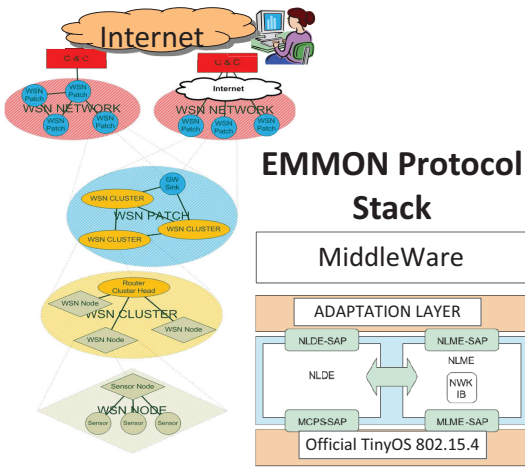


# Communication Protocol

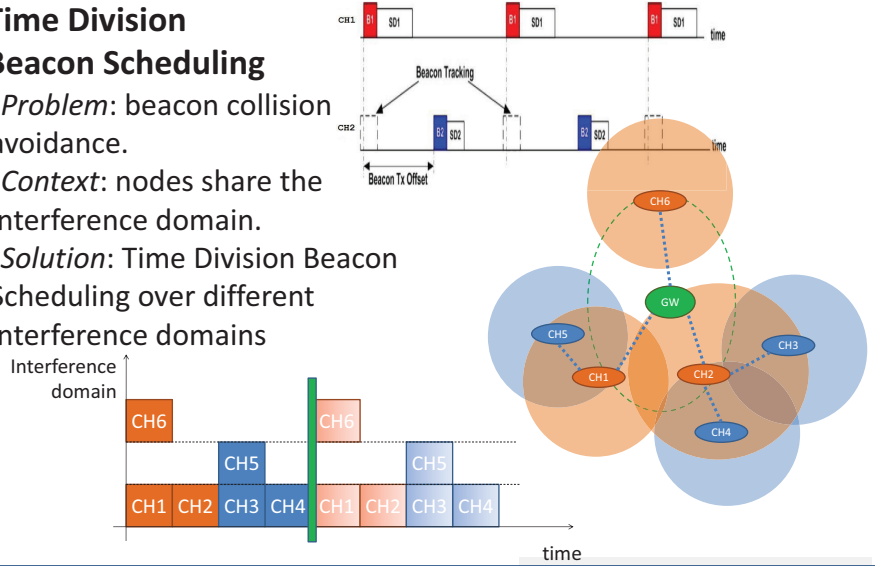
## IP + ZigBee/IEEE802.15.4 - like

### Scalable multi-tiered hierarchical network

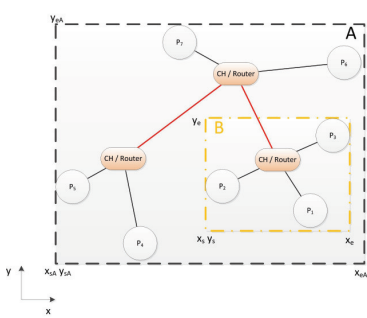


### Time Division Beacon Scheduling

- **Problem:** beacon collision avoidance.
- **Context:** nodes share the interference domain.
- **Solution:** Time Division Beacon Scheduling over different interference domains

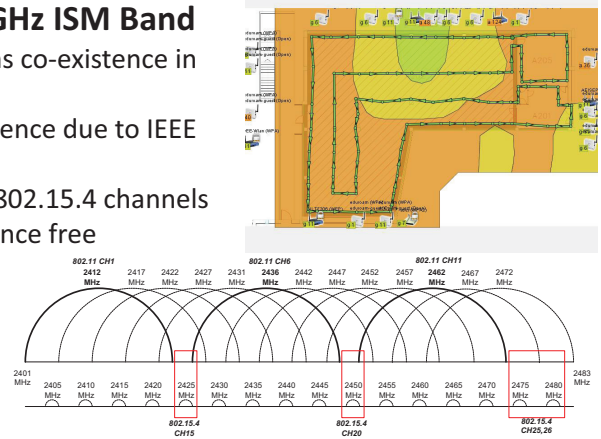


### WSN Patch Setup – Served Area computation



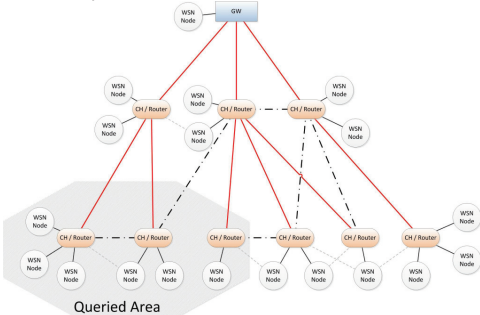
### Interference in 2.4GHz ISM Band

- **Problem:** multi systems co-existence in 2.4GHz ISM band.
- **Context:** Main interference from IEEE 802.11 networks.
- **Solution:** Up to 4 IEEE802.15.4 channels are nominally interference free



### Downwards Routing - Geographical

- Route of downwards traffic flow is decided based on the geographical position of the sensor node by matching the served areas with the queried area



### Upwards Routing – Converge cast

- Converge cast upwards traffic flow guarantees W.C. E2E delay.
- Allows for in-network aggregation.
- Maximum number of hops is known.

