



SURF NATIONAL RESEARCH CLOUD

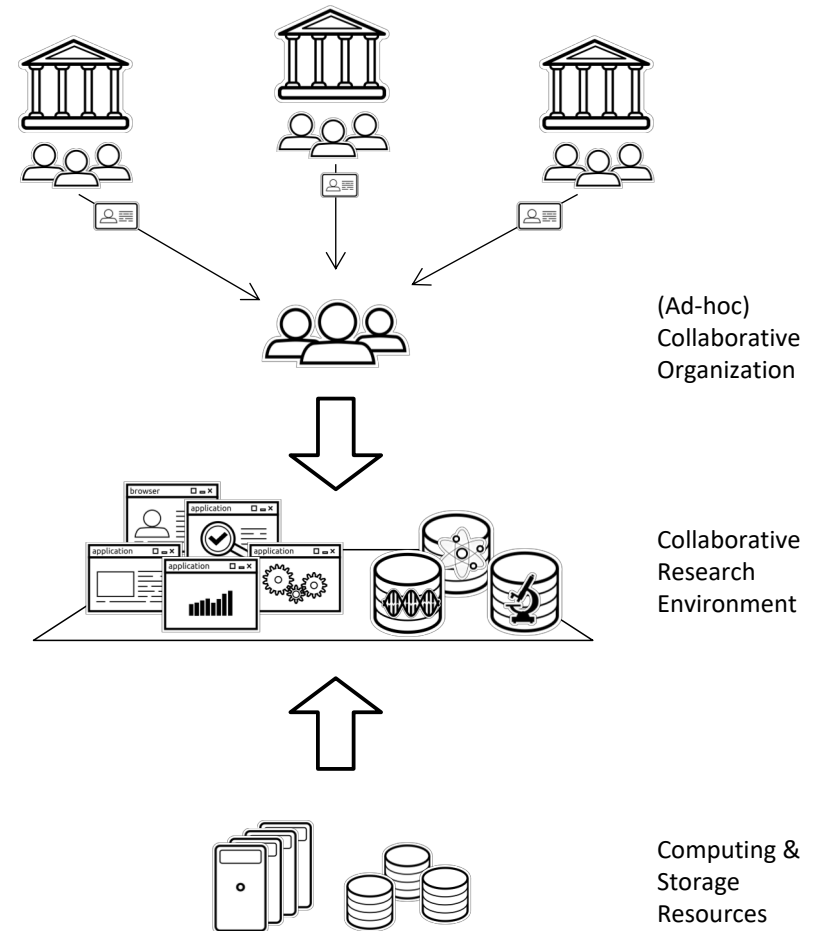
Supporting cooperation in research

SURF Research Cloud

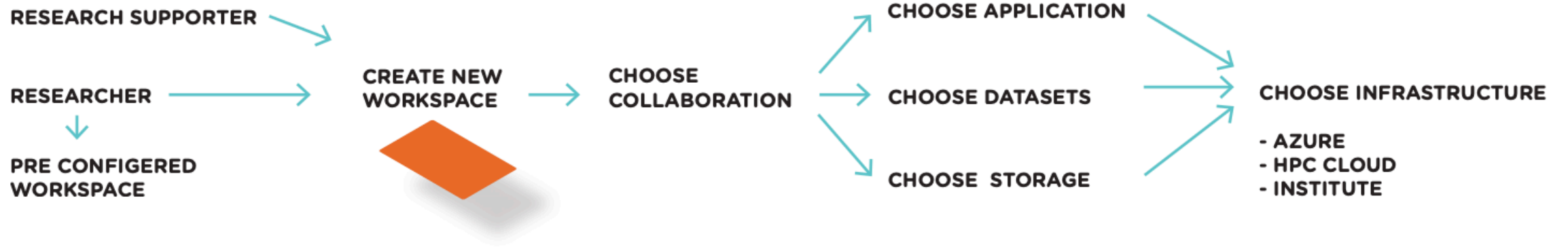
SURF Research Cloud provides a portal and a platform for:

- Creating Workspaces (VRE's)
- Working across institutes
- Accessing a broad range of services
- Accelerating research

It's a SURF innovation project



SURF Research Cloud Workflow



Research Cloud Portal


SURF SARA Research Cloud Dashboard Profile Budget Catalog Help Martin Brandt ▾

Welcome to your Research Cloud Dashboard

Quick actions

Create new workspace


Start here to create everything you need for a workspace.



CREATE NEW

Request more budget


No computing hours left to continue your project or to start a new one? Make a request for additional budget.



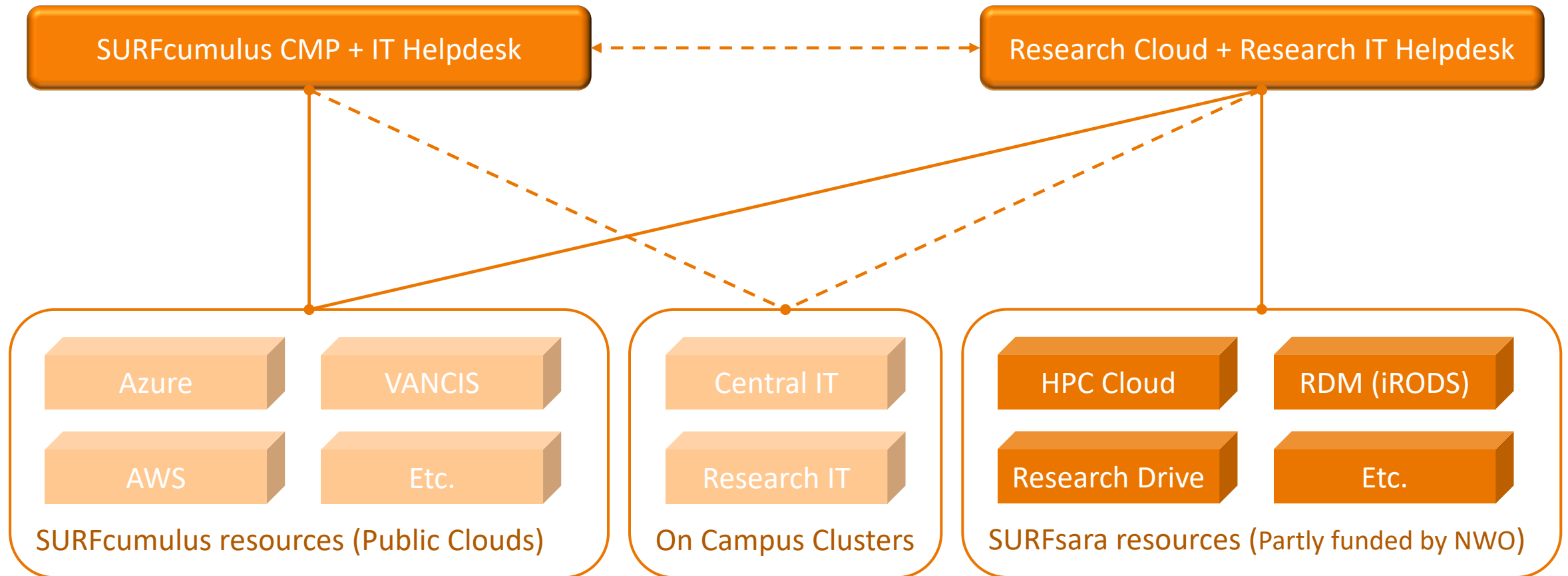
REQUEST

Your Workspaces

Show deleted workspaces

| | | | |
|---|---|--|------------------|
| UVA-HvA Workshop R-Studio with dataset tes test |  | <div style="width: 50%; height: 10px; background-color: #28a745;"></div> | State: running ▾ |
|---|---|--|------------------|



SURF Research Cloud and SURFcumulus



SURF Research Cloud components



Research Cloud infrastructure resource selection

SURF SARA Research Cloud Dashboard Profile Budget Catalog Help Ivar1 Janmaat1  Feedback 

Create your workspace

[Restart workspace creation](#)

✓ Collaborative organisation — ✓ Application — ✓ Dataset(s) — **4** Power required — 5 Cloud solution — 6 Name

[Rectangular Snap](#)

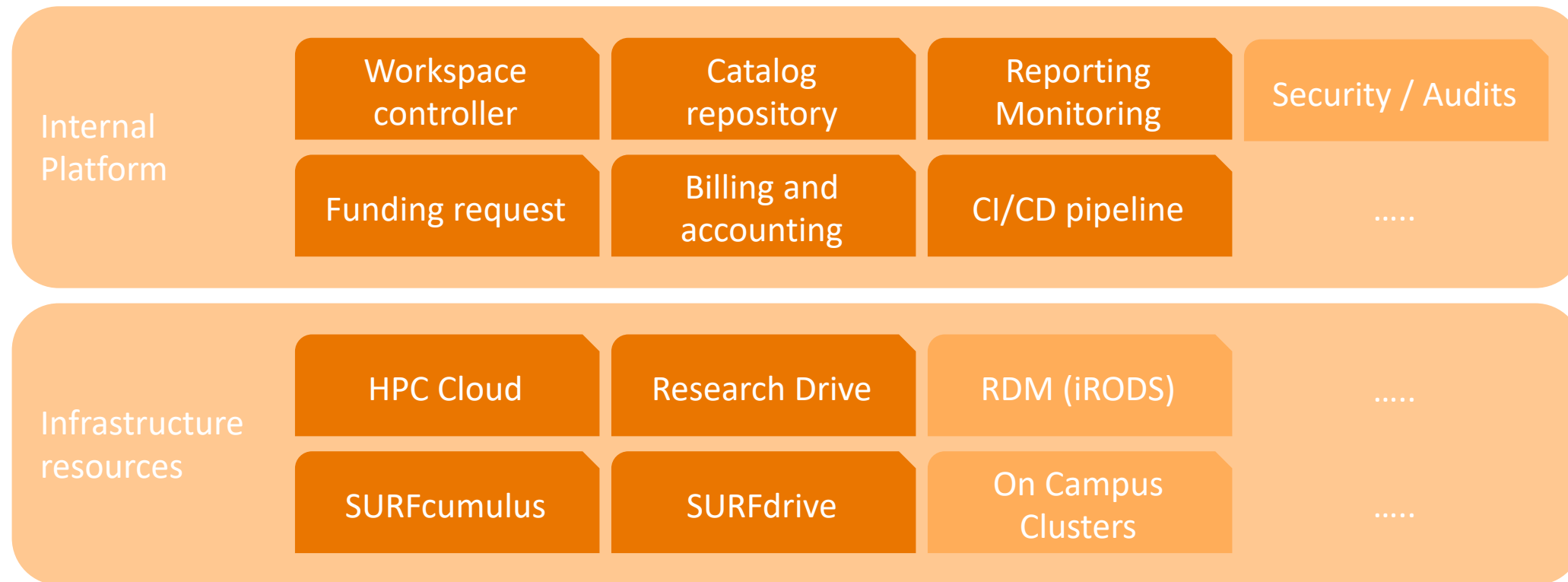
Choose the power you want to use

What is the size of your dataset? Your size requirements determine the power required from the VM.

| Small | Medium | Large | Extra Large |
|---|---|--|--|
| VM specifications - Up to 2 cores - 2 Gigabytes of memory | VM specifications - Up to 4 cores - 8 Gigabytes of memory | VM specifications - Up to 8 cores - 32 Gigabytes of memory | VM specifications - Up to 64 cores - 256 Gigabytes of memory |
| SELECTED ✓ | CHOOSE | CHOOSE | CHOOSE |

[BACK](#) [CONTINUE](#)

SURF Research Cloud components



Billing and Accounting

Quick actions

Request more budget

No computing hours left to continue your project or to start a new one? Make a request for additional budget.



REQUEST

Your Budgets

This is an overview of your available budgets, also known as wallets. These wallets include the ones you own yourself, plus those which are provided to a collaborative organisation that you are member of. To start a new workspace you need to have budget available to finance this workspace.

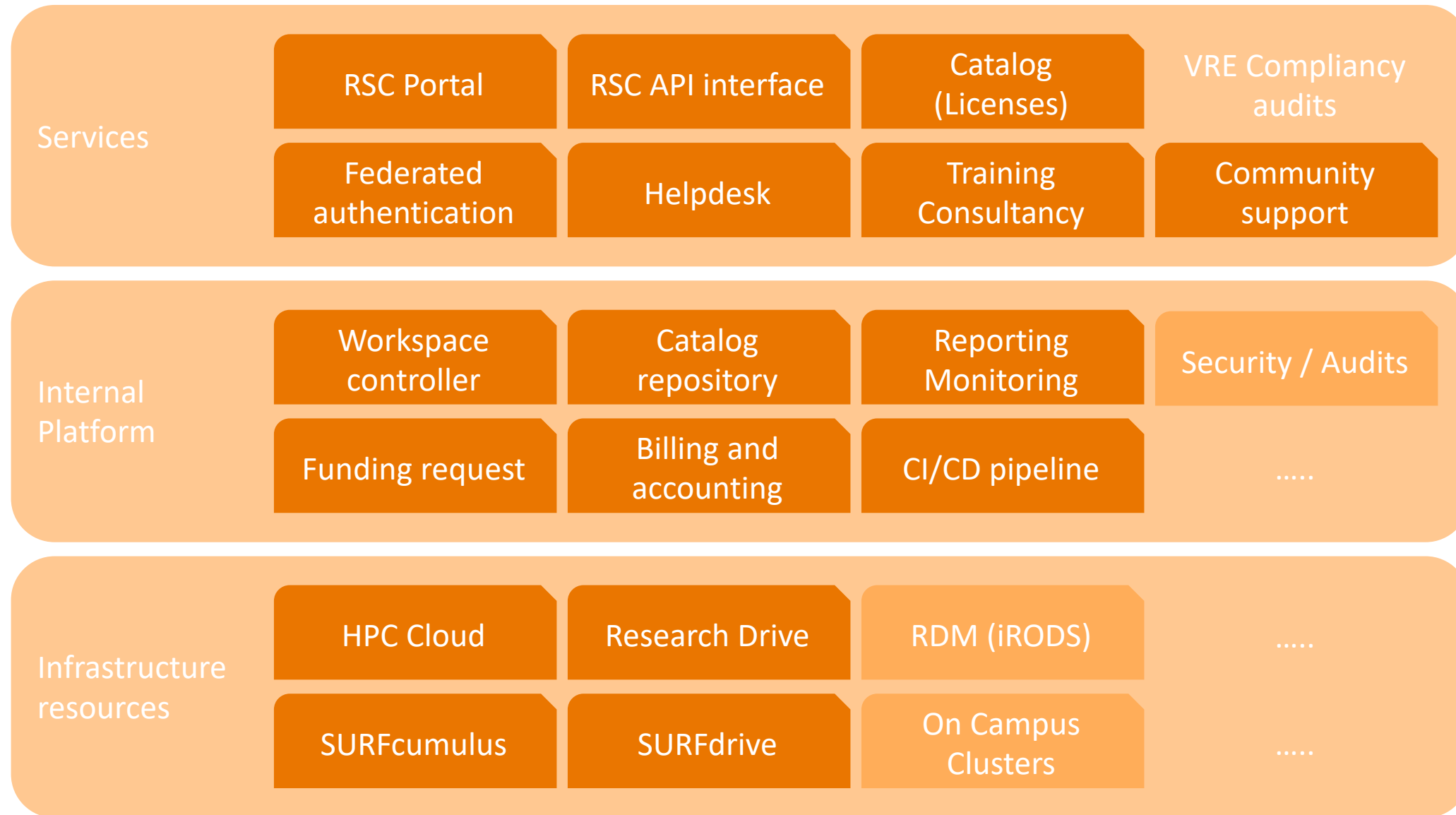


Martin SURF budget
Credits: 9338.452



Martin first budget
Credits: 9858.761

SURF Research Cloud components













Catalog: Applications and datasets

Catalog

Here you find information on all available applications and datasets. You can request access to these by selecting the specific item. Our helpdesk will review your request and will inform you about the next steps. After completion you will be granted access to the items within the workspace creator. Note: You can also add your own dataset or application. With this you can help your fellow researchers!

Applications

Datasets

| | | |
|--|--|---|
|  Jupyter Hub Jupyter Hub on Ubuntu VM |  Galaxy Galaxy NL |  BiosVM BiosVM with R-studio and read-only dataset |
|  Ubuntu 16.04 Ubuntu VM |  R-Studio R-Studio on Ubuntu VM |  Windows Server 2016 Windows Server 2016 Datacenter |
|  PSPP PSPP on Windows Server 2016 |  Spot Spot on Ubuntu VM, developed by NLeSC |  UVA-HvA workshop Jupyter Hub UVA-HvA workshop Jupyter Hub |
|  UVA-HvA Workshop R-Studio UVA-HvA Workshop R-Studio | | |

SURF Research Cloud design principles

Microservices on Kubernetes

Advantages

- Modular design -> No vendor lock-in
- Open source -> Total control of functionality and security
- Flexible in developing and adding new features -> Direct user interaction
- CI/CD pipeline -> Spin up multiple RSC frontend and backends to any PaaS provider
- Can integrate with other microservices
- Fault tolerant and scalable

Disadvantages

- Expertise needed (CI/CD)

SURF Research Cloud roadmap



✓ Research Drive (auditable identity)

✓ SURFdrive

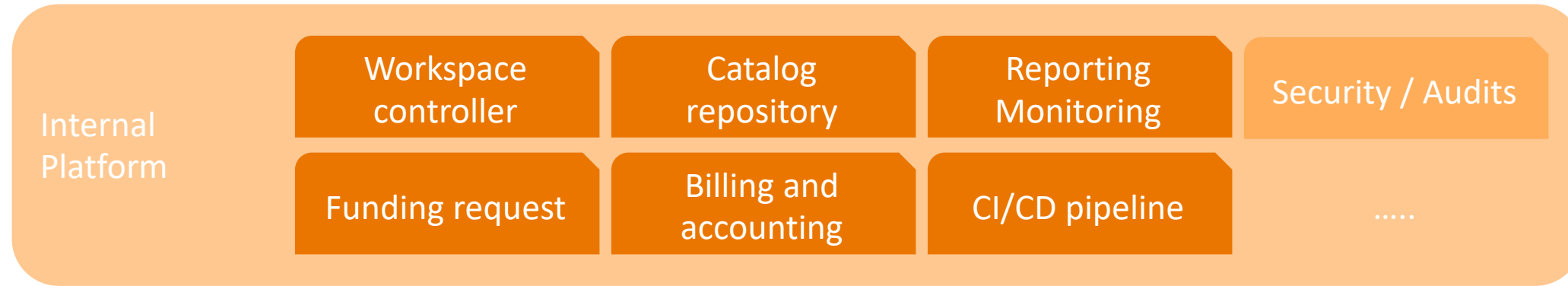
✓ Azure + AWS

❑ RDM (iRODS)

❑ CEPH, dCache, etc.

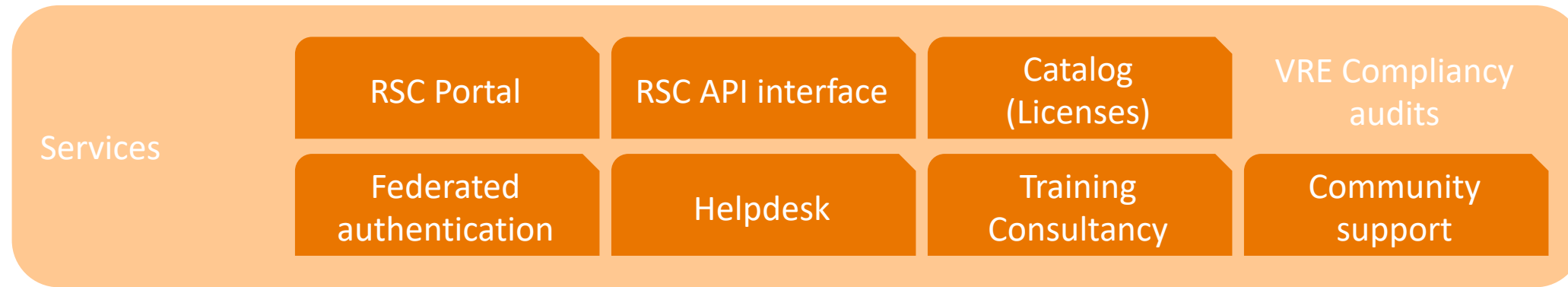
❑ Pilots with On Campus clusters

SURF Research Cloud roadmap



- Security settings for public Clouds
- ISO 27001 audit for RSC
- PEN test and code review on RSC
- Operational procedures
- White label RSC
- Add your own datasets for public use or use in specified Collaborative Organization yourself
- Add your own application for public use or use in specified Collaborative Organization yourself

SURF Research Cloud roadmap



- ✓ RSC Portal refresh
- ✓ Budgets added
- ✓ Time-based one time password (TOTP)
- ✓ Automated creation of Collaborative Organization (CO)
- ☐ Helpdesk as a Service
- ☐ Licenses for apps in Catalog
- ☐ VRE Compliancy audits
- ☐ API documentation and test facility

Other work in progress

Governance (new features and enhancements)

- Direct feedback from researchers via user interface
- Catalog items development / ownership
- Align development with EU and Dutch HPC research infrastructure requirements and goals

Finance

- It's a SURF innovation project
- SURF Innovation budget and OPEX budget need to come together in a dev/ops way of working.

GDPR

- Research institutes, NWO and researchers all determine purposes and means -> Controllers
- SURFsara -> Processor

Conclusion

Functionality

- Designed for researchers
- Designed for collaboration
- Portal and a platform
- Reusable components and services

Technology

- Modular design
- Open-source
- Modern CI/CD setup with agile development team
- Designed for integration and co-creation

To-do

- Compliancy (audits + GDPR)
- Add more resources (SURFcumulus + RDM) -> Pilots
- Co-create and support catalog and dataset items -> Pilots
- Go to production

Questions?