SSL
Scalable Systems Laboratory for Innovation & Integration
Rob Gardner
Enrico Fermi Institute
University of Chicago

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IRIS-HEP SSL Purpose

- Provide the Institute and the HL-LHC experiments with **scalable platforms** needed for development in context
- Provides **access** to **infrastructure and environments**
- Organizes software and resources for **scalability testing**
- Does foundational systems R&D on **accelerated services**
- Provides the **integration path** to the OSG-LHC production infrastructure
SSL Team & Resources

- Small core group to support base environment
- Dynamically draws effort from R&D pillars
- Interfaces to OSG–LHC and LHC Ops
- Organizes leveraged resources needed to scale
SSL Team

- Still in formation at this point
- Plan (to be revised with specific hires)
  - 0.05 FTE – rwg – coordination
  - 0.02 FTE – A. Chien – CS research
  - 0.33 FTE – UC – Offer accepted, 2/25
  - 0.33 FTE – UC – devOps engineer (TBN)
  - 0.40 FTE – UCSD – Edgar/Igor
  - 0.25 FTE – UC – CS grad student (TBN)
Components and Practice

● A number of core IRIS–HEP SSL services will be defined resulting from requirements gathering
  ○ Shared (cross-experiment, cross-pillar) dev environment
● The SSL will support the HL–LHC R&D activities of the LHC Ops programs
SSL and ATLAS ADC

- The SSL can provide a shared development and integration platform for ATLAS Distributed Computing activities
- Introduced SSL at US ATLAS Computing Facility meeting at Argonne in December
- SSL will support XCache DevOps
SSL and NSF CC* Proposals

- NSF solicitation for Campus Cyberinfrastructure
  - Potential resources contributing to SSL

- Offering help to support CC* proposals from IRIS–HEP affiliated campuses

SSL: Path to Production

Provisioning of software environments and development tools.

Distributed platforms materialized with tools like containerized edge services.

Integration point with the OSG and LHC experiment services (data, analysis).
Example: DOMA simulators

- Major theme in WLCG–DOMA is R&D on new data architectures capable of HL–LHC scales
- SSL to facilitate prototyping
Example: systems R&D

● Another major theme is system scalability R&D

● In DOMA this might be a hardware accelerated intelligent data delivery service

● In AS this might be used in a declarative or “low-latency” analysis platform
Scenario:

Develop new third-party copy software (TPC)

Requires three orchestrated four orchestrated services plus control host

Labeled, reproducible:
Micro deployment
WAN deployment
Scaled deployment

Carved storage - block devices

SSL instance (1 or more)

Dev enviro <-- miniSSL (cf minikube, minislate)