Fragmentation or Small MTU?

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Maximum 802.11 Packet length

Packet Error rate:

$PER(n) = 1\ (1 - BER)^n$

Packet Length [Bytes]	PER@10-5	PER@10-4
128	1.02%	9.73%
256	2.03%	18.52%
512	4.01%	33.61%
1500	11.31%	69.88%

Reasonable performance for packets in the range of 128-256 bytes

Fragmentation Options

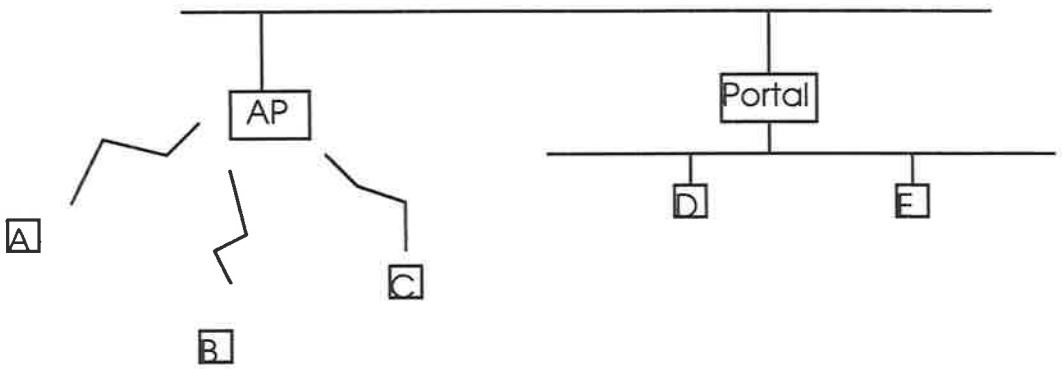
Option 1: Upper Layers

MAC Layer just notifies the MTU.

According to OSI Model.

Problem:

How does connect with existing wired LANs (e.g. Ethernet) ?



Two choices:

1. Use the minimum MTU across the whole bridged network
2. Let the Bridge perform fragmentation.

Option 1: Reduces the wired LAN performance, stations D and E will use 256 MTU!

Option 2: Bridge must do Network Layer Dependent Fragmentation!

MTU Discovery

Exists such a standard on the IP community (RFC 1191), but is used only when crossing Routers.

A Small Benefit - Unique CRC

Instead of using 8-bit CRC for Control and 32-bit CRC for Data, we could use a single 16-bit CRC

Motion

The MAC Group decides that the MTU delivered by the MAC Layer to the Upper layers will be higher or equal to the 802.3 MTU (i.e. 1500 bytes).

The way to achieve that, providing the desirable performance will be by using MAC Level Fragmentation.