Multicast versus WiFi

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draft-mcbride-mboned-wifi-mcast-problem-statement

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Three issues

- Low Bandwidth
  - Constrained by slowest local recipient
- Increased congestion
  - Due to longer occupancy of the physical medium
  - Also the need for higher power
  - *Hundreds* of times as much interference
- Poor reliability
  - 802.11 products are optimized for unicast
  - Delivery is not acknowledged at layer 2

Workarounds

- Conversion to serial unicast
    - Pretty much defeats the purpose
- 802.11 doesn't provide for L2 ack and retry for L2 multicast so the packet loss can be higher than for unicast. Provide an L2 ack for mcast.
- More ideas needed

From List

-Start with a business and standardization facing problem statement

-State requirements on L1/L2 protocols when it comes to unicast, multicast and broadcast handling of packets.

-Add a class of service specification to multicast packets that indicates their sensitivity to loss.
-Multicast to unicast conversion is all non-standard.

-The IETF has to decide if it wants to design IP over 802.11

-How good of performance of L2 multicast is needed (BER/packet loss)?

-Multicast packets should be delivered with less than 1% packet loss
-Multicast packets should be delivered within 200-500ms (for instance DAD requires answer within 1s)

-The solution space has been explored in the context of WPANs (802.15.4) and there is value in extending this to WLANs.

Next Steps

- Identify other issues (if any)
- Analyze extent performance degradation
- Identify reasonable workarounds
- Possibly consider 802.15 as well
- Ask for encouragement to continue the work
- Resubmit for fuller consideration at next IETF