Technische Universität München
Chair for Network Architectures and Services
Prof. Dr. Georg Carle

18.01.2009

Bachelor/ Master/ Diploma Thesis/ SEP

Interactive Visualization of Network Topologies

Motivation

The Internet is still growing and as of now connects far beyond 700.000.000 nodes (including routes, end systems, servers,…)

Visualizing networks of this scale or only parts of it is a challenging tasks: either the resulting graph is too complex to understand or misses most of the information.

Current approaches often use static views, render the graph only once and do not allow different viewpoints or highlighting. Interactive visualization of such networks is limited and yet not available for Internet-scale networks.

Topic

The design and implementation of an interactive network visualization should be the outcome of this thesis. While the representation of network graphs can already be achieved with many available tools, the lack of interactivity is the major functionality that is still missing. Basic interactive function e.g. should include zoom, route highlighting, presentation of additional information on highlighted links/ network parts/ nodes.

Requirements

• Explorative nature
• Programming skills (e.g. C/C++ or Python)
• Advanced knowledge on computer networks

Keywords

Visualization, graph representation, GUI design