“Cloud Computing in the European schools”

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IES Ramón del Valle-Inclán

“Building and comparison of cloud based collaboration suites”

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Introduction

Collaboration in teams means: sending/receiving emails, making appointments, organizing tasks and so on. Microsoft as the world leader of collaboration suites offers “Microsoft Exchange” as the server site and “Outlook” as the client site.

Beside Exchange there are some Linux based collaboration suites. This activity leads to installation and comparison of three leading Linux based collaboration suites:

- Zimbra
- Kolab
- Open Xchange

Work should be done like this:

- Create 3 teams; each team gets a Raspberry Pi and must choose one of the three collaboration suites
- Each team must install Linux and configure network
- The router has NAT, configuration ist shown in order to get direct connection via internet

The following “Wording” describes what has to be done by the students.

Wording

Working Task for class activity:

Their job is to construct and compare three prototypes for a working collaboration server. The hardware is a Raspberry Pi 3b with a Linux operating system.

1. Form three working groups "Zimbra", "Kolab" and "Open Xchange". Each working group should have at least two group members.

2. Establish the operability of the Linux system in each group. Define the IP addresses as follows:

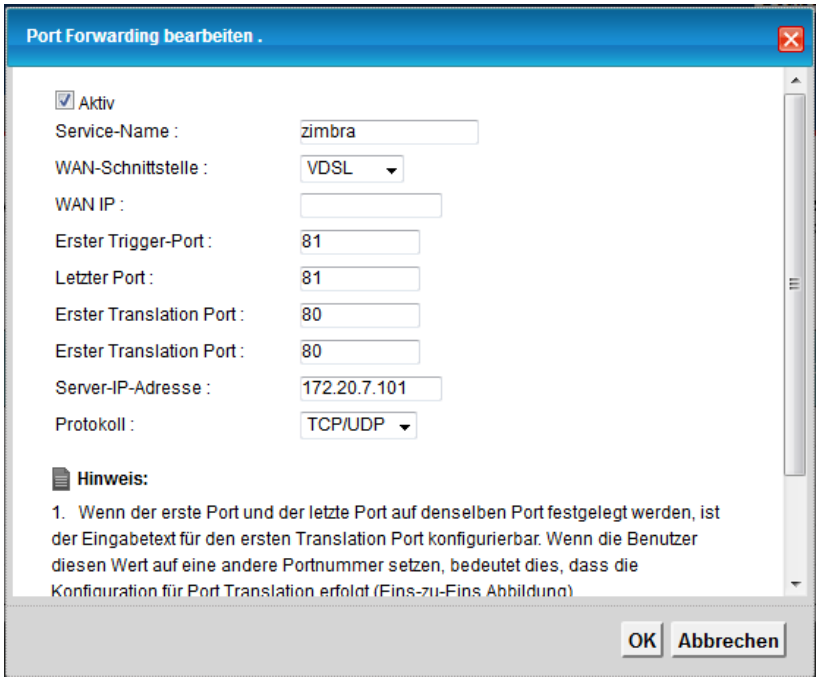
- Zimbra: 172.20.7.101
- Kolab: 172.20.7.102
- Xchange: 172.20.7.103
Gateway 172.20.10.31

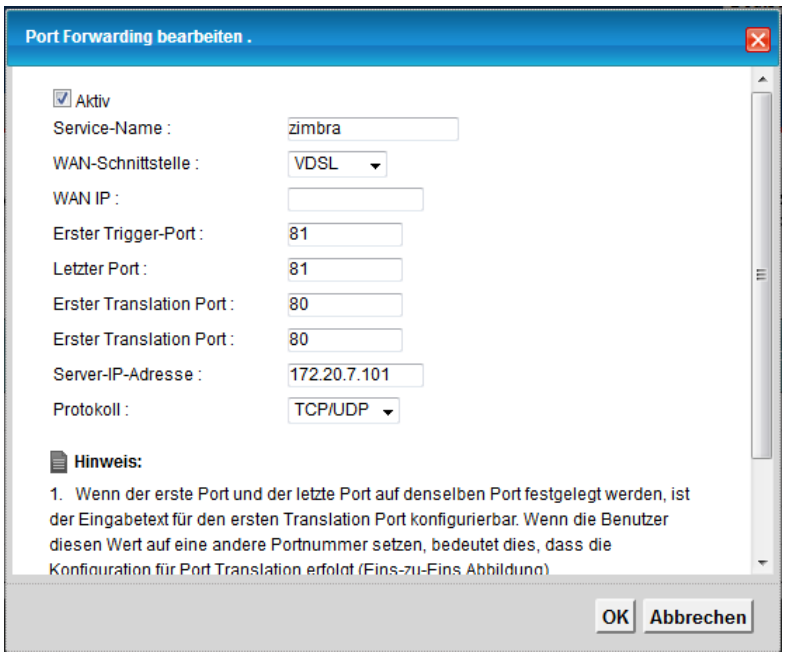
3. Set up access via SSH: from a Windows computer, SSH access via "putty" should be possible.

4. Install the respective groupware "Zimbra", "Kolab" and "Open Xchange".

5. Set up at least two users and test the functionality.

In order to be able to test your system on the Internet, the following NAT settings have been configured in the router 172.20.10.31:


Port Forwarding bearbeiten .
Aktiv
Service-Name : zimbra
WAN-Schnittstelle : VDSL
WAN IP :
Erster Trigger-Port : 81
Letzter Port : 81
Erster Translation Port : 80
Erster Translation Port : 80
Server-IP-Adresse : 172.20.7.101
Protokoll : TCP/UDP
Hinweis:
1. Wenn der erste Port und der letzte Port auf denselben Port festgelegt werden, ist der Eingabetext für den ersten Translation Port konfigurierbar. Wenn die Benutzer diesen Wert auf eine andere Portnummer setzen, bedeutet dies, dass die Konfiguration für Port Translation erfolgt (Eins-zu-Eins Abbildung)
OK
Abbrechen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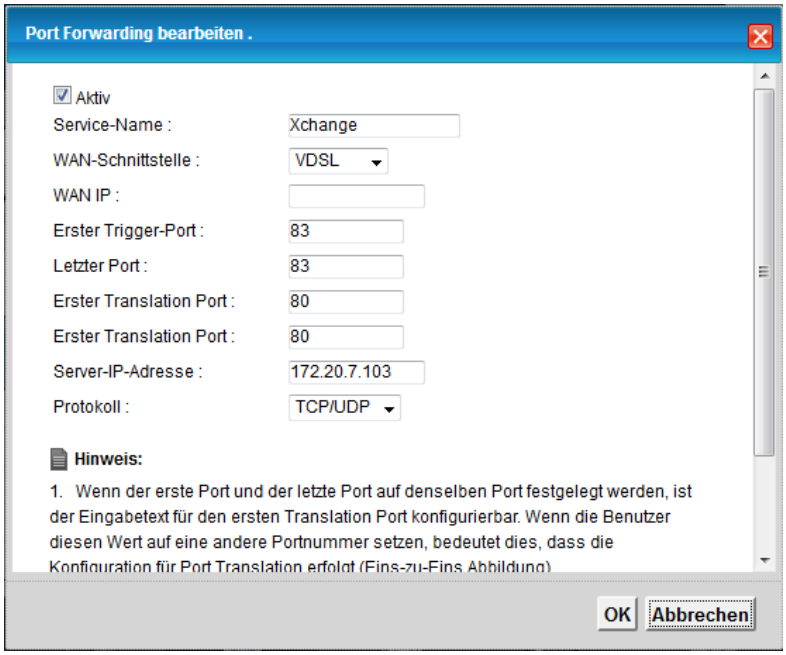


As you can see, each groupware has its own external port, which is implemented in port 80 and points to the respective server address. Furthermore, no-ip dynamic DNS entries were created:- zimbra101.hopto.org- kolab102.hopto.org- xchange103.hopto.org

In order to be able to access a server "from the outside", the correct port must still be specified after the web address, for example:
http://zimbra101.hopto.org:81

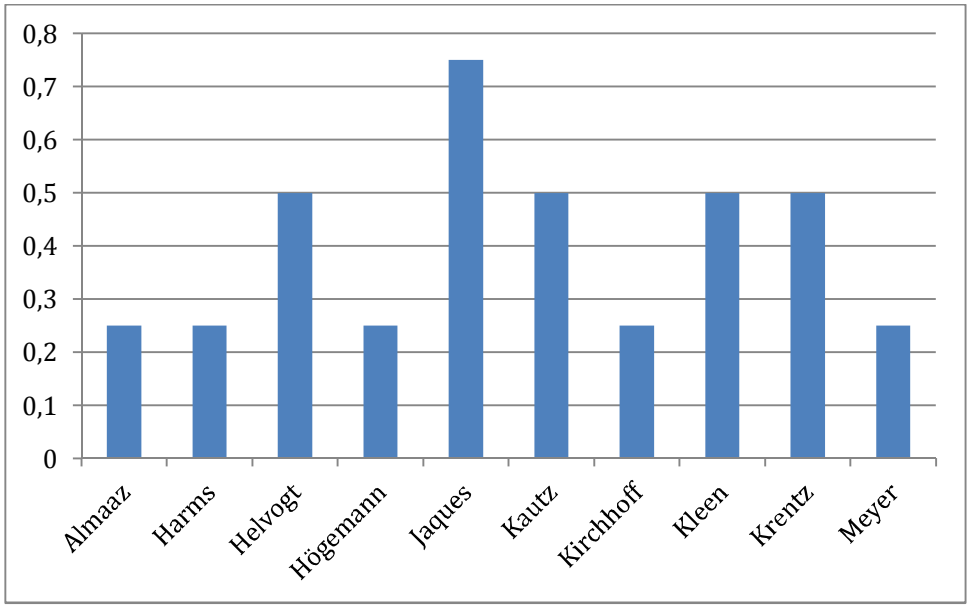
For inquiries, Fritz Böhm and Bernd Hollermann are available, preferably via Threema.

Initial test, Final test, conclusion

The initial Test showed little knowledge and competences of the students:

Nachname	Vorname	Bewertung/1,00
Almaaz	Hazem	0,25
Harms	Tom-Ole	0,25
Helvogt	Vincent	0,5
Högemann	Nico	0,25
Jaques	Felix	0,75
Kautz	Lukas Ricardo	0,5
Kirchhoff	Max	0,25
Kleen	Hauke	0,5
Krentz	Alexander	0,5
Meyer	René	0,25
Average		0,4

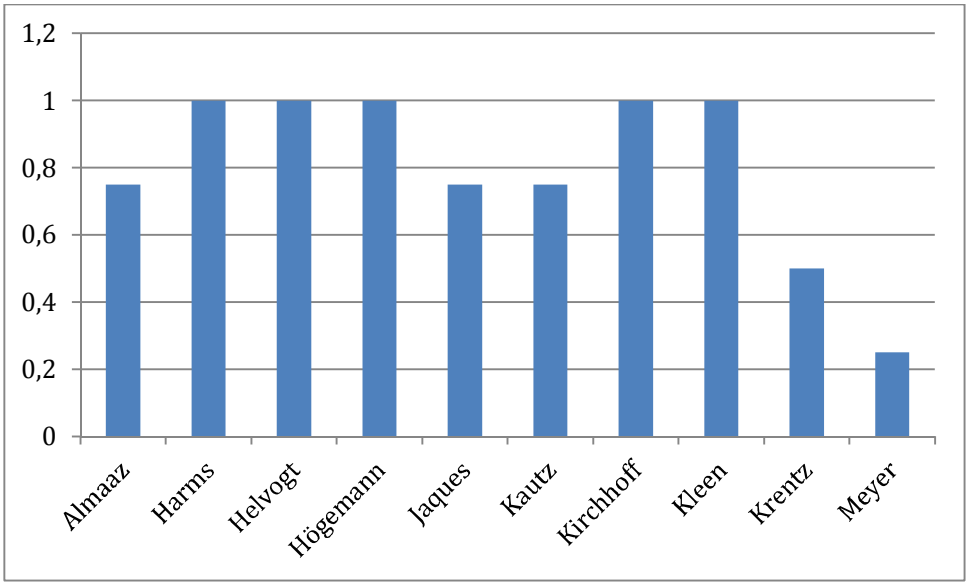
As a chart:



After the work has been done, we experienced a remarkable raise of results:

Nachname	Vorname	Bewertung/1,00
Almaaz	Hazem	0,75
Harms	Tom-Ole	1
Helvogt	Vincent	1
Högemann	Nico	1
Jaques	Felix Lukas	0,75
Kautz	Ricardo	0,75
Kirchhoff	Max	1
Kleen	Hauke	1
Krentz	Alexander	0,5
Meyer	René	0,25
Average		0,8

As a chart:



The competence level raise on 100% from 40% to 80%!