Network Architectures: Internet Routing (Seminar)

Preparatory Meeting

Technische Universität Berlin

Intelligent Networks / Intelligente Netze (FG INET)

Mirko Palmer
mirko@inet.tu-berlin.de

Thorben Krüger
thorben@inet.tu-berlin.de
Overview

- Seminar
- Timeline
- Contact
- Topics
Seminar

2 SWS / 3 LP
Exam: talk and paper
Prerequisites:
- Advanced knowledge in computer networks
- Sufficient skills in scientific English
Intention of the Seminar

- Work with scientific literature independently
- In-depth study of current research topics
- Understand academic publishing processes
- Practice professional/scientific speaking
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
  - During the presentations
Seminar Content

- Recent findings and scientific insights concerning Internet routing, e.g.:
  - Routing Protocols
  - Interdomain Routing
  - Peer-to-Peer networks
  - Network Architecture
  - Data center networks
Timeline

- Preparatory Meeting
  - Oct 21st

- Talks
- End of Semester
Timeline: Registration

Registration until Oct 28\(^{th}\) (16:00h)
Select Topics via ISIS (web): “INET IR Sem (WS 16/17)”
https://isis.tu-berlin.de/course/view.php?id=8633

(If you don't have an ISIS account, send an email As Soon As Possible!)

Registration
Oct 28\(^{th}\) (16:00h)
Timeline: Topic Choices

Announcement of assigned topics:
by end of Oct 31\textsuperscript{st}

Topic <-> Student matching via web and email
Timeline: Topic Elaboration

- Elaborate the topic
  - Search for additional literature
  - Read and understand it
  - Send short structural draft to supervisor

Topic Elaboration
Nov 4th (23:55h)
Timeline: Meeting

Meeting with supervisor by Nov 18th
Your short structural draft will be used as a discussion basis.

Meeting until Nov 18th
Timeline: Literature Summary

- Summarize literature in a seminar paper
  - 10 pages (DIN A4 PDF)
  - Guidelines for writing:
    - [http://www.inet.tu-berlin.de/menue/teaching0/infoteaching/seguide/#292501](http://www.inet.tu-berlin.de/menue/teaching0/infoteaching/seguide/#292501)
  - Until Dec 9th

Seminar Paper
Dec 9th (23:55h)
Timeline: Peer Review

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

Peer Review
Approx. Jan 6th – Jan 13th
Timeline: Paper Revision

Incorporate results of the group meeting into a seminar paper

Final Seminar Paper
Jan 20th (23:55h)
Timeline: Slides

- Start to prepare slides after Jan 20th
- Send first version of your slides and meet with your supervisor, until Feb 3rd

First Draft Version of Slides
Jan 27th (23:55)h
Timeline: Slides

- Incorporate comments of supervisor in slides
- Send the final version until Feb 10th

Final Version of Slides
Feb 10th (23:55h)
Timeline: Talks

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

End of lecture period
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
  - etc...
- Discuss schedule in advance
  - Vacation is no excuse!
Topics

- 24 recent papers
- Listed on the seminar page
- Given Literature is a starting point
  - Additional research is required!
Forum

- Discussion Forum for students on the ISIS website. (for student internal discussion)
- Separate News Forum for announcements on our behalf.
Contact

Thorben Krüger
thorben@inet.tu-berlin.de

Mirko Palmer
mirko@inet.tu-berlin.de
Papers
End-User Mapping: Next Generation Request Routing for Content Delivery
Bobtail: Avoiding Long Tails in the Cloud
Inter-Technology Backscatter: Towars Internet Connectivity for Implanted Devices
Beacon-Based Routing Optimization in Data-Gathering in Wireless Sensor Networks
Don’t Mind the Gap: Bridging Network-wide Objectives and Device-level Configurations
Central Control Over Distributed Routing
CONGA: Distributed Congestion-Aware Load Balancing for Datacenters
Condor: Better Topologies Through Declarative Design
BlindBox: Deep Packet Inspection over Encrypted Traffic
A Distributed and Robust SDN Control Plane for Transactional Network Updates
Presto: Edge-based Load Balancing for Fast Datacenter Networks
Enabling End-host Network Functions
Inside the Social Network’s (Datacenter) Network
InterTubes: A Study of the US Long-haul Fiber-optic Infrastructure
An Empirical Reexamination of Global DNS Behavior
Jupiter Rising: A Decade of Clos Topologies and Centralized Control in Google’s Datacenter Network
Examining How the Great Firewall Discovers Hidden Circumvention Servers
Hypercube-Based Multipath Social Feature Routing in Human Contact Networks
Detecting Malicious Activity with DNS Backscatter
Large-scale Measurements of Wireless Network Behavior
R2C2: A Network Stack for Rack-scale Computers
From .academy to .zone: An Analysis of the New TLD Land Rush
Poptrie: A Compressed Trie with Population Count for Fast and Scalable Software IP Routing Table Lookup