SEA´99 presentation

Alf Inge Wang,
Norwegian University of
Science and Technology

Experience paper:
Using XML to Implement a Workflow Tool.
Agenda

- Introduction
- Requirements for the workflow tool
- XML
- Experiment
- Experiences and conclusion
Introduction

 Asked to implement workflow tool
 Renaissance project
 ESPRIT project
 Reengineering of legacy systems
 Result: Renaissance method
 See how XML could be used in workflow
Requirements

- Graphical presentation of the process
- Web-interface
- Process model
  - Informal graphical model
  - Elements: Activity, Task, Input/Output, Role and User
  - Relations: Consist of, Sequential flow, Concurrent flow, Concurrent Iterative
eXtensible Markup Language (XML)

 annonces of SGML

```xml
<?xml version ="1.0"?>
<DOCUMENT>
  <CUSTOMER>
    <NAME>
      <LASTNAME>Smith</LASTNAME>
      <FIRSTNAME>John</FIRSTNAME>
    </NAME>
  </CUSTOMER>
  <PROFESSION>fireman</PROFESSION>
  <PHONENUMBER>1-800-5412</PHONENUMBER>
</CUSTOMER>
</DOCUMENT>
```
Document Type Declarations (DTD)

Define XML document structure and tags:

```xml
<?XML version="1.0"?>
<!DOCTYPE document [ 
<!ELEMENT document (customer)+> 
<!ELEMENT customer (name, profession, phonenumber)> 
<!ELEMENT name (lastname, firstname)> 
<!ELEMENT lastname (#PCDATA)> 
<!ELEMENT firstname (#PCDATA)> 
<!ELEMENT profession (#PCDATA)> 
<!ELEMENT phonenumber (#PCDATA)> ]>
```
The experiment

Students worked about 1000 hours:
- Graphical process modeller tool
- Workflow engine
- Web-based graphical workflow client

```xml
<?xml encoding="UTF-8">
<!ELEMENT database (activity|task)>
<!ELEMENT activity (name, (input)*, (output)*, (concurrent)?)>
<!ELEMENT task (name, (pre-condition)+, (post-condition)+, (concurrent)?, (role)+, (user)*, (description)?)>
```
Experiences

XML advantages:
- Easier to model the process
- Easier to create workflow engines
- Easier to make web-based workflow tools
- Easier to make graphical modelling tools
- Easier to change the PML

XML disadvantage:
- Not suitable for representing dynamic data

Alf Inge Wang, SEA presentation,
6-8 October 1999 Scottsdale
Arizona USA
Conclusion

- XML is a way of organising data
- XML makes it easy to make template models
- XML easy to understand for humans and software
- XML makes it easier for researchers to make prototypes