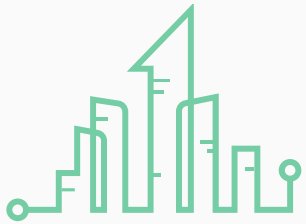
Tutorial Creating Science Gateway or HPC portal on OneSciencePlace
2024 Science Gateways Conference



OneSciencePlace®

OneSciencePlace - A Team Science Platform Where Content Meets Computing

By Science Gateways Community Institute

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San Diego Supercomputer Center, UC San Diego

Contact
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Tutorial logistics

- Tutorial website: https://tutorial1.onescienceway.com
  - Login to the website
  - Send direct message to Mona for account/password questions (mona@sdsc.edu)
  - Accounts valid until Nov 1, 2024
- Post questions on the chat
- Tutorial material
  - Help section available on the website
  - Slides to be posted
  - Recording to be posted
- Questions

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- **SDSC, UC San Diego**

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Agenda

- Overview of OneSciencePlace Platform
- Apps: Running applications (Hands-on)
- Compute systems available for tutorial (Review)
- Complex apps and their UI (Review)
- Creating simple app and its custom UI (Hands-on)
- Add new compute system (Review)
- Publishing on the gateway (Hands-on)
- Discussion

Computing
TRESTLES

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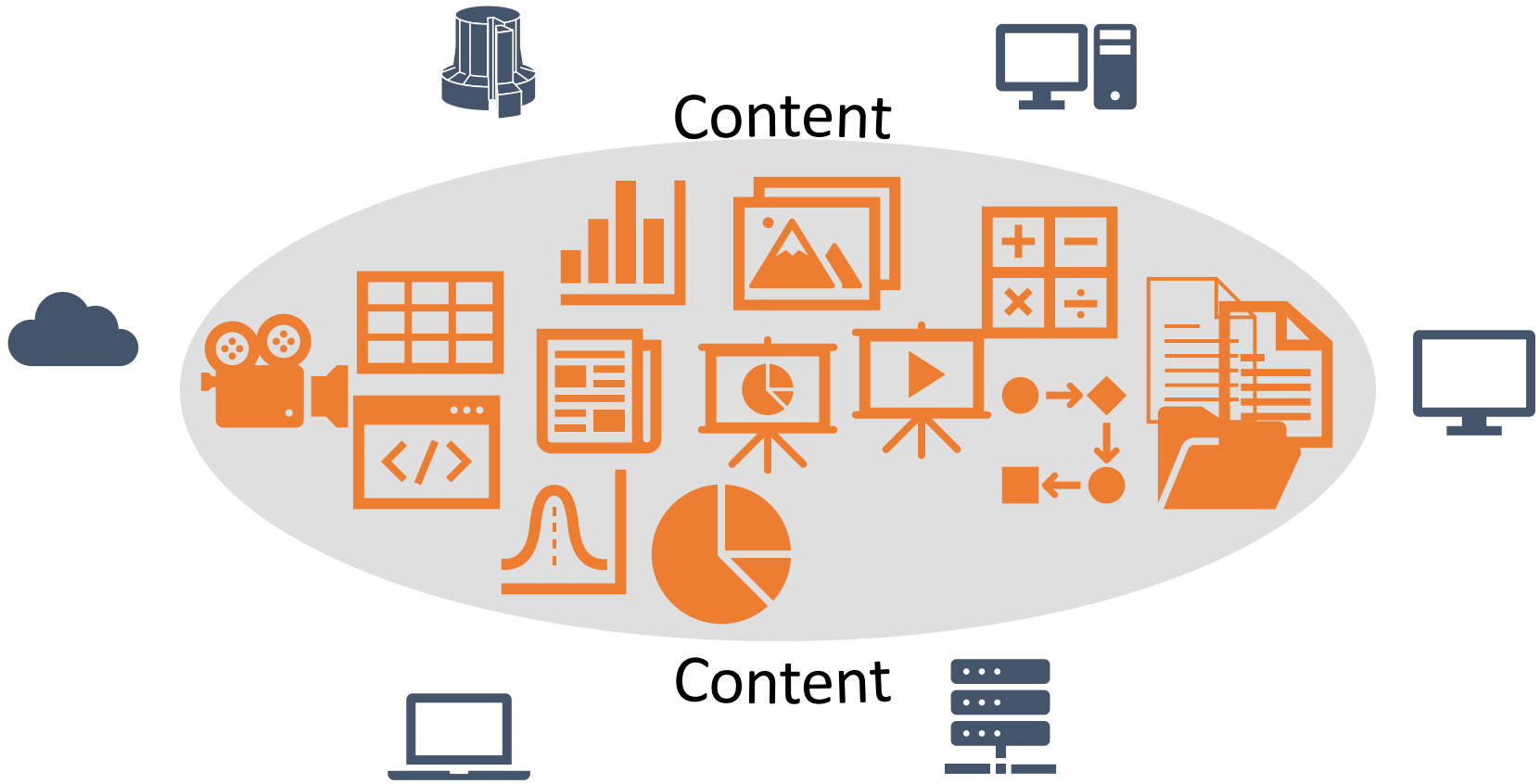
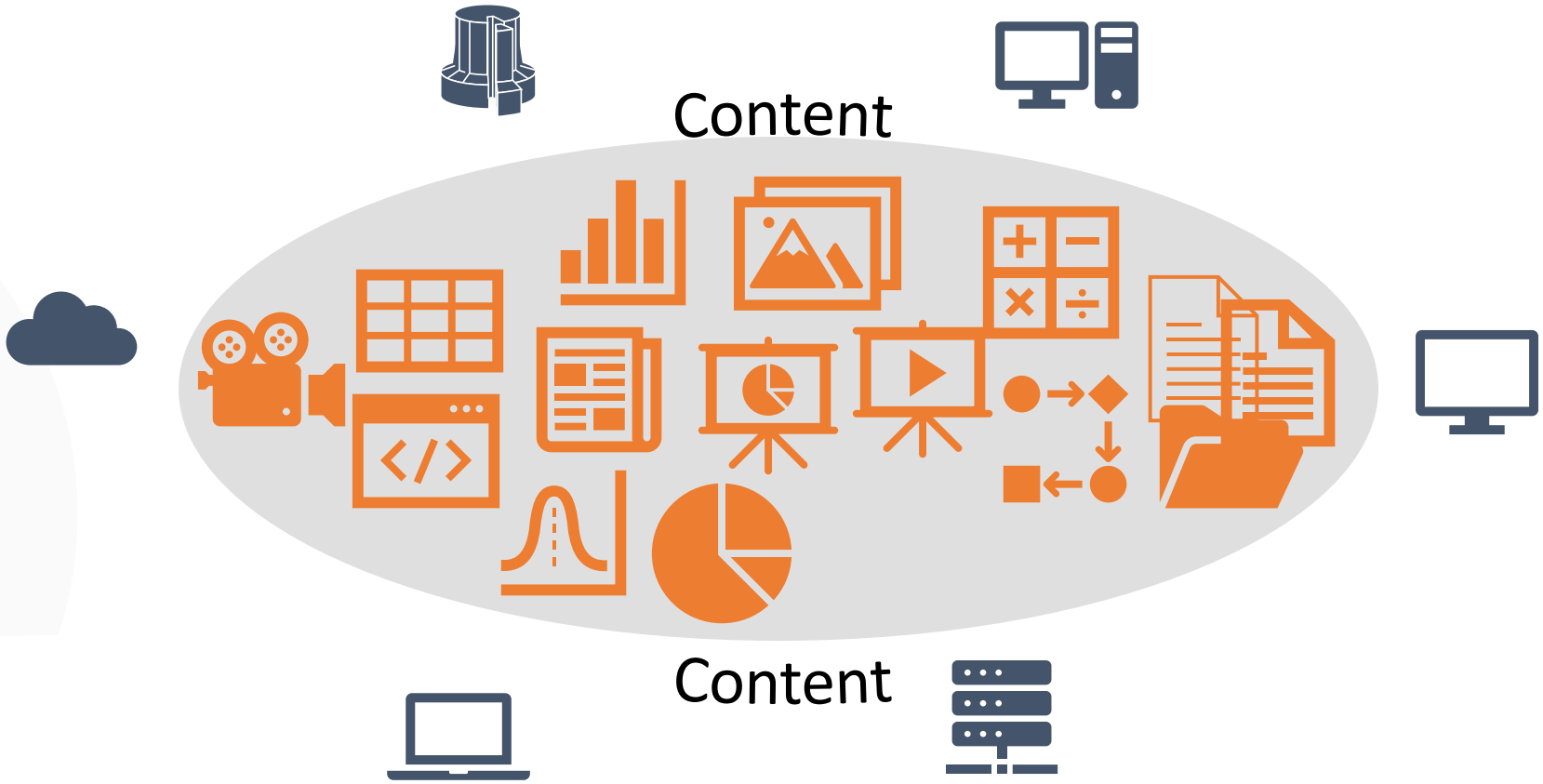

Content
Content


Content
Content

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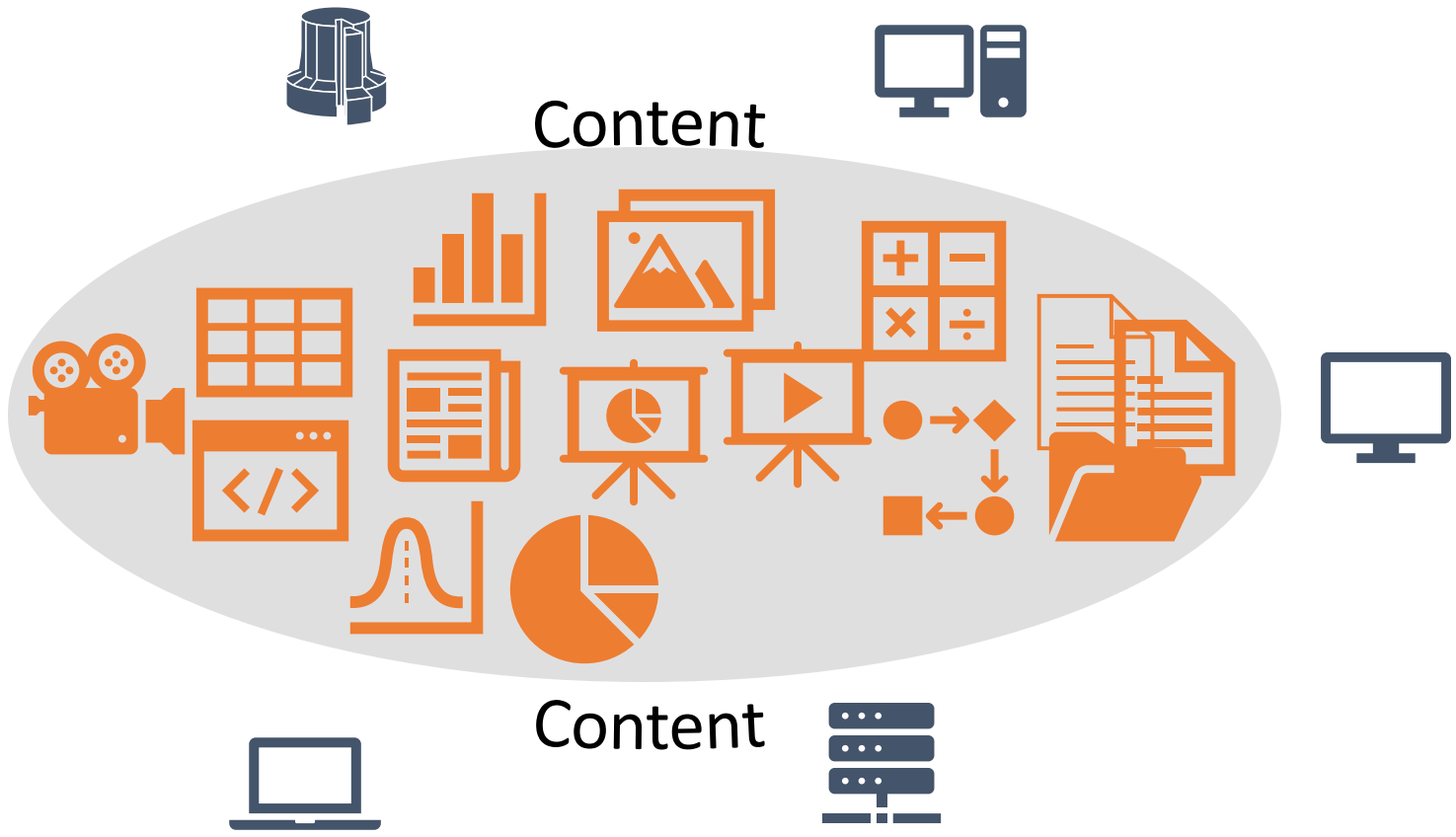
Let's Share What We Know



Metadata Via Schema.org/Metatags (JSON-LD)	FAIR (Findable, Accessible, Interoperable, Reusable)

OneSciencePlace®

Content

Composability

OneSciencePlace is a content centric and composable online platform
to transform delivery of FAIR content and computing
in a single and easy to use environment.

OneSciencePlace speeds up cyberinfrastructure delivery,
accelerates community building, aids in impact measurement at a fractional cost.

Choosing a Foundational Framework

OneSciencePlace®

Proven

Massive adoption
400,000+ active installs
Enterprise grade - Large and complex needs
Scalable, robust & sustained

Large community

1,000+ core contributors
100,000+ users
1000+ vendors
Vibrant community

Ecosystem

10,000+ modules
Learning corpus & events
Developer resources
Active and evolving
2023 Pitch-burg $98K

Secure

Proactive security team
Strong record
Drupal steward WAF
EU bug bounty €89,000
Sovereign funds $300K

Composable

Drupal™

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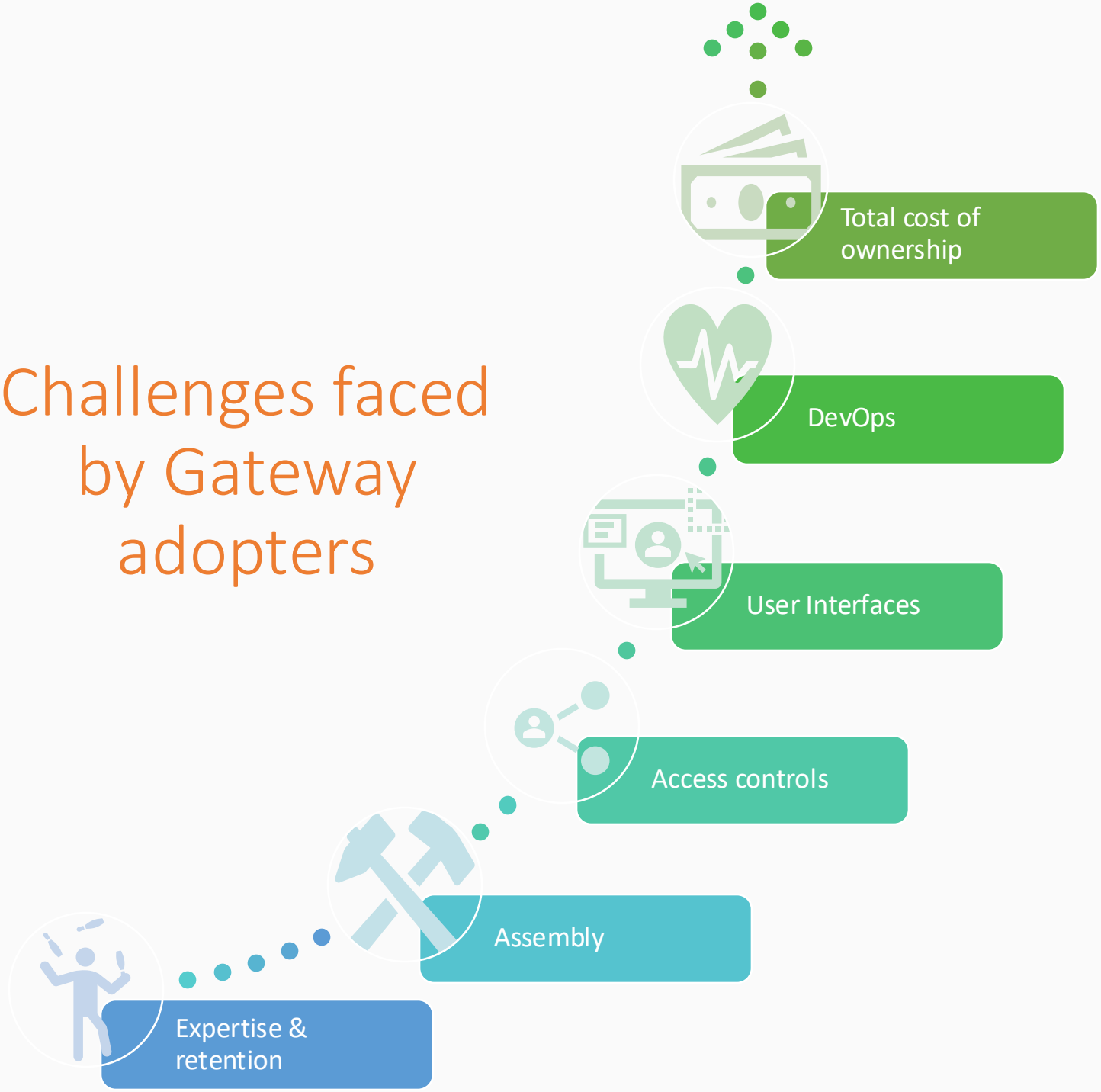
Challenges faced by Gateway adopters



What Do We Mean by Composability?

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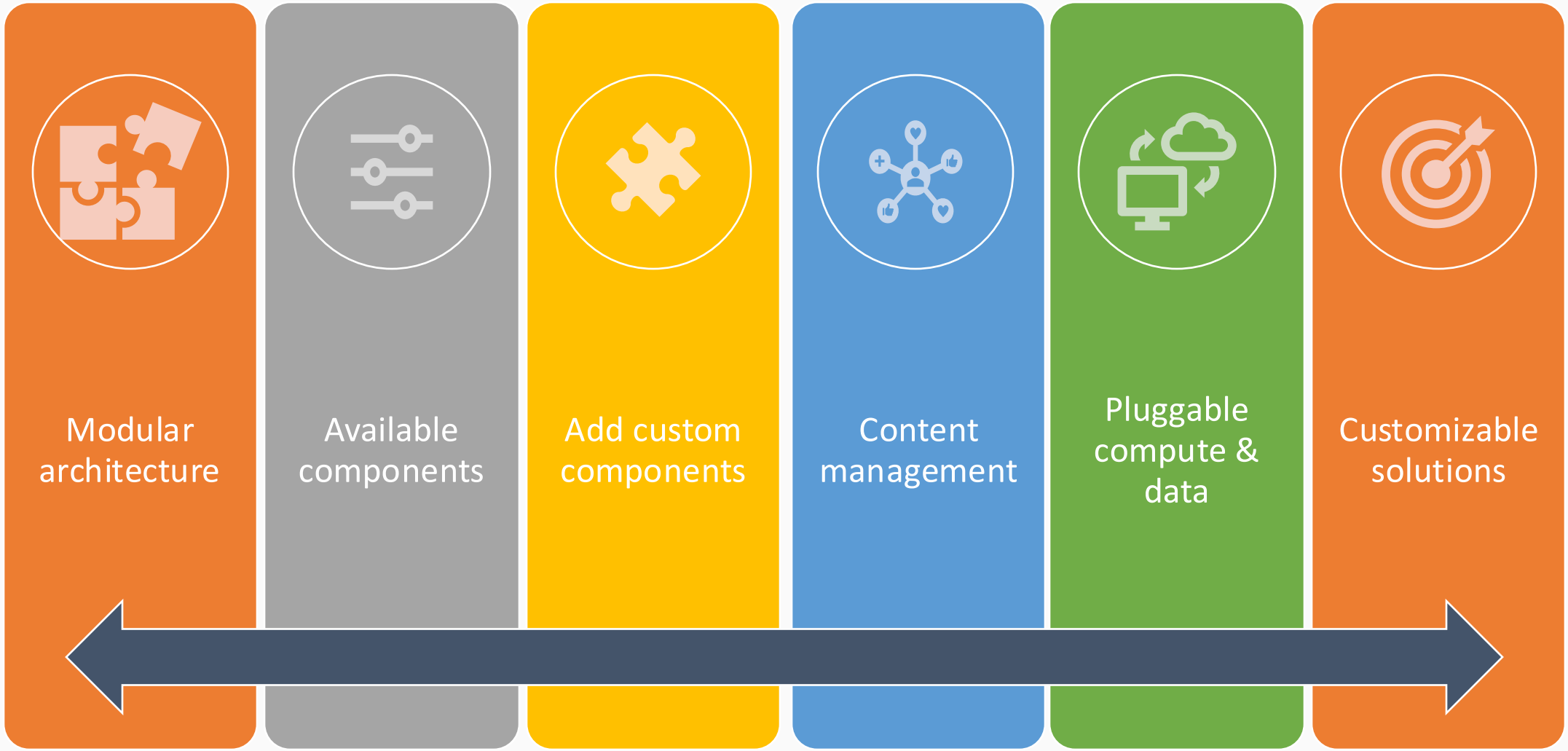
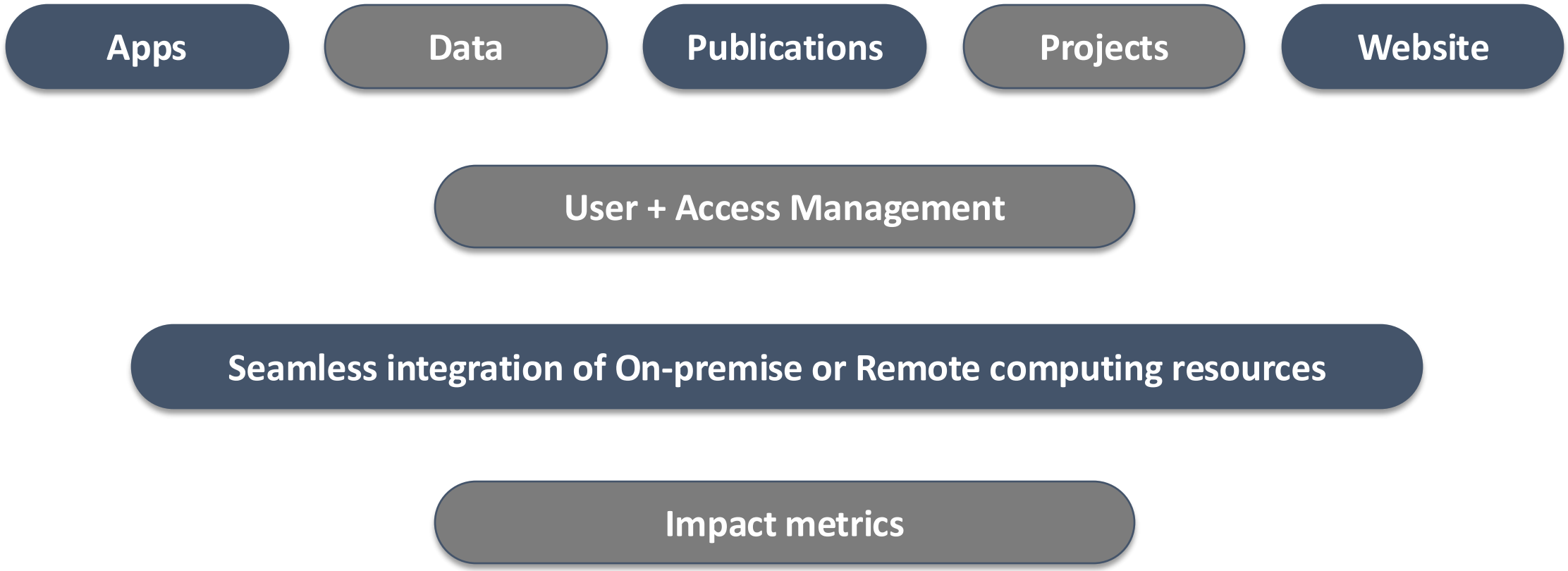


Key elements of OneSciencePlace



OneSciencePlace Platform

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Application layer

- **Drupal** — Content management framework
- **SeedMeLab** — Scientific data management
- **TAPIS** — Job management (Self hosted)
- **Satellite** — Network proxy
- **Services** — ARK, DOI, Handle CrossRef, RoR, CILogon, Globus, …

Backend layer

- Web servers
- Database servers
- Search engine
- Metrics engine

Orchestration layer

- CI/CD
- Dev/Stage/Prod
- Backups
- Observability tools
- Scanners
- Firewall
- Schedulers
- Kubernetes

Hardware layer

- Compute
- Storage
- Network

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Established Use Cases

- Science Gateway
- HPC Portal

Other Use Cases

- Complex app
- Content centered: Data repository
- Knowledgebase
- New challenges

Use Cases

Committed projects

Quakeworx
New science gateway
Earthquake Rupture Forecast

CIPRES
Migrating to OneSciencePlace

Delta Gateway
Switch to OneSciencePlace

NAIRR Pilot
Migrating to OneSciencePlace

Pending projects

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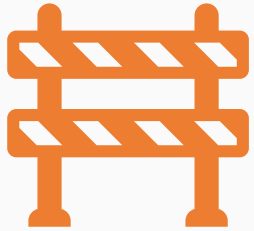
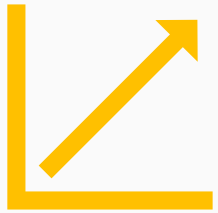
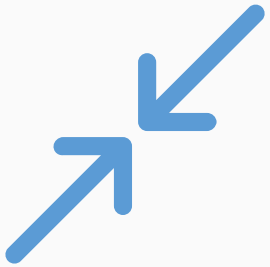


Remove Barriers

Democratize Content



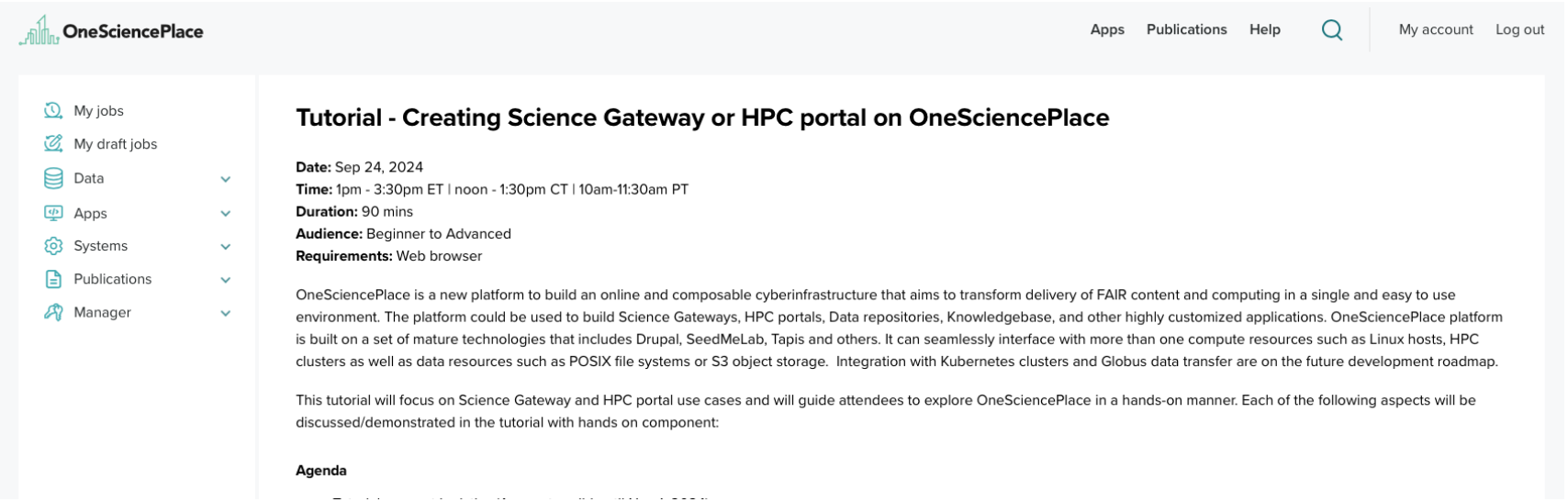
Amplify Impact



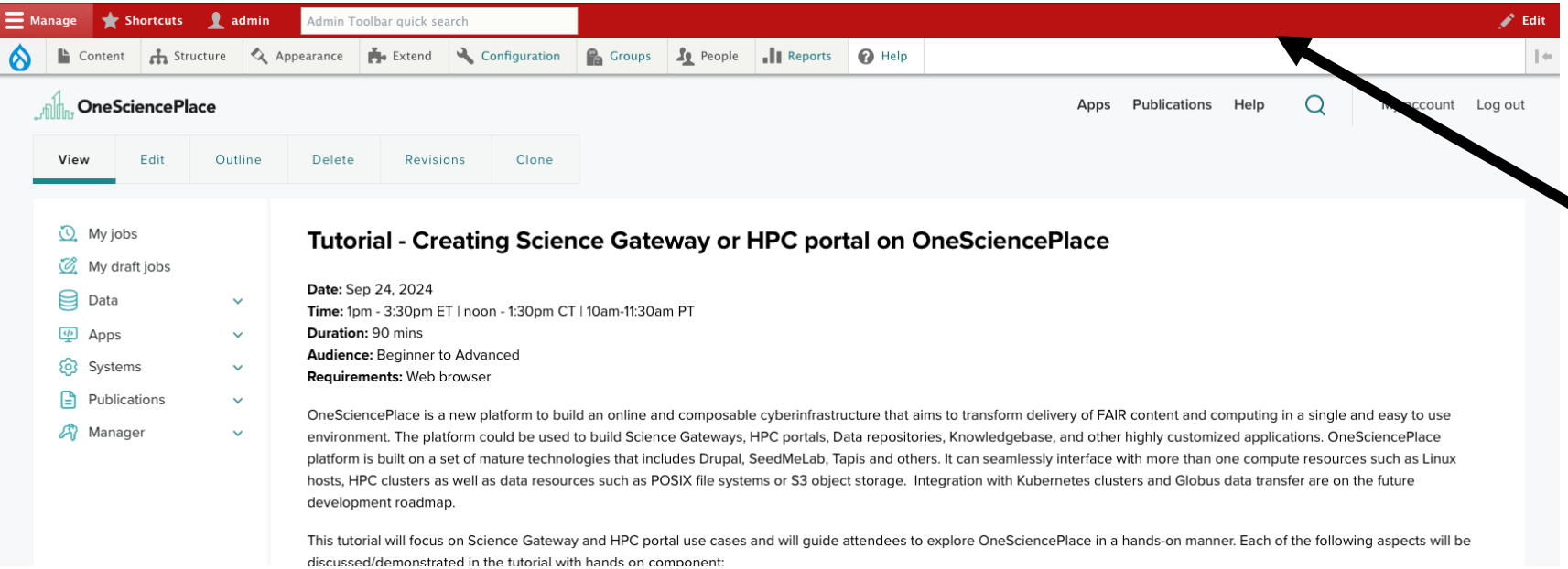
Minimize Effort & Cost

Email: amit@sdsc.edu

Visit: https://onescienceplace.org



user mode



admin mode
Red toolbar above logo

System is a hardware resource. It may be a computing or storage resource, which can represent a server or a collection of servers accessible through a single hostname or IP address. Only compute system is currently supported.

Requirements

- Must allow SSH auth without passphrase
- Must not block connections (whitelist in firewall)

Apps

- Web (Jupyter, Rstudio, …) that use single host port and single container.
- VNC (Linux desktop, Matlab, …)
- Batch - command line executable

Requirements

- All apps must have a singular entry point which takes all arguments.
- Containers
  - Must not hard code host side port (use environment variable or argument)
  - Must not hard code volume mounts
  - VNC apps must include a VNC server and an option to set a password (env variable)

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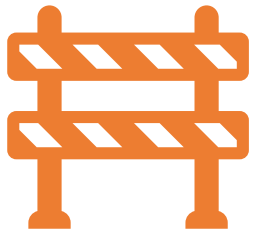

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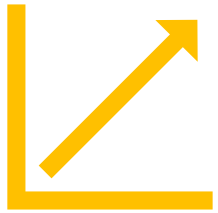

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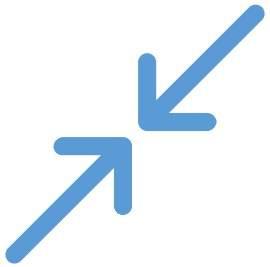

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