

Network Topology Fundamentals and the OSI Model



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Course Overview



Network Topologies and the OSI Model

**Internet Protocol -
Addressing and Subnetting Fundamentals**

**Internet Protocol -
ARP and DNS Fundamentals**

Internet Protocol - Routing Packets

Routing Packets with Linux

Investigating TCP Internals

Troubleshooting Network Issues

Module Overview

Networking Topologies

Networking Devices

OSI Model

How Data Moves Through a Network

Network Topologies



LAN



WAN

Network Devices



Network Adapter



Switches/Bridges



Routers



Firewalls

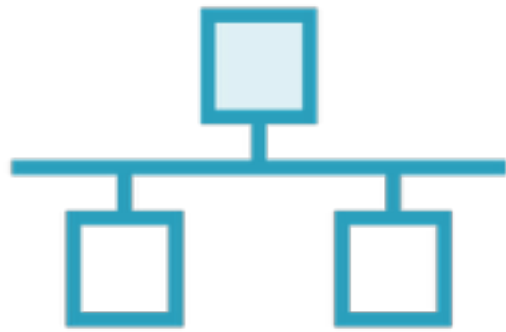
LAN

WAN

Network Topologies

Can you have the graphic team rework this three icons in pluralsight style. These are from wikipedia.

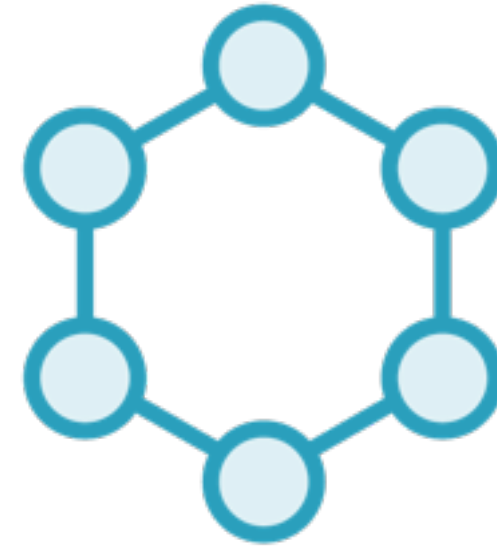
Source - https://en.wikipedia.org/wiki/Network_topology



Bus



Star

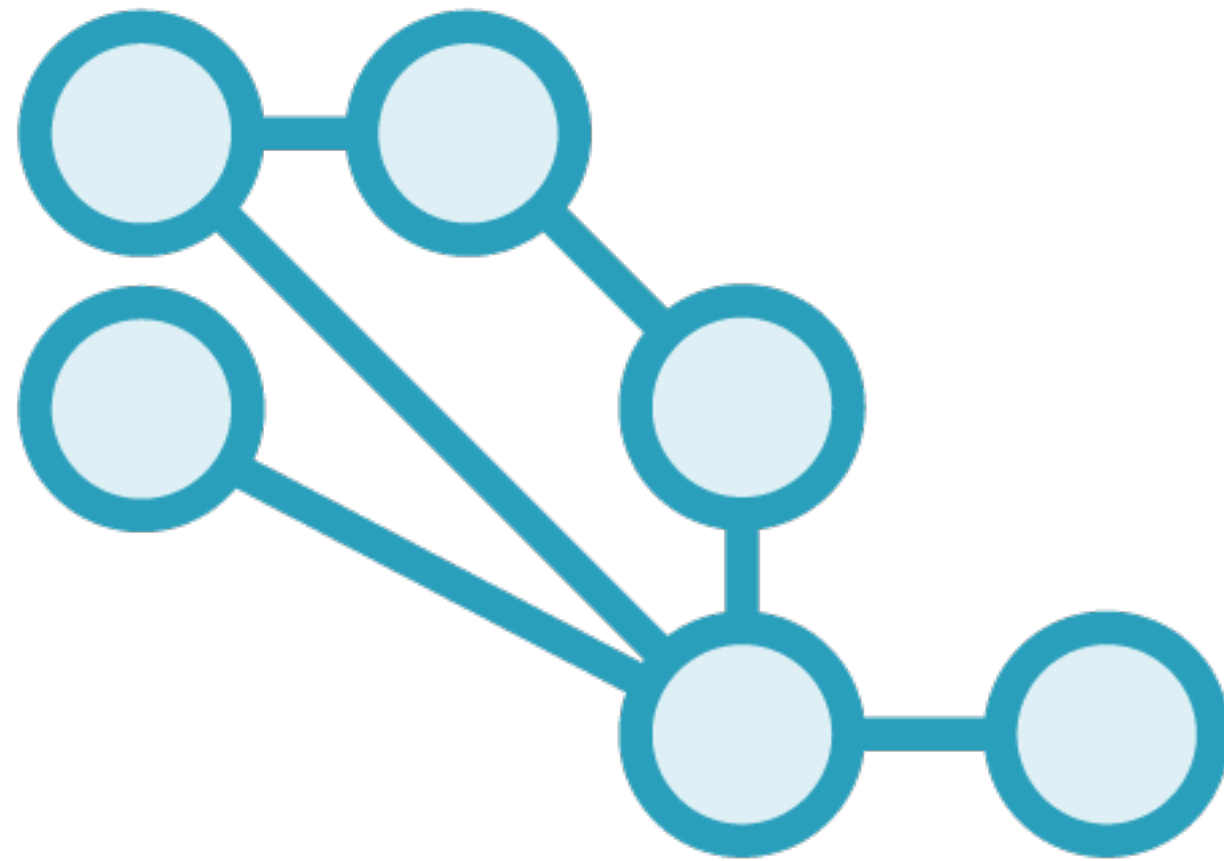


Ring



Full Mesh

Network Topologies in the Real World



Can you have the graphic team rework this icon in pluralsight style and move the nodes around a bit. This is from wikipedia. It captures the idea I want to convey, but want to use our own icons.

Somewhere in the middle - Hybrid

Can you make this look better, I want to build in from the bottom up.

OSI Model

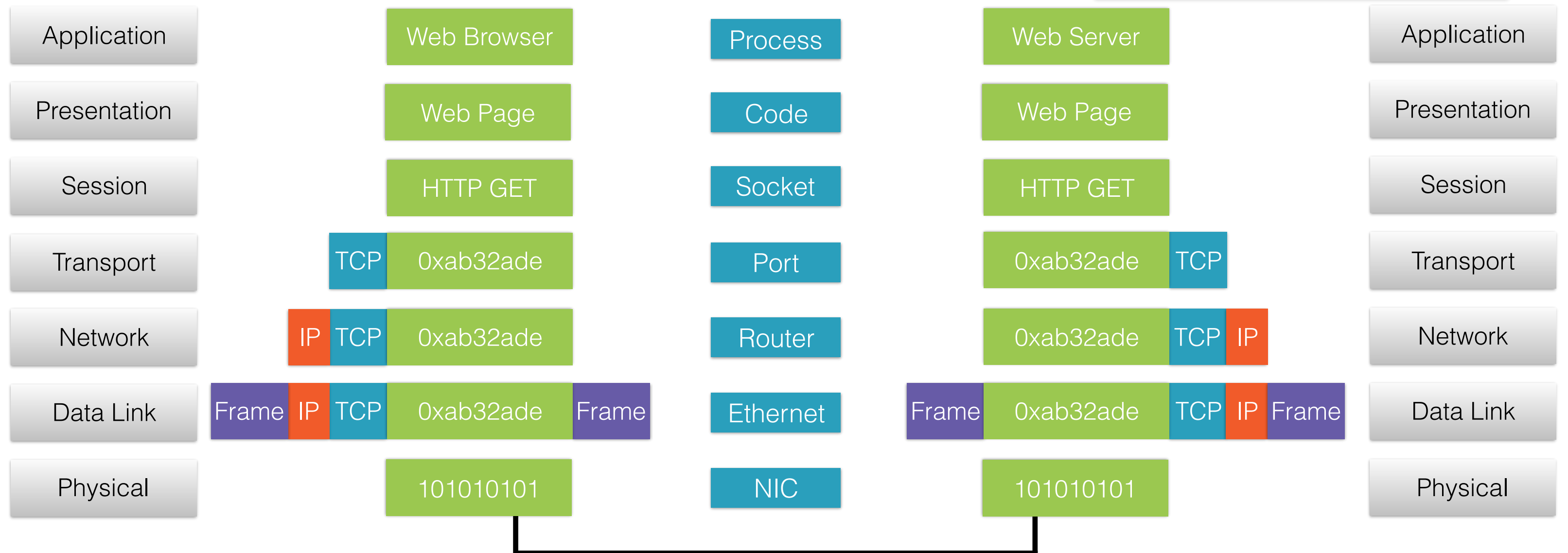
Source - <https://en.wikipedia.org>
<https://support.microsoft.com/en>

Layer	Protocol Unit	Description	Technology
Application	Application Data	Actual application	Browser, FTP Commands,
Presentation	Application Data	Translation of data for the application layer	HTML, CSS
Session	Application Data	Application level socket	HTTP, SSH
Transport	Segment	Data segmentation and delivery	TCP, UDP
Network	Packet	Addressing and routing	IP
Data link	Frame	Encoding between end stations, and access control	Ethernet encoding, switches
Physical	bits (0101010)	The actual wire	Ethernet NICs, hubs, modems

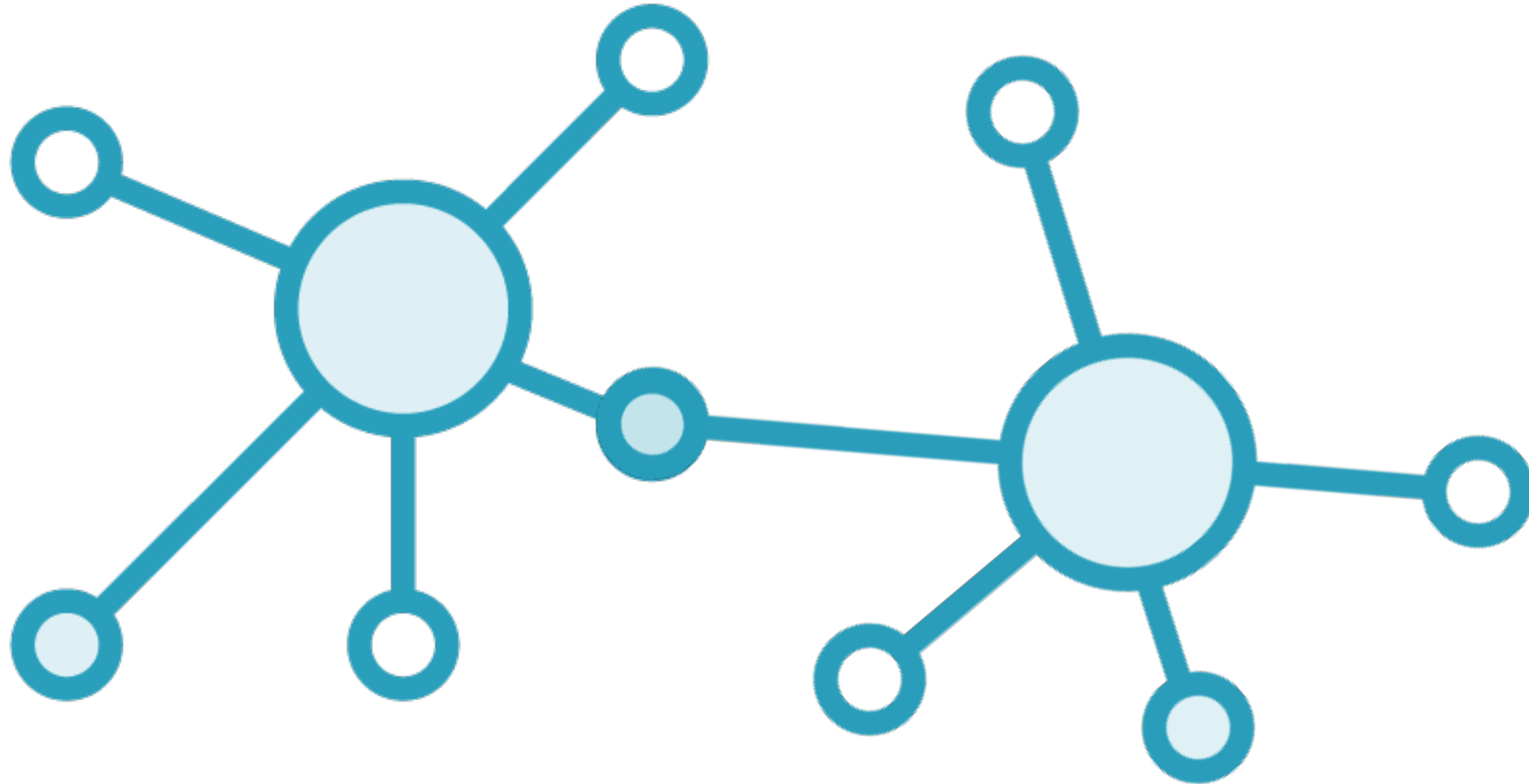
How Data Moves Through a Network

Don't really like this but it's correct. Need to think about it more. Perhaps graphics team could make this look awesome.

I'll want to step through it with build ins.



How Data Moves Between Networks



Demo

Lab Environment

- Encapsulation of data with `wireshark` and `tcpdump`

Module Overview

Networking Topologies

Networking Devices

OSI Model

How data moves through a network

What's Next!

Internet Protocol – Addressing and Subnetting Fundamentals

References

- **Internetworking with TCP/IP Vol. 1** by Douglas Comer - <http://amzn.to/29X7dyT>
- **The OSI Model's Seven Layers Defined and Functions Explained**
 - <http://bit.ly/2a3Bzw3>