motivation

Avalanching breakdowns do occur in communication power distribution etc. networks.

Little work has been done on overload avalanches and cascading failures.

The redistribution and increase of load in a growing network might trigger overload avalanches.

different load cases

We distinguish between different load cases:

1. Extrinsic source activity (ECA) corresponding to that the average number of connections per vertex is increasing with the network's size.

2. Intrinsic source activity (ICA) corresponding to a constant average number of connections per vertex.

Real communication networks is can be supposed to lie between the ECA and ICA extremes.

motivation

the bad

the growth

the breakdowns

time evolution:

vertices (ECA)

vertices (ICA)

edges

m scaling:

vertices (ECA)

vertices (ICA)

edges (ECA)