Why DTBS?

- Foundation protocol proposal defined the optional PCF to support Time Bounded.
  - Limitation due to PCF overlap problems.
  - Roaming problems for TBS.
  - This limits larger installations.
  - Relevant for current and future frequency bands.
    - high speed in 1.9 GHz PCS band.
    - high speed in potential 5.2 GHz band (HIPERLAN).

- Adhoc + Infrastructure

- Alternative for reservation based "Time Bounded" Service needed.

- Solution: Distributed Time Bounded Service (DTBS) using priority access mechanism.

Required characteristics:

- "Best effort delivery service".
- No overlap limitations between the Asynchronous and DTBS service.
- Low transfer delay for all priority levels to support "Bursty" traffic.
- Low transfer delay probability distribution for High Priority traffic.
- Maximum delay limit for DTBS acceptable to support Voice applications.(for 1-2 Mbps)
  - 20-30 msec frame times seem feasible.
  - longer delays acceptable for local connections.
- Low impact on "Low Priority only" delay and throughput characteristics.
DTBS History:

Motion adopted in March:
To add a "Distributed Time Bounded" service functionality to the Foundation MAC and to determine by the end of the May meeting whether one or both of the TBS's will remain in the standard.

- Result of May meeting (ratified on monday)
  - DTBS is selected to support Time Bounded Services, and decided to delete the original Contention Free TBS from the draft.

Questions addressed in May meeting:

- Should we support one or both TBS methods in the draft standard.
  - Position: Only DTBS

- Should the priority mechanism be optional?
  - Position: No, the priority should be considered a fixed part of the non-optional DCF.

- Should DTBS be an optional or standard service?
  - Position: Optional (no change)
Basic Medium Access Mechanism:

- Channel Access Mechanism is split into two parts
  - Priority resolution (using active signalling)
  - Contention resolution (not changed)

Physical Requirements:

- Active signalling is one pulse
  - Lowest priority does not need to send the PaS.
  - All stations need to be able to detect the PaS.
  - PaS detection of multiple overlapping sources, so may impact CCA detection strategy.
- PaS duration depends on synchronization tolerance
Minimum conformance level:

- "Low Priority only" implementations are possible.
  - They do not need PaS generation capability.
  - But they do need PaS detection capability.
- "Low Priority only" is very similar to current Foundation behaviour.
  - No PaS generation required but detection facility is mandatory.

PaS and PDP duration:

- Duration depends on:
  - "Busy Medium" - off detection tolerance.
  - Medium propagation delay.
  - Energy/signal detect time.
    - Only single antenna measurement may be acceptable.
- Antenna slotting synchronization will help decrease tolerances.
- PaS detection may effect CCA method.
  - Multiple PaS signals will overlap.
PHY and Interface aspects:

- What is needed to Xmit a PaS?
  - PaS can use the normal modulation and signal level.
  - Suggest it to be the first part of the PHY-preamble.
  - MAC Controls the duration of this signal by turning PHY TX on and off using the normal TX interface.

- Receiver requirements.
  - CCA indication can be used to signal PaS detection.
  - Detection timing can be the same.

- Detection reliability.
  - Lower Reliability of detection of multiple overlapping PaS signals from different sources is not catastrophic and can be acceptable (degradation is gracefull).
  - MAC can contain provisions to reduce “False Alarm” impact.

Motion adopted by the MAC:

- Move:

That 802.11 should adopt the “Priority based DCF” proposal as documented in 94/150.

Vote in MAC subgroup: 16/11/8
Questions to the PHY subgroup:

- Can the PHY's support the "Active Priority Signalling" accepted in the MAC subgroup.

- What is the expected timing (per PHY) for:
  - CCA detection
  - PaS detection (if difference)
  - Expected "Medium Busy-off" detection tolerance.