OpenAdap.net – a Socialware for Knowledge Sharing

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Motivation

- The richness circulating in the Cyberspace is poorly exploited because of technical **difficulties to share the know-how.** Public entities as well as business companies usually provide software based on **tailored needs** and platforms **too narrowly designed.**
- A **delay** appears until newly developed methods of information processing become available within a specific field or discipline.

- Even worse, this delay applies for application across fields of competence, i.e. **transdisciplinary applications:** knowledge is not disseminated and remain undiscovered due to the absence of software accessible to **users specialized in fields of competence other than that of the original author.**

- The existence of **barriers** in the flow of information processing **increase the overall cost** of knowledge production and distribution and **restrict its availability to developing countries**.

Research Objectives (1)

- Our project is aimed at breaking the aforementioned barriers, thus bringing a contribution **to bridge the digital divide** in the Knowledge Society.
- The key is the development of a project that is **independent of a specific data type:** **OpenAdap.net** is an **Open Source software platform** that provides flexible tools for knowledge production and distribution committed to the holistic view proposed by the **N**etworked **E**uropean **S**oftware and **S**ervices **I**nitiative (**NESSI**).
- **Community** members who provide new knowledge become able to **share** their contribution and members who have information to be processed can **access** these services.
- To **avoid the "re-invention"** of existing software and **save time and expenses** by the whole society and prevent incorrect applications.

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Research Objectives (2)

- To provide **Internet Communities** the possibility to **transparently compose meta- resources** based on the resources available in their own Community, as well as in Communities with **semantically related interest**, by means of a **network-centric operating system** driven by the activity of intelligent adaptable brokers.

	Data treatment distribution	Hardware resource allocation	Hidden execution hosts	Applications sharing	Published application interfaced	Data sharing	Highly dynamic system	Transparent connections users ⇔ resources
Grid	X	X	X					
Web Services			X	X	X	X		
P2P						X	X	X
openAdap.Net	X	X	X	X	X	X	X	X

- To develop a new **OpenAdap.net** protocol (**oan://**) for field instrumentation and wireless communication over Internet **easing ubiquitous knowledge sharing and access.**

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Target Audience

COMMUNITIES

People who share a **knowledge representation** (common data format) driven by common interests.

CONTRIBUTOR **:** people who would like to **share their knowledge** with the Community. They maintain the authorship and keep **control and responsability** over their contribution.

USER **:** people interested to **process their own information** or **access knowledge stored elsewhere** (e.g., in a public database) and **extract the results of their processing.** They exploit Contributors' applications in a trusted way.

OpenAdap.net

CONTRIBUTORS ***USERS***

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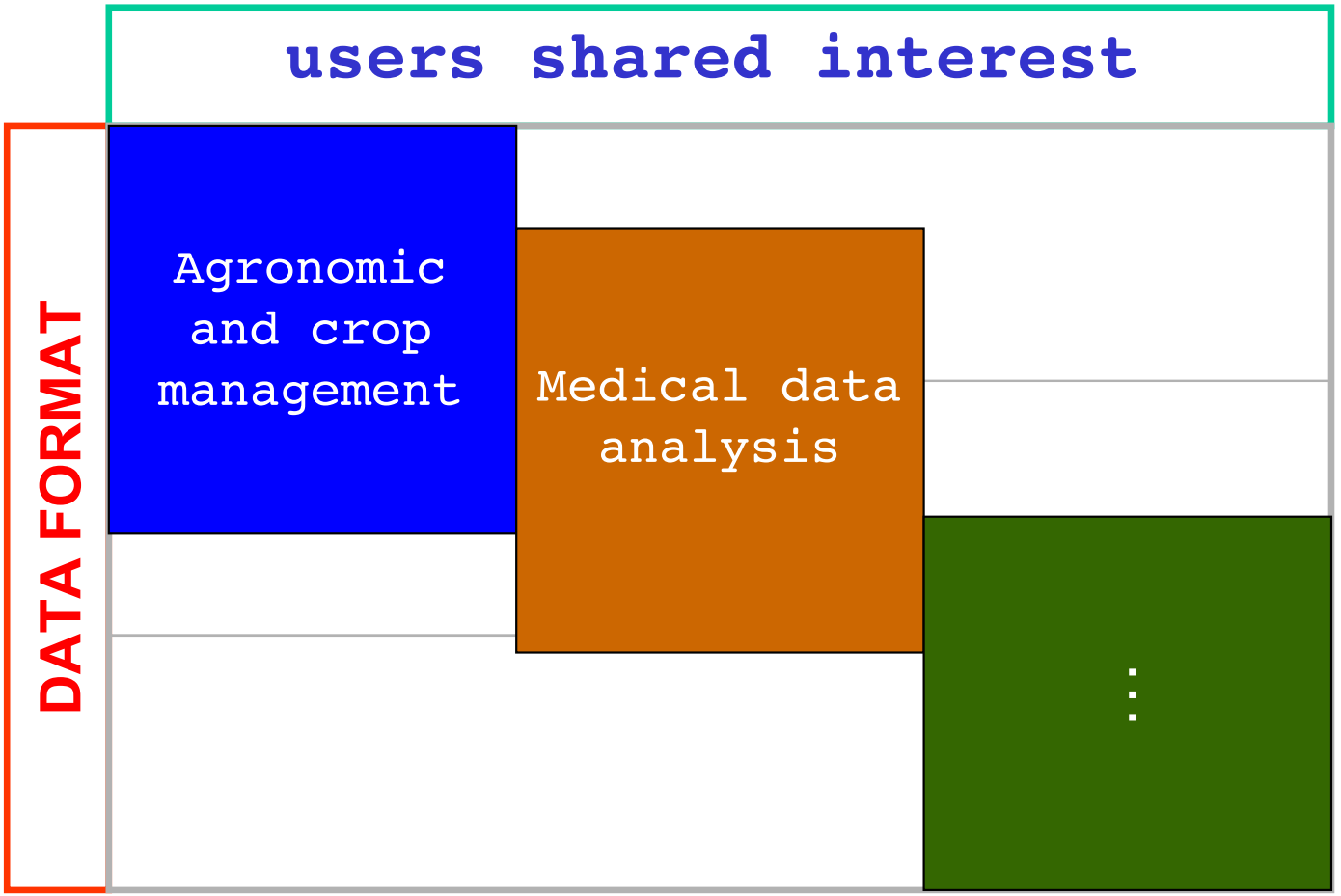
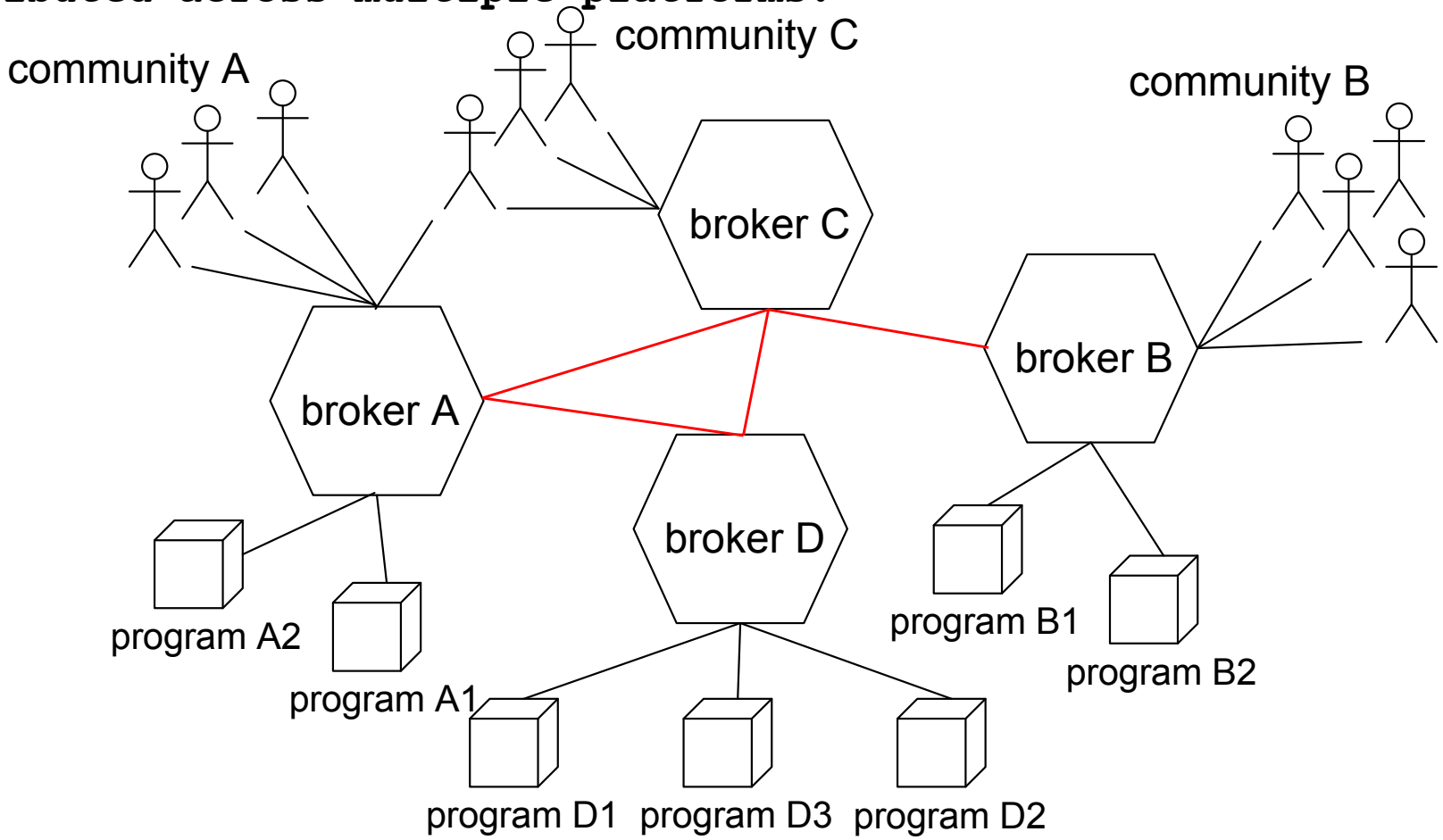


Third Parties from all over the world, **SME**s in particular, can develop

added value services *(educational, commercial, governmental, ...)*

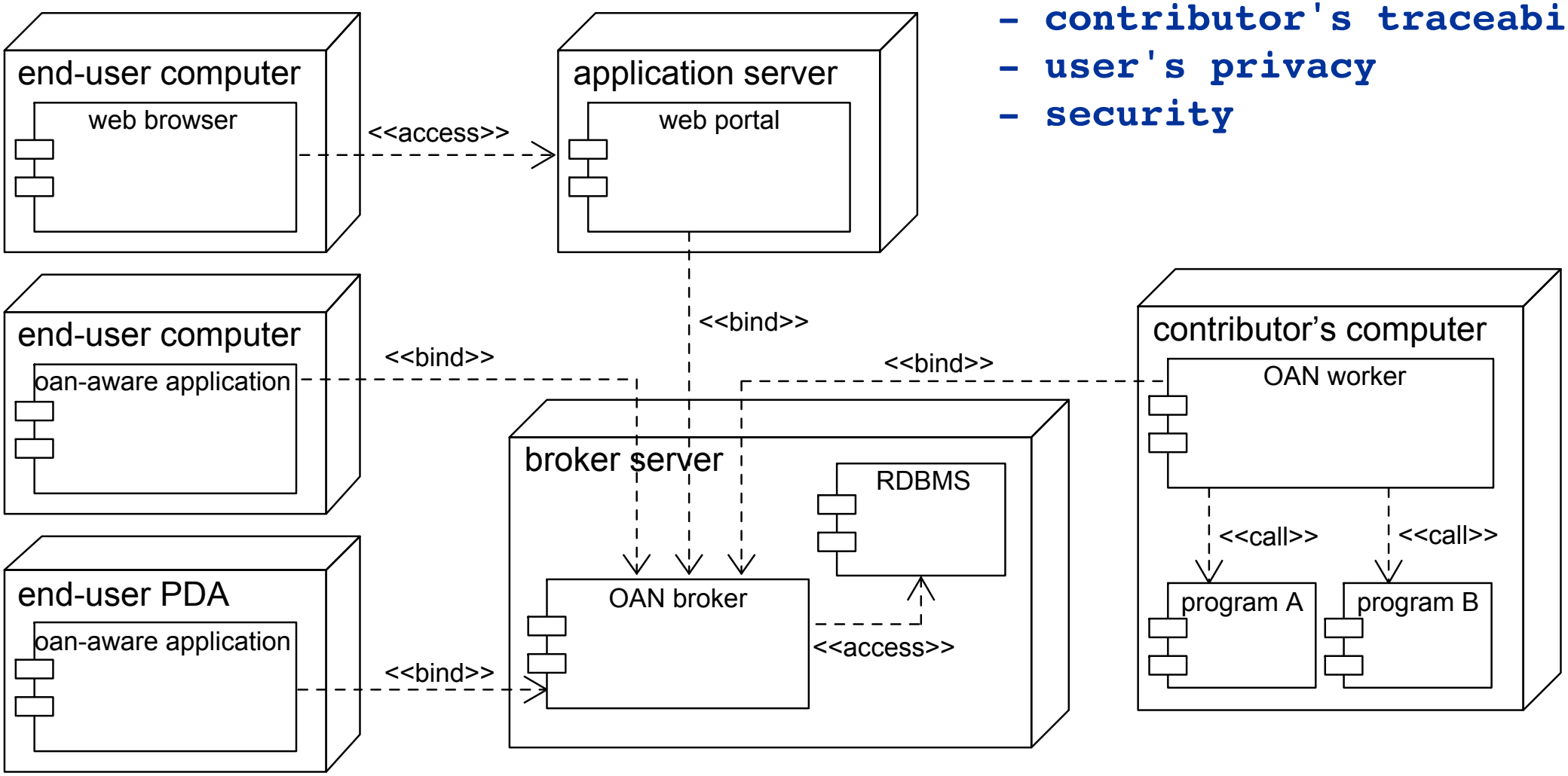
Methodology (1)

Resources are semantically organized and appear as a single entity able to orchestrate unlimited, heterogeneous and dynamic resources distributed across multiple platforms.



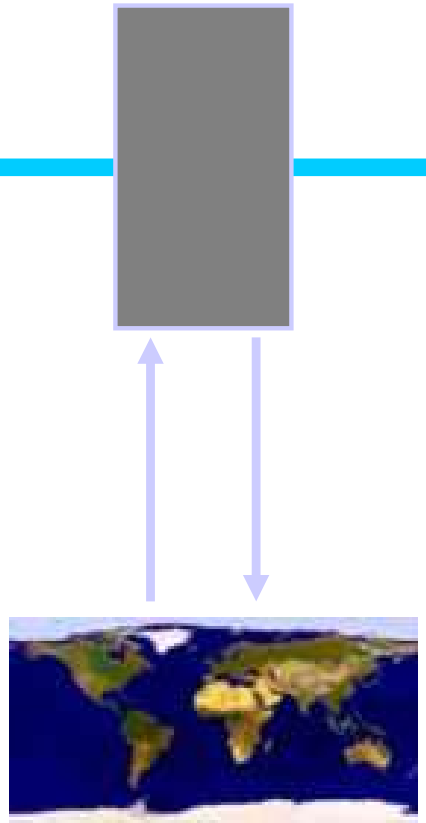
Methodology (2)

- contributor's traceabil
- user's privacy
- security



Methodology (3)

User's data
(on-the-fly analyses)

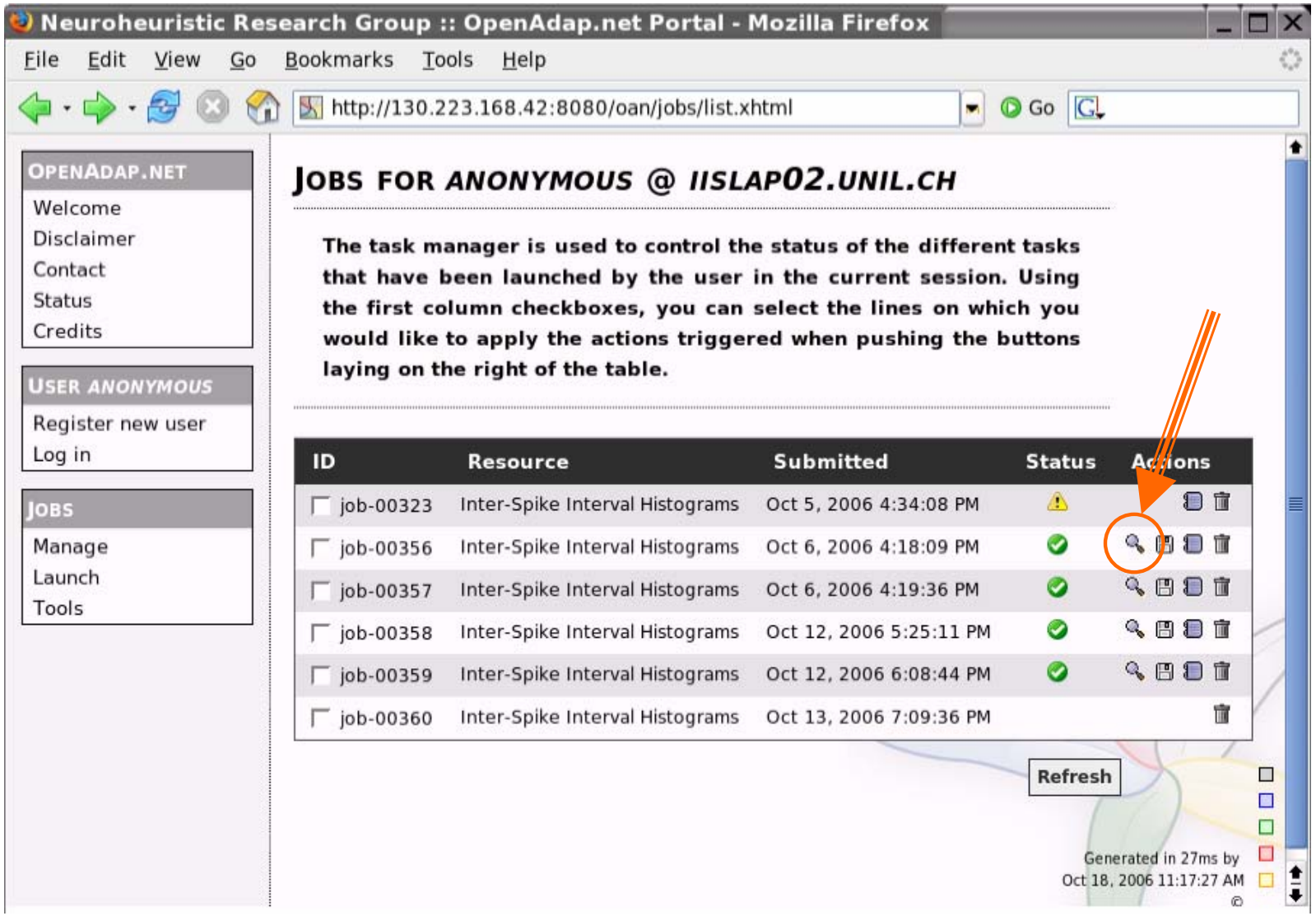


Privacy

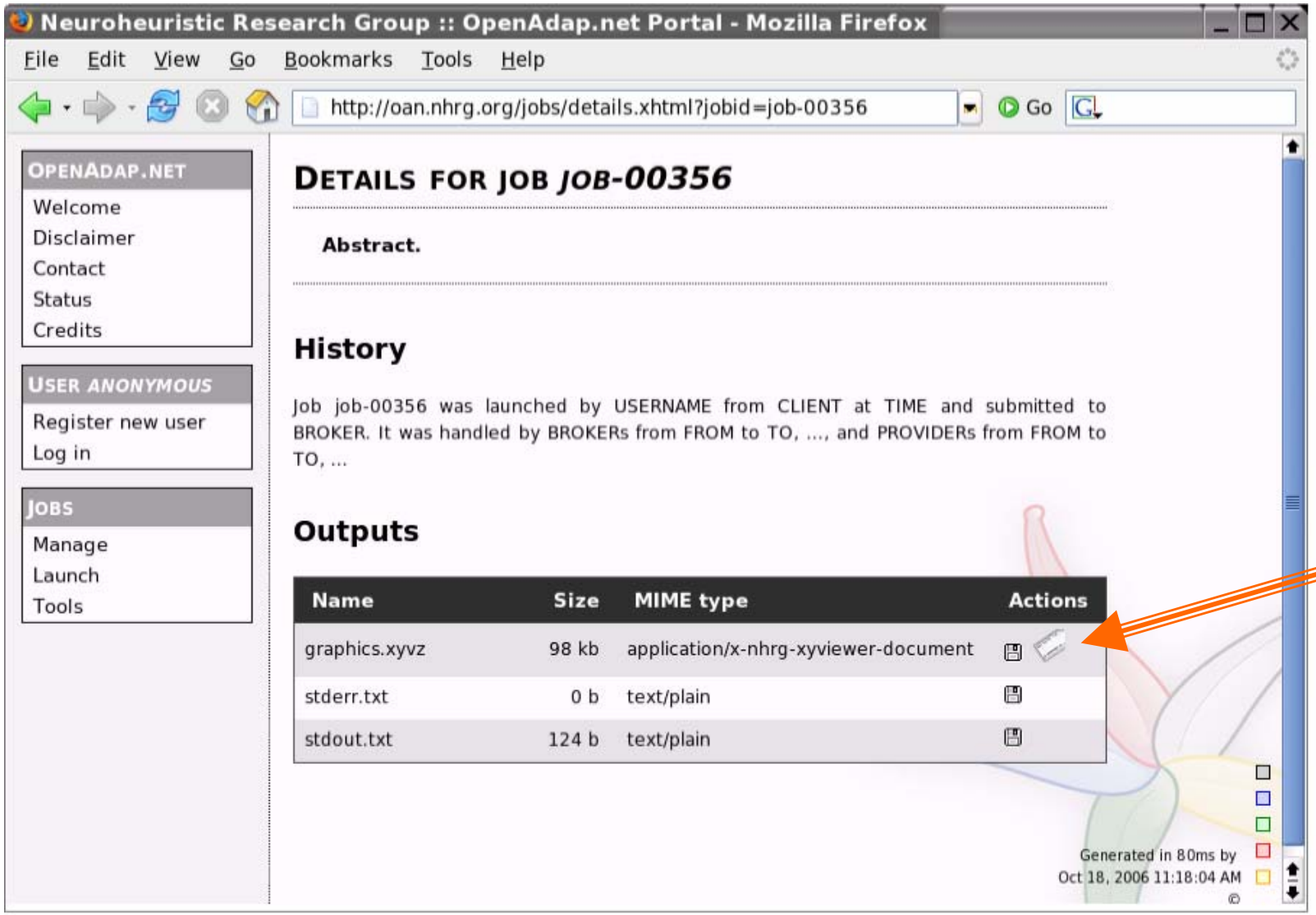
OpenAdap.net

USERS

end-user computer:
Web Portal (1)



end-user computer: Web Portal (2)



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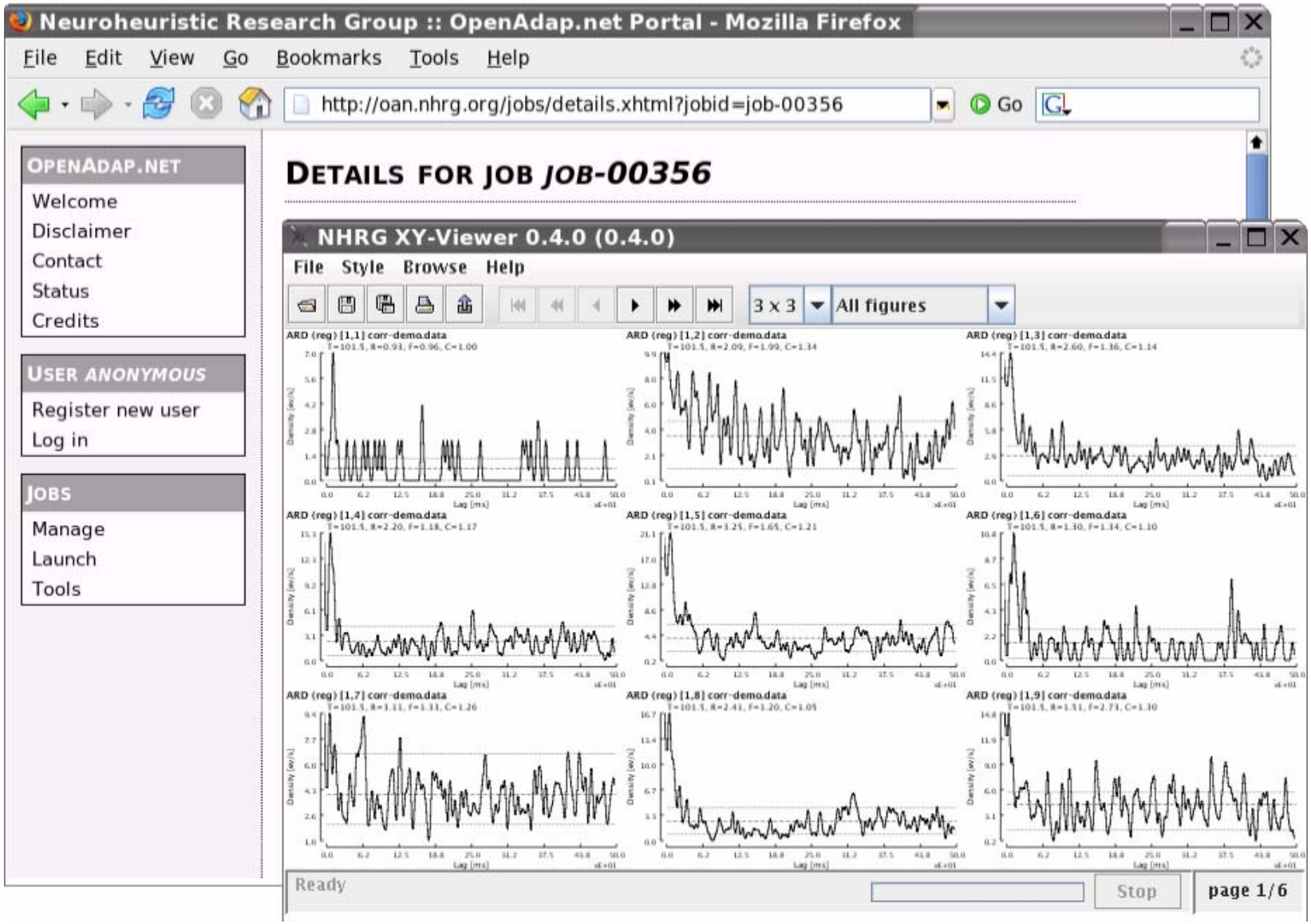
end-user computer: Web Portal (3)



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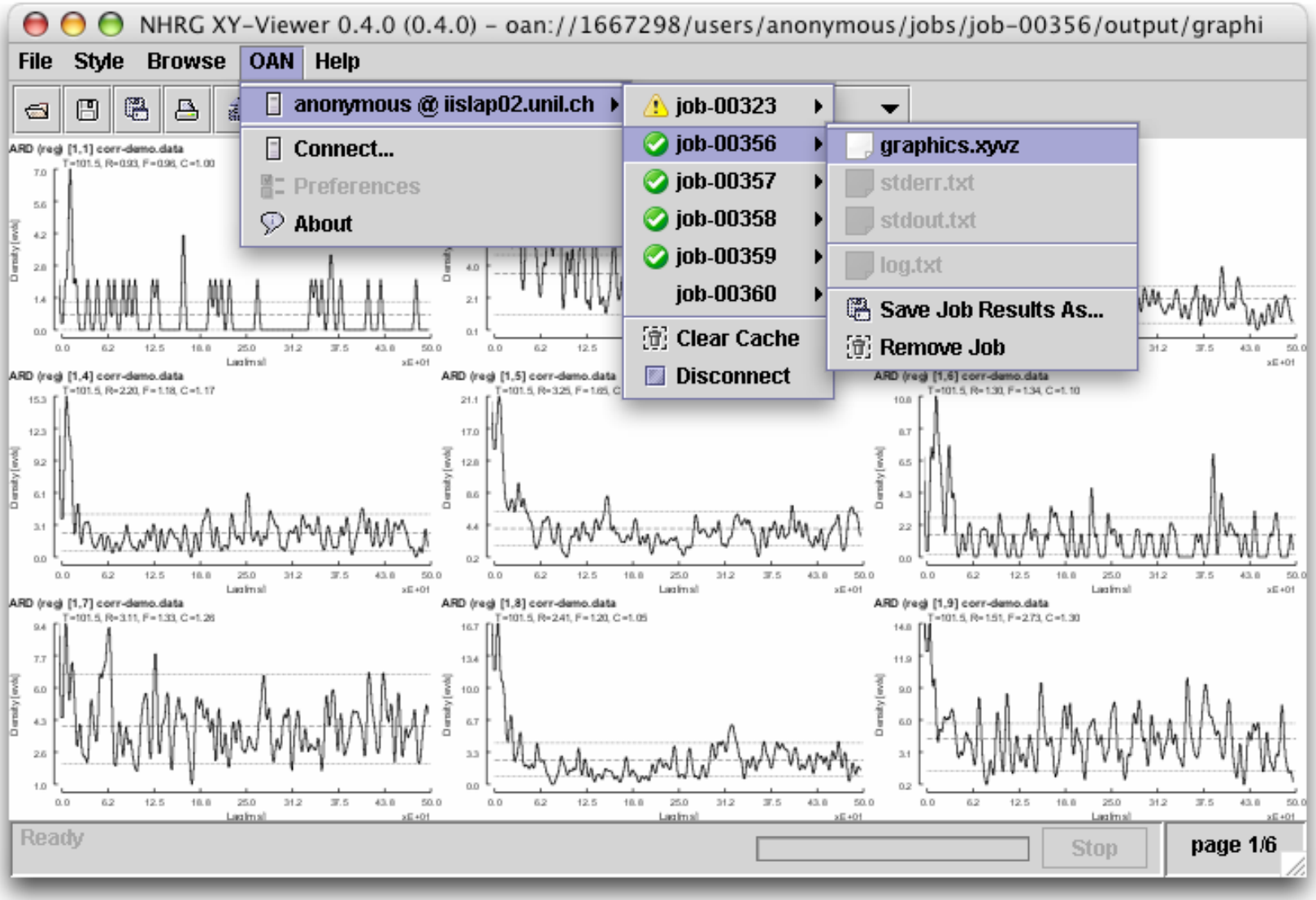
end-user computer: **oan**-aware XY-Viewer



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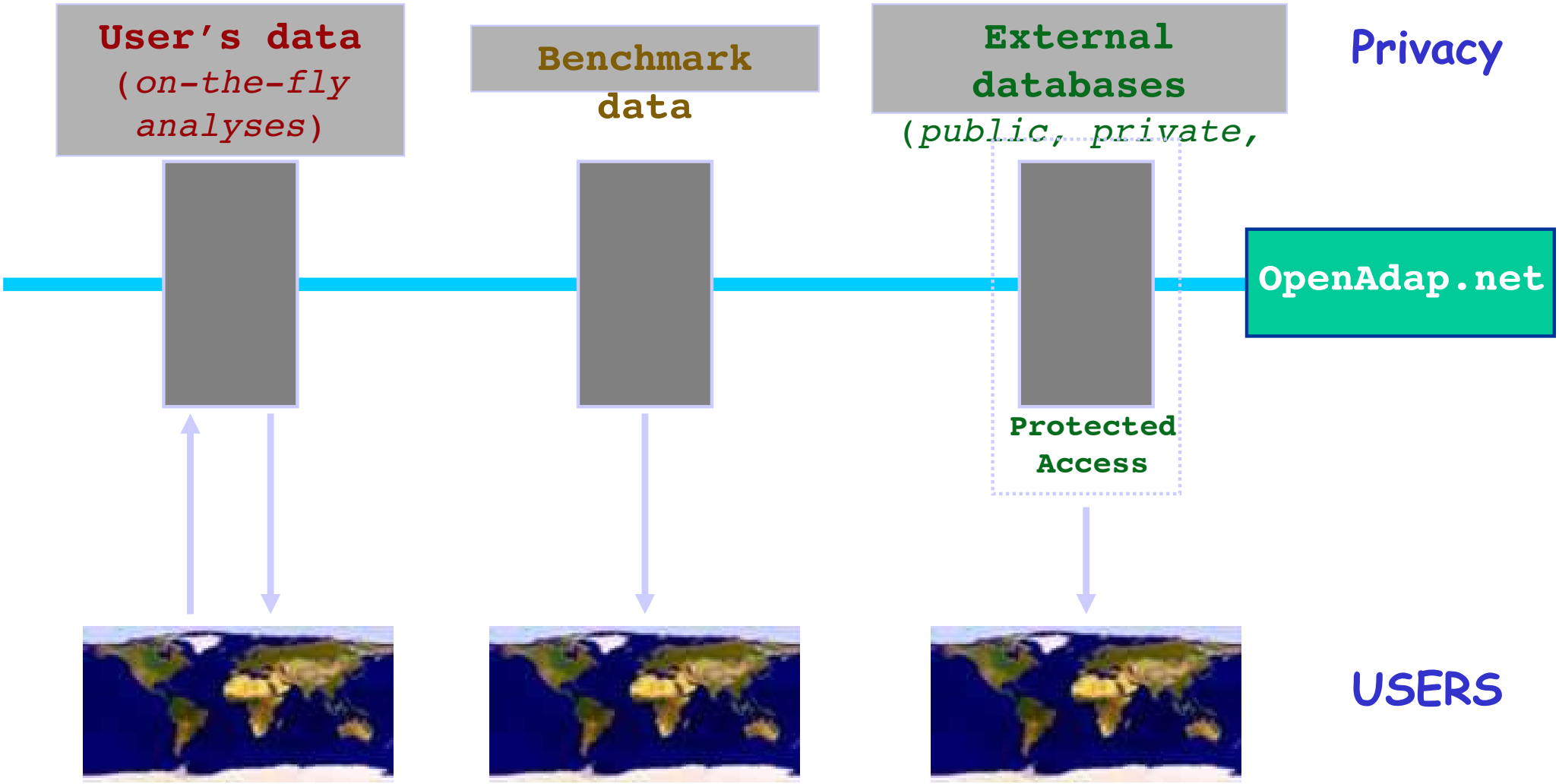
Methodology (4)



Major Outcomes

- **Concept proof** and **feasability** have been validated.
- An **OpenAdap.net** **testbed is active and used on a daily basis** by a Community interested in multivariate time series analyses sharing a suitable format originally developed in physics and successfully applied in financial forecasting and modeling of stock market, analysis of origin of glacial cycles, music, and biological data.
- A key element in the next stage of development consists in making the *brokers* **adaptive and dynamically interconnected** (like a neuronal network). The information will be processed and dispatched among all components following a set of "**learning**" **rules**, for example taking into account the computing load generated by specific tasks, the number of accesses, etc.
- The rules themselves will **evolve and optimize** in an unsupervised fashion, thus allowing the emergence of **dynamic links** among the adaptive brokers. Emergence of **nonlinear dynamics** will make **OpenAdap.net** closer to the complexity of a **living organism.**