



Basics of the World Wide Web

SENG 4640

Software Engineering for Web Apps

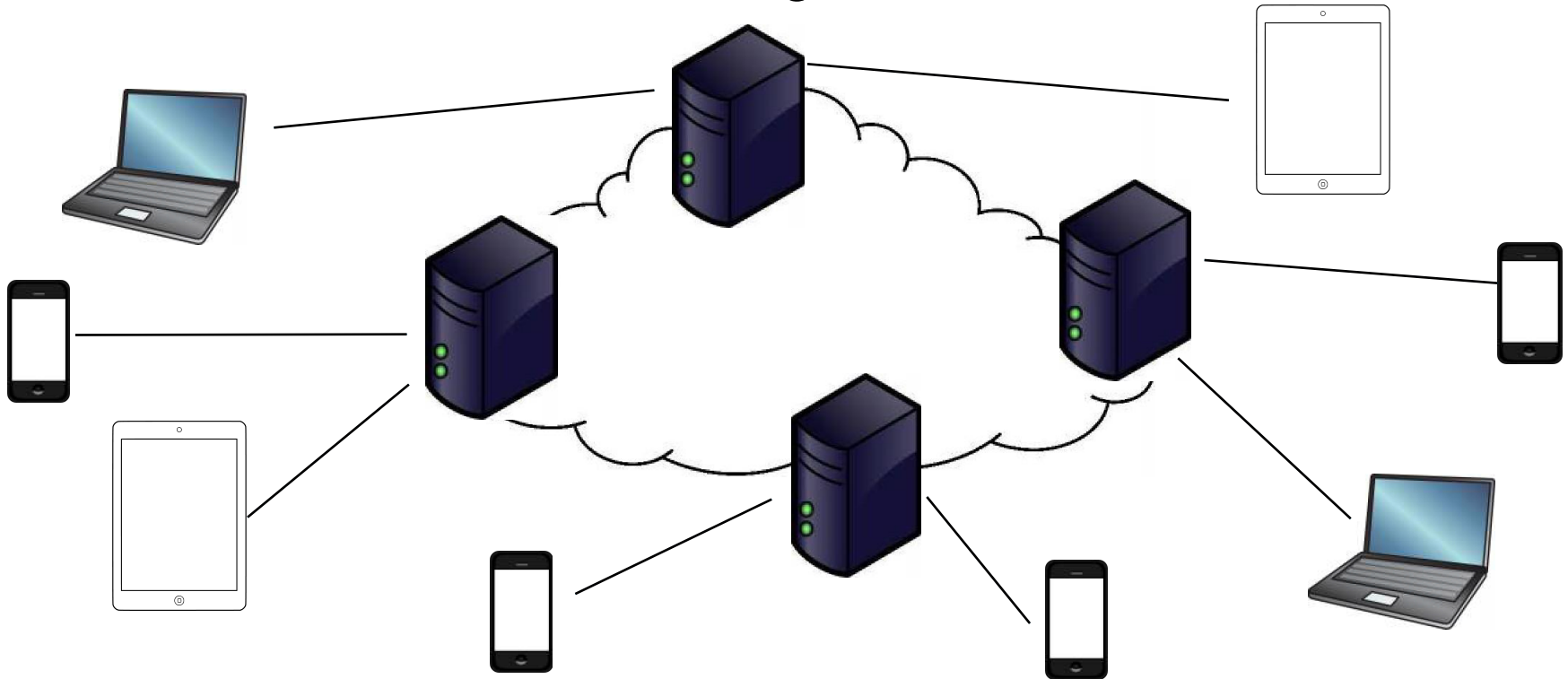
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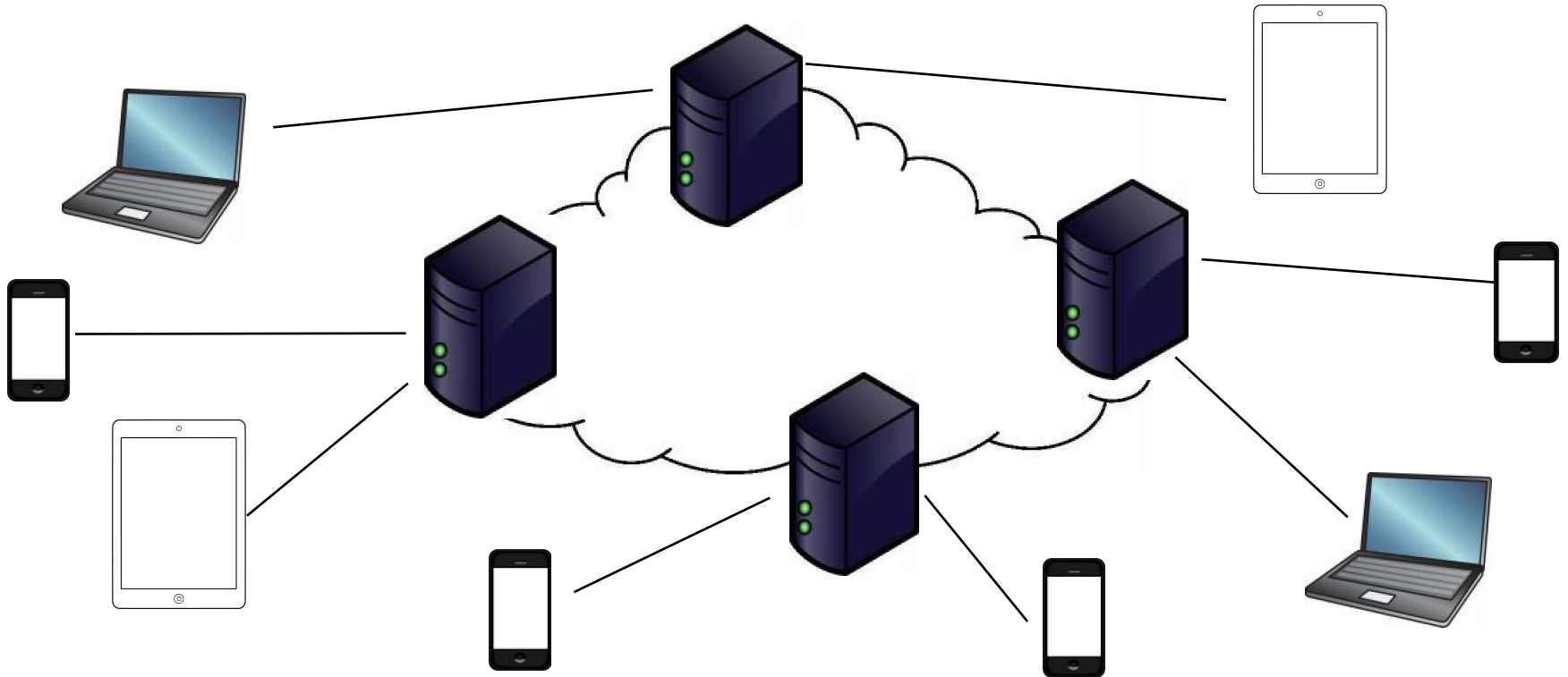
What is the Internet?

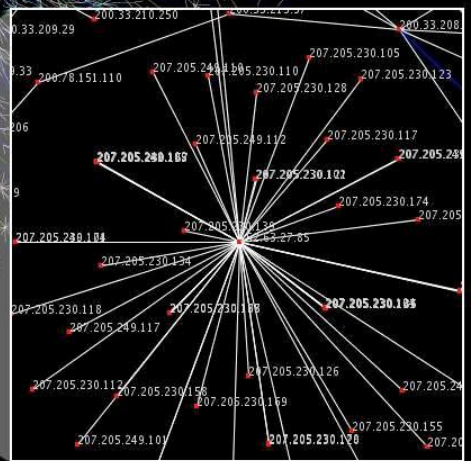
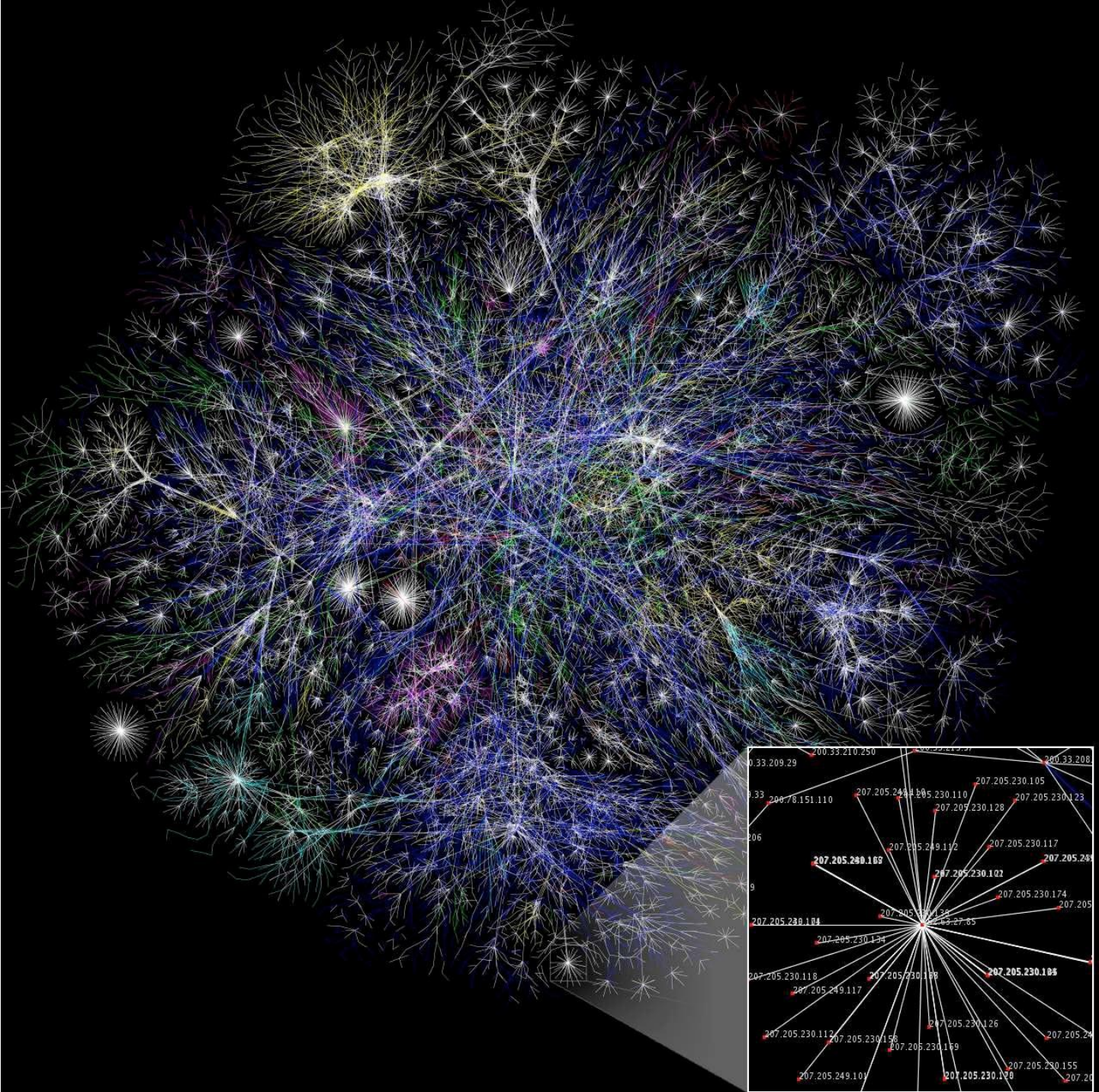
- **Internet** – network of machines (servers, clients, routers, switches, etc.) connected by media (fiber, wifi, etc.) that allows communication among devices



The Internet

- We can think of the Internet as a graph:
 - Nodes represent devices and information
 - Edges represent a connection (physical or virtual)





World Wide Web == Internet?

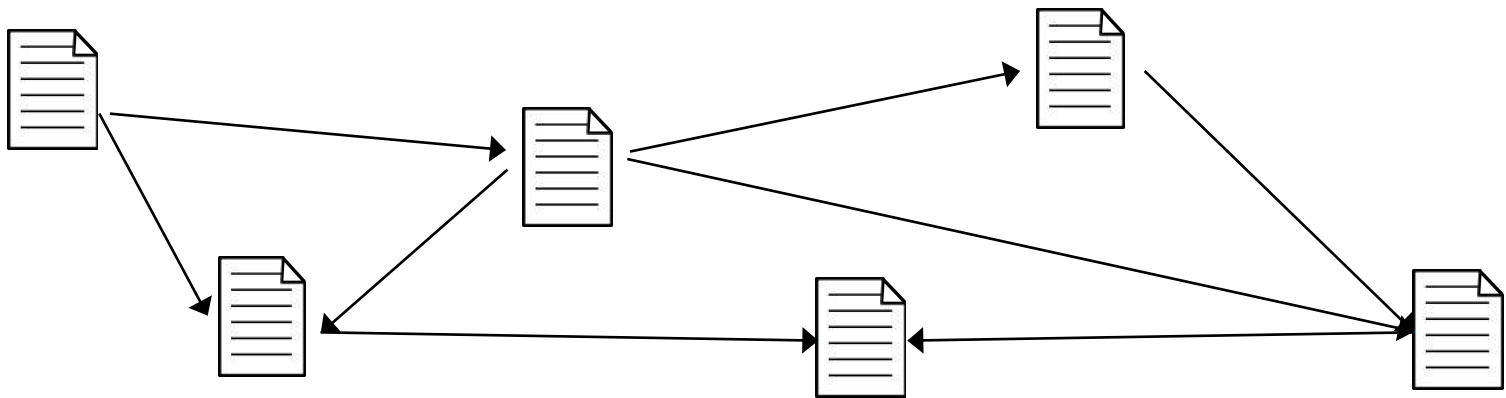
- **No!** They're not the same!
- The World Wide Web is an **application** that operates **over the Internet**
 - Internet provides infrastructure
 - World Wide Web utilizes the infrastructure to run an application on which users connect and exchange data
- Other applications use the Internet as well, e.g email

What is the World Wide Web?

- **World Wide Web (WWW)** – an application on the Internet that combines many protocols to allow for communication and transfer of data between machines
- Web is composed of documents that are logically **linked** to each other
- Originally designed to:
 - Provide easy access to documents for anyone
 - Provide way in which users can discover documents through a **browser**

The World Wide Web

- Web follows similar network structure as the Internet
- Web pages link to other web pages, thus forming a graph where:
 - Nodes represent an individual document/resource
 - Edges represent a link from one document/resource to another (directed edges)



Web Page Addresses

- **Uniform Resource Identifier (URI)** – alphanumeric string of characters used to uniquely identify a web page or resource
- **Uniform Resource Locator (URL)**: type of URI that specifies the location on the WWW and the mechanism (protocol) for retrieving it

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<http://www.example.com/home/index.html?a=12&b=34>

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Content on the World Wide Web

- **Static:** same for all users and at all times
 - Appearance may vary based on specific browser, but content itself is the same
 - Technologies: HTML, CSS
- **Dynamic:** programmatically generated depending on the user, context, configuration, arguments, etc.
 - Technologies: JavaScript

Looking Ahead

- How does a browser request a web page or resource?
 - what does it send?
 - what does it receive?
- Once the content is received, how does a browser display it?
- Later: how can you write programs to generate dynamic content in the browser?