XML Schema & modelling

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XML Schema - idea

Document [generic] property:
- [any sequence of characters]
- [mix of tags & text]
- Well-formed
- Valid
- [syntactically constrained]
- [semantically constrained]
- ..... etc.....

Document type name
- “Document”
- “Markup document”
- “XML document”
- “XML w.r.t. Schema”
- ?
- ?

XML Schema - context

- Tied to XML:
  - Schemas define constraints on XML documents
  - Schema definition language is an XML language
- Defined by World Wide Web Consortium (W3C)
- Part of the family of XML technologies
Self-descriptive data

Descriptive data

Descriptive data supports
- Practical evolution – traceability (dependencies)
- Dynamic access – detect structure

What XML Schema supports
- Schemadriven access (persistence)
- Schemadriven communication (interoperability)
- Distribution
- Decentralisation

Schemas and models

Where to in modelling

- Richer expressiveness
- Stronger semantics
- Interoperability with other standards
- Layering for expressivity
- Relations to processing/inference capability

- Towards the semantic web
Schema use

Schema use:
• Validation (of data)
• Discovery (of data types)

Enhances...
• Robustness
• Adaptivity
• Quality (bridge gap between data and software)

Bridging the gap

Mismatch between schema expressibility and programming language type systems

Approaches to handle the mismatch
• Schema centric
  – Define all types in XML Schema → map to program types
• Program type centric
  – Define all types as program types → map to XML Schema

Trade-offs... Context-dependent
  – private date → ...
  – interoperability

XML Schema – from where

• W3C
  – Architecture Domain
  • XML Activity
    – XML Query Working Group
    – XML Schema Working Group
      – XML Schema
        – 1.0
        – 1.1
        – 2.0
  – Activity
  – Working Group
  – Interest Group
  – Coordination Group

W3C specs timeline
XML Schema versions

- XML Schema 1.0
- XML Schema 1.0: 2nd edition
  - Typographical corrections etc
- XML Schema 1.1
  - Correct errors, modest improvements.
  - Aligning w. XML Query 1.0, XPath 2.0, XSLT 2.0
  - Support for versioning?
  - Extensions to data types?
- XML Schema 2.0
  - Requirements and use cases

XML Schema timeline

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<th>Schema</th>
<th>revised</th>
<th>2004</th>
<th>2005</th>
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