Using Object oriented Technologies for native XML Database Systems

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What's the main sense?

- Tell what are native XML databases for
- Show how OO technology can be used for native XDBMS building
- Graphical results discussion
  - efficiency used technologies
- Evaluation solutions

The main scope

- What is impedance problem
  - Consequence different data models
  - Some kind of mapping layer has to be implemented

- Impedance problem
  - Specifically impedance mismatch problem

Impedance problem solutions

- 2 different OO technologies were implemented and tested:
  - First using XML:DB API
    - All 5 Java Interfaces were implemented
    - Using OO data storage GOODS
  - JAXB – Java API for XML Binding

XML :DB API interface

- XML:DB API
  - Uniform – unified (code reusability)
  - Known – arise from popular already existed interfaces (ODBC, JDBC)
    - Big plus – developers starts work quickly

- Implemented system is XDMBS implementing XML:DB API core level 0

GOODS

- properties
  - Generic Object Oriented Database System
  - Open source project
  - Semiortogonal persistency
- Implemented system use semiortogonal persistency as fact there is a relation between XML data model and object data model

JAXB technology

- JAXB just process XML documents
    - As files as they are
    - Or in the manner of streams
- Do not provide usual DB functionality as e.g.
    - Transactional processing
    - Multiuser multidata access
    - Failure recovery, …
- Implemented system using all typical properties provided by JAXB framework as e.g.
        - Unmarshalling, XML Schema validace, marshalling
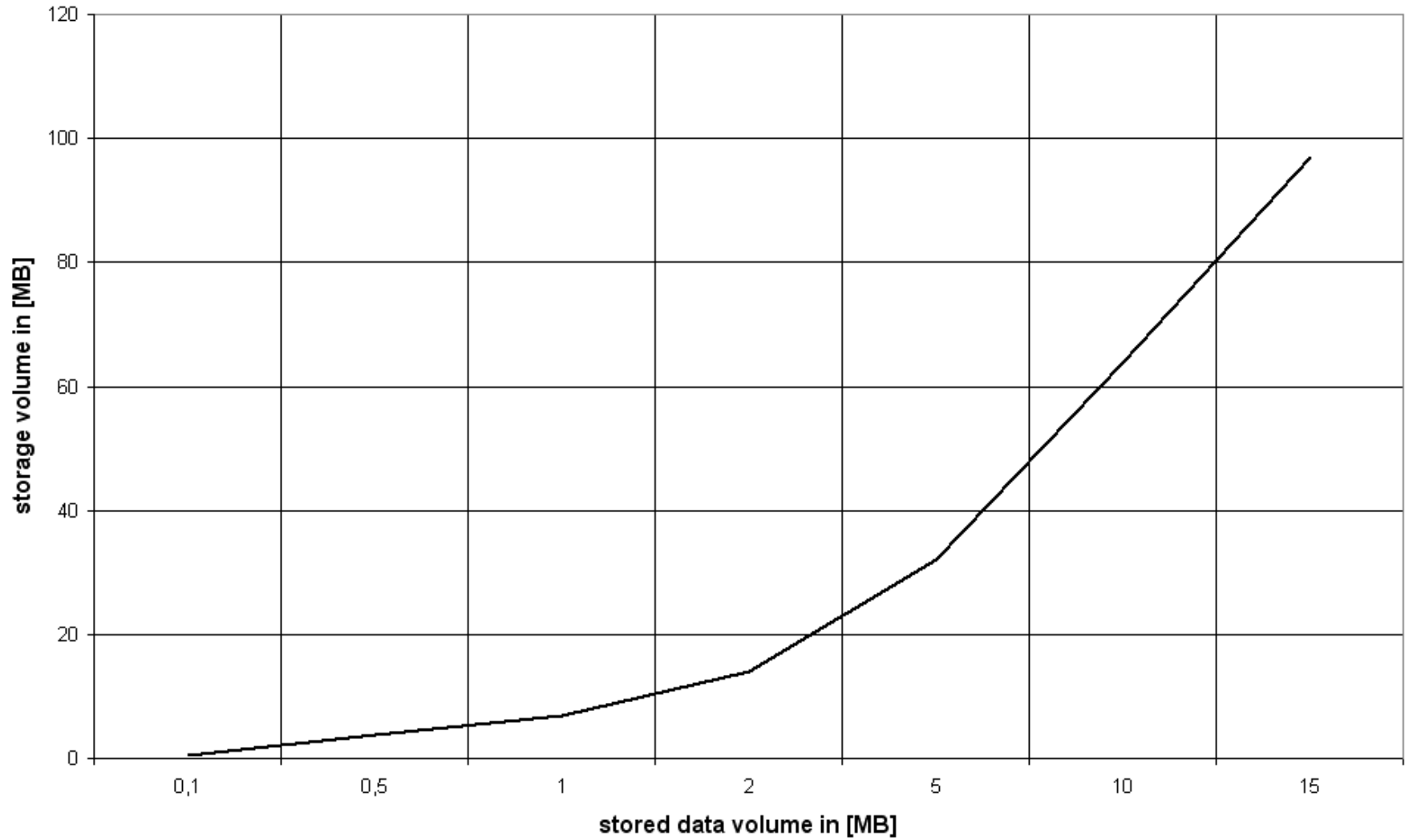
Tests results

- What was the content of following tests?
  - Reading XML document
  - Making changes in content that document
    - Less than 1KB
  - Storing into to DB
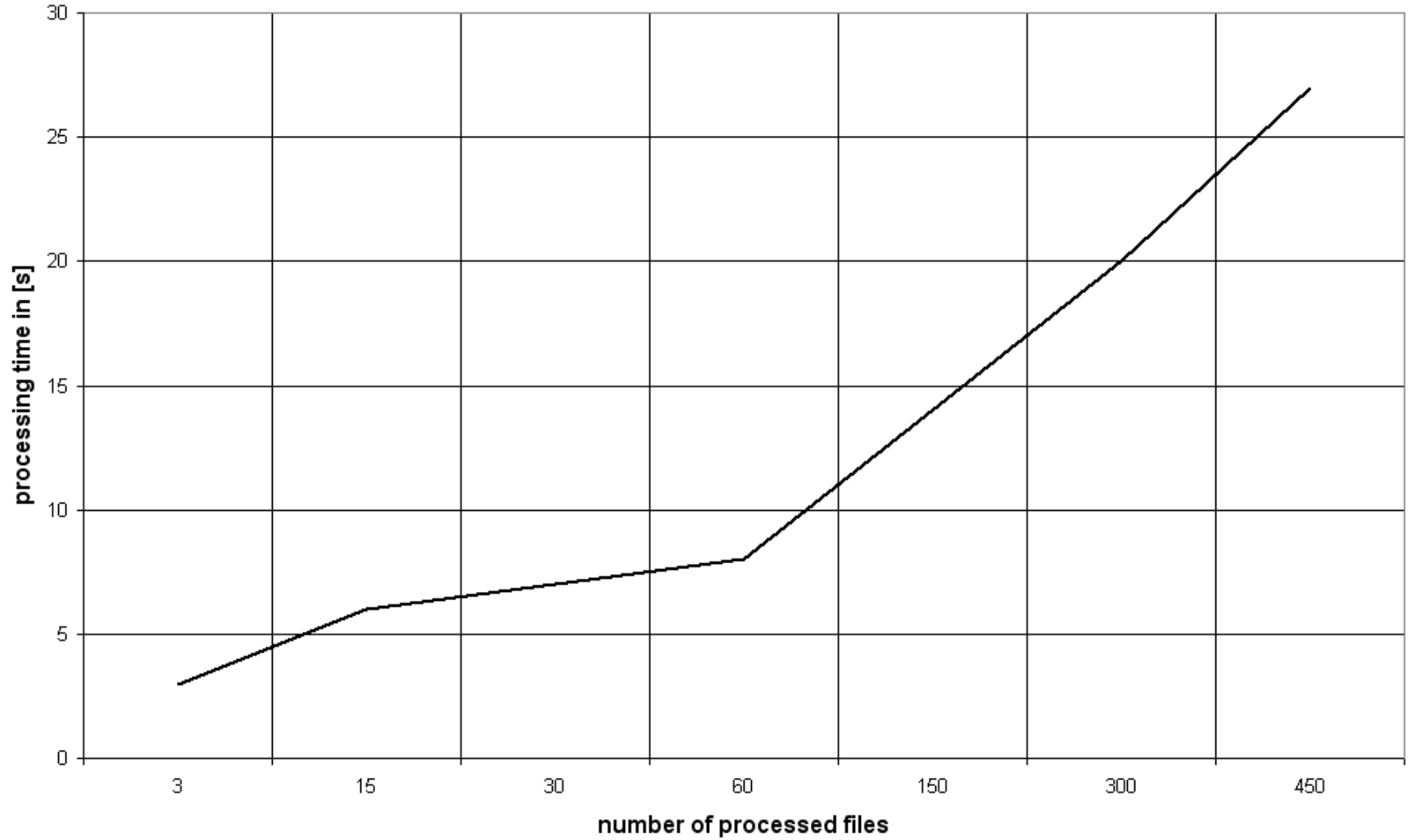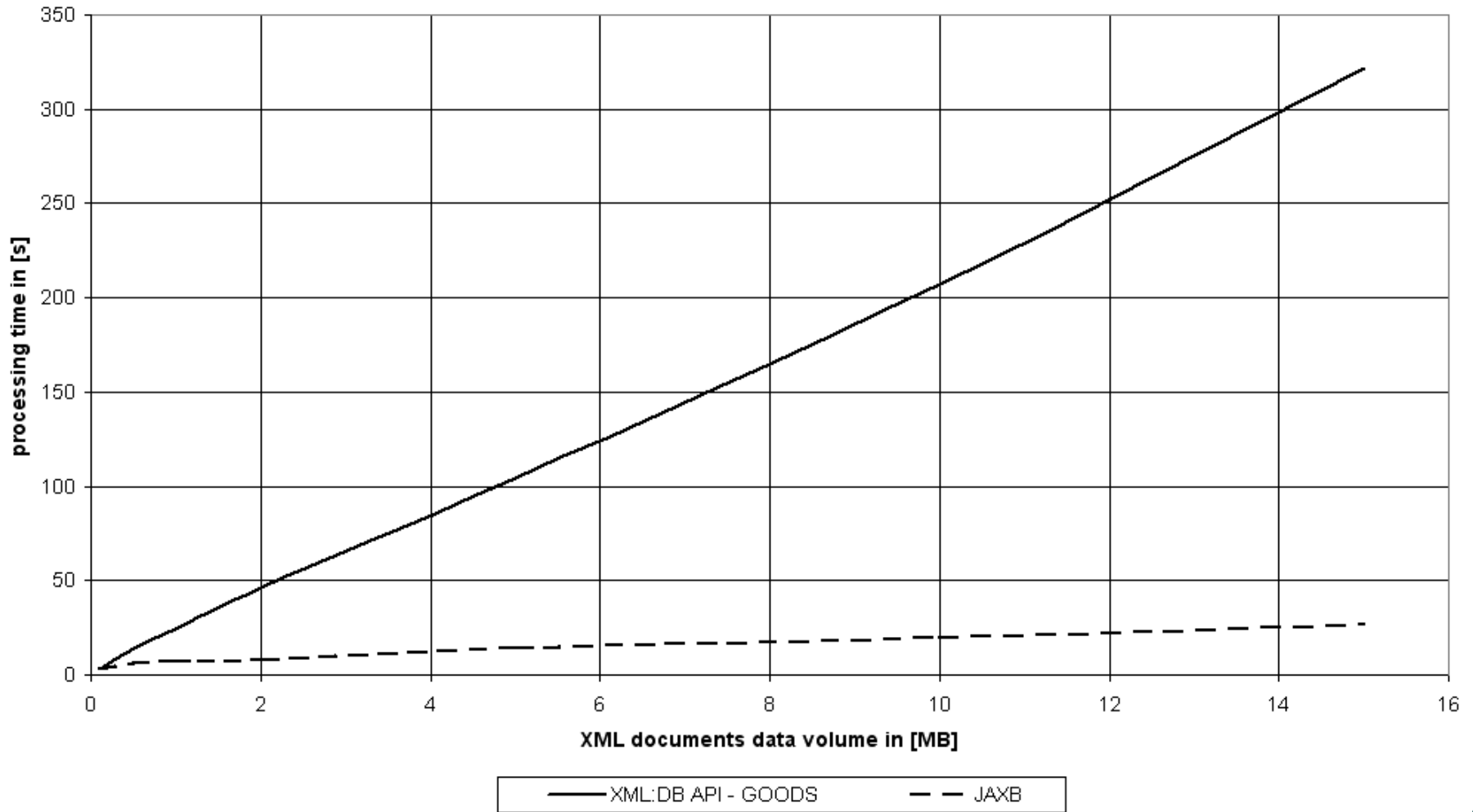 - Loading XML document from DB and storing it into the FS

XML Store Ext
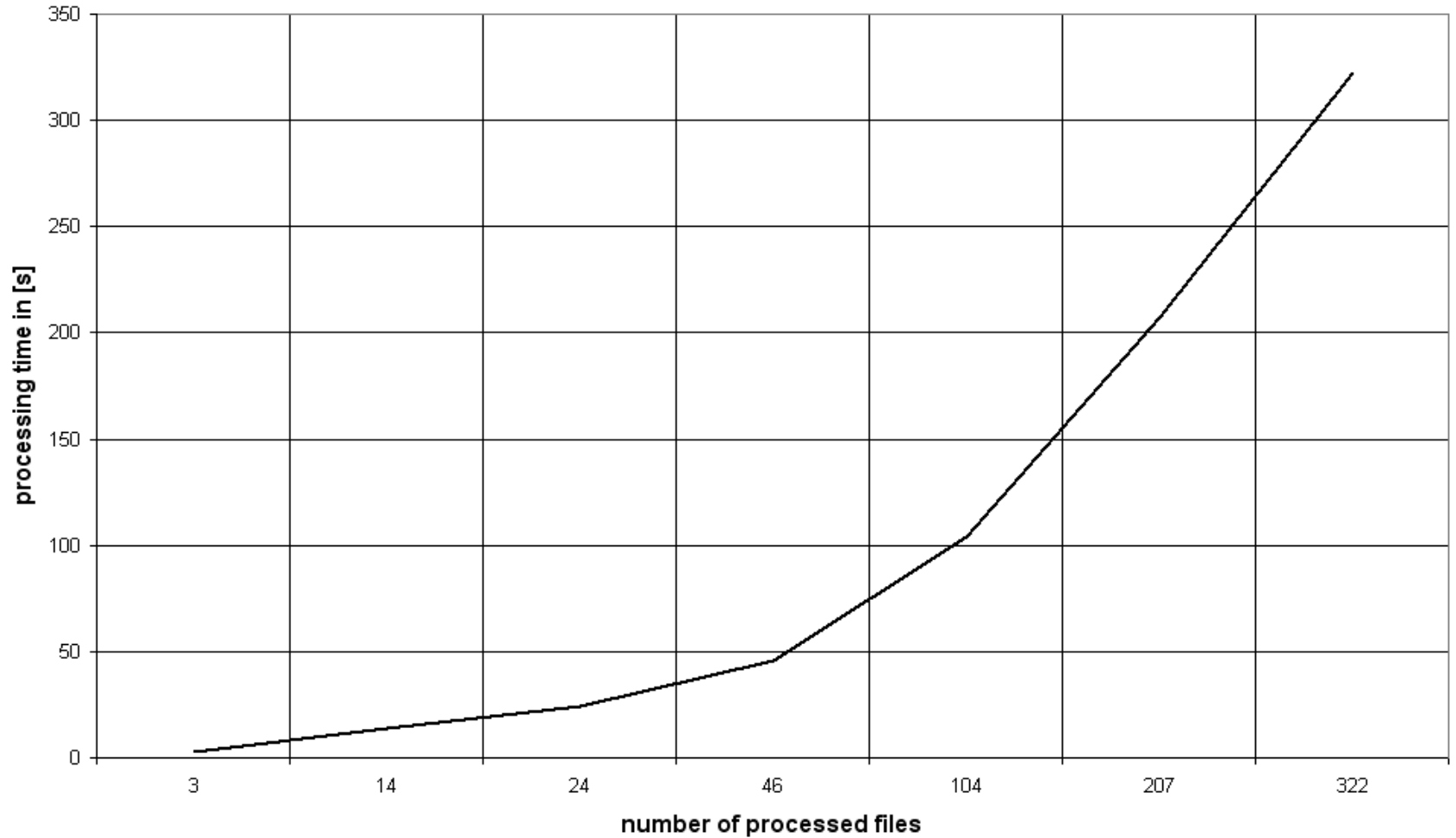
XML Store Ext 2

JAXB Store

Comparison

Conclusions

- speed
  - GOODS << JAXB
- DB abilities (power)
  - GOODS >> JAXB
- JAXB – only FS level
- We can use all the DB functionality from the beginning (GOODS)
- Recommendation: **prototyping!**

Thank you for your attention.
Any question?

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