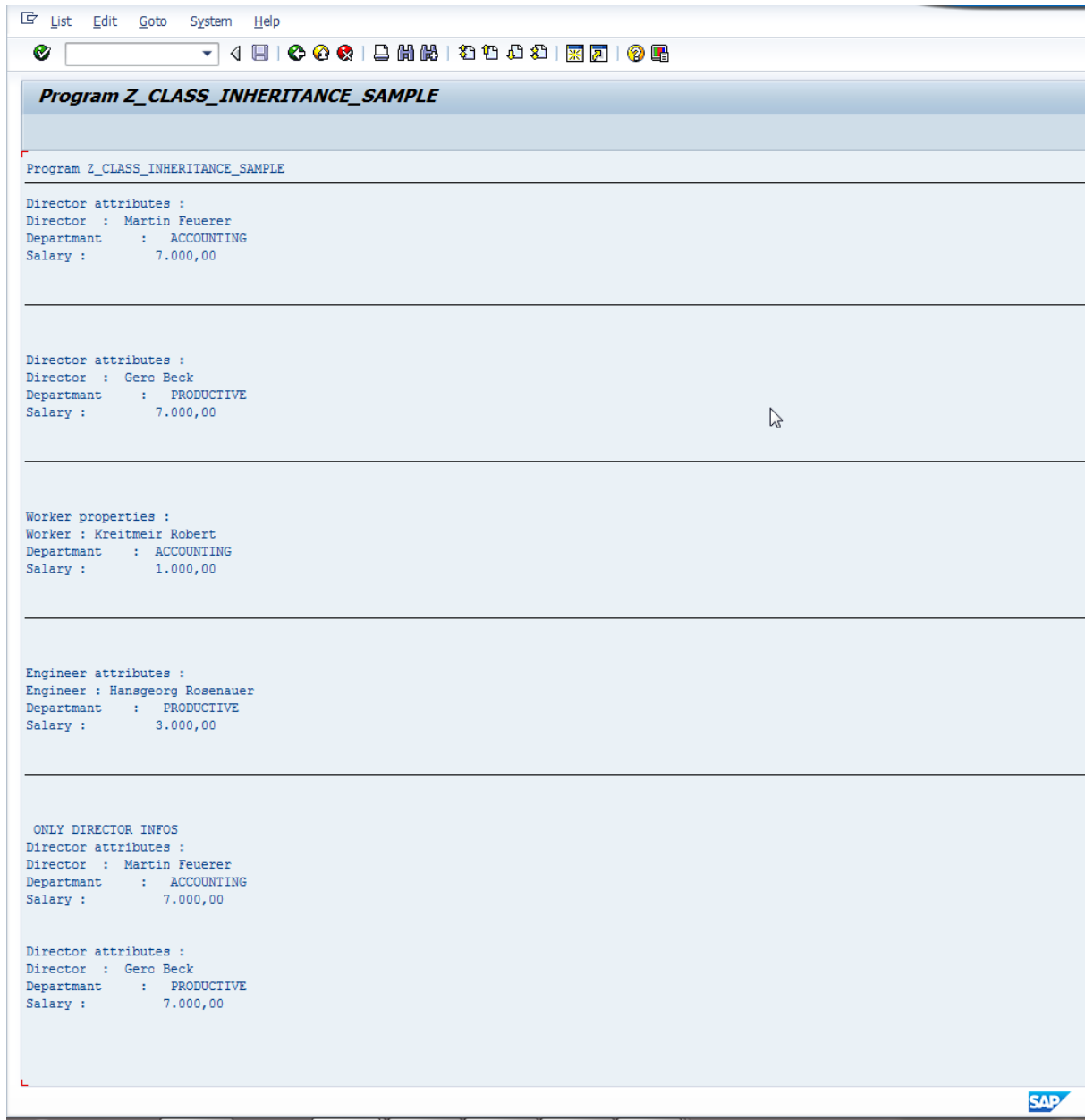


Figure 21: Activating Program

In ABAP Environment, before running the code you ought to activate the code. If you don't have any exception code activate successfully.



```
Program Z_CLASS_INHERITANCE_SAMPLE

Program Z_CLASS_INHERITANCE_SAMPLE

Director attributes :
Director : Martin Feuerer
Department : ACCOUNTING
Salary : 7.000,00

Director attributes :
Director : Gero Beck
Department : PRODUCTIVE
Salary : 7.000,00

Worker properties :
Worker : Kreitmair Robert
Department : ACCOUNTING
Salary : 1.000,00

Engineer attributes :
Engineer : Hansgeorg Rosenauer
Department : PRODUCTIVE
Salary : 3.000,00

ONLY DIRECTOR INFOS
Director attributes :
Director : Martin Feuerer
Department : ACCOUNTING
Salary : 7.000,00

Director attributes :
Director : Gero Beck
Department : PRODUCTIVE
Salary : 7.000,00
```

Figure 22: Output of Program

Here is the output of the program. Employees who has different experiences and positions have different salaries.

3.2. My and Others Work

The firm has different departments. Actually all departments are related form each other. SAP Basis Consultant should know Networking. Operating System workers should now Network- ing. But firms’ professinos is SAP Service.

3.3. Information Learned in School Applied in Training

Obejct-Oriented course in school it was useful for me because ABAP is an Object-Oriented Program. Without knowing Inheritance in Java I cant do my project.

Also Network classes helped me.I learned configurations,subnet masks,IP addresses at Netwrok classes at school.

3.4. Problems Related to Computer Systems and Applications

I helped Martin Feurer about Wireshark problem.About) Analyse Tool and Traffic collecting tool.There are unnecessary IP addresses. I helped him how to analyses them.

Cascade Shark (Company: Riverbed) Analyse Tool and Traffic collecting tool.

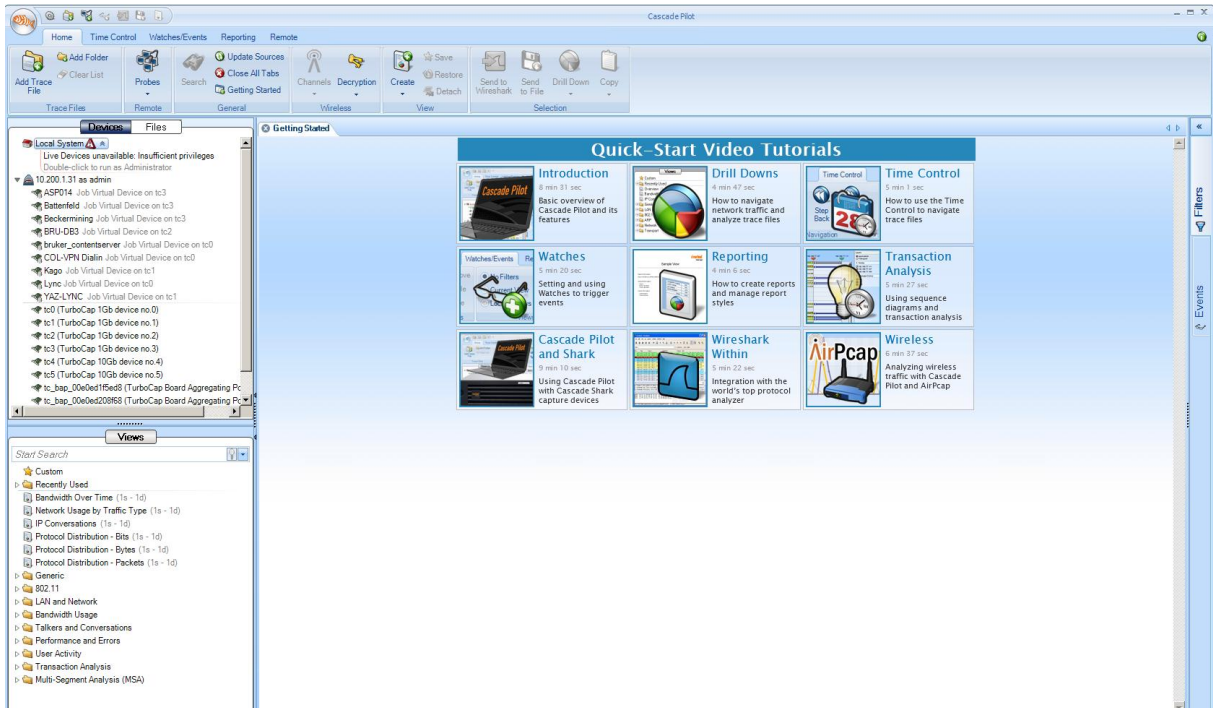


Figure 23:Interfaces of the Shark server

This program about is the Server edition for Wireshark.

Interface	Description	Link Status	Received Packets
tc0	TurboCap 1Gb device no.0	UP	34945836698
tc1	TurboCap 1Gb device no.1	UP	50755695392
tc2	TurboCap 1Gb device no.2	UP	14707433295
tc3	TurboCap 1Gb device no.3	UP	49579865679
tc4	TurboCap 10Gb device no.4	UP	203520289882
tc5	TurboCap 10Gb device no.5	UP	89190985237

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Figure 24: Status view

Here is the status of servers. We are finding for old servers and their IP and MAC Adresses.

The screenshot shows the Riverbed Cascade Shark interface. The main window displays the 'Status' view for a host named 'ta001-rk1304'. The interface includes a navigation pane on the left with various views like 'Protocol Distribution - Bytes', 'LAN and Network', and 'Performance and Errors'. The main content area is divided into several sections:

- Capture Jobs:** A table listing jobs such as 'Lync', 'BRU-DB3', 'bruker_contentserver', 'ASPO14', 'YAZ-LYNC', 'COL-VPN Dialin', 'Kago', and 'Battenfeld' with their respective statuses (STOPPED, RUNNING) and packet capture sizes.
- System Information:** A summary of OS file system, packet storage, and memory usage, showing overall status as 'OK'.
- Profilers Configured For Export:** A section for managing export settings.
- Profilers Export Statistics:** A table showing 'Exported Flows' and 'Rejected Flows' for 'Total (last minute)', 'Total (last week)', 'Avg per minute (last week)', and 'Peak (last week)'. All values are currently '0 K'.
- Interfaces:** A table at the bottom showing the status of network interfaces (tc0, tc1, tc2, tc3) with their descriptions, link statuses (UP), and received packet counts.

Figure 25: To define and check the jobs

Here you see, first we should define and check jobs.

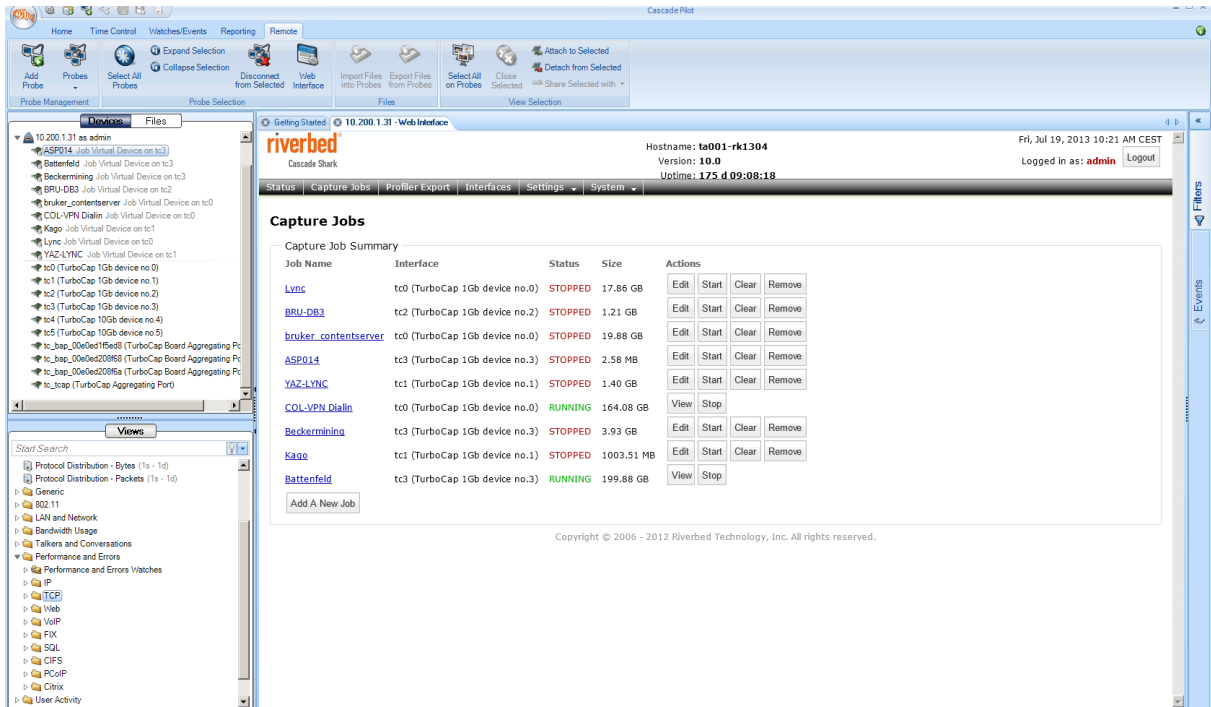


Figure 26: Creation of trace clip to analyze a specific time sequence

Here, we create a trace clip for analyzing a specific time sequence.

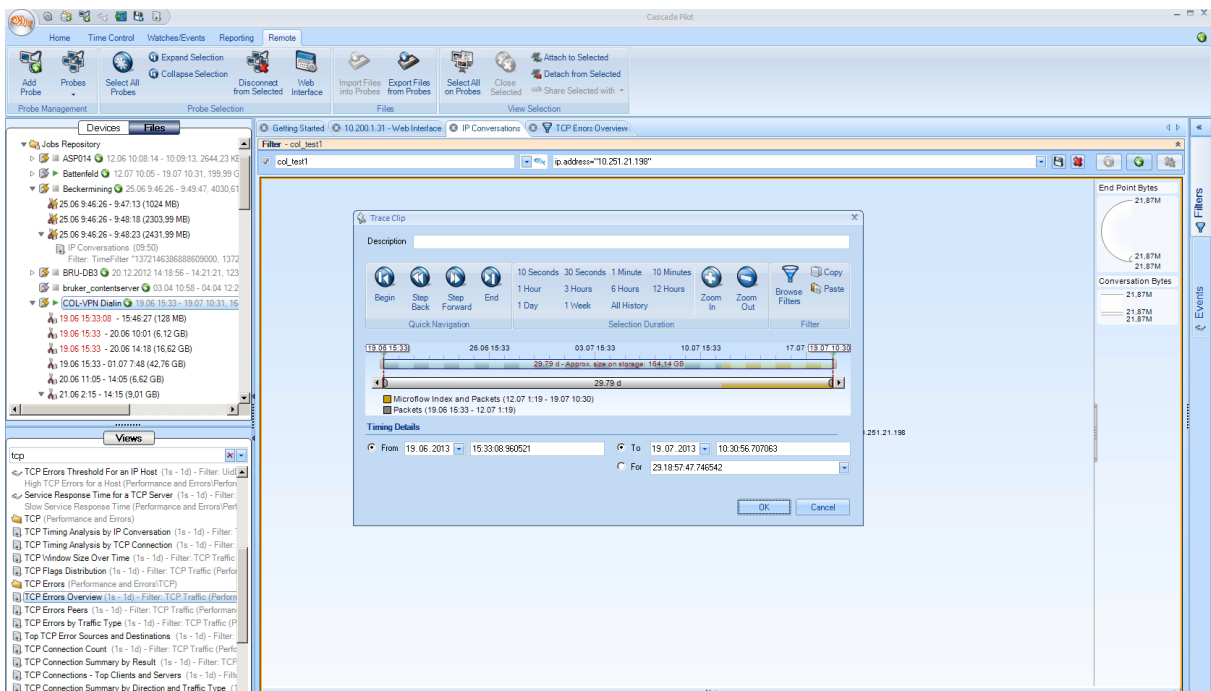


Figure 27: In the trace clip, a lot of different analyze tools can be used, for example an overview of TCP Errors

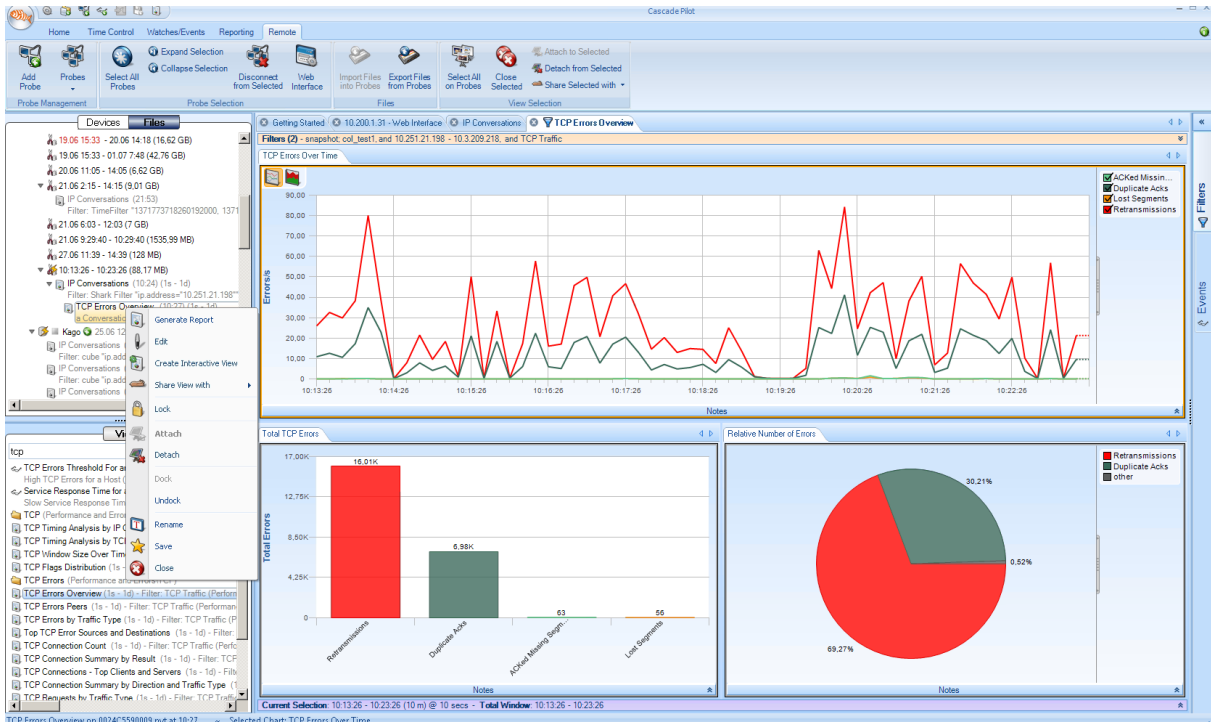


Figure 28: The chosen traffic could be sent to wireshark for further analyses

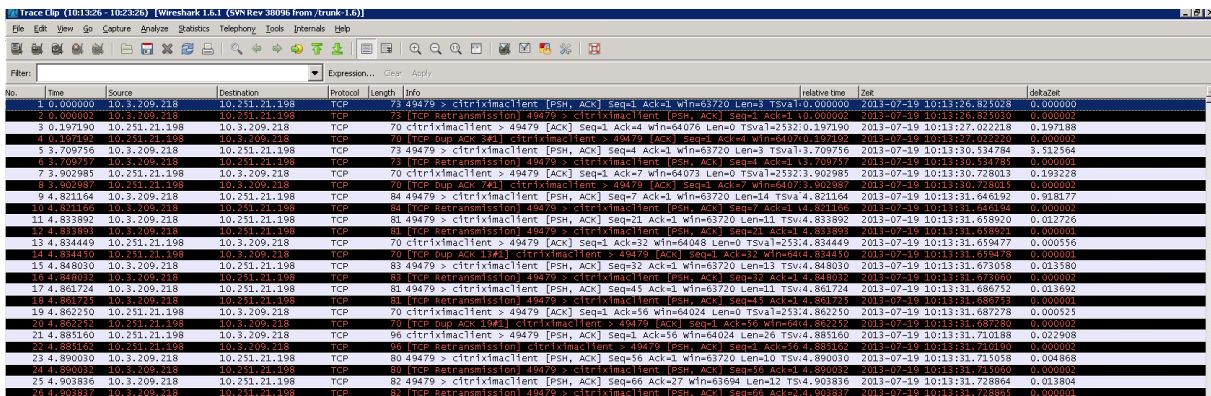


Figure 29 : We found the old and unnecessary servers.

We defined IP addresses gap to 0-255. The program displayed us unused servers.

3.5. Teamwork Involved

I was taken away Datacenters in Frankfurt by the Network Team Leader Gero Beck and Operating Systems Team Leader Reiner Scherer. We went two Datacenters in Frankfurt. One of them is the biggest at that area. We did cabling in there and installed Transector into the Servers and configured.

3.6. Professional Issues and Work-Related Ethical Issues

Employees are respectful other departments work. But if SAP Consultants has a problem about Networking , he sends his problem via e- mail Networking Group. They help him.

I had a problem about Programming, had an error. I couldn't solve it. I called All-for-One Steeb Hamburg Development Department via Cisco Jabber.

3.7. Economic, Environmental, Societal and Global Impact of the Engineering Solutions Produced by Your Training Company

All for Automobile

All for Automotive is a package solution designed for small to mid-sized companies in the supplier and components industries, which is standardised and yet custom-tailored to specific business processes at the same time. Its compelling focus on unique industry requirements and features makes All for Automotive fully operational in the shortest possible time. And it takes little effort and expense to accommodate individual company wishes and specifications.

All for Automotive is specially developed for

- Shop fabricators
- Contract producers
- Series manufacturers
- Foundries
- Stamping, pressing and forming companies

All for Service

All for Service provides a platform on which all information about a project, a venture or a contract is readily available in a uniform structure. Thanks to the total integration of all service processes, user companies have complete information about projects and customers at their fingertips any time they need it.

All for Service Cockpit - Project Management at the Push of a Button

The All for Service Cockpit provides all the functions needed to control and manage projects on one intuitive workspace, which can be personalised and adapted to each individual user's needs through favourites, copy functions and hide/show options.

The All for Service Cockpit gives individual users greater confidence and security in using the system, letting them fully concentrate on their core business without being bothered with having to do time-consuming searches

All for Electric



Companies in the electrical engineering and electronics industry place many different demands on their business software:

- Future-proof software with the potential for ongoing process optimisation
- Support the development process for products, tools and assemblies
- Reduce cash-to-cash cycle times
- Optimise processing and cycle times
- Integrated document management
- Integrated quality management
- Integrated cost and performance accounting
- Reduce capital commitment in inventory assets

All for Electric is a package solution designed for small to mid-sized companies in the electrical engineering and electronics industry, which is standardised and yet custom-tailored to specific business processes at the same time. Its compelling focus on unique industry requirements and features makes All for Electric fully operational in the shortest possible time. And it takes little effort and expense to accommodate individual company wishes and specifications.

All for Machine

All for Machine is a package solution designed for small to mid-sized companies in the machinery and equipment manufacturing industry, which is standardised and yet custom-tailored to specific business processes at the same time. Its compelling focus on unique industry requirements and features makes All for Machine fully operational in the shortest possible time. And it takes little effort and expense to accommodate individual company wishes and specifications.

All for Machine is specially developed for

- Project manufacturers
- Special-purpose machine makers
- Standard machine engineering firms
- Variant manufacturers
- Small-scale producers

All for Metal

All for Metal is a package solution designed for small to mid-sized companies in the metal-working industry, which is standardised and yet custom-tailored to specific business processes at the same time. Its compelling focus on unique industry requirements and features makes All for Metal fully operational in the shortest possible time. And it takes little effort and expense to accommodate individual company wishes and specifications.

All for Metal is specially developed for

- Shop fabricators
- Series manufacturers
- Contract manufacturers

and also covers all other manufacturing and production methods.

3.8. Self-Learning During Industrial Training

In programming department I learned ABAP by myself. I did applications by myself with ABAP documents helping.

At Networking Department I learned VoIP technology and configuration by myself. Helping with Ümüt Parlar.

Voice over Internet Protocol (VoIP) is a methodology and group of technologies for the delivery of [voice communications](#) and [multimedia](#) sessions over [Internet Protocol](#) (IP) networks, such as the Internet. Other terms commonly associated with VoIP are *IP telephony*, *Internet telephony*, *voice over broadband* (VoBB), *broadband telephony*, *IP communications*, and *broadband phone service*.

The term *Internet telephony* specifically refers to the provisioning of communications services (voice, [fax](#), SMS, voice-messaging) over the public [Internet](#), rather than via the [public switched telephone network](#) (PSTN). The steps and principles involved in originating VoIP telephone calls are similar to traditional digital [telephony](#), and involve signaling, channel set-up, digitization of the analog voice signals, and encoding. Instead of being transmitted over a circuit-switched network, however, the digital information is packetized and transmission occurs as [Internet Protocol](#) (IP) packets over a [packet-switched network](#). Such transmission entails careful considerations about resource management different from [time-division multiplexing](#) (TDM) networks.

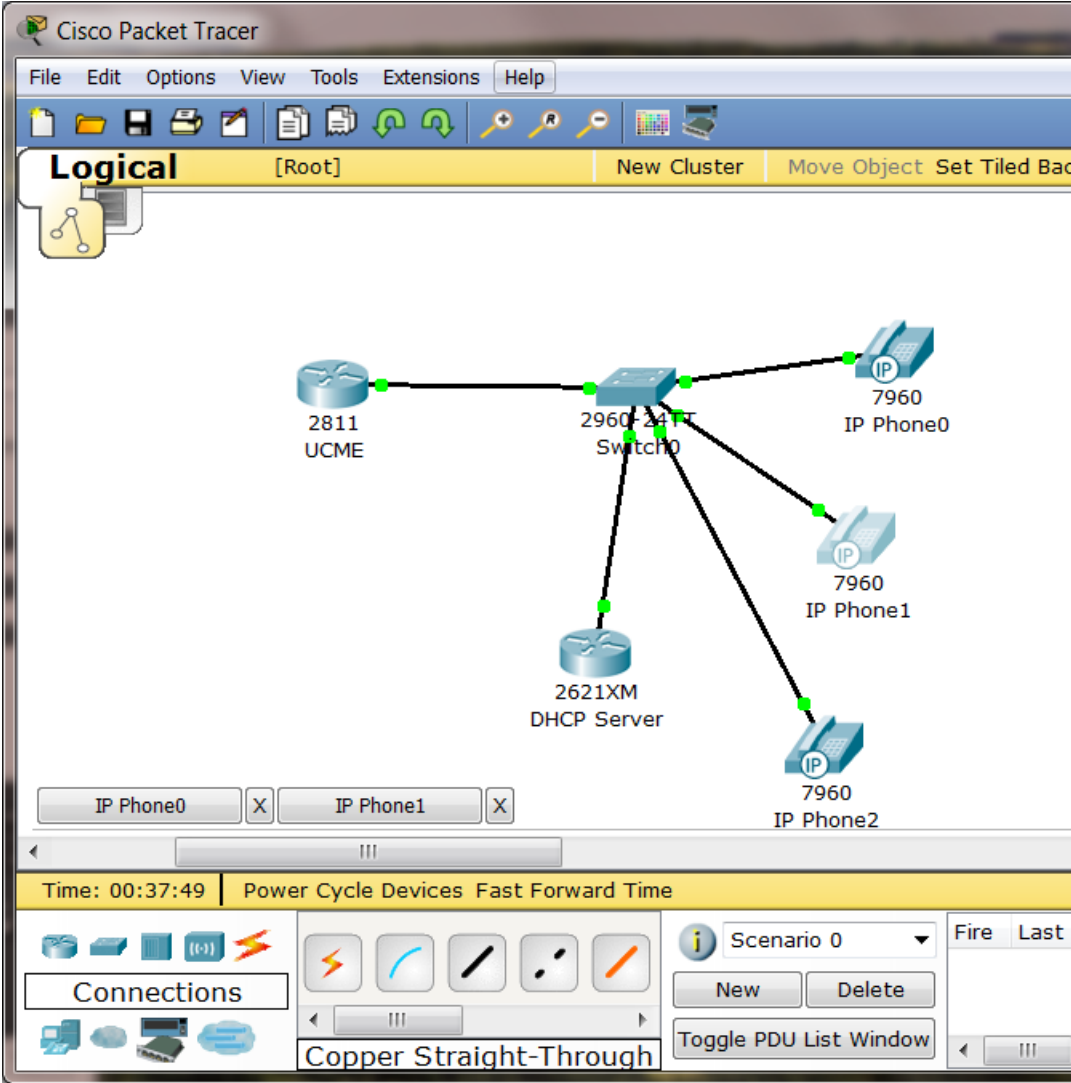


Figure 30: Configuration of VoIP Technology



Figure 31: Telephones connected

When we click on phones which are located in Packet Tracer, it shows us the condition of telephones, connected or not connected.

3.9. New Tools and Technologies Learned during Training

I joined SAP Basis team meeting. Thomas Stark who is the team leader of SAP Basis. He gave presentation about HANA Database. He said: 'It is the future of SAP. We ought to prepare our systems towards HANA. We are going to send HANA Courses all SAP Basis team. I had general information about HANA during that team meeting. Also Mustafa Dönmez and Ümüt Parlar gave me a small course about Databases. Both of them told me HANA is the future of the Databases.

SAP HANA specialities:

At the core of the SAP HANA real-time platform is the SAP HANA database. Unlike other database management systems on the market today, the SAP HANA database processes both transactional and analytical workloads fully in-memory. By consolidating two landscapes (OLAP and OLTP) into a single database, you can benefit from a dramatically lower TCO – in addition to mind-blowing speed.

- Accelerate your core business processes and custom applications
- Eliminate the need to build traditional tuning structures, such as infocubes
- Report against transactional data in real time – without delays caused by data replication

4. Conclusion

It was the different experience for me. I saw into working principle German firm especially what are their areas ,what their firsts. I learned different technologies which some of them are independent our curriculum. Exchange Server 2010, What does Citrix Farm means, ABAP Programming,How to I use and install NetWeaver

I improved my Network knowledge. I worked with real Cisco Routers and Switches. This knowledges are going to benefit next semester Networking courses.

It was a great chance for working foreign firm and a foreign country. I recommended this experience my mates.

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6. Appendix

I put source codes of my projects, some shots about what I did during my Summer Training, my other works on CD.

- a) Creating Roomlist on Exchange Server 2012
- b) Wireshark package Analyses
- c) ABAP Programming Source Codes
- d) VPN Source Codes
- e) VoIP Source Codes