Connectivity in Ad Hoc Networks: Example

Several graphs showing how the network connectivity changes with the transmission range of a mobile ad hoc node. Connectivity ranges from sparse (for 30m range in figure (a)), to dense (for 60m range in figure (d)). The topology included 1000 nodes in a 1000m x 1000m area. The nodes were randomly placed. The output was displayed using the network animator ‘nam’, and it shows the nodes in their x-y position and it shows a link when two nodes are within communication range. From the figures it is clear that for 30m and 40m ranges the network is not connected, whereas for 50m and 60m the network is connected (i.e., there is at least one path from any node to any other node).

(a) Range=30m, Links=1704  
(b) Range=40m, Links=3079  
(c) Range=50m, Links=4996  
(d) Range=60m, Links=6795