Progress Report

DOE award: DE-SC0008597 (University of Illlinois)
Project Title: CILogon-HA: Higher Assurance Federated Identities for DOE Science
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Period covered by this report: June 2013 – May 2014

Progress/Accomplishments During Current Funding Period

In the second year of the CILogon-HA project, we 1) provided a reliable operational service to a growing number of users, campuses, and facilities, 2) assisted in the development of a new international identity assurance profile and pursued accreditation of the CILogon Basic Certification Authority (CA) under that profile, 3) supported the new OSG Connect and ATLAS Connect services, 4) gave a conference presentation and published a journal article, and 5) began the process of transitioning operations to XSEDE to provide longer-term sustainability for the CILogon service (https://cilogon.org/).

Over the past year, the number of identity providers supported by CILogon increased from 85 to 124, including the addition of the Brookhaven National Laboratory identity provider. In many cases identity providers were added as a direct result of outreach by CILogon-HA project staff. The number of registered CILogon users doubled over the past year, with over 1,300 new users bringing the total to over 2,600 registered CILogon users. CILogon issues over 100 certificates each weekday. CILogon-HA project staff operated the service with a high level of reliability over the past year, with no unscheduled downtimes and only two scheduled downtimes: 1) a short (5 minute) outage in August 2013 to migrate to a new data center and 2) a short (5 minute) outage in March 2014 for software updates. Additional operational changes were implemented throughout the year without downtime.

To support international adoption of multiple levels of assurance, CILogon-HA project staff participated in the development of a new International Grid Trust Federation (IGTF) authentication profile called Identifier-Only Trust Assurance with Secured Infrastructure (IOTA). The IOTA profile recognizes that cyberinfrastructure providers and virtual organizations often vet user identities according to their own requirements, reducing their reliance on the identity vetting performed by CAs. IOTA requires CAs to ensure unique identification of users, but IOTA CAs are not required to verify the user's legal name or check government issued identity documents. The IOTA profile was finalized and adopted in April 2014.

The CILogon-HA project submitted the CILogon Basic CA for accreditation under the IOTA profile, after performing the necessary policy documentation and operational updates to comply with the requirements of the profile. IGTF policy review was completed in April 2014 and operational review is now underway. Once the review is

complete, CILogon-HA will be able to provide IGTF certificates to users from all InCommon identity providers, using IGTF accredited CAs at both the Silver and Basic levels of assurance. Expanding access to IGTF certificates beyond the Silver level of assurance is particularly valuable given the slow adoption of the InCommon assurance program. Virginia Tech remains the only InCommon identity provider approved at the Silver level of assurance, with no new Silver identity providers approved in the past year.

In August 2013, Open Science Grid launched OSG Connect (https://osgconnect.net/), which "offers investigators simple and efficient access to distributed high throughput computing resources required by many of today's most challenging problems in science, engineering, and the humanities." OSG Connect supports easy sign up and sign in using federated campus identities through a combination of underlying technologies: Globus Nexus, CILogon, and InCommon. Globus Nexus, part of Globus Online, provides identity and group management for OSG Connect. Globus Nexus in turn relies on CILogon to enable access via campus identities through the InCommon federation. The result is that researchers can easily access OSG Connect using their existing campus logins.

In February 2014, the US ATLAS project launched ATLAS Connect (http://connect.usatlas.org/), which provides a version of OSG Connect tailored to the US ATLAS physics community. Like OSG Connect, ATLAS Connect supports sign in via CILogon for federated InCommon access. In support of ATLAS Connect, CILogon-HA staff worked with InCommon staff to increase the number of InCommon identity providers available to ATLAS Connect users. In January 2014, out of 44 US ATLAS collaborating institutions, 40 operated InCommon identity providers of which 23 interoperated with CILogon. As of May 2014, an additional 7 of those identity providers are interoperating with CILogon in support of ATLAS Connect.

PI Basney presented a paper at the XSEDE13 conference on CILogon, including the combined results from NSF Award 0943633 (September 2009 through August 2013) and this DOE award. The paper won the Best Technology Paper award at the conference. It appears in the conference proceedings:

> Jim Basney, Terry Fleury, and Jeff Gaynor, "CILogon: A Federated X.509 Certification Authority for CyberInfrastructure Logon," XSEDE Conference, July 2013, San Diego, CA. http://dx.doi.org/10.1145/2484762.2484791

CILogon-HA project staff published an extended version of the paper in the Concurrency and Computation: Practice and Experience journal:

> Jim Basney, Terry Fleury, and Jeff Gaynor, "CILogon: A Federated X.509 Certification Authority for CyberInfrastructure Logon," Concurrency and Computation: Practice and Experience, 2014. http://dx.doi.org/10.1002/cpe.3265

The project recently began the process of transitioning operations of the CILogon service to XSEDE (https://xsede.org/) in order to sustain the CILogon service for its users beyond the current award period. This includes following the XSEDE systems engineering process to align CILogon with XSEDE's operational policies and procedures, as well as establishing geographic redundancy for the CILogon service, with a new secondary CILogon instance at the National Institute for Computational Sciences (NICS) on the Oak Ridge National Lab (ORNL) campus. XSEDE and Open Science Grid are establishing a Memorandum of Understanding regarding their shared use and support of the CILogon service.

Plans for Next Year Funding Period

In the final year of the project, CILogon-HA will 1) complete IGTF accreditation for the CILogon Basic CA, 2) integrate with additional InCommon Silver identity providers as they come online, 3) migrate from OpenID 1.0/2.0 and OAuth 1.0 to OpenID Connect and OAuth 2.0, 4) continue operation and support of the CILogon-HA service for new and existing users and facilities, and 5) complete a smooth operational transition to XSEDE. Globus Online and Open Science Grid will continue to be key project partners, facilitating adoption of CILogon-HA by additional DOE facilities and virtual organizations. CILogon-HA project staff will continue to post news items on project milestones at http://www.cilogon.org/news.

Unexpended Funds

All funds for the current budget period will be fully expended by the end of the current budget period.