Oxnard School District IT Environment Summer 2007

Organization:

Oxnard SD has come a long way in just a few years and is on the threshold of a time when students, parents, teachers, and staff all have access to powerful devices, networks, and learning tools. In Oxnard's schools, technology provides and promotes avenues to collaborate and to access information anytime, anyplace and to efficiently and successfully complete learning assignments, communication with parents, and administrative tasks.

The primary role of the IT department is to support end user computing, networking, and instructional television for the District.

Presently network servers and computers include:

Computers:	3361
Routers and Switches	299
Basic File and Print Servers	56
Instructional Servers	24
Student Information System Servers	6
Miscellaneous Servers	4

Total Servers – 90, located at 20 school sites and 3 support sites

District standard equipment and software are:

- Dell computers, servers, and storage
- Cisco routers and switches
- Microsoft server and computer operating systems
- Microsoft office applications
- Printers from HP and Xerox

The IT Department reports to the Chief Academic Officer and is part of the Educational Services Division. The Department is headed by a Chief Information Officer and has the following staff.

2 - Microcomputer/Network Support Specialists
1 – Coordinator, Educational Technology
1 – Coordinator, Instructional Television Services (OPIE)
1 – Instructional TV / Tech Services Specialist

In addition every school has a Computer Lab Technician (reports to the principal), and the Facilities Department has 1 FTE Electrician assigned to data wiring.

Applications:

Mission critical network applications have been identified as: email, student information system, active directory, domain name services, web servers, Dynamic Host Configuration Protocol server, and collaboration and file storage server (proposed). Presently these applications are provided by: Exchange 2003 (proposed to go to version 2007 in December 2007), Zangle, AD, DNS, IIS, DHCP, and SharePoint (proposed))

Other (non mission critical) network applications include: HVAC (monitor & control), EMRS (energy management), Substitute Calling System (SmartFind), Renaissance Learning (Accelerated Reader, Accelerated Math, Star Reader), Library (Destiny), Pearson (Success Maker, Read About, Read 180, Rosetta Stone, Academy of Reading), Xerox (Centerware), SESP, Parent Connect, Teacher Connect, and file and print services.

The business and financial software is hosted by the Ventura Count Office of Education (http://www.vcoe.org/Default.aspx?alias=www.vcoe.org/ts) using a product from Escape Software (http://www.escapetech.com/). The role of the Oxnard School District IT department is to support local users and their connection to the county office.

The District is beginning to consider additional network applications including: Inventory, warehouse, security systems, digital media (movies, clips, images) and associated storage, and digital imaging of records with retrieval and associated storage. The District is also moving toward the selection of financial software that will give access to all of our administrators to real-time purchase, budget, and associated information to site and support staff within 12-18 months.

Infrastructure:

Oxnard has existing Ethernet Local Area Networks (LAN) at every school and support facility. Each school typically has at least one computer lab to support learning and at least one computer in each classroom connected to the LAN. In July 2007 the district converted it's connection Internet from 4.8 Mbps (3 Frame Relay Circuits) to 100 Mbps Point to Point Microwave through the Ventura County Office of Education on to the California CENIC (http://www.cenic.org) Internet service. However, the majority of schools connect to the District office (and on to Internet) at a maximum speed of .5 Mbps on shared Frame Relay Circuits.

Due for completion in December 2007 is the replacement for this "slow" network with a new District fiber optic network backbone that will include 6 point to point fibers between the District IT Department and every school. The fiber project is being carried out by the SUNESYS, LLC (http://www.sunesys.com). When completed, all District schools will be connected by six 1 Gbps fiber cabling service from Sunesys. This solution will alleviate the congestion problems currently experienced with the shared Frame Relay circuit infrastructure now in place.

Computing model:

The District has implemented a distributed computing environment over many years. With the dramatic improvements to the Metropolitan Area Network the District is now planning on moving to a centralized data center model. Plans are also underway to relocate many of the campus-based file servers into a consolidated "server farm" for efficiency of operation. By doing so, the requirement for upgraded air conditioning at the individual campuses will be avoided, in addition to providing a more cost effective and efficient operation. The Data Center is intended to be up and running in December 2007, in time for the new fiber network.

Projects Underway:

The District contracted with AllConnected http://www.allconnected.com from Simi Valley to prepare an evaluation of existing networks, computing model, and services and prepare a series of recommendation to bring district networking and computing up to date. Following numerous interviews and research into the existing district networking and computing status AllConnected their report. The report identified a number of areas in which the district should make changes and improvements:

- District Office Infrastructure (Data Center)
- Wide Area Infrastructure (Replace existing Frame Relay / P2P T1's with services having greater capacity)
- Local Switching at Schools (Replace/Upgrade Network equipment at school sites)
- Monitoring and Analysis (proactively address network issues and problems)
- VLANs and future 802.1x capabilities (Deploy improved network security)
- Zangle TeacherConnect (provide access to the student system to teachers and parents)
- Voice over IP, network convergence (as network changes are made insure they will support VOIP technologies)
- Wireless LAN services (make available secure wireless network services)

As a result of these recommendations the District has committed to implement the following projects that are presently underway.

- Implement a new data center
- Develop networking wireless standards and deploy wireless services
- Develop Plans for VOIP and needed updated data switches
- Deploy Active Directory
- Renumber all District IPs to a new standard
- Develop Updated Plan for Backup and Disaster Recovery