

Service-Oriented Distributed Communities in Residential Environments

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- Evolutions in Internet Access
 - Core Equipment: the Residential Gateway
 - Shift in Services
 - From Broadband Access
 - To High Level Services
 - Voice, Video over IP
 - Perspective
 - Multi-Provider Services
 - Breaking the access provider's monopoly
 - End-User Control
 - Factor of success for equipments

- Virtual Communities
 - Driven by Centers of Interest
 - Existing communities
 - Data publication
 - P2p, communication software
 - Data and Code Sharing
 - Development, Collaborative Work
 - Resource Sharing
 - Data and Calculus Grid
 - Service-Oriented Communities
 - Bridge the gap between various communities

I. Motivation



- Objectives
 - Prospective Work
 - Define a language for representing the behavior of a Service-Oriented Community

Service-Oriented Communities



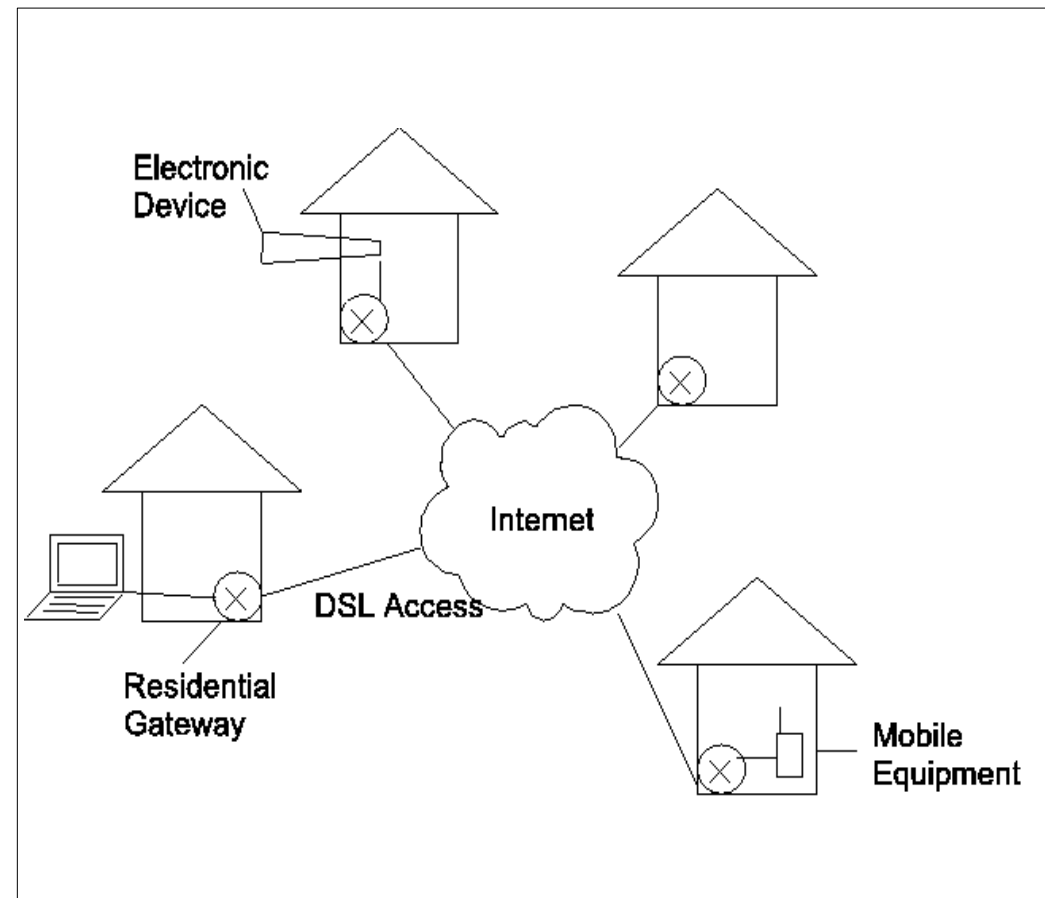
- Summary
 - I. Motivation
 - II. Service-Oriented Communities**
 - III. Community Behavior
 - IV. Conclusions

- Overview
 - Use Cases
 - Global Architecture
 - The Residential Gateway
 - Interactions between Users

- Use Cases
 - Distributed photo albums
 - Large amount of Private Data
 - Sharing parts of the photos with friends
 - Web servers
 - Could be p2p:// URLs
 - Distributed forums
 - Local forum
 - Distribution of threads if popularity grows

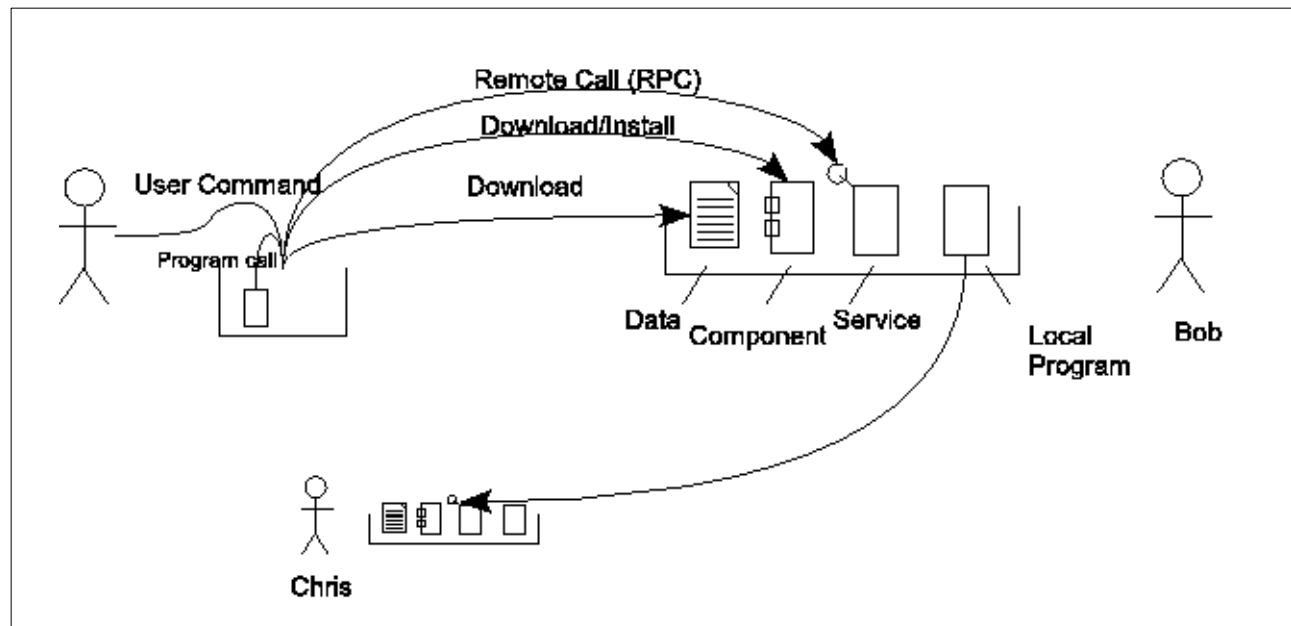
- Use Cases
 - Advantages for the user
 - User Control
 - No storage restriction for users
 - Extensibility of the Gateway
 - USB storage device
 - User's PC
 - Advantages for the Gateway Provider
 - Resource sparing for the service provider
 - Per service billing

- Global Architecture
 - Broadband Connectivity
 - Based on the Residential Gateways
 - Interface between Internet and the Home Network
 - Central node for service providing
 - Supports PCs, Mobile Equipment, Electronic Devices
 - Various Accesses
 - Various Services



- The Residential Gateway
 - Access Gateway
 - Network Level
 - p2p network
 - Data sharing
 - Scalability
 - Component Platform (OSGi)
 - Execution Environment
 - Local or remote Access

- Interactions between Users
 - Data publication
 - Software publication
 - Services Publication



Service-Oriented Communities

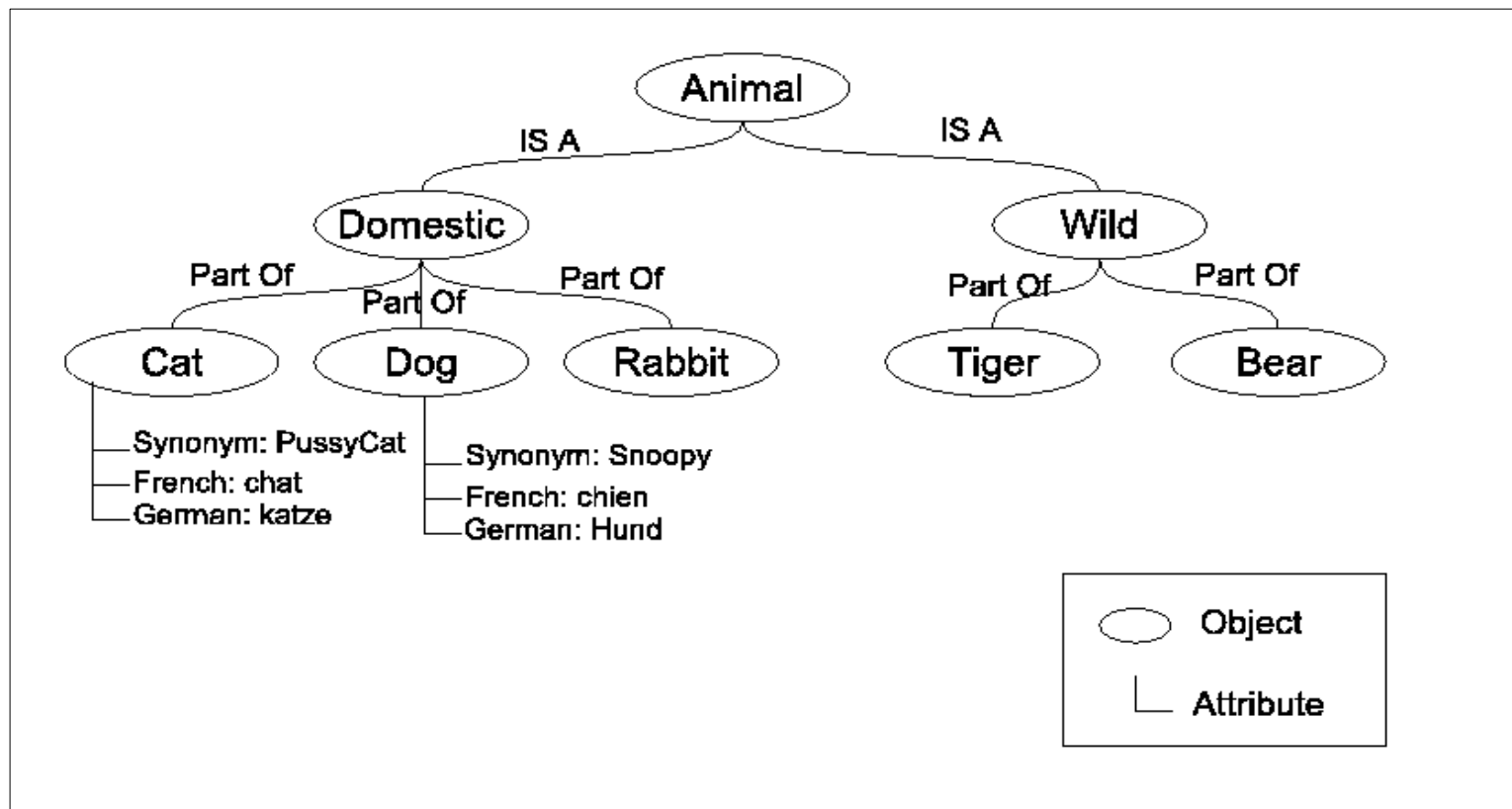


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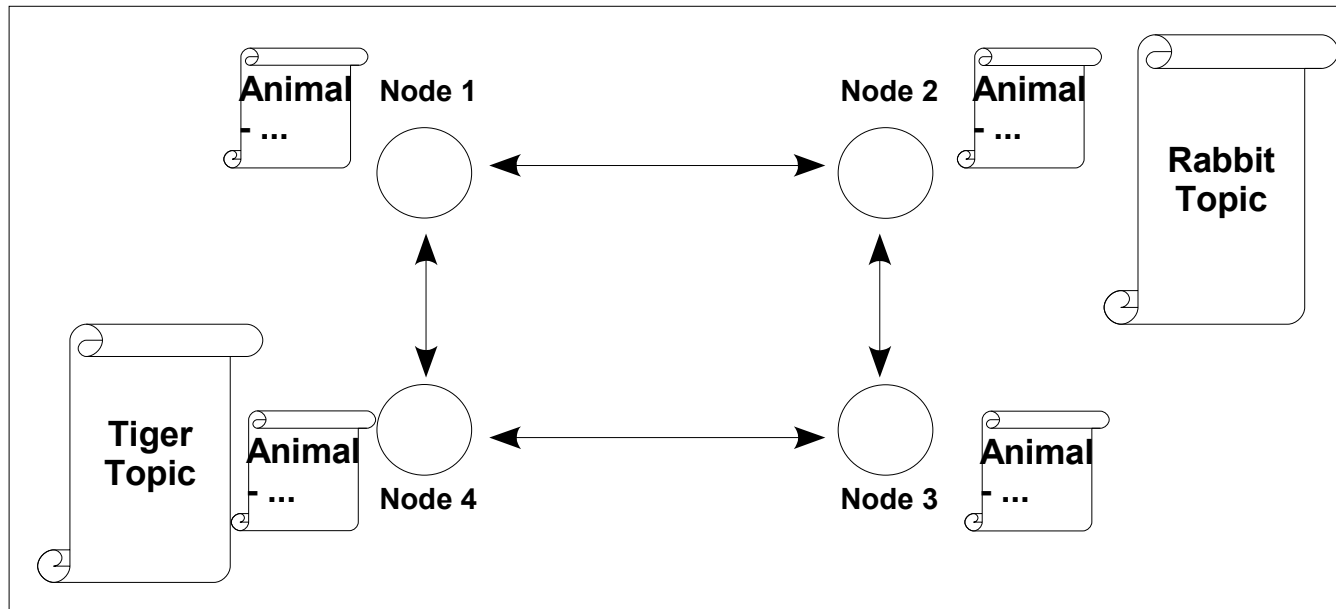
- Overview
 - Distributed Communities
 - Life Cycle of a Community
 - Use Scenarios

- Distributed Communities (1/4)
 - 'Group of people sharing resource around common centers of interest'
 - Concrete Definition of a Community
 - Meta-data representing the centers of interest
 - Keywords
 - Or Ontology (formal hierarchy of keywords)
 - Replicated among all members
 - No central node

- Distributed Communities (2/4)
 - Example of Meta-data as an Ontology



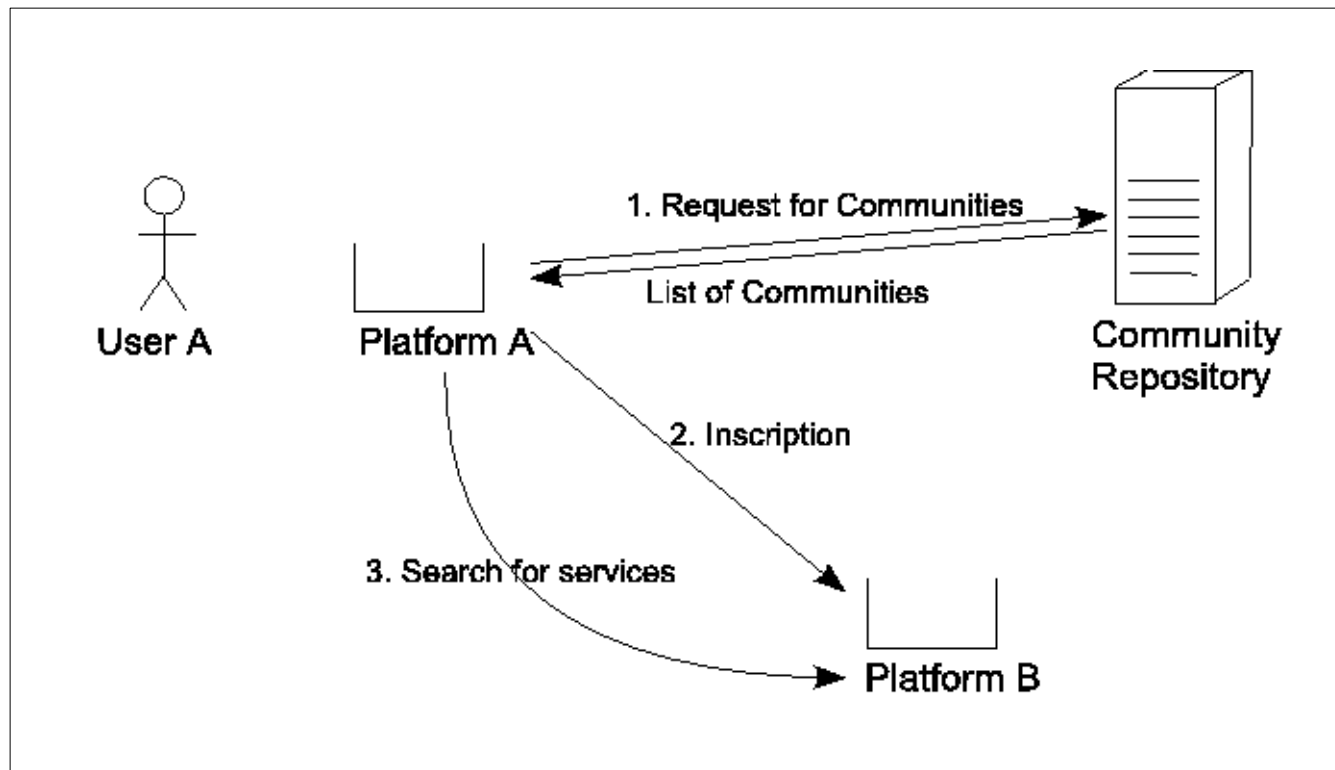
- Distributed Communities (3/4)
 - Concrete Definition of a Community



- Distributed Communities (4/4)
 - Totally decentralized
 - from the view point of active members
 - Entry point needed
 - Member of the community
 - Community Repository

- Life Cycle of a Community (1/3)
 - Creation
 - When a user exists that provide services and data
 - When Community Meta-data are defined
 - Publication (or not) on a Community Repository
 - User joining a Community
 - Search and Join a Community
 - A user who joins the community is said to be 'active'

- Life Cycle of a Community (2/3)
 - User Joining a Community



- Life Cycle of a Community (3/3)
 - User withdrawing from the Community
 - Gateway shutdown
 - Or Resource withdrawal
 - See 'User disconnection'
 - Destruction of the Community
 - Community owner
 - Kill the community
 - Or Heart-beat probe by the Community Repository
 - No more members

- Use Scenarios
 - User connection
 - User looking for resources
 - User adding resources
 - Extension of the Community Meta-data
 - Removal of resources
 - User Disconnection

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- Contribution
 - End-User Control over the Home Gateway
 - Extension of the concept of Communities
 - Semantic-driven resource sharing
 - Services
- To Be Done
 - Specification of the proposed language
 - Integration of services in Communities
 - Trust between members of the Community

Questions ?

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