

Introduction to Computer Networks

**CISC 3320 — CUNY Brooklyn College
Lecture Notes**



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Introduction to Computer Networks

In this chapter, we will:

1. Define key concepts in Computer Networks, including those of a network and an internet.
2. Watch fun videos (yay!) that beautifully show and exemplify how networks operate and how to overcome some common networking-related challenges.



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Key definitions:

- A **network** is a set of devices/computers connected via **links** (such as wires, optical fibers, or radio channels) and **switches** (devices connecting links and forwarding data over to specific devices, e.g., routers.)
- An **internet** is a network of networks.
 - Q: **How do we distinguish between a network and an internet?**
A: Data that are sent over a network are addressed to "device X", while data sent over an internet are addressed to "device X on network Y".
- An **intranet** is a private network to which only users within an organization can access.
- The **Internet** (note the capital letter 'I') is the largest internet in the World.
- The **World Wide Web (WWW)** is the collection of all the pages and data that can be publically accessed via and over the Internet.



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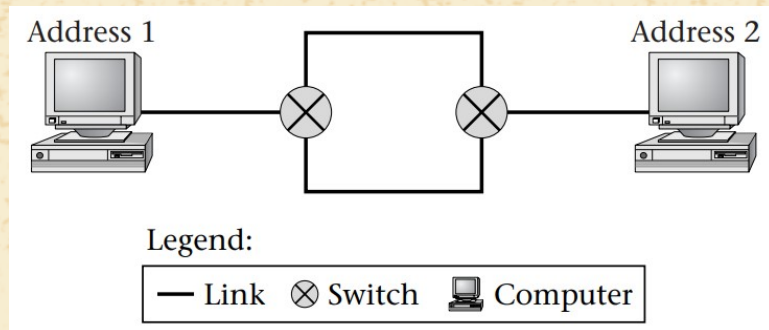


Diagram of a network. Taken from [Operating Systems and Middleware: Supporting Controlled Interaction, page 397](#).

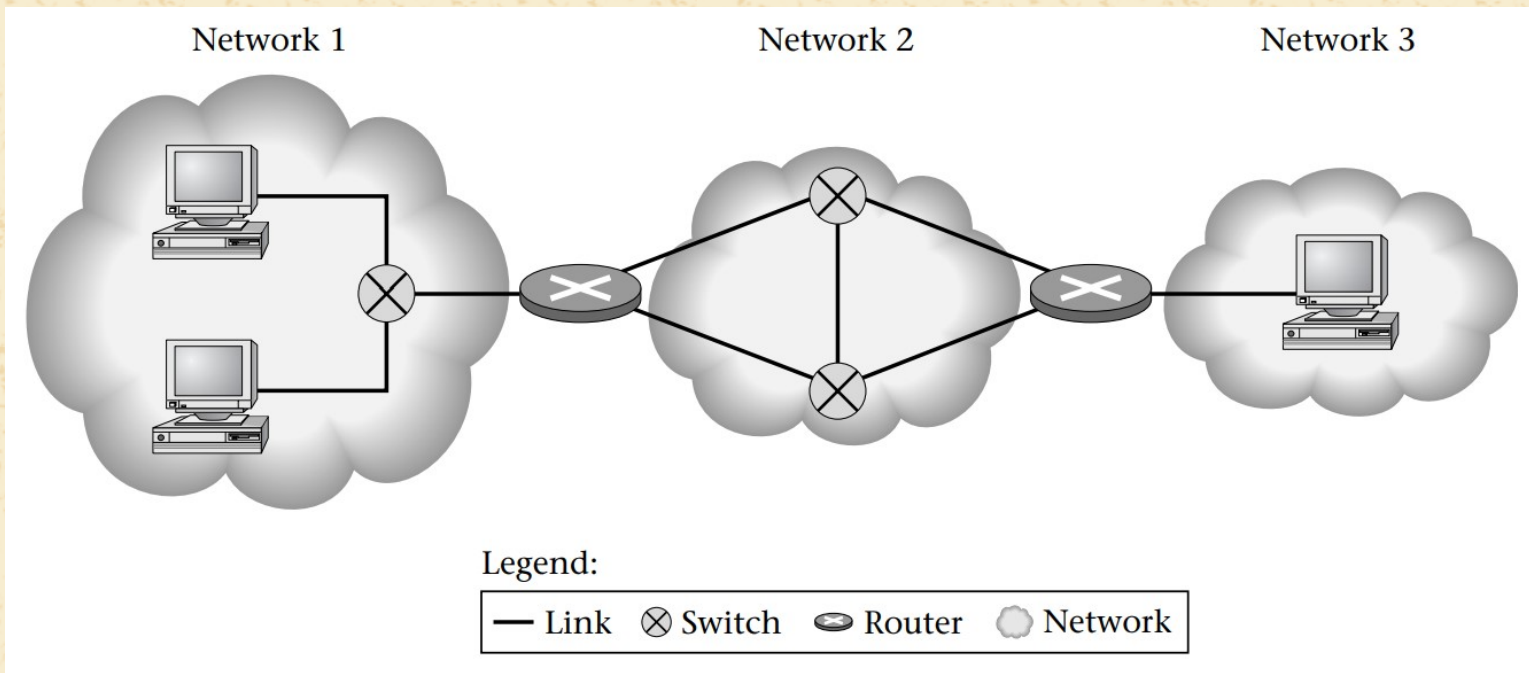


Diagram of an internet. Taken from [Operating Systems and Middleware: Supporting Controlled Interaction, page 398](#).



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A fantastic "Crash Course Computer Science" video on Computer Networks:



<https://www.youtube.com/watch?v=3QhU9jd03a0>



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The next video in the "Crash Course Computer Science" series:



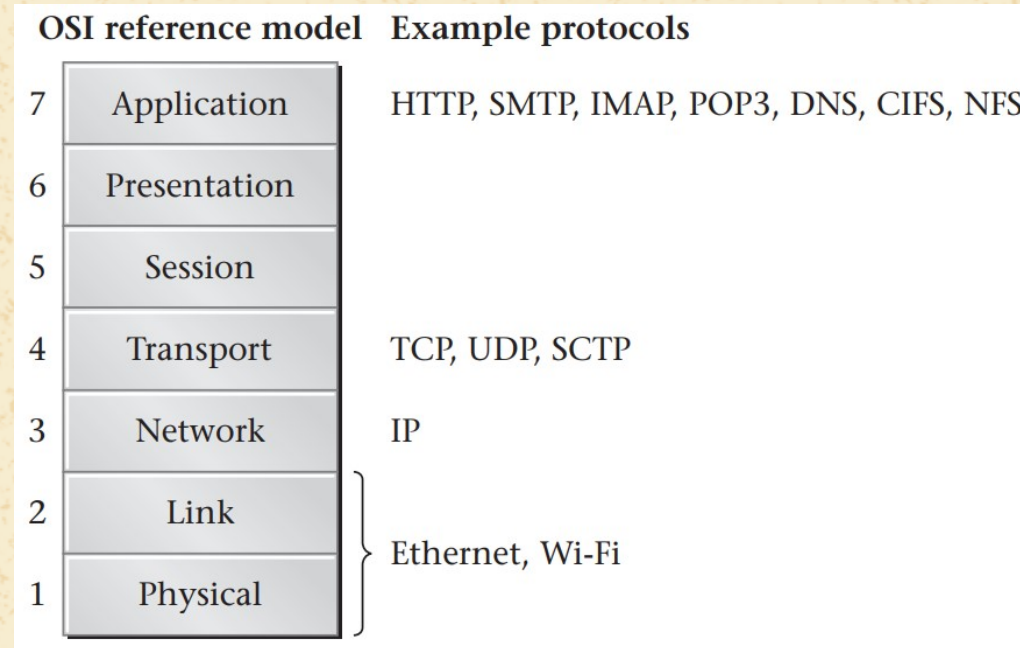
<https://www.youtube.com/watch?v=AEaKrq3SpW8>



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The OSI (Open Source Interconnection) Stack of Layers:



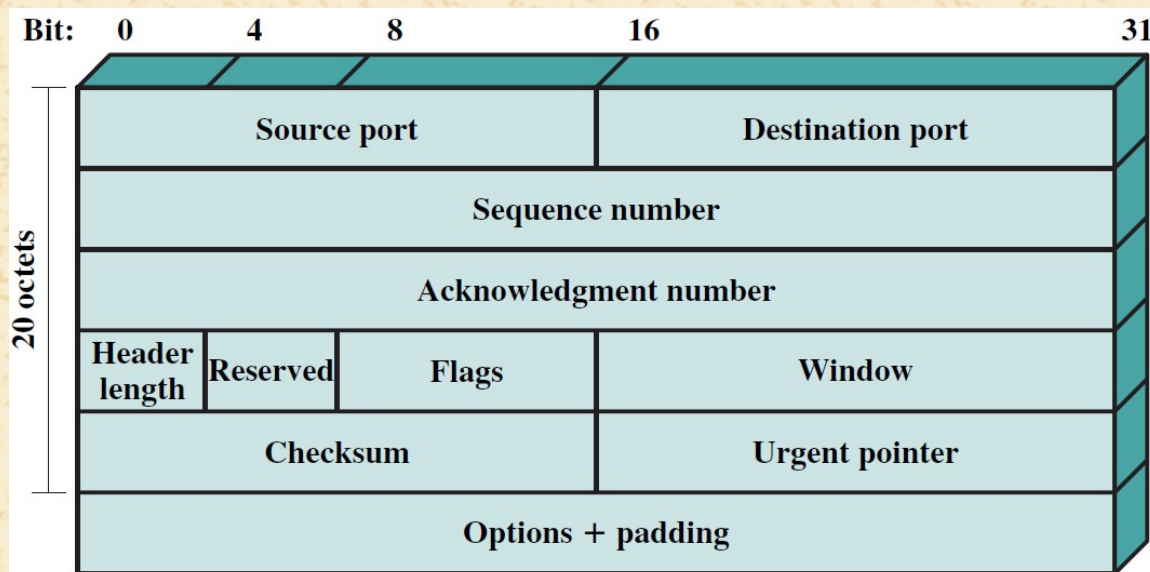
Layers of the OSI model. Taken from [Operating Systems and Middleware: Supporting Controlled Interaction, page 401](#).



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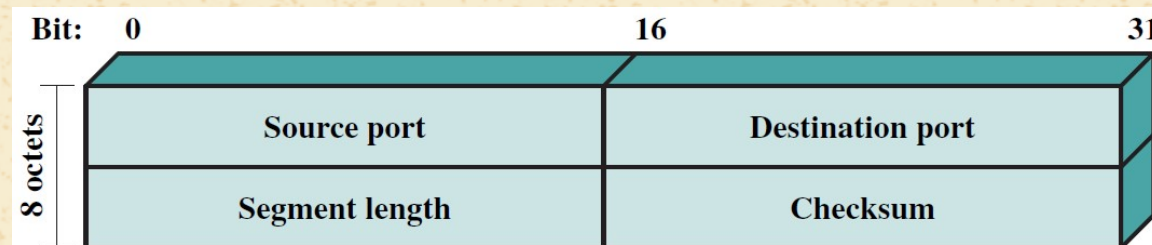
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(a) TCP header

Contents of the TCP header metadata. Taken from Stallings, William. *Data and computer communications*. Pearson Education India, 2007, page 42.



(b) UDP header

Contents of the UDP header metadata. Taken from Stallings, William. *Data and computer communications*. Pearson Education India, 2007, page 42.



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Any questions?



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Introduction to Computer Networks: Sources

Chapter 9: Networking (pp. 395-403).

Hailperin, Max (2019). Operating Systems and Middleware: Supporting Controlled Interaction. (Revised edition 1.3.1) S.I.: Gustavus Adolphus College. This work is licensed under the [Creative Commons Attribution-ShareAlike3.0 Unported License](https://creativecommons.org/licenses/by-sa/3.0/).

URL: <https://gustavus.edu/mcs/max/os-book/osm-rev1.3.1.pdf#chapter.9>



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