OSG Consortium Status and Evolution

OSG Council Meeting December ‘25

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MORGRIDGE
INSTITUTE FOR RESEARCH

Open Science Grid

- The OSG Consortium itself started in 2006 (building on top of multiple prior “grid computing” projects).
- Started as an integration/operations project:
  - Provided computing services, mostly centralized, that experiments could build their solutions on top of.
  - Provided curated software stack: ensure disparate “research-quality” software worked together, was installable, and provided coherent site services.
  - No software development!
- Funded explicitly as part of NSF’s physics activities (MPS).
  - Key driver: **make sure LHC Run I’s computing works or else!**
  - (Other sciences were involved, just not as central)

Award Abstract # 0621704

Sustaining and Extending the Open Science Grid: Science Innovation on a PetaScale Nationwide Facility

NSF Org:	PHY Division Of Physics
Recipient:	UNIVERSITY OF WISCONSIN SYSTEM
Initial Amendment Date:	September 21, 2006
Latest Amendment Date:	September 16, 2013
Award Number:	0621704
Award Instrument:	Cooperative Agreement
Program Manager:	James Shank PHY Division Of Physics MPS Directorate for Mathematical and Physical Sciences
Start Date:	September 1, 2006
End Date:	August 31, 2014 (Estimated)

OSG: The Next "Five" Years

- OSG-N5Y was a largely a renewal of the OSG.
  - Lasted exactly 10 years in total…
- Renewal means: largely the same philosophies (operations, not software), lots of continuity between universities on the project, and same emphasis on being **driven by physics experiments**.
- Institutionally, NSF tends to not like projects that go over 10 years / 1-renewal.
  - What about your approach needs reinventing?
  - Does the project still match community needs?
  - Does the project align with wider agency goals?

Award Abstract # 1148698

THE OPEN SCIENCE GRID The Next Five Years Distributed High Throughput Computing for the Nation's Scientists, Researchers, Educators, and Students

NSF Org:	PHY Division Of Physics
Recipient:	UNIVERSITY OF WISCONSIN SYSTEM
Initial Amendment Date:	May 16, 2012
Latest Amendment Date:	April 20, 2021
Award Number:	1148698
Award Instrument:	Cooperative Agreement
Program Manager:	Bogdan Mihaila bmihaila@nsf.gov (703)292-8235 PHY Division Of Physics MPS Directorate for Mathematical and Physical Sciences
Start Date:	June 1, 2012
End Date:	May 31, 2022 (Estimated)

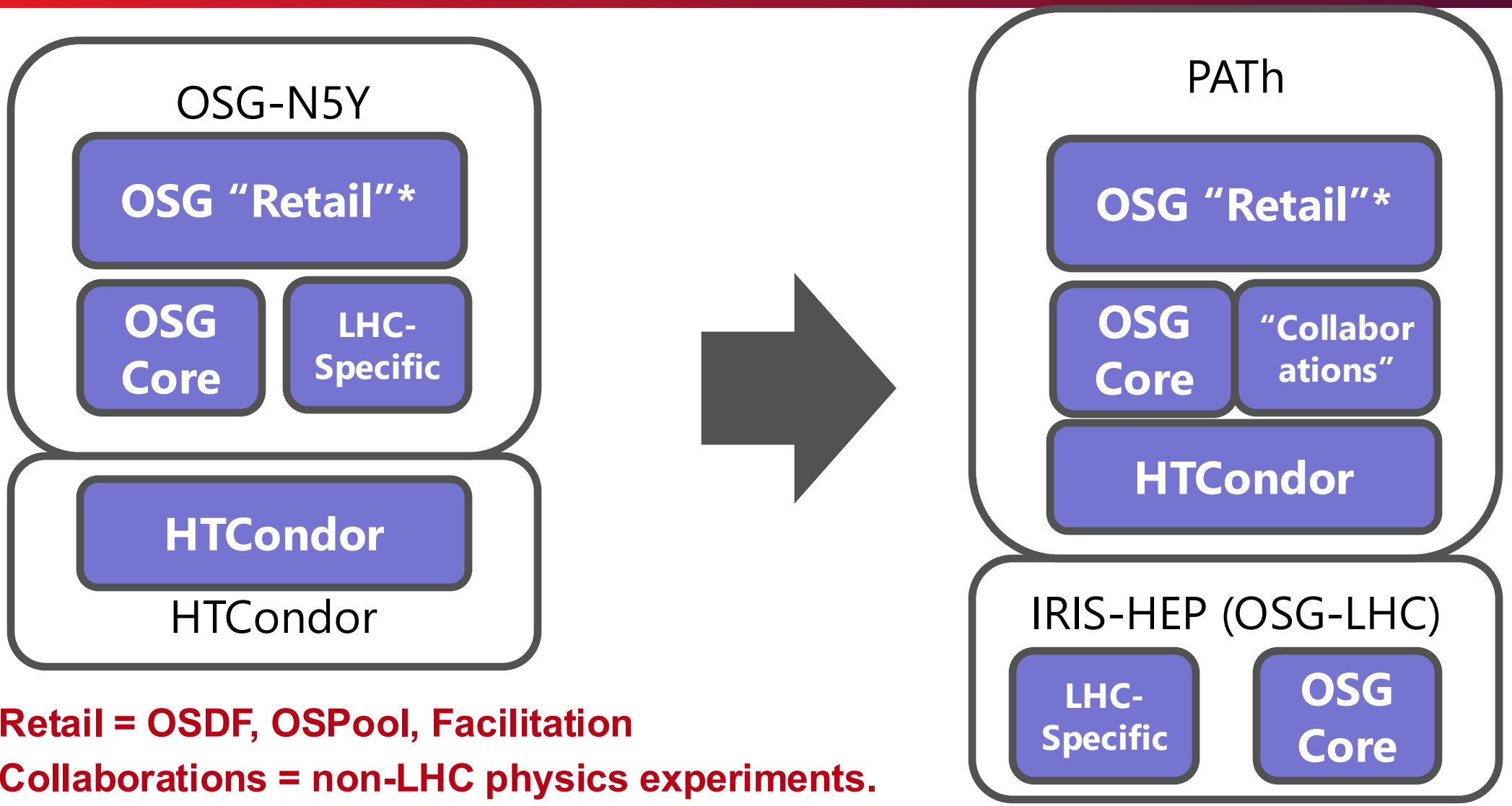
OSG at ~~Ten~~ Fifteen

What changed after 15 years?

- **Software provider community**: The venerable "Globus Toolkit" was shut down ~2017. Other "research-ware" projects and standard organizations were also defunct (or shadows of their former selves).
  - HTCondor was still going strong!
- **"Retail services"**: The OSG began offering higher-level services, such as the OSPool & OSDF, directly to PI-driven research groups (as opposed to experiments).
- **Science & Engineering Community**: OSG's services were being used more broadly beyond Physics.
- **Campus Community**: OSG began connecting institutions to the national cyberinfrastructure, particularly those with NSF CC* awards.
  - These institutions participated to share resources, not through a specific physics experiment.

How should things be arranged?

Transition to IRIS-HEP & PATh (~2018-2020)



*Retail = OSDF, OSPool, Facilitation

*Collaborations = non-LHC physics experiments.

Where are we today?

- Standalone DOE funding for distributed services ramped down ~2018.
- IRIS-HEP's OSG-LHC group took the LHC-specific services and some core activities in ~2018.
  - ~$1M / yr.
- PATh merged the main software provider (HTCondor) with the remainder of OSG services in 2020.
  - ~$5M / yr.
- In 2023, the standalone Pelican project was launched to provide software for the OSDF (~$1.7M/yr) and to grow its impact.
- Notes on this setup:
  - OSG-LHC is for LHC-specific services; LHC uses an array of shared services. Example: the LHC community is critically dependent on the HTCondor software.
  - By 2020, ~80% of the funding comes from non-Physics sources. Falls under the "Office of Advanced Cyberinfrastructure" whose mandate covers the broad science community (including non-Physcis!).

We are successful and impactful!

- The OSG's Fabric of Services is undeniably successful!
- >100 institutions participating (for reference – there are 178 R1 institutions in the US).
- 400M jobs / year for the OSPool alone.
- Often, >1PB day transferred via OSDF.
- Through NCAR, CICI, and CC* programs, OSDF is starting to see penetration outside of OSG's Throughput Computing mission.
- Closely aligned with the National Research Platform (NRP) which provides compute capacity and distributed services via Kubernetes.
- Integrated with the NAIRR pilot.
- ~18 collaborations supported.
- Bedrock of USLHC distributed computing.
- **Editorializing**:
  - OSG's Services provide tremendous value to NSF MPS.
  - Via PATh & Pelican, we are more aligned with NSF OAC's plans than ever before.