

# Distributed Metadata Systems (DiMeS)

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MSR



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Program

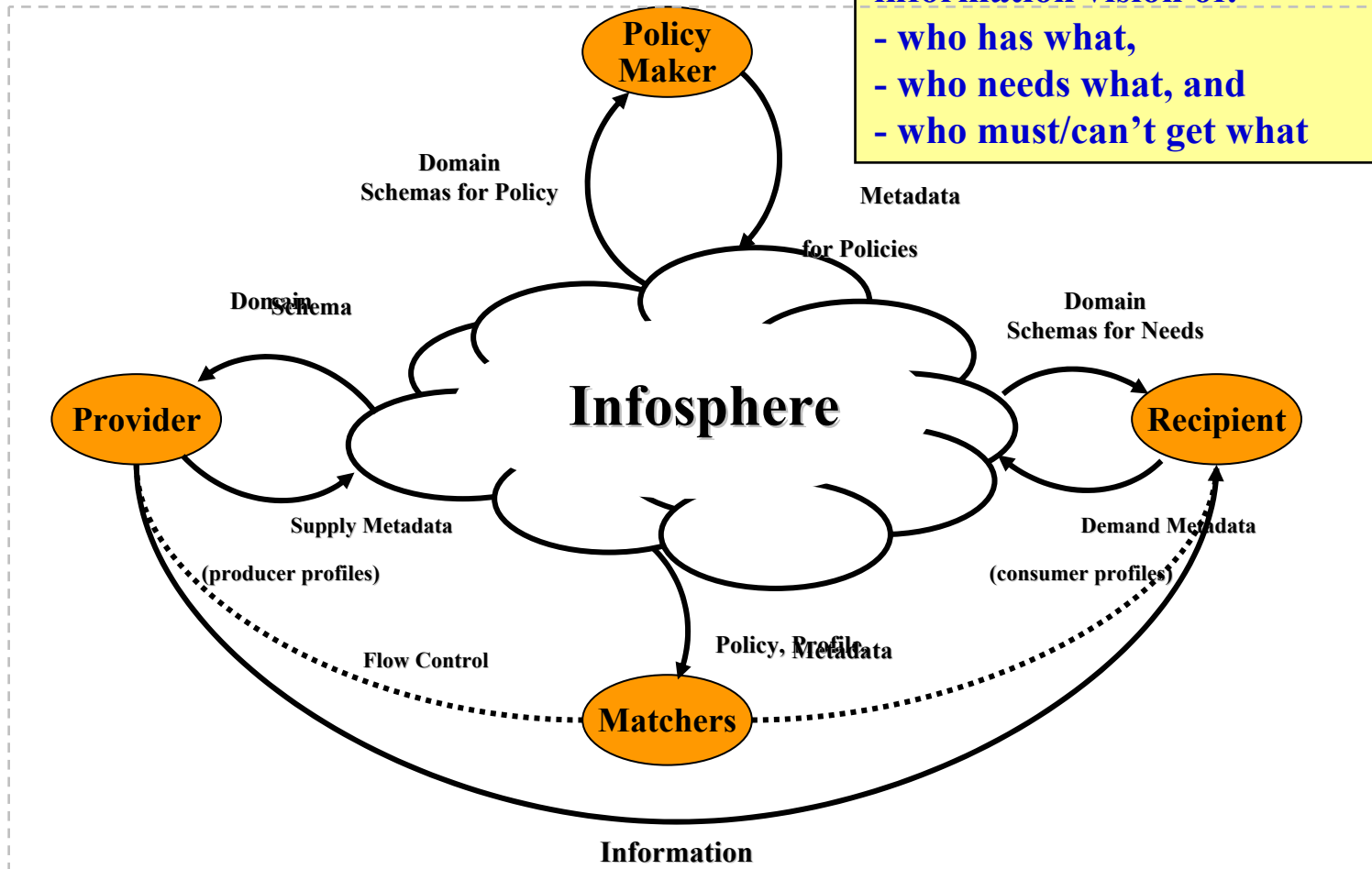
# Problem

- ***Find effective ways to satisfy participant information needs in a world that has:***
  - Increasing numbers of participants, information, and services;
  - Growing diversity and mobility of participants;
  - Multi-role participants (e.g. produce and consume);
  - Dynamic participants and infrastructure components;
  - Shared, and often limited communication resources;
  - A need to maximize the overall value of delivered information;
  - Partially overlapping domains;
  - Multiple, partially overlapping policies.

# Background

Distributed management is a key enabler in a tailored information vision of:

- who has what,
- who needs what, and
- who must/can't get what



# Objective

- To advance the state of the art in peer-to-peer architectures with respect to scalability, evolvability / flexibility, and the degree of component reuse through:
  - Distribution of metadata
  - Uniform treatment of all participants (recipients/providers, information/services)
  - Profiles for mediated discovery
  - Participant stewardship of their profiles

# Activities

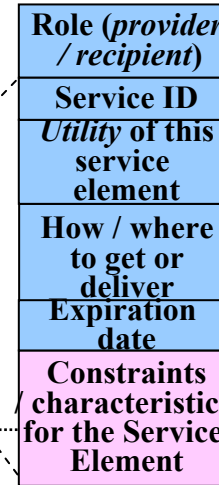
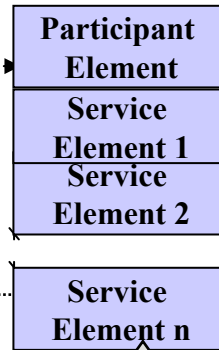
- **Architecture definition and evaluation**
  - **Uniform profile language, schema composition, distributed search and indexing, user modeling**
- **Prototyping, tech transition, and open source release**
  - **SDK, profile editors, viewers, reconfigurable brokers**
- **Feasibility studies**
  - **full dynamic discovery**
  - **common approaches for matching, monitoring, policy, and resource (Quality of Service) management**
- **Industry-wide discussion**

# Highlight

## Structure of a DiMeS Profile

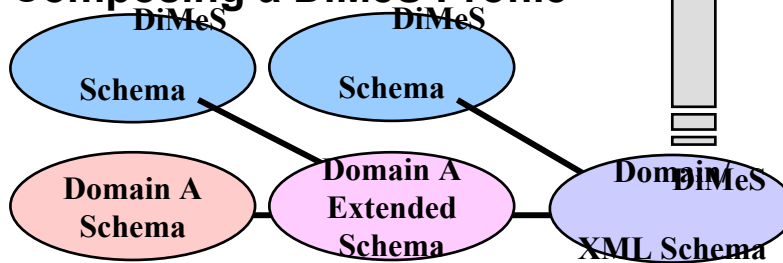
Participant information block

Multiple service element blocks; each block asserts a particular “need” or “have”



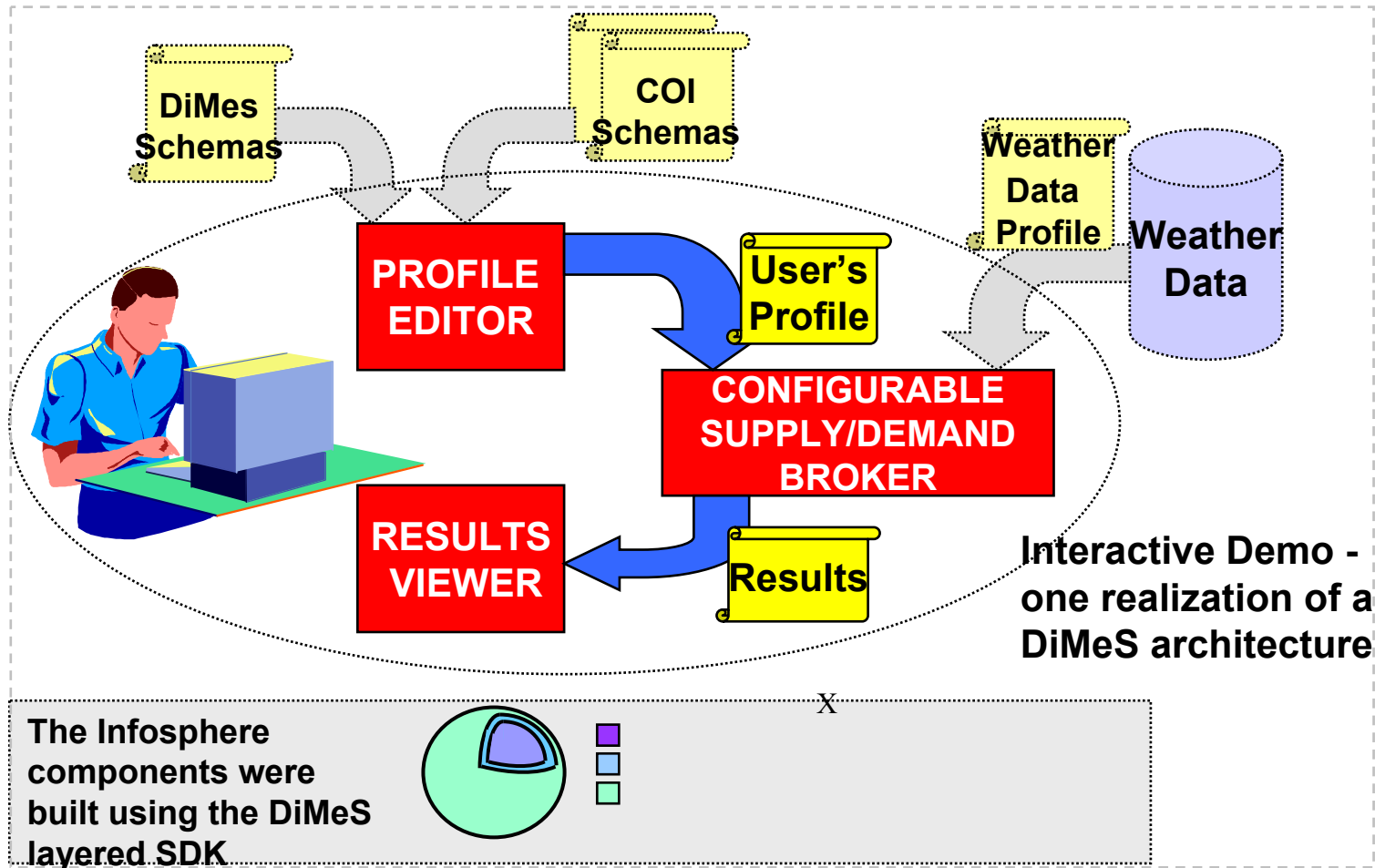
A service element contains information about one *have* or *want* for this participant, and its value relative to other *have/wants* in

## Composing a DiMeS Profile



A DiMeS profile is an XML

# Highlight/Demonstration



# Impacts

- **Ground breaking research into distributed, profile-based peer-to-peer architectures**
- **Contributions to the Joint Battlespace Infosphere architecture and capabilities**
- **Consultation and prototypes for JBI-enabled programs**
- **Initiation and participation in industry discussion**
- **Architectural inputs to World Wide Web Consortium, UDDI, Object Management Group, etc**
- **Coordination with relevant research activities**

# Future Plans

