NEON & CI-CoE Pilot: Identity Management, a Story

Terry Fleury, Trusted CI & CI-CoE Pilot
Ryan Kiser, Trusted CI & CI-CoE Pilot
Jeremy Sampson, NEON
Who are we?
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- NSF Cyberinfrastructure Center of Excellence Pilot (CI CoE)
- National Ecological Observatory Network (NEON)
- NSF Cybersecurity Center of Excellence (Trusted CI)
CI CoE Pilot

“...facilitate CI improvements for existing facilities and for the design of new facilities that exploit advanced CI architecture designs and leverage established tools and solutions.”
Made up of working groups:
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- Data Capture
- Data Processing
- Data Storage, Curation and Preservation
- Engagement with Large Facilities
- Data Visualization and Dissemination
- Data Life Cycle and Disaster Recovery
- Workforce Development
- Identity Management Working Group
Made up of working groups:

- Data Capture
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- Data Life Cycle and Disaster Recovery
- Workforce Development
- **Identity Management Working Group (us!)**
Engagement Backstory

- Initial Engagee: NEON
- Award of NEON CI enhancement project coincided with award of CI CoE Pilot project
- 1 year initial timeline for both projects
- NEON had an enhancement plan which synergized well with the Pilot working groups domain expertise.
NEON – Open Data for Ecology

**Airborne remote sensing**
- Hyperspectral imagery
- Canopy chemistry
- Ecosystem structure
- DEM/DTM and more

**Observational sampling**
- Vegetation/Phenology
- Water quality and more

**Automated instruments**
- Air/soil temperature
- Wind speed/direction
- C/H2O/energy fluxes
- Radiation and more

- Small mammals*
- Fish*
- Ground beetles* & bycatch
- Mosquitos*
- Ticks*
- Zooplankton*
- Benthic macroinvertebrates*
- Vascular plants, algae, bryophytes and lichens
- Soil microbes*
- Soil (ambient & frozen)
- Dust

*including genomic extracts
NEON Data Portal

- Allow data to be discoverable and downloadable through portals and APIs
- Leverage domain expertise to process and share data within a domain context
- Data packages bundled by month, ability to include supporting documentation including user guides, protocols, processing, and machine readable metadata (EML)

https://data.neonscience.org
https://data.neonscience.org/data-api
NEON Data Portal: Liferay ➔ React

- Data portal in transition from legacy monolithic Liferay system to a micro-frontend, API first approach using React apps rooted in containerization
- Liferay controlled user account information: rigid, isolated, lack of integration and extensibility
- Migrate account data from Liferay to Auth0 to support integrating client side applications
NEON Data Portal

- Sign in with Google, GitHub, CILogon (ORCID, university account) or Auth0 account
- Share interests with NEON as to better facilitate communication regarding product updates
- Account management and deletion
Data Portal Challenges

- Stop managing local user credentials
- Allow authentication with external Identity Providers (IdP)
- Don't require existing users to create new accounts
- Enrich user experience by tracking additional user attributes
- Use group membership for data access authorization
Auth0

- Free for up to 7000 users
- Data Portal database imported into Auth0
- Google and CILogon added as "Social IdPs"
- OpenID Connect (OIDC) for user attribute assertion
- Basic group management functions to be leveraged later
Lessons Learned

- Use external provider to manage credentials
- Adopt industry standard protocols such as OIDC
- Major Facilities perspective: externalizing user authentication allows it to be used for other services such as workload management
- Regularly scheduled calls/meetings to understand issues and to drive implementation
For More Information

- CI CoE Pilot: https://cicoe-pilot.org
- NEON Data Portal: https://data.neonscience.org
- Trusted CI IAM: https://trustedci.org/iam
- NEON IdM Experience: http://hdl.handle.net/2022/23854
Thanks to...

NEON (NSF Grant DBI-1724433)
  ● Christine Laney, Steve Jacobs
Trusted CI (NSF Grant ACI-1547272)
  ● Susan Sons
CI CoE Pilot (NSF Grant OAC-1842042)