Information Grid for Water Cycle Study: Marker Description Language

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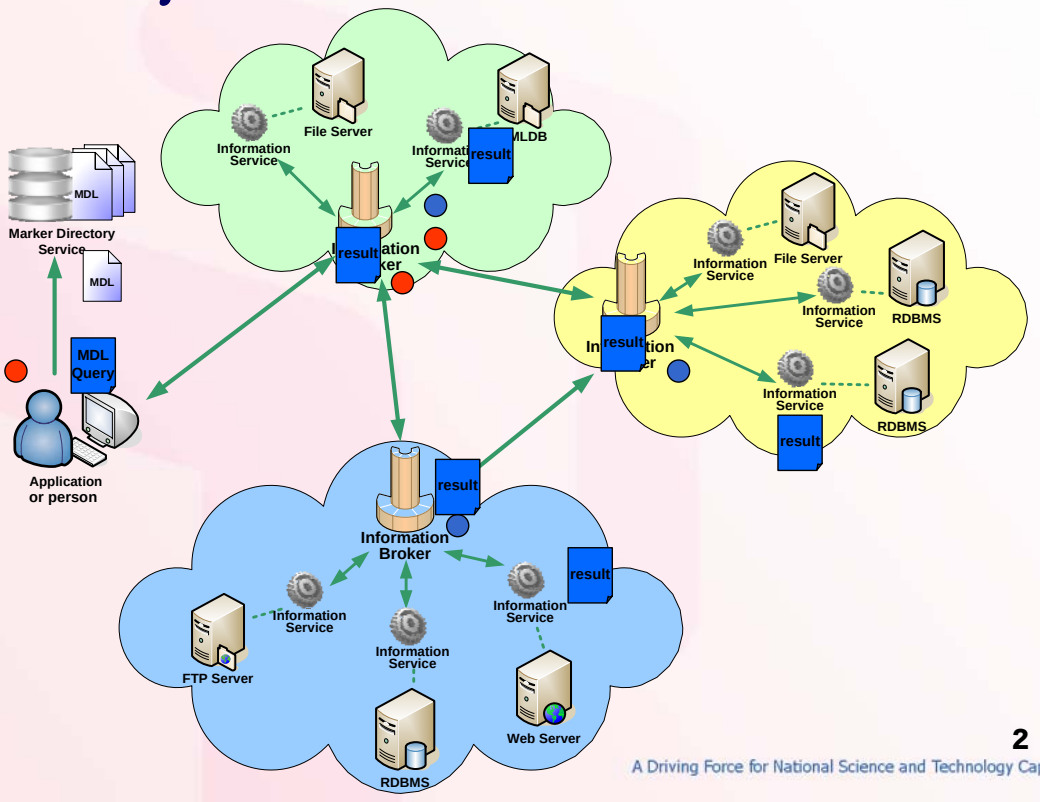
Presented at
The Third Asian Water Cycle Symposium
Beppu, Japan
December 2nd – 4th , 2005

Conceptual Information Grid



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Outline

- Factors of Information Integration
- Metadata Relationship
- Marker Description Language: MDL
- MDL contributions
- Development Plan of Information Grid
- Conclusions

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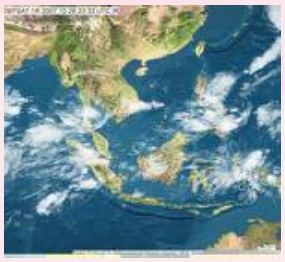
Information Metadata

- Metadata is used for the description and discovery of information
- Metadata consists of a set of elements



Weather information
- temperature
- wind
- humidity
- pressure
- dew point

Reservoir information
- name
- bottom
- overflow
- volume
- pressure

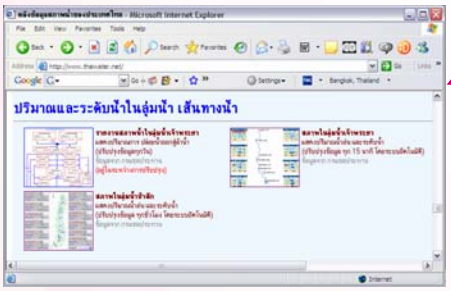
Source of Metadata: http://www.cob.org/services/maps/gis/reservr.aspx

Information Representation

XML

```
<reservoirs>
   <reservior>
      <name> …. </name>
      <bottom> …. </bottom>
      <overflow>….</overflow>
      <volume> …. </volume>
   </reservior>
   …….
</reservoirs>
```

Html



Spreadsheet

name	bottom	overflow	volume

Text File

Reserviors
name … bottom …. overflow …. volume …
name … bottom …. overflow …. volume …
name … bottom …. overflow …. volume …

Information Format

- Coordinate: UTM, latitude and longitude
- Feature code: ISO 19115, user-defined code
- Attribute code: ISO 19115, user-defined code
- Quantifiable element: km^2, m^2
- Scale Ratio: 1:40,000, 1:50,000
- etc

Information Integration

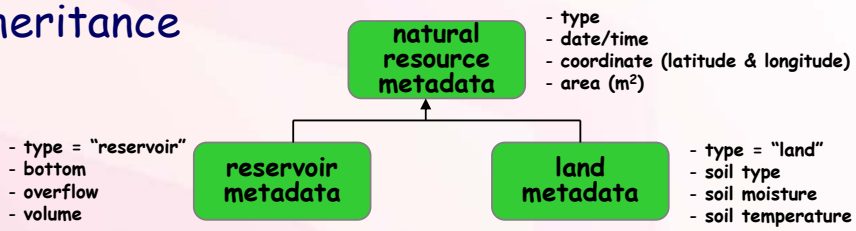
- Information Metadata
- Information Representation
- Information Format

standard

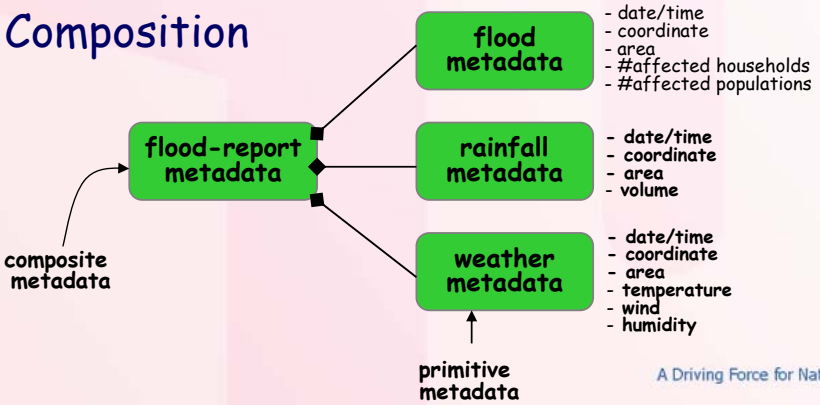
- supports information integration across organizations
- promotes information-sharing to other organizations
- facilitates a right away process of information received from another organization

Metadata Relationship

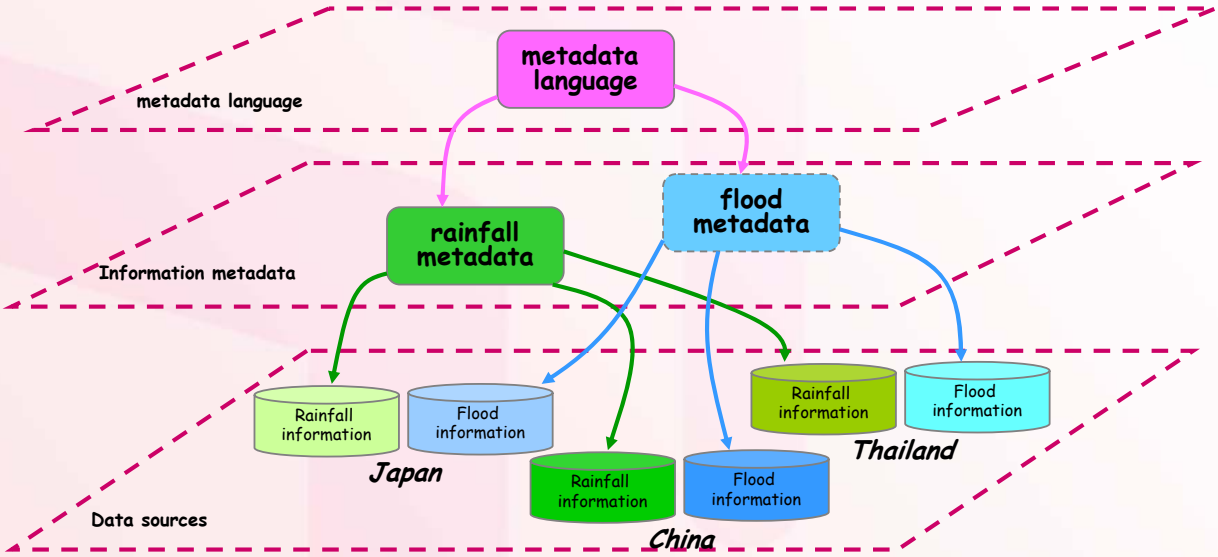
- Inheritance



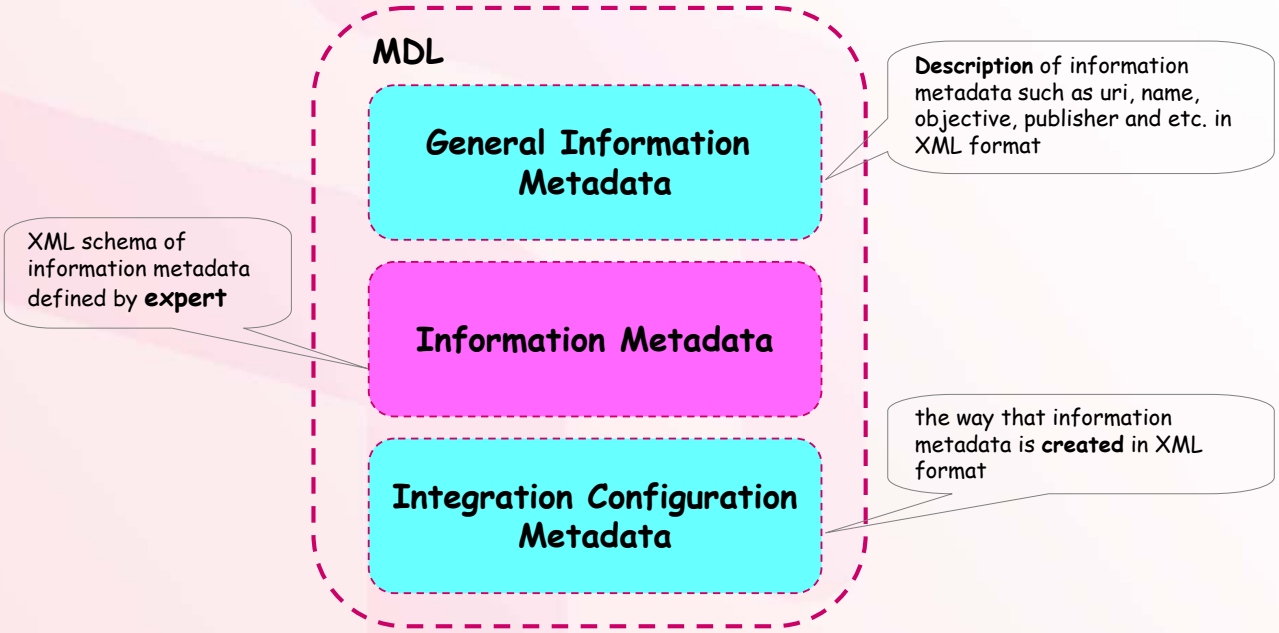
- Composition



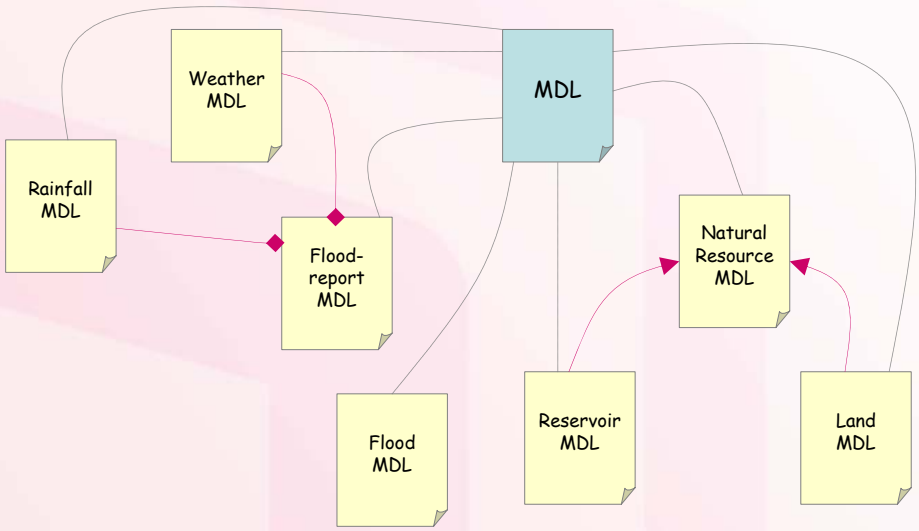
Metadata Language



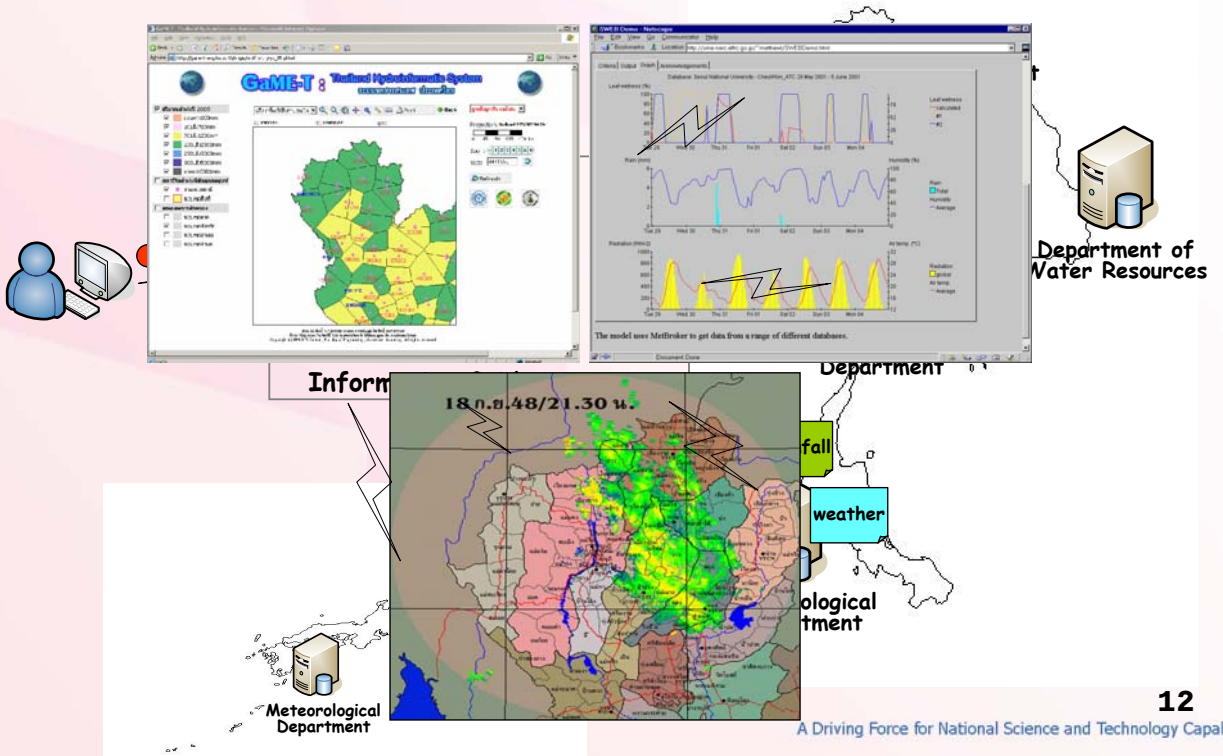
Marker Description Language: MDL



MDL Instances



Ideal Information Integration



MDL Evaluation

- MDL Evaluation at the laboratory level on the research information (done!)
  - MDL instances (Researcher, Publication, Research Project)
  - Thai Research Web Application
  - Internal Data Sources
- MDL Evaluation at the field level on the research information (on-going)
  - MDL instances (Researcher, Publication, Research Project, Patent)
  - Thai Research Web Application
  - Internal & External Data Sources

Development Plan

	2005-2007	2008	2009
standard data models	• MDL Beta • MDL instances (lab) - researcher - publication - research project	• MDL Beta v 1.0 • MDL instances (field) - researcher, publication, research project - CFD databank - water-related info.	
standard registry	• MDS-API beta • MDS-WS beta	• MDS-API v 1.0 • MDS-WS v1.0	• MDS-WA v 1.0
information service development	• iService Framework • Generic iService Tool Beta - manual mapping, RDMBS	• Generic iService Tool v1.0 - manual mapping	• Generic iService Tool v1.2 - semi-auto mapping
Schema matching		research	• Schema Matching v 1.0 - RDBMS
WebDB integration		research	• WebDB Beta
distributed information retrieval		research	• WindChimer v1.0 - information type - horizontal integration
Information Grid Client		• Information Grid Client API • Information Grid Client WS	• Information Grid Client Web Application
application	• Thai research (lab)	• National Thai-research • CFD databank	• Material Property Portal • Disaster Portal
security			

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Conclusion

- MDL is a unified language for describing metadata of information
- MDL facilitates not only metadata-sharing and metadata discovery but also information integration
- Information Grid helps researchers and scientists to fully focus on their works without concerning about information discovery and information integration

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Thank you!!!