Market Requirements Document

Feature Name: XML Support

Version: 2 **Date Submitted:** 12/04/2007 **Completed By:** Leon Guzenda
Version: 1 **Date Submitted:** 11/30/2007 **Completed By:** Leon Guzenda

Description of the Problem

Background

"The **Extensible Markup Language** (**XML**) is a general-purpose markup language. It is classified as an extensible language because it allows its users to define their own tags. Its primary purpose is to facilitate the sharing of structured data across different information systems, particularly via the Internet. It is used both to encode documents and serialize data. The World Wide Web Consortium (W3C) recommendation covering XML specifies both the lexical grammar and the requirements for parsing." – Wikipedia

Example

See Appendix 1.

Problems

1. Objectivity/DB does not support the schema languages used by the various components of the semantic web stack.
2. Neither is it particularly efficient at storing and manipulating constructs that are primarily closely related text strings.
3. The internal schema representation is designed for relatively fixed structure languages, such as C++ and Java, rather than self-defining languages, such as Generalized Markup of Defined Objects (GDMO) and those used within the World Wide Web Consortium (W3C).

Impact

Customers wishing to store XML data in Objectivity/DB can edit it into the fixed format used by the current XML export and import tools, but this is both inconvenient and slow. Once imported, standard XML features, such as XLink, Xpath, XQuery and XML Schema, are not available.

Description of the Requested Feature

The goal is to provide a high performance, scalable, distributed (grid-enabled), reliable database environment XML schema, data and tools. This will include:

a) Support for XML Schema and other XML standards, such as XPath and XQuery.

b) User customizable XML import and export tools.

Part of an existing feature or does it require another feature, if so, which one?

This feature will add at least one Objectivity product. It will support other semantic web languages, such as Resource Description Framework (RDF) and Web Ontology Language (OWL).

How is this problem being solved now, and why isn't that acceptable?

See "Impact" above. Customers who need to manipulate XML are probably going to competitors or staying with RDBMSs. We need this capability to support RDF and OWL for semantic web applications.

What languages must support this capability?

- Java
- C#
- C++

Which platforms must be supported?

- Tier 1 at first and all platforms eventually.

Do any competitors already have this feature?

- [Progress Software] ObjectStore and Versant have limited XML support.
- The RDBMS vendors have added full XML support in the past few years.
- X-Hive (an ex-customer) provides a full XML database.
- Tamino is probably the market leading independent XML DBMS.

Customers who require this feature

- The Intelligence Community.
- The manufacturing, petrochemical, telecom and financial markets.
- Boeing has recently expressed interest in storing RDF and OWL in Objectivity/DB. Both languages use XML as a base.

Revenue at risk, or which could be won

- Analysts predict that the global Semantic Web market could be worth $75 Billion annually from 2010 onwards.

When is this required?

- Before 2009, if possible.

Additional Notes

We will also need:

- Marketing collateral.
- Updated Technical Publications.
- New QA material.

Appendix 1 – XML Example (based on one in the Wikipedia page on XML)

```
<recipe>        <!- The shading of groups of elements is intended to improve legibility. ->
 <Group>Bread and Cakes</Group>
 <title>Basic White Bread</title>
 <prep_time>5 mins</prep_time>
 <cook_time>3 hours</cook_time>
 <ingredient>
  <amount>3</amount>
  <unit>cup</unit>
  <type>White bread flour</type>
 </ingredient>
 <ingredient>
  <amount>0.25</amount>
  <unit>ounce</unit>
  <type>Yeast</type>
 </ingredient>
 <ingredient>
  <amount>1.5</amount>
  <unit>cup</unit>
   <type>Water</type>
   <state>warm</state>
 </ingredient>
 <ingredient>
    <amount>1>/amount>
    <unit>teaspoon</unit>
    <type>Salt</type>
 </ingredient>
 <instructions>
    <step number="1">Mix all ingredients together.</step>
    <step number="2">Knead thoroughly.</step>
    <step number="3">Cover with a cloth, and leave for one hour in warm room.</step>
    <step number="4">Bake in the oven at 350° for 30 minutes.</step>
 </instructions>
</recipe>
<!—XML statements need an opening and a matching, correctly nested, closing tag ->
```

<!-- *Jump back to "Description of the problem"* -->