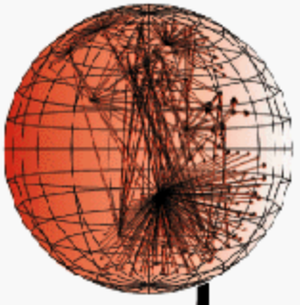

Otter:

A general-purpose network visualization tool

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Overview

- Motivation
- Architecture
- Feature Overview
- Real World Applications
- Future Work
- Conclusion

Motivation

My boss kept asking for topological maps of different Internet data sets

- IP backbones
- Mbone
- IRCACHE's web caching hierarchy

.... needed to stop reinventing wheel

What do we want to visualize?

General graph topologies (nodes and edges)

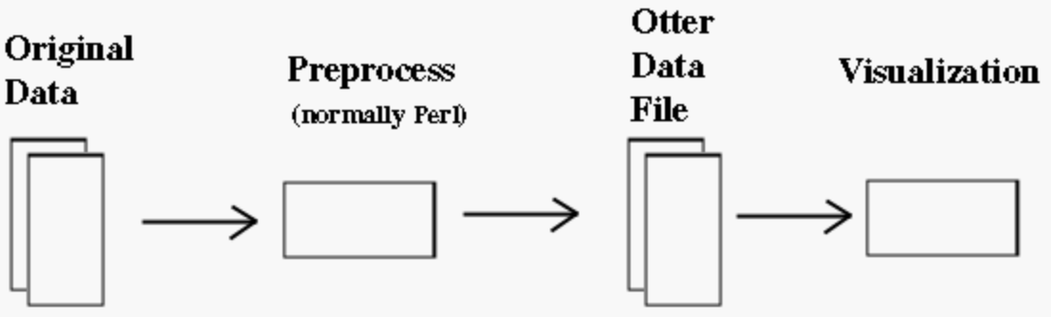
- computer networks
  - physical topologies
  - logical topologies
- routing tables
- airline routes

Nodes/edges may have an arbitrary number of attributes

Example of Networks

- airline flight nodes and routes
  - stops
    - airports
    - schedule
  - routes
    - distance
- computer networks
  - computers
    - machine names/addresses
  - links
    - bandwidth
    - latency
    - cost

Architecture



Feature Overview

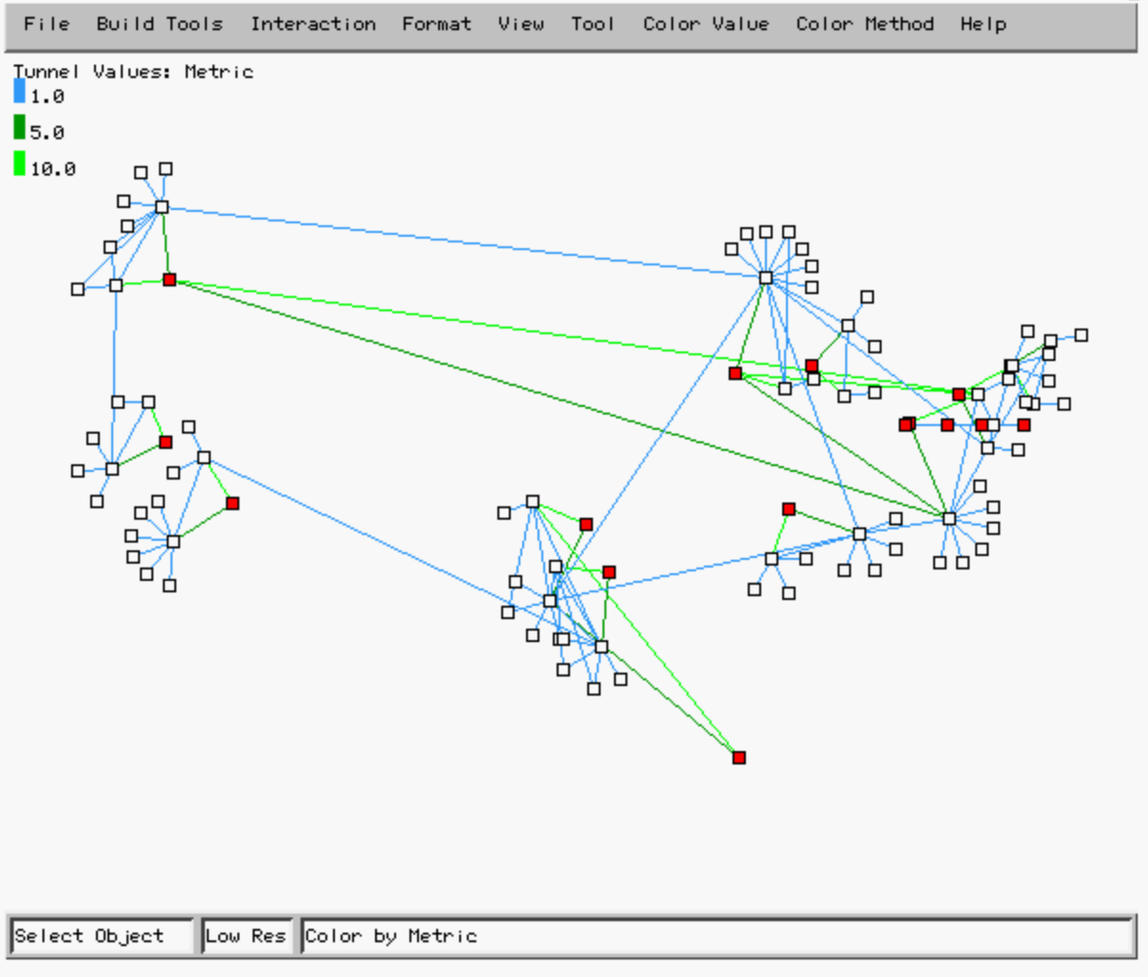
- Cross-platform Java interface
- Standalone and Applet capability
- Alternative Placement Algorithms
  - (geographical, topological)
- Interactive (demo)

Real World Applications

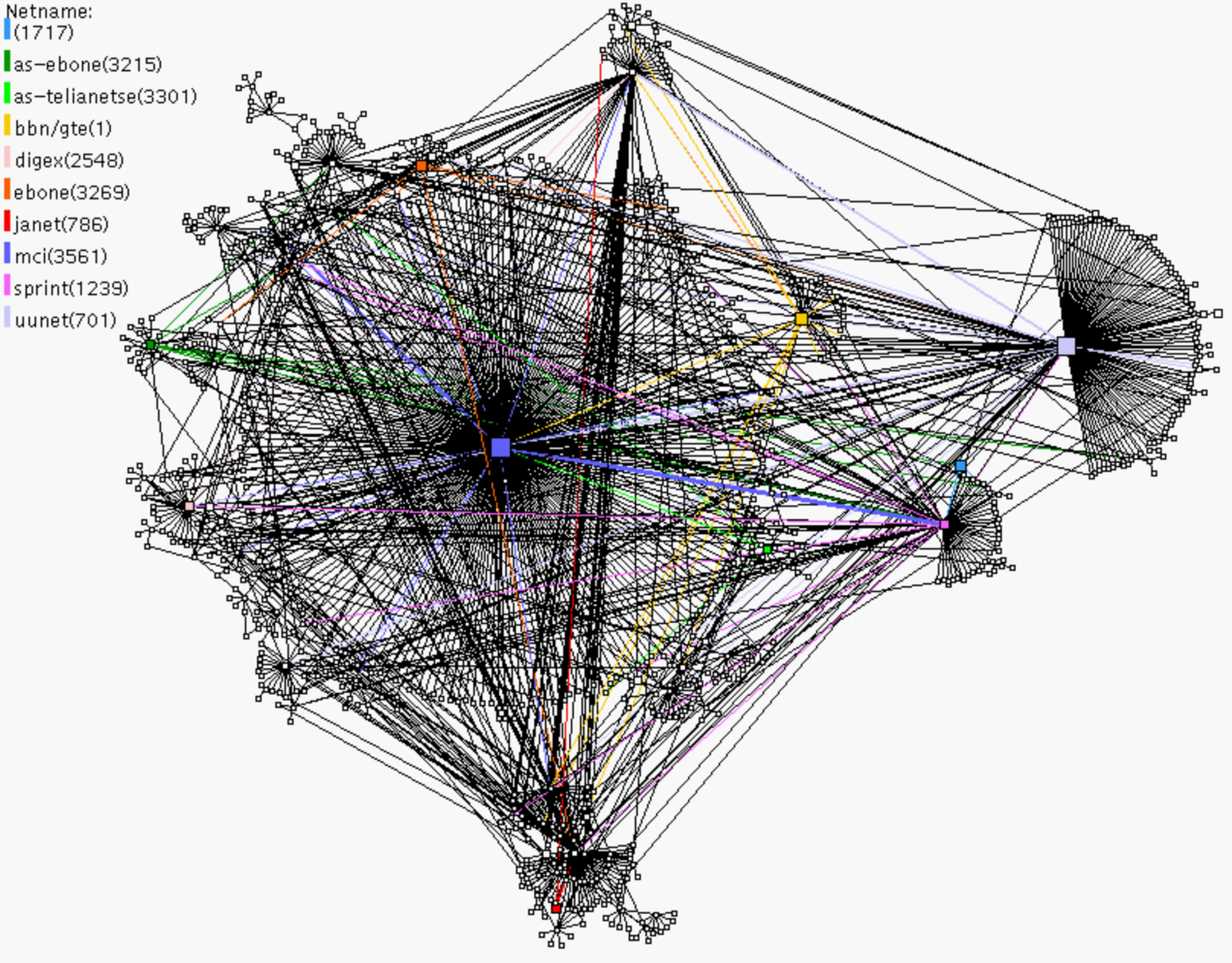
- Multicast Network Topology ('Mbone')
- Announced Network Routing information ('BGP')

Multicast Network Topology

commercial IP backbone's multicast topology:



Announced Network Routing information



Conclusion & Futures

- General-purpose graph visualization tool
  - Versatile
  - Time saving
  - Proven utility
- Still working on
  - Better layout algorithms
  - Support for live data feeds
  - Animation of aggregated data files

Availability

- http://www.caida.org/Tools/Otter
  - Java–based
  - interested in feedback/contributions

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