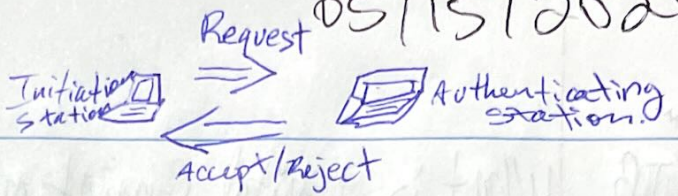


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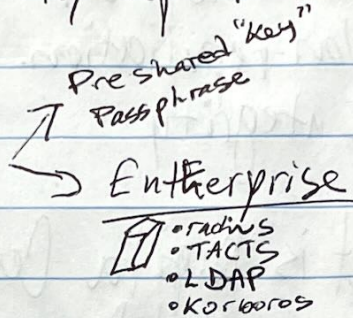


12.3 Background

802.11 standard Security default

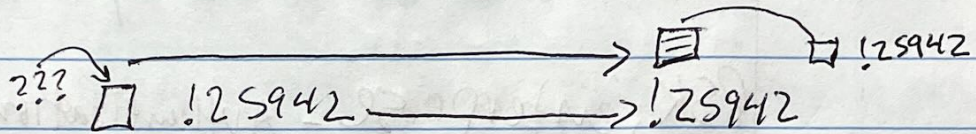
Solutions:

1. Authentication.
2. Encryption.



Integrity

MD5 Sha



Symmetric key

Single Key, Shared key

Encrypt/decrypt

What key?

RC5/AES/DES/3DES

How the hell st/x did you get this key

Single Key
Encrypt/decrypt

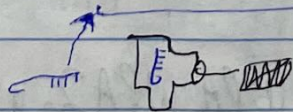
Asymmetric key

pub

private

DH, RSA, ECC

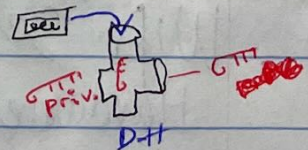
DH = Diffie Hellman



Receiver

pub

priv



Asymmetric



CA

public key

Certificate Authentication

web server 15844

random #

pub

priv

priv

Algorithm

#, single key, two key
Telnet - has

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Sunny Classroom

YTB

What is Digital Signature?

1. Authentication.
2. Non-repudiation. w/ digital signature, the sender cannot deny.
3. Integrity

Sunny Classroom

YTB

What is Digital Certificate? Digital certificates are electronic credentials issued by a trusted party.

PSK, enterprise - Authentication. wifi

Power Cert
Videos

security

YTB

Wifi (wireless) Password Security - WEP, WPA, WPA2, WPA3

WEP - wired equivalent privacy.

WPA = Wifi Protected Access. Uses TKIP

WPA2 = Wifi Protected Access II Uses AES. Adopted by US gov.

WPA3 = Wifi Protected Access III

WPS is Wifi Protected Setup

Access Control

Wagas Tech Videos

YTB

Wifi Security - WEP, WPA, WPA2, WPA3, WPS Explained..

Hardware based

Wireless Setup

YTB → Wifi security WEP/WPA2/WPA3

YTB - WLAN Security Standards -

WEP WPA WPA2 (802.11i)

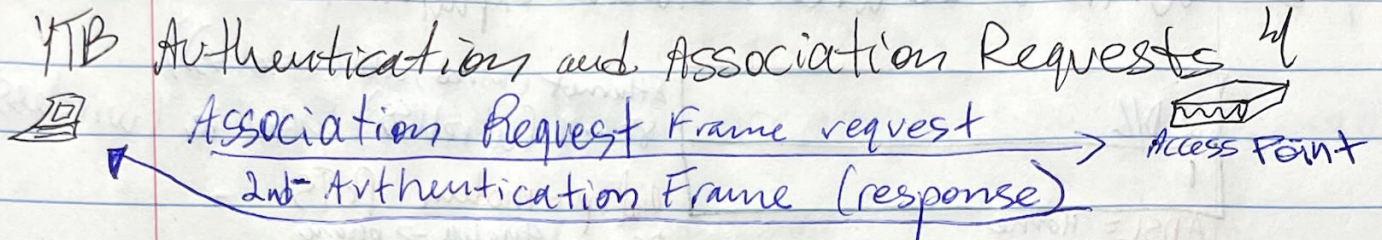
WPA3

128 bit
192 bit

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12.4

how to install your linksys wireless



Interfaces - LAN, WAN, Gress-Wifi

Difference btw rogue access point & Evil twin Netw-
SSID work.

Wireless performance Assessment -
Attenuation - Loss of Signal Strength.

Radio frequency attenuation

Noise

Fading

Test

Co-channel

Authentication

OSI

PSK \approx personal

Enterprise (802.1X)

Co-channel Interference (CCI) > same channel, contention.

Adjacent Channel Interference (ACI) > overlapping.

Non-wifi - too many STAs connect to the same AP.
Devices attempt to connect to single AP.

Roaming Issues - flapping clients - network card
is going on and off. Flapping card going bad,
Wifi = WLAN

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POTS - Plain old Telephone ~~System~~ Service

YTB S68 B Cables - Simulation

* YTB WAN wide area Network explained | Free CCNA 200-301

2 D/L
1

ADSL = Home
SDSL = Business

Ethernet (wired, cell (wireless))
802.11 (wireless) Satellite (wireless)

Dial up = modem POTS
DSL = Analog → phone
Digital → computer

Wired Area Networks & the OSI Model.

WAN Essentials

WAN vs LAN

LAN

WAN

Enterprise WAN

Background - Data Transfer Methods

- WAN site

- WAN Link

Network

Service provider: Data, voice, video

Background - Data Transfer Methods

- Data terminal equipment (DTE)

- Data communications equipment (DCE)

- DTE \ DCE can be combined.

Background - WAN connections categories

Dedicated Line.

Virtual Circuit (VC)

PVC (permanent virtual circuit).

SVC (switched virtual circuit).

Summary
Classroom
YTB

Last mile technologies: Dial-up & DSL

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Background-WAN Components

Central Office

Local Loop — last mile

Background - Demarcation Point ("Demarc")

T-1 1.544 mbps / ^{Dedicated} ~~lease-line~~

Cable modem Coax "Sharing"

Fiber: FTTN, FTTC, FTTB, FTTH, FTTP

FTTN = Fiber to the Network

FTTC = Fiber to the Curb

FTTP = Fiber to the Premise

FTTB = Fiber to the Building

FTTH = Fiber to the Home