

Extending existing applications functionality through OpenAdap.net

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Motivation (1)

Social obstacles: political correctness

Contributor





Dissemination

Detection of spectral instability in EEG recordings during the preictal period Obstacles to knowledge dissemination



The richness circulating in the Cyberspace is poorly exploited because of **difficulties to share the know-how**.

Delays appear until newly developed methods of information processing become available even within a specific field or discipline.







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access



Motivation (2)

• Educational obstacles: lack of transdiscipinarity

The information is generally formatted on **tailored needs** and software platforms are **too narrowly designed**. Due to lack of a transdisciplinary vision **knowledge remains undiscovered** to users specialized in fields of competence other than that of the original.





Communities with semantically related interests \Leftrightarrow **mutual understanding**

Community members who provide new knowledge become able to **share** their contribution and members who have information to be processed can **access** these services.







Main objectives (2)

To provide Communities the possibility to **transparently compose metaresources** by means of a **distributed operating system** driven by **adaptable brokers** with features of Grids, Web Services, P2P networks and cloud computing.

- **Grid**: a user has to process an information with one application distributed across computers;
- **WS**: many users exploit the same services provided by a centralized authority;
- **P2P:** many users dynamically exchange pieces of information in an unsupervised way;
- **Cloud**: an organization balancing computational resources on-the-fly on distributed assets.

		Data treatment distribution	Hardware resource allocation	Hidden execution hosts	Application sharing	Published application interface	Data sharing	Highly dynamic system	Transparent user / resource connection
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• The target audience



Contributors:

People who would like to **share their knowledge** with the Community. They maintain the authorship and keep **control and responsibility** over their contribution.





Users:

People interested in **processing information** (e.g., their own, from a public database) and **extract results**. They exploit Contributors' applications in a trusted way.



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Methodology (1)

The key is the development of a new original project called **OpenAdap.net** (**OAN**, *pronounce as "one"*) that is **independent of a specific data type**. The project is aimed at enabling an **Open Source platform** providing flexible tools for knowledge sharing.



Resources are semantically organized and OAN is able to orchestrate **unlimited**, **heterogeneous and dynamic resources distributed across multiple platforms.**



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Contributor: joining the Community

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Real Providence





Contributor: disseminating the knowledge









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Ville State

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End-user computer: Web Portal (1)

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End-user computer: Web Portal (2)

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NO





End-user computer: Web Portal (4)

• An action applies a tool to a content



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Mail

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Methodology (5)



End-user computer: oan-aware XY-Viewer

• Enabling a collaborating working environment







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• Concept proof and feasibility have been validated (two early adopters communities);



- "Re-invention" and/or "re-discovery" of existing knowledge can be avoided so to save time and expenses and prevent incorrect applications;
- Promotion and development of Communities with semantically related interests;
- Development of a new OpenAdap.net scheme (oan://) aimed at easy ubiquitous knowledge sharing and access (field instrumentation, wireless communication, etc.);
- Opening of new business opportunities for Third Parties from all over the world, **SME**s in particular, aimed at **added value services** (educational, commercial, governmental, ...);
- Knowledge sharing and dissemination grants authorship and IPR;
- The Community performes **quality assessment** in an unsupervised way generates **trust**.



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- The resources deployed in OpenAdap.net **are not bound** to a specific community;
- They constitute a **global virtualisation tool** offering new opportunities to any individual, institution or SMEs to improve their **efficiency** and strengthen their **competitiveness** independently from their domain.



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Conclusions and outlook

- An OpenAdap.net test bed is active and used on a daily basis by early adopter Communities;
- 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 following a set of "learning" rules (e.g., taking into account broker activity-dependent parameters, ...);
- The rules themselves will **evolve** 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**.





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