Interconnection Technologies

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Prerequisites

- TDC 361 – Basic Communication Systems
- TDC 362 – Data Communications

Would be nice:

- TDC 363 – Local Area Networks
- Any experience configuring TCP/IP hosts
- Job related exposure to TCP/IP networks
You will learn

- Terminology and acronyms
- Data link and network layer addressing
- LAN bridging and switching technologies
- IP routing technologies
- Interconnection device configuration basics
- Basic flow and congestion control techniques
- About other middle box technologies
You will also become familiar with

- Basic operating principles of the Internet
- Network operations and management
- Packet level decodes and analysis
- Firewalls, proxy servers and application level gateways
- IPv6, IP Multicast and Mobile IP
- Basic network design strategies
You will not learn

• How to start and run your own ISP
• How to do network programming
• Everything there is to know about networking
• How to shop for networking vendors
You probably won’t learn

- Much about network applications
- Novell NetWare, AppleTalk or SNA
- ATM or Frame Relay
- What you eventually should about WANs
- A lot of things, but only due to lack of time
Also note

- This class is not a vendor certification class
- What you learn here will be more generic
- We do use some vendors specific products
- This gives you perspective and experience
- This class equals education
- Certification classes equals training
- This is a really good place for you to start
I’ll do my part the best I can

- Answer email promptly
- Be fair and impartial
- Encourage discussion and questions
- Make this a class you want to come to
- Help you to learn
You do your part as best you can

- Be present and attentive
- Don’t wait until the last minute
- Contribute questions and discussion
- Tell me when something isn’t working out
- Laugh at my jokes even if they’re not funny
Grading for this course

- 30% – Homework (lowest one dropped)
- 30% – Midterm exam (closed book/notes)
- 30% – Final exam/project (TBD)
- 10% – Class participation (a gimmee?)
Tentative schedule

- 04/04 – Introduction to Internetworking
  - Fundamental technology review
  - Layer 1 and 2 review
  - Internet architecture overview
- 04/11 – Bridging I
  - Transparent bridging
  - LAN switches
Tentative schedule (continued)

- 04/18 – Bridging II
  - Spanning tree protocol
  - Source route bridging
- 04/25 – Bridging III
  - Full-duplex operation
  - VLANs
  - Priority, link aggregation, multicast
Tentative schedule (continued)

- 05/02 – Routing I
  - Addressing
- 05/09 – Midterm exam
- 05/16 – Routing II
  - Routing protocols
Tentative schedule (continued)

- 05/23 – Routing III
  - Routing protocols
  - IP multicast routing
  - Mobile IP routing
  - IPv6 issues
Tentative schedule (continued)

- 05/30 – End–to–end flow/congestion control
  - TCP
  - Queueing and scheduling algorithms
  - Class of service
  - Quality of service
Tentative schedule (continued)

- 06/06 – Internetwork security and midboxes
- 06/13 – Final exam/project
Typical timetable

- 17:45 – Learn
- 19:30 – Break
- 19:45 – Learn/Lab
- 21:00 – Good night
TDC 365 mini FAQ

Q: Do we need the book?
A: Yes if for no other reason than I’ll be referring to it and its material may be necessary to answer homework/exam questions.

Q: Do we have to read this whole book?!?
A: Only if you want to. I’ll point out the most relevant parts you’ll probably want to read.
Q: What will be covered in the homework/exams?

A: The homework will be based largely on the lectures, but I will often point you to specific parts of the book or online references as appropriate. Supplemental handouts may contain required reading references. Be sure to read them. I will give you a study guide for exams so you’ll know what to study.
TDC 365 mini FAQ

Q: How do you grade homeworks, exams, projects and class participation?
A: I’m often pretty lenient on homeworks and projects, but more strict on exams. I generally look for very specific answers on exams. There is a curve for exams and final grade. Perfect attendance gets you 50% of the class participation grade. Answering in class questions/queries for input and participating in discussion gets you the rest.
TDC 365 mini FAQ (continued)

Q: Can we turn in homework late?
A: Yes if it is pre–approved 48 hours in advance. Don’t forget the lowest scored homework will be dropped.

Q: Any chance for some extra credit?
A: I cannot be bribed, but I invite your attempts to try.
Q: What things will we do in the lab?

Q: What vendor products will we use?
A: Cisco LAN switches and routers. Various Linux based tools, some Windows stuff.
Q: Will lab time outside of class be required?
A: Yes.

Q: Where is the lab?
A: CSTC Building, 6th floor room 659.
TDC 365 mini FAQ (continued)

Q: Can we get a copy of the software we use in the lab for home?

A: Some software you can, but unfortunately we do not have enough licenses for the RouterSim software, which we use to practice switch and router configurations with. If you wanted to you could buy your own copy for about $100.
TDC 365 mini FAQ (continued)

Q: That really stinks.
A: I agree, but I tried. ...and that’s not really a question.

Q: Any other bad news?
A: Well this is a brand new class that has never been taught before. It might be like beta software.
TDC 365 mini FAQ (continued)

Q: How do I drop this class?
A: HTTP 404 – file not found

Q: Is this class hard?
A: The material is probably going to be hard, but I’ll do my best to make this an easy class to pass. Most if not all of you I suspect will.
So who am I?

• Network dude at DePaul.
• Major parts of the university network that work well I’ll take credit for. Major parts of the network that work badly I’ll blame on my predecessors.
• I am very interested in end–to–end issues, IP multicast and network security .
• I occasionally teach for funnsies.
So who are you?

- You probably know enough to hate Windows
- Many people may say you "know computers"
- You’re here because you want to be
- You probably don’t have a lot of experience
- Some of you already know some of this
- Some of you may feel lost already
- You probably have a decent MP3 collection
Final notes

• Everything else I left out is or will be on the course homepage
  • http://condor.depaul.edu/~jkrystof/
• I won’t be able to teach the 5/16 class. Should we push the exam back to that day?
• I can go off on tangents about all sorts of networking stuff I’m involved in – ask me about something interesting if a lecture becomes sleep inducing