

# Context Information System

Utilizing Context in Adaptive Information Services for Pervasive Computing Environments

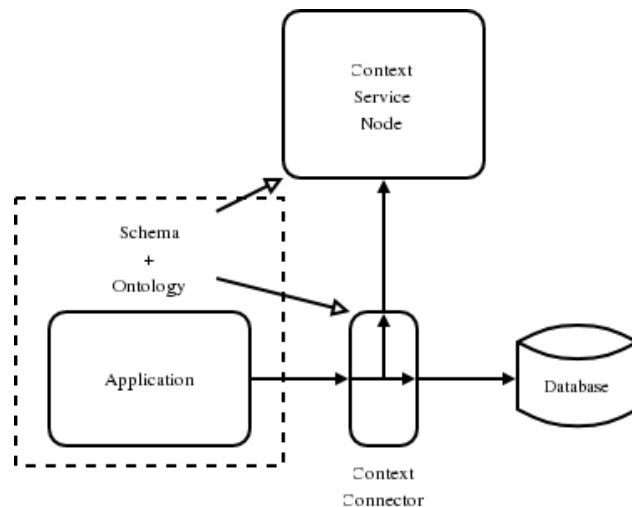
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## Motivation

- Context will be managed by each user's own systems, rather than centrally
  - Global view of all context impossible
  - Privacy and security concerns
- Interoperability between heterogeneous context sources
- External context information will be merged into each user's own view of the world, through the use of ontologies

## Application Interface



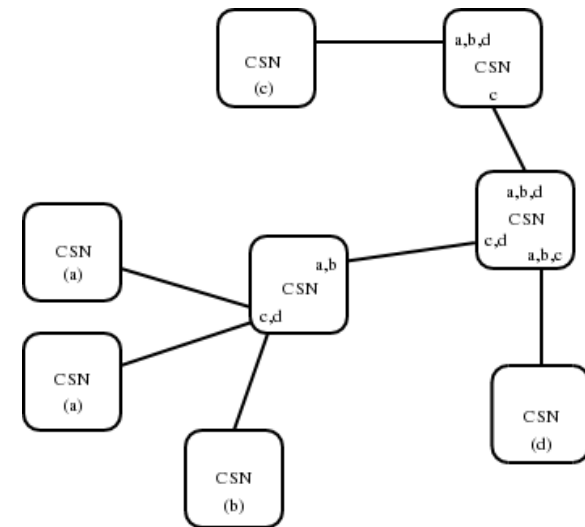
## Design and Integration Phases

- Applications can be designed independently of the environment in which they will be run
- Ontologies formally specify the application's domain of knowledge
- Integrators must provide mappings from local ontology to remote to overcome domain mismatch
- Mappings can be attached to queries, to allow others to make use of them

## Content-Based Networking (CBN)

- Messages routed based on their content
- Content-based routers route messages based on a function which describes which messages their neighbours are interested in
- Aggregation of subscriptions
- Persistent ontology-based queries (pub/sub)
- CBN systems have shown promising scalability

## Content-Based Networking (CBN)



## Conclusion

- Currently implementing the context information service using XML-based data
  - Exist (XML database), Jena (ontology API), Siena/Elvin (CBN)
- Implementation is scheduled for completion by March 2005