MANET – DESIGN ISSUES

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Design Issues

- Network Size and Node Density
  - 2 important parameters
  - Network size → Geographical coverage area of the network
  - Node Density → No. Of nodes per unit geographical area
  - Clustering is essential to keep the communication overheads low
- Connectivity
  - Connectivity of a node→ No. Of neighbours it has (ie. Within the transmission range of the node)
  - Connectivity also refers to the link between two nodes.
  - Link capacity → Bandwidth of the link.
  - The no. of neighbours and the capacities of the links to different neighbours vary significantly.

Design Issues

- Topology
  - Denotes the connectivity among various nodes of the network
  - Mobility of nodes affect the network topology
  - Due to mobility , new links are formed and some links are dissolved
  - Nodes can also become inoperative due to discharged batteries, hardware failures which causes change in the topology
- User Traffic
  - A traffic in network can be of various types

1. Bursty Traffic
2. Large packets sent periodically

  - Combination of the above 2 types of traffic

Design Issues

- Operational Environment
  - Urban, Rural and Maritime
  - Node density and mobility values may differ in operational environment
- Energy Constraint
  - Nodes in MANET acts as routers.
  - Therefore all nodes has an extra overhead to perform as a router which consumes more energy.

Test your Knowledge

- Explain how DHCP can be used when the size of the block assigned to an organization is less than the number of hosts in the organization.

References

Jochen H. Schller, “Mobile Communications”, Second Edition, Pearson Education, New Delhi, 2007.