Development of Distributed MetBroker toward Information Grid

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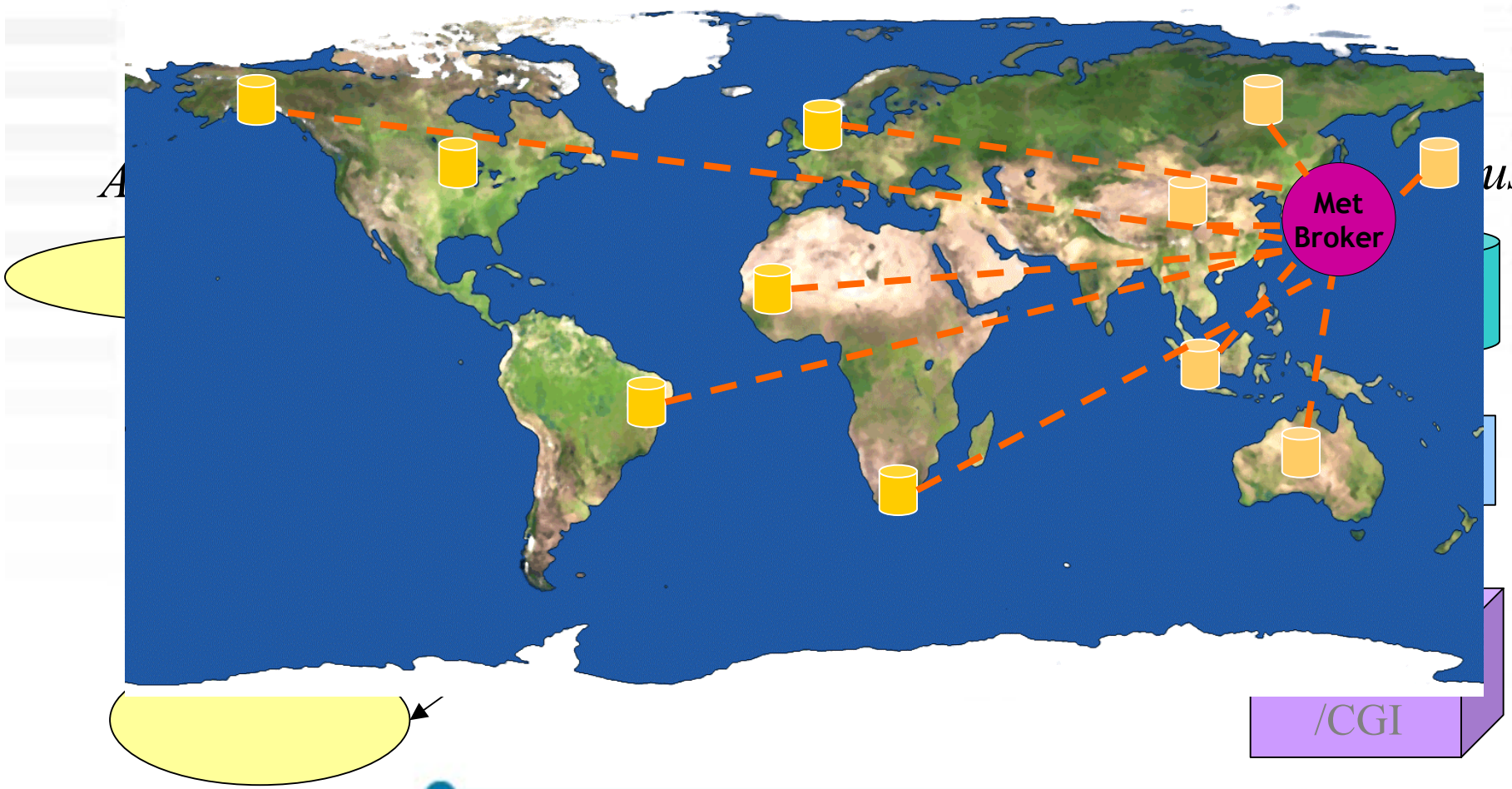
Agenda

- Objective
- Distributed MetBroker
- Progress of Distributed MetBroker
- Information Grid

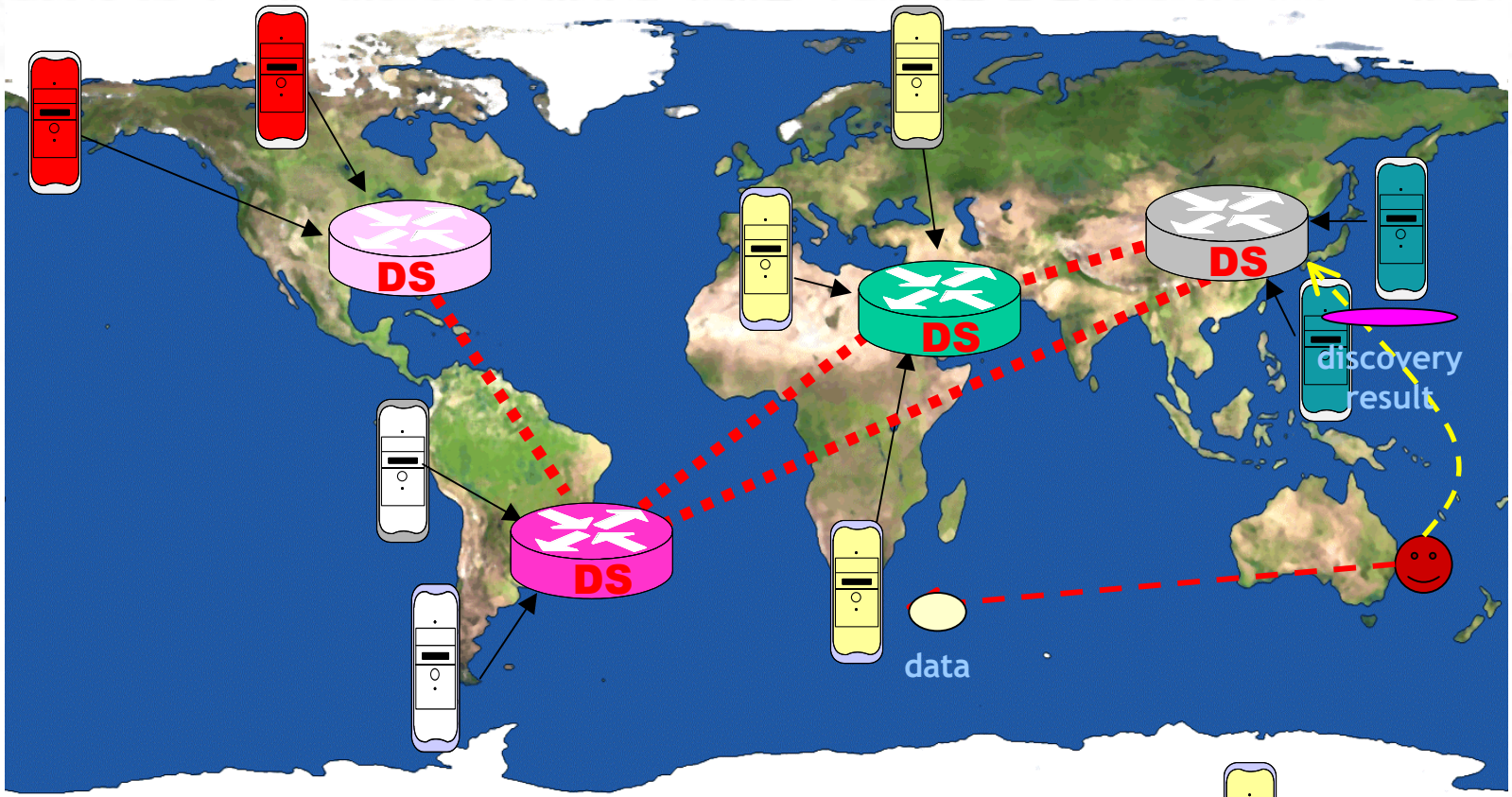
Objective

- **Collaborative work between NECTEC, HAII (Thailand) and NARC (Japan)**
- **Extend NARC's Centralize MetBroker to distributed System**
- **Based on Web Services and Grid Technology**
- **Consist of 2 main components**
  - MetBroker
  - Discovery Service
- **Applies for other project (Multiple Broker, Info. Grid)**

MetBroker



Distributed MetBrokers Scenario



→ MetBroker

DS → Discovery Service

Discovery Service

- **Discover MetBroker**
  - analyze user's data request
  - return suitable MetBroker
  - Smart Discovery Service
- **Registry**
  - MetBroker registry services
- **Monitor MetBroker**
  - status (running, shutdown)

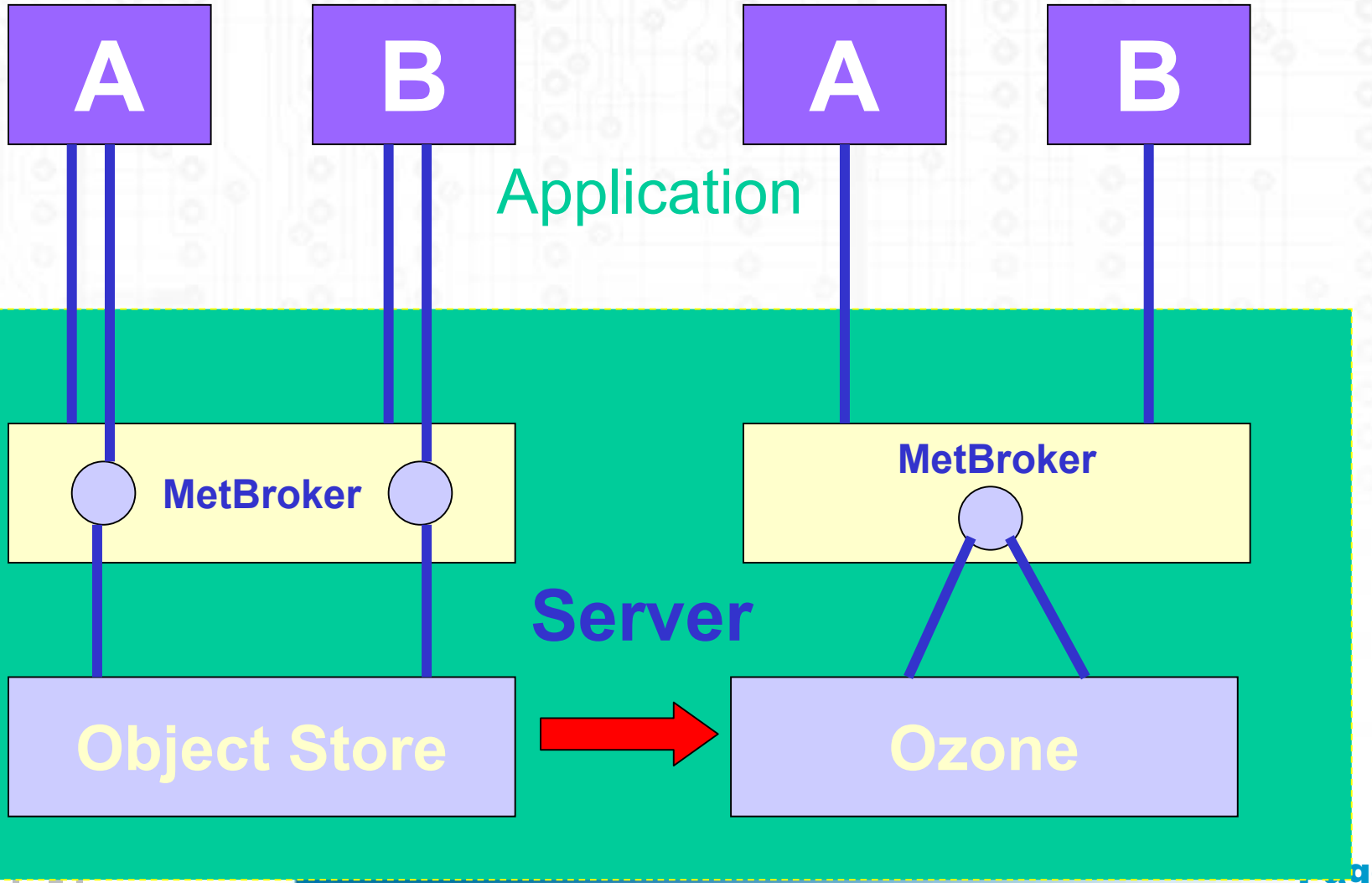
Discovery Services

- **Components**
  - NR Marker
  - Smart Discovery Services
  - Single Sign-on service

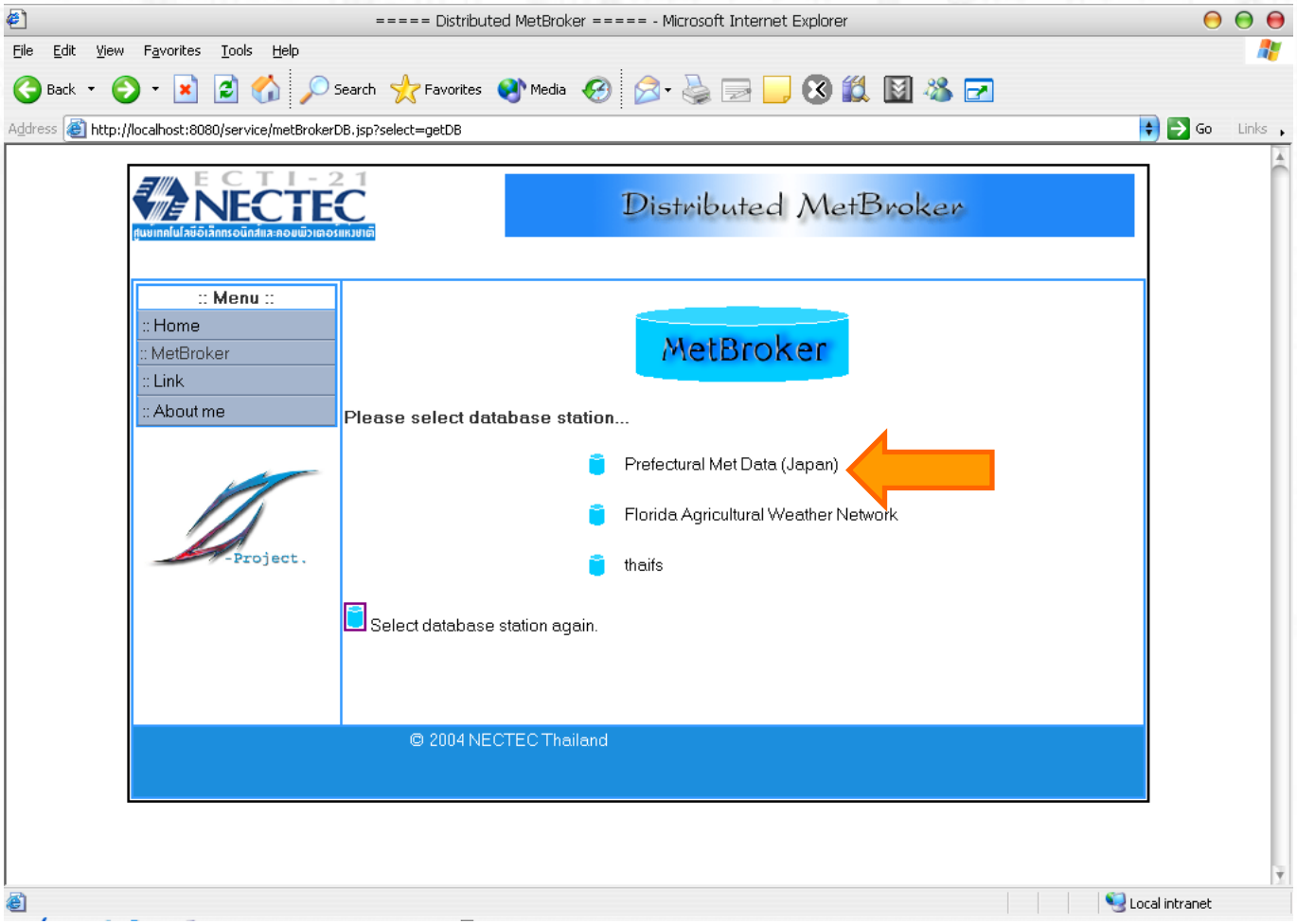
Progress of Distributed MetBroker

- Replace Object Stored Database with Ozone Database
- MetBroker Web Services version
- MetBroker's system resources sharing on grid environment

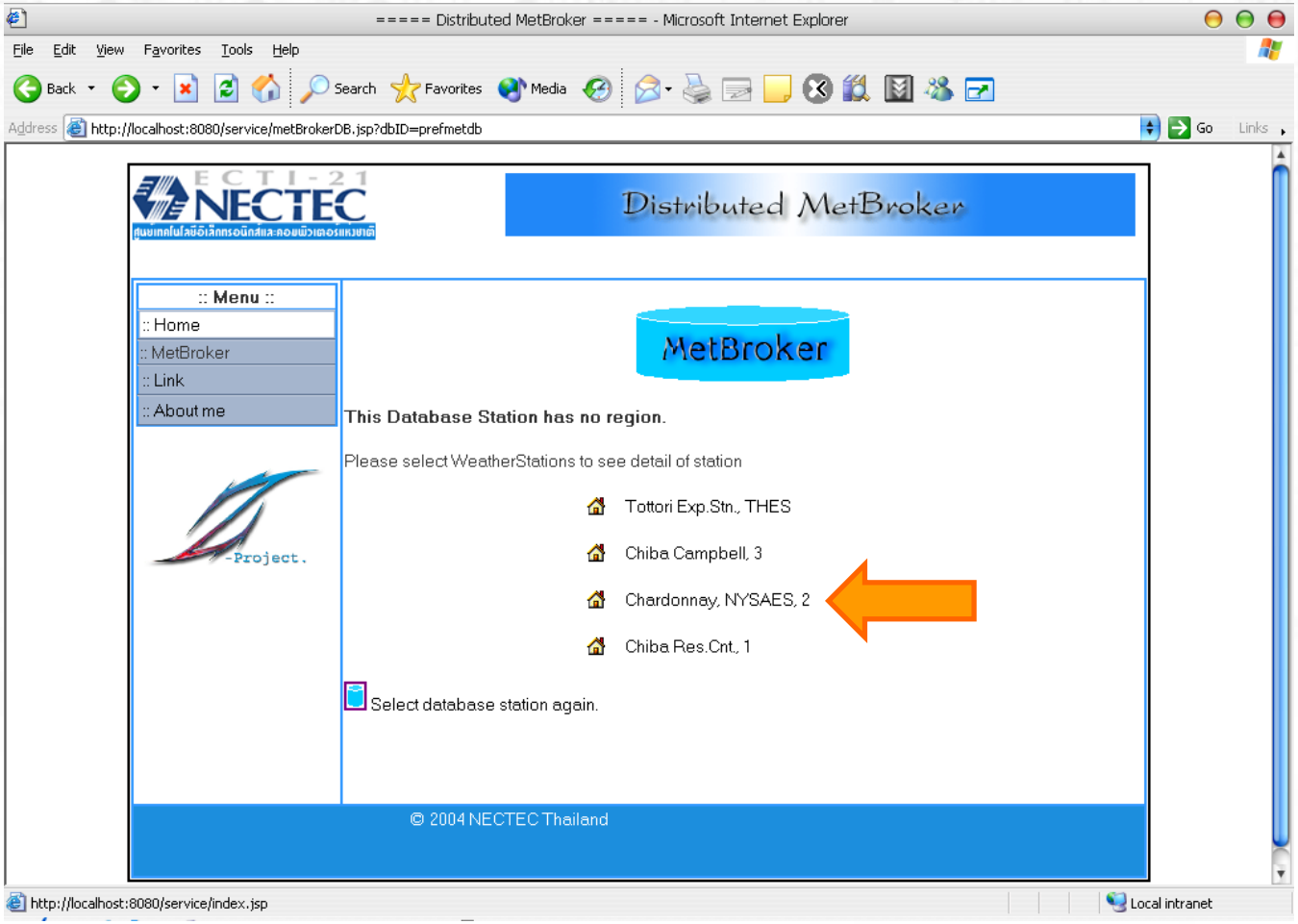
Replace with Open source database



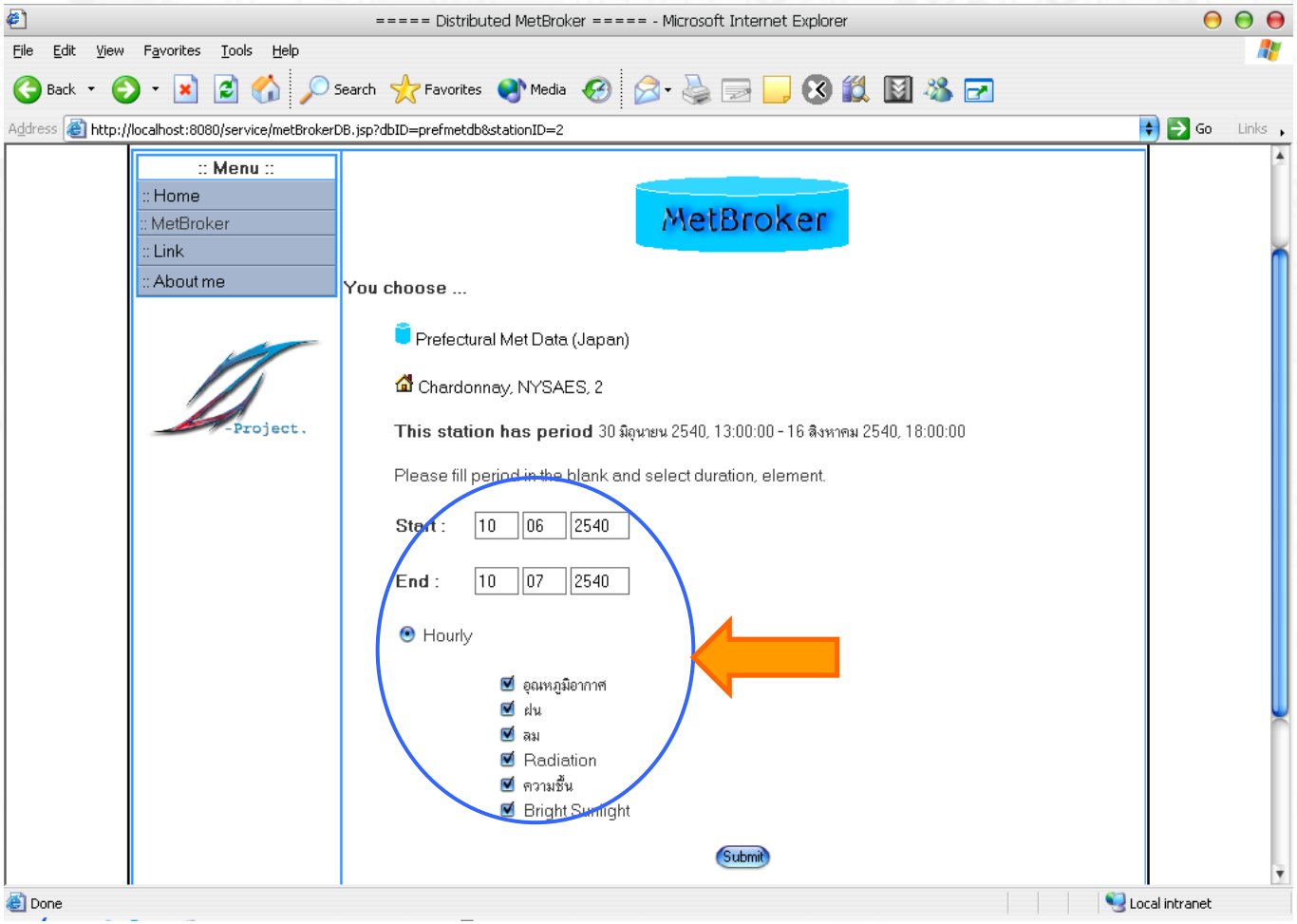
MetBroker Web Services



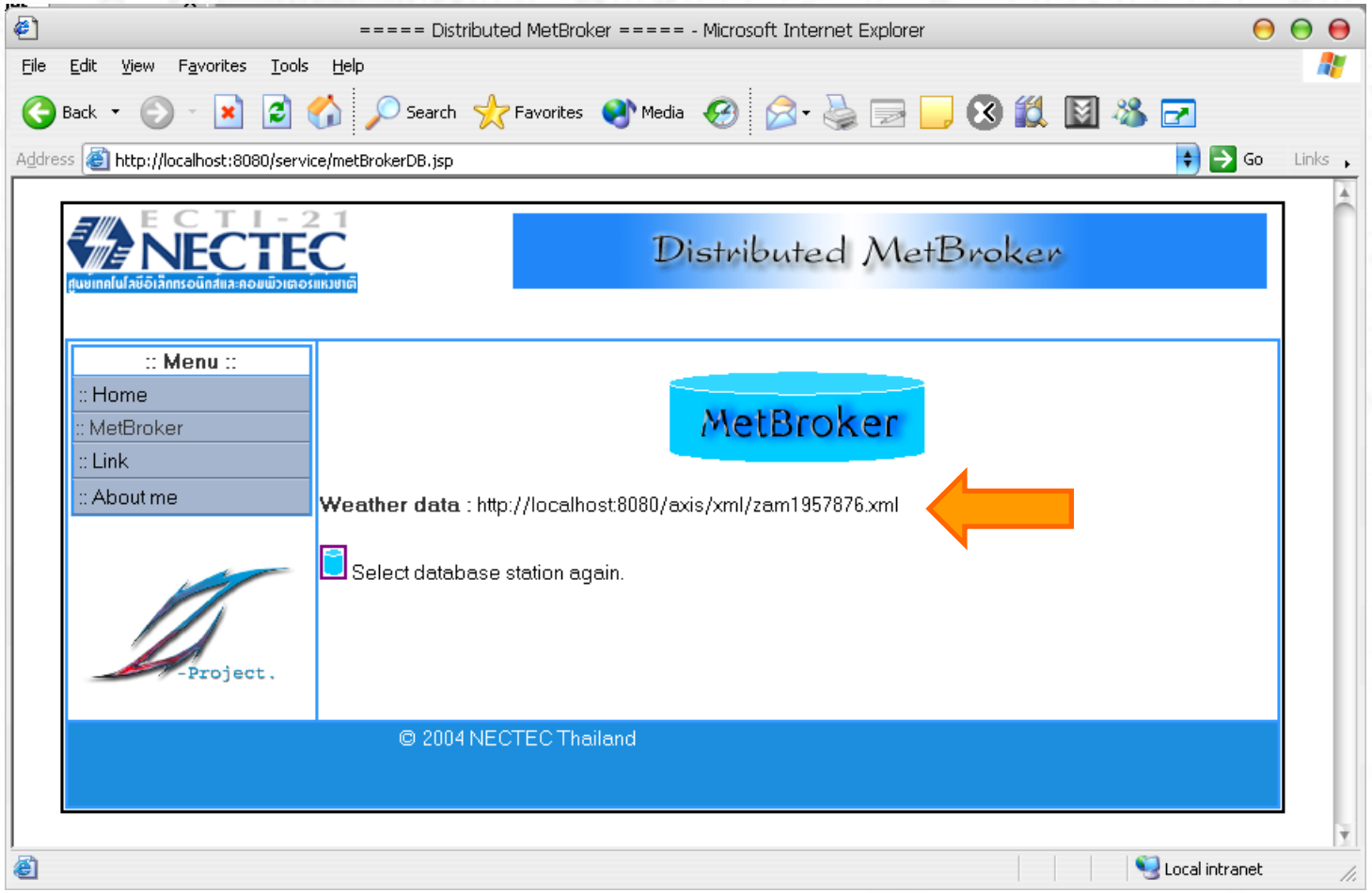
MetBroker Web Services



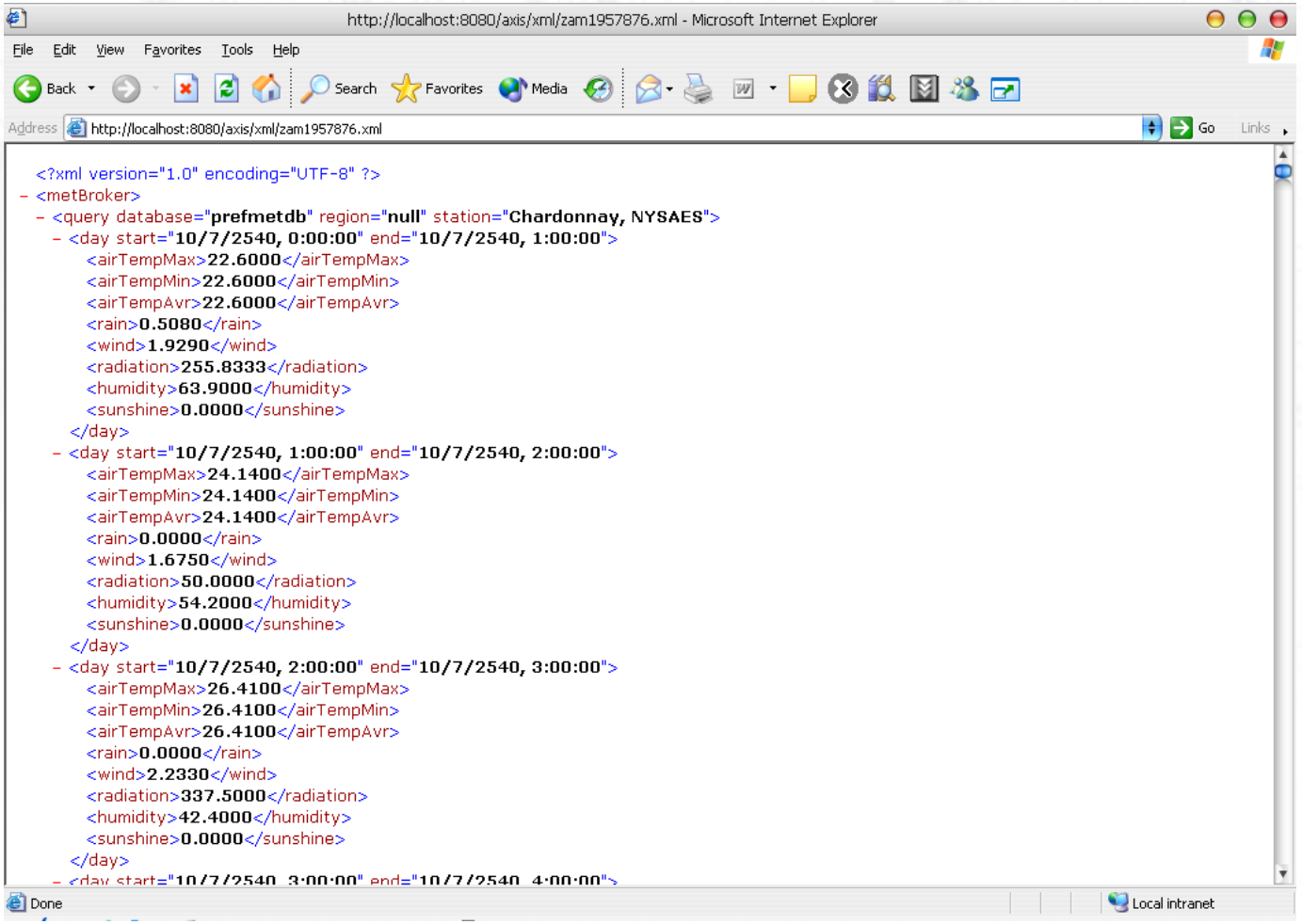
MetBroker Web Services



MetBroker Web Services



MetBroker Web Services

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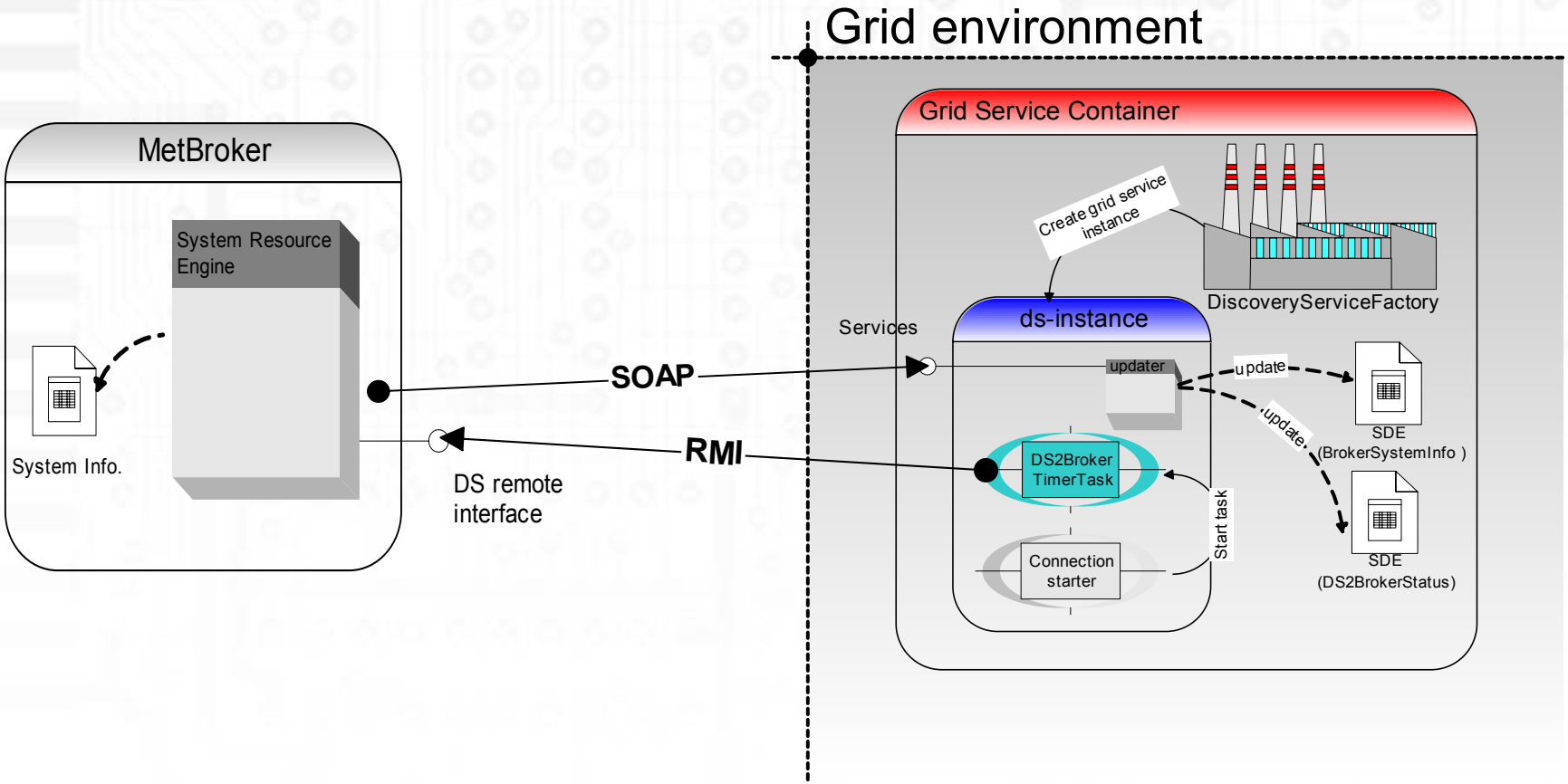
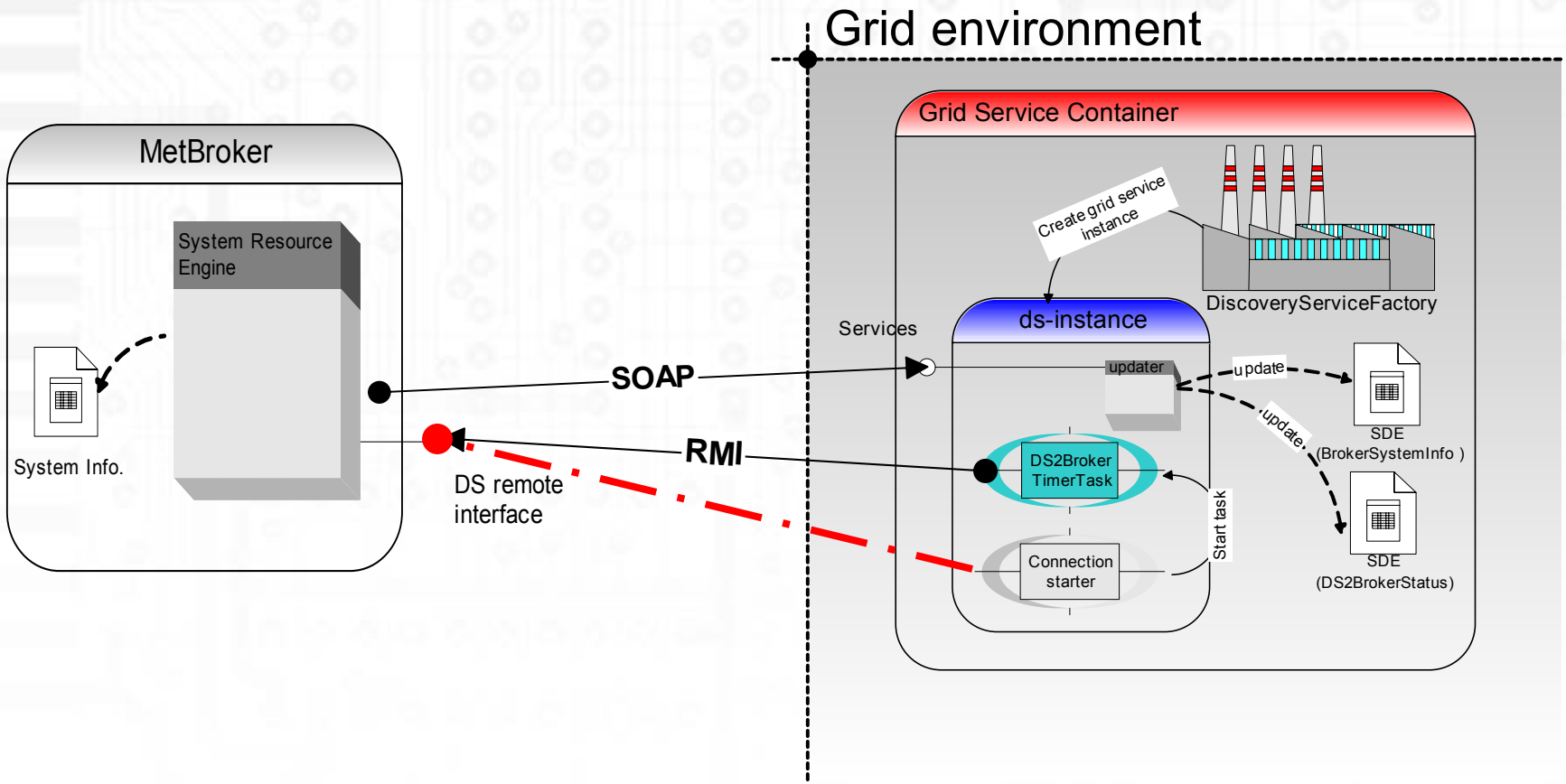
```

Sharing system resource information



How does it work?

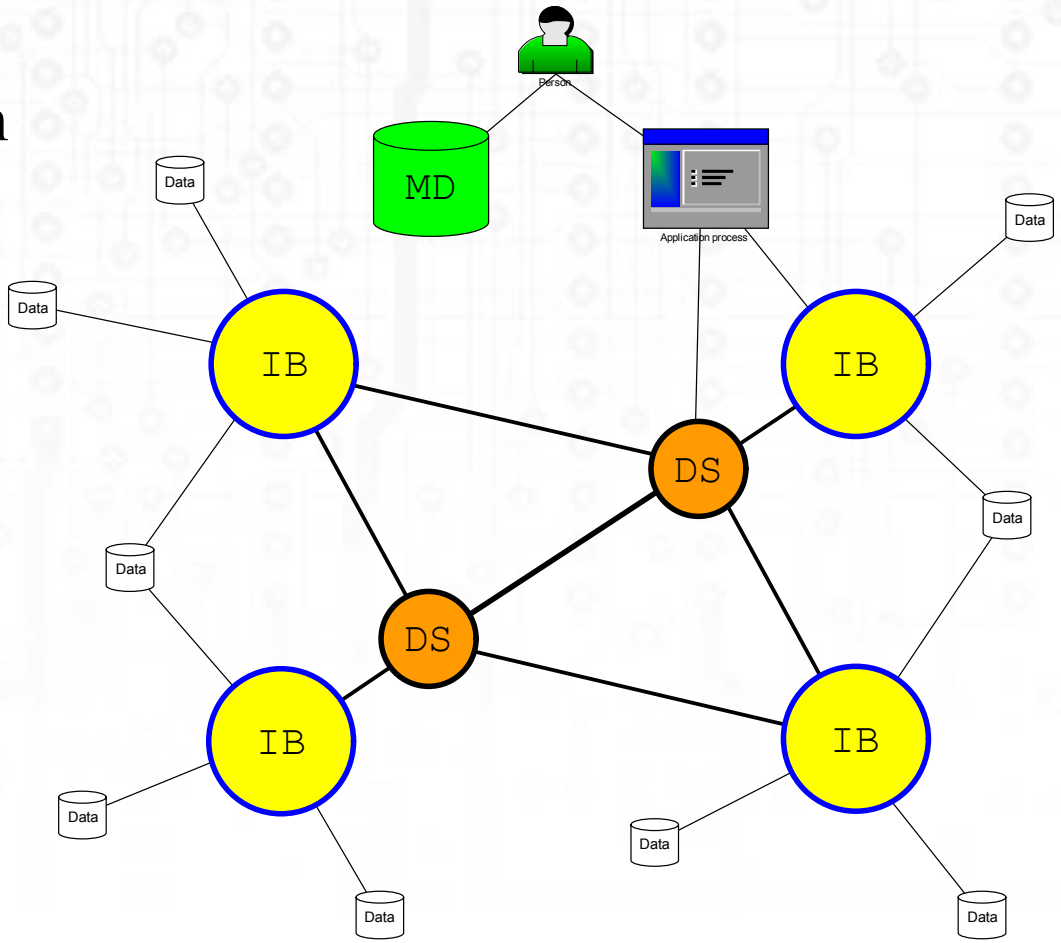


Information Grid

- **Objective**
  - build frame work and infrastructure for integrating public information sources to support a problem solving environment
- **Homogeneous information sources**
  - Other products like IBM's DB2II, Avaki

Scenario

- **Marker Directory**
  - Marker Definition Language
- **Information Broker**
- **Discovery Service**



Information Grid

- **Implements**
  - Marker Directory
  - Information Broker
  - Discovery Service
  - Application
- **Standard**
  - Information Grid Framework
  - Marker Definition Language

Conclusion

- Distributed MetBroker solve single-point of failure and bottle neck
- Broker scalability
- Each broker can manipulate all data by themselves
- Data discovery feature
- Important key for Information Grid

Thank you

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Discovery Service

- The best MetBroker
- Used for Multiple Broker project

$$S^{i}_{MB} = \propto^{i}_{MB} \text{ x } \propto^{i}_{Rsrc} \text{ x } \frac{(W^{i}_{region} + W^{i}_{users} + W^{i}_{net} + W^{i}_{CPU} + \ldots)}{n}$$

$$S_{best} = \text{Max } (S^{1}_{MB,} S^{2}_{MB, \ldots,} S^{N}_{MB})$$

Technologies related

- **Grid**
  - globus 4.0
  - grid services
- **Web Services**
- **Semantic web**
  - Resource Description frame work (RDF)
  - Ontology
- **Distributed MetBrokers**