# Server/Client Solution for a Meteorological Computer Laboratory

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The Earth and Atmospheric Sciences (EAS) Department of St. Cloud State University (SCSU) maintains a meteorological computer laboratory that serves approximately 80 to 100 undergraduate meteorology majors, approximately 40 Aviation majors per year in required laboratory-based upper division aviation weather courses, and approximately two dozen Earth Science secondary education majors. The Unidata Equipment Award we received in fall, 2003 was used to expand and enhance the capabilities of the meteorological computer laboratory facilities at SCSU. The goal of our project was to: 1) expand the number of desktop work stations in our weather lab in order to better serve the students in our meteorology, aviation, and earth science education programs; and 2) at the same time reduce the amount of systems administration overhead for our departmental computer network.

Prior to receiving this award, the EAS Weather Lab housed 6 Sun Ultra 5 workstations, a Pentium II PC running Solaris-Intel and 2 Sun Ray thin clients for a total of 9 individual workstations. Our goal was to upgrade our computers and eventually have 16 individual workstations in the Weather Lab. One of the constraints on our planning was the fact that we have no departmental level systems administrative support for our computer systems. System administration tasks are the responsibility of one of the faculty. In an environment of several individual computers, each with software administration requirements, we needed to find a way to expand and improve the facility while limiting the required personnel time needed for administrative tasks. Our prior success with the thin clients running Unidata applications off a server motivated our proposal.

The Unidata Equipment Award combined with roughly equal university matching funds allowed the EAS Department to purchase a Sun Microsystems Sun Fire V250 server (dual 1.28 GHz processors, 4 GB RAM, 146GB SCSI disk space, dual 1 GB Ethernet cards, etc.), 14 additional Sun Ray thin clients and 10 19" Sony flat-panel monitors. (The thin clients run off a subnet from the server on a 1 GB Ethernet.) The equipment purchased has substantially improved the department's computing facilities primarily by dramatically increasing the number of available desktop workstations for student use. Together with the two existing thin clients, our lab now has 16 individual workstations, thus reaching our original goal. Another compelling advantage to us is the reduced time spent on system administration, which was our second goal. The advantage of the present system is that it requires software maintenance and system security on a single platform rather than on multiple individual computers. In addition, the individual thin clients are expected to have a long lifetime and their cost, relative to upgrading and purchasing multiple PC's, is thought to be advantageous. A secondary advantage is the small desk-top footprint of the thin clients and flat-panel monitors and their quiet operation.

The educational usage of our lab computers encompasses a range of activities. First, active usage of Unidata software products by our meteorology majors in traditional course work and for

the department's forecasting contest will continue to be a major focus. In addition, our students, in collaboration with their faculty sponsors, are required to complete a senior capstone research project. Improved computing facilities will aid a number of these projects. We also offer a required, laboratory-based upper division Aviation Weather course to all SCSU Aviation majors which uses this laboratory. Finally, our Earth Science Secondary Education majors are required to take both our Introductory Meteorology course and an upper division forecasting/weather discussion course. We will use the new facilities to deepen these students understanding of the weather to prepare them to teach the required meteorological curriculum in Minnesota secondary schools. We believe the present system will satisfy our department's needs well into the future.

We would advise others considering a similar option to deal directly with Sun Microsystems rather than through their designated third party campus representative. Very competitive pricing options on both hardware and software were more easily obtained when dealing directly with Sun.