

## **Maine School Administrative District #75 Supporting Resources**

**Introduction.** This document provides a description of technology services, hardware, software, and support staff required to support initiatives identified in Section F within the District.

### **1. General Services.**

The technology department supports a concept called "Technology Tools for All." The concept provides a high quality suite of technology tools and resources to all staff and students across the district in an equitable manner. The following services are currently available for authorized District users. Unless otherwise specified, the services listed are accessible by all staff and students; if service specifications are needed, the following conventions will be used (see [Appendix "Hardware and Software Services"](#) for a comprehensive listing of current services):

- [K-5] indicates service is available to K-5 students.
- [MAM] indicates service is available to middle school students
- [MTA] indicates service is available to high school students
- [Staff] indicates service is available to all (or certain) staff in the district

### **Collaboration Tools delivered via GroupWise or GroupWise- related systems**

- Interoffice e-mail [MAM] [MTA] [Staff]
- Internet e-mail [MTA] [Staff]
- Interoffice e-mail pilot projects extending into middle school and elementary [K-5] [MAM]
- Shared calendars [Staff]
- Intranet and Internet Calendaring [Staff]
- Contact management
- Document management
- Shared folder and document areas
- E-mail tracking and delivery notification

### **Intranet and Internet Services**

- Internet access
- Intranet hosting [Staff]
- Internet hosting [Staff]
- Spam and virus filtering
- Internet Content Filtering: Internet Content Filtering (CIPA) In order to comply with CIPA, the district has implemented Internet content filtering utilizing Cyber Patrol's CyberNot list of inappropriate web sites. Weekly updating of the list is automated and requires little in the way of day-to-day management. Log files generated daily exceed one million records. Due to the sheer volume of information and limited storage space, logs are retained for four weeks, and purged on a rolling basis.

### **Office & Faculty Productivity [Staff]**

- Accounting applications
- Benefits applications

- Purchasing applications
- Student Information Systems: Student information and scheduling systems provide critical information about our students, including emergency contact information, critical medical records, and locations of students at all times during the day, including; bus, class, and sports schedules. Specialized software protects technology users when surfing the Internet (See [Appendix "Internet Safety Plan"](#), protects confidential information, protects against virus infections, and provides security to critical systems.
- Modem access to secure payroll systems
- Online banking
- Data collection and analysis tools
- Grading
- Web presence
- Choices
- MEDMS
- HelpStar
- MEA Online
- Microsoft Office
- OpenOffice

### **File and Print Services**

The District provides network-based file and print services to all staff and students. To deliver these services, the systems support team runs Novell Netware 5.1 and 6.0 servers.

With the introduction of the Apple OSX desktop operating system, we have begun the process of migrating to Netware 6.0 to better serve end users through the Native File Access Pack (NFAP) services. NFAP allows our Macintosh devices to connect to file and print services on NetWare servers using Apple's built-in network client. NFAP, along with IP based Line Printer Remote (LPR) printing, makes it possible to take advantage of Apple's built-in networking capabilities. We have found that in our environment Native File Access is the best method of supporting the Apple OSX operating system. Information systems across the district are in the process of being upgraded to include support for OSX.

Completion of this project is scheduled for September 2003. Approximately 45 gigabytes of student, staff, and administrative data is backed up nightly in a process that utilizes two DDS tape drives and one DLT auto-changer tape drive. DDS tapes are rotated daily and cycled through a four-week rotation. The DLT tape bin needs to be rotated every 9 days. One monthly tape and two yearly tapes are archived and removed from rotation for long-term storage.

Printing is an integral part of communication at the District. The district ensures that high quality printers are widely available and are installed in convenient locations across the district. Alternative communications methods to printing technology are being developed. Ideally, staff and students will transition to a "paperless" operation in the coming years. The systems that support these functions will be funded from the traditional printing budget as funds for toner, printers, paper, and device repairs are redirected to provide alternative solutions. This transition will take time to make, however, the benefits to communications are enormous and will have a profound impact on teaching and learning.

Network-based printing is available across the district and managed centrally via Novell Distributed Print Services (NDPS). While some directly attached printers still exist throughout the district, the majority of printing is done using high-speed, networked laser printers. To support a diverse client/operating system environment, print services are available using traditional print queues, the NDPS printing system, as well as LPR (Line Printer Remote) Unix-based printing supported by Apple and Microsoft operating systems.

Printing involves a collection of nearly 100 high-speed network laser printers including several color laser printers. Network printers are strategically placed throughout the district to meet a variety of printing requirements. The District has adopted a standard of acquiring and supporting only HP4000 series printers with internal print servers.

### **Winnebago Spectrum library catalog**

The Winebago Spectrum library catalog service is now available at the following locations: [mtlib.link75.org](http://mtlib.link75.org) (Mt. Ararat High School); [bhmlib.link75.org](http://bhmlib.link75.org) (Bowdoinham Community School); [wcslib.link75.org](http://wcslib.link75.org) (Williams Cone Elementary School); [bcs.link75.org](http://bcs.link75.org) (Bowdoin Central Elementary School); Mt Ararat Middle School is scheduled to upgrade the existing system to Spectrum during the 2004-2005 school year. A plan is in place now to consolidate some of the Spectrum servers.

### **Citrix/Centralized Application Access**

The district data center houses many application-specific servers that support a number of information services for staff and students. Among them are: Citrix. Citrix services in the District traditionally focused on delivering NT workstation desktops to DOS computers. This allowed the use of aging computers at a drastically decreased cost in both hardware and support. Citrix utilization will migrate beginning July 2003 to include the delivery of Microsoft and GroupWise e-mail applications to desktops across the district. The delivery of Citrix applications extends the useful life span of a workstation, without compromising functionality. Citrix is known for problems with printing and is susceptible to network outages. The redeployment of Citrix includes a major overhaul of the system to include software updates designed to resolve printing related issues. The deployment of applications rather than desktops, bypasses the traditional print problems altogether by allowing the local operating system to handle print operations. Through the upgrading of LANs and WANs across the district, network reliability and stability will increase. The delivery of Citrix based applications, instead of an entire operating system (as done in the past), will allow the workstation to function as normal and be improved upon with the addition of Citrix applications. The Citrix solution includes a three-server cluster running Windows NT 4 Terminal server and Citrix MetaFrame 1.8. Two servers will be upgraded during the 2004-2005 school year to Windows 2000, Active Directory running Citrix MetaFrame XP.

### **Phone Systems and Centralized HVAC Controls**

A complex arrangement of sensors, reporting agents, controllers, and analysis tools support the heating and ventilating systems of several district facilities. Phone and security systems have advanced well beyond handsets and numeric control pads into complex server and software solutions.

## **2. Network Infrastructure**

### **Local Area Network Cabling**

Each school and administrative office area within the District is wired via Cat5 Ethernet cabling. At our largest sites; Mt. Ararat High School, Mt. Ararat Middle School and the District Office Data Center, a gigabit Ethernet backbone connects core services and routers together. With the construction of the new middle school, a gigabit over fiber connection between the school's main distribution frame (MDF) and the District's data center was installed, enabling the district to house the middle school's Novell, NT, and Citrix MetaFrame thin client servers in the district data center. Similarly, late summer 2001 saw the completion of a fiber optic link between the data center and Mt. Ararat High's MDF along with the Buildings and Grounds office. This link improved bandwidth throughput for both sites by a factor of 100. With the installation of the high-speed link, tech staff relocated the high school's two Novell servers to the district data center. Locating the servers at the data center has resulted in improved response times for server maintenance and support. The remaining sites; six elementary schools, Pejepscot School adult literacy center, and the Transportation Garage; a mix of 10BaseT and 100BaseT LANs provide Ethernet and Internet access to virtually every classroom and office. Router replacements will be made during the summer of 2004 at Harpswell Islands and Bowdoinham community.

### **WAN (Wide Area Network)/Private Network**

A private, broadband network provides connectivity between the elementary schools, Transportation, Pejepscot School, and the district data center. The district has contracted with Suscom to deliver 20 Megabit/second (aggregate) service from each site to the district data center. This private network allows for reliable, secure connectivity to all services hosted at the data center, including access to the Internet. The WAN is a routed network utilizing private addressing and Cisco routers running IOS 11.x and 12.x. At the core servicing the data center, high- and middle-schools routing is a Cisco router at 100BaseT speeds, while 10BaseT speeds service the six elementary schools and three other support sites. Currently, the WAN routes IP, IPX and AppleTalk protocols. AppleTalk routing will be disabled in 2004, wherever possible, in favor of the Novell File Access Protocol (NFAP). Each elementary school houses its own Novell server to support local file and print services. Data center staff accomplishes management of the servers remotely through Novell's ConsoleOne, RConsole, and NWAdmin software. Monitoring of all WAN links and servers is accomplished via SNMP (Simple Network Management Protocol) 24 hours a day, 365 days/year. Reliability is logged to ensure that service level agreements with our WAN provider are met.

### **Additional LAN/WAN Services**

#### **User Account Management**

Currently, there are over 4,300 named user accounts supported by the district tech-team. These accounts are managed using Novell Directory Services and include replication of account information with various NT Domains through Novell Account Management. The District envisions a "single user sign on" philosophy for obtaining access to resources. This includes a single user identification, description, and source for multiple system password management. Although it is possible for users to create different passwords for systems, it is our goal that the system will support users in maintaining one set of login credentials for multiple systems. The consolidation of account information will decrease user down time and frustration, as well as allow the technology team to focus energies elsewhere.

### **eControl - Decentralized User Management**

The District has started implementing a product, named eControl, which will allow users to handle some of their own user management requests, offloading their reliance on the Technology Department and allowing for more efficient service – and greater accessibility to – network resources. For example, eControl, through auditing and integration with LDAP authentication, will allow users to reset their own passwords.

### **3. Learning Materials and Print Resources**

- GroupWise online tutorial (Virtual Expert)
- GroupWise third-party training guides (GWPerform)
- User Guides created by the Technology Department
- Newsletters ([tech@msad75](mailto:tech@msad75) quarterly technology newsletter)
- HelpDesk
- Intranet Web HelpDesk system

### **4. Support Staff**

The Technology Department is comprised of a Technology Director, Information Systems Manager, five Technology Support Leaders, and nine EdTechs. Each of the schools has access to at least one of the EdTechs regularly, with the exception of the West Harpswell and Woodside schools; one of the EdTechs splits time between those two locations.

We are expecting to lose one position since one of the Technology Support Leaders will be retiring in June of 2004, at the end of his current contract. One of the EdTech positions is funded through a grant, which possibly may not be renewed at the end of the current contract. At this point, the Technology Department is understaffed, based on guidelines provided by Gartner and the Michigan Technology Staffing Guidelines (See [http://classroomtco.cosn.org/gartner\\_intro.html](http://classroomtco.cosn.org/gartner_intro.html) and <http://techguide.merit.edu>). “The guidelines were developed to aid school districts in analyzing their technology staffing needs”. (See [Appendix “Staffing Levels Worksheet”](#))