Advanced Engineering Taskforce Meeting
January 18, 2013

The meeting was called to order at 10:10.

Members Present

Name	Affiliation	Location
Jim Flanagan	Illinois Chief Technology Officers	J.R. Thompson Center, Chicago
Scott Armstrong	Kishwaukee Community College	Conference Bridge
John Bandy	Memorial Health System	CMS, Springfield
Troy Brown	Shawnee Library Systems	Conference Bridge
Andrew Bullen	Illinois State Library	J.R. Thompson Center, Chicago
Robert Dulski	Brookfield Zoo	J.R. Thompson Center, Chicago
Brandon Gant	CARLI	CMS, Springfield
Rich Kulig	College of DuPage	Conference Bridge
Herb Kuryliw	NIU	Northern Illinois University
Brian Murphy	Eastern Illinois University	Conference Bridge
Alan Pfeifer	Sauk Valley Community College	Northern Illinois University
Tracy Smith	University of Illinois	Conference Bridge
Glen Trommels	City of Rockford	Northern Illinois University

Members Absent

Ken Davis	Sangamon County ETSD	
Mike Dickson	Western Illinois University	
Dennis Gallo	O'Fallon CCSD 90	
Joel Mambretti	Northwestern University	
Steve Menken	Illinois State University	
Kevin Moran	City of Chicago	
Jim Peterson	Bloomington Schools/Illini Cloud	
Mike Shelton	Southern Illinois University	
Brian Tobin	DeKalb CUSD 428	
Ed Wagner	Chicago Public Schools	
Rob Zschernitz	The Field Museum	

Guests

Cody Moses	Northern Illinois University	Northern Illinois University
Kevin Finley	Northern Illinois University	Northern Illinois University

Staff

Lori Sorenson	Central Management Services	CMS, Springfield
Kirk Mulvany	Central Management Services	CMS, Springfield
Essam El-Beik	Central Management Services	Conference Bridge
Frank Walters	Central Management Services	CMS, Springfield
Robin Woodsome	Central Management Services	J.R. Thompson Center, Chicago
Deb Kelley	Central Management Services	CMS, Springfield

May 18, 2012 Minutes
First thing on the agenda is the approval of the October 19, 2012 meeting minutes. Andrew Bullen made a motion to approve the minutes. Alan Pfeifer seconded the motion. The motion carried.

At the last meeting we talked about wireless systems and how they connect in Bloomington. We also talked about the Unisys Wireless Bridge. It will be added to the next meeting.

Rates for Value Added ICN Services
There are 3 areas:
- Backup Bandwidth Service (if an organization's primary provider fails, they would fail over to ICN for service). For instance, the Illinois Institute of Technology wanted to use 250 meg if their primary failed, the cost would be $1 per meg per month. The service would be available for a 24 hour period per month that could be used in 3 instances. Standard rates would apply for anything over the 24 hour period.
- Emergency Bandwidth (additional bandwidth over the normal). This service would allow a customer to have between 1 and 20 meg for a special event. This service would be available to our constituents at no additional cost. If a constituent needed over 20 meg, we would charge $100 engineering fee. If there is less than a 5-day notice, we would charge the engineering fee plus an additional $250 expedite fee and the standard rate would apply.
- IP Addressing (sites that are ICN customers but are not purchasing bandwidth from ICN and are using ICN addresses). There is no easy answer because a lot of customers are starting to have two providers. There are very few customers using T1s. There are a fairly large number of Class C customers. We have the addresses that we need – we are not short on addresses and it is easy to pull them in as a full customer if they are using ICN addresses. We are looking at other pieces, for instance, DNS hosting for sites not connected to the ICN.

Communication with Constituents
We are continuing with the monthly newsletter. Feedback from the group would be helpful. If you know of anyone that would like to receive a copy, please direct them to the Illinois.net website to register.

There were 8 regional meetings. Two sessions were streamed live and are still on website. There were 90 streaming attendees. Special thanks to the College of DuPage and Illinois State University. Future regional meetings are planned.

We are receiving many invitations to come speak at various events including those that are not traditional ICN customers. We are scheduled to attend the ICE Conference.

IBOP Construction Status
The areas that are complete or nearly complete include:
- Work in Chicago, from 95th along Dan Ryan to south of Kankakee Community College is mostly complete. There is some inside plant work to be completed in next couple weeks.

- South of Kankakee to Champaign is 99 percent is complete. We are working on the final closeout with the contractor.
- Champaign to Bloomington and north to Chenoa is mostly complete. Still testing and completing closeout documents.
- The fiber is being blown in on the Champaign to Effingham route.
- Three different crews started blowing in fiber along the Effingham to Collinsville route along I-70.
- There are small areas that need conduit between Springfield and Champaign. They have started blowing in fiber this week.
- Both conduit and direct bury fiber is being installed in the Paris to Olney and Lawrenceville area.
- Springfield to Barry is underway.
- Springfield to Jacksonville is complete.
- Jacksonville to the Illinois River will be done in the spring because the crew has to bore under the Illinois River.
- Illinois River to Barry will be slow due to rock.
- Quincy to Macomb is underway – most fiber is in from east of Quincy to Rushville.
- The northern Illinois laterals include short builds to the community colleges. Joliet Community College is being finished. It had a substantial amount of rock work. The other 6 are done. We are working on finalizing equipment installation.

There are a couple of challenges including:
- The northern Illinois laterals – we are moving with our connection to McHenry College. There were issues with the permitting agencies – DOT, McHenry County and Crystal Lake. DOT has a road widening project on Route 14. All have been resolved and we are now working with contractor.
- We are working on final plans for Morton and Triton Colleges. There were questions regarding tying into leased fiber. We hope to make some progress in the next few weeks.
- Package 1 that runs south on 95th Street in Chicago. Originally, we wanted to tie into leased CTA fiber on the Red Line; however, this will not be an option due to construction. We plan to use IDOT conduit which will get us from 95th to 26th Street. We are working with the city to complete the final gap. This adds another 11 or 12 miles to the original plan.

The inside plant construction includes 56 sites. Orders have been sent to the vendor for 45 of the 56 sites. 18 are complete and 12 more should be complete in the next 3-4 weeks. 11 have not went to vendor these include the northern Illinois laterals. We have to know the design before we can work on the inside plant.

Anything not spent by end of July is not going to get done. At some point we may have to make a decision to not connect some sites. There is not time to spend the money in other areas.

We are working on the agreement with Clearwave. Physically we are already there. They have already completed work in some of the buildings. This is our most robust partner connection we have. It includes peering, VLAN, VRF, Enterprise VRF, and fiber cross connects.

The UC2B agreement is moving forward. The fiber is at the hand holds and interconnects are done at the POP site.

Most all of the POP sites are complete. The conduit, power, UPS and generators are installed.

The ILA sites are nearly complete. There are a couple issues with generators. The CPE equipment has been transferred to the RTCs – they have full sheets of the required equipment for CAI sites. They have everything they need for Waubonsee, Oakton, University Center, College of Lake County, and College of DuPage. We plan to have all Chicago sites done by the end of the month. There is a time delay with Elgin. We are using their fiber and it is not cross connected. As soon as that is done they will be operational.

DeKalb and IFiber
As of February 1st DeKalb is done. They are asking for an extension to add a few more CAIs. When the environmental assessment was completed, we said we have a one mile buffer around our road, they said that did not count and that CAI route modifications would be required.

IFiber is 99% planned route engineering of our 600 miles. 94% has been permitted and ready to go. 80% of the duct installation is complete. There are 66 miles of route modifications due to the environmental assessment and building entrances. 473 miles of fiber has been installed. 80% of 533 CAIs have committed. There are 167 lateral builds complete. There are two wireless sites being built and 6 towers have to be moved. Portions of the core in Rockford, Shannon and Savanna are being turned up.

There have been route changes in Rockford, for instance, we went from underground to a bridge attachment. This is included in some of the route modifications. Every stretch of fiber is being analyzed. ICN is interested in getting to the Zeke Giorgio Building, but we have some air gaps which we hope will be resolved with the last submission.

Master Service Agreement and SLA
We have been revising customer forms including the, Participation Agreement, Letters of Agency, Management Release Form, Acceptable Use Policy, etc. We eliminated the application they will go to Master Service Agreement. There are two Master Service Agreements; one is for the CAIs and one for the commercial customers. Much of the

language is the same. The SLA would be provided to those purchasing bandwidth or transport services over the ICN.

Over the next six months, the RTC staff will contact anyone purchasing bandwidth to see if they want to increase or stay where they are in terms of costs. We will get updated Master Service Agreement forms from all constituents.

In the Master Service Agreement, section 16.2 states Customers should prohibit and prevent, any entity not approved from connecting to CMS from accessing, connecting or interconnecting, with ICN. Members thought under the new guidelines because of the federal grant being friendly to business, that there were not limitations to the kinds of entities that could connect. That statement was made to make sure we know who is connecting to ensure they are connecting under the right model. For example, if a commercial entity is connecting, they would follow a different process and their rates would be different. If a college sets up a community network, and as part of that community network, they have an incubator, that incubator could not use the state credits to provide bandwidth for those sites. We could add something to the statement – when buying under the CAI agreement, you are prohibited, if interested, contact ICN and enter into separate agreement and different rate.

The ICN welcomes and appreciates feedback. We have received very few questions about the agreement over the years. If there is anything an organization has issues with, please bring it to our attention so it can be addressed early on.

Service Level Agreement - if a customer experiences a network outage, they call the help desk. At that point, we start to trouble-shoot the issue. In order to qualify for credit, the outage must be on the backbone (the ICN distribution router back to the customer side). Anything on the customer last mile or router would not be considered. Each 1-hour outage would equal 1-day and the maximum would be one month recurring charge. The service level credit does not apply to the state appropriation. This agreement would be used for both the CAIs and commercial customers and is only for bandwidth, no other services.

Sales and Marketing
Robin introduced Essam El-Beik. Prior to coming to the ICN, Essam worked at Zayo for 3 years and helped them to get 3 BTOP projects. Coming from the commercial world, he brings a new prospective. He has joined the team to bring on a partner that will help with marketing and dealing with the commercial entities. He has already been working with the wholesale providers and helped with the customer forms and master service agreements.

Over the past several months, Essam has been working on the best approach to market ICN to the commercial sector. To prepare, he looked at the infrastructure and met with 12 other states that received BTOP grants. Other projects fell into 1 of 4 categories:
- no experience – team formulated to win the grant money and outsourced everything,
- the project focused on one sector not state goals of economic development,

- the awardee had experience with networks and outsourced only certain aspects,
- in some states, there are laws prohibiting service to commercial sector.

In terms of other projects, we focused on those that are similar to ICN - state or nonprofit community projects. We have produced a Business Case, an RFI and press release. The recommendation for ICN is to focus on selling bandwidth to other retail and wholesale providers. If a business wants bandwidth, they go to a retail service provider and they build the last mile. This approach enables competition between the retail providers and promotes economic development. Have a report with much more detail.

We found that using conservative assumptions, our network is sustainable. It should be noted we need to manage the costs for refresh and upgrades. With dark fiber IRU sales, where money is received upfront, will help with the network refresh and upgrade. The EBIT Earnings Before Interest Tax are positive due to the fact the value of network is significant. The final point, as a conservative assumption, we believe 64% dark fiber capacity will remains after 10 years.

We have an RFI document as part of the process to select a marketing partner. It seeks input and ideas from prospective partners and allows ICN to have face to face meetings. The request for Public Comment allows for all Illinois stakeholders to provide input into the process. We plan to release these documents along with the press release in early February with a deadline for responses in mid-March. We expect to issue the request for proposal in July and have the contract finalized in December.

The partner will deal with the commercial wholesale side and will turn to CMS for the engineering components. In the mean time, we are meeting with 20 different wholesale service providers who have supported the project. We are negotiating with 1 vendor. There are 12 others in for quotes. We have not been proactive, but we will not wait for the partner. We are reacting to those contacting us. The partner will receive a percentage of the revenue as payment.

There is interest in fiber and lit service – mostly backhaul to get to other points on the network. All fiber paths and available fiber strands have been identified. Some fiber has been reserved for future growth and needs. The requests have been pretty standard. Most retail providers want 1 gig of ethernet some want dark fiber.

Finalizing the Fiber Installation
We have already been talking to the schools to see what kind of speeds they will need to connect and responding to E-rate requests. We are working with the providers to make sure they understand what we anticipate will be the bandwidth demand at each POP site. AT&T is doing a route refresh and upgrading the Opt-E-man service to handle the additional load. We traded in some Cisco equipment. We have discussed this at the regional meetings and will distribute the equipment price list.

Many smaller schools and libraries complained about the cost of the Cisco routers required for ICN managed connections. Richard Mann posted good arguments in favor of Cisco. Constituents connect to us with a variety of devices - switches, firewalls, or router. As of right now, our policy is Cisco. It could be expanded in the future. Many schools are purchasing Cisco routers over eBay or from larger schools that are upgrading.

Customers would like a monitored connection and still be able to do what they want. We are looking at providing a monitored service. The management release customers would be able to take advantage of that service. This service uses SNMP or an SLA configuration on the router. We have spent $1 million in training in the last 6-7 years for the staff – all focused on Cisco. The recommendations for sparing, the 2129 ISR router cost around $2,200. There was a suggestion to purchase a 4-port 1 gig Cisco 3400 Metro Switch for under $1,500. This is an acceptable solution. We will accept non-Cisco gear, we just can't manage it and they lose advanced services. Customers also ask us to manage their WAN. As of right now, we do not.

ICN Budget
Discussions are starting now – the fiscal officer has a meeting with GOMB to discuss funding requests for FY14. This year, there was $6 million appropriated and there is little chance for additional money. We are meeting with the budget officer to try to let them know what we need to get funding back up to $9-$13 million. With the state being broke, they are looking to take money from every source and they see we got $62 million from the feds and $26 million from capitol money and they expect us to have enough revenue. The money we do receive is to provide bandwidth for schools and libraries. If it goes away, the schools and libraries don't have the money to make that up. Many small schools don't have technicians so they are buying home internet connections. The problem is it goes down all the time.

ICN eRate Update
We decided to become an official service provider. We were able to get the spend number for health care expanded to schools and libraries. It has been a big project – our RTC offices are monitoring the USIC page and complete a weekly download of Illinois postings. We have identified 624 and will probably respond to 50%. We are close to 200 responses and will start making the decisions in the next month. Tom Oseland will continue in the E-rate roll.

Alterative Technology for Last Mile
As we are coming to the end of the project, Frontier will not do any last mile fiber. They are developing a DSL type service. In terms of alternate technology, we have a large number of wireless microwave dedicated point-to-point companies that are interested in providing last mile services. New Wave was a traditional coax cable company now focusing on last mile. Windstream, who has not expressed interest, now has interest. If we put this on the agenda, members could bring in examples and we could put together a list of resources.

Many need updated information. We can't accept wireless at a POP site. We are going to setup up efforts with the providers. Have good list of communities with great need and are

sending those to the providers. We are looking at the total package not individual sites.

Alternatives for Consortiums or Community Networks
In order to provide the allocation to individual school, we need to see their connection. Use the example of Skokie iNet – they have been connected to ICN via a single AT&T Opt-E-Man circuit. They share 60 Mb between the schools. We shared with them the policy that we need to see the schools individually to get the full allocation. They said that would be problematic they enjoy the ability to have the library get more bandwidth in the evening when they need it after the schools close and vice versa. This will be situation all over the state. Under the new policy, they are only eligible for the bandwidth for their connecting point, Niles High School which is 70 Mb. As separate entities, they would be eligible for the minimum of 22 Mb and the libraries are eligible for 40 Mb. Just use the free connection from the cable and use that to route virtual networks to each building and to ICN. It destroys what the Skokie iNet was. If we allowed Chicago Public Schools to do this, it would drain all the resources.

If there is a case where we have a true consortium with buy in by all the entities from their CEO/Superintendent, is there a way to provide the bandwidth for each entity to the consortium? The 22 Mb baseline is not representative of what they get based on FTE. It is an arbitrary number to encourage the last mile connections. We developed a floor because of the difference in population. If an organization gets a dollar credit, it cannot trade the credit. We also have the issue of Frontier and AT&T, who come to us as one big aggregate connection just as Skokie iNet. They would want the same service as Skokie iNet. Once you make a concession, you have to do it for all.

The high school is the point of presence to ICN. From the high school, traffic is routed to other entities in the consortium. The cable provides a free community wide network that connects the buildings. The consortium consists of the high school and about 5 grade school districts and a library. They come together because they all feed students into the high school.

We will take this offline – there are others - this is the one brought to our attention.

Future Meetings
A virtual meeting is scheduled for March 15th and the May 17th meeting will be at Heartland.

Brandon Gant/Carli wants to apologize to ICN. Carli just announced they are buying video streaming for all 128 members. It will be a vendor hosted service. All members will be able to select which video content packages they want.

Scott Armstrong made a motion to adjourn the meeting. Andrew Bullen seconded the motion, the motion carried. The meeting adjourned at 12:18 p.m.