Course: Computer and Communication Networks

THAPAR INSTITUTE
OF ENGINEERING & TECHNOLOGY
(Deemed to be University)

Topic: IEEE Standards

Presentation by

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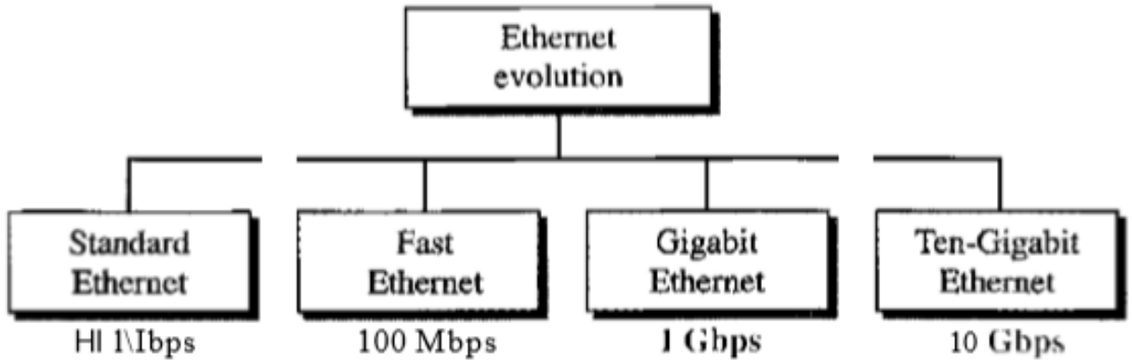
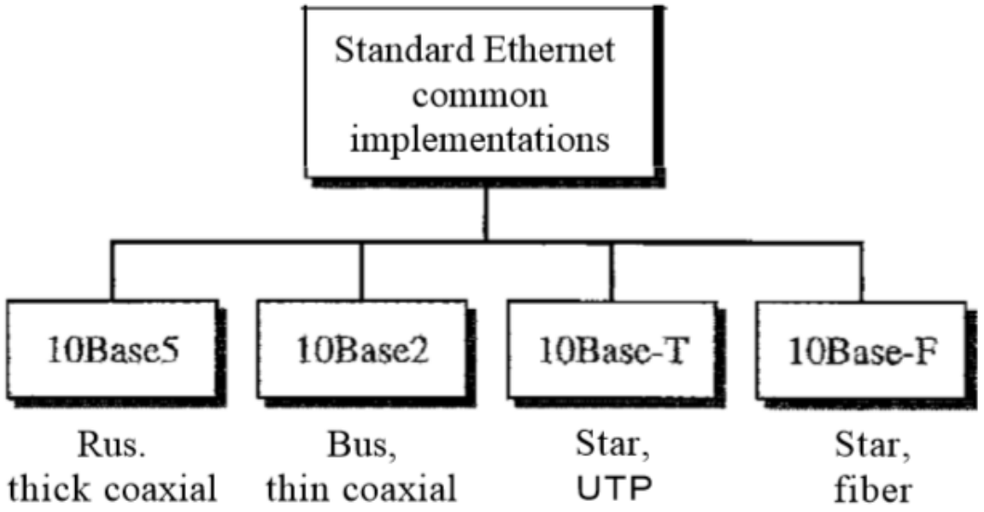
www.thapar.edu

Reference: 1. Ferouzan, Behrouz A., Data Communications and Networking, 2. Stallings William, Data and Computer Communication. 3. https://ieeexplore.ieee.org

STANDARD ETHERNET

Standard Ethernet (few Mbps)
Fast Ethernet (100 Mbps)
Gigabit Ethernet (1 Gbps)
Ten-Gigabit Ethernet (10 Gbps)





Reference: 1. Ferouzan, Behrouz A., Data Communications and Networking, 2. Stallings William, Data and Computer Communication. 3. https://ieeexplore.ieee.org

IEEE 802.3 MAC frame

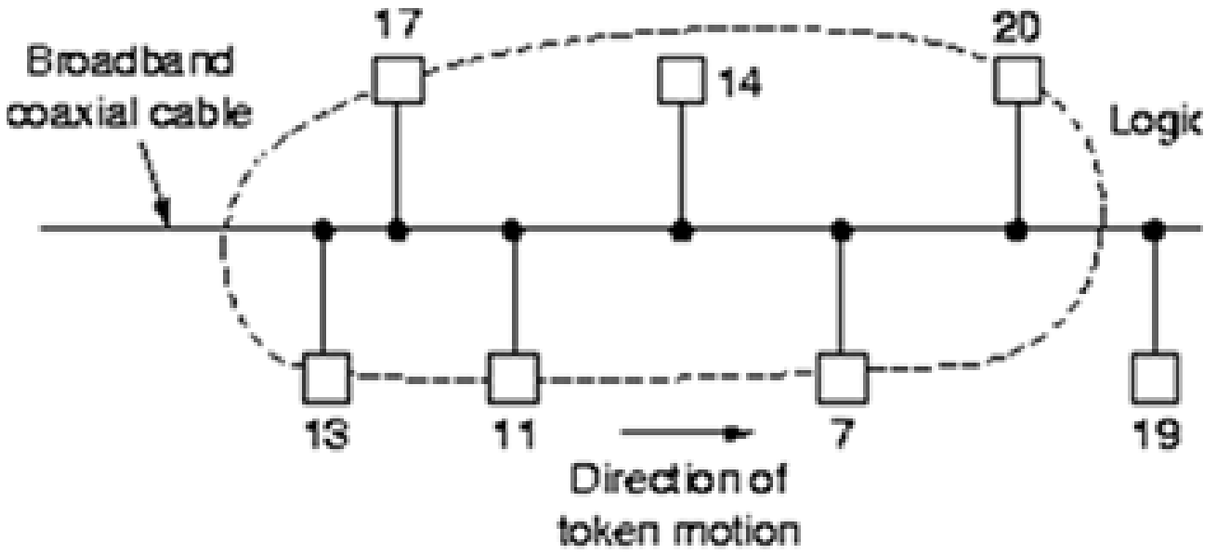
Preamble: 56 bits of alternating 1s and as.

SFD: Start frame delimiter, flag (10101011)

Physical layer header

Reference: 1. Ferouzan, Behrouz A., Data Communications and Networking, 2. Stallings William, Data and Computer Communication. 3. https://ieeexplore.ieee.org

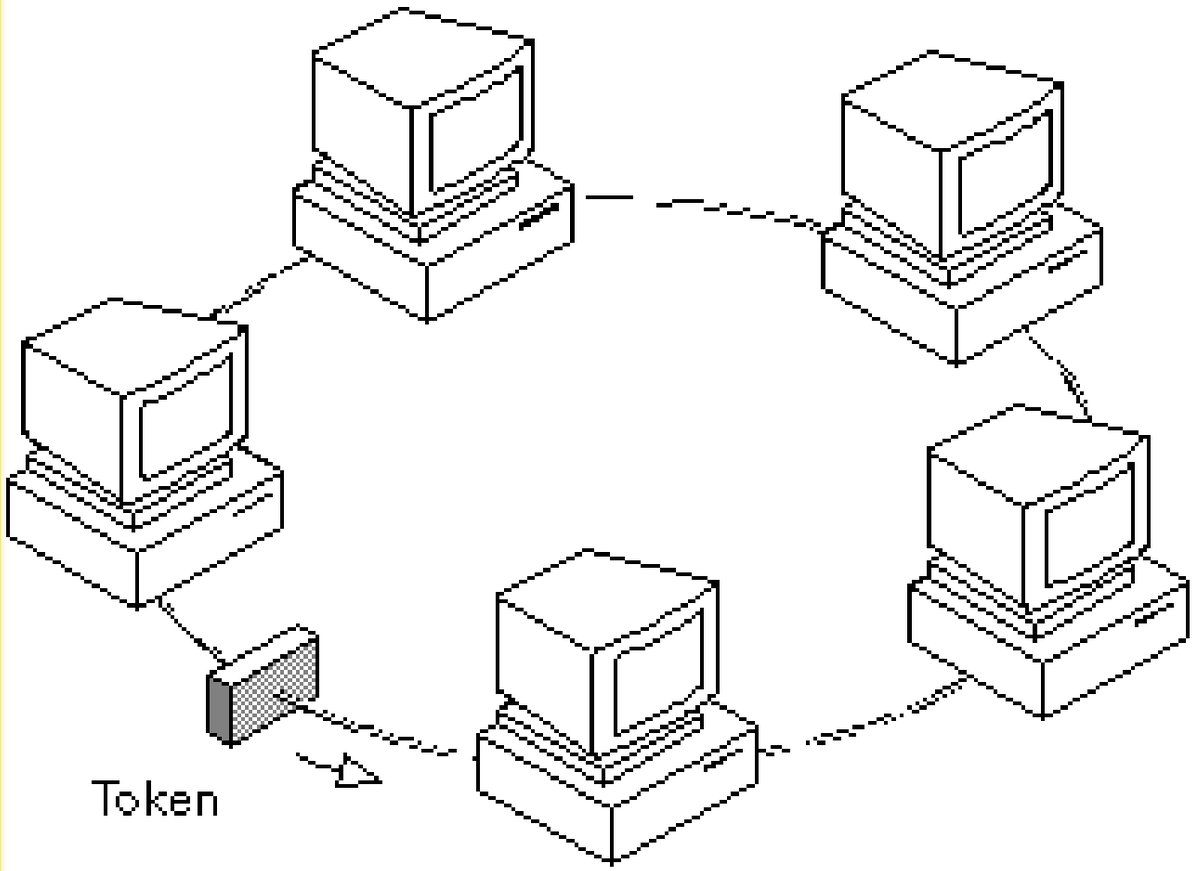
IEEE 802.4 (Token Bus)



The flow is unidirectional
Stations are logically arranged in a ring.
Used in factory automation.

Reference: 1. Ferouzan, Behrouz A., Data Communications and Networking, 2. Stallings William, Data and Computer Communication. 3. https://ieeexplore.ieee.org

IEEE 802.5 (Token RING)



The flow is unidirectional
There is a point to point link between stations that form a ring.
Data rate 4-16 Mbps

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IEEE 802.6 (MAN based on DQDB)

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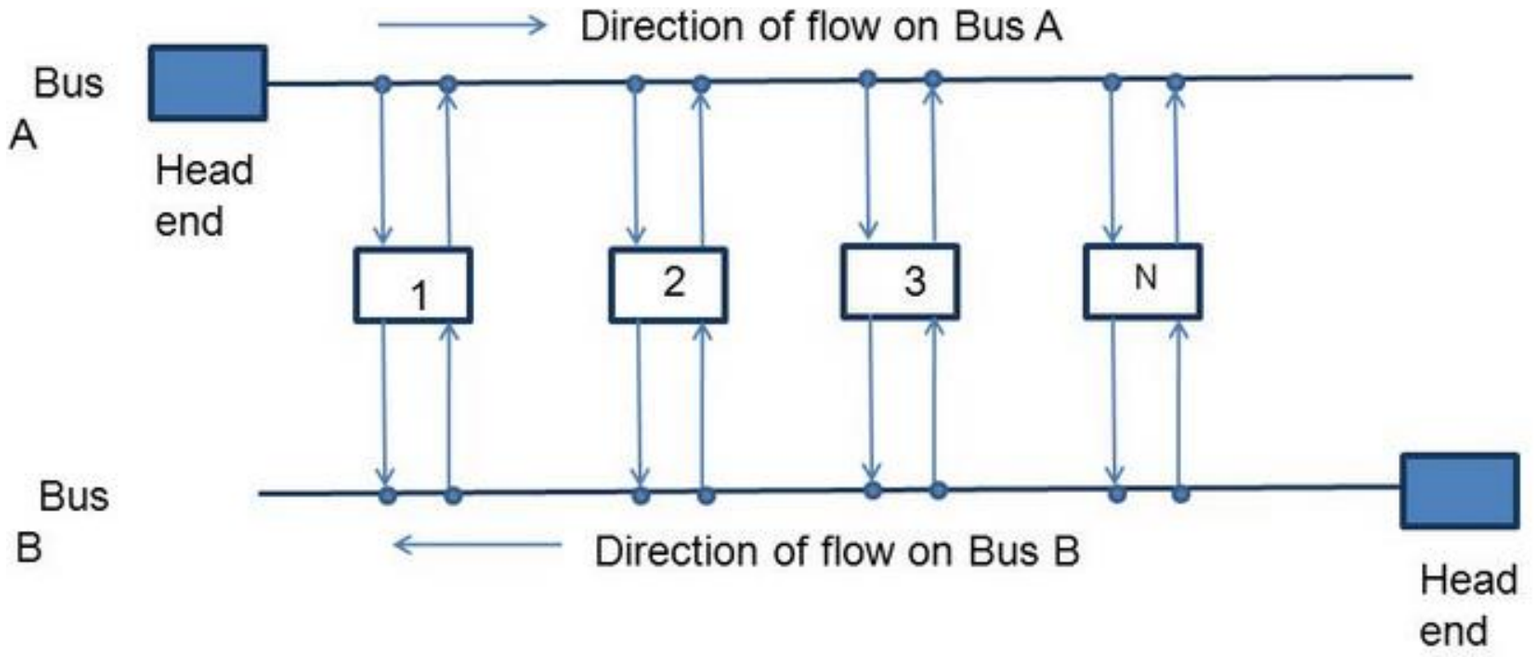
- IEEE 802.6 is a standard for MAN, which is an improvement of an older standard that used **Fiber distributed data interface**. Problems: a) expensive implementation and b) lack of compatibility with multiple LAN.

- The IEEE 802.6 standard uses the **Distributed Queue Dual Bus**, which has an ability to carry 150 Mbps.
- Two unconnected unidirectional buses
- The signal strength covers appox. **160 km** before significant signal degradation over fiber optic cable with an optical wavelength of 1310 nm.



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IEEE 802.11

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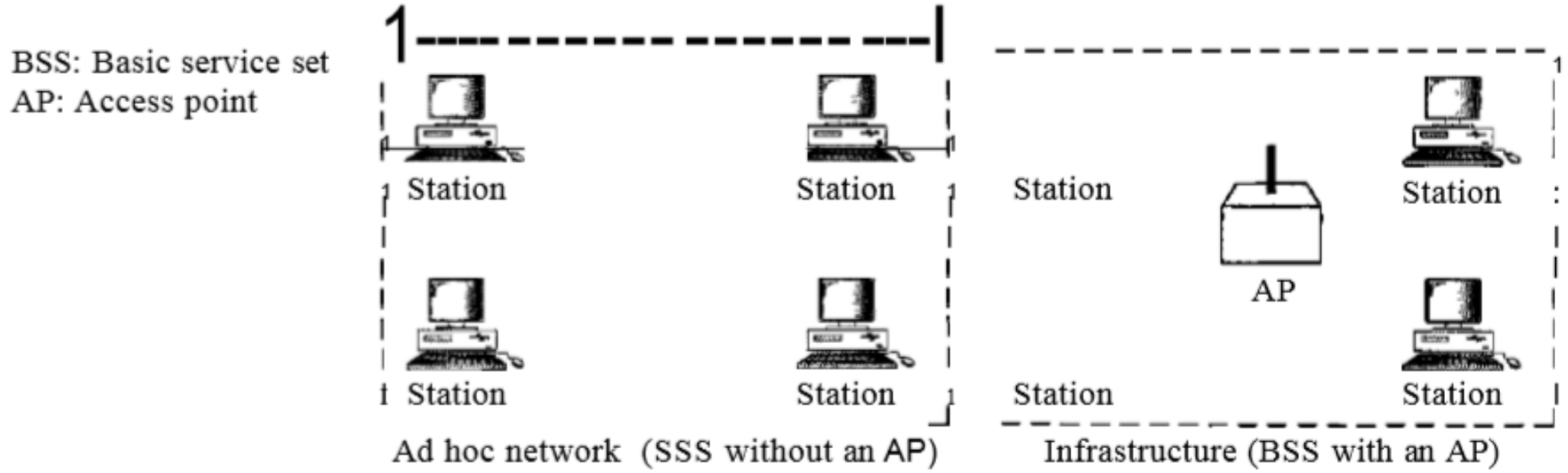
1. **Basic Service Set (BSS)**
2. Extended Service Set (ESS)



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IEEE 802.11

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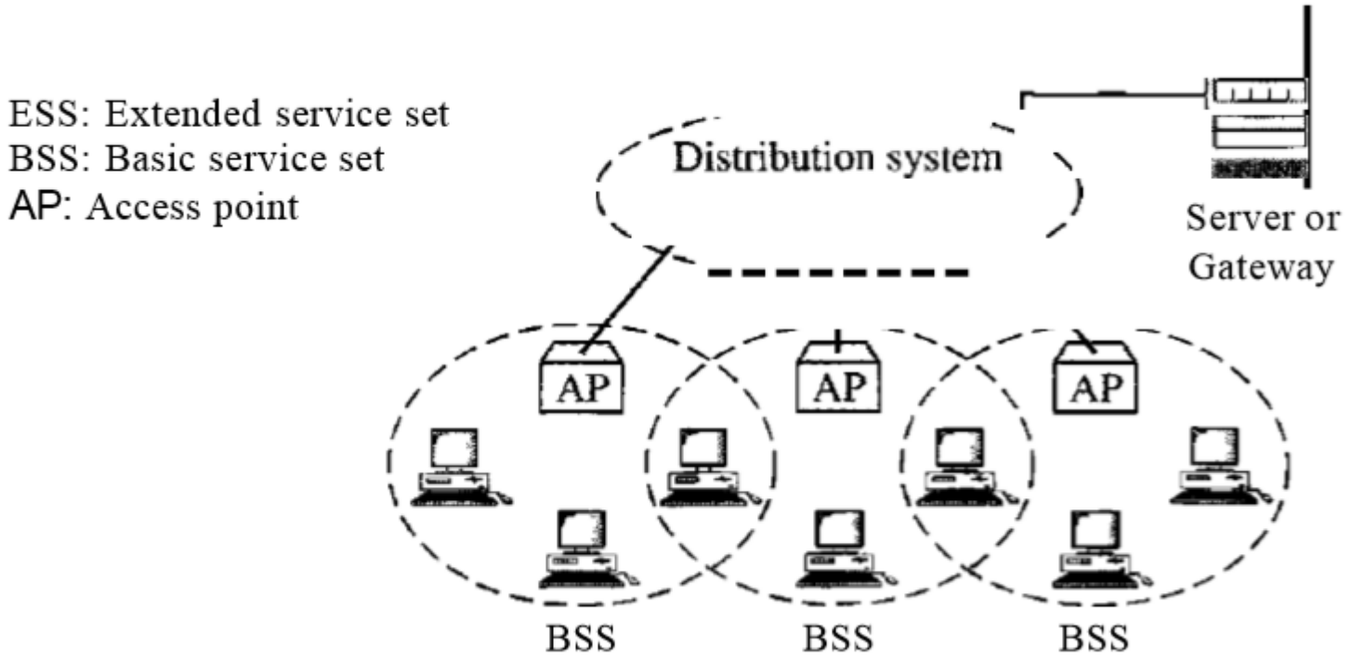
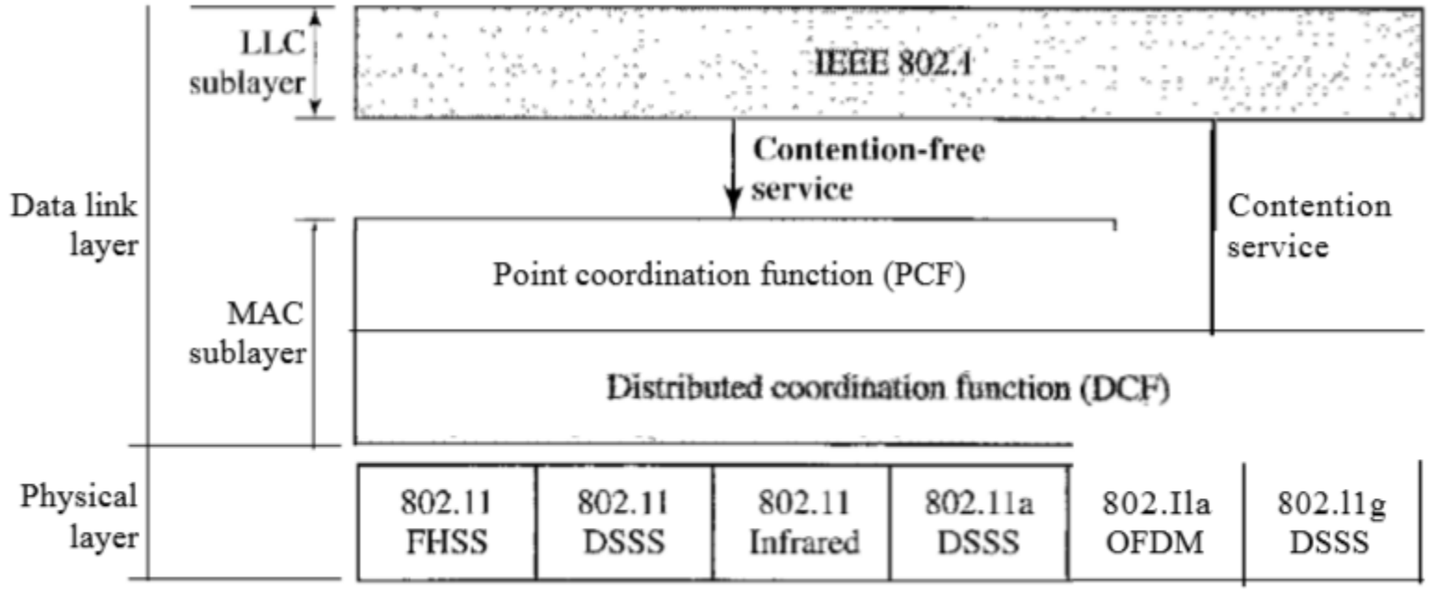
2. **Extended Service Set (ESS)**



IEEE 802.11

IEEE 802.11 defines two MAC sub layers:

1. Distributed Coordination Function (DCF)
2. Point Coordination Function (PCF)



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IEEE 802.11

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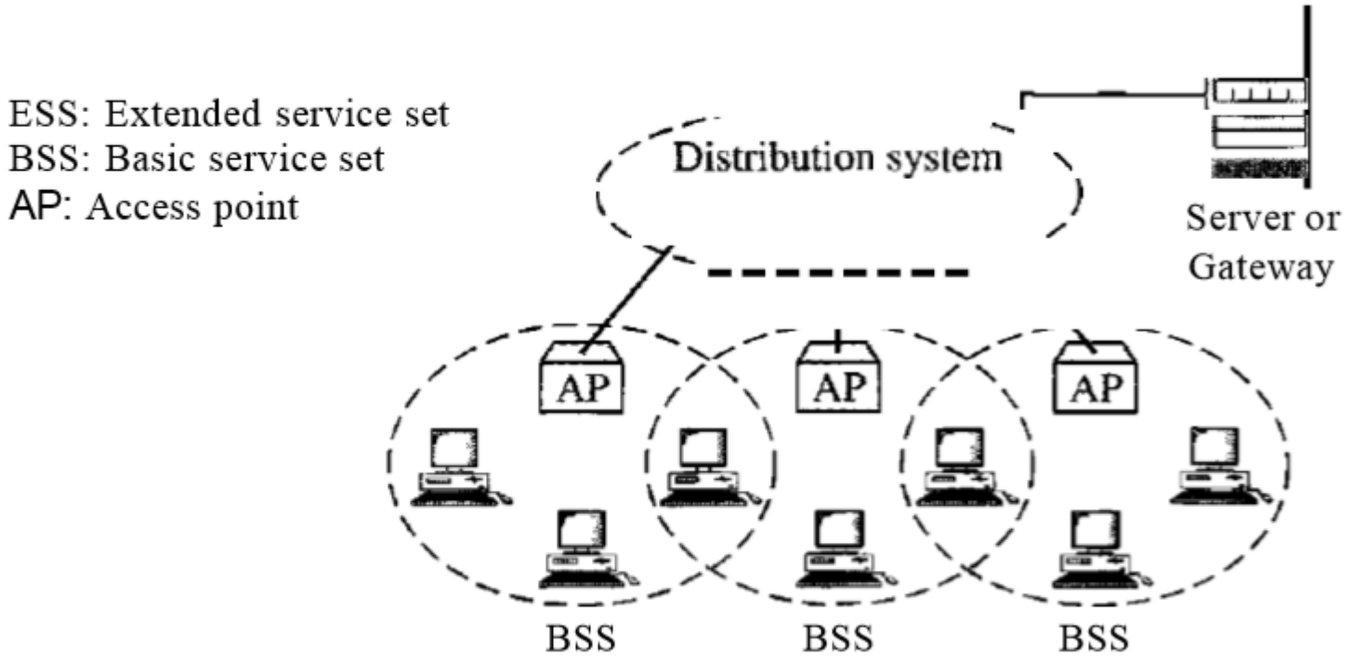

Thank You

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