

IP Multimedia Subsystems *Performance Evaluation*

Srivaishnavi Sivagnanam
ssivagna@iit.edu

Anand Galla
agalla@iit.edu

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Project Goals

- To set up the Open Source IMS Test Bed.
- Measure the time taken for
 1. Registration
 2. Respond to the initial invite
 3. Ring
 4. Disconnect

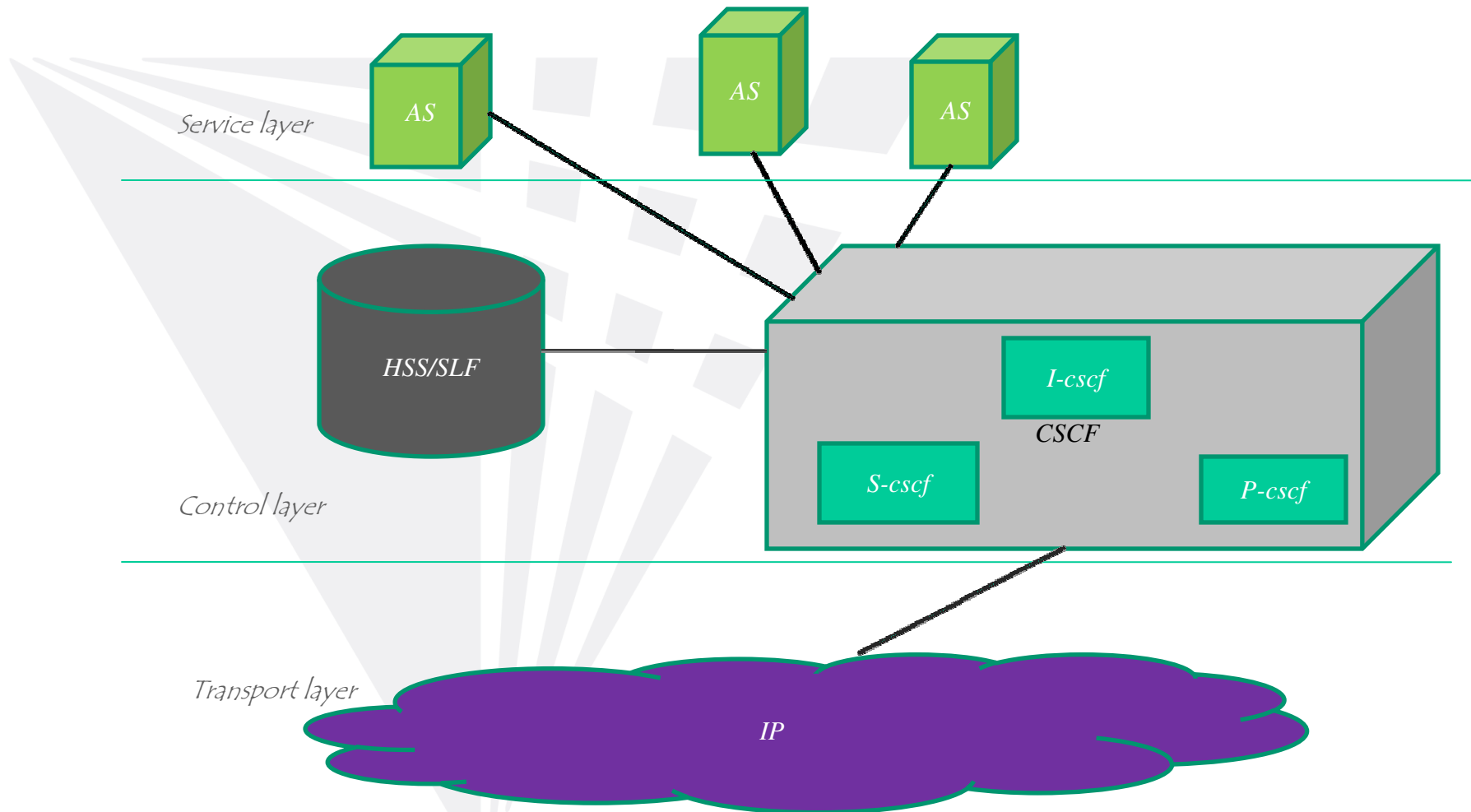
Project Goals

- This project is the continuation of a paper “*A Study of An Open Source IP Multimedia Subsystem Test Bed*” presented by Jin Tang, Carol Davids, and Yu Cheng.
- *We are comparing our results with the ones given in the paper.*

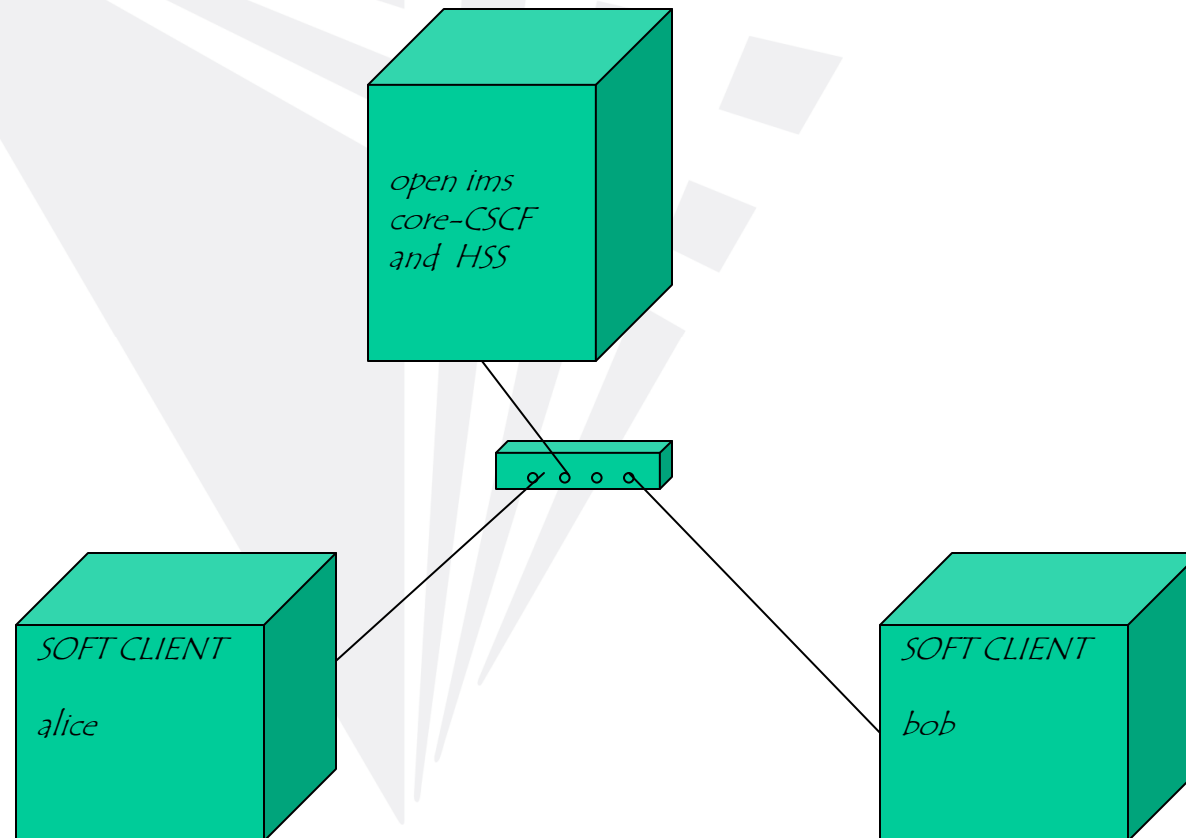
Tasks and Milestones

- Installation of Open IMS Core.
- DNS setup
- Users were created and updated into databases
- Registering users
- Call between alice and bob in the IMS setup on one machine.
- Compare results.

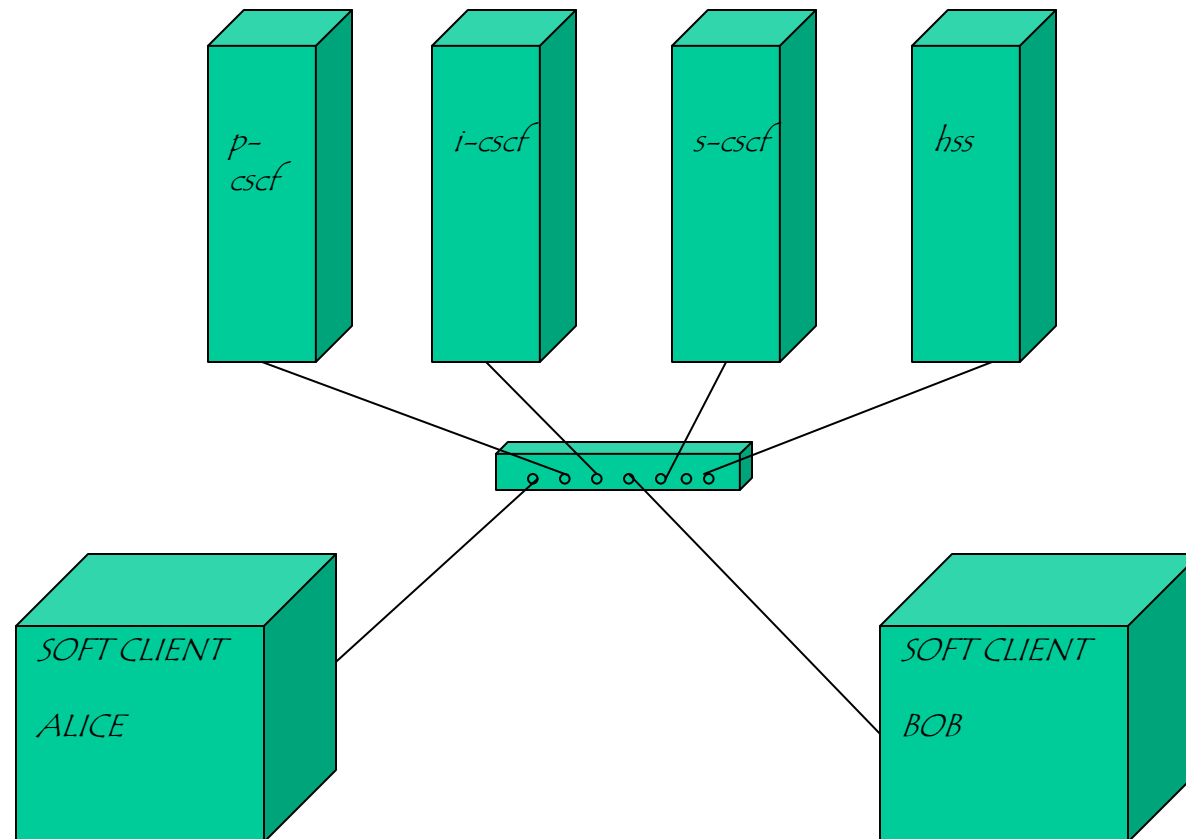
Logical Architecture



Physical Architecture: IMS Core in 1 system



Physical Architecture: IMS Core in 4 system



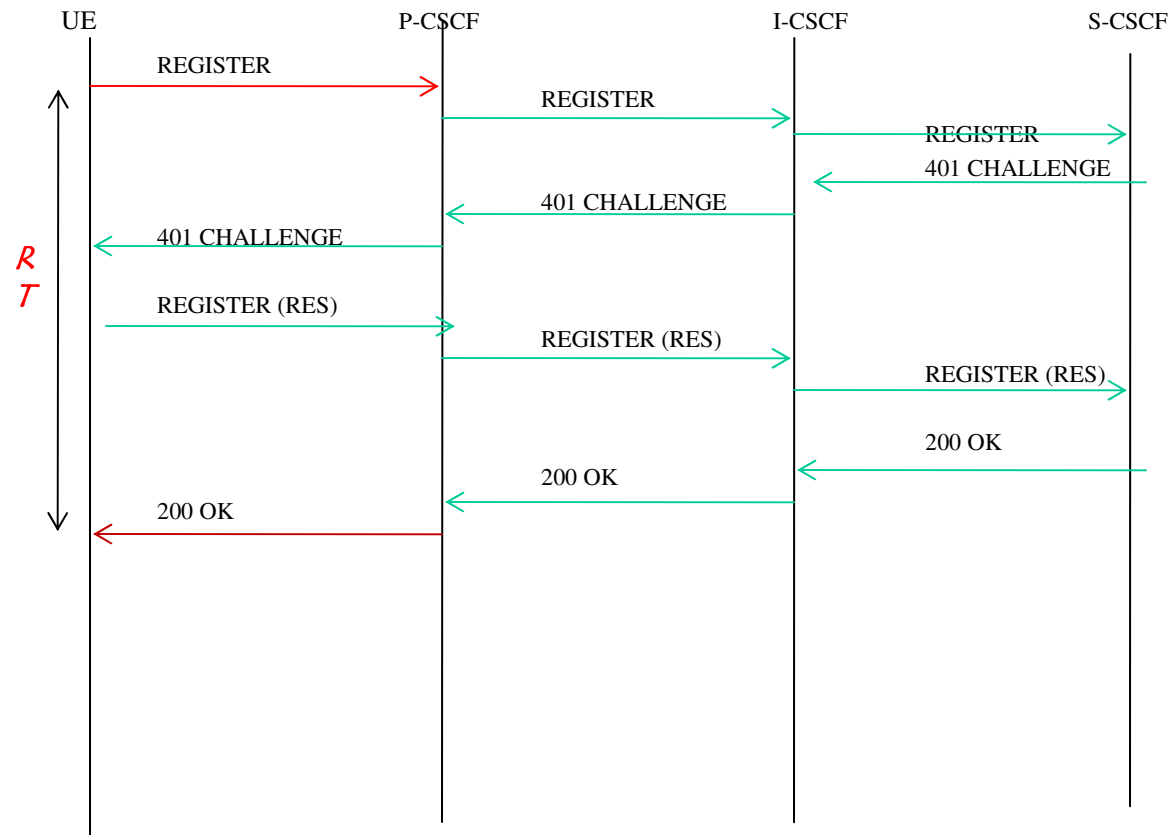
Call Set Up and Disconnect

- The call is between alice and bob who are registered with the HSS database `hss_db`.
- Alice calls Bob.
- Alice hangs up first.

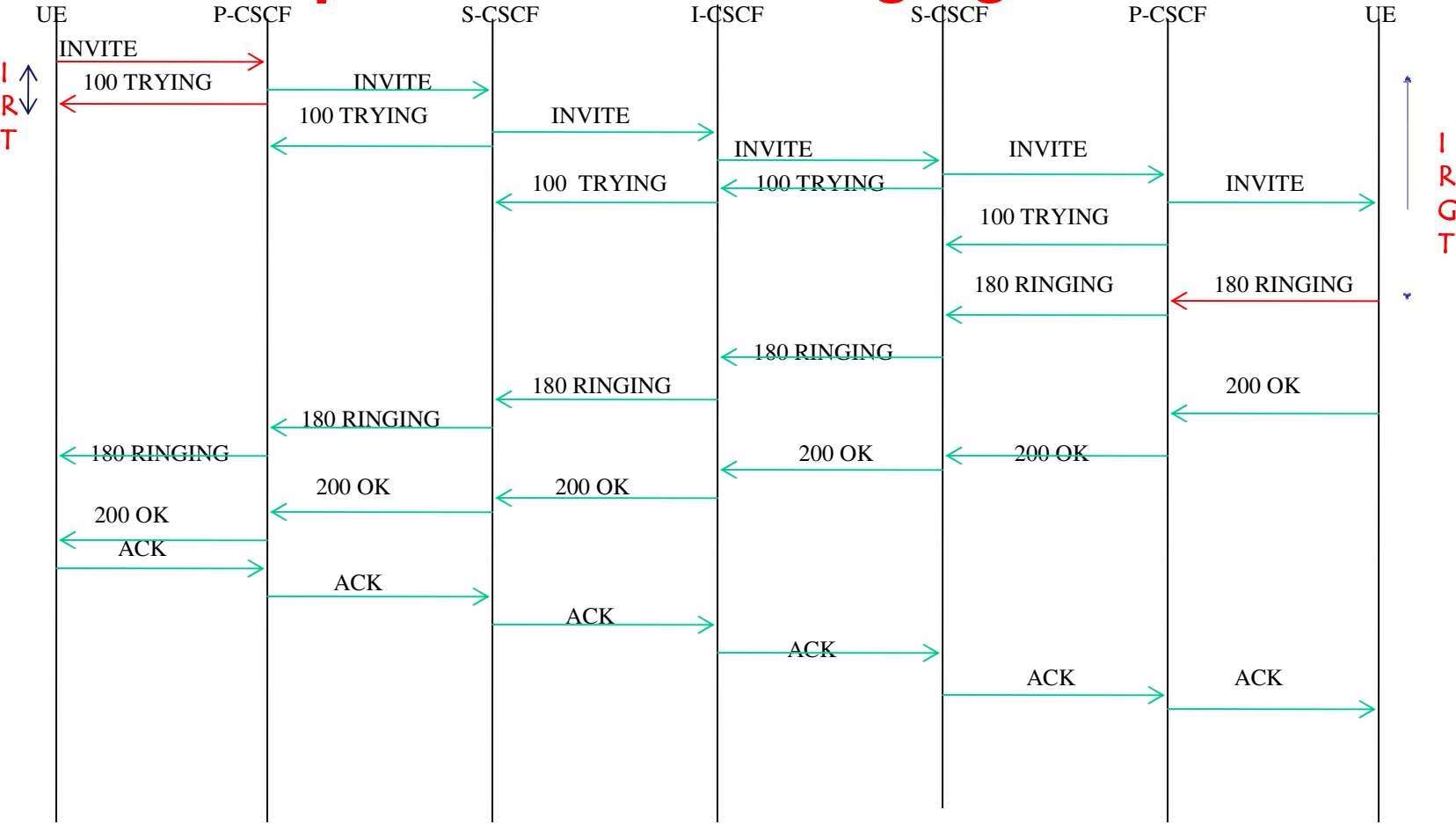
UA Registration

- Alice and Bob are registered with the HSS database named hss_db.
- REGISTER Request goes from P-CSCF to I-CSCF to S-CSCF.
- 401 response challenge comes from S to I to P.
- UE sends the second REGISTER from P to I to S.
- The network authenticates the UE by sending 200 OK.

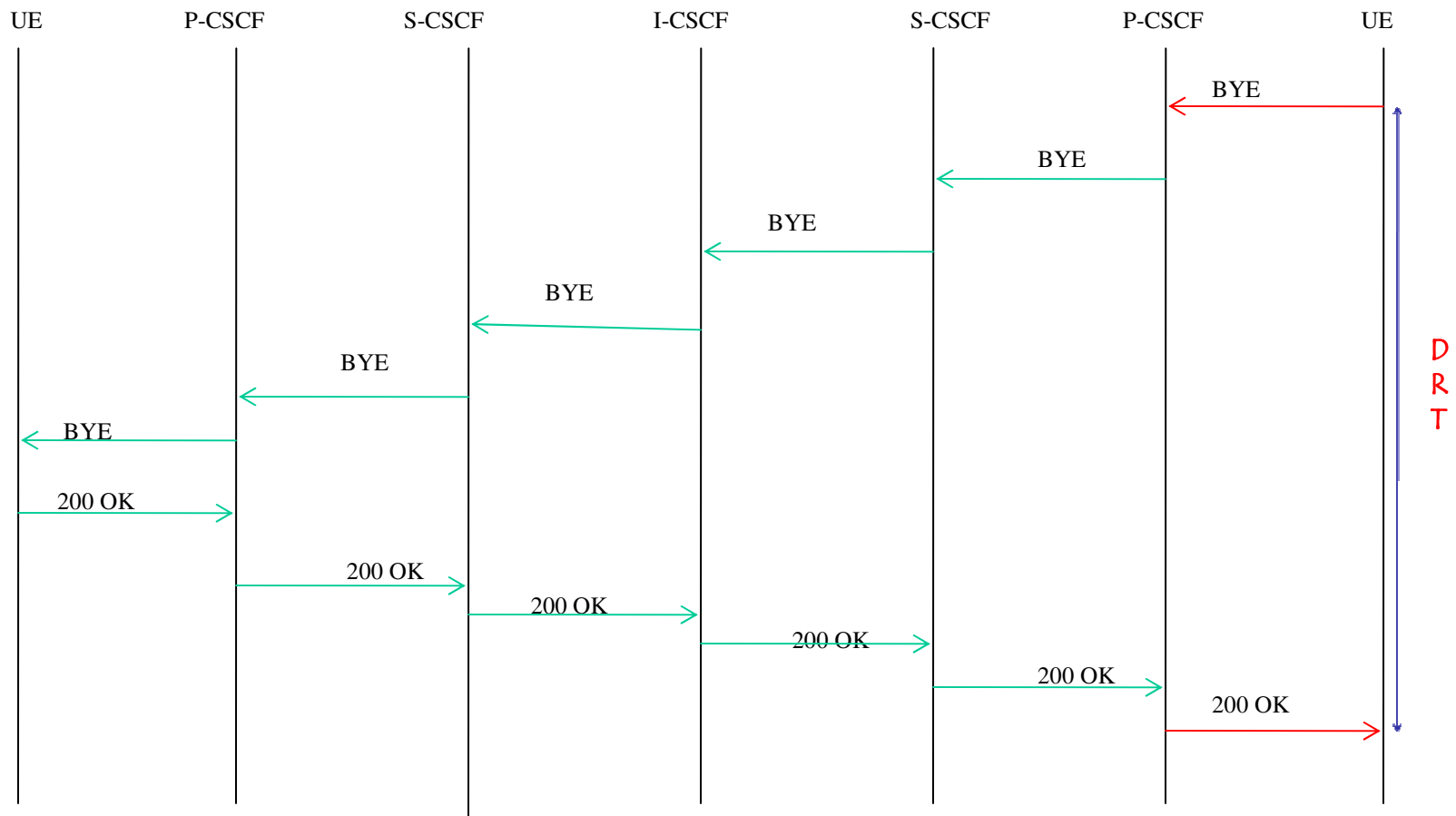
Registration time (RT)



Initial Response (IRT) and Ringing Time (IRGT)



Disconnect Request Time (DRT)



Observations

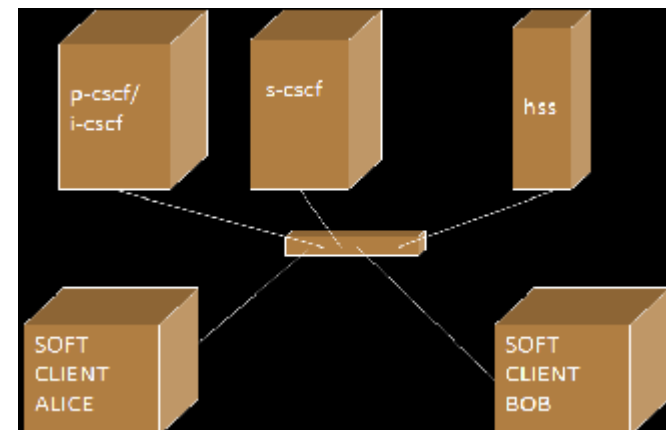
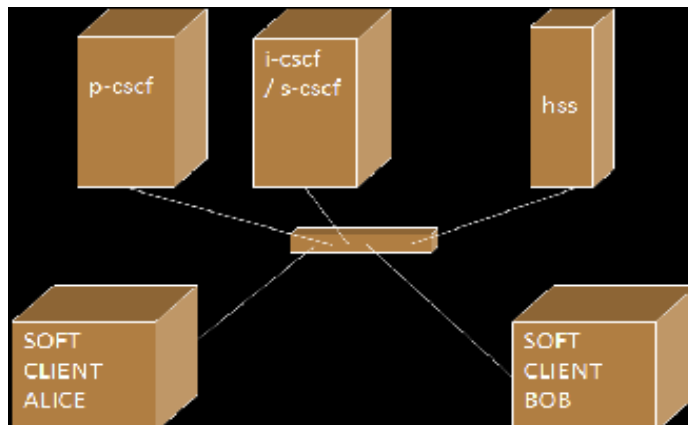
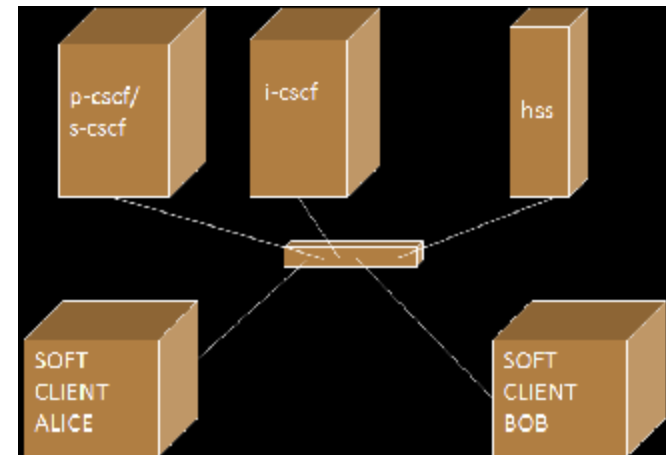
	IMS CORE IN 4 SYSTEMS	IMS CORE IN 1 SYSTEM
Registration Time (ms)	97.4206	390.0043
Initial Response Time(ms)	0.5124	46.6222
Initial Ringing Time(ms)	34.11	110.65316
Disconnect Request Time(ms)	48.96	90.16316

Conclusion

- There is an interesting variation of the four metrics measured on IMS system deployed in four different systems and a single system.
- Some of the issues that can be responsible are
 1. More overhead when done in a single system.
 2. Systems processing time varies.

Future Work

- Study the responsible issues for this variation.
- Find out which is the optimal physical architecture for high throughput.

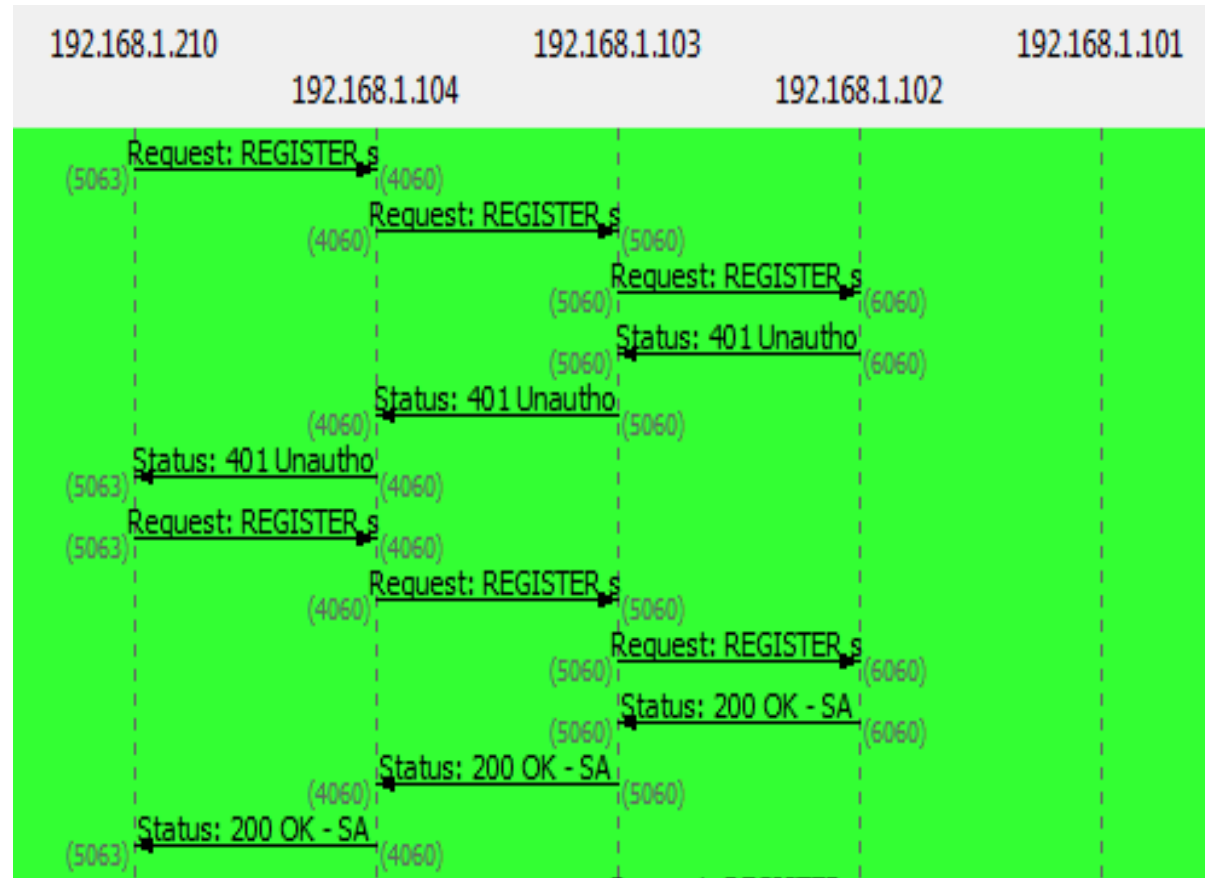


- Bulk calls to test the performance of open IMS core under pressure.
- Enable IPsec.



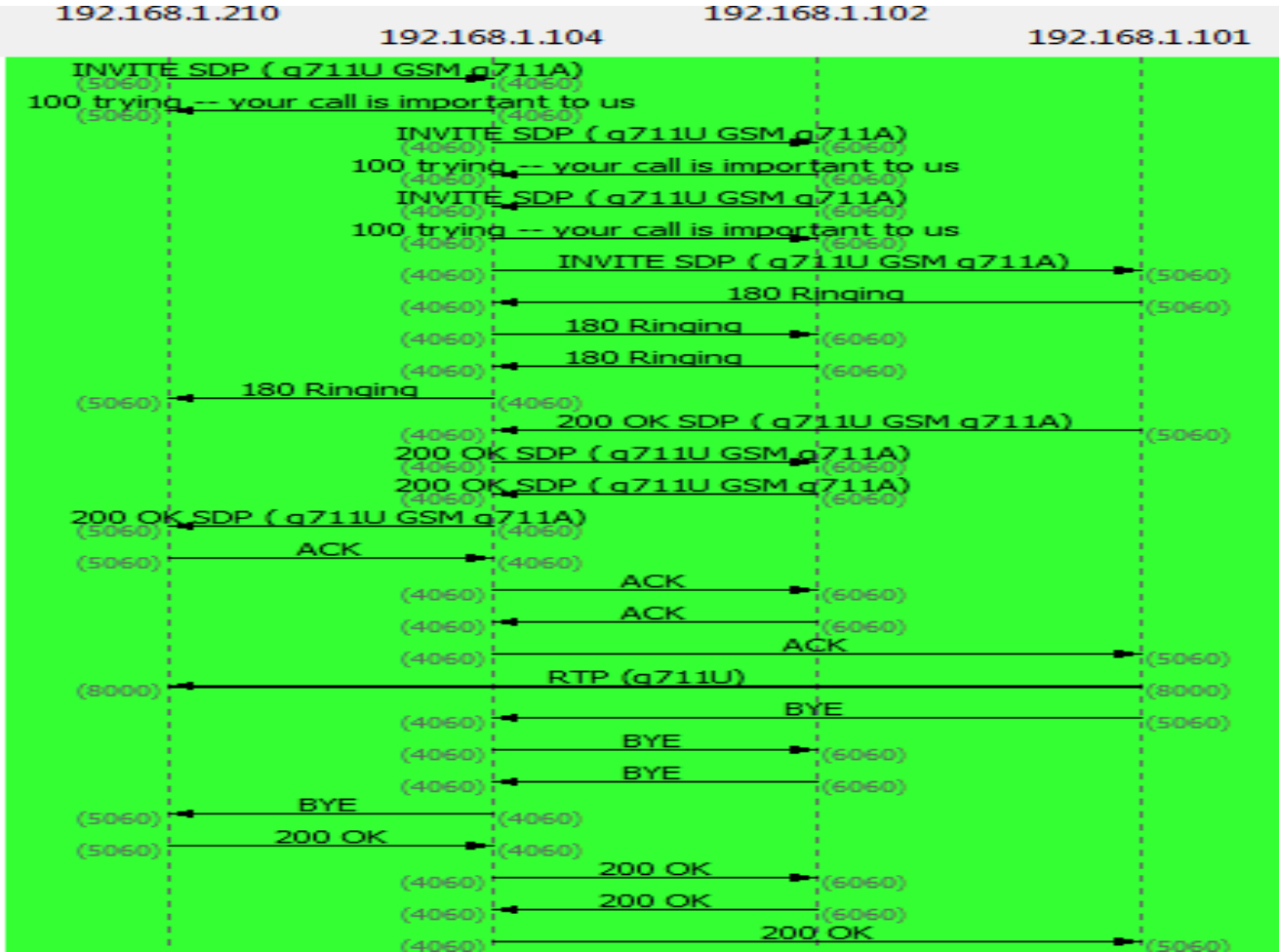
Appendices -registration

192.168.1.210 - client
 192.168.1.104 - pscsf
 192.168.1.103-icscf
 192.168.1.102-scscf
 192.168.1.101-hss



Appendices—basic call

192.168.1.210 - client
 192.168.1.104 – pcscf
 192.168.1.102-scscf
 192.168.1.101-
 hss/client



Any Questions or comments?

