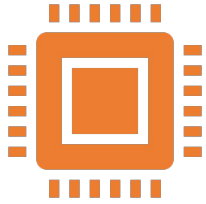


ESGF Architecture

Philip Kershaw (CEDA, RAL Space, STFC/UKRI)



Platforms and systems administration

Modular, scalable architecture: Containers, Kubernetes
Embrace infrastructure-as-code approach



Search services

Modernise, centralise and simplify
Use community standards: STAC



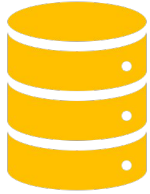
ID Management and Access Entitlement

Modernise, centralise and simplify
Use industry standards: OpenID Connect / OAuth 2.0

- Container and Container+Kubernetes installs available
- Deployed on AWS (GFDL) and CEDA

- Major community engagement on use of STAC for ESM data
- Prototype developed by CEDA
- Integration tests
- CoG and MetaGrid futures??

- OpenID Connect / OAuth 2.0 done
- New Authorisation system with Open Policy Agent
- Authentication integrated with C4I in test



New modes for Data Access + Storage

Augment trad. file serving with object store
New models for aggregation and subsetting,
retire OPeNDAP



Compute Services

Important but no consensus for ESGF-wide
standard offering yet



Metrics Collection

Leverage advances in industry with standard
tooling to exploit - Prometheus and
InfluxDb, Grafana

Progress and
Achievements

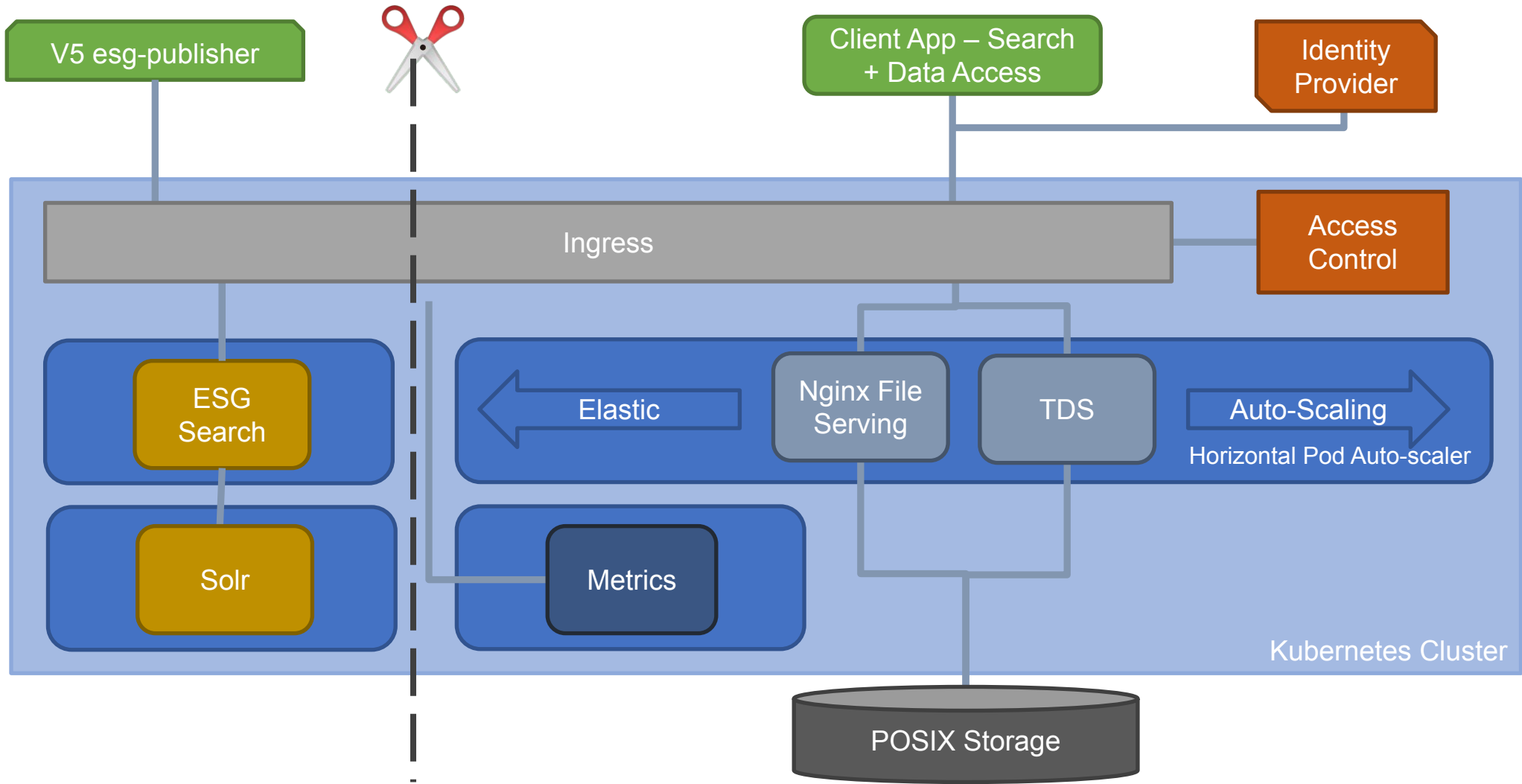
- Factored out TDS
- Test CMIP6 data caches on object store at CEDA and DKRZ

- Ported C3S WPS Data Reduction Services for use in ENES CDI
- Used with Climate4Impact

- New Metrics system integrated with CMCC

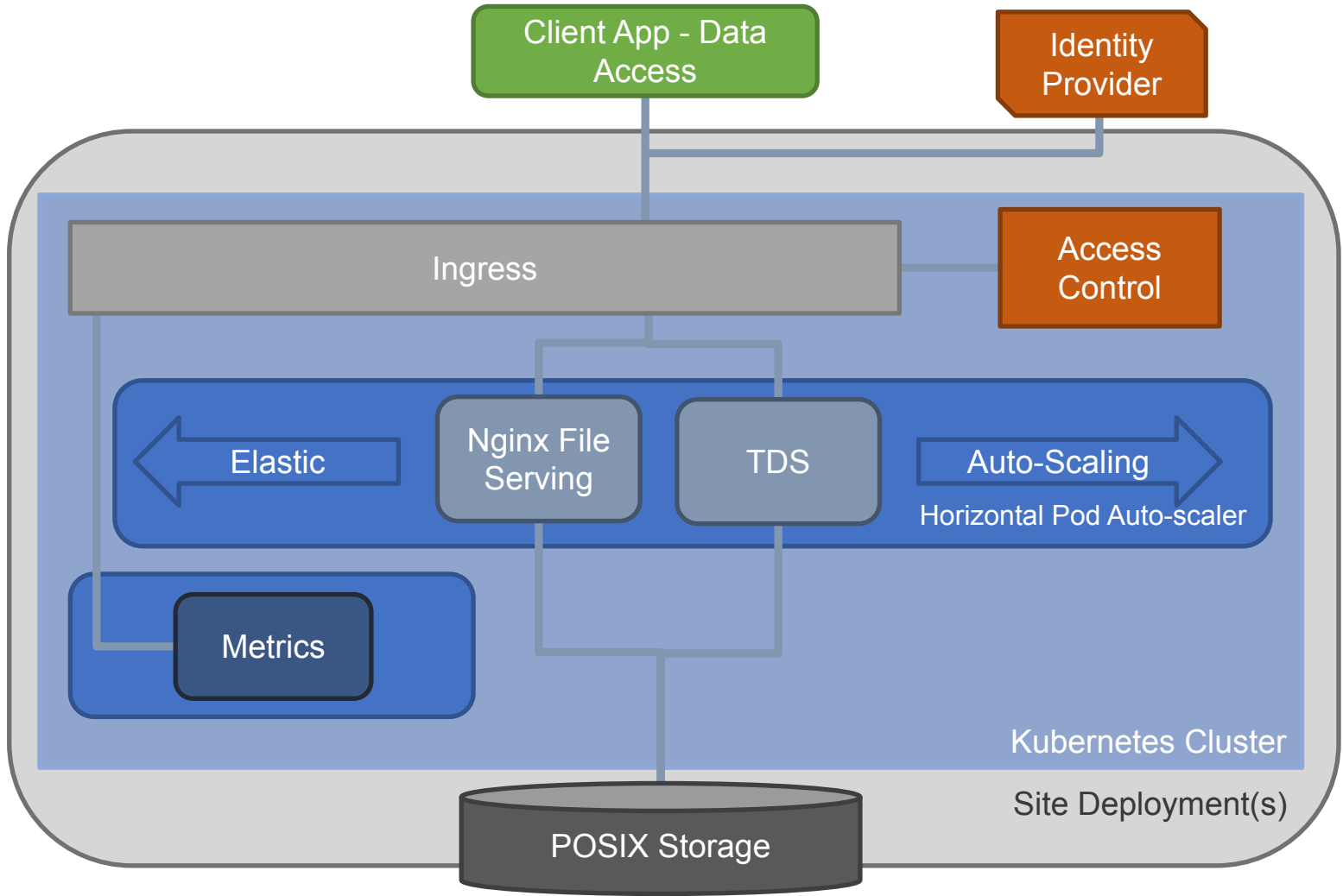
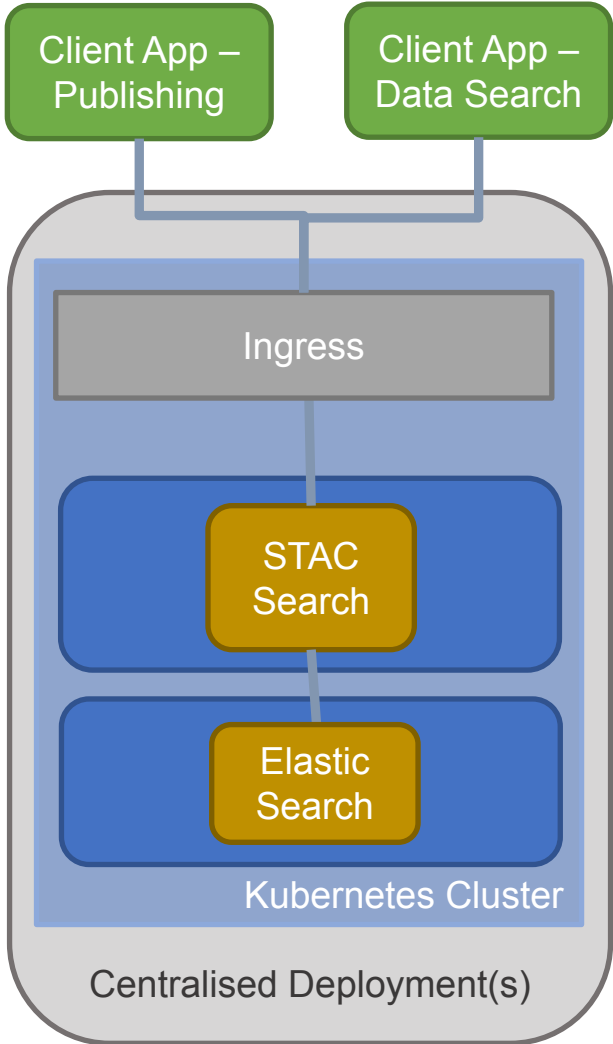
Future Architecture Node – Phase 1

4-6 October 2021
Virtual



Future Architecture Node – Phase 2

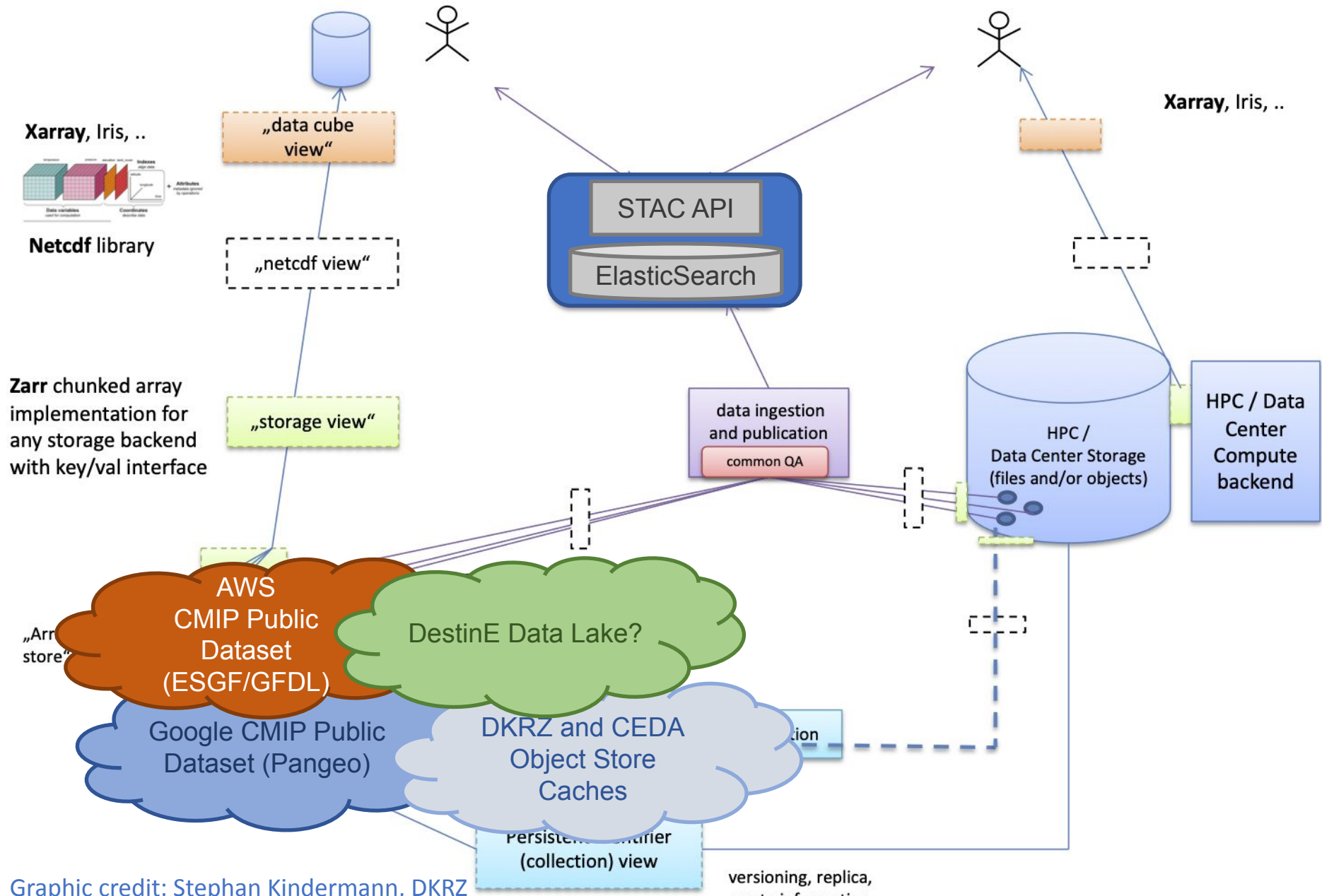
4-6 October 2021
Virtual



- Phase 1:
 - Rollout Future Architecture Phase 1 at European nodes
- (In parallel) Phase 2:
 - Conduct integration testing of new STAC API with partners

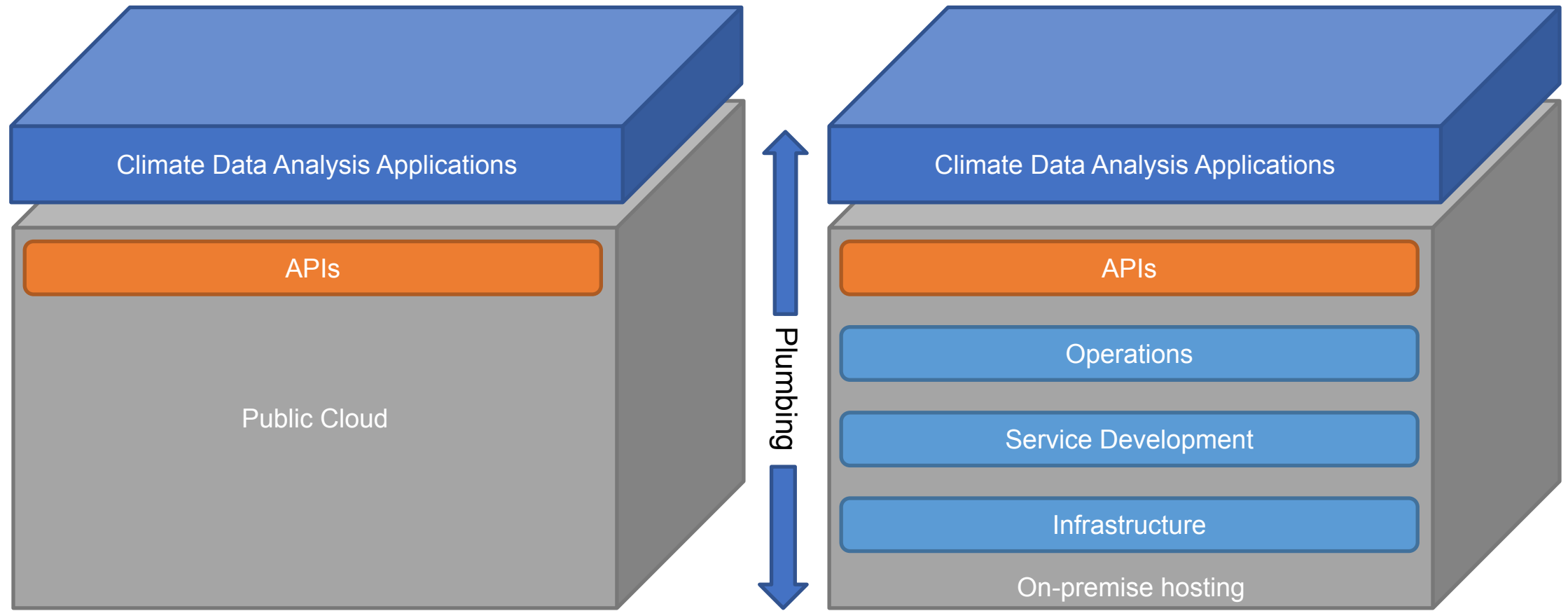
„general climate data cloud perspective“

„institutional perspective“



Cloud Challenges and Opportunities





- Phase 1:
 - Re-engineered version of ESGF – same interfaces but souped-up engine under the bonnet
 - Deployed on AWS (GFDL), CEDA (test), other European sites (next months)
- Phase 2:
 - STAC Search replaces ESG Search
 - Integration testing with European partners next
 - Production STAC – sometime in new year

THE CONSORTIUM

Coordinated by CNRS-IPSL, the IS-ENES3 project
gathers 22 partners in 11 countries



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