



**Advanced Engineering Taskforce Meeting Agenda**  
**August 18, 2014**  
**10:00 a.m.**

**Meeting Locations:**

**Springfield**  
Central Management Services  
120 W. Jefferson

**Audio Conference Bridge: 1-888-494-4032, Access Code: 6065217911**

- 1. Introductions**
- 2. Review Agenda, Approval of Minutes (Action Item)**
  - May 16, 2014 Minutes
- 3. FY15 Budget and ICN Proposed Membership Model (Informational Item)**
- 4. Approval of October AET Meeting Schedule Change (Action Item)**
  - Move from October 17, 2014 to October 3, 2014
- 5. Other?**

**Advanced Engineering Taskforce Meeting  
May 16, 2014**

The meeting was called to order at 10:04 a.m.

Members Present

<b>Name</b>	<b>Affiliation</b>	<b>Location</b>
Scott Armstrong	Kishwaukee Community College	Heartland CC
Troy Brown	Shawnee Library Systems	Heartland CC
Jim Flanagan	Illinois Chief Technology Officers	Heartland CC
Dennis Gallo	O'Fallon CCSD 90	Heartland CC
Brandon Gant	ICARLI	Heartland CC
Rich Kulig	College of DuPage	Heartland CC
Tracy Smith	University of Illinois	Heartland CC
Alan Pfeifer	Sauk Valley Community College	Heartland CC
Glen Trommels	City of Rockford	Heartland CC
Brian Tobin	DeKalb CUSD 428	Heartland CC
Mike Dickson	Western Illinois University	Conference Bridge
Brian Murphy	Eastern Illinois University	Heartland CC
Rob Zschernitz	The Field Museum	Heartland CC
Raj Siddaraju	CC Presidents Tech Council	Heartland CC
Mike Shelton	Southern Illinois University	Conference Bridge

Members Absent

Andrew Bullen	Illinois State Library	
Ken Davis	Sangamon County ETSD	Last meeting
Joel Mambretti	Northwestern University	
Robert Dulski	Brookfield Zoo	

Guests

Anita Nikolich	National Science Foundation	Conference Bridge
Tracey Keller (Jim Peterson)	Bloomington Schools/Illini Cloud	Heartland CC
Kevin Findley (Herb Kuryliw)	NIU	Conference Bridge

Staff

Lori Sorenson	Central Management Services	Central Management Services
Kirk Mulvany	Central Management Services	Central Management Services
Robin Woodsome	Central Management Services	Central Management Services
Frank Walters	Central Management Services	Central Management Services
Michelle Brown	Central Management Services	Central Management Services

### **Review Agenda, Approval or Minutes**

Jim asks if anyone would like to add to the agenda. Also the minutes were received the last week. If there are any additions or corrections or deletions to make to the minutes please let us know. Is there a motion to approve the minutes? Allen Pfeifer makes a motion to approve the March 21<sup>st</sup> minutes and Dennis Gallo seconds the motion. All are in favor and none opposed so the motion carried.

### **Old Business**

Budget Update (Lori) - The appropriation for recommended ICN FY15 budget has 2 sets of budget numbers that the Governor's Office of Management and Budget submitted.

- One budget is assuming the temporary tax increase.
- The second is a permanent tax increase, and if it is not permanent, what's the recommendation in order to submit a balanced budget.

With the tax increase they are saying it is \$6M, which last year was dropped to \$5M, and the year before was \$3M, and the year before was \$6M. It is \$6M in the Allocation Model we used to award credits to the schools and libraries. If we get the \$6M everything would remain the same.

The alternative is if the tax increase is not extended it will be \$3M. There has been talks and discussions within the State, with our agency, and with the budget office and if it does go down to \$3M because of timing we would go into this next fiscal year, FY15 and we would keep the allocation model based on \$6M but then the following year it would drop to \$3M. We're not seeing any practical way of doing things any other way unless the schools get into contracts with Erate based on these amounts.

The other issue is there's not much we can do in one year to drop \$3M from our costs unless we want to shut down some offices. A lot of our costs are fixed long term contracts and then staffing costs but the reality is we're not going to drop \$3M of our operating budget. That capacity is going to be on the network at least for next year so the thought is to do the allocation based on \$6M and during that year we're figuring out what we do, how we scale, and what we change to drop down and make those adjustments.

Our operating budget is around \$20M and this is a portion. The rest comes from paying customers, fiber sales, what schools and libraries purchase and pay for, the customers and municipalities, hospitals, and those other entities who do not get any of the appropriation. So \$3M of \$20M does have an impact and we have to figure out where to make the adjustments.

Lori states she doesn't know what is going to happen in the legislature. There's not much we can do but to wait and see.

What the new costs are going forward are based on estimates. We haven't gone through a 12 month cycle even though we're already seeing that some of those expenses such as locating services are as we expected, are seasonal, and we think the same will happen with relocation fiber maintenance. Wholesale about \$4M in services and we are projecting for this year about \$2.3M and that is pretty solid.

Lori doesn't have what is projected for FY15. We think it will go up based on contracts that are inked or are pretty close to inking.

Pre-fiber per BTOP we were around \$21M and 10 years ago we were at \$30M so our cost has dropped down into the \$21M and we projected it would go down to \$19M and that's looking to be true for the fiber project. A lot has to do with replacing the circuit costs.

As far as the example on the locates we've seen in the winter months, December through February were we're averaging \$17K or \$18K per month on locates and in March it spiked up to about \$44K. It is suspected that it would hold pretty true to the warm weather months.

In the minutes from the last meeting there was talk or a question about the overall cost savings from disconnecting those leased line circuits. To give you an idea, all of the Backbone Circuits have been disconnected with the exception of the 2 circuits going into and out of Moline. We have plans moving forward to try to get out State owned fiber implemented there. Of all the circuits that were disconnected that represents a savings of \$361,400 per month. \$4,336,800.00 per year. The 2 remaining circuits at Moline represent \$37,000.00 per month and as we move forward and disconnect those we save almost another half million dollars a year.

Another area where we can save money is when we can drop from several of our POP sites. We currently, have to support this because the customers are connecting with T1, and those circuits are costing about a million and a half per year. Since everyone is migrating to Metro Ethernet, because the carriers are shutting down legacy services like T1 lines; we can transition away from Sonnett Rings connecting to T1s from our network; then we will pay for the local loop; those plug into sonnet rings, and on the Metro Ethernet, we don't pay for any of the carrier infrastructure into our POP Site at that point.

Jim stated at some point do we want to talk about, instead of advising people to get rid of their T1 line, especially for those people who are supported in part by the State, the Libraries, and Schools, that would mean changing all of the electronics. At some point would it be to our benefit to say, for the next three months to six months, if we start talking about this in the fall of next year, because the school budgets are already in, and probably the libraries too, and say we'll provide a certain piece of equipment or two pieces of equipment preconfigured, so you can switch over to this kind of Metro Ethernet connection. They would get a slightly better connection, and we would get rid of the cost of the sonnet ring equipment.

Lori suggested that we table this and put it under new business, AT&T's Project Velocity. In a nutshell Project Velocity is AT&T's plan to move away from legacy TDM services to IP services. This is discussed more in detail later in the minutes.

Dennis asked if we see these as true savings or things that are just going to cause the budget to be absorbed and revenues adding to or just replacing it?

What we paid for circuits is replaced with fiber maintenance, fiber locates, the optical equipment, and the maintenance on the optical. As a whole our budget has dropped about \$2M is what we think though this fiber project and quadrupled our capacity with the ability to easily scale more or because of

the fiber and we dropped in the total bottom line. If you balance your budget at the end of the year about \$2M is what we're projecting.

In terms of Dennis's question that \$6M or \$3M of that money is budgeted in the most part to provide services to core constituents. Essentially what we are saying is that for \$6M we can provide "X" amount of services to core constituents.

Do you perceive that money being allocated for upgrades? Is there an opportunity for the entire state to pull that, or use State money and pull it?

This budget session and last year's questions for our agency has to go through the appropriation period. The questions for the last 2 years have been a lot on ICN and the project. Because of this fiber project can we drop the \$6M? Our former agency CFO understood our program and our budget very well and did a good job defending and explaining. Now he's gone, and CMS has Deputy Director Greg Waas, who is Chairman of our Policy Committee. He has been in the budget office, is now with our agency, and he understands it very well. Capital expenses verses operational spending and \$6M is an operational expense to pay for the service for the schools and libraries. We made an investment in fiber which was the Capital which helped us save, and reduces our operational cost by \$2M, but if you want to continue for schools and libraries to get a certain level of baseline and free connectivity, then the states has to fund a certain level of bandwidth and that is an ongoing cost.

If we lose the money then we have to figure out where we make up that difference. If the difference is believed to be a short term gap or it's meant to be a long term trend.

With the savings we could provide a higher level of bandwidth at the same cost that we could a couple of years ago. If we didn't have that savings then we would instead have to go back to the legislature and say, in order to provide the baseline bandwidth the schools need, not enough but the basic minimal, we would need \$12M, \$14M, or a larger amount. The amount of bandwidth they need has increased, and if we still had to pay by the megabyte for transit across the state, we would have to charge more money for that.

We are focusing on bringing in revenue through the wholesale market, because that helps, and much of the network costs are fixed costs. The Internet Egress is one of the few things that is based on utilization. As we get more people using it and bringing that down it helps spread those costs out.

### **PARCC Update**

Lori stated she wanted this update on the agenda as a discussion, because it affects K-12, and to hear if your schools participated in the Beta Testing earlier this year, what you learned, and what you're hearing.

Jim had some feedback from Tech-Geeks listserv that performance on our network was better than performance on commercial networks. This is also what we're hearing. We're also hearing if there are things that we should be doing, tweaking, planning, and preparing for when it comes. Lori believes it will be in the fall.

DeKalb participated at only one elementary school, and they did it on their wireless network. It was their LAN, and everything went well. We're doing more of our testing at the end of the year; Monday will be at the High School, and later that week as well. Things went well with the testing.

You have options to set a 20 day window; there are 2 windows that people can participate. One is March, the other is May, and these are 2 different sets of tests. Not sure what the difference is because they are covering the same tests.

What most Districts are concerned with is scale. Most districts participated in this year were a couple of rooms, classes, or grades, but nobody load tested a whole building. What they are worried about is the ramping up to get everything done within the window, depending on the number of devices, and how they will act and will they stay connected. There were a couple of districts in this last window; it was weather related, and they lost power for a day or so. It's okay now when they're doing one or two, but if they lose one or two days for whatever reason, they may not be able to make the window. A lot of schools are normally out. We would be out next week, but because of weather we are into the second of June. If that window opens in May, and depending on how many sections you have to get through, can you get that done when your school is actually out?

The feedback from the Tech Geeks was yes there were technical issues where certain devices worked better than others, things worked and didn't work, but when the feedback came from the Administrators and Staff around the county, they were completely negative, and what was happening, how it happened, and whether or not it was going well.

I think it puts a much higher burden on them than what they had prepared for in the past. Dennis's District is similar to any other district. I don't think people are quite ready for how this is going to change the end of the year that most people had experienced in the past. There are a lot of dynamics and not just the technical aspects that are going to be tough for the schools districts.

Lori asks if the second sets of tests are the same students and the same grades participate in the same window. Dennis stated that it is his understanding that it is the same group, 3<sup>rd</sup> grade and up right now.

Lori asks Frank for the PARCC testing and can we do an external bandwidth is which only a piece of the puzzle. Can we option to remove anybody's rate limit during those windows of time or Is there a way to do something based on us working with PARCC, and we find out we can set something up, where any traffic going to PARCC is automatically not a part of your rate limit.

Dennis asks if that part would cache locally those who took the test. In the video Dennis thought the people said that was actually cache locally.

Jim states there is cache locally at the school level. The issue is how many schools are going to be prepared to do that. Another question was how you are going to do it if you don't. Jim states they don't represent more than 20% of the schools in the state and a good 25% of the schools that may not have anyone on staff that could handle setting it up.

Tracey (Blooming SD) states it takes five minutes to set up. We were looking at doing it on a Windows device because they had an older Mac Server already on the network. They downloaded the install file and ran it an essentially it was on. There weren't any special configurations. You had to provide the information, what you have on your server with the IP back into the PARCC web portal, and once you were done there you were done. Now when we go to take the test the proctor or administrator from her side goes in and says we're going to take these tests and within a couple of minutes there's all the information from the caching server and the students were able to start taking the test.

Is video part of the test and was that cached locally for you? Tracey didn't know because he was that far removed from it. We saw no spikes in bandwidth during the testing window and nothing beyond a normal school day for them.

Tracey states he doesn't know if they're including video right now for the tests but if they do in the future he doesn't think it's going to be so much that it is going to take up a lot of their web space.

Dennis states that Schools will still have the option to take it on paper and he understands that some of the schools may opt that way at least for next year and give it another year to get worked out. The issues are we don't have enough tech people to put someone in every lab and hand hold all the staff that are going to be required to administer the test and if something goes wrong they don't have the expertise to try and troubleshoot. That is a big problem.

Jim asked if there's anything else that would related to bandwidth for the PARCC assessment that we should discuss.

We would be able to remove the shapers for this and do it problematically. Frank states it's not a simple task but we're working on the On-Net verses Off-Net.

Jim asks if it is worthwhile to work with ISBE to see if we can set up an arrangement for peering wherever PARCC has their service at. Frank states they should probably have that conversation. The last time we started to go down that path they didn't know where it was going to be but now they do. Jim states even if we're peered to them he would assume it would be less points of failure in the route between ICN customers and the PARCC test site centers. Frank states if we could get their address range or contact information then Frank or Kirk can research it. Lori states she knows where to get the information.

### **On-Net/Off-Net Services Discussion**

Frank states the last tests that we're doing has multiple ways of doing them and each way has its issues. We're looking at QoS tagging or Route tagging. The latest we're looking at that may work is Queue in Queue in Queue, the technology that we're using and that we're testing in the lab right now. What we're running up against is that it takes a long time to set up the lab, do the testing, and get all the pieces in place. You are simulating multiple end points but it is progressing and we're still looking at that.

Right now to be honest we're trying to find the least intrusive way to solve the problem and it looks like the VLAN queuing where we take a Vlan queue and shove it into another VLAN is the best to solve that and in order for the whole system to work that is one piece of technology that we're testing.

Troy states from most views the On-Net vs Off-Net is really a specific set of IPs that you talk with most of the time. On-Net or a range of IPs couldn't those ranges be excluded from any kind of bandwidth access list that is supplied to your interface or is that not ideal?

Jim states one of the issues is we're not looking at a model in which we have unlimited On-Net bandwidth but rather a model in which On-Net bandwidth is some scaled amount of Off-Net bandwidth.

Frank said for most users it will end up being full because 2 or 5 times their bandwidth they take from ICN that is going to be over their wire speed. It is the same thing as far as they are concerned. The issue that we run into is being able to deterministic about that an ensuring that one customers burst is going to be 5 or 10 or 15 times the burst size or bandwidth size. We could rate limit it if we didn't care but in the case of congestion the bust from larger schools or colleges would not completely trample the smaller schools and that is exactly what would happen if we made a change. That is our concern and what makes it complicated.

### **New Business**

E-Rate Modernization-Lori stated at the last meeting in which she was absent. We sent out to you our responses to the FCC on comments, and we sent a copy of a Letter of Interest that was submitted for this filing. Talk is as early as June we could see that they put something out asking for our proposal in response to a pilot and the pilot is asking or looking for innovative and cost effective ways to deliver high speed bandwidth to Anchor Institutions (AI).

Our concept we pitched was that we would partner with another Service Provider (SP) who was interested in going into a community and to building up fiber to capacity of their existing network or sending their network into a community if they wanted to serve the households, the businesses, and others. We had some discussions with different providers that are purchasing fiber from us. They are also doing combinations to build off of our fiber and that is a common question they're asking us is do you have a common interest. Let's shares the cost of the build going into this town or community and connect the AI to ICN and they want to serve the others.

Our thought is that there is a way to do this and come out where we have some fiber ownership. Our other big thought is we feel like the way the E-rate program runs today the Federal Tax Dollars have paid for the infrastructure 10 times over in these monthly costs yet they're tied to that SP and that monthly cost. If they don't like it they have to go to another SP, enter into a contract, and over that contract life they are going to pay 100% for the cost to build up the infrastructure, the 20% internal rate of return, and the operating cost to deliver the service on.

That's our big thing that we're pushing. They need State Grant Dollars or anything that goes out for broadband at the end of the day the State owns some of that fiber. That infrastructure then becomes open access and anybody and everybody can compete off it. One of the things that we have to figure out is procurement rules. For us it is what ties our hands sometimes and we can't talk to the SP and let's do what makes sense and find a good partner. We're going to pledge "X" amount of money for the project and they're going to put in "X" amount of money and we're asking the FCC for the remainder of the amount. We're going to figure out if we can do it through procurement and we're going to meet with them next week and pitch this.

Lori mentioned to DCO that she may need them to be a vehicle and run it through one of their basic setting up a grant program. Also in order to do this we need the Governor's Office of Management and Budget (GOMB). There's \$8M in capital dollars that we were supposed to get and we were supposed to get \$26M in capital money and while every other BTOP project got all their capital money we did not. In operations we covered \$8M out of our operating budget. Any money that you had and built up before, we had to cover. It is the good and the bad of being part of a State Agency.

On the other hand Lori feels if she made the folks aware and gets it all the way to the door, pledge to the point where they almost have to say yes to release the money because everything is lined up and

this is such a good opportunity. We feel like once the notice comes out from the FCC there won't be a lot of time to react and respond if we're figuring out if it's the RFP or the DCO way.

We may get something out there in anticipation or have everything ready to go so that when the rules come out we tweak it, release it, and it would be a very fast window. Again we're looking for a SP that we've designated that we've marked areas we think would be ideal and fit. The criteria for high cost and looking at high cost areas that would be open, to look at educational entities, the libraries in that particular area, and how do we get fiber to their door, and tie the fiber with that SP, and tie it into open access fiber. Whether it's fiber we purchase or its fiber we traded or exchanged with any of the other projects BTop funded or any other private entity that is selling or trading fiber. It comes in and ties into the open access we could deliver service to that entity but on the other hand we allow anybody and everybody to use that infrastructure so that buyers could compete.

We did have some calls and we had some feedback from the eRate Rules and Modernization. The feedback we've heard from the K-12 community was interesting on priority two funding. They wanted to see the money spread out among all districts and not just those that are the 90% money. If the amount could be predicted on an annual basis so people could plan and budget accordingly.

What is interesting is while you hear some of the members of the FCC talking about wanting to streamline it and turn it into a one page application, some of the K-12 Tech folks are saying their concern is people making smart decisions and those that are getting priority two money every year have been kind of wasteful and that the money would fall under waste, fraud, and abuse in that stream and that is certainly our gold plated or at higher capacity than their using or have the ability to use. Swapping things out at a quicker pace than what you could really get a useful life out of. Their fear is if you streamline it too much they'll just continue to have this. Those comments we weighed in on to that extent even with the second round of questions.

Essam did meet last week and we've been on some calls through the other Research and Education-Network some of the folks from the FCC and the GGSAM and others the staff have done a series of information calls and participated in some of those. Essam was out in DC last week for the SHLB (pronounced Shelby) conference and he met individually with some of the FCC staff and explained more of the landscape here in Illinois and the role this group and the RTCs, LTCs, BTop Network, and what our thoughts are here.

Kirk stated that a link to Essam's presentation was emailed out.

Jim asked if we've gotten any more information from them or heard any more from them. The FCC was talking about \$2B that they might be allocating next year or the following year to try to get better bandwidth into schools and did you hear any more about that.

Lori states as far as any capital program or at one time they were making it sound like some type of a capital investment. She's not heard any more but she did hear that they are saying they have \$2Billion in additional money. Lori's understanding is that it wasn't claimed in past years. As far as a capital program she doesn't know but there seems to be a lot of talk about it.

As far as partnering with other BTOP programs or projects Lori states the only BTOP project that is still run by the government is UC2B and they are the only ones that can enter into an intergovernmental agreement. Everyone else is a nonprofit or for profit program. It doesn't matter because of its procurement rules and legally we can't enter into anything.

We expect some of the people would respond and be interested in this partnership. To some extent we are lending our name and our support to some other entity that already has a business and their

business plan is to build this out. By getting some FCC money this will just let them build this faster and sooner by having our signing on as a partner kind of an endorsement. There were a lot of entities that were doing this during the BTOP project that were trying to get the State networks to partner and sign on and then we put in a little bit of money and we get the fiber out of it and we don't have to do a lot of work. Seems like a win, win. We just have to make sure that whomever we partner with has the capabilities to complete on time and their going to do it reputably without any scandal in the headlines of wasteful spending or bad procurement or failing to do that. That's the thing when you sign on you're sharing the success as well as the negativity.

#### **AT&T Project Velocity (Informational)**

AT the FCC level with the Connect America Fund (CAF) which all of the Telco's get lots of money through the CAF they are through the rules forcing and changing that the carriers go to IP based services and decommission their TDM services. AT&T is the first and only carrier we heard from that has come to us as the State to tell us what their plan is and their timeframe and their roadmap for shutting down their TDM network and going to IP. The call it Project Velocity or VIP. By the year 2020 they will have turned off all of their TDM services.

What they don't tell you is when these services shut down, when you stop taking orders, what is the alternative service, what the price is, and what the other things with it are. They are really proud of that by 2020 their going to have it shut down.

That means T1s and DS3s gone and those things what they say and nothing is for certain because they've made no decisions but their estimated timeframe for that could be by 2016 we will no longer be able to order the service and by 2019 it will be shut down. They have already shut down Intrastate T1 and we use to buy a lot of intrastate T1 because they were a lower cost than the Interstate T1 and they have stopped taking orders for those and actually told us we have to be off of it by now but they can't figure out what they're going to put us onto so the keep extending it.

Centrex services are big for the State. We have 40,000 plus Centrex lines around the state just with AT&T and those are going to be shut down. Sunset meaning no more ordering and grandfathered in 2016 turned off in 2019. Toll Free, Long Distance, Audio Conferencing and the State uses all of that and any of you probably the State Universities use it as well. We suspect that is going to be changes that happen more in their network and doesn't affect things on our end like any equipment or technology those things along that line.

Lori states to Jim when they speak of T1s it has to be the push to get people off of those T1s. In 2016, 2 years all the T1s are turned off or they won't be able to order them anymore. Ideally in 2 years we would like them to be turned off. For the State Agency connection we are getting ready to put an IFB out. We have the option of going to AT&T Metro Ethernet Service. We've got pricing and that is under contract. We have found with so much movement happening with the Broadband, there are many new providers and a lot of small providers, small regions in small areas and those people can more competitive pricing. In the State we've gone with trying to find one or 2 vendors who can serve the entire State. Going to look at each site and who's the vendor and what are our options. We're going to put out an Invitation for Bid (IFB) and list out all of the end points for State Agencies and say you can connect or tie them in to the ICN anywhere you want or any way you want. We are looking for prices and options.

For us we want to get the majority of things cut over in 2015 by the end of 2015. It is tied to between the Voice Services and Data Services once we drop our spend to a certain dollar amount with AT&T our prices of our T1s go up and we have 12 months that we can be below before we have to pay that. We want to get as much over in those 12 months and by 2015 we can be below our minimum commitment through 2016 and hopefully get out before having to pay the higher T1 cost.

We have not heard from other carriers what their timeframe is or what their plan is. Has anyone else heard anything? Robin states they claim to have a Metro Ethernet over copper. The viable option would be up to 100 meg.

Is there a push to make everybody go that direction?

The National Broadband Plan really is what that calls for in that we need to get the networks over IP because they are more efficient and the public gets better broadband. The connect America Fund is what they've renamed for the Universal Service Fund money. It starts off as a carrot. If you go to IP it is an enticement, eventually it is a ...if you did not go you don't get money and right now that is one of the things that the FCC is asking and seeking comment on. Lori states they are trying to figure out what is the new way and model to give money to those carriers where it used to be based on cost and were guaranteed a certain amount of profits and what does it cost you to run your network, plus your profit and they got a certain amount of money. Now they're looking at trying to come up with a model that states based on household this is how much we'll pay you to run IP and take it or leave it. If you don't want it then we'll put it up and see if there are other providers who want the money and want to be at least guaranteed the carrier there. If she understands it they have heard from a lot of carriers that they would be interested if the incumbent is passes they would be interested to go in but nobody knows what that dollar amount is. That is why they were asking people for comments and how would you come up with it based on that model.

AT&T has two pilot projects that have been approved. One is in Florida in a retirement community and one in Arkansas, Alabama, somewhere like that and they're doing a trial where they will convert that local area to IP and figure out how it works with 911 phone service. The other issue is that they don't necessarily want to provide the LAN line service to every household. That is the issue in Michigan phone companies are being fought by tooth and nail by people in remote areas. You can get LAN lines if you essentially are getting it over IP but if you want the basic low cost LAN line with minimal service which poor people in rural areas have depended on for years they want to decommission all of that.

Even amongst the small telephone companies that has been their bread and butter. There coops and small private companies are facing the situation whereas they want to withdraw their support for that until we subsidize this remote and low incidence LAN line.

T1 for State agencies is going to be tough they're going to pay more. The alternative, the Metro Ethernet service will not be at the same price as the T1. You're going to pay more and you're going to have more capacity than you'll need, or you're using, or can afford and as we start to shares with agencies at the end it is going to be a very disruptive next 3 to 5 years on the financially. At the end of the day we believe in the direction to go IP. It will be a good direction in the long run and those sites will grow into their bandwidth but you don't have an alternative.

Do we know how many schools and library sites still have a T1 connected or 1 or more T1 connections to ICN? We have about 1000 T1s still on the network per Robin. That doesn't mean 1000 individual buildings. One building might have a couple of T1s connected.

Not directed towards Project Velocity but some of the libraries recently are receiving quotes from AT&T if eRate eligible one library is reporting a 10 meg Metro Ethernet Service at \$277.00 so that is about the price of a T1 line and that includes construction on the property and a school received a quote for 50 meg Metro Ethernet Service for \$325.00. When we heard the pricing we thought that there was something misunderstood. Robin did clarify with Tom Henderson and AT&T corporate decided that they're tired of losing eRate bids. They're going very aggressive so that the eRate eligible sites and even if they don't apply for eRate and a library that doesn't participate in eRate, they'll still get the pricing. There is a special pricing team that does this so Tom for example will send the request in and the team and they'll come back with a price. The term commitments are 3 and 5 years. The issue was those customers who couldn't get Metro Ethernet because of the cost they still have their T1 line. AT&T will be absorbing the cost of \$25,000.00 to any build.

How does the customer insure that their request for a price quote gets to the AT&T eRate team? It just started so what we need to watch for is that everybody is getting that. Robin states they have a meeting on Monday, May 19<sup>th</sup> with our Representative and these are not all of the questions we want to ask.

### **Peering with Google for Services**

We do have Google caching servers on our network. We have a school district where 60% of their traffic goes to our Google caching traffic. Jim was asking about the idea of with so many schools going to Google Chrome Book and moving to Google Guard and would there be a way for us to peer directly with Google.

Jim said he found out with short notice that a member of the Illinois CTO was going to be meeting with the top person in Google's Education Support Group. He talked to him a little about this issue and he said he would be glad to bring it up with this guy but he needed a little more information and unfortunately we didn't get sufficient information together in time to do that. I think we should still pursue it with him because his district is sponsoring kind of a Google Summit this summer and Jim thinks he will still be in contact with these people. What he needed was more specifics to give to the person at Google like, where would we want to peer with them if we could or several locations we could peer with them, so they could actually talk about it in a more concrete way. If we had an idea of how much traffic passes off to them in a peering way. This wouldn't only benefit ICN constituents. When we send traffic over the commercial internet to get to Google they're coming back to us over that same commercial internet so they're having to pay money for their access to commercial internet too. We need to follow up and get some of the information together and maybe have a conference call with Robin, Jim and Kirk and this person from the School District and see if we can put together an information or proposal and recommendation to be passed along to Google. Kirk said he would be up for that and Jim stated they should follow up after the meeting.

Lori had Brian to check into Netflix peering and thought the Universities might appreciate it. On the other hand the Universities don't generate enough traffic to warrant. It has been talked about the legality of using Netflix videos in schools and people have been told informally by Netflix that it's okay but the strict reading of terms and conditions say it's not okay. Depending on how loose a school wants to be. Some schools turn a blind eye on it, some encourage it, and some ban it and not because of

bandwidth reasons but possibly for illegal use of the services. Maybe not for the Universities but it could be for anyone in the dorms and just they're just trying to help out.

### **Network Update (Frank)**

Frank wants to clarify the sonnet ring comment we had made. Turning down the sonnet ring is different from what we've done already. We have turned some down and were at a ¼ of the size of the sonnet ring so we've been realizing budgetary fairness since October 2013. We have 2 more sites to do and it has been priced lower since October for all of our rings. Frank wanted to clarify when he said turned down that he meant turned down from 192 to 48 and some are lower and we want to get them to zero. The Starlight 100 gig gear, that is energized right now and we're waiting on a panel to be installed and Frank needs to talk to Joel about the order. Kirk states he saw a note yesterday that we are waiting on a cross connect. The equipment is operational we have the right cabinet and tower. The fiberglass we still have to work out. We are investigating a NOS type service as we go operational and you'll see these things come up in our updates. This is a service that we use to have with Cisco and they would do bug scrubs for us. We are looking at options of where we need to pull that into our daily operational routine or monthly operational routine. NOS was Cisco's we'll help you manage your network. They just kept adding cost and the value that they were bringing was decreasing,

We are also seeing DDOS attacks increasing in frequency and with bandwidth thanks mostly to gamers. The previous largest attack to the network before December 2013 was 20 gig and so currently our biggest one was 8.5 gigs. We're looking or an Off-Net solution and an On-Net solution. Even though we can help the customers not feel pain, overall we start having issues with the AT&T and Sprint feed because it is only 10 gigs for internet. This is on the radar and more information to come on this issue.

The Off-Net we're very interested in to find a drain off ICN so these can be stopped before they even get to our site. The DCMS service we're talking about removing Google and it was mentioned Akamai . We're moving Google to Springfield because of the Network design right now it gives it higher bandwidth availability in Springfield. Google has been opened up to 10 gigs and Akamai is used to using 5 to 6 gig and it has the capability to burst to 10 gigs. Google has a 12 terabyte system and Akamai has a 72 terabyte system. For those by themselves they are both putting new systems on the On-Net bandwidth because we are drawing more from them and that helps out both of us. Akamai the new Chicago system will be in place by the end of the week. Google may be also because they have been upgraded and migrated at the same time.

The static information that you can get from Google that you wouldn't get from Google Chrome Client or Google Chrome Books there already not hitting the internet and we have inquired and Frank asks Jim if he has anyone that can push this it would be great to have peering but we're so helpful to have Google on our network already that we're not freaking out. The last time we asked we didn't get a response from Google...this was a couple years ago and it would be nice to revisit it.

Jim states that the schools are going to be using more and more Google docs and he can't believe that it will play very well with caching equipment. The mail doesn't do very well but the systems that they're running through they do a once and done or a once and move. There is a Google technical term for it and they learn where you are and where you grab your files from and it dynamically begins to store them on the DDNS systems. It is pretty smart about it and it does learn over time but overall it has a better comprehensive approach.

In Chicago and Springfield there are 10 year old servers and they've been migrated and the rest of the State will follow. Springfield has been migrated and Chicago is in the process right now and the rest of the state will follow. We are moving to Anticast systems. You go to the web page and find out where you are and your IP address. We don't have to do that anymore you put in one address and you'll get the closest DNS server and if that server fails you'll get the next closest. It is all the same address and it's a nice system to have. The secondary is always the same for everyone also.

The customers will not have to change their DNS initially and will keep those old addresses for several years not to maintain service but eventually they'll want to use them to get better redundancy. The old IP addresses on the new equipment.

The Egress direction we're looking at right now is that we're attempting to move from a fixed rate to a usage based system. The RFP is due back June 28<sup>th</sup>. The idea is that customers would pay based on their usage rate. We're trying to find the rate that makes the most sense and at the same time making sure to keep a good amount of Tier 1 Egress providers so we don't have issues whenever anybody starts getting on. Because of the requirements you have to keep 50% bandwidth open for failures.

Moline to Macomb via the Galesburg run we are beginning to work through it. We have some equipment in and Kirk is working to get all of the numbers so Lori can review it. The current plan is to have IOA site in Galesburg and to interconnect sites with fiber. There is a little twist and that is the Moline POP site is moving and we need to build last mile fiber off of the DOT to wherever we end up moving. We're working to find out what our options are there. How we can get away with the least amount of spend for that move.

Our staff member that does a lot of the fiber scopes get footages to go to the existing site verses going to the new site so once we have all of the numbers put together we can put a scope out and do what makes sense. We'll have the options to do either or. We're put in an interesting situation because until we can answer where we're going then we can't pull the trigger on starting to build the fiber. The IDOT fiber comes in on I74 and it runs past John Deer Drive where we would jog off to go to the current site. If you stay on 74 and go down to the Riverfront it is that location. We just need to know where we're extending it from.

#### **Other Notes**

AT&T is operational at 10 gig in Springfield. We are building out our presence in the Center Point building, the Latysis Building, which is the location of our Alternate Data Center (ADC), since we're going to add a drop site there as opposed to an agency build out. If anyone has need for fiber in that Chicago area it would be interesting to hear from you. There is Aurora online and some other regional networks or metropolitan networks in those areas that have been asking about it also. It is an add drop site and it is in a different location in Chicago at a very well established Data Center. If anyone has any questions send Frank Walters an email at [Frank.T.Walters@illinois.gov](mailto:Frank.T.Walters@illinois.gov). It is a mile away from the Toll Way fiber.

The Resilient Ethernet Protocol Project that would give everyone 50 millisecond failover and we're discussing how to handle to cost for that. The project has taken some leaps forward and most if not all the hardware is installed. There may be actually a couple of units to be physically installed and turned up. Because we are using the same resources that we're currently providing services over we have to do it a step at a time and that will provide users who take advantage of that service a 50 millisecond failover whenever a cut occurs.

Lastly 11 gig was the highest sustained peak on the network.

### **ICN Services-Robin**

Speaking specifically to some of the new services and some of the legacy services that will now have the charges we worked on for the last couple of years and was approved last year. We rolled it out so that any new customers purchasing those new services the charges would start January 1, 2014. Most of the services that our customers had already had in place charges will begin July 1<sup>st</sup>. We've been working with our customers to make sure they are aware of it. Examples would be IP addressing, those customers will a full class C or more and the charge associated with that. One of the things with IP addressing is that we want the customers who the IP as secondary rather than primary they were thinking out address was to advertise out with their primary. I don't know that we really addressed that with the policy because as a secondary they are not using all of their allocation for bandwidth.

Frank states we began putting a term on the LOA also to have it last for 12 months.

QoS has always been in place and charges for BGP and will be in place July 1, 2014. We have discussed as part of our services no longer providing that for free and as we come through that process the decided to wait. The Quality of Service across the Backbone, we've had a lot of interest in that but no one has signed up for it.

Frank asked if anyone has reviewed the new FCC Proposed rules on ...The modified has been redacted. Lori said there were no specifics but they want to allow a fast lane and add they consider it a new class of service. It would allow the Service Provider to charge the content folks if they want a fast lane but it should not be at the detriment of the rest of the network. They introduced it yesterday (May 15, 2014) at their Commission Meeting. They got approval to, and Chairman Wheeler had brought this out about a week ago and had a very strong reaction nationally and yesterday the Commission approved releasing notice of proposed rulemaking that basically said to the public "you tell us what we should do." Here's the problem, what should we do.

### **AET Membership Recommendations**

There is a membership matrix that lists all the appointed members and members whose terms expire in June. We've also provided membership attendance for a point of reference. Kirk thanks everyone for serving whether their term is expiring or not for making the effort to be there and providing feedback and participating in the discussions. Kirk has corresponded with everyone about their intentions going forward and some it up by saying of the different members on the list, Brian Murphy, Alan Pfeifer, Troy Brown, Robert Dulski, and Steve Menken whose terms expire, everyone with the exception of Steve Menken are interested in continuing on. We would be seeking a renewal of the 3 year term for Brian, Allen, Troy and Robert.

Steve's role has changed and that is why he is not continuing on with the AET. He forwarded it on to Katie Lackerman and she would be the recommendation for ISU moving forward. Kirk states they were looking for representation with the idea if there is good representation in terms of the number of people in a constituent group that it wouldn't necessarily be an immediate replacement so that individual could come to the meeting and see if that is something they wanted to do and look at being added next year is an option.

Someone stated that they didn't want to see institutions just having a seat because the institution responds. There is only one role in the whole membership that is kind of a placeholder role if you will and that is the Community College Tech Council. Whoever happens to be president for that given year

fills that role and all others are based on the individual. If there were an organization like the Community College Tech Council or constituency group we would do the same thing.

Jim states when Brandon Williams left ISBE he was the person who dealt with most of the technical issues Jim was involved in. He told Jim in his discussion with ISBE it was his understanding that they were going to try to replace him with somebody that would be like a Director level or something like that and essentially upgrade their technology area. It used to be that technology had an assistant superintendent and it's been downgraded several times over the last 10 years. The technology group at ISBE has been moved and has a new leader and if we would consider adding that person. Jim's second comment is that the only person who has not attended any meetings on the entire attendance list is Ed Wagner from the Chicago Public Schools (CPS) and I would like to have CPS representation on the committee on the one hand but on the other hand just having someone's name on there that never attends and never delegates someone to come is useless.

Kirk states that he's had the same thought and would like to have someone from CPS to be represented. That brings up the point that whatever recommendations come out for renewal and recommendations that looking at the list as a whole and reaching out after today's meeting to those people whose attendance has fallen off and ask if they are still going to be able participate going forward. Kirk will talk offline with Jim and decide how they want to go about doing that.

We have the 4 individuals that the recommendation would be for renewal and in addition to that we have Anita Nicholich on the line and she has been calling in throughout all of our meetings this past year. Joel Mambretti had put Anita in touch with Lori and Kirk, Lori and Anita had a call and talked through her background and her interest in being part of the group. We suggested since the membership recommendations had been made for the last year that Anita was more than welcome to participate and if she felt it was something she was still interested in being a part of that would be great and she is still interested. Anita is the Program Director in Advanced Cyber Infrastructure at the National Science Foundation. She would be a valuable asset to the group and we appreciate her participation. The idea would be that we would need to take up a motion. One motion was made to approve the recommendation of renewing membership for Allen Pfeifer, Brian Murphy, Troy Brown and Robert Dulski as well as adding Anita Nicholich as a new member to the group also with a 3 year term. That recommendation once approved will go to the next Policy Committee Meeting for approval and that is in July. Although the terms expire in June we'll go mid-July to the Policy Committee meeting and we would follow up to the group confirming once that has been approved and we would be set for the next year.

Ken Davis who is listed under the Sangamon County 911 area is stepping down from the group. He has accepted a position outside of the county. He was going to come to the meeting today but got sick and his term expired in 2016. That puts us slim and Glen is holding down the fort in the Units of Local Government category. I wanted to inform everyone of that change as well.

Troy states the library's name is Illinois Heartland Library System and not Shawnee Library system.

Move that we reappoint the members that Kirk mentioned and that we appoint Anita Nicholich from the National Science Foundation to a membership on the Advanced Engineering Taskforce. So moved by Scott Armstrong and the motion is second by Glen Trommels. The motions carry and Jim welcomes back those who are already on the Taskforce and welcomes as a new member Anita.

Lori said for the purpose of the minutes that Troy, Bob and Allen did abstain from the vote. .

Jim states that it is important that we get a new member from units of local government and from the time schedule working with the Policy Committee it needs to be done fairly quickly and that we might also want to move fairly quickly to replace those people who have not attended very often and may not be attending in the future. If we have recommendations from people who know someone from local units of government who would be good to serve on the AET and have an idea of how to solve the quandary of the Chicago Public Schools or other recommendations if we lose someone unexpectedly over the next week or two please email Jim and Kirk your recommendations so they can follow up on it. Jim asks if it can be done by the beginning of next week and thank you.

#### **2014-2015 AET Meeting Dates**

**October 17, 2014**

**January 16, 2015**

**March 20, 2015**

**May 15, 2015**

**October 16, 2015**

Kirk states that we need to confirm with everyone if they like the format of meeting at Heartland for the October and May meetings and doing video conference as we've done for the past couple of years for the January and March meetings. The proposal would be to entertain a motion to formally accept those meeting dates so we can get those posted. Jim said before we do that is anyone aware of a major scheduling conflict that the group should be aware of? Jim will entertain a motion to accept those 4 dates that Kirk has given us for our calendar for next year. The motion was so moved by Scott Armstrong and second by Allen Pfeifer. All were in favor and none opposed and the motion carries unanimously.

Other items: In reading the notes last time we were talking about Google Fiber document and there has been interest around the country in Google Fiber and Jim had one question. Are there any communities in Illinois that are actively trying or look like would be interested in trying to become a Google fiber community?

Lori states that she is not aware. Rockford applied initially and there were several communities that applied initially and Lori is not aware of any others. Someone stated they didn't think there were any more applications. They are just going through their list of applicants. That was their understanding.

Lori is asking the group to let her know of communities that are very interested in organizing and want to work with the SPS, and if there is a SP who wants to come in and invest and do broadband. We had a company approach the State about a couple of months ago and they wanted to know what we had and they gave us some criteria on the kind of communities they were looking for based on size, population, and economics. They wanted to know if there was anything else or what else we could tell them. Of those on this list which ones do we know that stands out? Communities that the Mayor, the Board, the Town Counsel, and is progressive and has strong leadership, and wants to work with someone. We gave them what we had and we heard they went out and talked to some of those communities and have picked some and are really excited to get started. Lori doesn't know who those communities are. Again if there are things like that let us know so that when we do hear from folks we can try to help match them up.

AT&T is going into St. Louis in a very similar model to Google and the 2 cities that I heard on the Illinois side are Granite City and Edwardsville. They've announced it and Dennis didn't know when that was going to happen but they are supposedly bringing gigabit access into homes.

Motion to adjourn was made by Brandon Gant the motion was second by Scott Armstrong.

All were in favor and none opposed. The motion carries.

Meeting adjourned at 12:21 pm.

The next AET meeting will be October 17, 2014 at Heartland Community College.