Oartech 8/11/1999

Meeting was called to order at 10:05 AM. Dave L. asked attendees to introduce themselves. The OARnet saff decided to remain anonymous at this point. Dave announced a recommendation has been made that OARnet host the lunches. The approval of the recommendation was unanimous. Ruth Crites will take the matter up with Doug Gale. Dave made the recommendation that a key person be appointed at each campus. This person would be obligated to be a, "How we done it," speaker at a meeting. The appointee should be prepared to speak for up to an hour.

10:10: The floor is given to OARnet. Ruth: There is a meeting scheduled for November 3rd and 4th. The meeting will cover video conferencing technology. The meeting falls on the same date as Osteer. Osteer will meet until noon, after which the group will meet jointly with OVI. Many influential persons, such as the Governor are expected to attend. There are a number of interesting and useful workshops planned. A fee to participate is expected, but has not yet been determined.

Ruth is still taking orders for connectivity and bandwidth enhancement.

Gene: The telecommunications environment is taking a turn for the worse, with T1 installation lead times being quoted at 45 days. Expect real times of 60 days or more. Gene is meeting with Qwest, whom he says is having delays in high capacity links, let alone T1.

Gene presented a statistics graphs prepared by Fred Crowner. The graphs shows a trend typical of the Internet growth rate as experienced for the last few years. Approximately 60% of the OARnet load is academic traffic. The academic load is expected to expand as the fall semester commences. Gene expects traffic to double again within the next 12 months.

Gene displayed a transparency of the OARnet connection graph. The complexity of the graph has grown to the point where the Columbus, Ohio area is shown as a large gray box, rather than the individual points of presence. Gene is talking to both Qwest and Sprint to add capacity. The current offered load is around 250 megabits per second. Additional links to Pittsburgh and Washington, D.C. are planned. Pittsburgh is expected in about a month. The Washington link will take considerably longer because the co-location facility has not yet been built. DS-3 circuits from PSInet and others are expected shortly; this will likely require some OARnet circuits to be upgraded to OC-3.

OARnet currently has peering agreements with approximately 50 networks.

Gene showed a schematic diagram of the Columbus area. The links in the core area are a mixture of OC-3 and OC-12. All links core links should be at OC-12 speed by the end of 1999. There are six main connection points in the Columbus block. The, "TNC," facility which houses the Ohio State UNITS telephone systems has important features such as generator back-up and connections to commercial circuits. OARnet is talking to American Electric Power. AEP has a lot of fiber capacity in their electric distribution network which could be used for data. AEP also has the advantage of covering rural and other regions in the state where Qwest and Ameritech do not have good high speed coverage. Time-Warner has brought its various data companies together into one unit. OARnet is planning to enhance its peering with Time-Warner as a result.

OARnet has an ATM video bridge. OARnet has distance learning equipment installed as part of a project between Kent State and OhioLINK. Kent has been attached directly to a video switch at DAS. Approximately 1/2 of the OARnet members have connections to the DAS system. Recently, Schoolnet has been experimenting with, "IVDL," running ATM. The new system allows sites with modest needs to share their existing T1 circuits to handle ATM conferences without dedicated connections to DAS. Southern State set up an ATM switch to a router; this allows OARnet to concurrently share the T1 for both IP and ATM traffic. The ATM sharing is still handled on a case-by-case basis as clients needs vary. OARnet does not particularly like doing sharing of ATM. OARnet's preference would prefer to use IP to do conferencing - this is definitely still a leading-edge technology. Gene feels strongly this is the way to go. OARnet is experimenting on the Abaline network, with the commercial sector and academics in Europe to test IP video. OARnet recently purchased and installed a 48-port H.323 switch in the KRC facility. Experiments with gatekeepers and other devices described in the H standards document.

Bill Mayhew recommended checking out the web site: www.iec.org, and click on the, "Web Proforum," section. There are many good resources on H standards, IP telephony, etc.

Bill Miller: CourseInfo. Bill provided some examples of courses that have been put on line. There are 32 courses available with several thousand accesses having been made. CourseInfo has proven to be the easiest software for inexperienced patrons to use. A prospective client may apply for space on the OARnet web server on-line. The course will be kept on the server for at least an entire year. The course framework is typically ready within one day for the patron institution's professor to begin coding and uploading. The

software allows emailing, conferencing, web content, document distribution, grades, calendar and web content. Technical support is provided by OARnet and Blackboard's web site. OARtech plans to provide support and a server space as long as interest in the CourseInfo product continues. Blackboard has volunteered to send a training representative; at this point study is under way to determine the level - faculty or system support staff?...

Bill points out a common misconception is: a fully populated web site has to be in place before a class starts. Students often find that web sites are easier to understand when content is added as the class progresses. A big complex web site can be confusing for students unfamiliar with the material.

11:15 Mark Fulmer: Ohio Gigapop. Mark works jointly at OARnet and Ohio State U.

Obviously, there is a lot more involved than just hauling in a cable. There is a lot of work that needs to be done to set up routing policies. The system was implemented by using soft PVCs. Internally, they use OSPF and use BGP routing for external connections. They are working on some leading edge technology such as audio and RSVP. Schools working with advanced features should be aware they are experimental, and are not risk-free.

The Gigapop architecture has a logical fully meshed network which does not necessarily match the physical architecture of OARnet.

Inside universities, there are similar complications to OARnet at large. Many schools have back-door peering which is not eligible for Internet-2 traffic. Separate connections for non-I2 have to be provided in such cases. Gigapop is working on setting up virtual tunnels and policy routing. Policy routing has only appeared in IOS 12, so adopters should be aware of the risks associated with newly deployed Cisco technologies.

The system supports native multicast via the recommended PIM sparse mode and DVMRP tunneling. Mark recommends upgrading to PIM/SM due to interoperability problems with DVMRP. There are hacks to make VIC and VAT work. Newer systems such as Video Charger and Real Networks don't work for interoperability.

New projects: a Netflow Collector has been ordered. This will allow MRTG-like graphs to be generated. The flow collector allows connections to be traced. They are doing rate-limiting of ICMP. They are limiting traffice to 1.3 times the rate of the commodity connection.

Dave asked for the previous minutes to be approved. The motion was made and

seconded, followed by unanimous approval.

OhioLINK update: pieces of the Sun 5K system with 8 CPUs are beginning to arrive. The system will be prototyped on a smaller Sun by the end of August 1999. The current on-line capacity is about 3 terabytes. OhioLINK will participate in a library science class offered at KSU.

12:00 PM - lunch break. Chinese style food. Members contributed $5.00 each to help OARtech defray the costs.

12:50 PM - Meeting restarts.

Bill Mayhew: Fiber optic installation. Bill discussed the planning and deployment of a new fiber distribution system at his school, NEOUCOM. The web notes will be posted at http://homer.neoucom.edu/oartech.

1:30 PM - OhioLINK White Paper. Anita cook has added a new Summary of Recommendations section to make provost review of the doucment easier.

Some questions were raised to whether the client bandwidth is in the correct range. Mention of wireless network performance and security should be added.

What is adequate staff as mentioned in the Summary of Recommendations.

With the emergence of the Ohio Learning Network, a section on video conferencing standards needs to be added.

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Meeting adjourned.