

Document management systems

- „ Lotus Notes, Poet CMS, ...
- „ Higher-Order CoreMedia
- „ Three-tier architecture
 - ? O/R-Mapping, object pooling/caching, concurrence, CORBA
- „ Document repository with elaborate CORBA API
- „ increasingly successful

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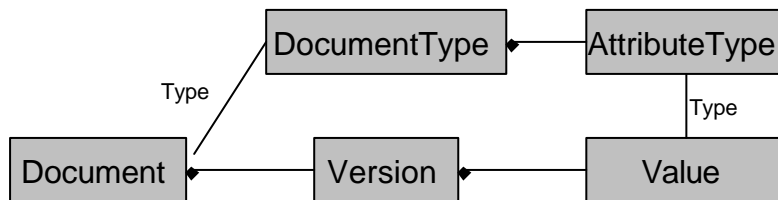
Documents: System functionality

- „ Hierarchical naming contexts
- „ Version management / synchronisation
- „ Editorial workflow
- „ Access control
- „ Trace - who/when/what
- „ Consistency checks
- „ Change notification

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Documents: User definition

- Document conforms to a user defined type specification
- Record type with attributes drawn from a set of basic datatypes, including multimedia types (MIME-typed binary data, markup text, cross links)



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Publishing

- Documents abstract from presentation
- Web rendering
 - ? servlet technology
 - ? JSP / document specific templates
 - ? dependency checking
- other media
 - ? PDF on CD
 - ? paging services

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Directions

- Nice, flexible model for site management
- Increasingly used for programming tailored applications
 - ? workflow, messaging, bug tracking
- Extension through special purpose document types
- Towards a programmable database

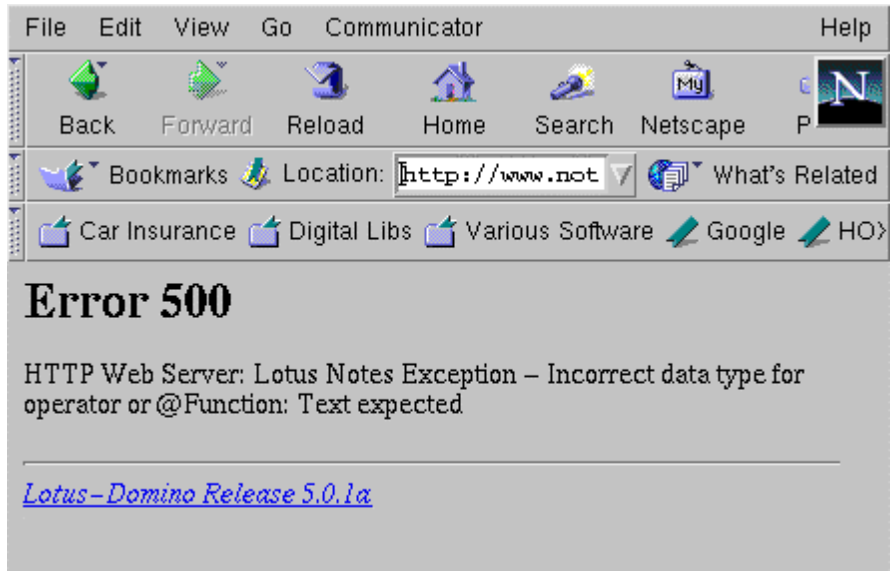
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Programming with documents

- Data centric - no behaviour specification in document types
- Reflective programming - `setAttribute(name, value)`
- No static typing at the attribute level
- Weak transactional properties

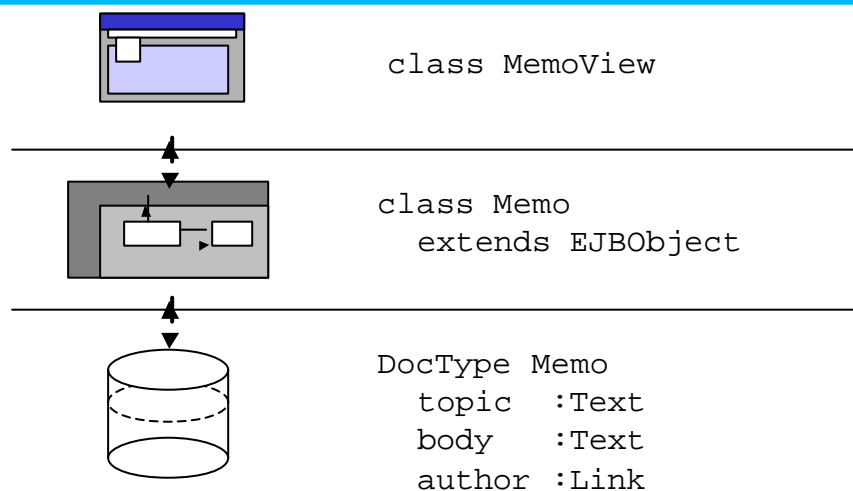
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You'll end up with ...



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Three tiers - once again



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Collapse the metalayer

- Documents should be expressed in the language used to program them - that is a fully expressive OO language
- No mapping burden between tier 1 and 2
- Extending the system gets more natural
- Persistent object system as environment
 - ? Tycoon
 - ? EJB?, PJama, Gemstone/J

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Issues

- What's the mismatch between the(?) object metamodel and the document metamodel ?
 - ? Identity & state vs copy semantics & versions
- What objects are aggregated to a version ?
- What is the burden/restrictions for the programmer ?
- Transaction model ?
- Extended semantics for references
 - ? derivative, replica, aggregate
 - ? broken, remote, unavailable

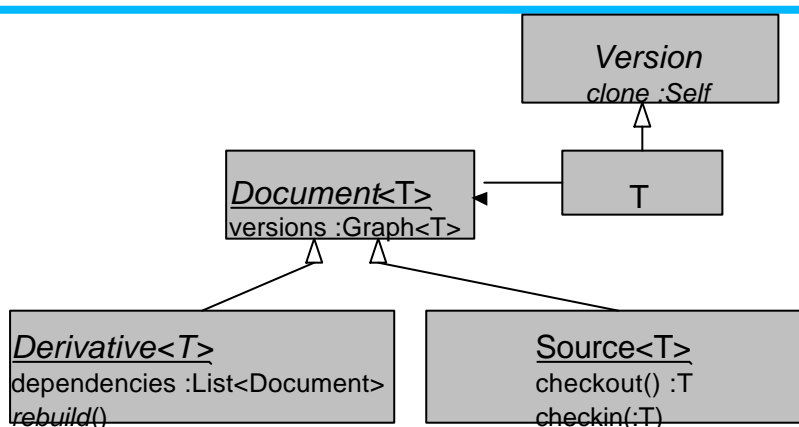
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Other work

- Sunlabs *Forest: Large scale software development*
 - ? *make ng*
 - ? Orthogonal persistence for storage
 - ? Versioning orthogonal to type: nearly any type of object can be versioned
 - ? Some overhead on the programmer

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A simplistic model



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Conclusion

- Growing influence of document handling
- Document database as the next generation data store ?
- Integration with the programming model
- Orthogonal persistent environment
- Synergies between document, version and configuration management