A first approach to security analysis on networks with ancilliary points

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Network analysis has been an active research field in several scientific areas like social sciences, computer sciences, physics or mathematics. From a computer science perspective, networks we are interested with in this work, can be identify by a graph $G = (V, E)$, where $V$ is the vertex set - individuals that could be computers or other connected devices - and $E$ is the set of links between them. Therefore, two individuals are connected if there exists information exchange between them. This kind of graphs deals with symmetric binary and null-diagonal adjacency matrices which contain relevant information about the structure of the network. Our objective is to hide topological features of the network in order to protect it against target attacks.

This initial study proposes to add ancilliary individuals and connections to the original network by means of simple stochastic algorithms, analyzing variations on centrality properties in some particular simulated cases.

References


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