4.2 LINUX PCs EXPAND PRESENCE AT SITES

Erin Lucks*
Northrop Grumman Information Technology

As part of the continuing National Weather Service (NWS) modernization, newer hardware and technologies are investigated for incorporation in the Advanced Weather Interactive Processing System (AWIPS). As the central point for collecting and disseminating large amounts of hydrometeorological data throughout the NWS, AWIPS must continue to evolve to meet expanding data, model, and product needs. The incorporation of Linux personal computers (PCs) is one key way the NWS is providing better, faster, stronger systems under the budgetary challenges of both the NWS and the local forecast offices.

During the Release 5.1.1 time frame, the first AWIPS sites received prototype Linux workstations (LXs) with a small subset of the graphical Display Two-Dimensional functionality ported and running. Since then the Linux PC presence at the sites has grown. Now all sites have two Linux workstations. In Release 5.2.1 more workstation functionality is available on the faster Linux workstations with more functionality coming in Releases 5.2.2, OB1, and OB2. The eventual desire is to replace all existing, aging Hewlett-Packard (HP) workstations with LXs. Once all AWIPS workstation applications function in both the HP and Linux environments, the hardware replacement will commence in earnest.

Several sites have prototype Linux Communications Processors (CP) with a high-speed LAN interface. These Linux CPs replace the diskless HP Real-Time systems. One advantage to the Linux CPs is their disk storage allowing the CPs to store data to disk. This will nearly guarantee that downstream processes (like the acquisition servers and decoders) will not "lose" data should they be down for short periods of time. The full deployment of the Linux CPs will start at the end of Fiscal Year 2002.

Another Linux initiative is the migration of server processes to the Linux Preprocessors (PXs). The initial PX prototype conducted during Release 5.2.1 ported the Grib, Satellite, and Bufr decoders from the HP data server (DS) and application server (AS) to a pair of PXs. The PX pair has full failover capability just like the DSs and ASs and employ a RAID device for data storage. The PXs are installed in the Satellite Broadcast Network (SBN) rack at a site. Improvements in performance in data throughput (decoding to display) have been noticeable at the test sites. Full deployment of the PXs is expected to begin in the first quarter of Fiscal Year 2003. Plans to port existing DS and AS functionality to the PXs continue in the OB release time frame. The expectation is to port DS and AS applications to Linux, and eventually move all application processing off the HP servers and onto the PXs.

Finally, a Linux Archive Server (AX) will be appearing at sites in the beginning of Fiscal Year 2003. The AX is a stand-alone Linux PC and will take over the PUP Level IV archiving functionality, as well as support the Weather Element Simulator. In order to support archiving Level IV data, the AXs have writeable DVDs. There are different hardware configurations for the AXs destined for River Forecast Centers (RFCs) and Weather Forecast Offices (WFOs). Since the RFCs archive a much larger volume of radar data than the WFOs, the RFC configuration includes a larger internal storage capacity than the WFO configuration. The AX prototype was developed by Paul Kirkwood, Southern Region Headquarters, EHU, and was alpha tested at the Southern Region sites.

*Erin Lucks, Northrop Grumman Information Technology, McLean, VA 22102; e-mail: ELucks@northropgrumman.com