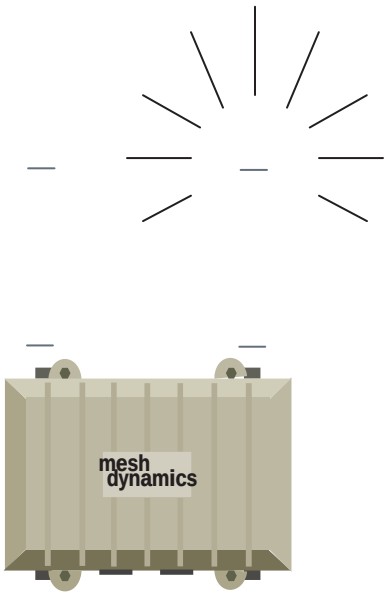
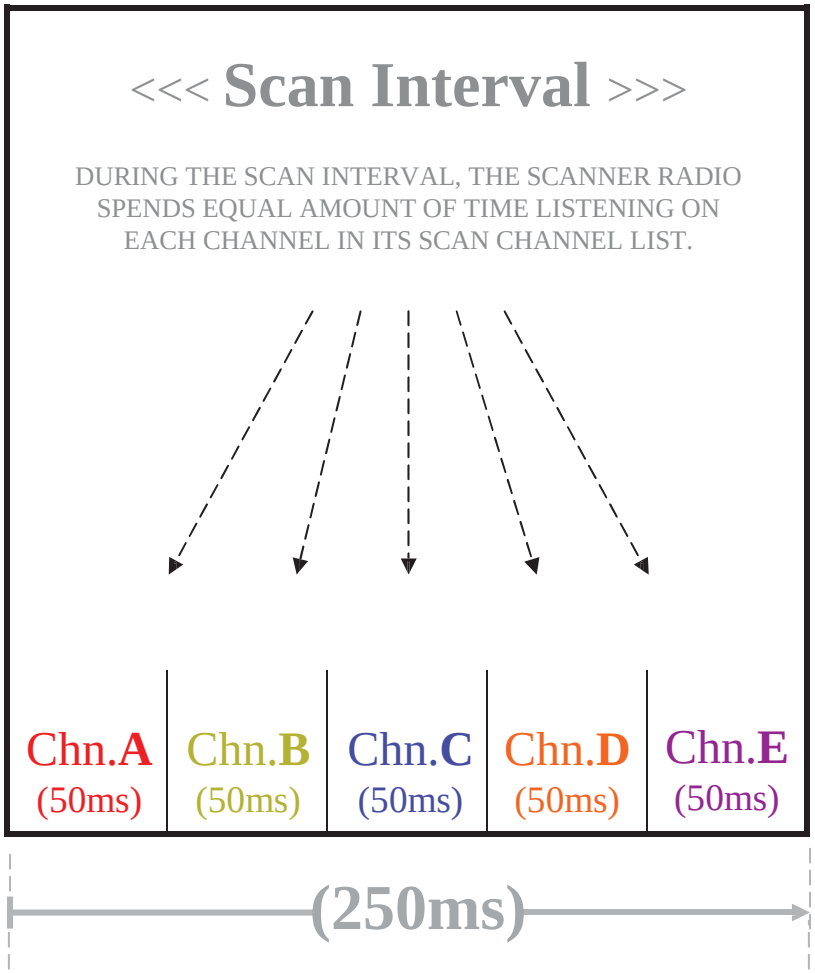
The following is a supplement to **section 4.1** of the MeshCommand manual.

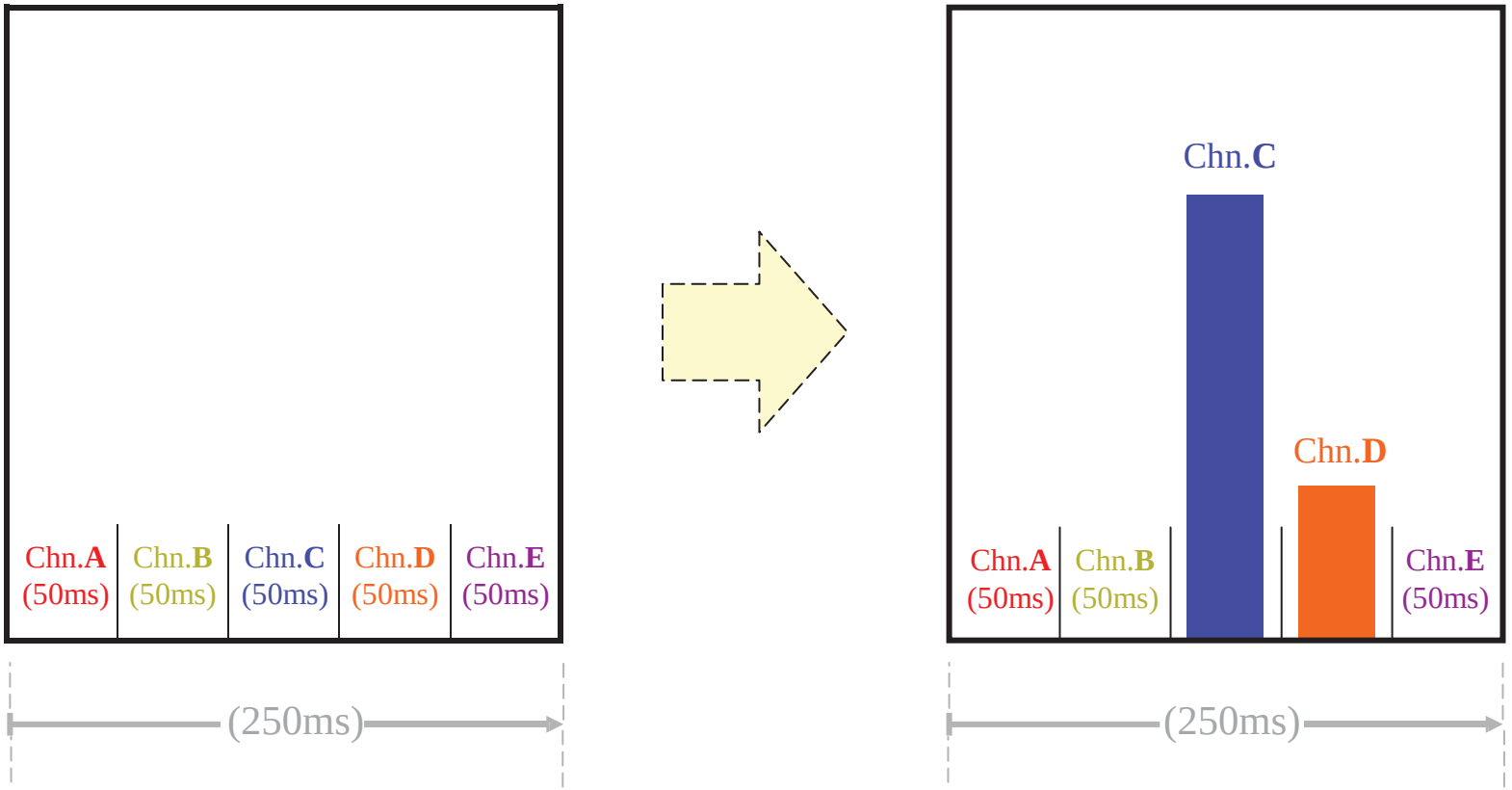
A scanner radio constantly repeats scan intervals, listening on each channel in its *Scan Channel List*.



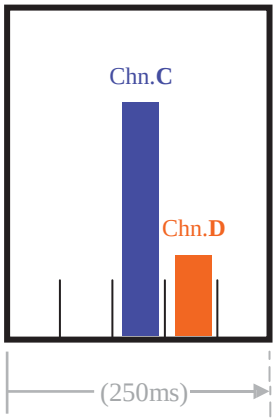


***NOTE THAT TWO QUANTITIES ARE BEING DEFINED HERE:
SCAN INTERVAL = 250ms (default)
DWELL TIME = 50ms (default)
(DWELL TIME = SCAN INTERVAL DIVIDED BY NUMBER OF CHANNELS IN THE SCAN CHANNEL LIST …5 CHNS. BY DEFAULT)

During the Scan Interval, the scanner radio may hear beacons from the downlinks/APs of parent nodes. In the example below, two beacons are heard, one on channel **C**, and one on channel **D**. Channel C has the highest received signal strength of the two channels, so channel **C** is the "winner" of the scan interval.



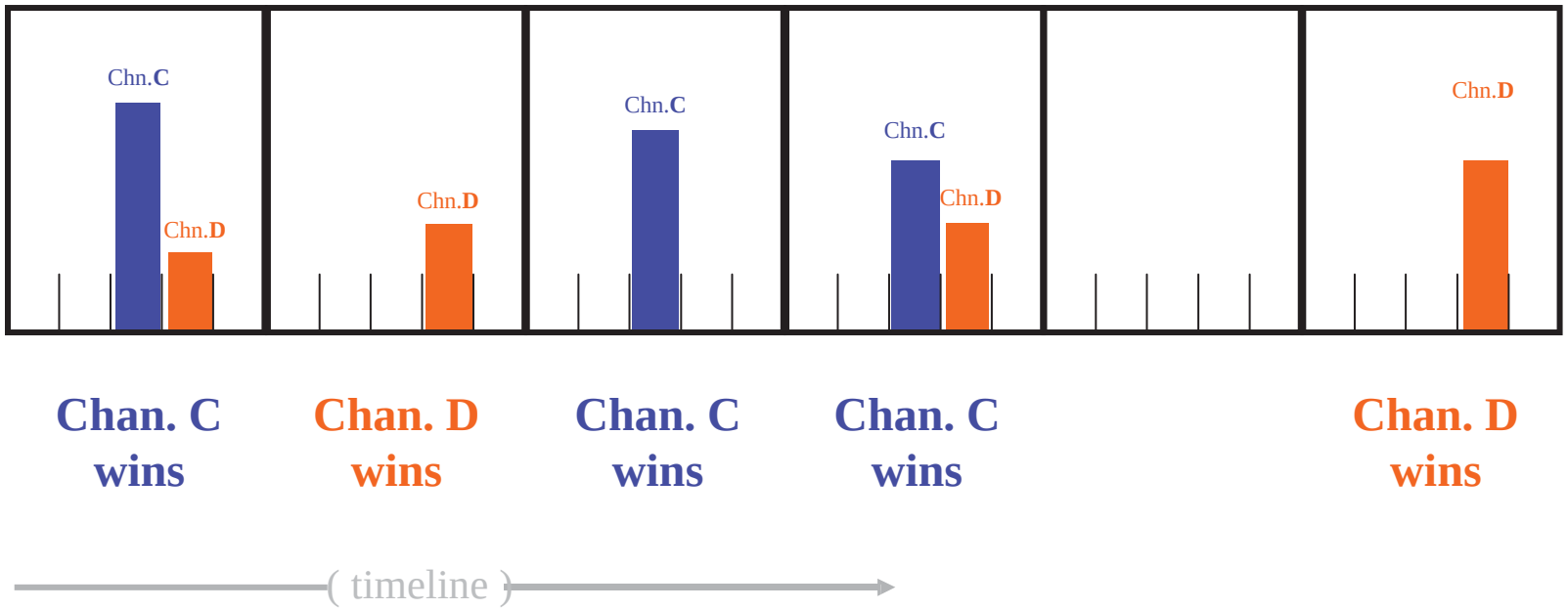
There are more factors taken into account when a beacon "wins" a scan interval, but for the purposes of maintaining IP, ***signal strength is the only property needed for, and used in the explanation.



Since beacons are sent by the downlinks/APs of the parent nodes every 100ms (by default), there is a fair chance that not all beacons will be heard during a scan interval. The reason for this is because the dwell time for each channel is only 50ms.

In the illustration below, it is seen how some scan intervals miss beacons altogether. These intervals do not have “winners”.

Other scan intervals only see *one* beacon -making this beacon the winner by default.



After each scan interval, a *snapshot* is taken of the past **12** scan intervals. Within these 12 scan intervals will be an **overall winner** of the snapshot as seen below.

With each consecutive snapshot, there will be a new **overall winner**. A sequence of three consecutive snapshots are shown on this page, along with each respective overall winner. In order for a *potential* parent node to become the new *actual* parent node, this potential parent node must be the overall winner for *4 consecutive snapshots*.