

OARtech Meeting Minutes

10/11/2000 tlb

Introductions - Attendees were to give their name and mention the project warmest to their heart (here are some of the projects):

? - Laptops to students, Gigabit upgrade

? - SCT

? - Replacing 3com

? - Webct

? - Datatel implementation, video conferencing

? - Wireless, using own machines, not giving cards to students.

Antioch University, Bruce Friend

Case Western University, Eric Chan

Clark State Community College, Jim Gossett - Video conference project with Madison

College of Wooster, Lee Schultz - Cleaning up projects from this summer, wireless classroom, backbone upgrade

Denison University, Teresa Beamer, Chris Marshall - Gigabit to the buildings, Network traffic control

DeVRY Institute of Technology, Dave Leitch - Windows 2000 server migration

Edison Community College, Harry Lawhorn, Bert Waldrop

Heidelberg College, Kurt Huenemann, Sean Joyce - SCT implementation, rerouting network

Kent State University, Ransel Yoho - ATM backbone upgrade

Lakeland Community College, Dave Levine

Lorain County Community College, Norman Lease - Migrate from token to ATM

LTC, Damon Hughes, Sylvia Sargent - Finalize Novell 5.0 upgrade, Webct, Banner, Oracle upgrade

MCO, Chris Bowers - Finishing local network migration to ATM

Miami University, Tim Gruenhagen - Wireless, peering relationships with Time

Warner of Ohio, working out a special price for roadrunner for students,

Compuware - application response time measurement tool.

NASA Glenn Research Center, Dave Pleva - Outsourcing efforts, performance computing project

NEOUCOM, Bill Mayhew - SCT, Banner Web, found problems in Oracle, Gigabit to the servers

OARnet, Paul Schopis, Pankaj Shah, Gene Wallis - He is working with items on

Internet 2 conference later this month that will support many presentations taking place across the Internet for the Mega-conference. Today they have

some engineers from Israel to do a rehearsal for the Mega-conference at

OARnet. They are doing lots of work on interoperability, MCUs,

incompatibilities, and other items. This activity has really moved H.323 along. After the Mega-conference OARnet will be offering the Accord unit for OARnet members to use.

Ohio Dominican College, Arron King

Ohio Northern University, Robert Beer - Webct migration v2-v3, SCT banner, Campus pipeline

OSU - Mogli - Incident response, unrolling everything for fall quarter.

Ohio University, Brandon Saunders

Otterbein College, Tim Pindell

Shawnee State University, Mike Pinson

Sinclair Community College, Darnell Brown – Checkpoint1 implementation, satellite implementation

Tiffin University, Anthony Joy - Connecting remote campuses to main, video conferencing

University of Cincinnati, Kim Koeppe - Wireless, upgrading net from ATM to gigabit

University of Rio Grande, Kingsley Meyer, Mike Snider – Bring new building on line, satellite link with Polycom video conferencing unit

University of Toledo, John Heiden - Upper management resignations impacting department

Wittenberg University, Scott Powell

Wright State University, Patricia Vendt, Shane Dawalt - Incident response procedures, mail, wireless, Internet 2

Xavier University, Carl Diskhaus - Upgrade network to gigabit with Cisco equipment

OARnet update

Gene Wallis

Handout for traffic was given out. Once again we see a large jump in the schools usage of bandwidth. Even though things are done to control bandwidth the usage continues to increase. They have diverted 80-90 Mb through various efforts. 90 Mb has been diverted through Internet 2. If you are seeing performance problems today you are not alone. Most schools with fractional DS3 are hitting their caps. Many of the T1 schools are waiting on delivery of lines for additional bandwidth. What may reduce some growth is that most schools are hitting ceilings, cost ceilings as well as data bandwidth ceilings. OARnet is looking at options for decreasing the cost of the bandwidth. Stay tuned at your local OARnet meeting.

How much traffic stays within OARnet? OARnet doesn't keep ongoing records for how much is internal. Currently, they have about 900 Mb of Internet 1 connectivity, of which about 700 Mb is used.

Most of the T1s are homed to Columbus because the SOMACS pricing is distance insensitive. Many sites are moving to the large bandwidth lines (DS3 and above) where the lines are distance sensitive. OhioLink is running 25-40 Mb consistently.

OARnet Plans – They are still building internally. They are still trying to upgrade all DS3 to OC3 links. They will be bringing up new pops using AEP lines in Columbus, and Portsmouth as well as more pops throughout the state. By working with AEP they can get to new territories. What does it mean by working with AEP? AEP has started to move into the business of supplying bandwidth. They have created a consortium to provide fiber connections throughout the state. Though AEP have some links up, OARnet is one of their first customers.

One of the delays in bringing up fiber lines is Cisco has a problem supplying optical gear because one of their partners defaulted and so there is a real shortage of these interfaces.

If you are using MRTG to measure traffic, be aware that when you reach 114Mb it will quit working. MRTG will go back to 0 when it reaches the limit on this counter. There should be more information at the next meeting. There is a new version coming out that has larger counters.

ITEC update
Pankaj Shah

ITEC is the division of OARnet for the Internet 2 Testing and Evaluation Center (not connected with the local ITEC vendor show). It received a \$1.2 M technology grant and is working with testing of middleware and the gigapop structure. ITEC has recently received staffing. Pankaj was first hired as manager. They are currently looking to hire an additional network engineer. Attending NLANR to meet the Internet 2 engineers and those at the Abilene meeting.

If you have some ideas or projects that you would like to see worked on, let Pankaj know. They are currently working with testing, protocols, and platforms. They brought a project for Net flow Enhancement out of a meeting in Washington. The Mega-conference is a big ITEC event for Ohio. Even today they are testing the network for this conference. There is a lot of interest from other technical communities to get this working.

Some of these projects have been on going for some time, but now they have staffing to help maintain it. Some of the areas of interest include:

- Security is another area that they are looking at getting modules and software at lower cost. Clifford Collins and Gene Spafford will be working with this.
- One of the near term initiatives is QoS research.
- They are also talking to Qwest to get an Indiana-Dayton-Columbus OC48 connection up by December to enhance the test applications.
- They are currently working with Community of Science (WWW.Cos.com) to put the COS information into a database. This helps to tie current research to projects that are already out there.
- They are looking at wireless in southeast Ohio to see what is feasible for a project.
- They are also trying to give shape to the organization by getting staff, research advisory group and an ITEC steering group with members from schools as well as from industry.

Paul Schopis , QoS implementation

Qbone implementation group with Abilene is looking at implementing QoS throughout the Abilene project. They have found it is difficult to do in the packet switched environment. Even though lots of vendors support it, there is some incompatibility issues. What are our choices? We can use class base WFQ and MDRR in the core. MPLS is maturing at this point. OARnet will be doing some testing for Cisco on class of service use on a per tunnel basis. Qbone architecture draft document can be found at <http://sss.advanced.org/arch/>.

Paul gave a summary of his work with metrics to be used for measurement on the network. He listed several of the metrics and what they measured. Some are listed below. In the metric names “ef” means expedited forwarding and “be” means best effort.

efPathloss - packets sent, packets received, put known packets into the network and check at the other end to see how they change and how fast they move.

bePathloss

efInterfaceloss

beInterfaceloss

efDV

efLoad

beLoad

efTraceroute

beTraceroute

linkBW

efcom

efRes

In developing the measurement tools for the network he saw the following needs:

- Many of these metrics would be required for monitoring
- There should be little or no duplications of effort
- It should be able to be implemented as a VAR service
- It must be robust
- It must be easy to implement

He showed some graphs from Monday's traffic. You need to look at graphs with a grain of salt - there are many variables and averages. You may not be able to see bursts or other traffic effecting throughput. He gave a list of recommended documents.

Presenters should send slides and other information to oartechwm@oar.net, Oartech's webmaster. So they can be posted to the web site.

White Paper Discussion

Desktop draft has been posted list. Please post other drafts to the list so we can have something to work with at the December meeting. Approval would need to be done in February. Lets try to get some discussion done on line.

Mogli - OSU security update

Problems they are seeing include:

Attacks on FTP servers to exploit the various buffer overflow problems in the various versions of unix.

Linux - statd bug

Office Suite - under the right circumstances you can replace a DLL that is being used by Office. Thus getting it to run your own DLL instead of one of the Office ones.

Win2000 - malformed packets that can cause a DOS attack.

Samba - authentication module buffer overflow that can cause a root exploit

Trinity - Trinu - Cert has seen some activity, but OSU hasn't seen that much activity.

There is a free lightweight intrusion detection utility - www.snort.org - that has pattern matching.

What are some of the things that have been rewritten to piggyback on http? Is there a list of things doing this? Patty Vendt, Wright State, has seen lots of connections from dorms using the http port. She was wondering if there is

anything to help see what this traffic is.

Ohiolink - Anita

Same as last month. No new information – satellite images are up. They are looking to bring up some video streaming by December.

OARnet Support Center, Jody

Jody sent email that they have been working on the escalation process within the support organization. They will have more time to work on the orange barrel list after this is set up. It would be more important as we go to know the problems out on the network.

Kingsley Meyer, Rio Grande, led some discussion about wireless, and DHCP policies. Do you register all systems or do open DHCP? Some schools are registering addresses, others are doing open DHCP. You can do LDAP query to NDS directory from other applications. University of Toledo has done some queries.

How do you get wireless users to authenticate? Some schools are registering the macs. However, registering the mac doesn't authenticate the users. Has anyone used the net register stuff to require users to authenticate before they can use the Internet?

Lunch

Please get your organizational information to Patty. We are providing this information to Osteer so they can use this information for determining staffing best practices. We are gathering the information only, not processing it.

Tim Gruenhagen, Miami University

Miami University has used the Packeteer product for about a year and has found it has paid for itself several times in avoiding the addition of extra external lines.

Packeteer, Jim Gallagher

The business of Packeteer is the Internet application infrastructure with traffic control, service level management and acceleration. They are finding that the Internet is pushing into our networks instead of just going out to the Internet and requesting information. Napster is the most publicized application, but it is just the tip of the iceberg. The network needs to control the traffic to enable the most efficient use of your network. No institution has unlimited resources or

bandwidth. Network capacity strains will continue to increase. Their product allows you to look at the applications on your network and prioritize them, find out how much bandwidth they use, and then institute controls. Not to make it unavailable, but to have control over when things can use the network

Not all traffic is equal. Some of the common applications that appear on your network include: Email, File Transfers, Web Surfing, Napster, VoIP, eBusiness apps, SAP, Oracle, etc.... Packeteer allows you to look at what is on your net today and then prioritize that traffic. This gives you more control over when you install larger pipes on campus. To allow you to use your smaller internet links, you need an arbitrator. Otherwise all traffic is treated FIFO. If you use a packet shaper, then the critical applications get a guaranteed bandwidth. They don't take over the whole line but get the bandwidth that they need.

4 steps in using Packeteer:

1. What are the applications currently running? Determine a baseline by running in discovery mode. Packeteer looks at the addressing scheme of the packets to identify the applications (OSI Level 7 apps).
2. Do an analysis on the current bandwidth use to determine how the traffic is currently running on your network. Who's taking the bandwidth and how much? You get the reports in forms and graphs. They have a built-in web server that allows you to control their product via web access. If an error occurs then their devices becomes just a switch so data can continue to flow. Data can also be downloaded to spreadsheets.
3. Packeteer can make recommendations for controlling your traffic. The changing of the traffic can be done quickly by setting policies to control the traffic. All parties need to be aware of the policies so when a user complains about slow bandwidth you know what where to look. Packeteer has the capability of dynamically shaping traffic based on usage. For instance, if you can have a priority 2 using more than the assigned bandwidth if bandwidth is available. But if a priority 3 comes in, the priority 2 gets stepped down.
4. You can report your network changes. Plattsburgh State, University of New York are using Packet Shaper to ensure bandwidth for research. University of Saint Thomas is using it because of library access problems. Episcopal High School learned that adding bandwidth does not solve the Napster bandwidth issues. Within Ohio it is used by Miami University, and Xavier University.

The product has 2 types of updates: flash updates and two major upgrades a year. New applications are updated monthly/bi-monthly. They will be adding a policy console. They have 3 models: 1500, 2500, 4500. The 1500, and 2500 have 2 ports for additional technologies and are for bandwidths 0-ds3. The cost

is \$3000-\$16000. The box is placed between the internet router and your campus switch or routers. Packeteer is bi-directional, with full duplex flows. It uses TCP rate control technology (think of it as TCP flow control). Policies can be set on both inbound and outbound traffic. Normally you prioritize the a few of the most important traffic, then look at others you may want to throttle, then use a default for the rest.

Can they classify traffic that is riding on other ports? Yes because they look at more than just the port in the packet header.

Can it be used to rate limit your traffic bi-directional? Yes, it is meant for ISP use so that you determine bandwidth use by IP.

Miami University is currently using 34 Mb from OARnet. Tim showed some examples of how they use the product. When they first put it in, they found Napster traffic before they even knew what the application was. They have their residential network partitioned out at 12mb with burst limit at a lower priority. Their library paid for guaranteed bandwidth. Other departments are interested in paying for guaranteed bandwidth. They found Scour was eating up all available bandwidth. Initially, they received had some bad hardware. Their residential network takes up over 50% of the traffic. Overall web traffic is adequate. But in the residential network, valid traffic is fighting against the Napsters, and Scours. If you define it, you can look at a single IP's address for setting up test machines.

It has an events log that will send pages out. It can send an email to can be a list. The time it takes up can be as much as you want to throw at it. Tim says this works, and he is impressed. The box is a network appliance. You can set a partition for how you want to split up your traffic. Authentication is done with 2 levels of passwords using encryption. So the passwords are not sent clear text.

What entity established your policies? Tim will implement the policies he gets from a committee that contains both faculty and admin, no student representatives on the committee. Tim does make recommendations to the committee.

If you can define rules that can also be defined on the firewall, but the product does not replace the firewall.

There is a 15-day pilot program to allow a site to do a discovery so you can see what you have on your net.

The platform is a Pentium level machine. They will demonstrate the product by installing it and letting it run for a week. Then they put in a couple rules to see a before and after picture of your traffic. How long would it take to implement?

They recommend a base line of 3 weeks then begin instituting the policies. There is currently a 30-day delivery on the unit.

Web page update

www.oartech.oar.net

A few changes have been made. More minutes have been added. We now have some 2000 meeting minutes up. A link to OhjioLink firewall rules has been added. In tools, we have Secure Shell, VNS, Ethload, Samba, Tamu. The following on-line tools options have also been added: traceroute, Samspace, RFC docs, IEC Resources. Some presentation slides have been added.

During the meeting, 4 users were using a Dell wireless box (Cisco access box) to work on the network. Patty Vendt and Bob Beer used Airport cards. Bill Mayhew and Ransel Yoho were using the Lucent nics. After adjourning Bill will give a summary of the setup.

Question on what Paul Schopis was using for his charts this morning - Ploticus.

Meeting was adjourned.