OWASP

Open Web Application Security Project

Pen-test Lab Initiative ➢ Wireless Security 101

Jon Williams, CISSP

June 15, 2017

Introductions

- OWASP
- About me
- About you: who you are, where you're from, what you're looking to learn

OWASP

Pen-testing initiative

OWASP
Open Web Application
Security Project

Mission

- Create capability within CT chapter that would allow our members to learn and practice ethical hacking skills in a safe environment
- Create forum for practitioners to share techniques and mentor peers in this space

Jon Williams

Jon Williams

- Security Administrator

IGG Software

Banktivity

iggsoftware.com

Jon Williams

- Security Administrator

IGG Software

Banktivity

iggsoftware.com

- Security Researcher

braindead-security.blogspot.com
github.com/braindead-sec

...and you?

Objective

To raise awareness about threats to wi-fi users and techniques for defending against those threats.

Agenda

- Overview: wireless security concepts
- Demonstration: wireless attacks
- Review: risks to remote workers
- Game time: defensive techniques

CONNECT. LEARN. GROW.

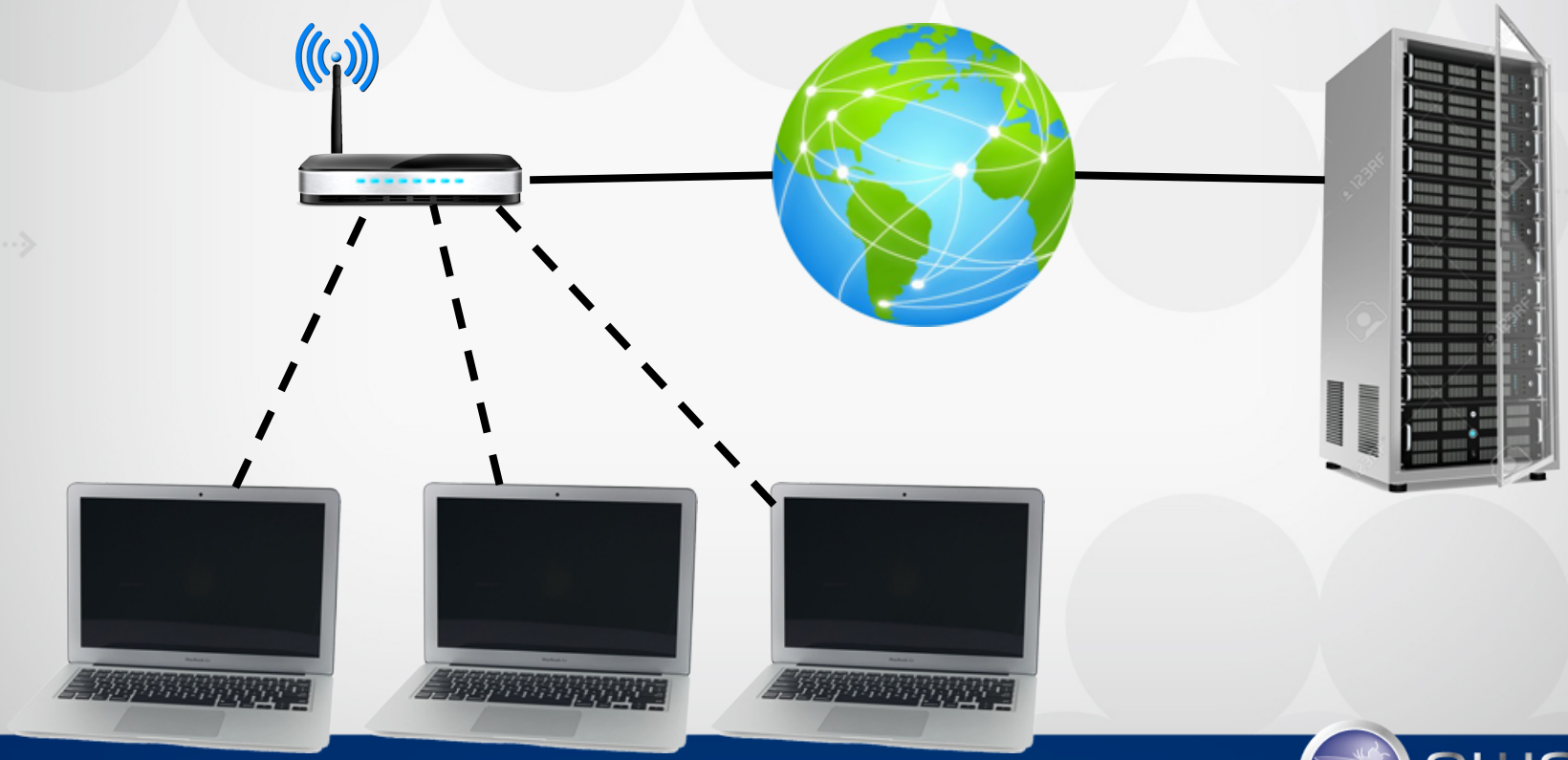
Overview

Wireless security concepts

The Million-Dollar Question

"What is my most valuable asset?"

Wireless Internet Access (simplified)



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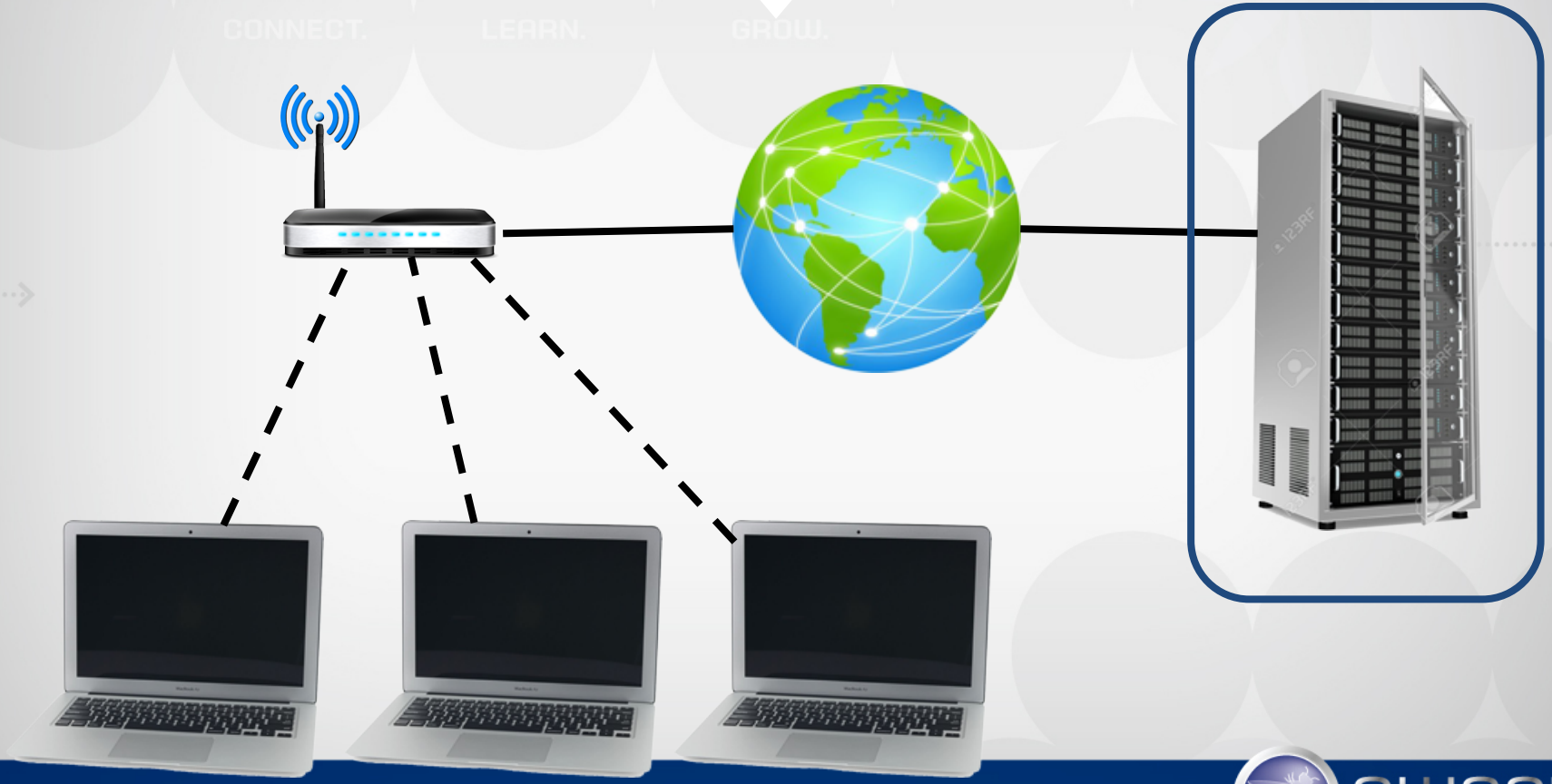
Wireless Internet Access (simplified)



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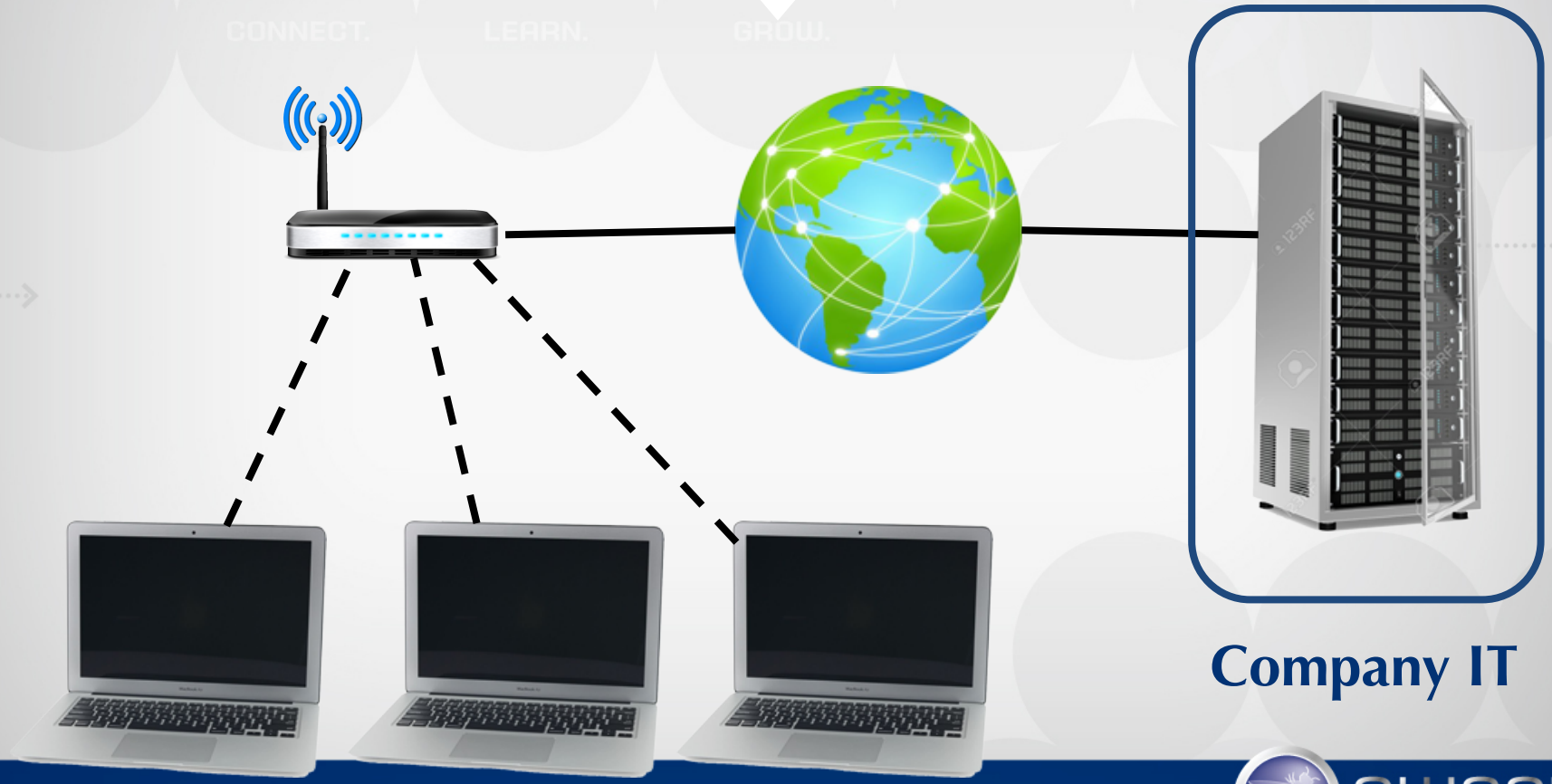

Company IT

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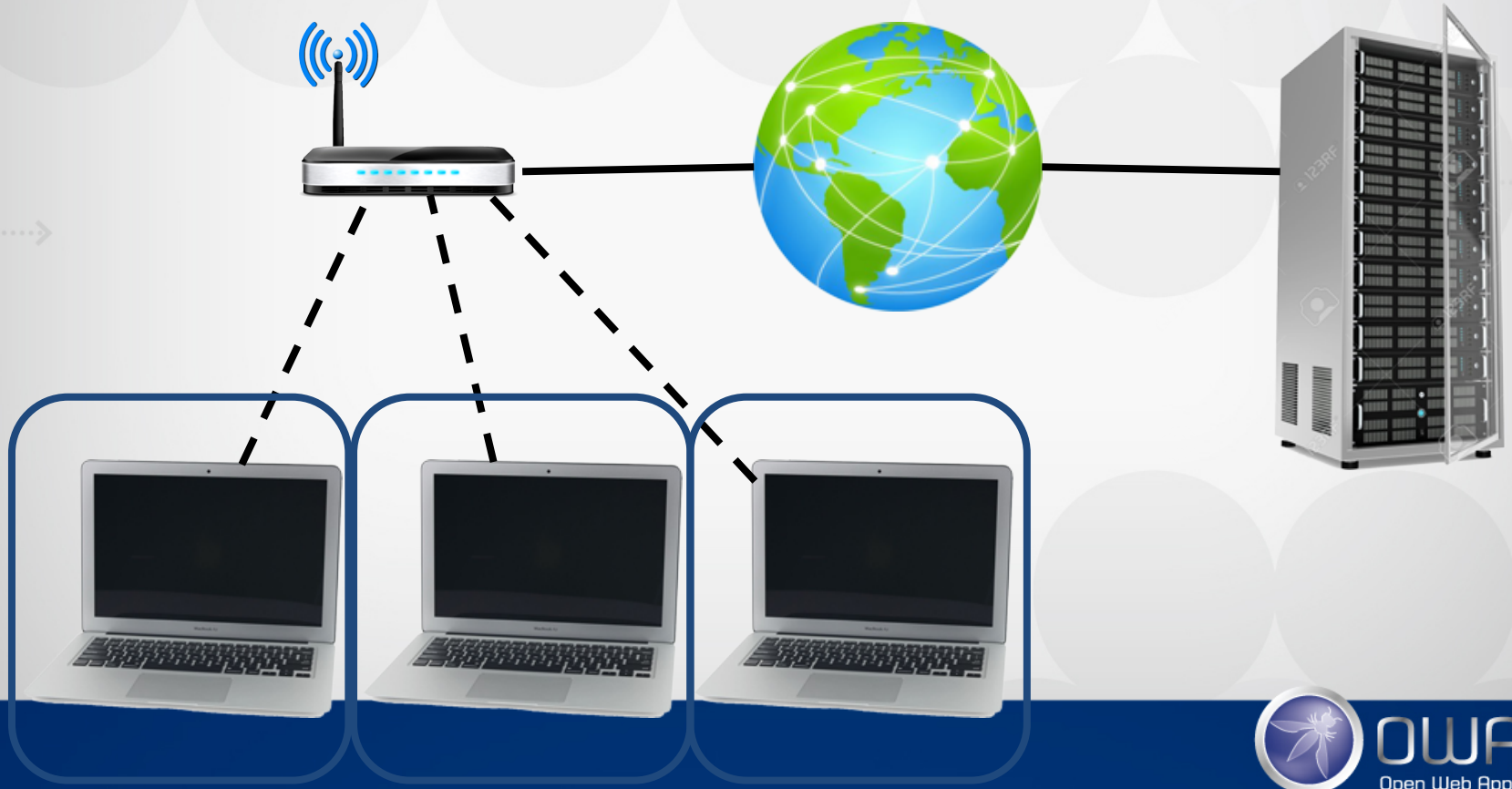
Wireless Internet Access (simplified)



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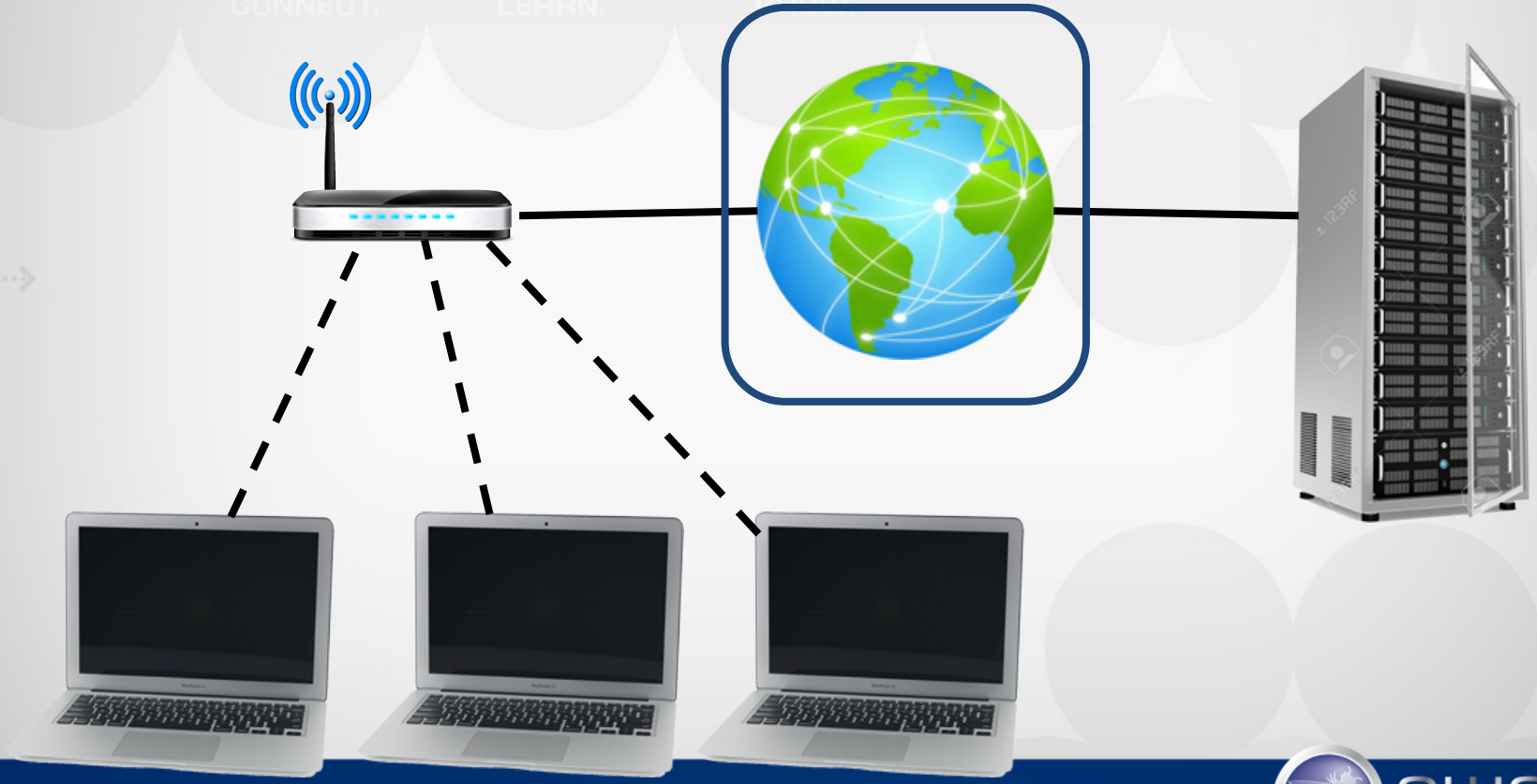
Wireless Internet Access (simplified)

You (and your IT)

Wireless Internet Access (simplified)



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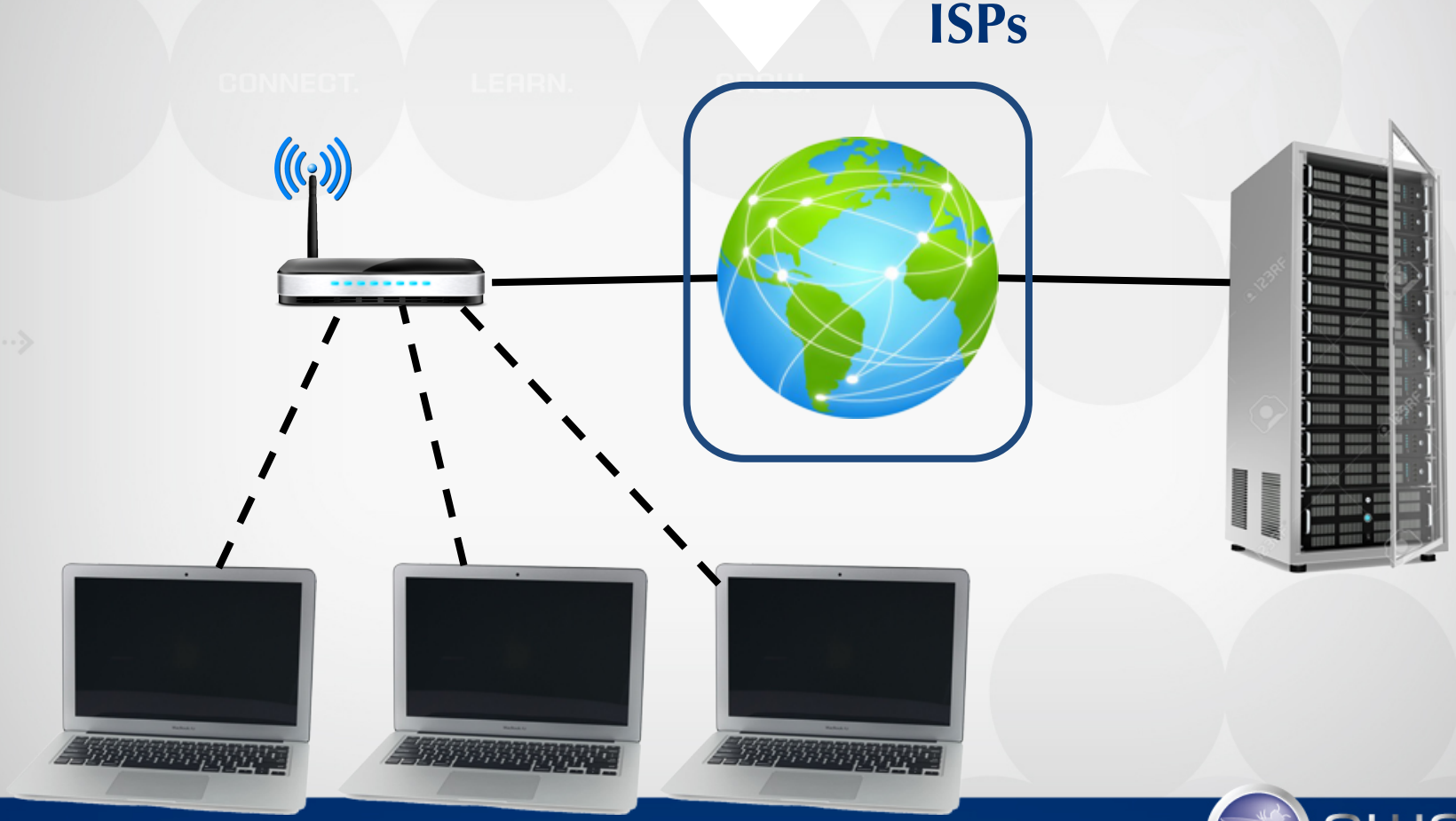

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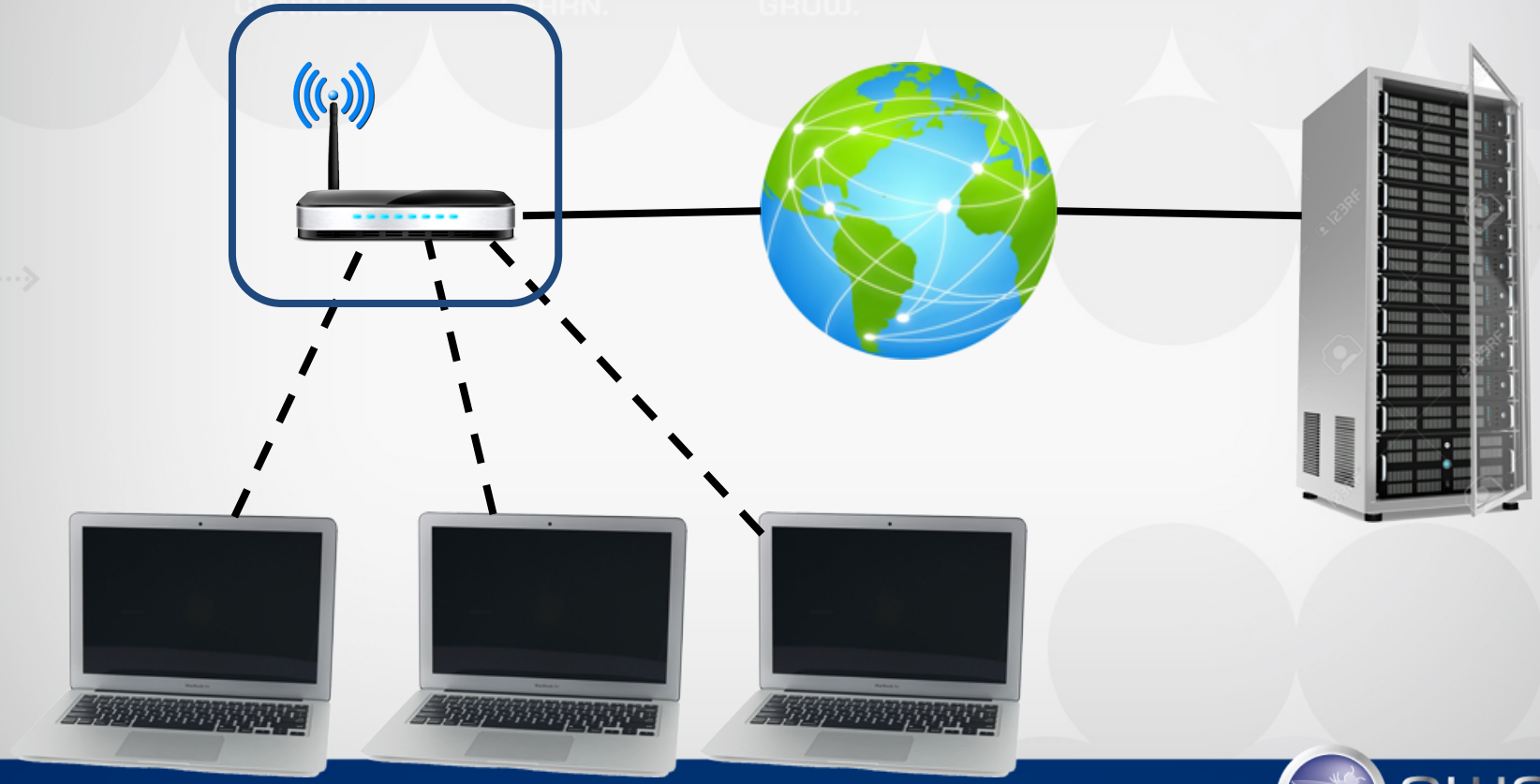
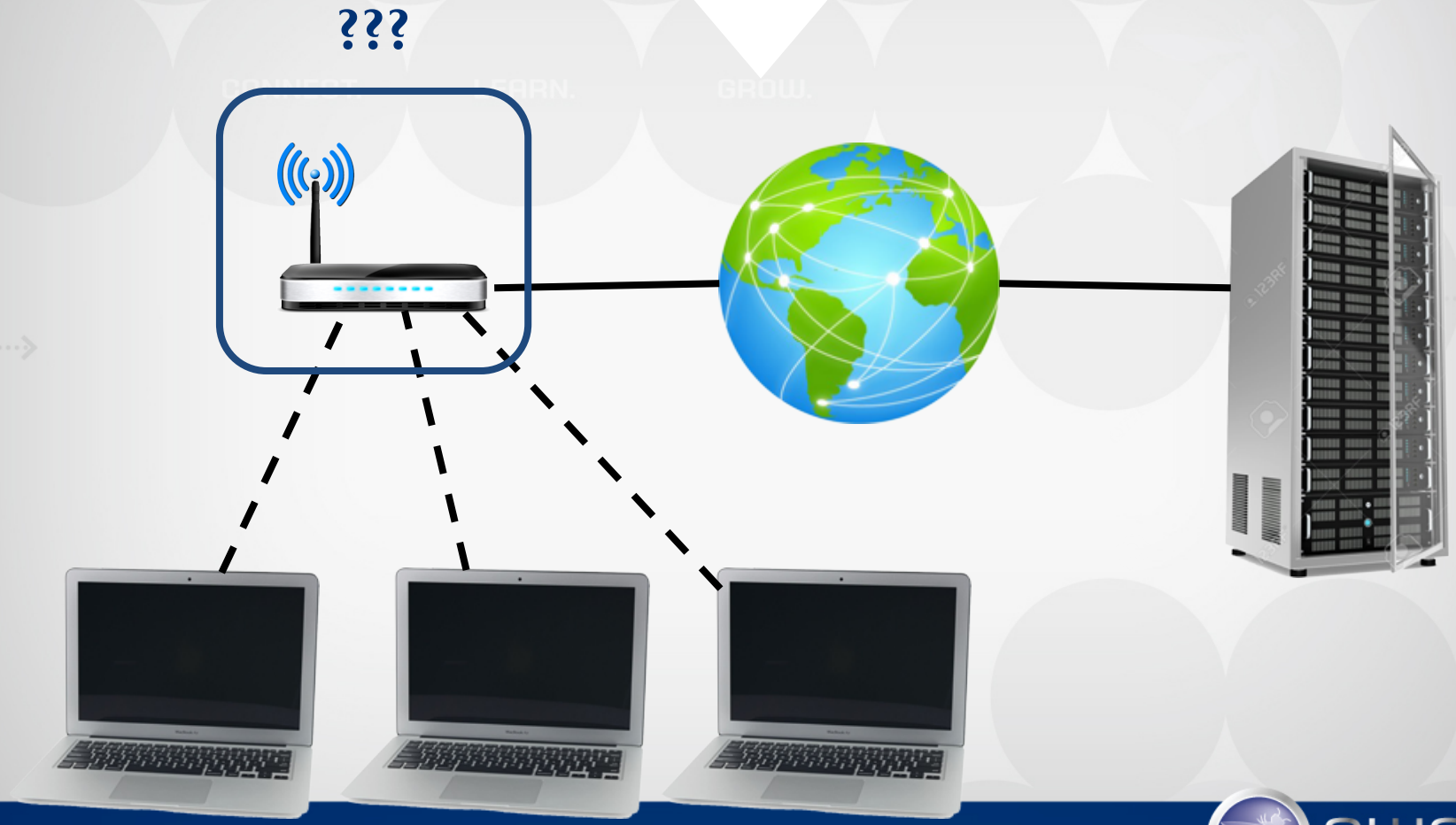
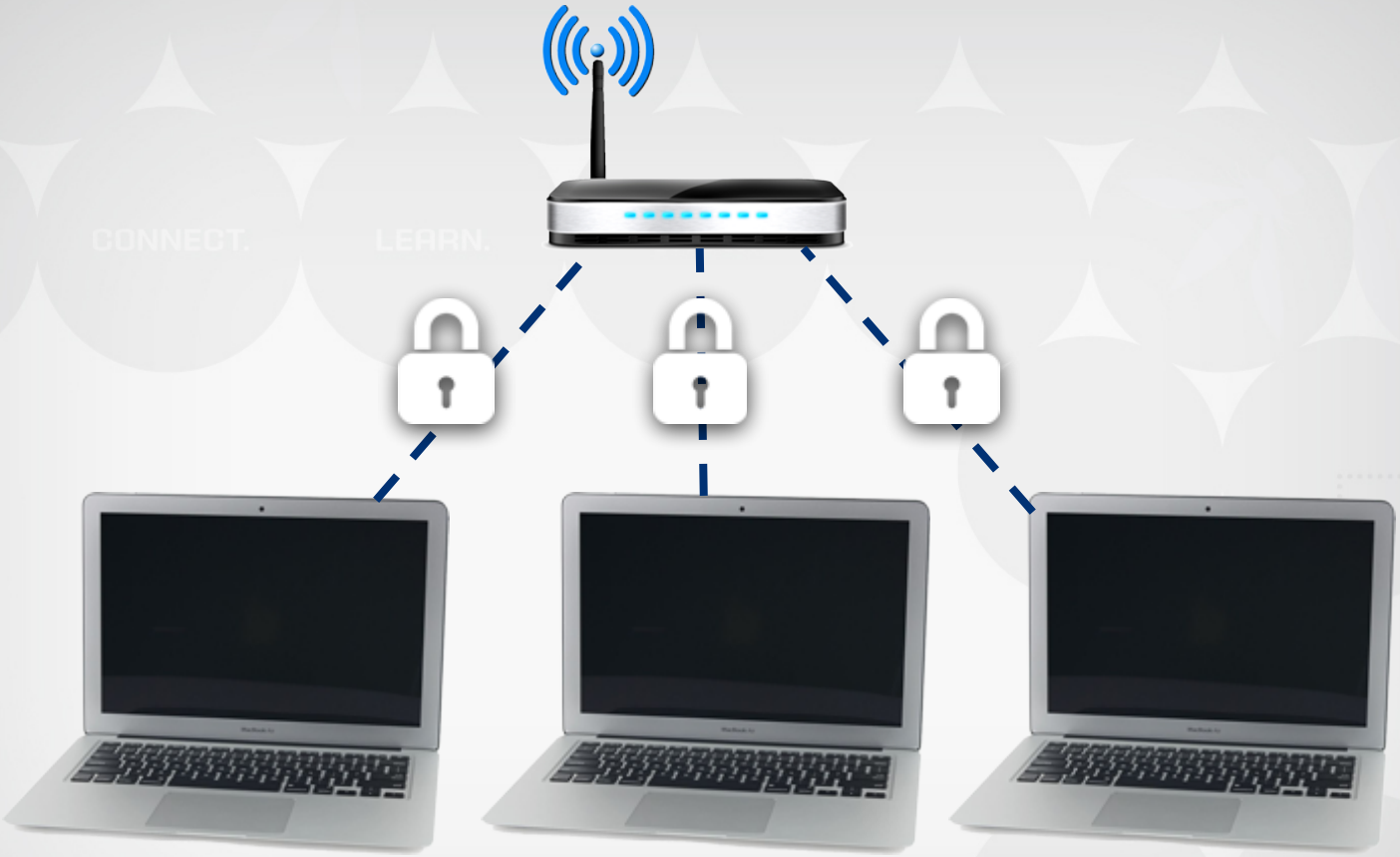


Wireless Internet Access (simplified)



Local Network - No Encryption

Local Network - With Encryption



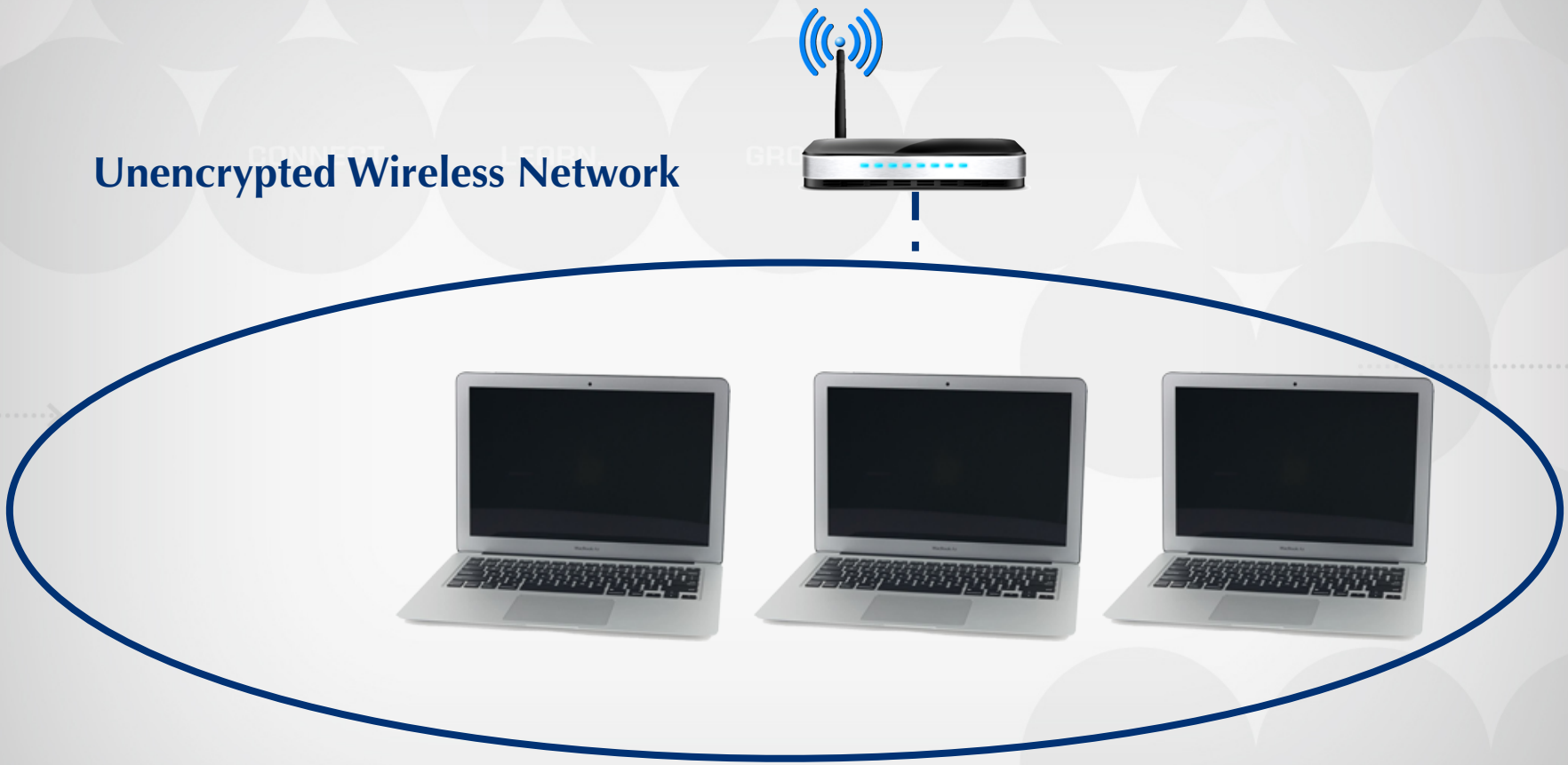
CONNECT. LEARN. GROW.

Wireless Attacks

Threats facing remote workers

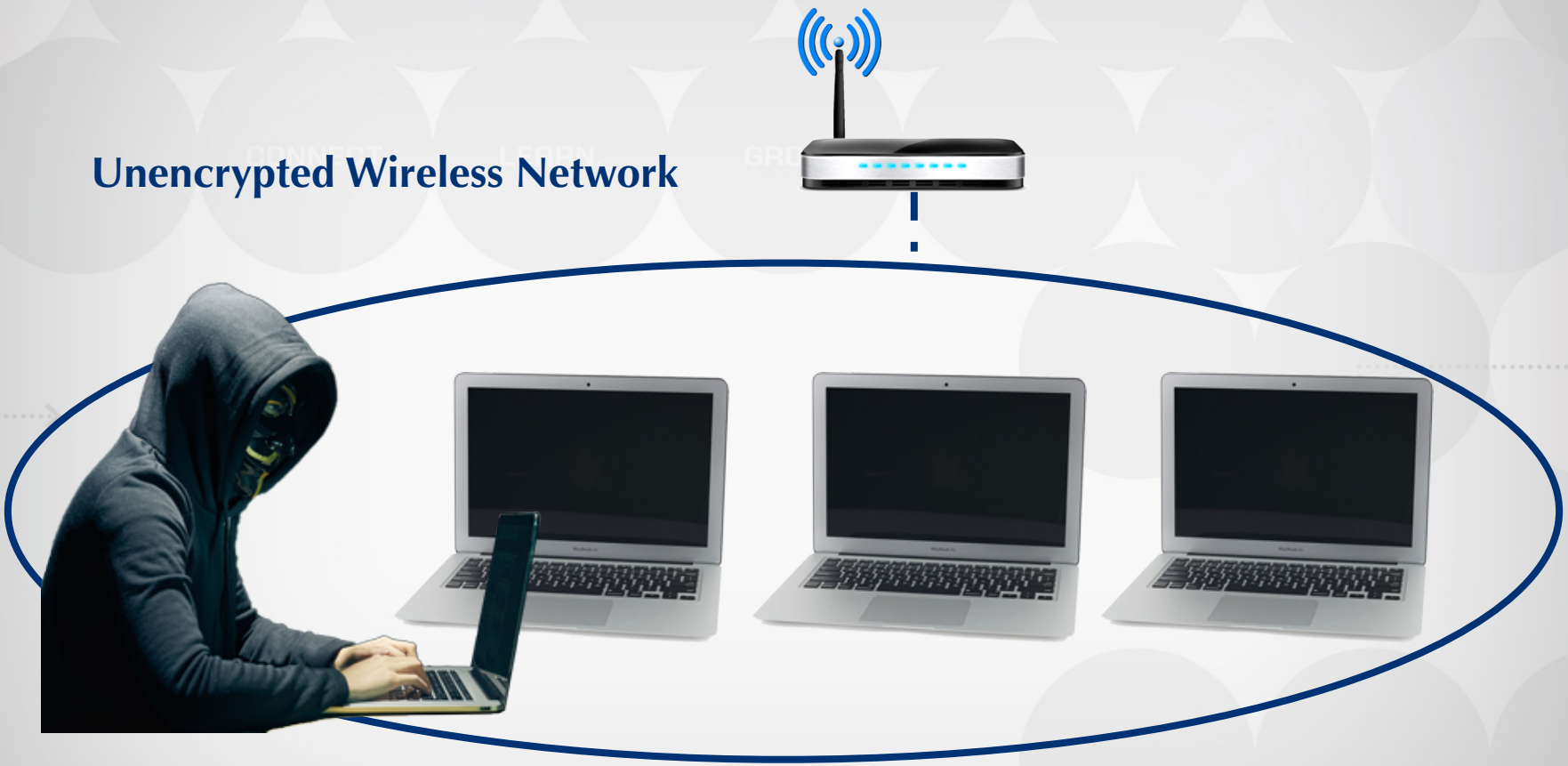
Radio Monitoring

Unencrypted Wireless Network

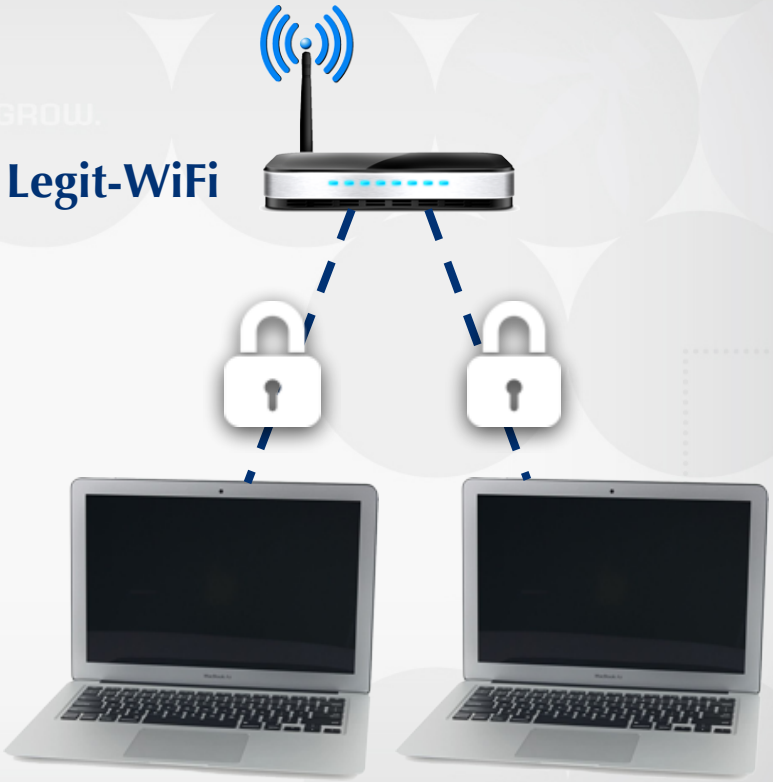


Radio Monitoring

Unencrypted Wireless Network



Rogue Access Point



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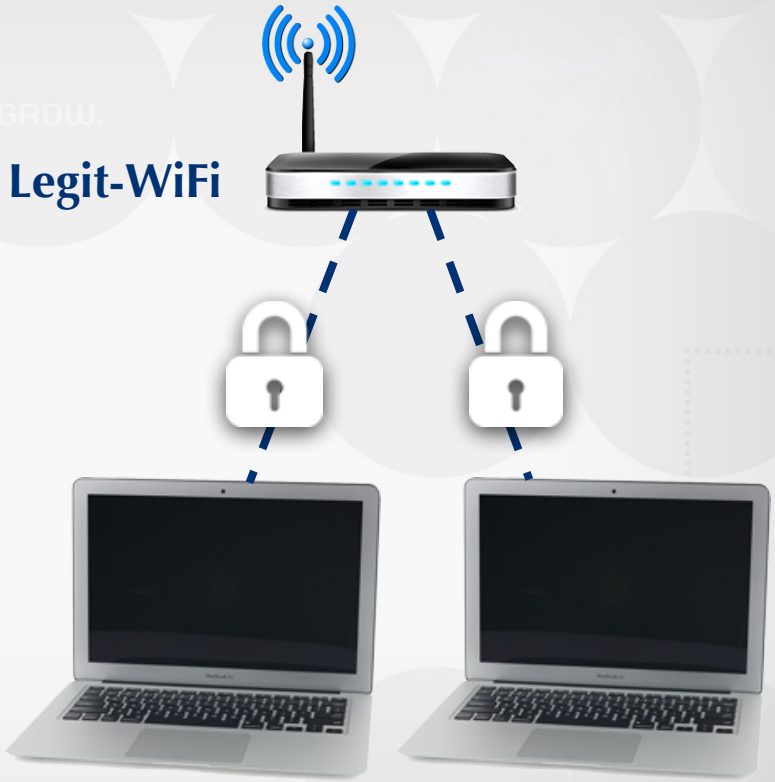

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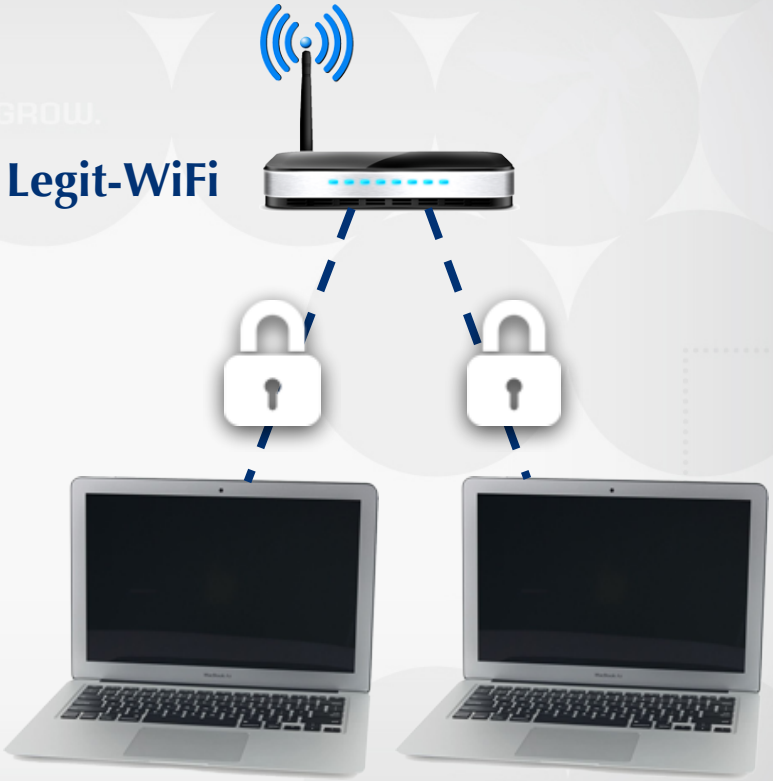
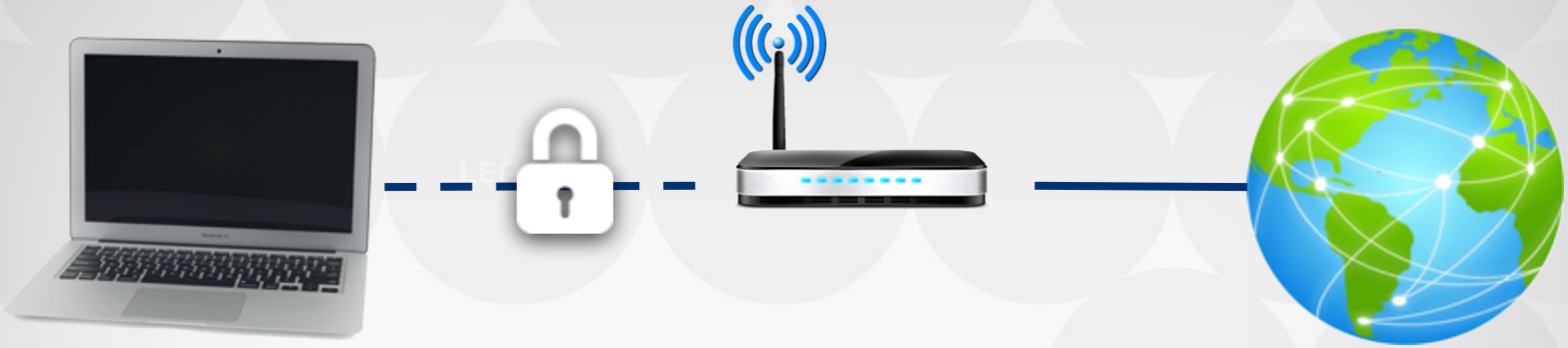
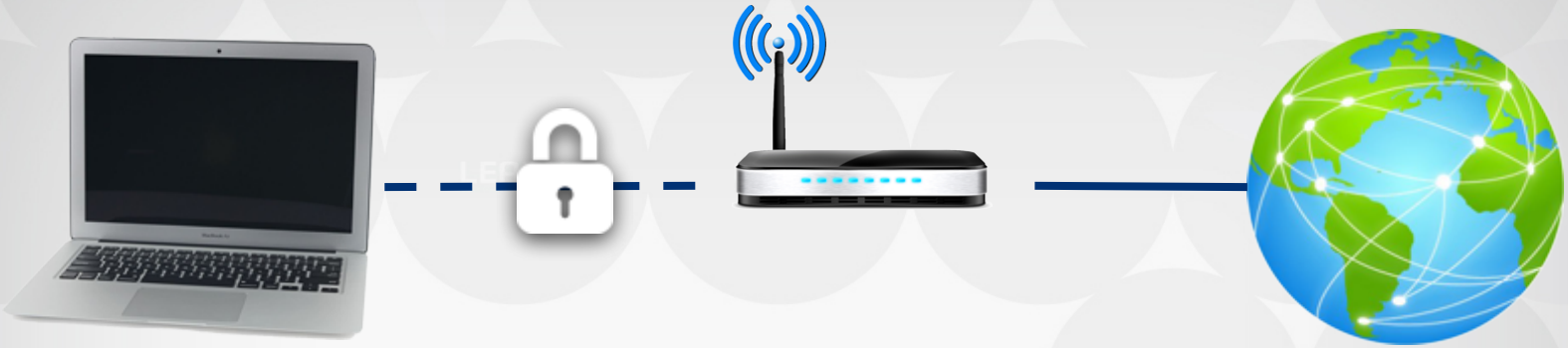


Rogue Access Point

Man-in-the-Middle



Man-in-the-Middle



Man-in-the-Middle

- Monitor
- Intercept
- Inject

Session Hijacking

1. Log in to website, get cookie
2. Browse site using cookie for authentication
3. Log out, remove cookie

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1. Log in to website, get cookie
2. Browse site using cookie for authentication
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2.5. Steal cookie, plant in browser, pretend to be authenticated user without logging in

Credential Theft

- Rogue access point
- Captive portal
- Fake login form

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- Rogue access point
- Captive portal
- Fake login form

- Looks legit
- Login fails
- Pwnd

Risk Review

- Unencrypted wifi
- Rogue access point
- Passive connections
- Evil twin ➤ man-in-the-middle
- Unencrypted login forms
- Password reuse
- Insecure cookies ➤ session hijacking

CONNECT. LEARN. GROW.

Game Time!

Mitigating risks

Any questions?

Thank you!

Stay safe out there.