Authentication and Authorisation for Research and Collaboration

The RCauth.eu CILogin-like TTS Pilot in EGI

Deployment and Sustainability Models
for the AARC CILogon-like TTS Pilot

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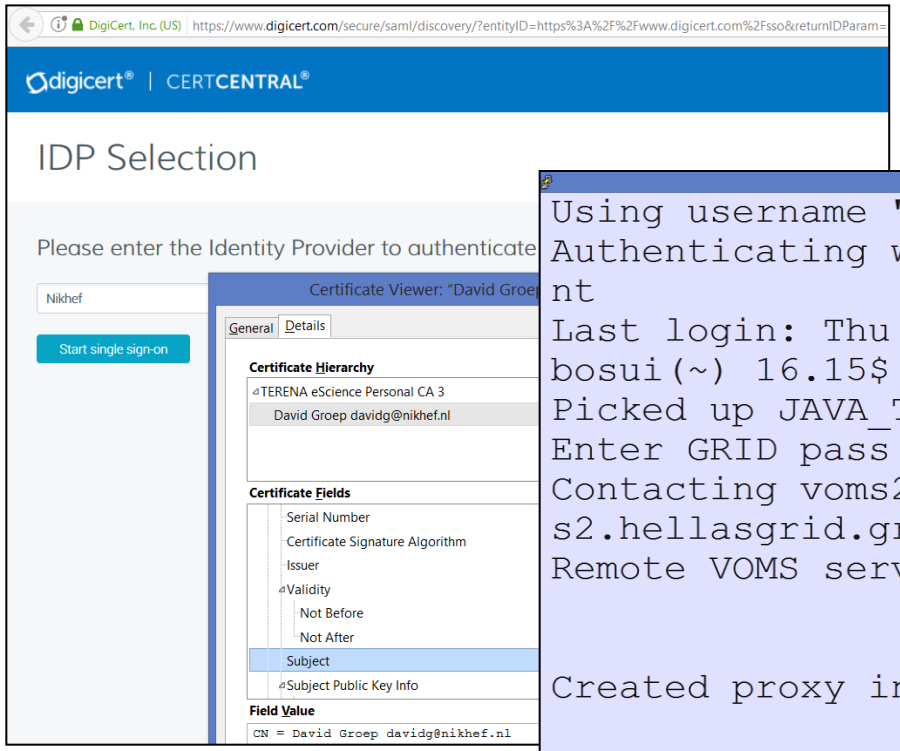
Seamless (eduGAIN) Access to (non-Web) Resources using PKIX?

Traditional workflow – using a client-held credential



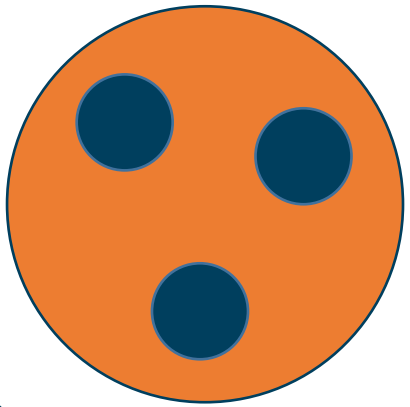

```
Using username "davidg".
Authenticating with public k
nt
Last login: Thu Apr 13 17:43:46 2017 from 2a07:8500:120:e03b:
bosui(~) 16.15$ voms-proxy-init -voms dteam
Picked up JAVA_TOOL_OPTIONS: -Xmx512M
Enter GRID pass phrase for this identity:
Contacting voms2.hellasgrid.gr:15004 [/C=GR/O=HellasGrid/OU=h
s2.hellasgrid.gr] "dteam"...
Remote VOMS server contacted succesfully.


Created proxy in /tmp/x509up_u5917.

Your proxy is valid until Wed Apr 19 04:16:05 CEST 2017
bosui(~) 16.16$
```

Works great *provided* the user understand the technology – and we may have found all users that know how to manage ☹

```
bosui:/user/davidg (davidg:emin)
bosui(~) 16.25$ gsissh sgmlhcb@kot.nikhef.nl -p 1975 'id -a && hostname -f'
uid=991(sgmlhcb) gid=2015(lhcbsgm) groups=2015(lhcbsgm)
kot.nikhef.nl
bosui(~) 16.25$
```

Aim: seamless access to existing services with eduGAIN for all

Pan-European Access
not country-opt-in based
standards-based assurance



Dispersed User Base
critical mass is beyond
any single institution

Concentrate Sensitive Components
no long-term token needs in the VO portal
credential management by the Infrastructures

No Changes to the Model
for infrastructures and
their service providers

Brokered access and VOMS
with delegation, brokering,
and optional cli access

Minimal Coding
for the VO portals

CILogon-like TTS Pilot, the User's work flow

user login flow: VO portal → Community Infrastructure → RCauth service → federated AAI

credential flow: authentication, SAML federation, Policy Filter, OpenID Connect, PKIX+OIDC, (VOMS), proxy-on-portal

voms admin

MyProxy Credential Management Service

RCauth.eu

SIRTFI

R&S

AARC Master Portal or Infrastructure Solution

delegation

server

CILogon

filtering WAYF

SURF SARA MinE project Make it yours

eduGAIN

egi

elixir Data for Life

DIY DEMO

https://rcdemo.nikhef.nl/

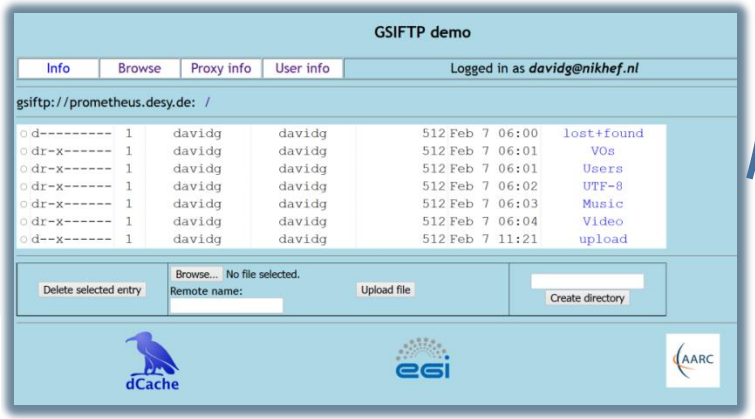
once your home institution meets baseline criteria (R&S + Sirtfi) …

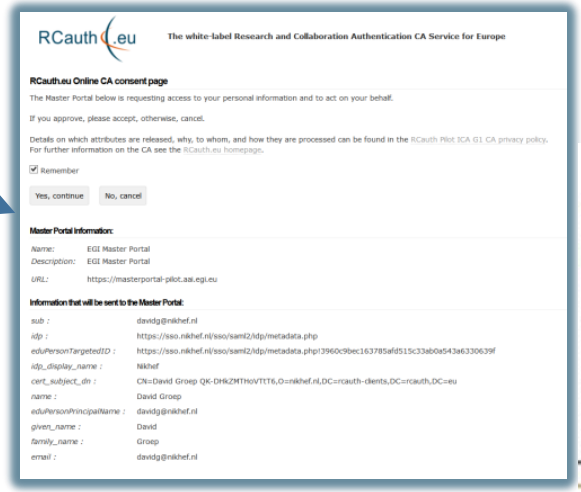
you can do most things except VOMSified access to the Prometheus dCache pool

that last elements needs your credential to be added to the permitted list

Flow for RCauth-like scenarios

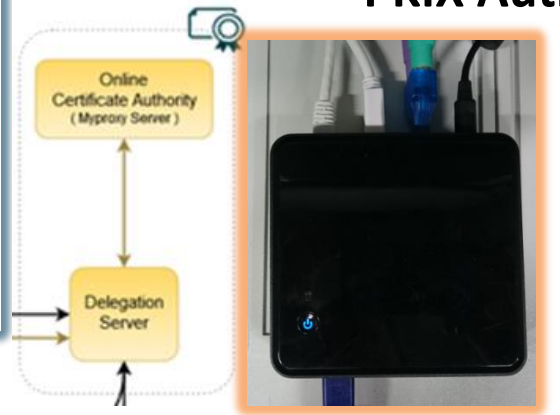
Community Science Portal

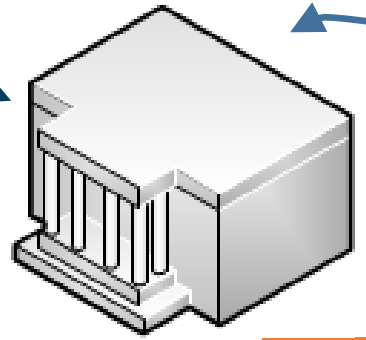




Infrastructure Master
Portal Credential Store

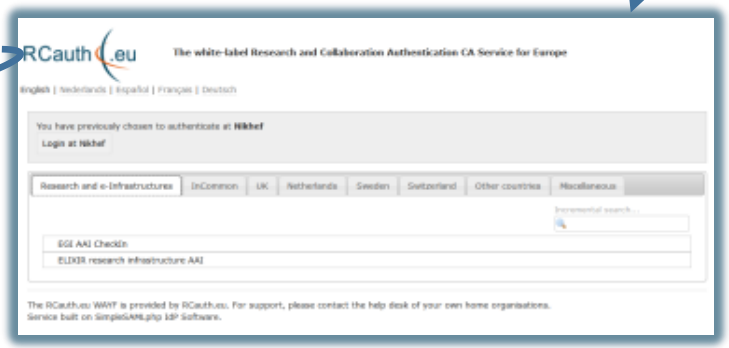
Accredited
PKIX Authority





User Home Org
or Infrastructure IdP

REFEDS R&S
Sirtfi Trust

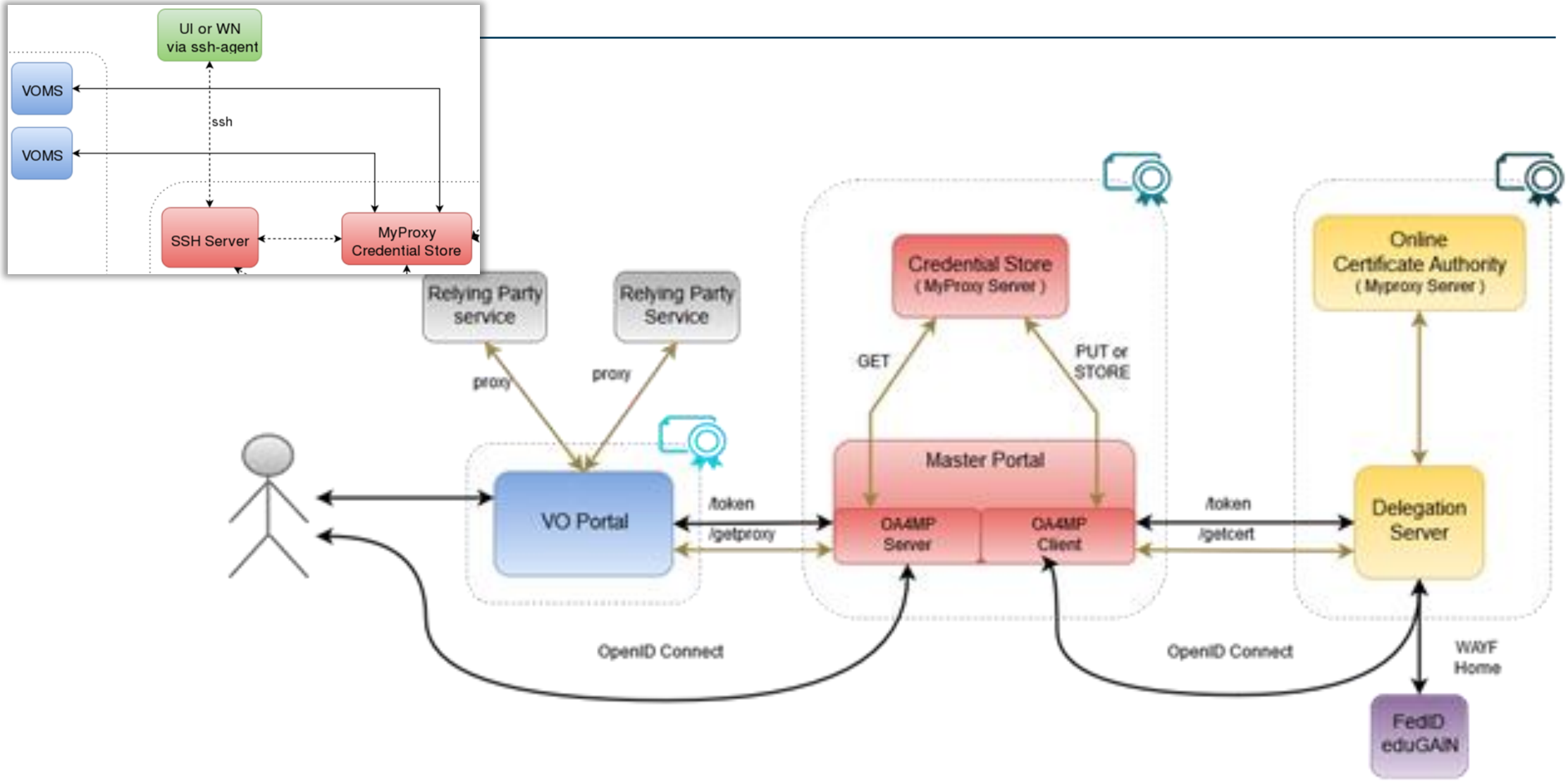


Policy Filtering WAYF / eduGAIN

Built on CILogon and MyProxy
www.cilogon.org

see also https://rcdemo.nikhef.nl/

CILogon-like TTS Pilot - distributable elements



Blue: VO services and resources

- Are around today, either self-managed or hosted, in most communities
- Science gateways, portals, e.g. HADDOCK, Galaxy, LifeRay (generic), WebFTS, …

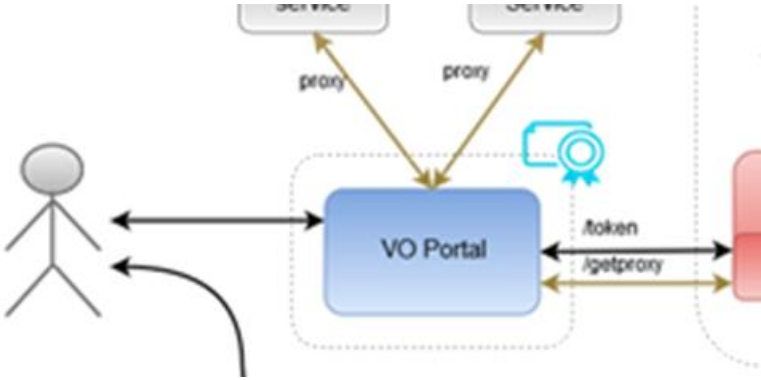
```
$oidc->
authenticate()

echo "Hola
$name"
```

- Omnipresent (and has unfortunately proven to be an easily compromised target)
- Will have to *get credentials* from the MPs, but should be able to do so *only for authenticated users*
- Downtime will impact its' own users, but there will be many of these (same service by different sites?)

Considerations:

Operated as today by the communities

Bound slightly stronger to the community via the Master Portal



Red: the Master Portal (MP) and Credential Repository

- Needs to be a trusted element (to permit credential storage by the TTS)
- Requires some operational and security expertise (managed data centre, locked racks, access controls, ability to designate infrastructure for security operations, trained staff)
- Connects to (many) workflow-specific VO portals
- Connects to a single Delegation Service/TTS – and can give *IdP hints*

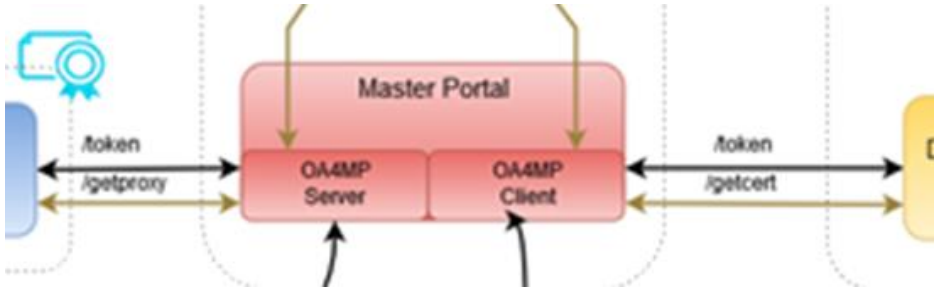
- Downtime of an MP disables resource access for connected VO portals

Considerations:

One per Research or e-Infrastructure

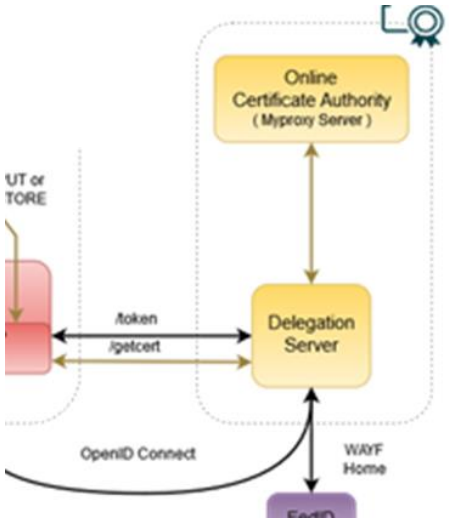
Should be highly available (database sync)

Infrastructures can also build their own (e.g. in WaTTS, Unity, …)



Yellow: the Token Translator/OA4MP/CA service

- Needs security and policy expertise – and ability to **maintain accreditation**
- Needs operational and technical capabilities: hardware security modules, managed data centres, off-line and on-line secure areas
- Connects to a few Master Portals (MPs) based on explicit agreements *to take care of user credential protection and compliance*
- Connects (many, we hope scalably) federations, IdPs and (few) SP-IdP-Proxies
- *May have to present a WAYF, if the VO portal does not pass IdP entityID*
- Bridges many technologies: **SAML – PKIX – OIDC**



Considerations:

Trust and compliance, with IGTF accreditation

Single logical instance, with HA built in for production

Managed by a consortium: in Europe agreed by at least EGI, EUDAT, GÉANT, ELIXIR, and SURF

Purple: connected federations and IdPs (proxies)

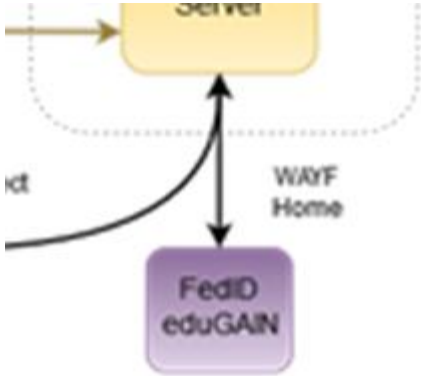
- In the generic case (conventionsl R&E federations) only limited control possible
- Infrastructure-managed IdPs will provide more specific capabilities, *e.g.*, uniqueness
- Connects to many services, of which the RCauth.eu service is just one
- Build on common technology - thus keep SAML federations, and no OIDC here yet

- policy compliance using shared concepts: **REFEDS R&S, Sirtfi**
- Negotiate only when needed (but it must serve all users to prevent fragmentation)
- Cope with heterogeneity (i.e.: use a ‘filtering WAYF/entity filter proxy’)

Considerations:

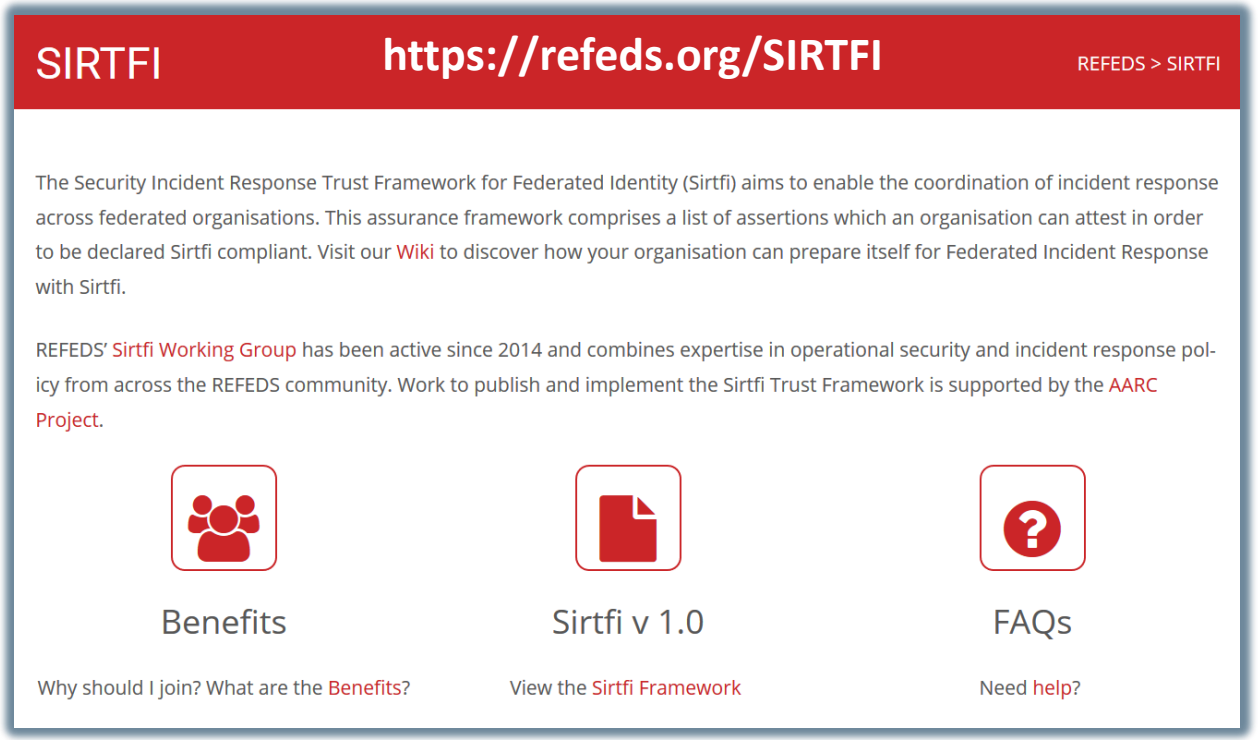
eduGAIN registration, Sirtfi adoption, REFEDS R&S, filtering capability

Needs a friendly registrar, but is otherwise ‘just another SP’



Sirtfi and R&S – policy needs for trust in identity providers and federations

- REFEDS and federation focused FAQ
- Definition of the global Security Contact meta-data profile for use in eduGAIN
- Namespace for Sirtfi Assurance at IANA
- Used in cyber ops roleplay exercises
- Promoted at I2TechX, FIM4R, Kantara, and TF-CSIRT



- Ingredient to the 'CILogon pilot'
  combination of
  REFEDS "Research and Scholarship"
  and
  Sirfti v1.0

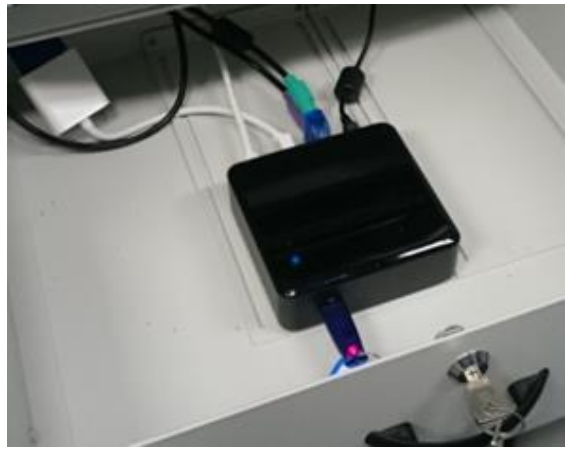
  meets **assurance requirements for RIs and EIs** according to the IGTF "assured identifier trust"

Apr 17th **160 eduGAIN entities that support Sirtfi**

Where are we now?

- Several master portal instances deployed for EGI and ELIXIR (all managed by Nikhef for now)
- A ‘production demonstrator’ instance of the TTS set up in conceptually the ‘right way’:
  - Dedicated secure environment, FIPS 140 level 3 approved HSM, anchored in a stable way
  - Policy and practices accredited under ‘unique-identifier’ profile at the IGTF
    –good enough for some infrastuctures, and within EGI *in combination with* vetted & managed communities
  - Scalable negotiation model based on Sirtfi and REFEDS R&S section 6
  - Model requirements on attached MPs defined (for key protection)
  - Trust anchors in production (RCauth.eu is part of the ‘EGI-CAM’ package)

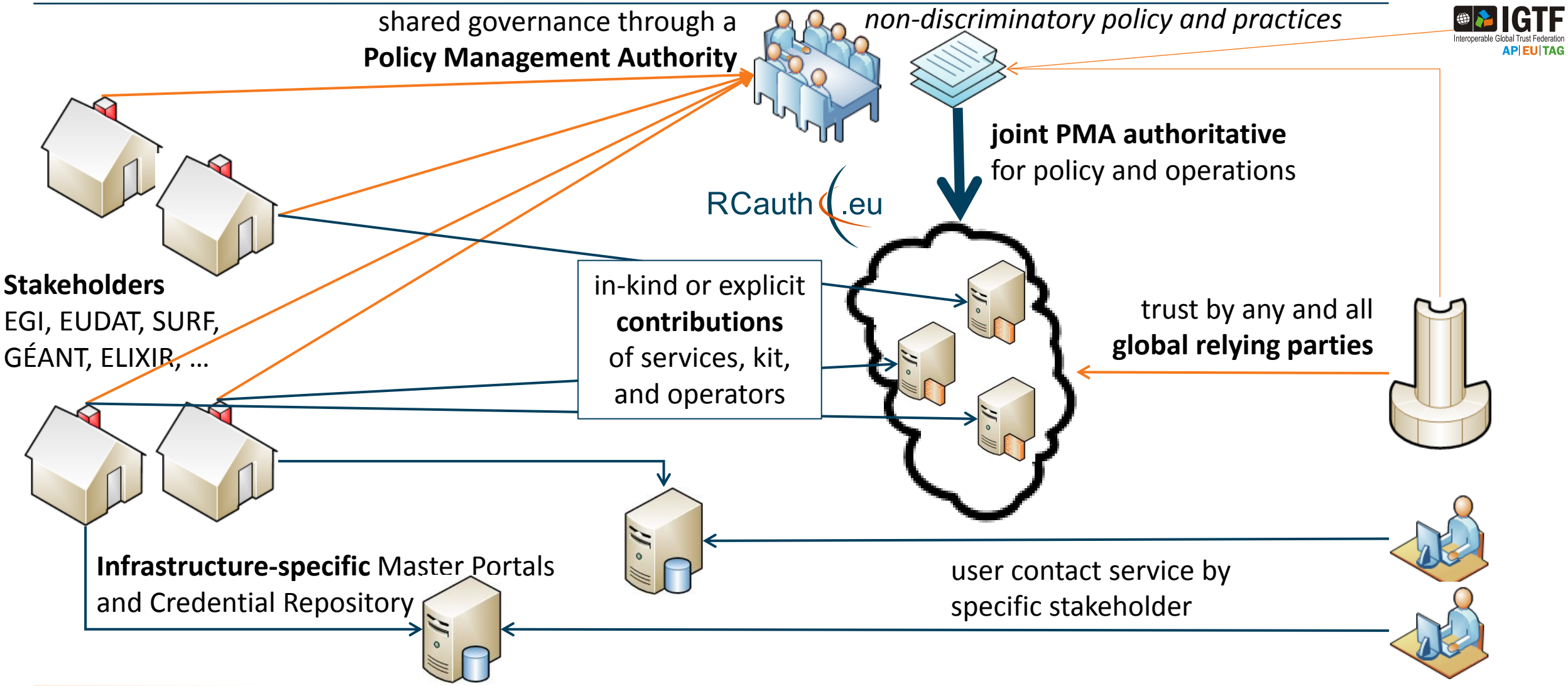
RCauth.eu



But it’s a **production demonstrator**, *not* production, *without* an SLA, and with limited capacity

- … and it’s a bit a ‘Heath Robinson’ service, using mostly pre-available hardware

Potential RCauth.eu management model



Costing the services

Highly depends!

- What is ‘the service’? Delegation Service & WAYF? Master Portals?
- Can be anywhere between a few kEur to well over 100+kEur cost per year …

The EOSC Hub Consortium picked a middle ground, proposing to contribute effort and some hardware resources to the joint pan-European pool, and help steer the development

Recuperation model appears to converge

- Master Portals (Credential Management) on a per-Infrastructure basis, from own funding
- Delegation Service/RCauth.eu: free at point of use
- Funded via in-kind contributions by the major e-Infrastructures
- Distributed H/A setup, leveraging existing capabilities and some additional person effort

References

https://wiki.geant.org/display/AARC/Models+for+the+CILogon-like+TTS+Pilot

https://www.rcauth.eu/

https://rcdemo.nikhef.nl/

Thank you

Any Questions?

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https://aarc-project.eu

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