Towards Optimal Connectivity on Multi-layered Networks

ABSTRACT

Networks naturally arise from many high impact domains. Moreover, the cross-domain interactions between networks are frequently observed in many applications. The resulting interdependent networks naturally form a type of multi-layered networks. In this system, the power stations in the power grid are used to provide electricity to routers in the autonomous system network (AS network) and vehicles in the transportation network; while the AS network in turn is needed to provide communication mechanisms to keep power grid and transportation network work in order. Furthermore, the social network layer could have an embedded multi-layered structure (e.g., each of its layers represents a different collaboration type among different individuals); and so does the information network. In this application, the different layers form a tree-structured dependency network rooted on the team network layer.

EXISTING SYSTEM

In Existing System, Networks are prevalent in many high impact domains. Moreover, cross-domain interactions are frequently observed in many applications, which naturally form the dependencies between different networks. Such kinds of highly coupled network systems are referred to as multi-layered networks, and have been used to characterize various complex systems, including critical infrastructure networks, cyber-physical systems, collaboration platforms, biological systems and many more. Different from single-layered networks where the functionality of their nodes is mainly affected by within-layer connections, multi-layered networks are more vulnerable to disturbance as the impact can be amplified through cross-layer dependencies, leading to the cascade failure to the entire system.

DIS ADVANTAGES

- Cause a great interruption on the transportation network.
- It does not allow a much more flexible and complicated dependency structure among different layers.

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PROPOSED SYSTEM

In Proposed System, Connectivity optimization problem on multi-layered networks(OPERA). Our main contributions are as follows. First, we unify a family of prevalent network connectivity measures (SUBLINE). Second, we prove that for any network connectivity measures in the SUBLINE family, the connectivity optimization problem with the MULAN model enjoys the diminishing returns property, which naturally lends itself to a family of provable near-optimal algorithms with linear complexity. Finally, we conduct extensive empirical evaluations on real network data, which validate the effectiveness and efficiency.

ADVANTAGES

- Minimize the connectivity in the satellite communication layer and physical layer simultaneously.
- To tackle the connectivity optimization1 problem in multilayered networks.

SYSTEM REQUIREMENTS

H/W System Configuration:-

Processor	-	Pentium –III
RAM	-	256 MB (min)
Hard Disk	-	20 GB
Key Board	-	Standard Windows Keyboard
Mouse	-	Two or Three Button Mouse
Monitor	-	SVGA

S/W System Configuration:-

Operating System	:	Windows95/98/2000/XP
Application Server	:	Tomcat5.0/6.X

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Front End	:	HTML, Jsp
Scripts	:	JavaScript.
Server side Script	:	Java Server Pages.
Database	:	MySQL 5.0
Database Connectivity	:	JDBC

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