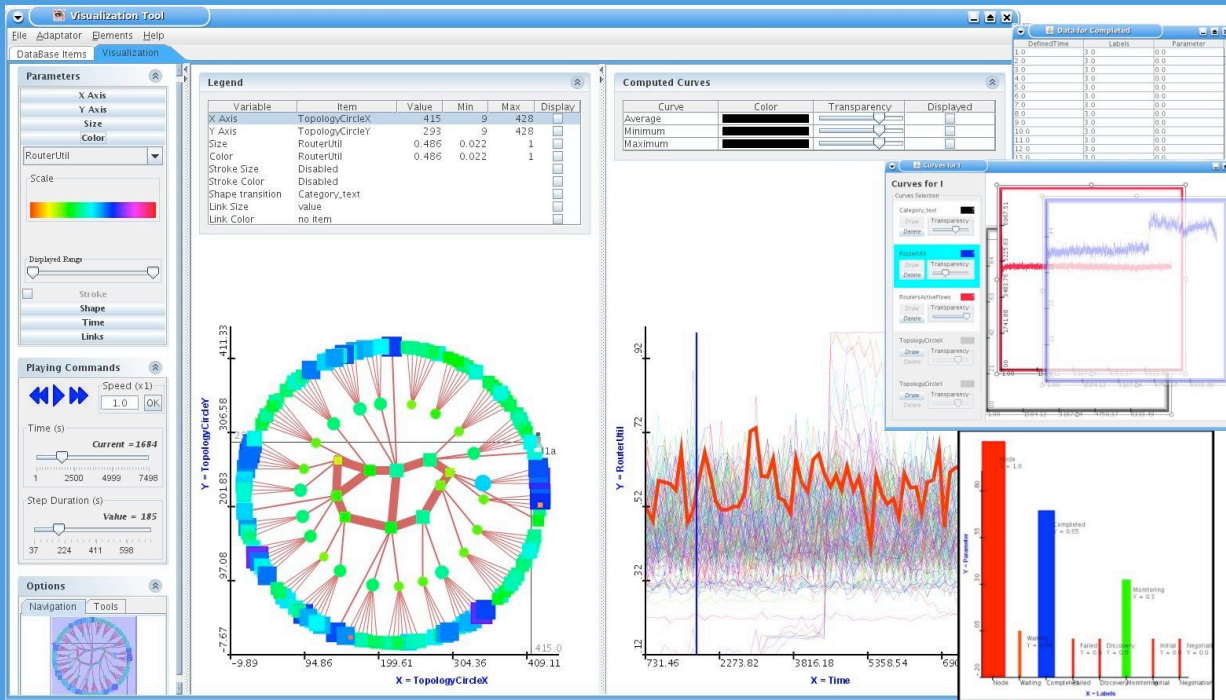Cedric Houard

John Hagedorn

complex systems

IMAGE OF THE MONTH

July

DiVisa: Data Visualization Tool

One frame from an animated visualization of a simulation of the "Abilene" network. On the left panel, the innermost nodes are the backbone routers, the next ring represents the subnet routers, and the outermost ring shows the leaf routers. On the right panel, the time series curves of the routers (one is currently selected) are displayed. On the right side, different options available: numeric data display (top); superposed time series curves (middle); and diagram view (bottom).

More information available at: http://math.nist.gov/mcsd/savg/vis/network/index.html

Abstract—DiVisa is a multi-dimensional visualization tools developed for researchers to understand the behavior of their data. From raw data, the user can interact with the visualization in order to obtain different "points of views" and thus to extract more information from the data. Geometrical forms such as squares, ellipses or lines are associated with data and visual attributes such as position, size, shape, color, stroke are used to represent different dimensions. Indeed, the researcher can easily modify the associations between data items and visual attributes, apply mathematical functions on and between items, subset and zoom in on areas, data ranges, or times of interest, superpose curves with transparency to compare them, and animate the visualization to show time series data. Moreover, the program can read any kind of data (simulation, statistics, text or numeric, etc.), and converters have been implemented to read several data formats without need for reformatting.

National Institute of Standards and Technology
U.S. Department of Commerce

2008

The Complex Systems Program is part of the National Institute of Standards and Technology's Information Technology Laboratory. Complex Systems are composed of large interrelated, interacting entities which taken together, exhibit macroscopic behavior which is not predictable by examination of the individual entities. The Complex Systems program seeks to understand the fundamental science of these systems and develop rigorous descriptions (analytic, statistical, or semantic) that enable prediction and control of their behavior.

Program information at: www.itl.nist.gov/ITLPrograms/ComplexSystems