



MOST COMMON SCHEMES IN NETWORK SECURITY WITH APPLICATIONS

ECE 597/EE497 PRESENTATION

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DECEMBER 1, 2022

OUTLINE

NETWORK SECURITY

- Home Network
- What is Network Security?
- Network Services
- Public and Private keys
- Trends in Network Security
- Malware
- Firewall
- Network Segmentation
- Email Security

Typical Home Network

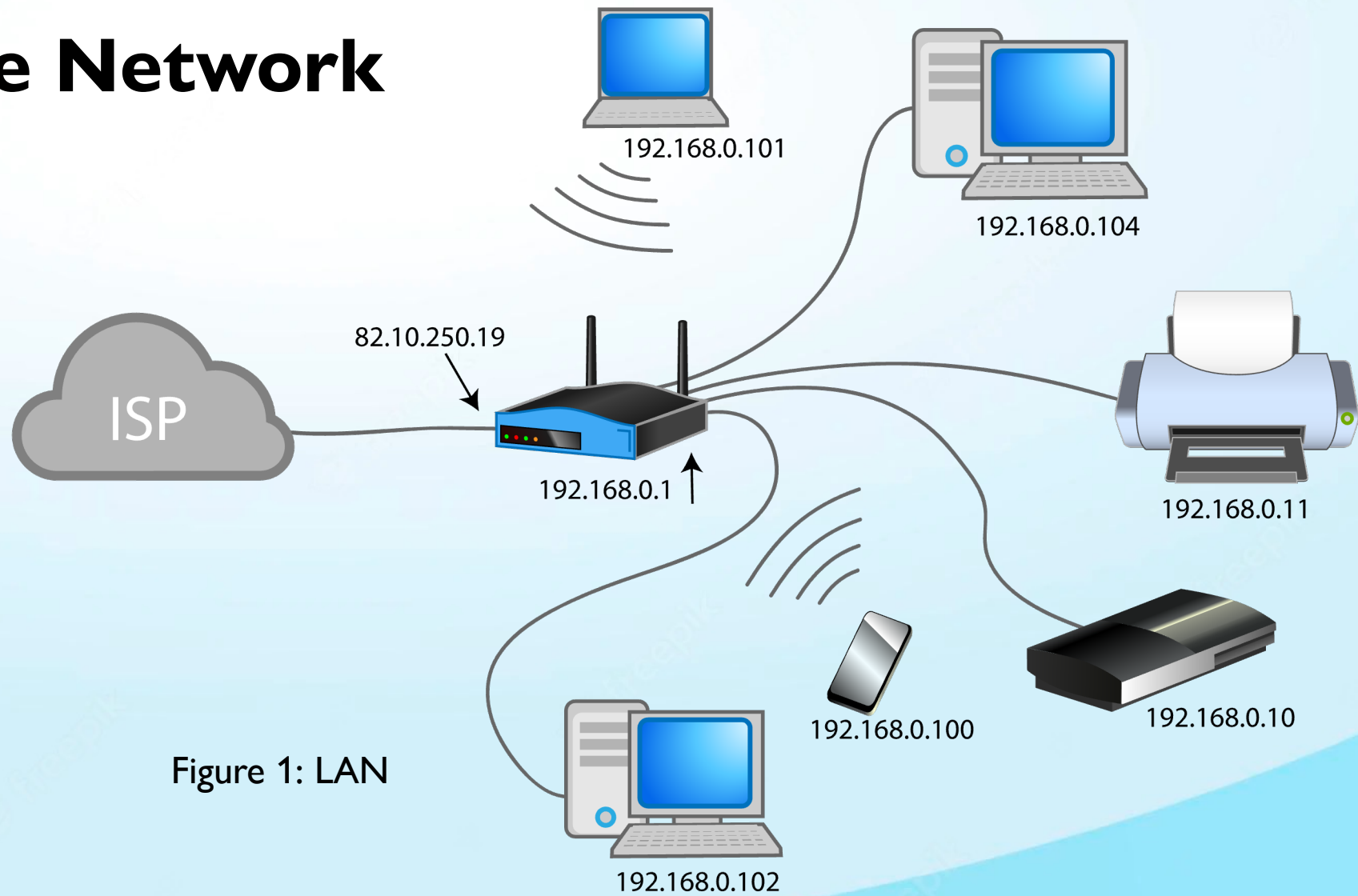


Figure 1: LAN

OUTSIDE OF OUR CONTROL

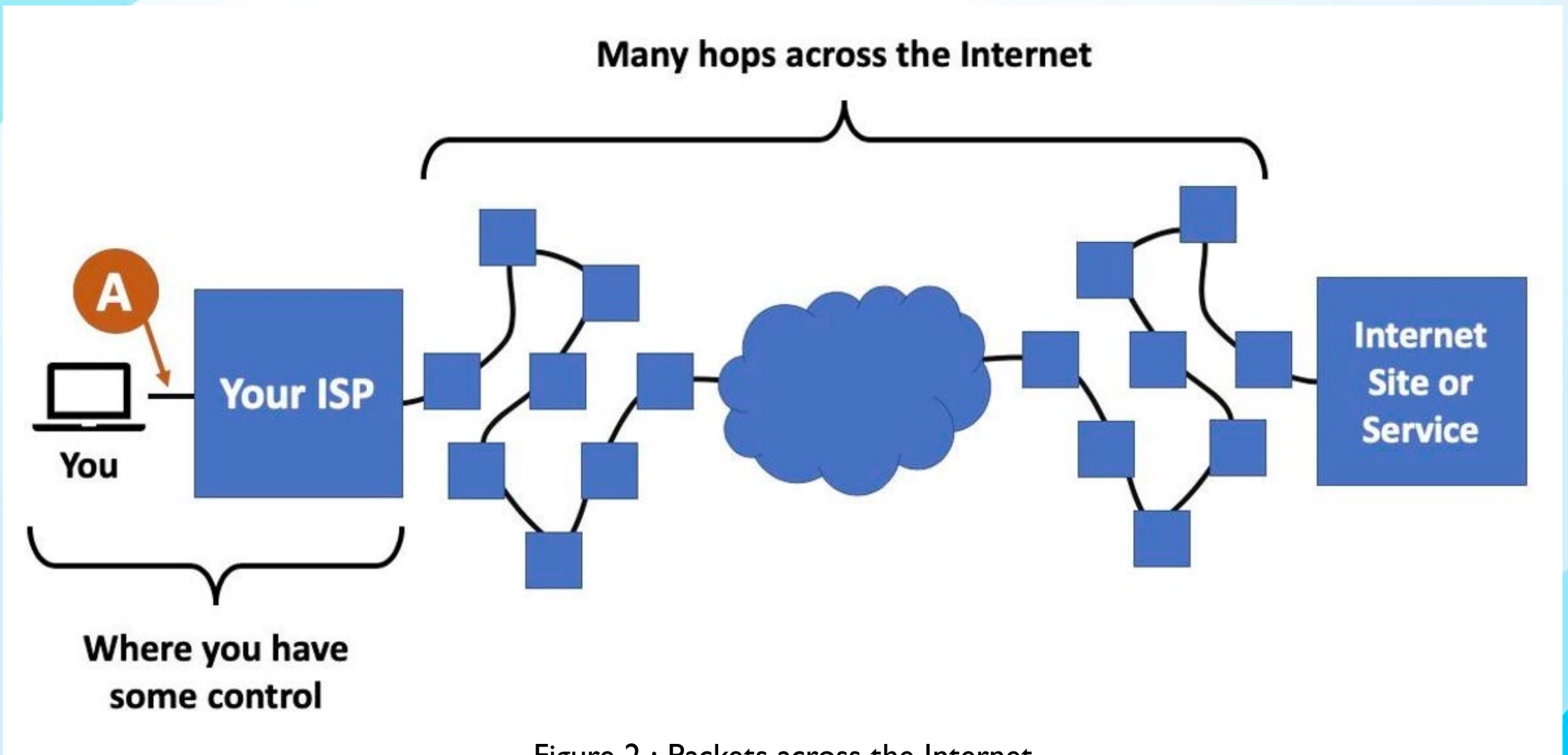
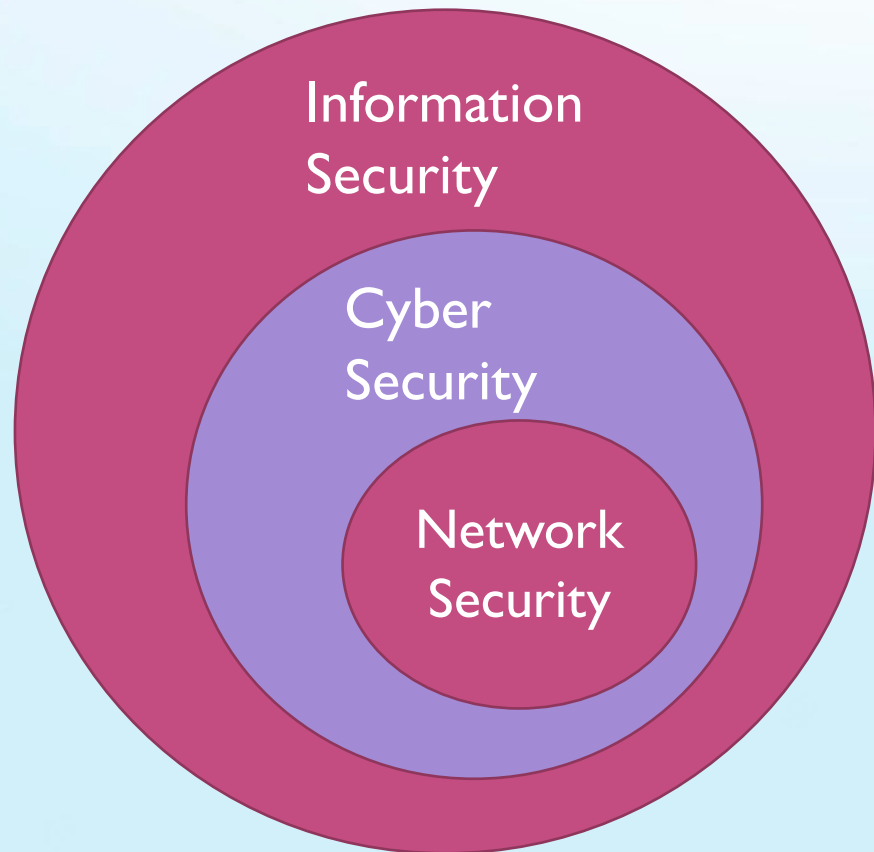


Figure 2 : Packets across the Internet

WHAT IS NETWORK SECURITY?



NETWORK SECURITY SERVICES & CRYPTOGRAPHY

Message

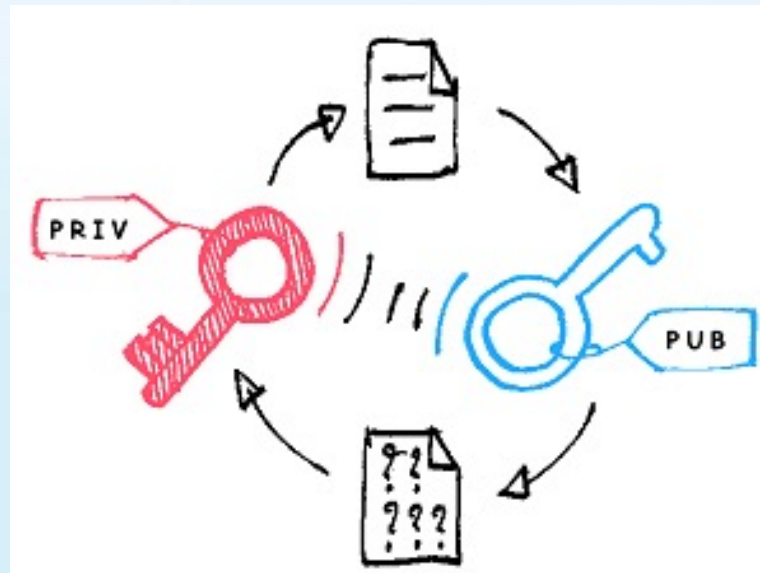
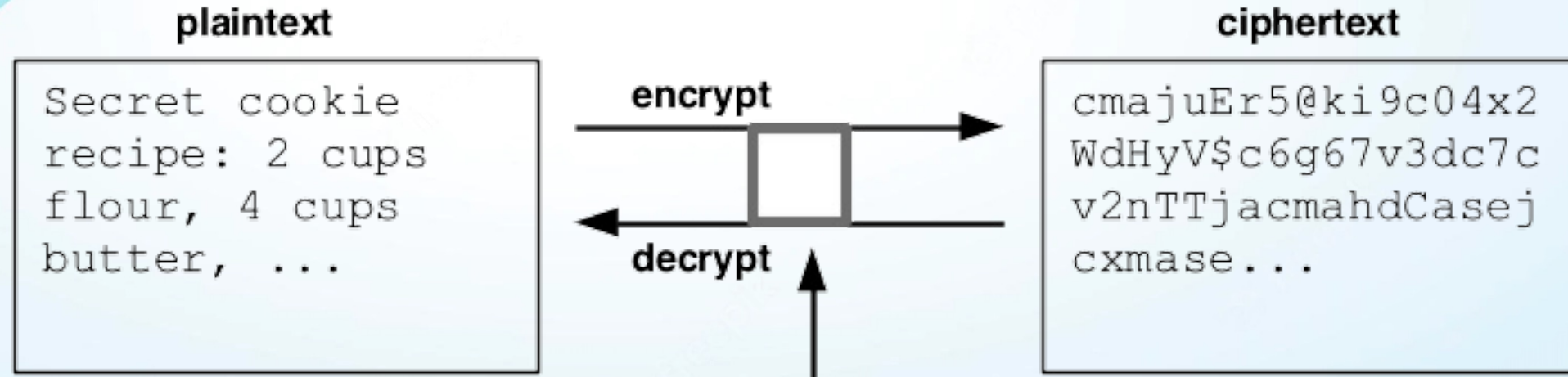
- Confidentiality
- Integrity
- Authentication
- Non-repudiation

Entity

- Authentication



PUBLIC AND PRIVATE KEYS



TRENDS IN SECURITY

A world map in light gray with a Google Cloud logo (a stylized cloud with four colored segments: red, yellow, green, and blue) centered over Europe. Dotted blue lines connect eight colored dots (red, blue, yellow, green, red, blue, yellow, green) across the map, representing global connectivity or data flow.

- Hybrid and Multi-Cloud Environments
 - Zero Trust

DIFFERENT TYPES OF MALWARE



Figure 3 : Malicious Software



Figure 4: Ransomware

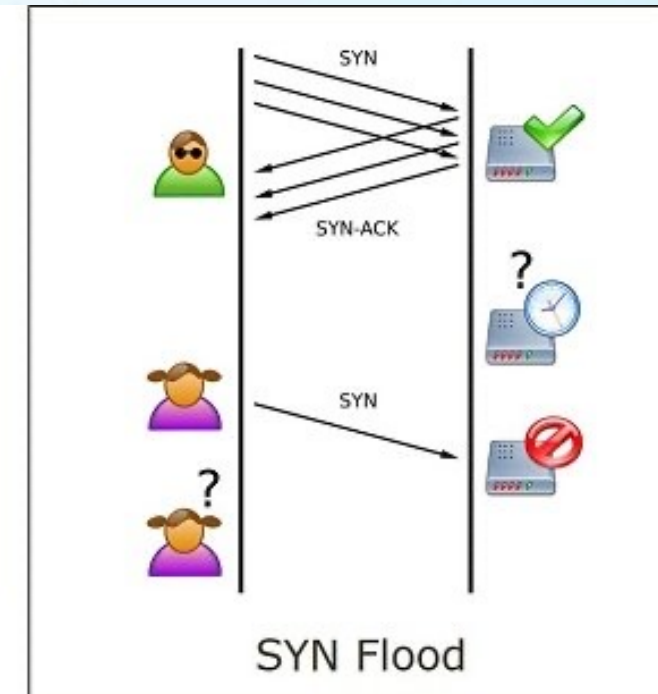
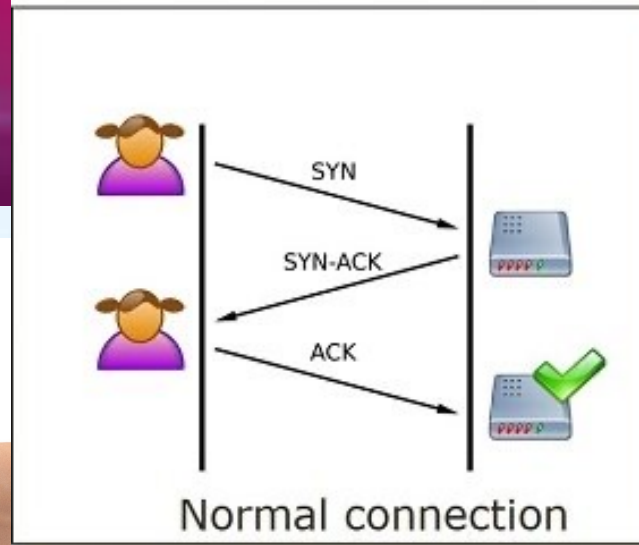
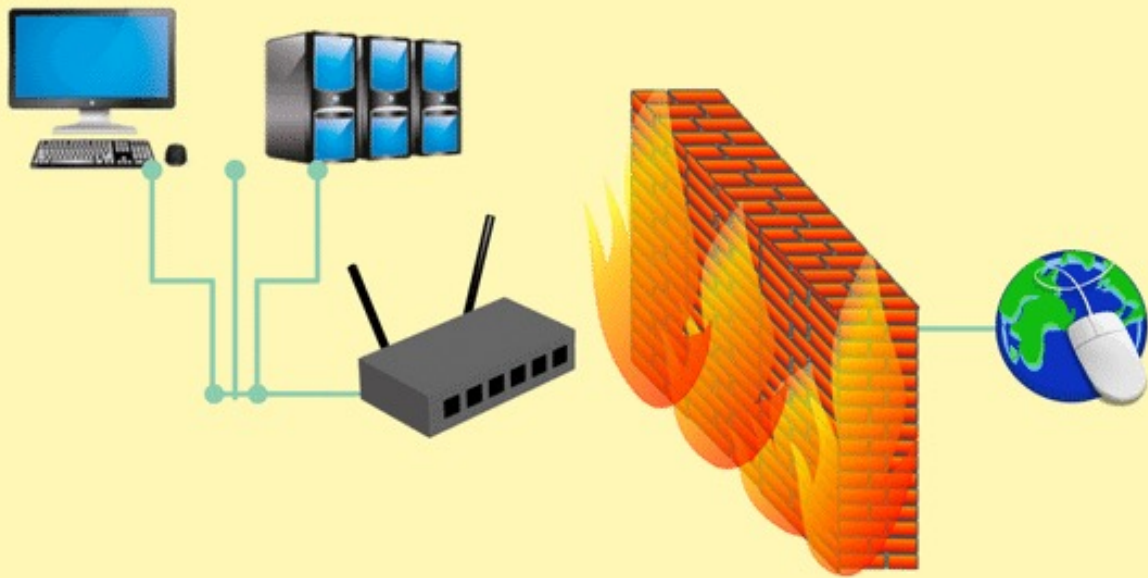


Figure 5: Denial of Service TCP level

FIREWALL



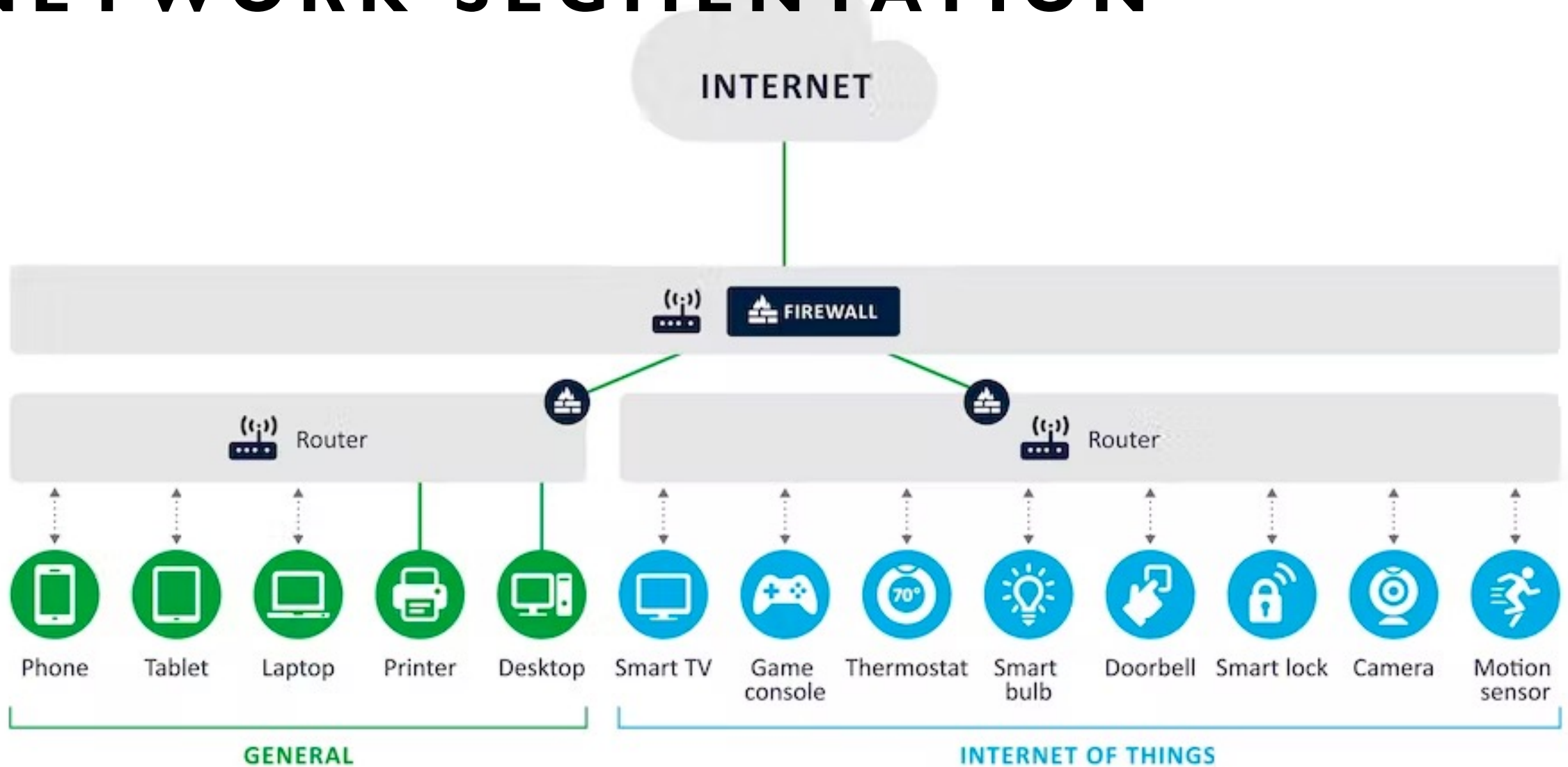
Router firewall

Figure 6: Router Firewall



Figure 7: Computer Firewall

NETWORK SEGMENTATION



EMAIL SECURITY



Figure 8: Email Security

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Images

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