UNIVERSITY OF KENTUCKY College of Engineering

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NodeScape: Supercomputer Status at a Glance

Professor Hank Dietz

Abstract: It's easy not to see the forest for the trees. A cluster supercomputer contains many nodes, each of which typically has various properties one would like to monitor, but understanding the status of the system should not require individually examining the status of each node. There are various tools that can collect the system status, and some can even present it graphically, but the presentations generally suffer from showing too much information in an unintuitive way. Several years ago, we devised a general approach to synthesizing an integrated presentation of multidimensional sensory data – a concept we called a *Senscape*. NodeScape uses this approach to monitor status of a supercomputer, color-tinting an arbitrary image to show at a glance both relative values of attributes and how recently that status has been updated. The image being tinted can be an artificially-created abstract one or it can be an actual photograph of the system, thus making the correspondence between the logical status and the physical nodes obvious.

If you've walked past our 108A Marksbury machine room you've seen NodeScape in action. It's what generates the colorful displays showing internal temperatures of the nodes in some of the cluster supercomputers housed there. This talk will discuss how NodeScape works and the general plan for integrating it with the WareWulf 3 cluster management suite.

Keywords: Parallel Supercomputing, Clusters, Status Display, NodeScape, Warewulf

Speaker: Hank Dietz is the james F. Hardymon Chair in Networking and a Professor in the University of Kentucky's Electrical and Computer Engineering Department. In 1994, his group built the world's first Linux PC cluster supercomputer, and his group has continued to lead in developing new technologies to make supercomputing more accessible, more efficient, and able to solve a wider range of problems. His group currently operates 9 cluster supercomputers – all of which are primarily programmed using MPI.

When: 3PM to 4PM, Wed., April 18, 2012

Where: 108 Marksbury

RSVP required? no

Refreshments/lunch served? no

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