Summary of YSF:-

YSF is a fully featured 6TiSCH Scheduling Function, optimized for multipoint-to-point traffic. YSF is able to achieve end-to-end latency that outperforms MSF. MSF schedules cells at randomly selected slot off-sets which means that MSF is not collision free. In YSF we do not randomly schedule slot off-sets but instead use an algorithm which results in low latency and reliability. YSF uses a top-down approach and schedules cells on a per traffic flow basis. Changing cells for a particular traffic flow does not affect other flows. YSF schedules three types of cells - autonomous cells, transient cells and permanent cells over the course of the scheduling process.

Autonomous cells are used for communication between new pair of parent and child nodes which perform 6P communication and keep-alive exchanges. A random slot offset is selected for autonomous cells and is scheduled without the neighbour nodes needing to communicate. Transient cells are used to handle the incoming traffic during the request phase until the permanent cells are allocated. For these cells also slot offset is selected randomly. The Permanent cells are the set of cells assigned to a node for a given traffic flow and are scheduled on after the other.

Algorithms for channel offset and slot offset selection for permanent cells are explained below:-