Fixed and Flooding Routing algorithms

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The main idea to write this monograph is to free the slots for important packets arriving from ATM. I had an Idea to fix the buffer occupancy of 80% and leave 20% free for packets which are at higher priority.
If the by flooding [1] the occupancy anyhow reached to 80% the node (Router) will start dropping the packet. Same case is applied with wireless sensor networks [2-9].

In some of the situations, packets follow multiple hops to complete its path towards the destination. This network is scalable [10] also. Because of the flooding we will be trapped in traffic [11]. One of the most complex and crucial aspects of packet switched network design is Routing.

Routing Algorithm's desirable properties are:-

1. Simplicity and accuracy
2. Robustness
3. Minimum overhead
4. Efficiency
5. Stability
6. Fairness
7. Optimality

Parameters that can be used to design routing algorithm are:

- Performance Criteria: Number of hops, Cost (Send packet with high bandwidth path as cost is less), Delay (Size of Queue), Throughput time (Number of packets delivered per unit time).
- Decision of timing to route a packet?
- Decision of origination of packet in routing?
- Network Information Source: None, Local, Adjacent node, Nodes along route, All nodes.
- Updation of Network Information: Periodic, Major Load Change, Topology Change or Continuous.

Characteristics:-

- All possible routes [12] from Source and Destination are tried. A packet will get through if some path exists.
- As all paths are tried, there will be at least one path which is the shortest one
- All nodes directly or indirectly connected are visited

Limitations:-

- Flooding generates vast number of duplicate packets in almost all intermediate nodes.
- Suitable discarding mechanism must be used to avoid this.

Because of the multiple packets at different nodes, overhead increases. We need to fix the number of duplicate packets per node. If any node attains its maximum limit of duplicate packets then it should start dropping the packets. The buffer size of each node is limited and hence we should keep some slots free for packets which have higher in preference list like ATM packets.

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