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Gregor Schaffrath, Doris Schiöberg

# Network Architectures: Internet Security

Preparatory Meeting

Technische Universität Berlin  
Intelligent Networks / Intelligente Netze (FG INET)

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# Overview

Seminar overview

Timeline

Topics

Contact

# Seminar Overview

2 SWS / 3 LP

Exam: talk and paper

Prerequisites:

- Profound knowledge in computer networks and cryptology
- GOOD English for reading scientific papers

# Seminar Content

□ Recent findings and scientific insights concerning Internet security, e.g.:

- BGP security
- Intrusion Detection and Network Debugging
- Botnets and Spam
- Wireless Security
- Service and Network Access Security
- Cryptographic Protection and Covert Channels

# Intention of the seminar

- ❑ Practice to work with original literature
- ❑ Practice of professional/scientific talks
- ❑ Practice to organize yourself/work autonomously
- ❑ Occupation with a small, definite and recent matter

# Seminar Certificate

To receive the seminar certificate we require:

- ❑ A successful presentation/talk
- ❑ A seminar paper accepted by us
- ❑ Continuous attendance and active participation and contribution
  - in the group meetings as well as during the presentations

# Timeline

Preparatory  
Meeting

October 16th, 2009



Talks

End of semester



# Timeline: Register

Registration until October 20th, 2009 (12:00)

Select topics and language:

(If you don't have an ISIS account, contact Doris or Gregor by Email AsSoonAsPossible!)

Via ISIS (web):

<https://www.isis.tu-berlin.de/course/view.php?id=2504> ("Seminar NPA: IS")

Registration

October 20th,  
2009 (12:00h)





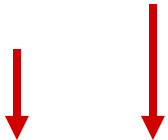
# Timeline: Topic Choices

Announcement of assigned topics until  
October 23rd, 2009

Topic <-> student matching

Via web or email

Announcement of assigned topics  
October 23rd, 2009



# Timeline: Topic Elaboration

- Elaborate the topic
  - Search for additional literature
  - Read and understand it

Topic Elaboration  
November 9th,  
2009 (12:00h)



# Timeline: Meeting

Meeting with supervisor until November 13th, 2009

It is recommended to send your advisor a short structural draft as a discussion basis one or two days earlier.

Meeting  
November 13th,  
2009



# Timeline: Literature Summary

## □ Summarise literature in a seminar paper

- 10 pages (pdf or ps)

- Guidelines for writing can be found on our web site:

[http://www.net.t-labs.tu-berlin.de/teaching/gl\\_seminar\\_en.shtml#ausarbeitung](http://www.net.t-labs.tu-berlin.de/teaching/gl_seminar_en.shtml#ausarbeitung)

- Until December 14th, 2009

Literature Summary  
December 14th, 2009  
(08:00h)



# Timeline: Peer Review



- ❑ Read and correct the seminar paper of other participants in the group
  - Guidelines are linked on the seminar web page
- ❑ Subsequently: exchange comments in a **group meeting** (attendance is mandatory!)
  - Appointment will be discussed for every group

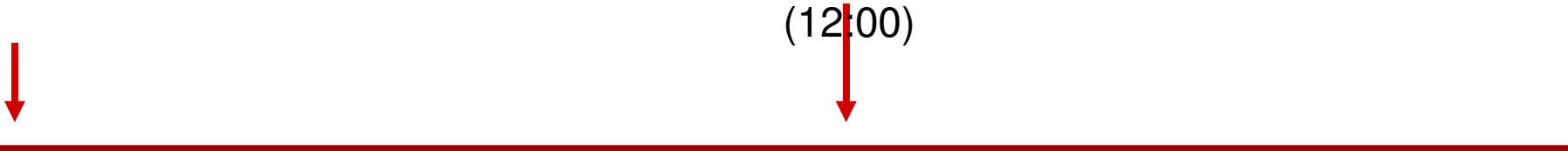
Peer Review  
January 4th, 2010



# Timeline: Paper Revision

Incorporate results of the group meeting in seminar paper


Paper Revision  
January 15th, 2010  
(12:00)



# Timeline: Slides

- ❑ Start to prepare slides after January 15th
- ❑ Send first version of your slides to your supervisor until January 29th


First Version of Slides  
January 29th, 2010  
(12:00)h



# Timeline: Slides

- Meet with supervisor and discuss slides (around February 5th)
- Incorporate comments of supervisor in slides and send the final version until February 12th

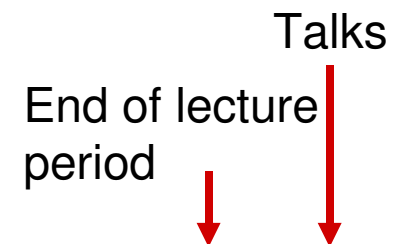
Final Version of Slides  
February 12th, 2010  
(12:00h)

A horizontal red line spans the width of the slide. Two red arrows point downwards from the line. The first arrow is on the left side. The second arrow is positioned directly below the text 'Final Version of Slides February 12th, 2010 (12:00h)'.



# Timeline: Talks

- Talks will be after the lecture period (Vorlesungszeit)
  - Blockseminar: 2-3 days
  - Present the paper
  - 45 min incl. discussion per talk (30 mins talk)



# Timing in General

- ❑ Deadlines are fixed and hard!
  - (-0.3 penalty/day of delay on the final mark)
- ❑ Organize yourself
  - Appointments with your supervisor
  - Group discussions
  - ...
- ❑ Discuss schedule in advance
  - Vacation is no excuse!

# Topics

- ❑ 26 pre-defined topics
- ❑ Can be found on the seminar page
- ❑ Given Literature is a starting point, additional research is required
- ❑ Additional topics **may be suggested**, but may be rejected (contact Gregor or Doris)

# BGP Security

- ❑ „Pretty Secure BGP (psBGP)”
- ❑ „Beware of BGP Attacks”
- ❑ „The Performance Impact of BGP Security”
- ❑ „Securing BGP through Keychain-based Signatures”

# Intrusion Detection and Network Debugging

- „Enriching Network Security Analysis with Time Travel”
- „NetReview: Detecting when Interdomain Routing goes wrong”
- „Shunting: A Hardware/Software Architecture for Flexible, HighPerformance Network Intrusion Prevention”

# Botnets and Spam

- „Your Botnet is My Botnet: Analysis of a Botnet Takeover”
- „Spamalytics: An Empirical Analysis of Spam Marketing Conversion”

# Wireless Security

- ❑ „Is your Cat infected with a Computer Virus?”
- ❑ „Routing Security in Ad Hoc Networks”
- ❑ „A Survey on Integrating MANETS with the Internet: Challenges and Designs”
- ❑ „On Data-Centric Trust Establishment in Ephemeral Ad Hoc Networks”
- ❑ „Implications of Radio Fingerprinting on the Security of Sensor Networks”
- ❑ „Anonymity and Security in Delay Tolerant Networks”

# Service and Network Access Security



- „Towards Optimal Firewall Rule Ordering Utilizing Directed Acyclical Graphs“
- „Secure Web Browsing with the OP Web Browser?“
- „Security Considerations for Peet-to-Peer Distributed Hash Tables“
- „Protecting DNS from Routing Attacks“
- „Lessons Learned: A Security Analysis of the Internet Chess Club“



# Cryptographic Protection and Covert Channels



- „SPATE: Small-group PKI-less Authenticated Trust Establishment”
- „Implementing Public-Key Infrastructure for Sensor Networks”
- „Wireless Client Puzzles in IEEE 802.11 Networks”
- „Keyboards and Covert Channels”

# Suggesting Additional Topics

- ❑ You can suggest own topics
  - No guarantee that they'll be accepted!
- ❑ Some requirements on papers for the seminar:
  - Scientifically relevant
  - Good quality paper
- ❑ Self-contained description in one paper or set of papers
- ❑ See next slide howto find those

# Howto Find Topics

## Related Conferences / Workshops

### ACM SIGCOMM

<http://www.sigcomm.org/learn/sigcomm-conference/sigcomm-conference>

### ACM CoNEXT

<http://conferences.sigcomm.org/co-next/>

### ReArch 2008

[http://conferences.sigcomm.org/co-next/2008/rearch\\_technicalprogram.html](http://conferences.sigcomm.org/co-next/2008/rearch_technicalprogram.html)

### ACM MobiCom (Wireless)

<http://www.sigmobility.org/mobicom/>

# Forum

Discussion Forum for students on the ISIS website.

(for student internal discussion)

Separate Announcement Forum for announcements on our behalf.

# Contact

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Doris Schiöberg

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All supervisors

[seminar@lists.net.t-labs.tu-berlin.de](mailto:seminar@lists.net.t-labs.tu-berlin.de)