

ILLINOIS STATE  
UNIVERSITY

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High-Speed Internet2 Connectivity  
at  
Illinois State University

Executive Summary

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Telecommunications and Networking

## 1 – Introduction

Historically, obtaining high-speed Internet2 connectivity outside of a major metropolitan market (such as Chicago, St Louis, Indianapolis, etc) has been unattainable for many higher education institutions due to the excessive costs associated with the installation and maintenance of high-performance circuits. But as the result of a recent partnership between Illinois State University and a regional research network called I-WIRE, this goal is now financially viable.

## 2 – Why Internet2?

So, why is Internet2 connectivity such an important resource to Illinois State University? In short, Internet2 provides an environment that is innovation friendly. But, the primary reason why Internet2 is so important has to do with collaboration. The following are examples of the contribution that Internet2 has made to the research community:

- creating a leading edge network capability for the national research community
- enabling the development of revolutionary Internet applications
- ensuring the rapid transfer of new network services and applications to the broader Internet community

[source: <http://internet2.centennialpr.com/why.asp>]

These efforts are not possible using the commercial Internet because that environment lacks the capacity and flexibility necessary to conduct the research possible under a dedicated, high-performance network. Applications developed and used within the Internet2 environment are not constrained to bandwidth or quality of service limitations all too familiar on the commercial Internet.

Those organizations unable to leverage access to Internet2 are at a competitive disadvantage to those that can. Members will more effectively attract quality researchers, instructors, and students because of the research opportunities available through Internet2. As technology continues to diminish the constraints of distance and time, these capabilities will become of greater value to those organizations that are successful in seeking or sustaining their leadership within the academic community.

## 3 – I-WIRE

I-WIRE (Illinois Wired/Wireless Infrastructure for Research and Education) is a fiber-based communications infrastructure funded by the state of Illinois and others with the purpose of interconnecting research facilities in the Chicagoland area. In February 2005, I-WIRE contacted the University to discuss the possibility of hosting a site on campus for this network. I-WIRE would use this site to interconnect the research environments in Champaign and Peoria. Because of the opportunity, a contract was negotiated between the University and I-WIRE in the spring of 2006. As terms for the contract, I-WIRE would provide the University with two 1Gb/s (gigabit per second) circuits from campus to one of their facilities in Chicago at no cost. These circuits would provide the means to access high performance research networks such as Internet2 from campus using high performance connectivity. This connection was delivered to the University at the end of August 2006.

## 4 – MREN (Metropolitan Research in Education Network)

MREN (Metropolitan Research and Education Network) is a consortium of institutions dedicated to the maintenance of high-performance networks in support of research and education in the greater Chicago region. By connecting to MREN, the University can obtain high-speed access to Internet2 as well as many other research networks. To connect, the University must seek MREN membership

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which costs \$28,800 annually. Once obtained, a circuit can then be brought online through I-WIRE and be tested. The intent is to make this connection available to campus by January 2007.

### 5 – Internet2 Connectivity through I-WIRE

The following is a breakdown of costs associated with Internet2 connectivity between a commercial carrier and I-WIRE/MREN. Note that these costs are based upon activating a single 1Gb/s circuit.

TOTAL installation costs (through a commercial provider)	\$147,000 - \$255,000
TOTAL installation costs (through I-WIRE/MREN)	\$110,000
TOTAL annual commitment (through a commercial provider)	\$257,000-\$390,000
TOTAL annual commitment (through I-WIRE/MREN)	\$33,800

When comparing the cost for gaining access to Internet2 through a commercial carrier, it is clear that it will cost the University significantly less I-WIRE/MREN. The University has secured funds to cover the installation and recurring costs for this project through FY09.

### 6 – Marketing Internet2

It is not enough to provide high-speed Internet2 connectivity as it serves no value unless exploited by the University. Thus to help institutions market this connectivity, UCAID along with university, affiliate and corporate members have developed a program called Internet2 Days. This is a program of events to demonstrate the potential of advanced network applications. After the new Internet2 circuit is operational, the intent would be that the University would host Internet2 Days on campus to help make researchers aware of the opportunities made available by this enhanced connectivity using a combination of internal and outside speakers and presenters.

### 7 – CIREN (Central Illinois Research in Education Network)

Once the new, high-speed Internet2 circuit for campus is active and researchers have been made aware of its potential, the University will then begin to pursue the creation of a local consortium called CIREN. The goal behind this new organization is to bring Internet2 connectivity to other research entities in the immediate Bloomington-Normal market. CIREN would benefit Illinois State University by increasing the number of local research partners, placing the University in a leadership role for local research, and giving it the means to share the costs for this connectivity with others.

### 8 – Conclusion

The new partnership between Illinois State University and I-WIRE represents an incredible opportunity for this institution to participate in collaborative research and seek new grants previously unattainable. With connectivity through MREN to many regional, national, and international research networks beyond Internet2, the value of this new connectivity cannot be overemphasized. Marketing this new access will be key to how the University can exploit it. Creating a consortium of local research partners will provide the institution with the means to sustain and grow this new resource for years to come.