



Jennifer Simpson
Skyline H. S.

Collaborative Remote Visualization

J. Simpson, E. Luke, R. Coffey, K. Balling, A. Sanderson

Scientific Computing & Imaging Group, School of Computing, University of Utah

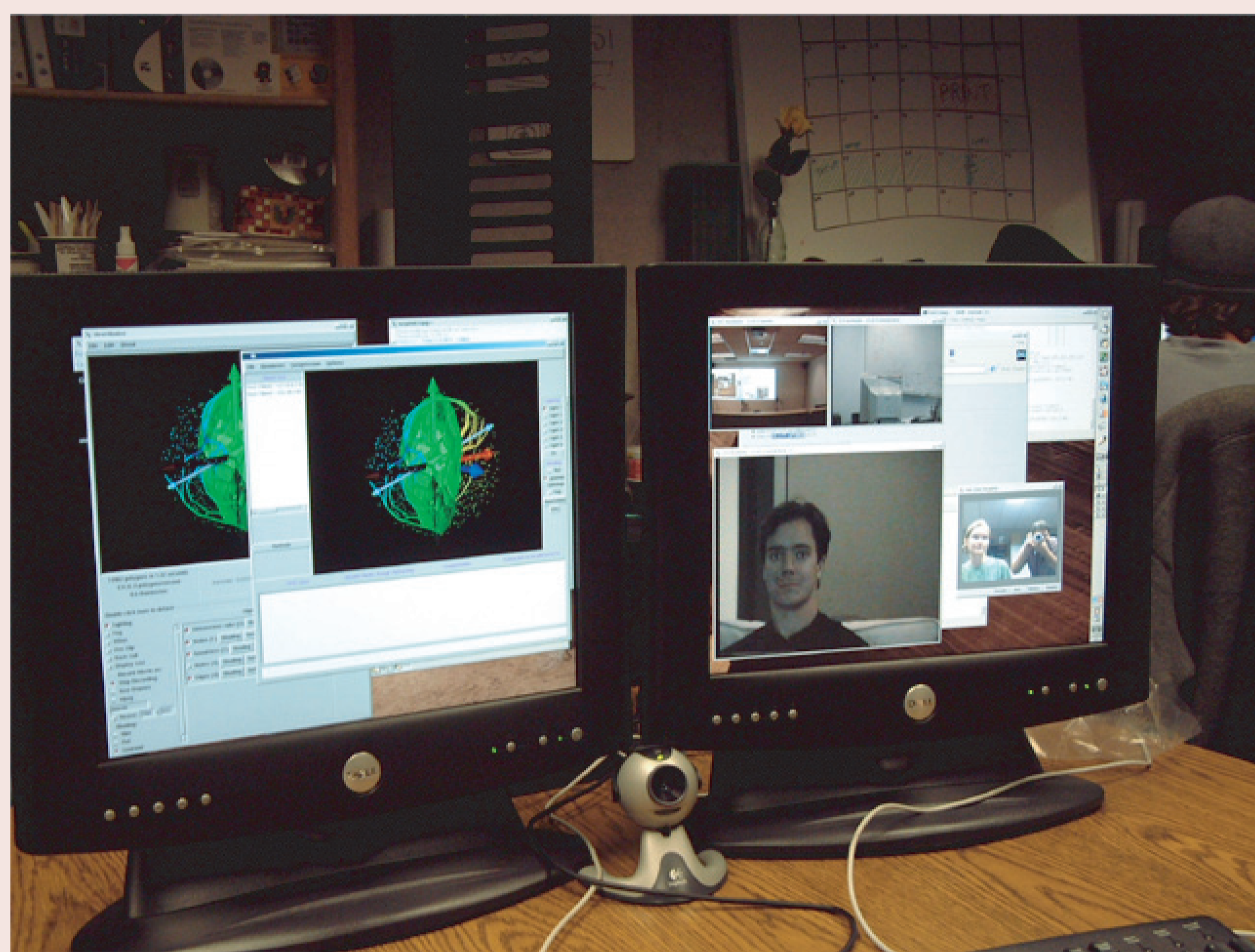


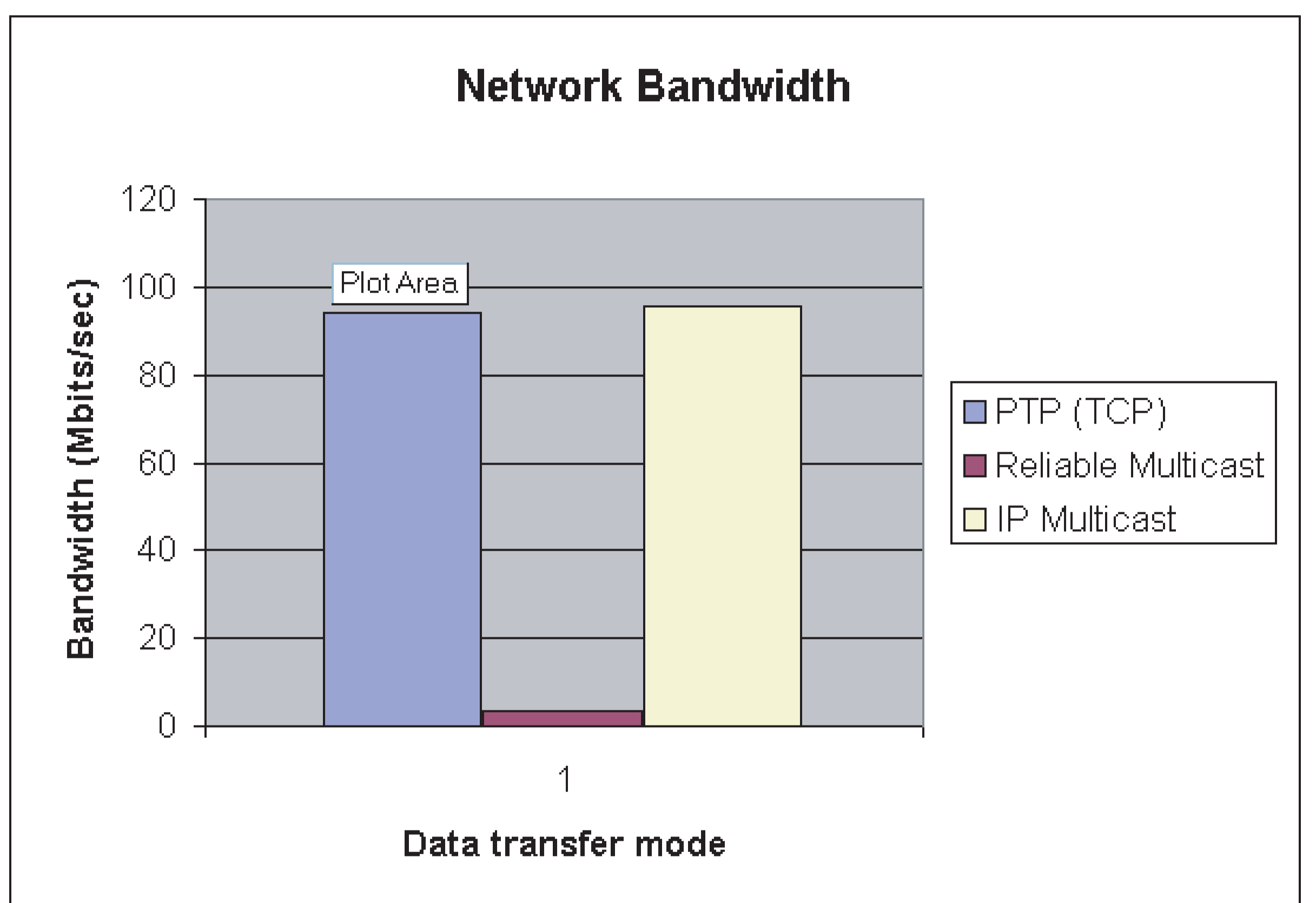
Table 1 : Comparison of effective network bandwidth for varying data transfer modes.

Network Bandwidth (Mbits/sec)			
Machine name	PTP	Reliable Multicast	IP Multicast
hawkeye.sci.utah.edu	95.6	4.7	95.7
bugs.sci.utah.edu	94.0	4.7	95.7
jello.sci.utah.edu	93.9	4.7	95.7
labnix8.cs.utah.edu	93.0	2.5	95.6
labnix9.cs.utah.edu	93.7	2.5	95.6
labnix10.cs.utah.edu	92.8	2.5	95.6

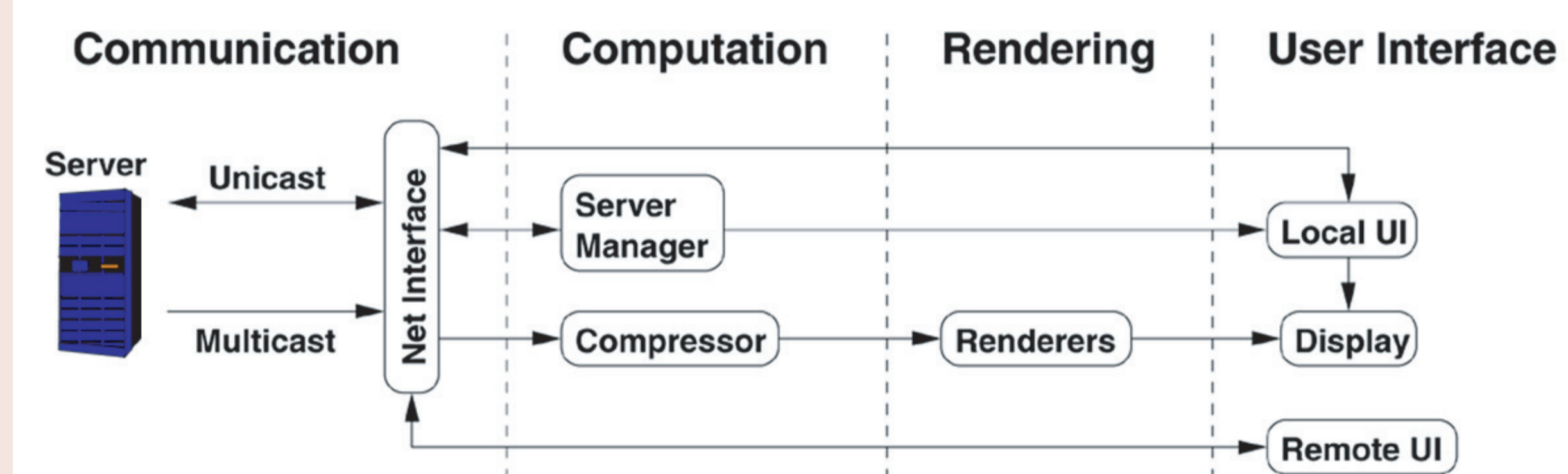
Table 2 : Comparison of packet loss for varying data transfer modes.

Packet Loss (percent lost)			
Machine name	PTP	Reliable Multicast	IP Multicast
hawkeye.sci.utah.edu	0.00%	0.00%	0.06%
bugs.sci.utah.edu	0.00%	0.00%	0.00%
jello.sci.utah.edu	0.00%	0.00%	0.001%
labnix8.cs.utah.edu	0.00%	0.00%	0.0078%
labnix9.cs.utah.edu	0.00%	0.00%	0.0053%
labnix10.cs.utah.edu	0.00%	0.00%	0.0006%

Numerical representation of bandwidth (top) and packet loss rates (bottom) for three different data transfer modes.



Network bandwidth for data transfer for three different modes.



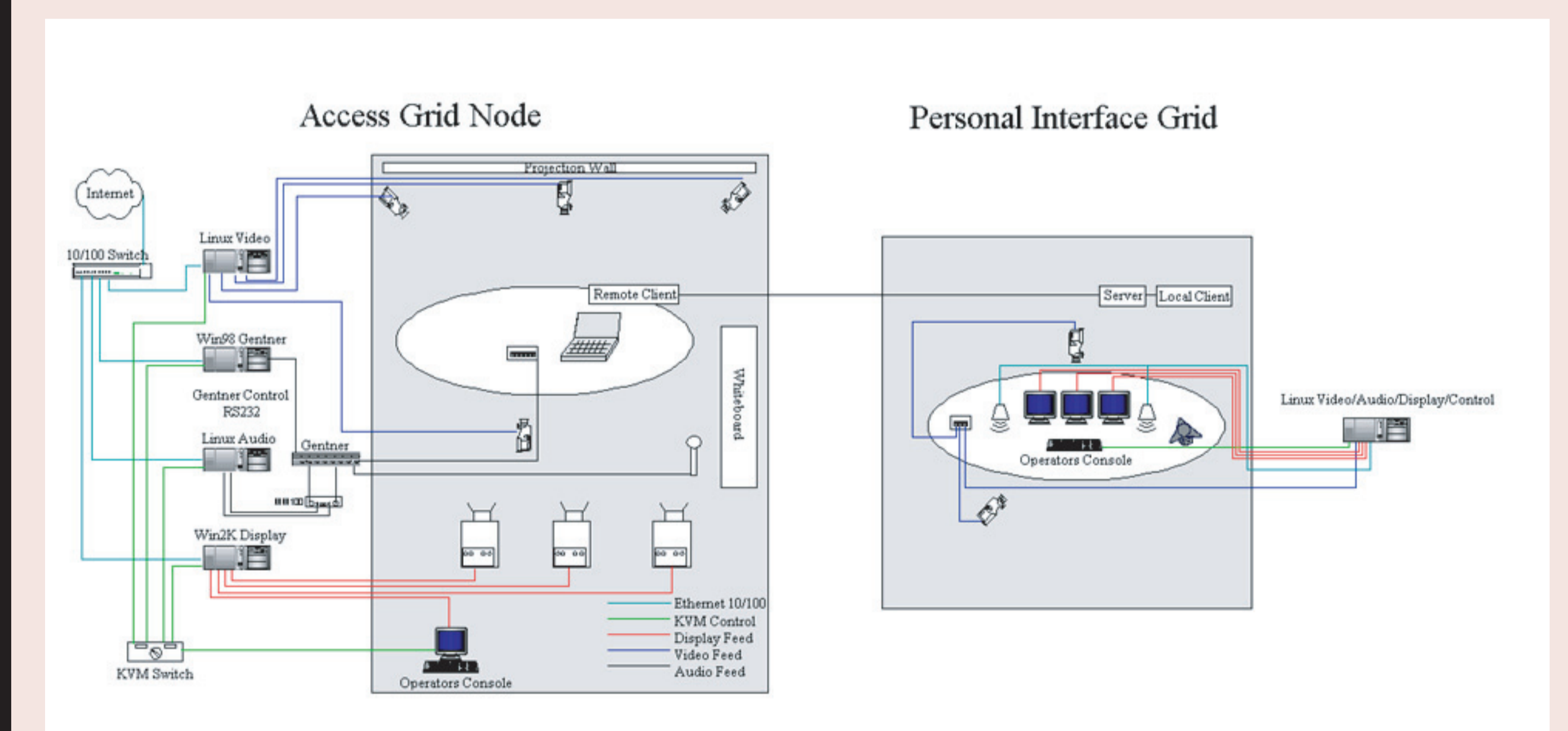
The remote visualization rendering pipeline with the client-server paradigm applied to it.



Here is one of our Access Grid developers running a remote client on a laptop within an Access Grid node.



This is a view of the server and local client being run on a Personal Information Grid. The server is sending images to both the local client as well as the remote client in the Access Grid Node.



On the left is a diagram of a standard Access Grid node, very similar to the one at the SCI Institute. On the right is a diagram of a Personal Interface Grid, which is a compact version of an AG node with a multiple monitor display instead of a display wall.