Self regulated high bandwidth ad-hoc networking

Self regulating network

Nodes in the network detect if something changed with their neighbours. This can be an addition or a deletion to the network. When a node detects an addition, it receives the graph structure from the connecting node and adds this to its own internal graph with a link between itself and the joining node. Both of the nodes broadcast the new graph structure to the nodes in their own network. Each node will remember which messages it already has seen to prevent duplicates in its internal graph. Deletions work according to the same principle, but a link will get removed and the new structure will be broadcasted to the remaining part of its network. This system is build into all nodes, which makes the network self regulating without the need for a server-client structure.

Active streaming

Active streaming is an efficient form of bandwidth distribution over time. The song gets split up and send in different packages. Doing so, more important packets can be interleaved. This allows the network to still maintain its dynamic self regulating property. An additional benefit of streaming is that music can be played as soon as the first packet reaches its destination, which is more user friendly.

Conclusion

Playing music by first fully buffering the song causes high peaks of bandwidth usage. Active streaming is the solution for this issue. Self regulating Bluetooth networks have many ways of improving network performance and stability. More information about these enhancements can be found in the paper, which is linked by the QR code beside.

Link Paper