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