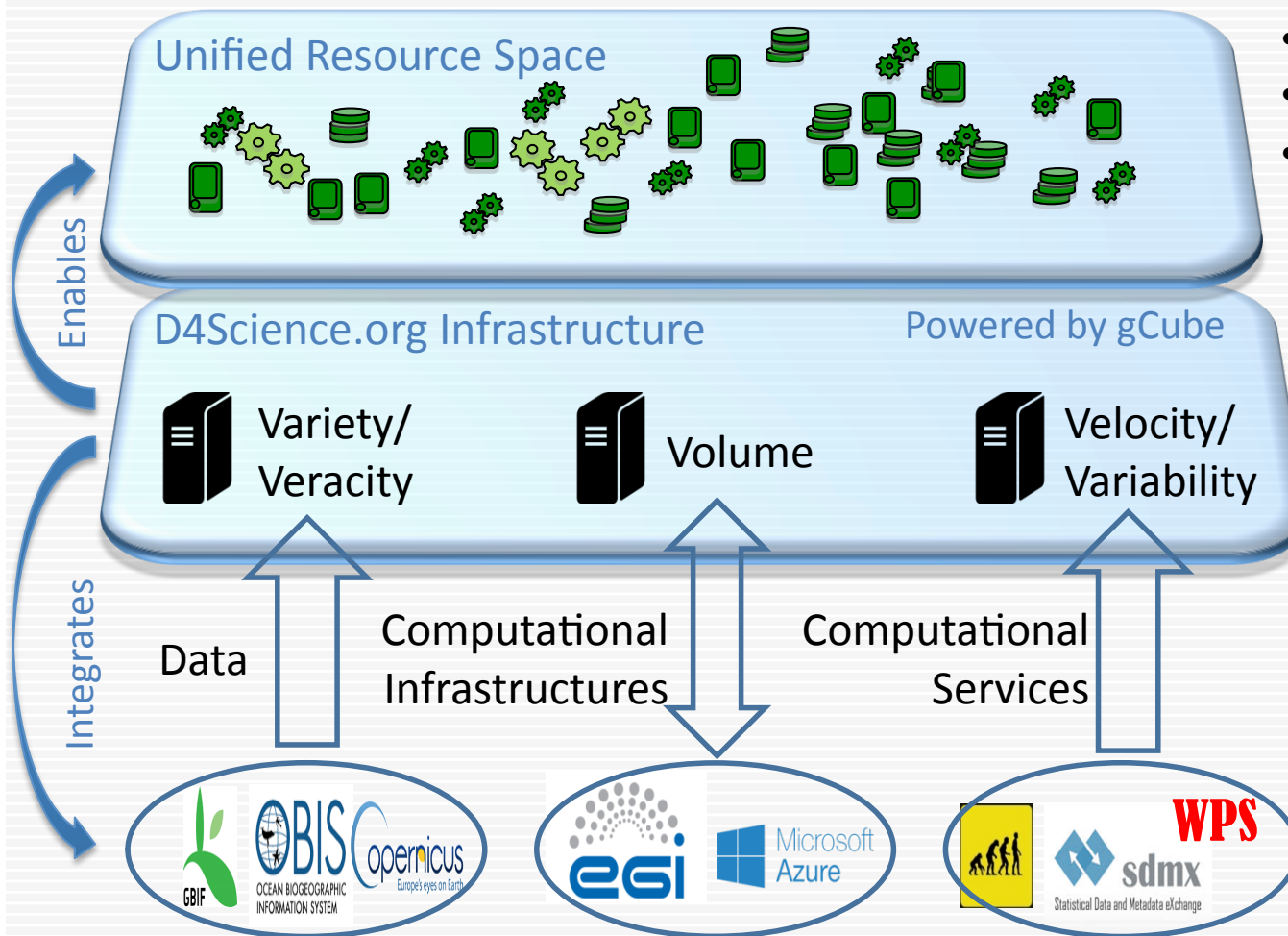


A system of systems



3. Infrastructure resources:

- Manage **security**
- **Expose** Integration services
- Support **information exchange** between services

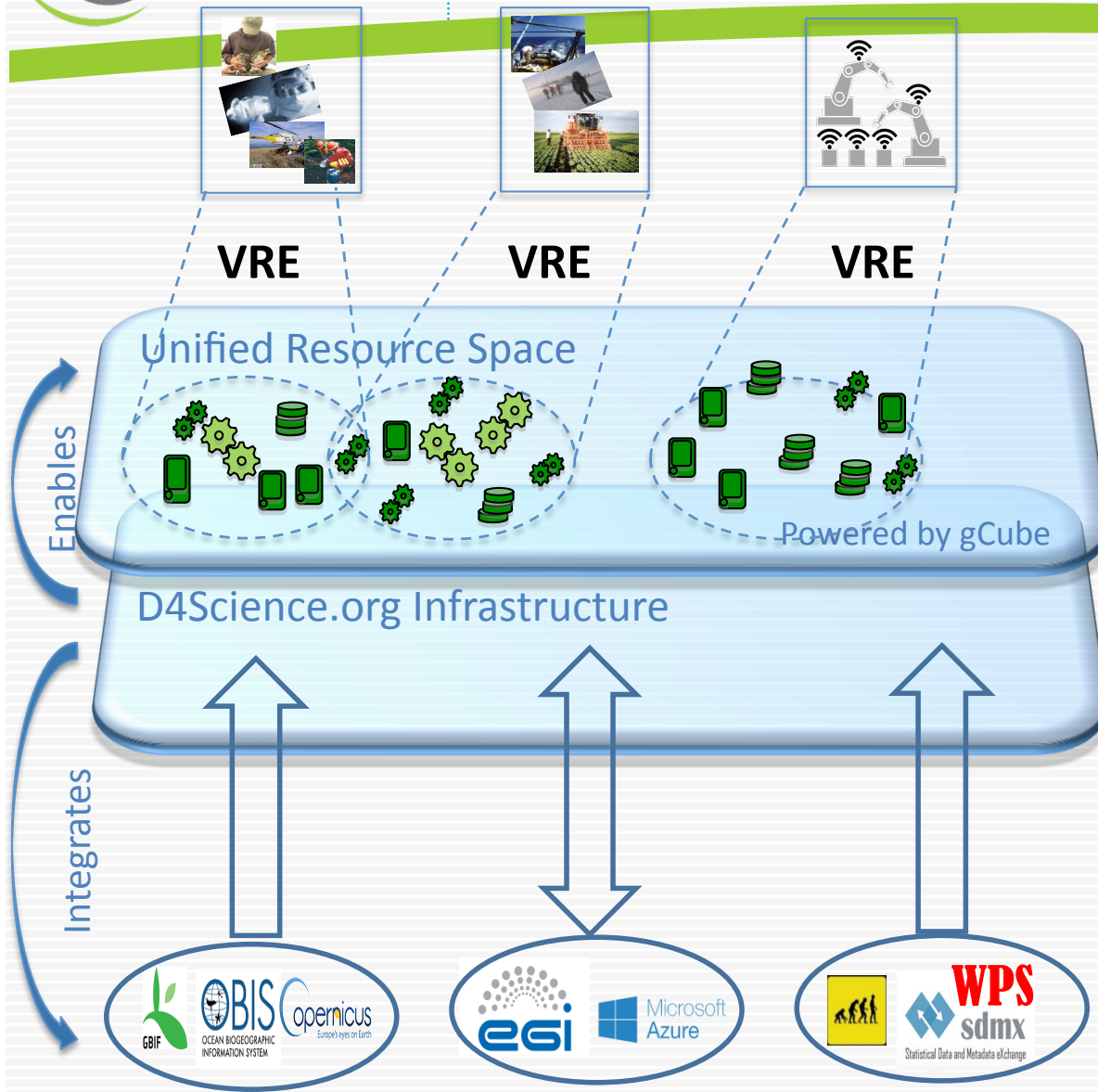
2. Integration services:

- Manage **external systems**
- **Harmonise** data
- **Host** data and processes
- Support **adaptability**

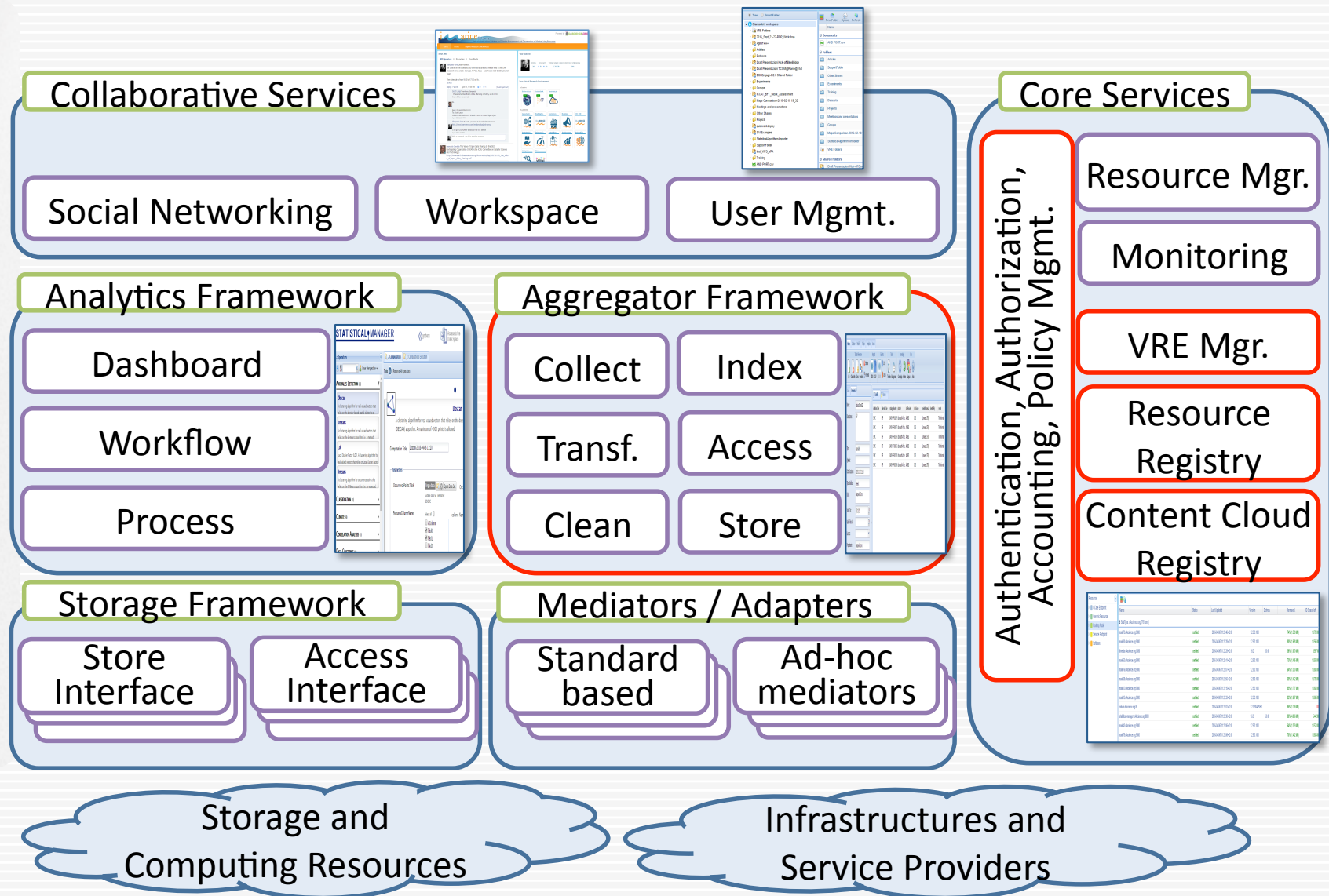
1. External Systems:

- Storage
- Computations
- Data services

Virtual Research Environments (VREs)



- Allow temporary dedicated assignment of computational, storage, and data resources
- Promote data and information sharing
- Simplify the management of **Accounting, Authentication and Authorization**

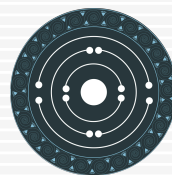
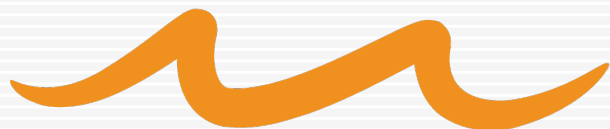


- **gCube** provides **Smartgears**
 - Servlet 3.0+ container
 - Zero dependency
 - Integrates AAA
 - Java API (via SOAP) and HTTP REST
- Open Source : EUPL License

- **+50 VREs hosted**
- **+2500 scientists in 44 countries**
- **+50 data providers**
- **+25,000 derivative data/month**
- **over a billion quality records**
- **+20,000 temporal datasets**
- **+50,000 spatial datasets**



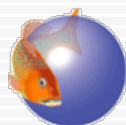
BlueBRIDGE



PARTHENOS

Pooling Activities, Resources and Tools
for Heritage E-research Networking,
Optimization and Synergies

ARIADNE



FishBase



DESCRAMBLE

EFG  *beta*
european film gateway



Chimaera



i **arine**
Data e-Infrastructure Initiative for Fisheries Management and
Conservation of Marine Living Resources



SoBigData

Social **ISTI** by ISTITUTO DI SCIENZA E TECNOLOGIE
DELL'INFORMAZIONE "A. FAEDO"

TAG-ME



Lecture-style: the course topics stress is different depending on the audience

- 1 course/year
In Pisa

Interactive: after each explained topic, students do experiments

Experimental: students reproduce the experiment shown by the teacher and possibly repeat it on their own data

Social: students communicate via messaging or VRE discussion panel



- 1 course/year
In Paris



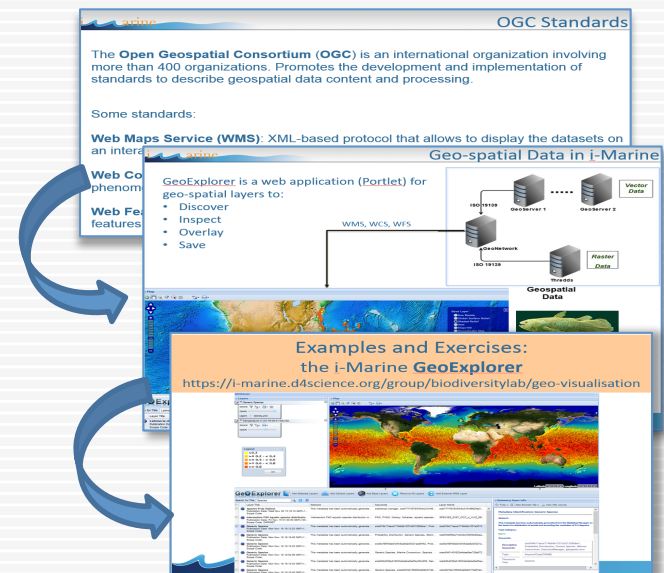
*International
Council for the
Exploration of the
Sea*

- 12 courses
In Copenhagen



www.bluebridge-vres.eu

- 38 courses
All over the world
+1000 attendees



- From 2006: **GARR**
- From May 2016: **Let's Encrypt**
 - Automate Certificate Management

Token Based Authorization Framework compliant with
Attribute Based Access Control (ABAC)

“ACCEPT ALL except” paradigm.

Deny Rules

- Environment: i.e. VRE
- Subject: i.e. User, Role, Service
- Resource: i.e. Service
- Action: i.e. ALL (default), ACCESS, WRITE, DELETE, EXECUTE

- **U2S**

- **TagMe**

- User('mario.rossi')
 - Service('StorageManager')
 - WRITE

- **U2S**

- **SocialISTI**

- Role('VREUser')
 - Service('VREModeler')
 - <ALL>

- **S2S**

- **BlueBRIDGE**

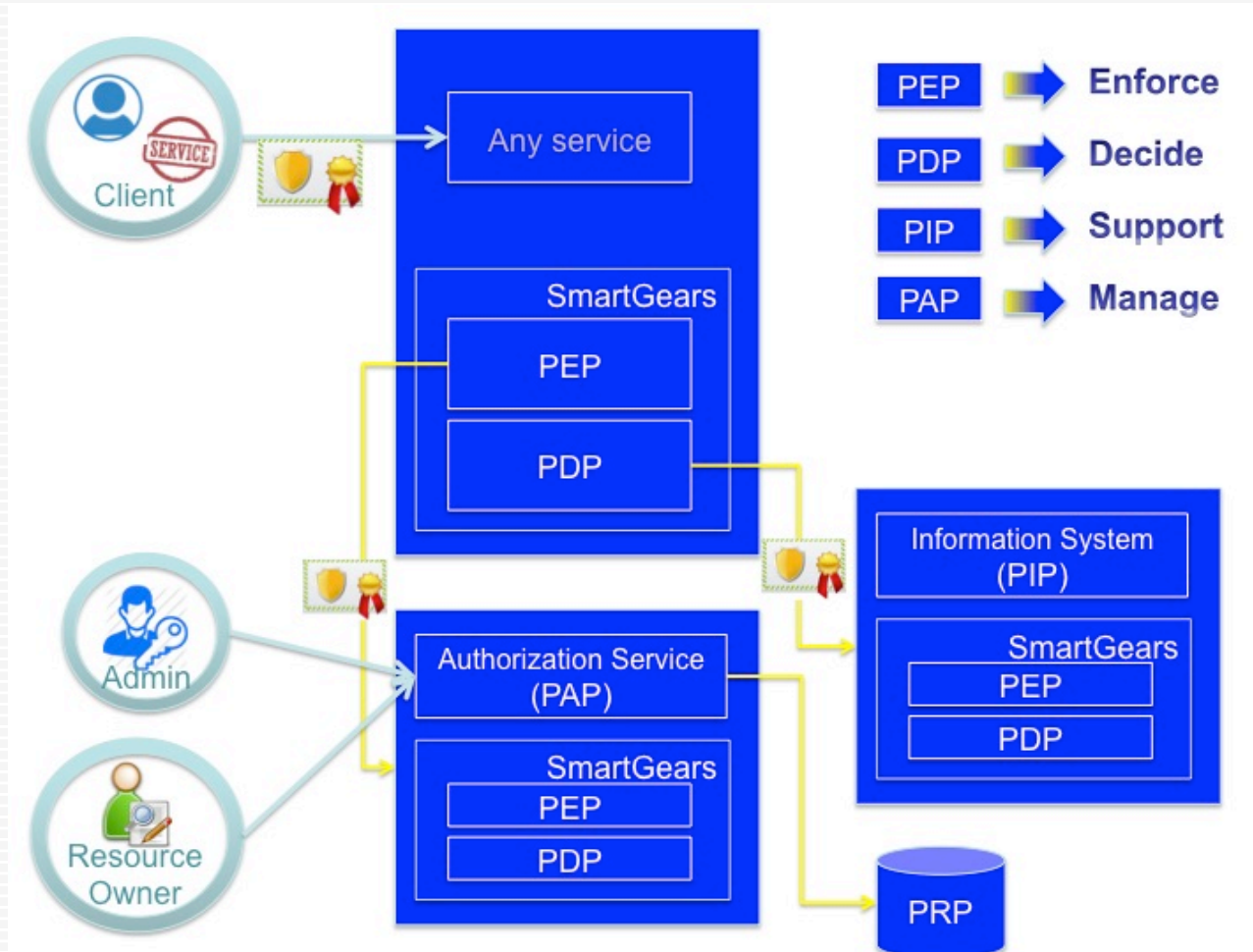
- Service('TabularDataManager')
 - Service('StorageManager')
 - <ALL>

- **S2S**

- **SoBigData**

- Service('StatisticalManager')
 - Service('SmartExecutor')
 - EXECUTE

XACML reference architecture compliant





ISTI - Servizio di Ide... x

https://idp.isti.cnr.it/simplesaml/module.php/core/loginuserpass.php?AuthState= 182c5351c41af2bf354a51b8da5a9fda1 Search

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Password

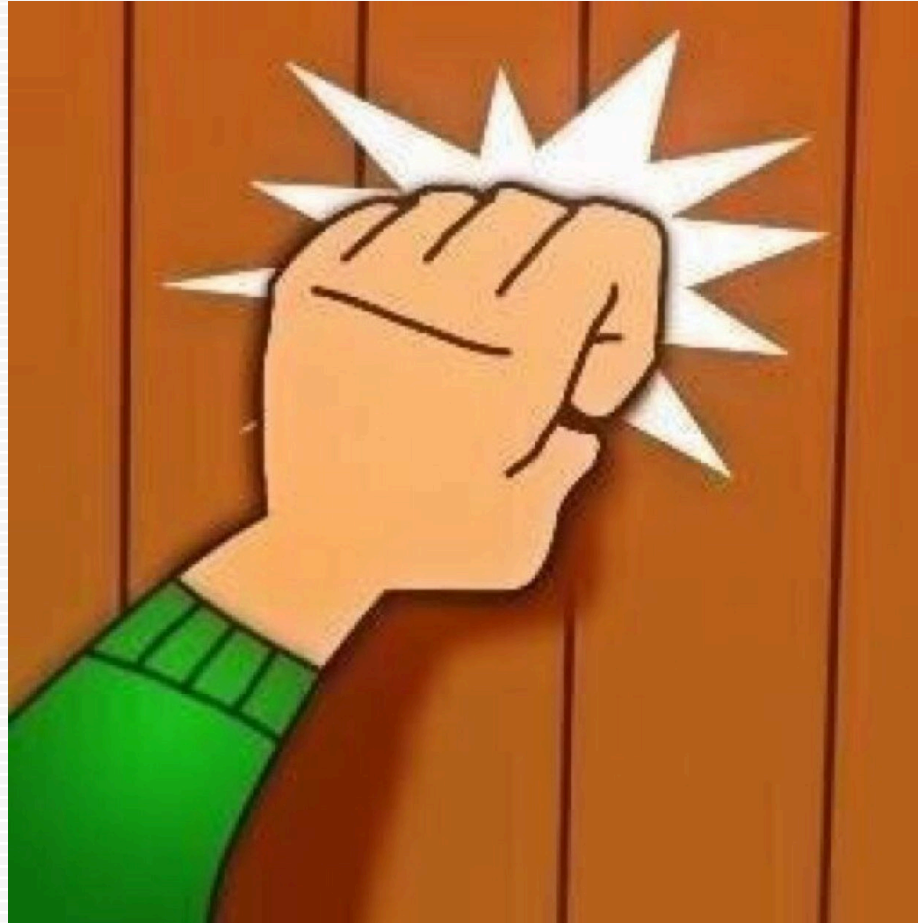
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Hello we are a Service Provider, can we come in?



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- Want more information on D4Science?
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- Want real time updates?
www.twitter.com/d4science
- Any other question/doubt?
Luca Frosini - luca.frosini@isti.cnr.it
www.linkedin.com/in/lucafrosini