Ohio State researchers seek to keep monster Internet telescopes from getting destroyed

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Ohio State University researchers are developing software designed to make it easier for scientists to remotely operate powerful electron microscopes, telescopes and other instruments over the Internet.

Researchers rely on the Internet to share instruments that would be too expensive for individual labs to buy (and at the urging of the National Science Foundation), so remote operation is important. Researchers at the Ohio Supercomputer Center and Ohio State's Center for the Accelerated Maturation of Materials are working on this project, dubbed RICE, or Remote Instrumentation Collaboration Environment.

Among their goals is dealing with traffic congestion, which can hurt the ability of researchers to operate instruments remotely, such as when they use video to maneuver the equipment. Frozen video could cause different parts of an instrument to collide, costing thousands in damage, says Prasad Calyam, a doctoral student in electrical and computer engineering at Ohio State.

"Communication delays can prevent remote operators from knowing exactly what is happening with an instrument at a particular moment, and that can lead to making the wrong decisions as a result," Calyam said in a statement.

RICE uses special algorithms that can protect scientists from themselves by blocking their commands if a video feed freezes up and a scientist isn't able to see what he or she is doing with the remote equipment.

"It's just human nature -- when we hit a button, and nothing happens, we hit the button again," Calyam said in a statement. "We know from our previous studies that people using Internet software tend to click more buttons when the network is slow, and they also get less done.

Ohio State plans to make RICE publicly available once it works out the kinks. The software could prove popular among labs that would like to share their expensive instruments over the Internet for a fee to defray costs.

See the software in action here .

http://www.networkworld.com/community/node/20715