

**Technology Assessment**  
**North Iowa Community School**  
**Revised – 1/03/03**

## The Plan

### Philosophy:

To understand technologies place in education an understanding of technologies place in society must first be realized. Technology is a tool. The printing press is technology and proved to be one of the greatest inventions of the last millennium. Technology (computers) has the same potential to change society. Just as classrooms hundreds of years ago didn't just sit and read a book because they could, "We" should not just use a computer in the classroom because we can. Technology does not need to be taught, it needs to be applied. Technology should not just be used; it should be useful. Classroom technology has three functions:

- 1 – Provide students with a resource to learn more by; drill and practice, provide for opportunities for high order thinking skills, expanded communication with the world, and resources not currently available.
- 2 – Provide teachers with a resource to make their job more efficient, such as administrative software to aid in grading, expanding communication intra and inter district, and providing resources not currently available.
- 3 – Provide students with exposure to technology. As the world becomes more technology oriented student's ability to be more efficient with the use of technology will become a critical skill.

This realization can be achieved by:

- Providing teachers with the **tools** and the **skills** that they need to be more efficient and to teach using technology
- Providing teachers with the **tools** and the **skills** that they need to teach students how to use and become more efficient with the use of technology.
- Providing students the **tools** with which to hone their skills in technology

Technology is broken into 6 main categories:

- **Infrastructure** – backbone of the network without a good infrastructure many changes are not possible. For example IP phone system requires switches. Video over IP requires 1000 Meg/sec
- **Servers** – Roll over of server is critical. This increases reliability. Because of the increase in server side applications this becomes more important.
- **Workstations** – The need for powerful workstations is really a class-by-class issue. Power is needed in some areas more than others. Workstation roll outs should be based upon need rather than equity. A minimum speed must be maintained in order to allow for the least number of software builds. This includes desktops, notebooks, and palm based computers.
- **Peripherals** – This again is a need-based item. Places like the art room need a scanner, but does the science room? Places that do presentations a lot need a projector or TV scan converters.
- **Software** – District licensing will cover basic applications such as the operating system and an office suite. The remaining, classroom specific software will need to be purchased by the individual classroom budgets.
- **Staff Development** – staff development is the key to making everything come together. Staff development will be done on new technology as it is implemented into the district and any new software/hardware roll out will include a training component. Staff development for the use of technology in the class will be conducted at the district level but this will not be adequate for some. Individuals should seek out additional resources for their specific content area.

## Current Equipment – May 2002

### • Infrastructure

Current infrastructure in both buildings is in good shape. Areas of concerns are:

Buffalo Center

Weak backbone between Elementary and High School

Single drops in many rooms

Thompson

Single drops in many rooms

4 hops in one leg of the network

District

Wan link peaking out between BC and Thompson

There is some wireless access is currently in place, about 70% of Buffalo Center and 50% of Thompson is covered by 802.11b / 2.4Ghz wireless.

Both schools currently have their own Cisco 1720 routers. We are using these to do port blocking such as services like MSN Messenger.

There is also some concerns regarding power sags in the 1922 building.

There is an ICN room in Thompson.

### • Servers

Currently servers are doing the following:

Window 2000 server

Web-mail

Web Page

Global Docs

JMC sharing

Web Announcements and Menus – uploads and web viewing

Departmental WebPages and curriculum

Physics, Networking, Tag, Computer App.

PC authentication and Policies (Lockdown software) – PC Only

Registration Database

Domain Name Servicing and Web Tracking - limited

POP3 / SMTP Mail

E-mail filtering

FTP

Form CGI using SMTP transport

Babble Server – Chat, discussion, Instant Messaging

Counter CGI

Mac OS 9.1 ASIP server

Mac Manager (Lockdown Software) – Macs Only

High School Teacher Lesson Plans

FTP

Windows Win2k – Thompson

PC Authentication and Policies (Lockdown software) – PC Only

Phone Server – Buffalo Center

Phone switching

Auto Attendant

Voice Mail

IMAP to Voice Mail converter

4 - Line positions in Buffalo Center

Intercom

Phone Server – Thompson

3 - Line positions in Thompson

Intercom

Web Camera Server – Buffalo Center

Web Camera Picture and management

• Workstations

High School – All computer workstations are minimum of 266Mhz but many are short of RAM to provide best performance. Machines in the High School have a current life of 2 years.

High Media Center – All computer workstations are minimum of 266Mhz but many are short of RAM to provide best performance. Machines in the High School have a current life of 2 years.

High School Teaching Lab – 12 machines are 800mhz and are adequate for the task. 2-3 years life is left in these machines.

High School Phone Workstations – Currently all classroom except 1 have phones in them.

Middle School – The majority of the machines in the middle school classrooms are at the end of their life cycle. Replace of most is needed to be adequate for administrative tasks.

Middle School Media – 3 machines with 1-2 year life. Ram is needed.

Middle School Teaching Lab – 20 machines have a 1 - 2 year life cycle remaining Ram replacement and upgrade of sound cards is needed to provide for windows 2000 compliance. 10 machines are way past usable life cycle and should be removed but do NOT need to be replaced if class sizes are below 20.

Middle School Phone Workstations – Currently all classrooms except 3 have phones in them.

Elementary – Classroom machines have a 1-2 year remaining life. Ram upgrades are needed in many.

Elementary Media Center – 1 machine in media center with 1-2 years life remaining. An additional computer has been requested for this room for administrative teacher use.

Elementary Phone Workstations – Currently only 3 phones are available in the elementary building.

Portable Lab – 6 portable machines are available in the BC building. Additional machines have been requested.

Checkout Laptop – 3 portable laptops are available for overnight checkout by students.

Continuation of the 3-year rotation of classroom machines appears to be needed.

- Peripherals

Laser printers have greatly reduced printing costs to the district:

Printers in the Thompson Office, Middle School Lab, and High School Band Room need attention. Repair or replacement is needed.

Network copier is also available for the district.

- Software

District is providing licensure for Operating systems and Office suites.

District is providing for Server software

Classroom teachers provide classroom specific software licenses

- Staff Development

Small amounts of staff development have allowed for teachers to learn about new technologies placed in rooms. This should continue.

Some training has begun to provide classroom specific uses, such as the lesson plan database. Additional training is needed to help integrate into classroom to improve learning.

Teachers should seek outside training in classroom specific areas.

## 2001-2002 – Focus on High School – What was done is in blue

### • Infrastructure

The feasibility of increasing available bandwidth between buildings should be investigated. Minimum of a 1.5Mbps.

Not done cost was too high \$800/month for an additional T1  
5mbs wireless \$15,000 up front

Upgrade to switches wherever possible, in this order:

- 1 - Where phones are going ← Done
- 2 - Where high demand is – ie media centers, printers, administrative ← Done

Additional wireless point should be added ← This has worked well but more is needed as there are gaps in the service

### • Servers

Roll servers to classrooms workstations and place in new server ← Done

Servers should focus on an increasing need for server side applications:

- 1 – JMC Attendance – web based ← WEB Bases was delayed by JMC
- 2 – JMC Grade book – network based ← Disk currently used because of 1
- 3 – Exchange Server ← Have used DMAL & Webmail
- 4 – Online Lesson Plans for k-12 ← K-4 & 9-12, 5-8 is available

The addition of Babble server service was done

The addition of server virus software was added to the server via grant

The addition of a web camera server was also done via a gift from Holland Contracting

### • Workstations – High School Focus – 200Mhz Minimum for network machines ← Done

The addition of phones to classroom – This is budgeted outside of the State Technology Funds ← Done

Workstations should be upgraded to support newer Operating Systems in the following priorities:

- 1 – Media Center – 16 machines needed if possible ← 8 workstations + 6 notebooks
- 2 – High need classrooms:
  - Art ← No – Ram upgraded in existing machine?
  - Drafting ← Yes
  - Teaching Lab ← 12 machines added
  - Yearbook ← Have a stand alone workstation
- 3 – Classrooms ← all where upgraded or replaced with new to meet minimum 266Mhz
- 4 – Student Checkout ← 3 older 5300 were setup for this

All media centers should look to roll over some computers ← new imac in Elem. & new imac in MS

10 palm pilots donated by Next Generation Technologies, LLC to test feasibility for their use in classes.

- Peripherals

The addition of a video-editing suite to Media Center: Camera will be purchased via media. Computer system and additional hardware placed using technology \$\$s. ← this has not been done, media does not have a camera but discussion has been made about purchasing with the remaining 2001-2002 media budget

Laser printers should be placed in (order of Priority):

- 1 – Middle School Media Center ← Done
- 2 – 2<sup>nd</sup> Floor Elem ← No because of \$\$s
- 3 – Basement High School ← No because of \$\$s
- 4 – Middle School Office ← No because of \$\$s

- Software

The district should continue to purchase licenses to keep operating system and office suites up to date with licensure.

- Staff Development

2 - 3 hours should be reserved for both staff and faculty training of the new exchange server software  
Dmail and Webmail were implemented and therefore this was not needed.

1 – 2 hours should be reserved for faculty training of the new JMC attendance software  
Time was given for this – 1 hour

4 – 6 hours in 1/2 to 1 hour chunks should be reserved during the year for faculty training  
10 mini sessions were given in the AM

1 hour should be reserved for principal secretaries for training of the new JMC attendance software  
Time was given

1 – 2 hours should be reserved for faculty training of the new copier/printer in the high school  
30 min. mini session

1 hour should be reserved for faculty training of the teacher assignments page  
1 hour was given for k-4 staff

1 hour should be reserved for the faculty training in using private documents and backup areas  
30 min. mini session

All faculty and staff are encouraged to attend outside of the district training

## **2002-2003 – Focus on Middle School**

### • Infrastructure

The feasibility of increasing available bandwidth between buildings should be investigated. Greater than 1.5Mbs if needed. Price will determine if possible. Peaks are causing minor phone problems.

Managed Switch needed in Thompson to facilitate management.

Look at the need for 1000Mhz link to the servers and other high need devices. Backbone will be provided between MDF and IDF in the new addition. This will be fiber and 1000Mhz should be investigated.

Additional wireless access points in this order:

- 1 – 1 in 2<sup>nd</sup> floor HS East Side
- 2 – 3 in 2<sup>nd</sup> floor new building
- 3 – 3 in 1<sup>st</sup> floor new building
- 4 – 1 in Thompson ICN
- 5 – 1 in Office area Thompson

Additional infrastructure resources are needed for the new addition. See cut sheets.xls for a cut sheet and a cost of these additions.

ICN room will be outfitted in the Buffalo Center building

### • Servers

Roll servers to classrooms workstations and place in new server

This is to increase reliability in this order:

- Windows 2000 server in BC – Rolled and upgraded, it should support existing applications plus the following should be implemented:
  - Server/Web based grade book
- MacOS Server in BC – Left as is – General Maintenance
- Phone Server in Thompson - Left as is – General Maintenance
- Phone Server in BC - Left as is – General Maintenance
- Windows 2000 server in Thompson – PULLED if all PCs in Thompson move to win2k

The following should be investigated / tested:

Assessment  
Lesson Delivery  
Streaming Video Server

### • Workstations – Middle School Focus – 450 Mhz Minimum for Network Machines

Any Additional phones not covered in 2000-2002 years – Outside of State Technology Funding.

Workstations should be upgraded to support newer Operating Systems / Software in the following priorities:

- 1 – Media Centers
- 2 – High need classrooms
- 3 – Classrooms

All media centers should look to roll over some computers

The addition of some more wireless notebooks should be added to the Buffalo Center building

Video conferencing/presentation station should be investigated for the new technology lab.

- Peripherals

Roll over of laser printers should be

High use lasers should be swapped with lower use ones

New / Upgraded Lasers printers should be placed in (order of Priority):

- 1 – Middle School Media Center
- 2 – 2<sup>nd</sup> Floor Elem.
- 3 – 2<sup>nd</sup> floor technology lab new section of the BC building
- 4 – Middle School Office

Network/district wide Color laser should be investigated

Video Editing equipment for Media Center

A Video Projector will be required for full functionality in the Technology Lab of the new building.

Non-Traditional workstations

Palm devices for some teachers and some students

- Software

The district should continue to purchase licenses to keep operating system and office suites up to date with licensure.

- Staff Development

Online Classroom training should be given to facilitate the transition for some teachers

Faculty and Staff should be given training on new server applications

Training should be offered to show how the new presentation lab works

Time should be spent training on the use of a portable lab if available

Implementation of technology to assist with curriculum should be done:

Ie – discussion server and asking HOTS questions

## **2003-2004 – Focus on Elem.**

### • Infrastructure

The feasibility of increasing available bandwidth between buildings should be investigated.

Watch network traffic caused by video on demand systems and Internet classrooms.

Look at the need for 1000Mbps link to the servers and other high need devices

### • Servers

Roll servers to classrooms workstations and place in new servers

New server should support existing applications plus feasibility of:

Additional Online classroom support

Assessment server

Streaming / Video on Demand support

Server/Web based office suite

Telecommute services for teachers and students

Cross district communication / resource sharing services

### • Workstations – Elementary – 700 Mhz Minimum for Network Machines

Workstations should be upgraded to support newer Operating Systems in the following priorities:

1 – Media Centers

2 – High need classrooms:

3 – Classrooms

All media centers should look to roll over some computers

Addition of portable machines for student use via the completion of a portable lab

### • Peripherals

Roll over / replacement of laser printers

Additional devices to provide for a paperless classroom

le All Student access to palm-top devices at appropriate grade levels

### • Software

The district should continue to purchase licenses to keep operating system and office suites up to date with licensure.

### • Staff Development

Faculty and Staff should be given training on new server applications

Teacher training in the use of palm-top devices should be included. Because of the philosophy change of such devices 1-2 days may be needed.

Curriculum integration should be continued to be taught

## **2004-2005 – Focus on High School**

### • Infrastructure

The feasibility of increasing available bandwidth between buildings should be investigated.

Watch network traffic caused by video on demand systems and Internet classrooms.

Look at the need for VLAN setup

### • Servers

Roll servers to classrooms workstations and place in new servers

New server should support existing applications plus feasibility of:

Telecommute services for teachers and students

Cross district communication / resource sharing services

Assessment server

### • Workstations – High School – 1400 Mhz Minimum for Network Machines

Workstations should be upgraded to support newer Operating Systems in the following priorities:

1 – Media Centers

2 – High need classrooms:

3 – Classrooms

All media centers should look to roll over some computers

Teaching Lab should be upgraded / rolled

Video on demand workstations should be looked at for classrooms

### • Peripherals

Roll over / replacement of laser printers

Additional devices to provide for a paperless classroom.

le Student access to palm-top devices at appropriate grade levels

### • Software

The district should continue to purchase licenses to keep operating system and office suites up to date with licensure.

### • Staff Development

Faculty and Staff should be given training on new server applications

Curriculum integration should be continued to be taught