In hybrid networks, nodes can make use of different communication modes. For example, mobile phones may use ad-hoc connections via Bluetooth or Wi-Fi in addition to the cellular network to solve tasks more efficiently. Like in this case, the different communication modes may differ considerably in range, bandwidth, and flexibility. The hybrid network model of Augustine et al. [SODA '20] captures these differences by a local and a global mode. In this talk, we consider the, arguably, most restricted version of this model by assuming that only $O(\log n)$ messages can be sent over each local edge, and, additionally, each node can communicate a total of $O(\log n)$ messages over global edges.

We consider the situation in which the global edges initially form the same graph as the local edges, and additional edges need to be set up by performing introductions. Our goal is to construct a low-diameter global network structure. This problem has been studied in the context of overlay networks. We review an algorithm from Götte et al. [SIROCCO '19], which constructs a low-diameter overlay in time $O(\log^{3/2} n)$, and describe how the algorithm can be performed in our hybrid network model. This talk focusses on the techniques required to cope with potentially high degrees, and to obtain a spanning tree as a by-product, which was not discussed in the original publication.