**Group-1 [NITIN SHARMA]**

**Mobile Networks Paper Review**

**Bittorent enabled ad-hoc networks**

**Follow up discussion**

1. **Difference between structured and unstructured p2p overlay networks.**

In structured overlays, system should be able to store the complex objects such as complex routing tables ex DHT. It should support complex search queries.

 It should minimize:

* Storage overhead
* Routing state
* Routing costs

It should balance:

* Data distribution
* Routing state
* Query/routing costs

Structured networks can handle complex objects and search queries, however they are not always efficient which leads to the reasons for developing unstructured networks. An unstructured P2P network is formed when the overlay links are established arbitrarily. Such networks can be easily constructed as a new peer that wants to join the network can copy existing links of another node and then form its own links over time.

Primary reasons to construct unstructured p2p overlay networks

* Inefficient internet routes
* To avoid failures in internet routes
1. **Importance of TTL as described in “BitHoc: Bittorent for Wireless Ad Hoc networks”**

In the framework described in mentioned paper, the peer periodically floods the entire network with a HELLO message. This message is transmitted to the wireless network with some TTL to control the scope of the flood.

Following extract from the paper defines the relation between the TTL and the piece size:

*“We give a particular attention to the piece size and to its impact on both the ﬁnish time of peers and their sharing ratios. The reason to consider the piece size is that it decides how far pieces can be sent over the network. The TTL of HELLO messages is set to its maximum value so that all peers are neighbors of each other. Two sizes of pieces are used whereas the size of the ﬁle is left constant. The values considered for the piece size are summarized in table”*

Number of blocks defines the scope of the neighborhood. Clearly, piece size controls the TTL, which in turn controls the number of blocks after which message will expire.

1. **Cross layer architecture can optimize the performance in cases of wireless network architectures, but what are its side effects or disadvantages?**

Cross layer architecture has following disadvantages:

* Joint optimization across the layers leads to more complex algorithms.
* May sometimes cause loops, particularly in cases where two layers are depending on each other for a particular type of data or packet.
* Its preferable only in wireless networks can’t extend it to wired networks.
* Some cautionary perspective must be taken into account before designing cross layer architecture.
* Setting the context of cross-layer optimization is also necessary and varies with various combinations of layer. For example application + physical layer cross layering can be entirely different from application + network layer cross layering.