



GridCRED: PNNL's Regional Planning Platform

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PNNL is operated by Battelle for the U.S. Department of Energy

BUSINESS SENSITIVE



Agenda

- GridCRED Overview
 - Why, How GridCRED
 - Project overview
 - Technical details
- EIOC owner, operating model
- Wrap-Up and Questions

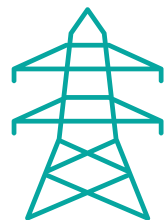


What Problem is GridCRED Trying to Solve?

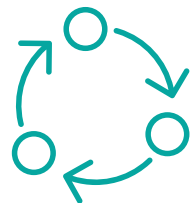
Established Challenges and Opportunities



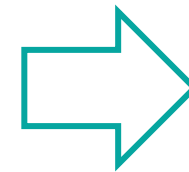
Current industry practices are insufficient to meet emerging energy needs and the increasing impacts of extreme weather events



Future energy systems will require **greater planning and operational flexibility** to improve **reliability and resilience**

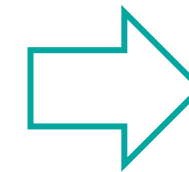


Integrated solutions must include transmission, distribution, and weather data, as well as the interests of new and emerging stakeholders

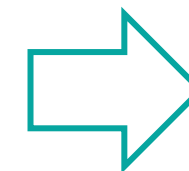


Documented Industry Need

Analysis efficiency and timeliness to expedite decision-making



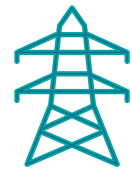
Application of existing and new toolset integrations



Cross-domain platform to facilitate Integrated Systems Planning

How Might GridCRED Solve Them?

Process:



Provide the means to design, test, and deploy the grid of the future at regional and national scale



Collaboratively and transparently support the grid while assuring full reliability and resilience that is credible with utilities on a common platform



Create a scalable system to engage best-in-class tools to perform multi-sector analysis

Desired Outcome:



Research center housing the people, data, and tools that provide the foundation for timely, replicable analyses of specific grid scenarios



Computing infrastructure that integrates data sets with modular software toolsets to represent complex challenges introduced by a rapidly changing grid



Common platform that allows stakeholders to engage in optimizing grid planning and operations beyond their individual domains

GridCRED Overview

Need:

Persistent capabilities to address regional-scale analysis. A way to mobilize work quickly

What:

A computing system and analytics platform using **curated data that is accessible** to a range of stakeholders

How:

Integrate **tools and computing** that can be extended to other regions



Enduring Capability

DOE-OE

Methodology to integrate research tools and data sets for energy analysis, providing actionable grid operations and planning information



Computing Power

Washington State Department of Commerce (WA-DOC)

New computational capability that provides regional stakeholders insight on operational planning and reliability



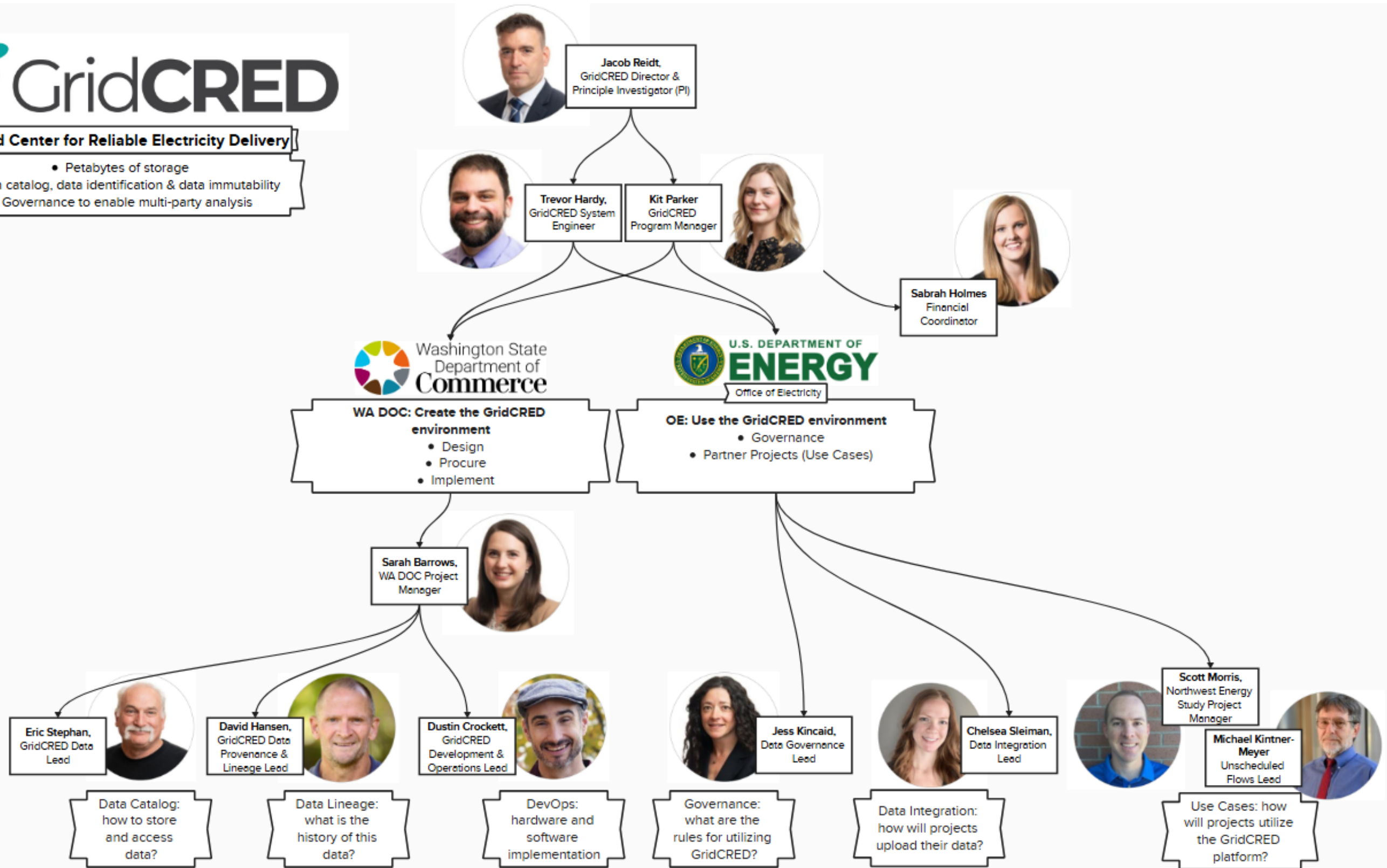
A grid analytics informs actionable, scenario-based decisions for planning and operating a reliable, resilient and affordable grid.

Persistent capability to address regional analysis.

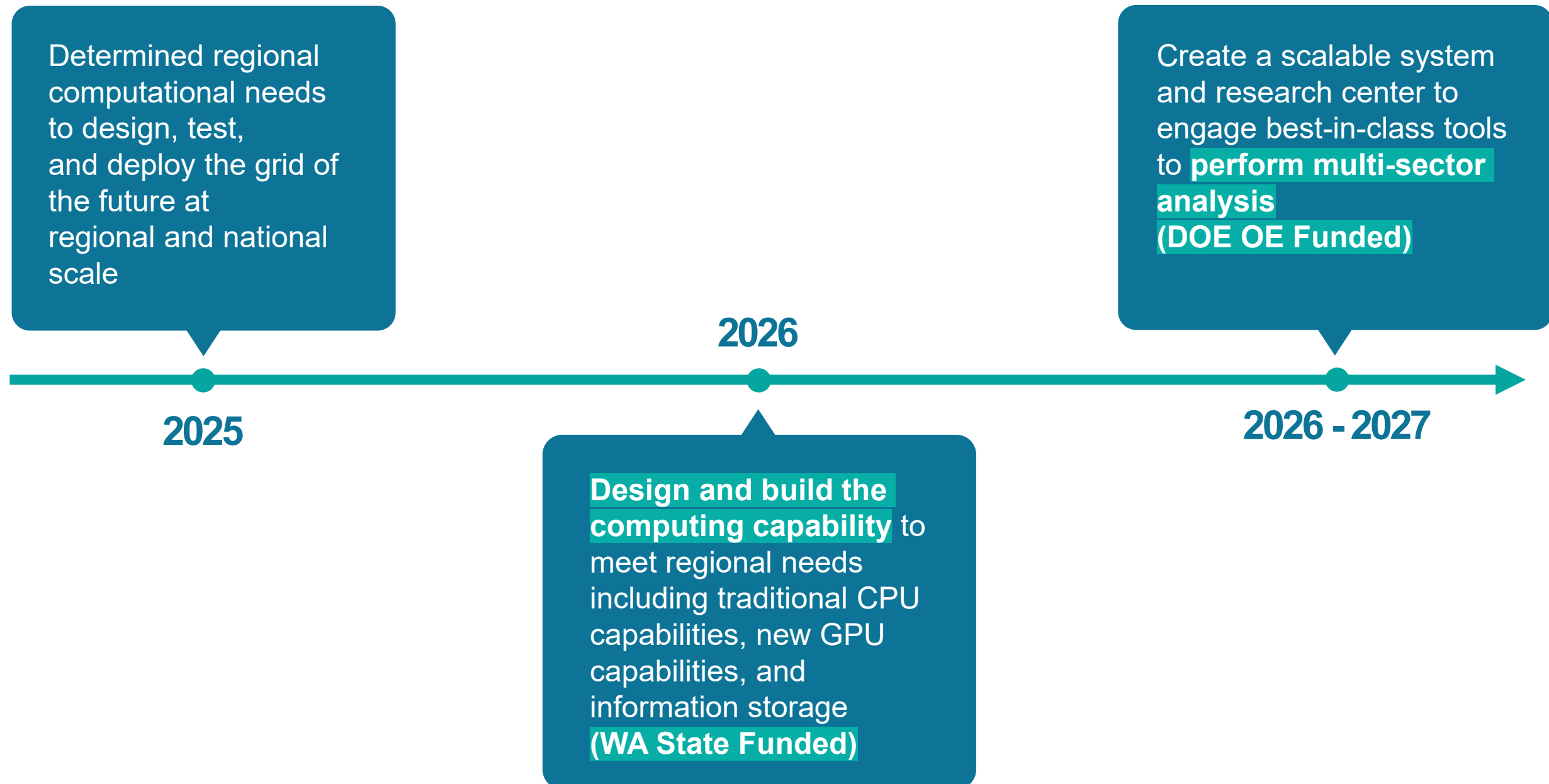


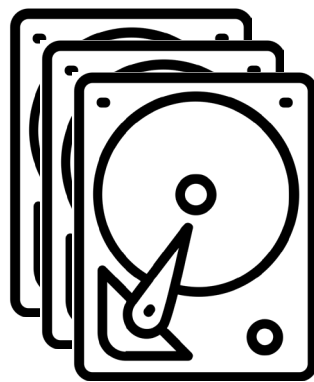
The Grid Center for Reliable Electricity Delivery

- Petabytes of storage
- Data catalog, data identification & data immutability
- Governance to enable multi-party analysis

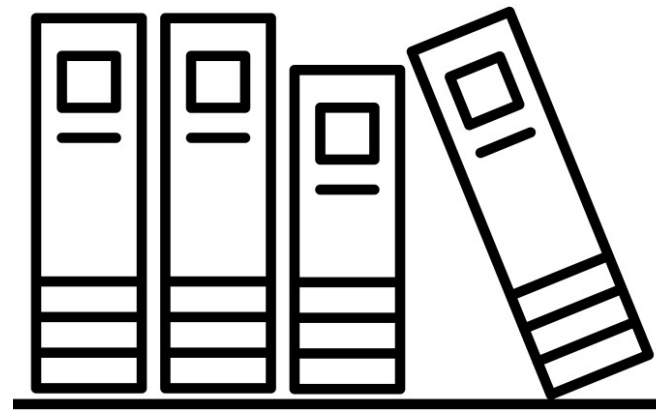


GridCRED Timeline

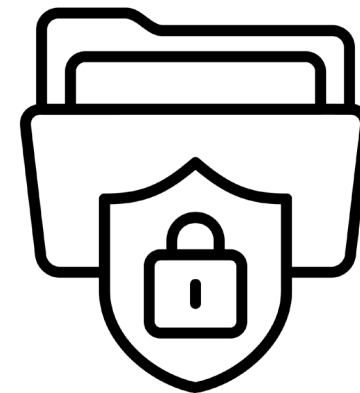




PB of Storage



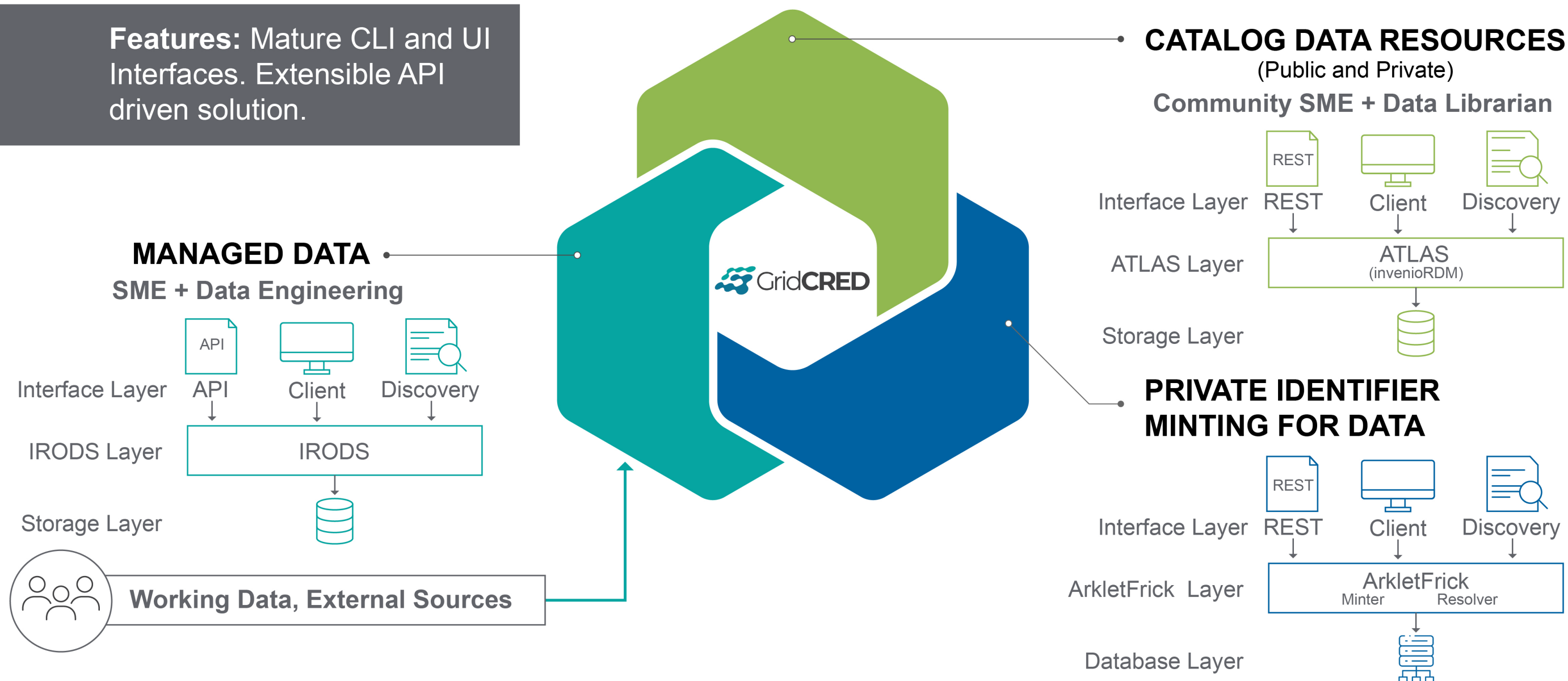
Data Catalog



Data Identification
and Immutability

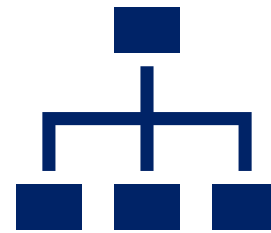
GridCRED Data Management

Features: Mature CLI and UI Interfaces. Extensible API driven solution.



EIOC + GridCRED Partnership: Data Governance

Challenges that Require Governance



Internal:

1. Sharing data across multiple projects
2. Project lead alignment across multiple projects
3. Repurposing of data from historical projects for use in new projects



External:

1. Sharing data across multiple utilities through a single repository
2. Significant rules and laws governing data use and dissemination
3. Utility hesitation to share data that could be used in opposing intervenor testimony

Universal Data Use Schedule – Ready for Use Now

Challenge: Ever have a project that would really benefit from proprietary data you had to delete?

Solution: Data Use Schedule. A just in case approach to allow you to re-use data with simple approvals instead of new legal processes. Attach to data non-disclosure agreements that details each potential use type, explains them, and asks the data owner to pre-authorize use or provide contact information for case-by-case approvals.

Goals:

- Clearly outline data use process approvals in a way that can be used to set controls within GridCRED.
- Remove the requirement for project-by-project NDAs and simplify case-by-case approvals where needed.

Schedule A

DESCRIPTION OF DATA SHARED AND USE TERMS

The following data owned by **XXXX** (hereinafter "data owner") shall be shared with Battelle Memorial Institute, Pacific Northwest Division, the U.S. Department of Energy and associated National Laboratories.

[include description of data here]

Approved	Project Specific Authorization Required	Data Usage Type (see detailed description below)
☐	☐	Access to data by third parties other than DOE and DOE National Labs
☐	☐	Downloading or moving data to new systems
☐	☐	Publication of research results
☐	☐	Input data sets for simulation
☐	☐	Derived (output) datasets
☐	☐	Synthetic dataset development
☐	☐	Prompt or context for large language models
☐	☐	Training a private large language model
☐	☐	Public release of untrained large language model
☐	☐	Public release of trained large language models

The following individual(s) shall receive project specific authorization requests in compliance with the terms above:

Name: [name]

Title: [title]

Email Address: [email address]

Phone Number: [phone number]

Mailing Address: [mailing address]

Data owner reserves the right to request a list and purpose statement for all projects utilizing data marked "approved" above. Full data controls and policies are available upon request to [GridCRED inbox].

Detailed data usage type descriptions:

1. **Publication of Research Results** – Some projects on GridCRED have the primary research purpose of generating datasets that are intended to be publicly shared and distributed. Such datasets would necessarily have no data access restrictions, would be

EIOC + GridCRED Partnership: O&M Logistics

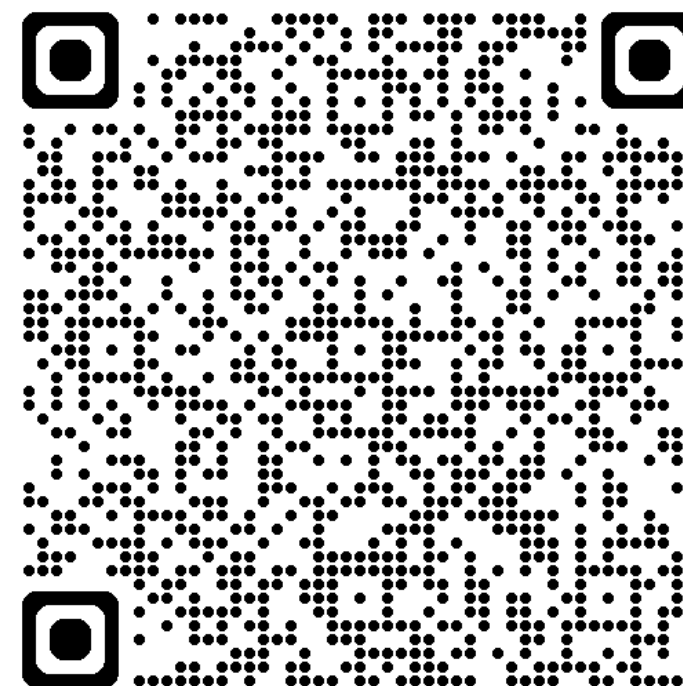
- New EIOC roles for enduring platform operation
 - Data Librarian: assists users as they add and use data on platform
 - GC Admin: creates and manages users' accounts
- What is the equipment and where does it live?
 - CSF
 - ✓ CPU, GPU compute nodes
 - ✓ Data servers, storage devices
 - ✓ Tape archive
 - 3820
 - ✓ Back-up data servers, storage devices
 - ✓ Back-up tape archive
- Funding model TBD

For our Audience

Internal GridCRED website:
<https://pnnl.sharepoint.com/sites/GridCRED>

User Survey:

1. What are the major hurdles that prevent you from sharing information across projects?
2. What would most prevent you from adopting a shared data platform?
3. What capability would make a shared data platform essential to your work?



Thank you

