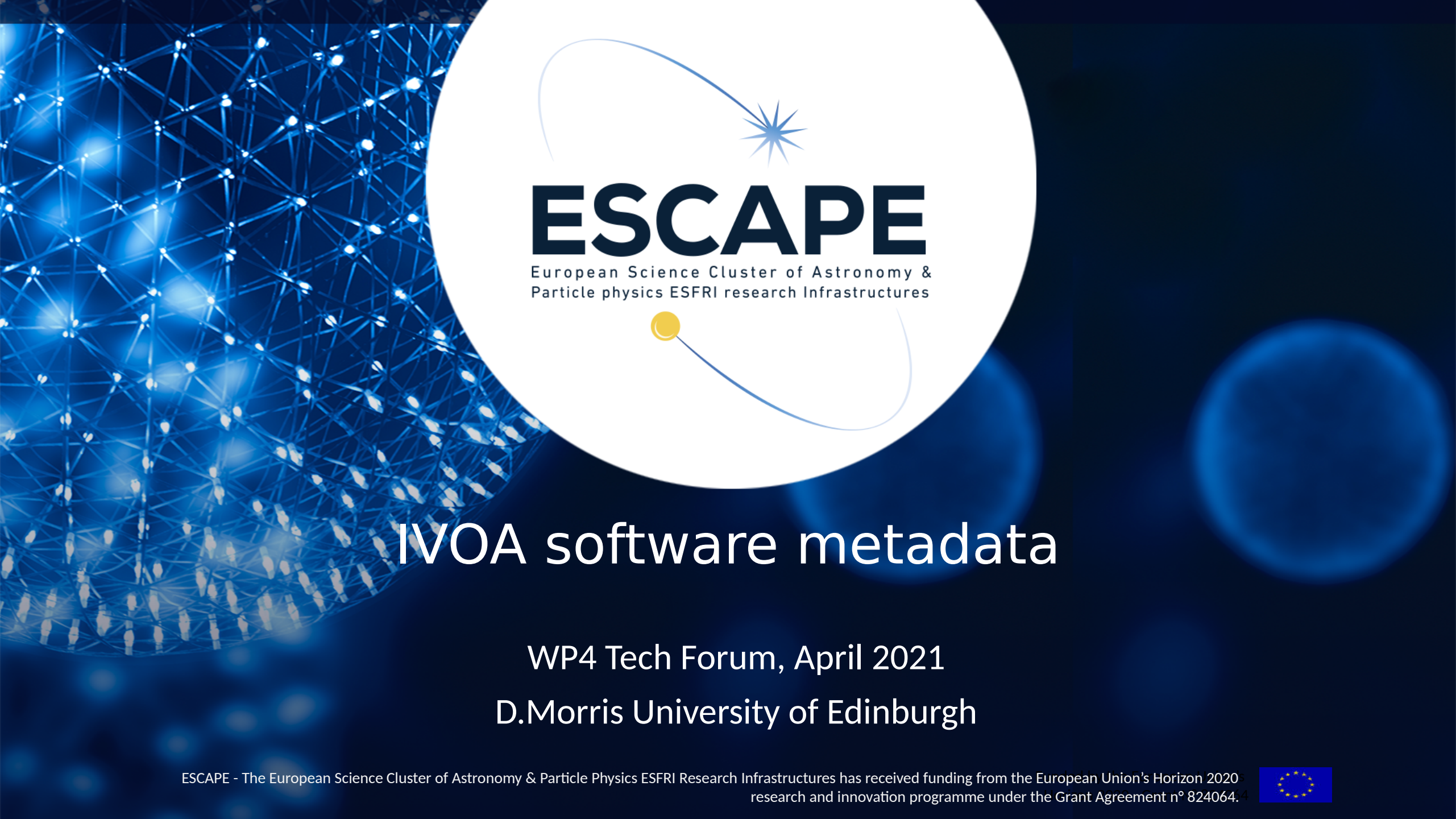

IVOA software metadata

WP4 Tech Forum, April 2021

D.Morris University of Edinburgh

ESCAPE - The European Science Cluster of Astronomy & Particle Physics ESFRI Research Infrastructures has received funding from the European Union's Horizon 2020 research and innovation programme under the Grant Agreement n° 824064.

OSSR software metadata

- Registering software
- Deploying services
- Execution planning

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Horizon 2020 - Grant N° 824064

Registering IVOA software

Questions for WP4 and the IVOA

- Software contributed by ESCAPE members
  - CDS – Aladin, Vollt etc
  - GAVO – DaCHS

We need to agree the details of how we register them

Encourage the developers to register in OSSR

Encourage the developers to register in Zenodo

Do we ask them to tag with VO or IVOA ?

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Registering IVOA software

Questions for WP4 and the IVOA

- Software contributed from outside ESCAPE
  - AstroPy
  - TopCat
  - ….

Do we (WP4) need to create a list of key software ?

Encourage the developers to register in Zenodo

Do we ask them to tag with VO or IVOA ?

Is this something that WP 4 should raise in the IVOA applications working group ?

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Registering IVOA software

Questions for WP3

- Software contributed from outside ESCAPE

  Can WP4 create OSSR entries for other people's software ?

  If so, how ?

  How do we include key software without opening it up to all the world ?

  Can WP4 act as a sponsor for selected 3rd party software ?

  Do WP4 want to take on that role ?

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Registering IVOA software

Joint WP3/WP4 focus group

Open to anyone interested in participating

Contact myself or Jutta Schnabel to join :

- Dave Morris <dmr@roe.ac.uk>
- Jutta Schnabel <jutta.schnabel@fau.de>

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Deploying IVOA services

Deploying IVOA services in the cloud

Building on the work done by VESPA-Cloud

https://indico.in2p3.fr/event/23481/#44-vespa-cloud

- Configuration in GitLab
- DaCHS service deployed on EGI
- Data storage on B2SAFE

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Deploying IVOA services

Deploying IVOA services in the cloud

Building on the work done by VESPA-Cloud

Taking it to the next level:

On-demand deployment

- Select data from the DataLake
- Select deployment scripts from OSSR
- Run the deployment as a batch job

Ephemeral VO services deployed as part of a larger workflow.

Providing TAP/SIAP access to generated result sets.

Is this a valid science use case ?

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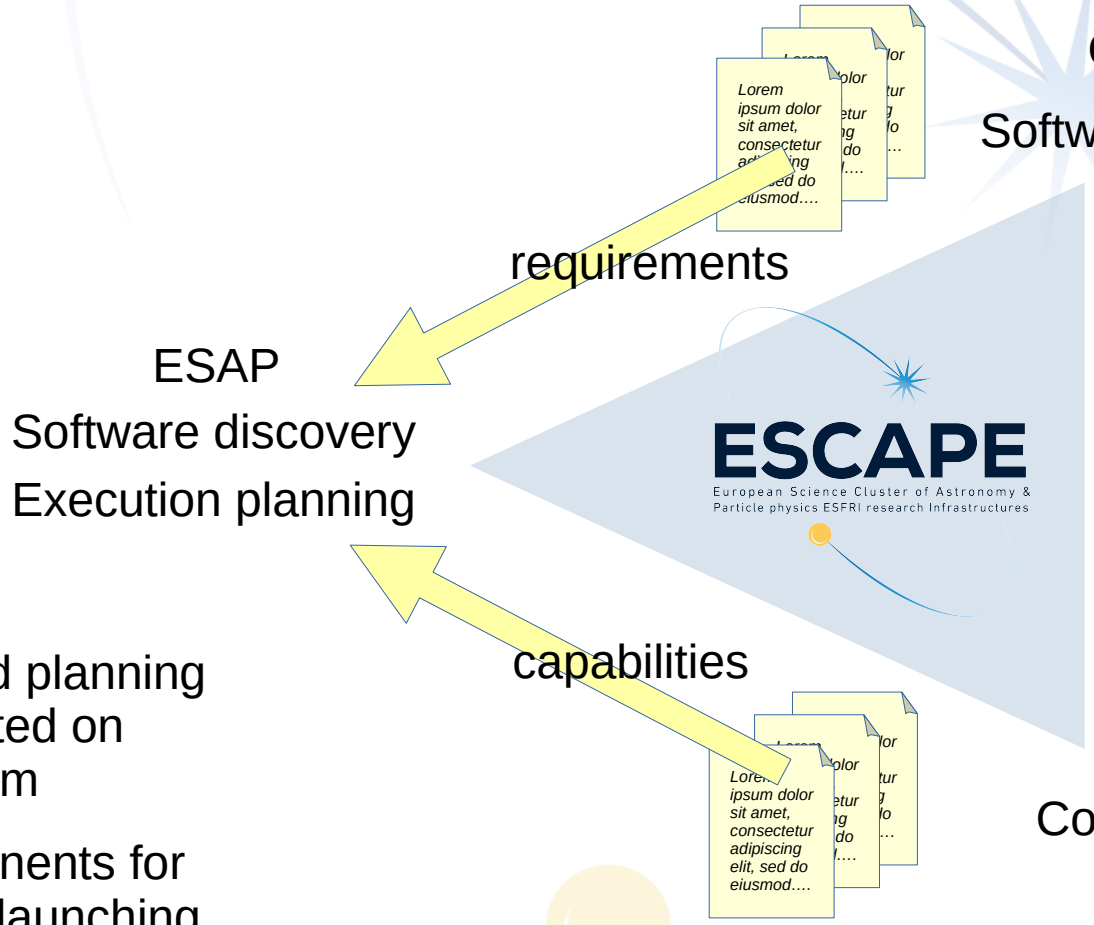
Execution planning - ESCAPE



Discovery and planning software located on central platform

Plugin components for planning and launching each type of workflow

ESCAPE has a controlled set of contributed compute platforms

ESFRI Compute platforms

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jupyter

binder

Common set of components deployed on all platforms

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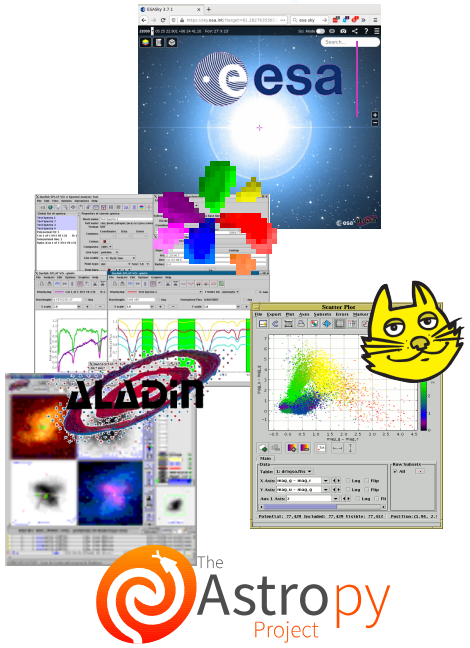
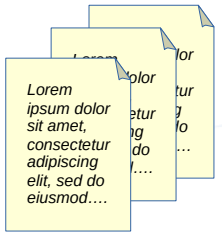
Execution planning - IVOA



IVOA has a diverse set of different client applications

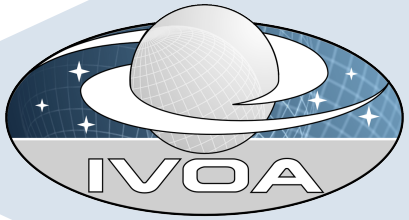
IVOA does not have a central service capable of execution planning



OSSR

Software library

requirements



IVOA has a diverse set of different compute platforms

Each with different interfaces and capabilities

slurm workload manager

docker

podman

kubernetes

openstack

jupyter

Apache Zeppelin

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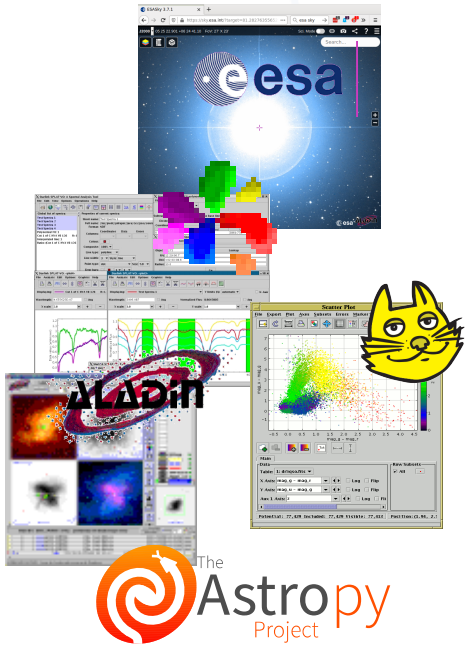
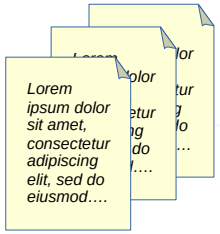
Execution planning - IVOA

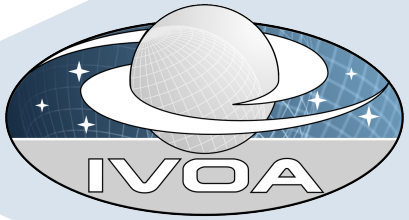




OSSR

Software library

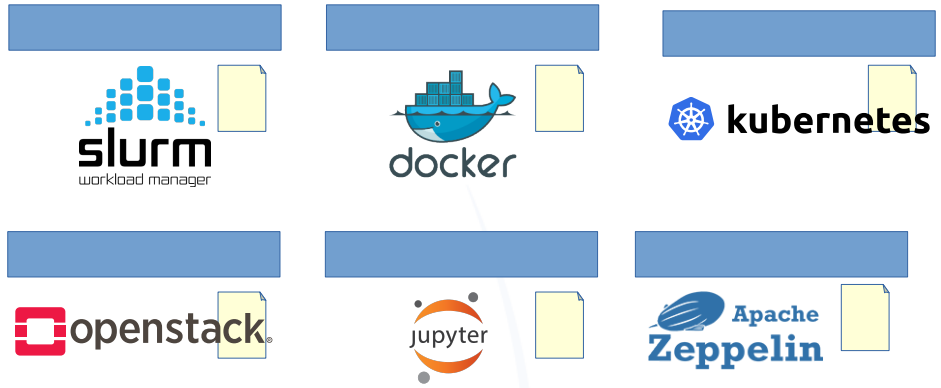
requirements



IVOA has a wide range of different client applications

IVOA does not have a central service capable of execution planning

IVOA hides service details behind abstract interfaces



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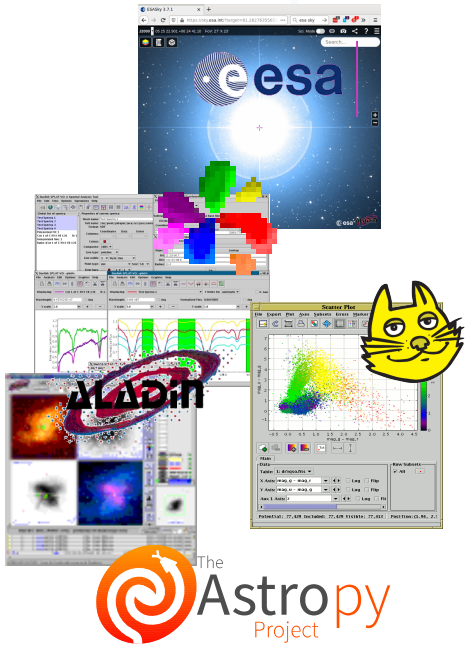
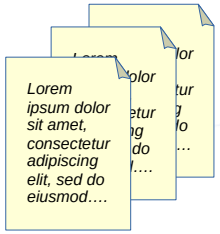
Execution planning - IVOA

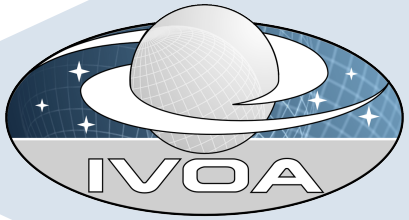




OSSR

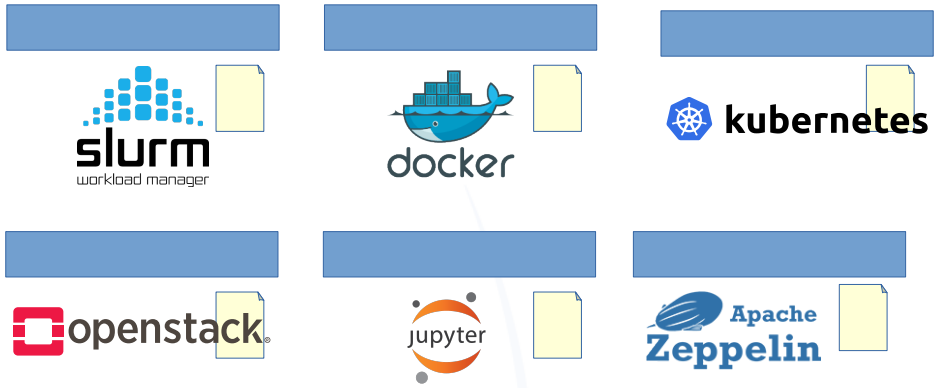
Software library

requirements



Execution planner interface

```
can-you-do-this ?
    [yes|no|maybe]
    [how]
```



IVOA has a wide range of different client applications

IVOA does not have a central service capable of execution planning

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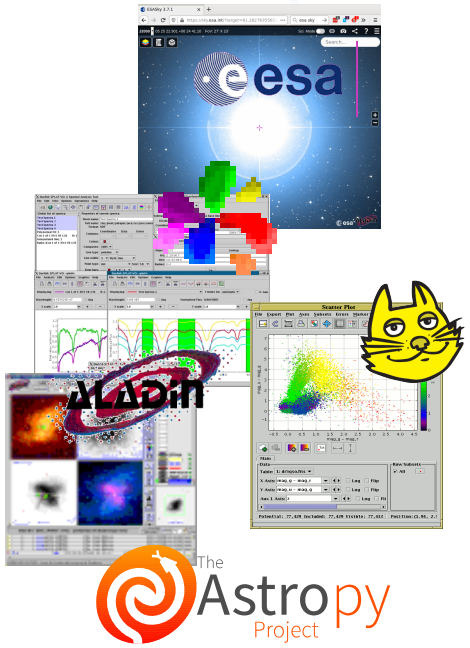
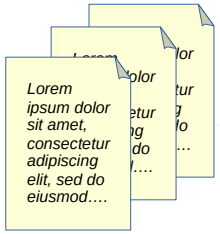
Execution planning - IVOA

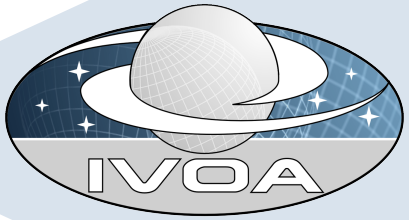




OSSR

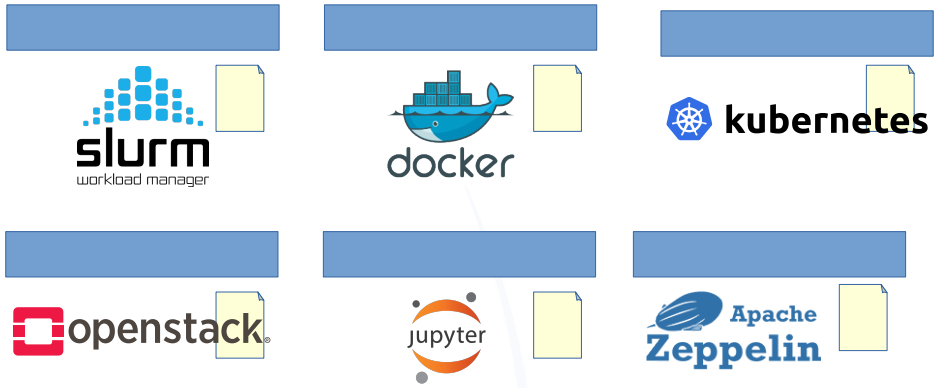
Software library

requirements



Execution planner interface
- with access control

```
can-I-do-this ?
    [yes|no|maybe]
    [how]
```



IVOA has a wide range of different client applications

IVOA does not have a central service capable of execution planning

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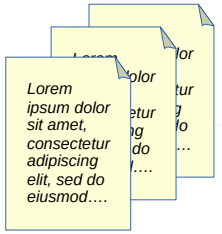
Execution planning – ESCAPE using IVOA



OSSR

Software library

requirements

ESAP

Software discovery

Execution planning

ESCAPE
European Science Cluster of Astronomy & Particle physics ESFRI research Infrastructures

IVOA

IVOA

The Astropy Project

IVOA ExecPlanner client

can-I-do-this ?

[yes|no|maybe]
[how]

CANFAR

slurm workload manager

docker

kubernetes

openstack

jupyter

Apache Zeppelin

Adding an IVOA ExecPlanner client would enable the ESAP portal to drive IVOA services

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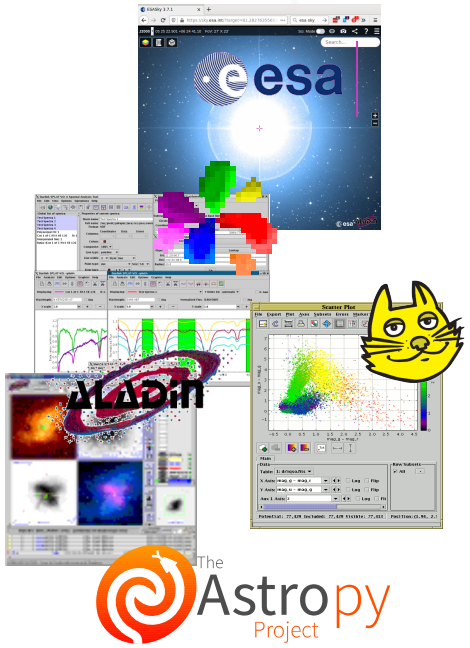
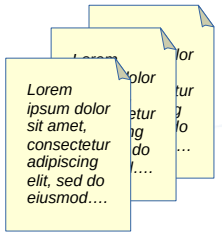
Execution planning – IVOA using ESCAPE



IVOA clients would be able to use ESCAPE services directly



OSSR

Software library

requirements

IVOA

ESCAPE
European Science Cluster of Astronomy & Particle physics ESFRI research Infrastructures

```
can-I-do-this ?
    [yes|no|maybe]
    [how]
```

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jupyter

Adding an IVOA ExecPlan interface to the ESCAPE services enables IVOA clients to access them directly

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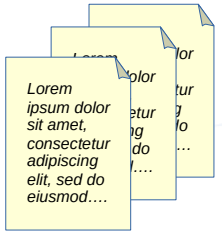
Execution planning – ESCAPE + IVOA



OSSR

Software library

requirements

The cost :

Adding an IVOA ExecPlan interface to each of the the ESCAPE services

ESCAPE software metadata stays the same

ESCAPE service metadata stays the same

Services are able to assess the software requirements and respond with how-to instructions

```
can-I-do-this ?
    [yes|no|maybe]
    [how]
```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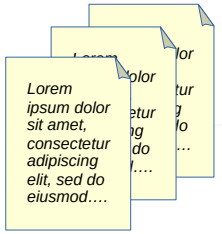
Execution planning – ESCAPE + IVOA



OSSR

Software library

requirements

The benefit :

ESCAPE gets access to services from the IVOA

IVOA gets access to services inside ESCAPE

Abstract interface :

- Helps to make services interoperable
- Insulates from side effects of version changes
- Facilitates adoption of new technologies

can-I-do-this ?

[yes|no|maybe]
[how]

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Execution planning – ESCAPE + IVOA

Propose a new IVOA standard

Based on ESCAPE use cases and requirements

Contact me if you are interested :

- Dave Morris <dmr@roe.ac.uk>

```
can-I-do-this ?

    Request :
        identity : [OIDC token]
        request type : [anyURI]
        params :
            - [name] : [value]
            - [name] : [value]

    Response :
        [yes|no|maybe]
        service type : [anyURI]
        params :
            - [name] : [value]
            - [name] : [value]
```


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