

## Advanced Engineering Task Force Meeting Minutes January 16, 2015

### Introductions/Roll Call – Jim Flanagan, AET Chairman

At 10:00 a.m. the Advanced Engineering Task Force meeting was convened by Jim Flanagan, AET Chairman who welcomed everyone. Jim proceeded with roll call.

### Members Present:

Name	Affiliation	Location
Jim Flanagan-Chair	Illini Cloud	Video Conference
Scott Armstrong	Kishwaukee Community College	Audio Bridge
Andrew Bullen	Illinois State Library	Video Conference
Troy Brown	IL Heartland Illinois University	Audio Bridge
Alex Cline	CC Presidents Tech Council	Audio Bridge
Mike Dickson	Western Illinois University	Audio Bridge
Robert Dulski	Brookfield Zoo	Video Conference
Rich Kulig	College of DuPage	Audio Bridge
Joe Mambretti	Northwestern University	Audio Bridge
Brian Murphy	Eastern Illinois University	Audio Bridge
Anita Nikolich	National Science Foundation	Video Conference
Jim Peterson	Bloomington S.D./Illini Cloud	Audio Bridge
Alan Pfeifer	Sauk Valley Community College	Audio Bridge
Michael Shelton	Southern Illinois University	Audio Bridge
Tracy Smith	University of Illinois	Audio Bridge
Brian Tobin	DeKalb CUSD 428	Audio Bridge
Glenn Trommels	City of Rockford	Audio Bridge

### Members Absent:

Name	Affiliation
Brandon Gant	CARLI
Herb Kuryliw	Northern Illinois University
Ed Wagner	Chicago Public Schools
Rob Zschernitz	The Field Museum

### Staff & Guests:

Name	Affiliation	Location
Lori Sorenson	Central Management Services	Video Conference
Robin Woodsome	Central Management Services	Video Conference
Frank Walters	Central Management Services	Video Conference
Adam Ford	Central Management Services	Video Conference
Essam El-Beik	Central Management Services	Audio Bridge
Michelle Medley	Central Management Services	Video Conference

## **Meeting Minutes - Jim Flanagan, AET Chairman**

Jim stated the October 3, 2014 meeting minutes are not available and will be presented at the March 2015 meeting.

### **OLD BUSINESS**

#### **Budget Update - Lori Sorenson, Central Management Services**

Lori reported that there is currently no change to the budget appropriation. The appropriation remains \$1 million in General Revenue Funds to subsidize bandwidth for the schools, libraries, museums and higher education for FY2015.

#### **Rates**

The Policy Committee adopted the recommendation that was presented at the October 2014 meeting.

- Remove the free allocation, replace with standard pricing for bandwidth
- Introduce minimum purchase amount of \$140 for 10Mb/s
- Develop on-net and off-net service offerings
- Update commercial pricing for Internet Egress

Lori stated the Policy Committee recommendations have been presented to the Central Management Services' Director Office for approval. Due to administration changes in state government, it may take a while before we receive approval to implement the new rate recommendations.

#### **PARCC Update - Jim Flanagan, AET Chairman**

Jim reported that PARCC has performed stress tests with Illinois schools along with checking network capacity. A few problems were reported related to firewalls. Possible future DDoS attack issues may be encountered during real time testing scheduled in March.

#### **On-Net vs Off-Net Testing for Customers – Frank Walters, Central Management Services**

Frank reported that staff have identified Kishwaukee College and the College of DuPage as ideal organizations to test the On-Net versus Off-Net service. Testing was successful in a lab environment and we are ready to move forward with a couple sites.

### **NEW BUSINESS**

#### **E-Rate Update - Essam El-Beik, Central Management Services**

Essam requested that members refer to the E-rate handout that was provided in the email package sent earlier in the week.

On December 19, 2014, the Federal Communications Commission (FCC) released a second Report and Order on E-rate modernization building on the first Report and Order released July 23, 2014. The second Order aims to close the gap in high speed broadband connectivity to schools and libraries and increases the E-rate funding cap to \$3.9B indexed to inflation. Illinois Department of Central Management Services (CMS) contributed to the record and comments provided by CMS are referenced by the FCC in this Order. The FCC has recognized a substantial lack of broadband infrastructure exists, particularly in rural areas, to connect schools and libraries to high-speed broadband. The rules detailed in the Order aim to address this by providing additional options for schools and libraries to connect to high-speed broadband that include purchasing dark fiber and self-construction. The rules also include changes to how broadband construction is funded by E-rate, with the effect of easing the financial burden on applicants. The Order also increases the E-rate cap to \$3.9B indexed to inflation, allowing all Category 1 requests to be fully funded and targeting \$1B for Category 2 requests.

CMS encourages all schools and libraries in Illinois to apply for E-rate funding for both Category 1 and Category 2 services for Funding Year 2015. With the increased options available to schools and libraries for the construction of broadband, CMS encourages schools and libraries to develop a strategy for bringing high speed broadband to their premises, preferably via a fiber connection and apply for E-rate funding for this in either Funding Year 2015 or 2016.

CMS is well positioned to help schools and libraries benefit from E-rate modernization as detailed in the two E-rate Modernization Report and Orders released last year. CMS can help by:

1. Providing advice and expertise on internal Wi-Fi architecture for schools and libraries
2. Sell dark fiber in addition to lit services currently sold to E-rate applicants
3. Construct a direct fiber connection to the school or library and making available either dark fiber or lit service
4. Lighting school owned dark fiber
5. Leading an E-rate consortium of schools and/or libraries for Category 2 funding

#### **Network Update - Frank Walters, Central Management Services**

Frank asked Taskforce members to review the Network Update sheet provided. The two illustrations provide an overall view of the bandwidth consumption for the last 12 months and the month of December. Monthly network summary reports are now posted on our website.

**Egress** - Frank reported that the order has been placed for the usage based bandwidth. We expect it to be operational in two to four weeks. We estimate this model will save approximately \$480K a year.

**DDoS Attacks** - Frank reported staff are moving the AT&T DDoS Protect into production. He commented that there is not a threshold with this service, it is a heuristic system. In most cases, AT&T will send notification of an issue before the customer even notices. The ICN will monitor anomalies in traffic and check high packet irregularities in order to mitigate the problem. Adam Ford stated that we are testing an internal product to handle DDoS attacks that start on our network, from a peer or another provider. Frank noted that it is a free product. If we experience an issue, and the system catches the issue, we have the ability to immediately stop the attack on the customer side.

**Backbone Update** - Frank commented that there are no changes to the backbone outside of our regular planned maintenance window. The network was 100% operational last month.

An order was issued to the engineering firm begin looking at the leased fiber path along the Eisenhower. The path is only partly lit due to gaps in the fiber. Lori commented that we have been working with Chicago Transit Authority (CTA) to lease additional fiber strands from the JRTC to Skokie and to Evanston.

**Procurement & Contracts** – Frank stated that we have 20 months left on the Cisco contract and the renewal is currently in process. We are moving forward with the GIS mapping and fiber tracking software.

**Resilient Ethernet Protocol (REP)** – Frank stated that REP is a Cisco proprietary implementation of a VLAN span tree/ring. REP is designed to allow customers to take the quickest route to their distribution router with a 50ms fail over for an alternate path. Customer requirements would include the purchase of 10G equipment. The ring speeds are shared (10G max).

**Network Manager Introduction** – Lori introduced the newest member of the ICN team, John Leonard. John is the new manager of the Network group and will oversee the day to day duties of the network design and operations group.

#### **OTHER ITEMS**

##### **Illini Cloud Update – Jim Flanagan, AET Chairman**

Jim commented that they are exploring new ways to deal with constituents in regards to the new rates. Now that items are heading in a new direction, Jim recommended that this topic be tabled until the next meeting.

##### **Software Defined Network – Jim Flanagan, AET Chairman & Joe Mambretti, Northwestern University**

Joe provided background information regarding Software Defined Networking (SDN). SDN is a technique that is becoming very popular among networks. SDN is deeply programmable and more flexible. Joe noted that another advantage is cloud services. Cloud services are becoming increasingly important to statewide networks. Managing traffic is better with an SDN open flow approach than your standard networking. Jim recommended that board members speak with their network engineers regarding the SDN approach and proposed that we discuss this topic at our next AET meeting.

Jim stated that the SDN topic will be added to the agenda for the March 20<sup>th</sup> AET meeting.

**Campus Cyberinfrastructure Data Networking & Innovation Program - Anita Nikolich, National Science Foundation** - Anita provided information regarding the Campus Cyberinfrastructure - Data, Networking, and Innovation (CC\*DNI) program. This program invests in campus-level data and networking infrastructure and integration activities tied to achieving higher levels of performance, reliability and predictability for science applications and distributed research projects. Science-driven requirements are the primary motivation for any proposed activity.

Anita stated that proposals are due in March and there are three areas of particular interest:

(1) Network Design and Implementation for Small Institutions awards will be supported at up to \$350,000 total for up to 2 years.

This is a 2 year grant that is targeted for small institutions to fund network and infrastructure upgrades within a campus. This particular category does not include libraries.

(2) Campus CI Engineer awards will be made at up to \$400,000 total for up to 2 years. This particular category funds a network engineer for 2 years and does not include 2 or 4 year colleges or small institutions.

(3) Regional Coordination and Partnership in Advanced Networking awards will be made at up to \$150,000 for up to 2 years. This category does not include museums, but the intended target audience is non-profits and 2 or 4 year colleges to serve in a leadership capacity.

Anita commented that we should encourage people to apply. NSF would like to broaden their audience to include two year community colleges, non-profits and schools who have not taken advantage of these opportunities. She also shared that Joe Mambretti had completed the process multiple times and could provide assistance if needed. The deadline for full proposals is March 24, 2015.

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The next AET meeting is scheduled for March 20, 2015. Jim called for a motion to adjourn the meeting. Scott Armstrong made a motion for adjournment. Allen Pfeifer seconded the motion. The meeting was adjourned at 11:15 a.m. The motion carried.