Science Software on Demand

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Dissemination level: Public/Confidential If confidential, please define:
Disclosing Party: (those disclosing confidential information)
Recipient Party: (to whom this information is disclosed, default: project consortium)
General purpose **Science Gateway** aiming to demonstrate the capabilities of the **FutureGateway Framework**
- It also replaces an older Science Gateway instance based on a previous Science Gateway Framework.

Hosted by a Software/Hardware environment:
- **FutureGateway Science Gateway**
  - Based on Docker containers, compose configurations and scalable through Docker Swarm if necessary
  - It also provides internal scripts to manage docker instances, network ports assignments, allow/deny resources to Science Gateway users
  - Provide a solution to safely backup containers on the fly (SSoD only)
  - It also hosts a Dropbox based job submission engine (Not related to SSoD)
Software environment aiming to build quickly and securely well structured Science Gateways

Use a set of REST APIs to control everything

Components:
- API Specifications  fgapis.docs.apiary.io
- GUI (User interaction)
- API Server-front-end
- Database
- [ API Server + Executor Interfaces ] -> DCI

Applies successfully to:
- Grid, Clouds, HPC, Workflow engines, IoT, OAR reproducibility

Totally based on well known OpenSource Ecosystem
Three families of **APIs**

- **IAT;** Infrastructures, Applications and Tasks (Original set from INDIGO-dc)
- **UGR;** Users Groups and Roles (Recently developed with EOSC-hub for SSoD)
- **AAA;** Authorizing, Auditing and Accounting (Under design, possible via DB)

**IAT** Are designed to perform **any kind** of activity into a distributed computing infrastructure (DCI)

- **Infrastructure,** configures how access a given DCI
- **Application,** configures the application characteristics (input/output, files, ...)
- **Tasks,** application instances sent to DCI

**API usage tutorial** available on FG web site (IAT + UGR)

- [https://futuregatewayframework.github.io/resources/](https://futuregatewayframework.github.io/resources/)
The SSoD; the portal in FGSG
fgsg.egi.eu/egissod/web/ssod

- Customised third party **OAuth2 module**
  - EGI Check-In Federated authentication
  - Indigo Authorisation Management (IAM)

- App. Authorization
  - EGI Marketplace
  - IAM (PaaS Orchestrator)
  - User/Password (Maintenance)

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R-Studio
- First integrated application operating as SaaS solution, it has limited resources in terms of computing and storage, it operates as a proof of concept.

Chipster Accounts; (!) soon deprecated, see Chipster topic in its related Clinic session
- Application migrated from the older Science Gateway, it just manages users credentials for the Chipster JNLP applet.

Optimal Design
- This is a community driven GUI capable to share computed results of different simulations among researchers. It only uses UGR APIs to restrict access to team members.

FAIR Science Examples
Science Gateway integration to the INFN Open Access Repositories (INVENIO + Zenodo -> INVENIO-RDM)
- PALMS (Physical Activity Lifelong Modelling and Simulation)
Join your app to the SSoD portal
- Very simple use cases, may be easily included into the SSoD portal
- GUI Tutorial in FGF web site may be really useful for SSoD integration
- Fastest integration possibility

Create a new Science Gateway in FGSG
- Community driven portals may be hosted inside FGSG environment
- Small communities, fast creation, different portal technology

Create a community hosted FG instance
- From FutureGateway Framework sources and script develop a new Science Gateway

E-mail contact available in the page link
The SSoD; Conclusions

- **SSOD** Right today **published** in the EOSC Marketplace
  - Improve awareness, till now limited to local-based initiatives
  - Good visiting statistics
- **FGSG** ensured stability and fault tolerance
  - Very stable and reliable
    - Liferay recovered from its backup, 4th April 2020
  - Scalable
    - Resource demand can be improved through Docker Swarm
- **FGF** Currently maintained in best effort basis,
  - Next year (national and regional funds), will cover till 2023
    - Reproducibility
Resources

- Home page
- Source Code
- Slack channel
- Documentation
- News
- Tutorials

- Home page
- Description
- Service monitoring
- Sources

- Home page
- Description
- Privacy Policy
- AUP
- Liferay OAUTH2
- Site repository
- EOSC Marketplace

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Thank you for your attention!

Questions?

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