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Monitoring a Network with fewer Watchpeople: the trade offs

A dominating set S of a graph is a set of vertices such that every vertex of the graph is either in S or adjacent to some vertex of S . In particular, the dominating set is considered static and all vertices of the graph are dominated all of the time. In many applications this may not be practical as resources are simply too limited. Hence we might allow vertices to not be dominated for certain periods of time as long as such time intervals are not excessive. Thus we could allow each member of our set to either remain fixed or move to an adjacent vertex in one unit of time. What can be said about the time vertices are not monitored if the dominating set is cut to some fraction of the original number required or by a fixed number? Although more questions than answers will be given, some observations will be outlined.