

Useful Network Theory??

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1 Problem Summary

The general scope of the problem is network complexity in the internet of things (IoT). In particular, I'm looking to investigate how complex a system one can develop before the IoT starts to 'fail', a concept that will take some definition later.

1.1 definitions

The IoT consists of a set of connected devices $d_i \in \{D\}$ that each can be in one of a multiplicity of states $s_i^\alpha \in \{1, \dots, m_i\}$, such that the total state space of the IoT is

$$M \equiv \prod_i m_i,$$

e.g. the state S^α of the IoT ranges in labels from $\{1, \dots, M\}$.

The interesting thing is interactions between systems. A particular example is *if-then interactions*, where if some element d_i is in state s_i^α then some other element d_j changes from initial state s_j^α to s_j^β

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