

Subject: OARtech meeting minutes for 8/14/2002

OARtech Meeting Minutes

August 14, 2002

## Introductions

Air Force Institute of Technology - Tim Fox

Ashland University - Brian Wisniewski

Case Western Reserve University - Eric Chan

CCC - Anjan Ghose

Central State University - Doug Robertson, Bryan West

Clark State Community College - Jim Gosset

Denison University - Teresa Beamer

DeVry University - Dave Leitch

Hiram College - Clay Archer, Martin Flagg

Jefferson Community College - Karen Tucci

Kent State University - Kurt Eckert, Ransel Yoho

Lakeland Community College - Dave Levine

Miami University - Joe Simpson

Muskingum Tech - Ted Newengeuwander

NEOUCOM - Bill Mayhew

OARtech - Gene Bassin, Christopher Cook, Ruth Crities, Matt Hakin, Jack Maher,

Jason McDonald, Linda Roos, Paul Schopis, Gene Wallis

Ohio Northern University - Bob Beer

Ohio State University - Mowgli Assor

OSC - Al Stutz

Otterbein College - Jeff Kasson, Tim Pindell

Sinclair Community College - Steve Hurley, David Krasofsky, Scott McCollum

University of Cincinnati - Bruce Burton, Tom Ridgeway

University of Dayton - Tim Harrington

University of Northwestern Ohio - Kender Rowe

University of Toledo - John Heipen

Wright State University - Shane Dawalt, Patty Vendt

Xavier University - Gordon Suggs

New member school representative, Kender Rowe, introduced her school, University of Northwestern Ohio.

## White Paper status

No report at this time. The status will be emailed to list.

Request that everyone taking notes send copies to beamer@denison.edu and she will compile them. [Thanks to Tim Harrington, U of Dayton for sending his notes]

Dark fiber project  
Al Stutz

Currently buying OC12 and OC3 to provide growing bandwidth. The cost of this growth is getting out of hand. OARnet is looking at a dark fiber project for the state. There are other states doing this. This project grew out of the Mission project from a year or two ago.

Why now? Companies are more willing to sell now. The project will be done in 3 phases:

The backbone is to be installed first, interconnecting the major cities. OARnet opted to issue an RFP to the major cities for this phase and received over 10 responses. Of these, a statewide committee selected 3 proposals. This phase is expected to require financing at the \$5 million level. Al showed a couple of diagrams with the proposed nodes and paths, and then indicated which one was selected. Final negotiation will be done this week. They are currently working on the necessary legal agreements and engineering. They are, also, getting some funding partners from other areas of the state. Al's "wild guess" at a time table would be: fiber purchased by Sept 15, capital funds by Jan 1, start lighting the fiber in February, and then start moving over current I2 and I1 incrementally. The state government is aware of the project and is very interested in the project. OARnet may light a segment or two for testing in October.

The next phase will be to connect an initial set of schools to the dark fiber. The final phase will be to connect the remaining schools, with the intent that every school would be connected to this network.

OSC Update

High Performance Computing - They plan to move to an AMD cluster with 256 processors from 128 processors by September 1. They will expand the Cray SV1 from 20 - 28 by September 1. This is an air cooled Cray. They will be installing a 300 processor Itanium-2 (McKinley) cluster and building cluster Ohio with the original Itanium-1 146 processor cluster.

What kind of authentication will they be using? They are currently using Globus Grid software for providing authentication. You authenticate to the

grid and then get tickets to use separate services.

## Strategic Planning Process

Patricia Vendt

OARnet has begun the strategic planning process. OSC and OARnet are involved to develop a new mission statement. The planning group did a SWOT analysis to determine OARnet's characteristics.

Ruth Crites

Executive committee consists of officers of all the OARnet committees. They passed out a handout that showed the process of the developing the strategic plan, as well as the strategic priorities, to answer the question "What do you want OARnet to look like in 5 years?"

Committee has requested a supplemental survey and will send these only to the Osteer representatives. The survey is open ended so you can write what you want. If you want input to this talk to your Osteer representative. Paul Hernandez has resigned from Osteer. OSC created a CIO advisory committee for technical information. Their first mission will be to set up a charter and work with Osteer and SUG to be sure all groups can work together.

Update from Ruth - What's happening on the schools? 12 schools were able to take advantage of the special from Qwest. The promotion has ended and the prices have gone up astronomically. All the DS3 is via the State of Ohio contract. About 8 schools ordered additional T1s.

## Back to School

Gene Wallis

Traditionally they just doubled bandwidth every year and that covered the increased use. Last year, that did not happen. This year they are not sure what they should do. The summer bandwidth has been double what it was last year. When schools start, they expect to see the usage artificially constrained as the bandwidth management controls go into effect. Site bandwidth is controlled by the funds available. He showed a diagram of the backbone. Columbus pops are all connected via fiber and OC48. Radiating out from Columbus is various OC12 and OC3 to the pops and schools around the state.

The Abilene connection will be going from OC12 to OC48. Cable and Wireless will also be moving to OC48. Cable and Wireless is one of the successful bidders for the Quilt, a consortium of regional providers. The Quilt is trying to leverage bandwidth pricing by buying bandwidth via consortium. They signed a contract with 3 carriers to provide bandwidth, Qwest, Level 3, Cable and Wireless, and Vario (west coast). OARnet will be increasing bandwidth with Qwest and Cable and Wireless to control costs. OC3 to Genuity will be going away. The coming year they will be connected to Qwest, Cable and Wireless, and Sprint. OARnet is also looking at converting the connection to Toledo to OC12.

For the fiber project they are looking at the DWDM gear that they can afford to purchase to light the fiber. OARnet is also looking at how many lambdas they can run. The current backbone structure will remain in place, and will attach to the DWDM via one of the lambdas.

Will the overall system reliability be the same with new fiber project? OARnet expects it to be at least as good as it is now. They will be building redundancy into the architecture. The basic equipment is sonnet based and they expect it to be as stable as it is today.

How will the Qwest financial accounting problems affect OARnet plans? Qwest is vulnerable at this point. Going into Chapter 11 doesn't mean the networks will go away. Will they be split up? They may be. As they have moved into the Telco market they have become harder to work with. Vendors are looking to charge for more and more services, even those that traditionally weren't chargeable. They expect to see more vendors disappear and to see prices start to increase. There was some discussion on which vendors Gene expects might survive the current industry churning. Gene feels the churning is due to the various companies' problems with accounting, but also due to not correctly forecasting costs.

The current contracts that have been negotiated for DS3 will have the same price for the length of the contract. At the end of the contract we could see the prices increase drastically. Hopefully by that time the dark fiber links can be available.

ITEC Ohio Update, Beacon Project  
Paul Schopis

Paul showed a demonstration of the H323 beacon project. Currently working on verifying it's number to be sure it is accurate. The beacon project gives you

a testing node for providing statistics to various known locations and the ability to determine the quality of the links.

Firewall testing has been done. They have also been invited by Cisco to do early testing on IPV6.

There is an IPV6 workshop in September at OSC. You are handed multiple pieces of the network and you need to bring it up. This is available to I2 sites only. Check with Linda Roos for possible SEGP participation.

Could you run a robot to query a beacon to get a picture of the quality of a H.323 link overtime? This is not a beacon issue. The beacon is just a daemon; it would be dependent on the individual sites capability of running a cron-like job and handling the resulting statistics. They could provide an API for the statistics.

The mobile satellite project's goals were to make it affordable and fool proof. These have been met. Project came to about \$60,000. Looking at ways of aiming the dish and locking on the correct satellites. They can take this to conferences to provide network access to the conferences. This fall, they are planning to provide connectivity at the Farm Science Review. It's currently in Wisconsin being showed off. This project was really funded by ADEC for distance education and mobile technology.

H.323 task force

Chris Cook and Paul Schopis

The task force is trying to resolve issues in doing H.323 with firewalls and across the network. The committee met and formalized the test plan. Information has been posted on the OARtech web site.

Participants include Denison, Miami, UC, Stratacache, and OARnet. They will be testing PIX, Checkpoint firewalls and Packeteers.

What are the problems? Firewalls assume H.323 is an attack, and NAT is generally considered bad. Question on how much must the firewall exceed the necessary parameters for good performance.

Scope of the testing - We know what is necessary for good H.323 sessions. Is this a case of poor performance at the packet layer? The basic testing procedure is using a Smartbits 600 with Smartflow and Smartwindow. Will baseline the device and then find where the break points are.

Preliminary Results - They have to take the testing to the sites and so had to do testing on the equipment in the lab to verify it before taking it out on the road. The raw latency and jitter for the Pix firewall was determined in the lab. They discovered they could also test with PSQM measure. This not a real measure for H.323 but might help to give some insight.

Summary - What these numbers mean is the quality of the H.323 is dependant on the load on the firewall, the amount of filtering done, and the size of the packets. Their testing equipment worked best with the larger packets. They did not do any testing on tuning the traffic with buffering. They did not do any SNMP polling of the devices at the time of the testing. The device they did the testing on was a very low-end device that would only be used on 1 or 2 T1s of traffic. They have not done any testing with NAT yet. The presentation will be available on the OARtech web site.

Network security issues  
Mowgli Assor, OSU

The MPA, BSA, etc... organizations can find out who is using copyrighted material and have been sending notices. Some SQL bugs are being dealt with. W2K have been compromised by not having an administrator password unchanged. The attacker loads a unix shell and then provides IRC server sites. The hacks are coming from the SANS top twenty list. Every Windows NT and 2K machine looks vulnerable. The ports being attacked are 135 - 139, 145. A question was asked of the group as to how many sites are blocking these ports. There are several sites that are permanently blocking these ports. The best advise it to look at the machine from the network side to see what is being run (NMAP). OSU is also working on a best practices document.

Lunch

Back to School Updates, Ransel Yoho, chair. Each school is to give highlights on a couple major summer projects, if possible indicate if they are implementing any wireless, and what they are using for enterprise directories.

Sinclair Community College

Telecom - Rewired entire campus (\$11M) including all wires, equipment, etc....

Servers - Student content using Blackboard portal and Macromedia spectrum.

## University of Cincinnati

Network - Bringing on line Jefferson dorm project, and finishing the university pavilion project.

Wireless - Bringing up wireless 802.11B with 80 access points. Doing MAC authentication using wepkeys and 128 bit wep in common areas and presentation rooms.

## Ohio Northern

Wireless - Adding wireless to the English Department for classroom access, and to the College of Engineering to stay current.

Servers - Implementing a NAS

Staffing - Reorganizing the networking area and staff.

## University of Dayton

Network - Since all students must purchase a PC, of which 80% are laptops, they overhauled the perimeter to provide better access. Particularly upgraded to Packeteer 8500, upgraded firewall boxes (Sun ES420R) to dual processors, upgraded Checkpoint to NG, upgraded pipe from 24 to 36Mbps. They changed 'flat' Layer 2 network to a 'hierarchical' Layer 3 network.

Server - Reducing 20+ servers to 4 IBM x360 Servers (each with four processors and 6 GB of RAM with Gigabit NIC and connection to SAN). Implementing Version 6 Novell with SANS for file services and Novell. They use NDS for their enterprise directories, and are implementing Version 3 of LDAP, which is used for authentication.

Wireless - Implementing 802.11a in a couple of dozen classrooms.

## Wright State University

Wireless - About 25 access points for 802.11b in common areas using Cisco Aeronet access points with authentication through the firewall. They do not have the access points locked down.

Network - Converting core from ATM to GigE and transitioning to OSPF from RIP v1. Current Internet links are at 36mb for campus and 21 for resnet. They did

some playing with Netflow (have 5500 with RSMs) and found it didn't bring them down to a crawl so they can begin playing with netflow logs. Will be upgrading the 5500s to 6000 series in about a year.

Servers - NDS tree implementation delayed until January

## Case Western

Network - Upgraded network to GigE to the desktop (3 year project) Phase I & II done. They are started the summer with about 13 Catalyst 6500 series switch at beginning of summer up to 75 switches at this time. They have fiber to the desktop and are using all Netgear fiber cards and are mounting transceivers for laptop 10/100/1000 copper access. They are using CiscoWorks 2000 for management and bringing up netflow collectors.

Wireless - Will be deploying up to 800 Cisco Aironet access points 802.11B with plans to go to G.

Servers and Other - They are deploying LDAP, webmail, portal, SANS, and piloting wireless middleware as well as working on the dark fiber project with OARnet.

## Xavier University

Desktop - They are in the 1st year of 2 year project to upgrading desktops to Windows XP Pro from Windows 98.

Servers - Using NDS, but trying to synchronize Active Directory with it with mixed results. They are doing LDAP via NDS.

Wireless - Implementing 802.11b with Cisco 1200s in student center, turned on LEAP. They have 30 laptops for loaning with encoded username/password on the laptop. Main driver is a VP who thinks it is neat.

## University of Northwestern Ohio

Network - Just completed the switch to OARnet. They had several internal IPs to be changed over in the process. They have added 2 new labs with 60 computers.

Servers - Quite a few new servers in a box to be implemented as time permits. They are using Qmail on Linux and moving to Exchange. Implementing a Real Server for streaming media to augment Blackboard. They are using LDAP for authentication with MySQL and working to implement Active Directory.

Wireless - Looking to implement 802.11b for some dorms

## Denison University

Network - Waiting on a DS3 to be implemented. Upgraded edge switches and targeting network reliability.

Servers - Brought up student portal last year, working on staff portal with web interfaces to Banner. They are working to build LDAP access into more services. They are looking to upgrade Novell storage to 1 Terabyte

Wireless - Some 802.11b deployed in remote dorm areas.

## OARnet

Network - Convert all pops from AC to DC power. Waiting for OC48 and a new backbone router. Will be doing backbone upgrades to allow them to be able to pull out the old router without affecting the network.

### Enterprise Services - OARnet

Firewall server is taking off. Schools are purchasing them for department firewalls. OSU has implemented several. A new version will be coming out with authentication, something like the old Carl Bridge technology. Patches for the Open SSH vulnerability are still available. Contact OARnet if you still need them. One of the devices OARnet is looking at is an appliance that is on your network to do scanning yourself to find your own vulnerabilities. It would be kept updated via a subscription service and use all open source software. Looking at a box that would cost about \$800. They could also provide the blueprints if necessary. The content management system, Urbana is currently using it, City of Columbus is also using it for their website management.

## Miami University

Network - Trying to get to 100Mb to the desktop. They have begun providing NOC support for network equipment that the central group does not own.

Servers - Replaced Administrative Checkpoint firewall with redundant Cisco PIX firewall (painful). This year they put in a 3-layer mail environment, breaking it up into 2 components: a dynamic, high volatile area, and a high volume, low volatility area. Year ago went to LDAP with Novell NDS.

Wireless - Limited use of 802.11b

## Air Force Institute of Technology

Servers - Implementation of Blackboard was successful and many courses are there. They are using trilogy for distance learning access to Blackboard.

Desktop - They are moving to Windows XP

## CCC

Network - Upgraded backbone using Cisco 6509s, 4900 and remote 2900ag with redundancy built in. They plan to use IP Video.

Desktop - Leasing 200 PCs a year to replace 1/3 of the total PCs every year.

Servers - Implemented Exchange for email.

## Otterbein College

Network - Three year project, currently in the 2nd year to migrating to Cisco switches with a GigE Core. The core switches that were routing were changed to non-routing and they are using Ether channel to aggregate bandwidth. They have implemented Sonic Wall and PacketShaper and have recently added another T1 and are working on video conferencing.

Servers - Restructured the server farm. Using Windows 2000 servers. Implementing new technology as old boxes die. Will be going to Active directory. Implementing web access for administrative registration system. They are evaluating technology and providers for a SANs implementation.

Desktop - Implementing Windows 2000 Pro on new PCs. Using IBM product to remotely manage the PCs. Will be implementing helpdesk software this year. Planning to migrate mail to Exchange from Netscape and use IE as the browser.

Recommendation from the floor: You should take the advance-training course on the Packetshaper.

## Lakeland Community College

Servers - They implemented Alphaserver for VMS from VAX and are upgrading their library to use thin clients with Citrix. Upgrading blackboard server memory to above 1 gig.

Network - Evaluating vendors to upgrade backbone to GigE and 100 Mb to the desktop.

## Jefferson Community College

Desktops - Putting windows 2000 on the desktop and locking down the desktops. Users are not allowed to install software from the Internet.

Wireless - Installing wireless for mobile labs on carts.

Services - Created Eworld to offer several certification classes (e.g. Cisco, Microsoft, etc) to add a training facility. Now they can do some of the certification testing. Using centurion environment on the computers, users can do anything they wish to do to the station, when it reboots it goes back to what it was before the user modified it. Also using removable hard drives as well to make the labs multi-purpose.

## Hiriam College

Wireless - Implementing Point-to-Point solutions using Proxim's Stratum product and the desktop using Cisco 802.11b with LEAP and Active Directory. Converted to active directory a few weeks ago and will convert to Exchange.

Network - They are subnetting their network and will be using NAT in the dorms and upgrading to GigE backbone and DS3 pipe to the Internet.

## Clark State Community College

Servers - Upgrading hardware from Alpha to Solaris for Admin system. Using Colleague, Web Advisor, WebCT

Telecom - They have a major project to install VoIP on campus, settled on using the Cisco products, and will be sending out an RFC to find a provider. For their Dial plan, they will be using their original and have vendor bring it up, then make changes as needed.

Wireless - Using Sunami, which replaces a T1, for point to point between campuses. Using 802.11b in limited areas because of convenience over wireless.

Desktop - They are using the Zenworks product for remote management and re-imaging the systems. Also using Fortress clean slate, found the new version works quite nice.

## DeVry University

Wireless - One access point is all at this time. They are only doing wireless in testing.

Network - They currently use 100mb to desktop and are moving to Gigabit and fiber. Down the road, they will be installing a fiber backbone.

Servers - They have pulled the plug on the Netware boxes. They are have had

some servers pulled back to the central office. The Blackboard server is being housed at the vendor's site for all DeVry branches. Their firewall is managed from Chicago. They do have web registration and have removed all SSN from their administrative systems and authentication. They currently use Imail with virus protection package. Using active directory, some LDAP.

## NEOUCOM

Desktops - 600 PCs on desktops. Using NAS for disks.

Wireless - Using 802.11b Lucent bought by Proxim with fixed keys in the lab. They have a conference center with wireless, with an access control box. They are looking at trying a Proxim product to do DS3 via wireless to Kent State.

Network - They have Packeteer 4500 for statistics collection to allow SLA to carve out bandwidth for video conferencing from the conference center.

Backbone is fiber. They did some GigE fiber card testing and found that there are some buffering problems with doing GigE to a server as the servers have a problem handling all the traffic. They were using Alcatel cards.

Servers - Doing virus scanning with Norton Anti-virus. They are looking at Notes or Exchange. They are running Banner as a thin client using Metaframe and Fortress to help in controlling the desktops.

There was some discussion on Metaframe.

## Kent State

Servers - They are seeing a problem with spam on the mail server.

Network - Finishing up ATM backbone. Installing a testing system to test the latency between vlans. They have put some testing stations in various locations with a central monitor that collects the data. Installed an F5 BIGIP load balancer and a NAT firewall.

Wireless - Wireless is pretty much done adhoc.

## Ashland University

Network - Just upgraded to DS3.

Wireless - Doing wireless in common areas, 802.11b.

Servers - They are using Webct. They are using Datatel's web interfaces.

Mark Fulmar is going to do a Netflow tutorial for the next OARtech meeting.

No minutes to be approved.

Meeting adjourned.