

I will introduce a new communication model, called hybrid network, in which the nodes have the choice between two communication modes: a local mode that allows them to exchange messages with nearby nodes, and a global mode where communication between any pair of nodes is possible, but the amount of communication is limited. This can be motivated, for instance, by wireless networks in which we combine direct device-to-device communication with communication via the cellular infrastructure. I will show how to quickly build up a low-diameter, low-degree network of global edges (i.e., connections established via the global communication mode) on top of any network of local edges (i.e., connections given by the local communication mode) so that various problems such as computing minimum spanning trees and shortest paths can be solved much more efficiently than by just using the local edges.