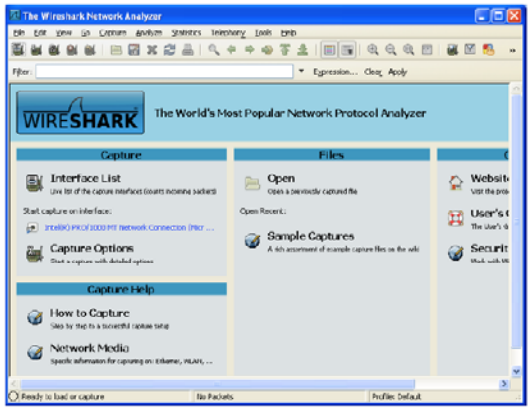
CSE 3214: Computer Network Protocols and Applications

–Network Monitoring & Protocol Analysis

Dr. Peter Lian, Professor
Department of Computer Science and Engineering
York University
Email: peterlian@cse.yorku.ca
Office: 1012C Lassonde Building
Course website:
http://wiki.cse.yorku.ca/course_archive/2012-13/W/3214

Wireshark



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Network Monitoring & Protocol Analysis

- Process of capturing network traffic and inspecting it closely to determine type and amount of data:
  - Traveling through your network, or
  - Arriving at your computer
- Network/protocol analysis is also known as "sniffing"

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Network Analyzer

- Standalone hardware device or software installed on a computer – decodes data packets of common protocol and displays their content in human-readable format
- Network analyzers are either free and commercial
- Differences between network analyzers include:
  - Number of supported protocol decodes
  - Quality of packet decodes
  - User interface
  - Graphing and statistical capabilities

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Network Analyzer Applications

- As an educational resource when learning about protocols
- Analyzing the operations of applications and protocols they rely upon
- Network intrusion detection
- Debugging in the development stage of network programming
- Reverse-engineering of protocols in order to write supporting programs

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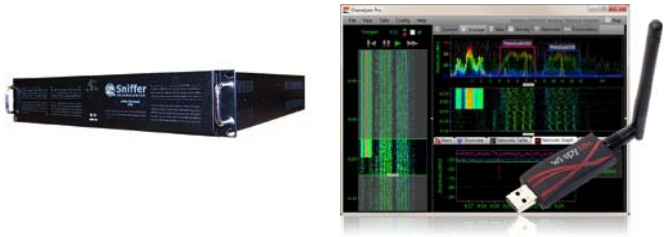
Common Network Analyzer

- Wireshark – freeware, runs on different platforms, decodes hundreds of protocols
- Snort, WinDump/TcpDump, Dsniff, etc.



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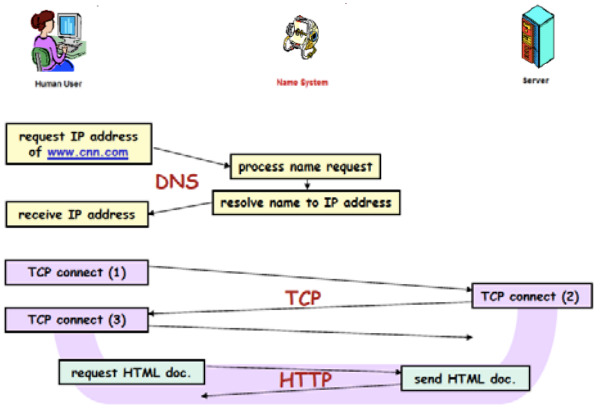
Wireshark Network Analyzer

Example: retrieval of www.cnn.com web page



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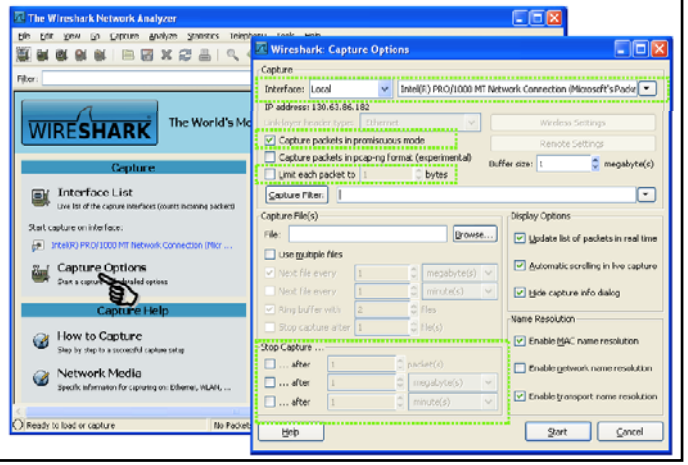
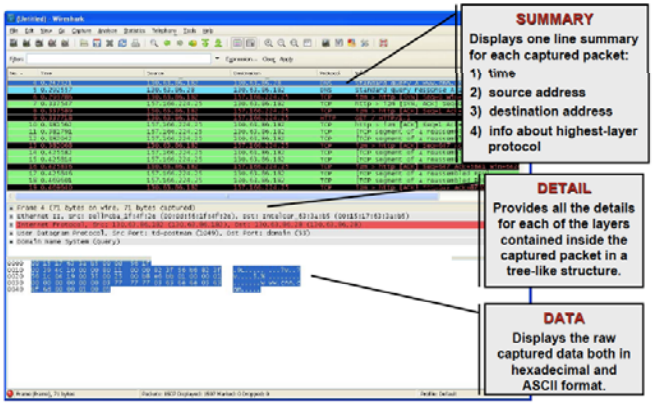
Wireshark Network Analyzer

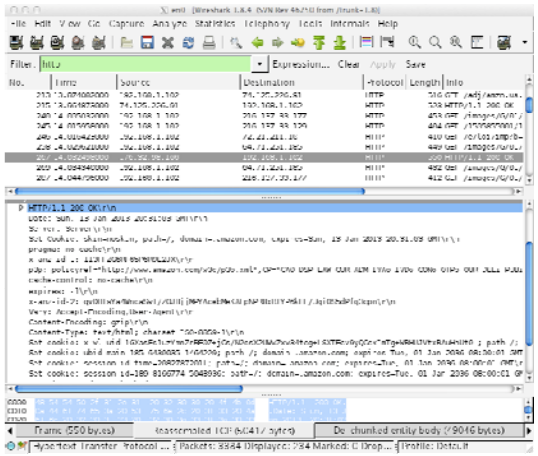


Wireshark Network Analyzer

Wireshark Display Window – captures traffic in three panes

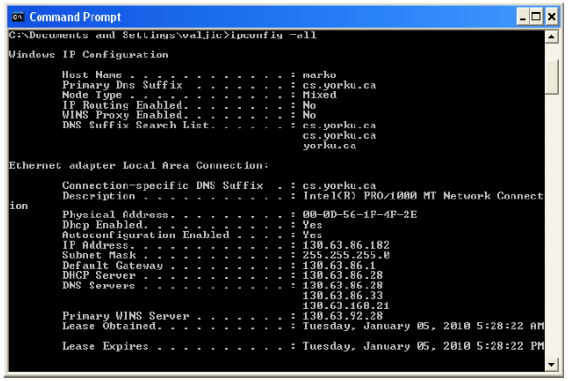


Wireshark Network Analyzer



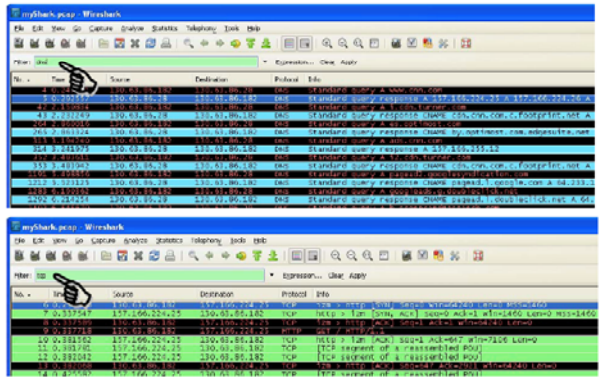
Wireshark Network Analyzer

ipconfig –all – reveals own MAC & IP address, and IP address of DNS & DHCP server



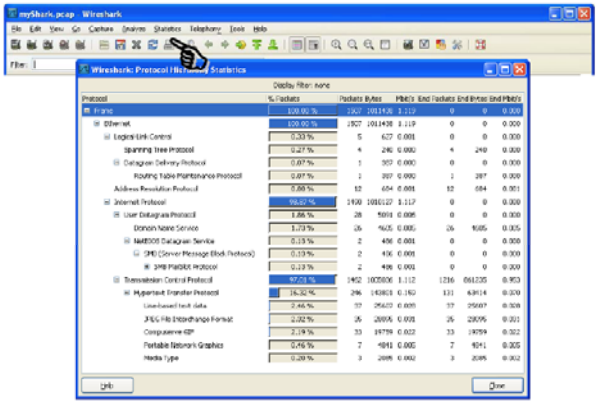
Wireshark Network Analyzer

Wireshark Display Filter Feature



Wireshark Network Analyzer

Wireshark Statistics Summary Feature



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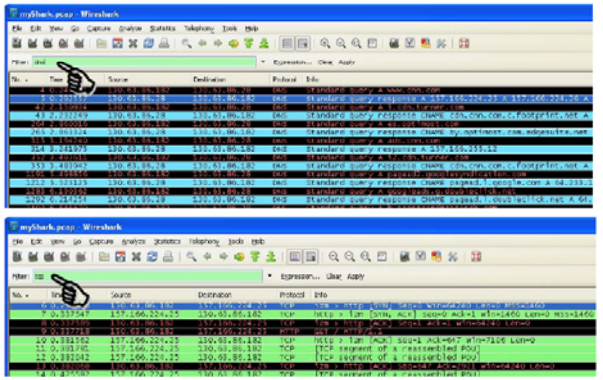
Wireshark Network Analyzer

Wireshark Display Filter Feature



Wireshark Installation

- www.wireshark.org

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