

# **SPM:**

## **A Simple Power Management Proposal**

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# What's Broken in the current Proposal?

## **Frame Misordering:**

Multicast Messages and Unicast Message (to non-power saving stations) may arrive in reverse order.

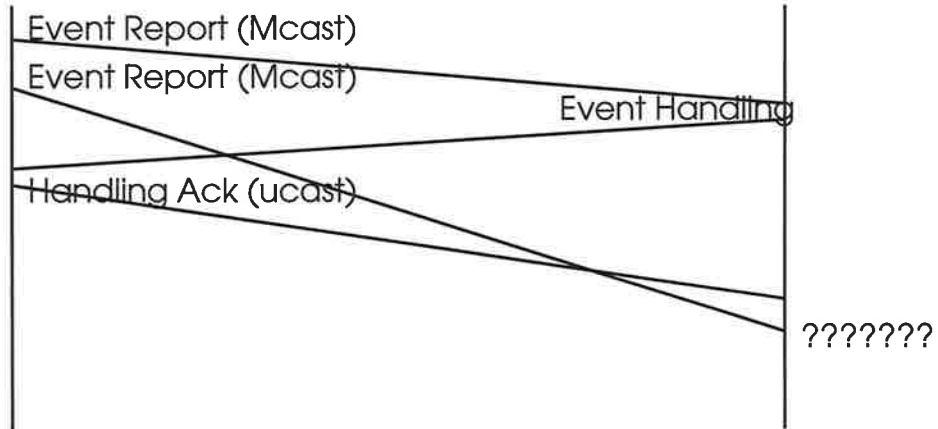
## **From 802.1D (MAC Bridges):**

"The service provided by the MAC Sublayer does not permit the reordering of frames transmitted with a given user priority"

## **From 802.11-93/20b2, Paragraph 7.2.1.5. :**

"All Broadcast/Multicast frames shall be buffered", and  
"Frames destined to stations in the CAM or TAM mode shall be directly transmitted"

# Example of problem



# What's out of the Scope of 802.11?

## Extreme Low Power Stations

Not Necessarily Wireless LAN Problem.

Real solution is Application Specific ("proxy approach")

# **What Could be done better?**

**Not Power Management Algorithm for non Power  
efficient Protocol, but Power efficient Protocol !**

**The SPM: Simple Power Management Proposal.**

# **SPM Proposal**

**Use NAV for Turning off receiver.**

**Paradoxically: Efficient for high traffic, inefficient when low traffic.**

**Rough Numbers:**

**Fully loaded (400 byte long packets), receiver off for 500 out of 3500 microsec. (87.5 %)**

**For (1500 byte long): 96%**

# Trivial Solution

**Let one station (Probably the AP on infrastructure mode) "sacrifice" and transmit "dummy RTS", when no traffic (no pending tx, larger IFS).**

# SPM Solution

## **New Control Packet: PSS - Power Saving Start.**

Contains "Duration" field.

Indicates No traffic will be send to PS stations during the "duration" period.

Any node willing to transmit to non-power-saving stations is allowed to transmit.

Stations are allowed to transmit packets with To\_AP bit set.

This mechanism allows Power Saving Stations to turn off the receiver up to 80% of the time.



## **Motion 1:**

**Accept the SPM proposal, and add it to the Draft Standard.**

# **Motion:**

**Remove existing Power Saving Mechanism from the Draft Standard.**