



# LC Wormhole

---

LC User Meeting  
October 14<sup>th</sup>, 2025

**John Consolati**

Prepared by LLNL under Contract DE-AC52-07NA27344.

# Introducing Livermore Computing Wormhole

## Integrating LLNL HPC with Outside Enclaves for Cross-domain Workflows

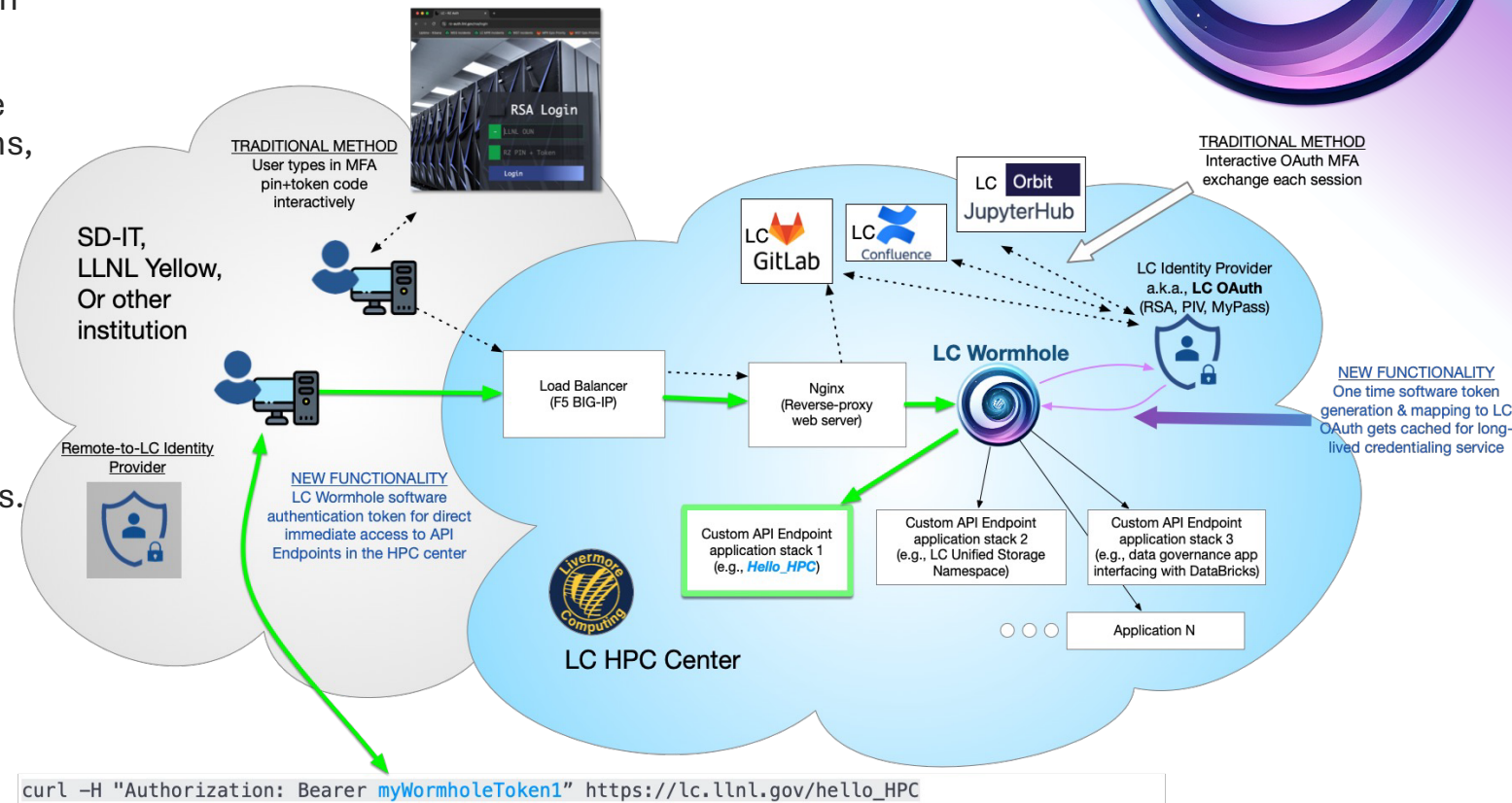


### Drivers and Recent Events

- HPC is a pillar of LLNL's scientific innovation and mission execution.
- LLNL HPC serves 6,000 multinational users from diverse institutions, each with different NTK, resource allocations, and access to 1.6 exabytes of shared on-prem storage.
- LC's security ecosystem challenges external workflows.
- Digital Engineering, Data Governance, AI/MLOps, and SD A-List items require modernized access to LC.
- **LC has recently enabled** DOE PIV & LLNL MyPass web auth, external Gitlab Project Access and Trigger Tokens workflows, and remote S3-protocol data ingress & egress.

### Announcing

- **Wormhole** for HPC multi-use web workflow bridging.
- **Any API Endpoint HPC workflow** can have long-lived credentials allowing external initiation and use.
- Available via LC consulting in late 2025.



Once provisioned and mapped, the Wormhole bearer token is good for 45 days.  
In upcoming version of Wormhole, automated renewal will be possible

# Wormhole Example Use Cases

- Host a custom or open source web app in OpenShift for data visualization and access it from your desktop with no tunneling.
- Run a large language model on LC's compute and access it from outside of LC using a token.
- Run a web tool on LC's compute and have automatic, MFA-protected interactive access from the yellow network.
- Anything else that is web-based running in OpenShift or LC compute...

Your apps/APIs will be securely available on [lc.llnl.gov](https://lc.llnl.gov) / [rzlc.llnl.gov](https://rzlc.llnl.gov) using access control you define

# Wormhole Project Plan

## Early Access

Support for web apps running in PDS with simple authentication

Provisioning access tokens for these apps

Consulting-based service

Available in CZ

## Limited Availability

Support apps/APIs with more complex authentication

User-owned service with friendly tooling

Available in CZ/RZ

## Generally Available

Support for apps/APIs running on compute nodes

Support for user instances of Flux API

Available in CZ/RZ/SCF