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# Mark Logic XML Server 4.1

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## Introduction

Mark Logic is a specialty XML database vendor started in 2001 and continues to rely on venture funding to remain operational. This document provides an in-depth competitive analysis of Mark Logic's flagship XML Server 4.1 versus Oracle Database 11g Release 2 XML Database.

Mark Logic XML Server is inferior to Oracle XML Database in a number of areas critical to the cost-effective life cycle management of enterprise applications.

- Mark Logic Server deviates substantially from W3C standard XQuery language by supporting a confusing array of “dialects” with considerable proprietary extensions to an early draft of the standard. A Mark Logic customer can quickly get locked in by these proprietary extensions to improve performance because of the subpar implementation of standard XQuery constructs on Mark Logic server.
- Mark Logic Server provides insufficient support for developing, deploying, migrating, and managing XML applications.
- Mark Logic Server supports only few usage scenarios of accessing to and delivering of content for content repurposing and structured search and navigation against XML content.
- Mark Logic Server is a costly product to purchase and will cost much more to maintain due to its support of proprietary APIs and its lack of an ecosystem.
- Mark Logic has had limited resources to expand the scope (e.g., feature completeness, internationalization, product ecosystem) and the market of its flagship product, and therefore raises doubts about its long term viability.

In contrast, Oracle XML Database is a standards-based implementation seamlessly integrated with the highly reliable, available, scalable, and secure Oracle RDBMS platform to provide comprehensive XML data and content management services throughout the entire life cycle of XML applications at no additional cost to licensees of either the standard or the enterprise edition of Oracle Database 11g Release 2.

The following sections will drill down to each of these five critical areas to highlight the weaknesses of Mark Logic XML Server.

## Proprietary “Dialects” of The W3C Standard XQuery Language

XQuery 1.0 became a W3C standard on January 23, 2007. As stated in the announcement of the XQuery 1.0 standard by W3C, XQuery is an open web standard for unifying the database and the document world with its versatile capabilities of querying, transforming, and accessing XML and relational data. Mark Logic has touted XQuery as the backbone of its XML server. However, while the standardization effort was still in its infancy, Mark Logic prematurely introduced its XQuery support based on an early draft of the W3C XQuery language dated May 2, 2003<sup>1</sup>. Worse yet, Mark Logic interjected numerous proprietary syntactical variations to the XQuery language along with its library of non-standard functions. The shortsighted approach has taken its toll as evident in the latest release 4.1 of Mark Logic Server where three different XQuery “dialects” are now supported.

### What We Know

Application developers<sup>2</sup> have complained about how painful it is to work with Mark Logic’s non-standard XQuery implementation in Mark Logic Server 3.2. With the recent introduction of version 4.1, Mark Logic now supports three XQuery “dialects” of its own creation:

1. MarkLogic Server Enhanced (XQuery 1.0-ml)
2. MarkLogic Server 3.2 Compatibility (XQuery 0.9-ml)
3. Strict (XQuery 1.0)

The naming of the second “dialect” on the list is deceptive, because the W3C XML Query Working Group had never released an XQuery 0.9 before XQuery became a W3C recommendation on January 23, 2007. In fact, the working group released close to ten different versions of working drafts and candidate recommendations after the May 2, 2003 working draft, which Mark Logic implemented in Mark Logic Server 3.2.

Furthermore, the third “dialect” of Strict (XQuery 1.0) may seem to be the best choice for application developers going forward because of its compliance with W3C XQuery 1.0 recommendation. However, a third party benchmark study has revealed that using the standard XQuery 1.0 versus the Mark Logic Server Enhanced XQuery dialect can lead to orders of

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<sup>1</sup> [W3C Working Draft 02 May 2003](#)

<sup>2</sup> [XQuery Support in Mark Logic Server](#): a recent blog of an application developer using a Mark Logic Server.

magnitude difference in query performance. Queries had to be manually rewritten with Mark Logic's proprietary extensions to perform reasonably.

## Oracle's Proven Leadership and Value

Oracle was a pioneer in native XML datatype support when it was first introduced in Oracle 9i Release 1. With the vision of storage and processing flexibility, Oracle XML DB offered an innovative approach of supporting native XMLType as an SQL-level abstraction to leave room for additional storage and indexing options optimized for evolving use cases.

Since the introduction of XML schema-aware structured and unstructured storage options in Oracle 9i Release 2, Oracle XML DB has enjoyed broad adoption by real world mission critical applications. These applications have been deployed to global enterprises with use cases ranging from data-centric to document-centric. With insights gained from a rapidly growing customer base, Oracle XML DB continues to enrich its capabilities. The binary XML storage option and the XMLIndex unstructured component indexing scheme introduced in Oracle Database 11g Release 1 along with the new XMLIndex structured component, partitioning support, locally managed indexes, complex schema management, and performance enhancements in Oracle Database 11g Release 2 have further extended our lead.

In addition, Oracle was the first major database vendor to introduce database-native W3C XQuery standard support. With deep integration and innovative XQuery rewrite technology, Oracle XQuery offers optimized and highly scalable query performance against multiple data sources (e.g., persistently stored XML data, relational data, XML DB repository), and excels at XML transformation and publishing use cases.

## Insufficient Support for Developing, Deploying, Migrating, and Managing XML applications

Comprehensive support of application life cycle management is one of the most critical criteria for selecting an enterprise application platform. From the development phase to the deployment and the ongoing management of an application, a platform vendor must provide reliable and cost-effective end-to-end support to its customers. With the limited resources of a fledgling startup company, Mark Logic Server has a lot to be desired for its early adopters to develop, deploy, and manage an XML application.

### What We Know

As a consequence of its deviation from the W3C XQuery standard, its proprietary XCC (XML Contentbase Connector) APIs, and its limited support of Internet protocols (e.g., no support for SOAP, FTP, and HTTPS), there are spotty and shallow support for Mark Logic Server from third party vendors. Without a robust development tool supported by Mark Logic, developers

have been having a hard time finding a reliable development tool. Because of Mark Logic's own notion of documents, forests, databases, hosts, and clusters as well as its XQuery-based administrative API, administrators also face a steep learning curve in deploying and managing XML applications on a Mark Logic Server. Furthermore, based on a third party benchmark experience, performance tuning of an application will require a developer to manually rewrite W3C standard XQuery expressions to use Mark Logic proprietary extensions. Any types of application maintenance on a Mark Logic Server will be a major chore for the database administrators.

Managing Mark Logic servers has been difficult for database administrators as well. With limited capabilities in administrative tools, Mark Logic server administrators are often frustrated by its difficulty to navigate and its inaccessibility when there are server problems.

Furthermore, to the dismay of existing customers of Mark Logic, migrating to the current 4.1 release has caused major disruptions of their deployed applications. The extensive list of incompatibilities introduced in the Mark Logic 4.1 release required changing application software, rebuilding indexes, and backing up the entire database.

## Oracle's Proven Leadership and Value

Oracle XML Database takes advantage of the proven Oracle ORDBMS platform by integrating XML processing capabilities seamlessly into a reliable, available, scalable, and secure platform. Oracle XML Database supports industry standard APIs (e.g., JDBC, JCR, ODP.NET) and Internet protocols (e.g., HTTP/HTTPS, FTP, WebDAV, and SOAP). In addition, developers of XML applications can take advantage of the versatile tools of Oracle SQL Developer, Oracle JDeveloper, and third party tools such as XMSpy and oXygen. Oracle also offers Oracle Developer Tools for Visual Studio for free for .NET developers. Oracle database administrators can use the familiar tools (e.g., Oracle Enterprise Manager, SQL\*Loader, Datapump) they have always used for managing Oracle databases to deploy and manage the life cycle of XML applications running on Oracle XML Database.

## Only Few Usage Scenarios Are Supported

Internet and enterprise applications often cooperate with other applications as components of a larger workflow. The same applications also often share data among them. Choosing a standards-based platform with comprehensive capabilities ensures streamlined and simplified integration, deployment and management of these coupled applications.

## What We Know

Mark Logic Server 4.1 supports a limited set of features to narrowly target the content publishing usage scenario. It is designed to store and process only XML documents, and therefore cannot

store and repurpose structured relational data. It also doesn't support content management system capabilities such as versioning, and metadata management. As a result, deploying an application on a Mark Logic Server often involves the deployment of additional applications (e.g., content management system) on other platforms to satisfy the larger scope of a typical enterprise usage scenario. With its non-standard APIs and limited support of Internet protocols, there are few integration points available for a Mark Logic Server to reach out to other platforms and applications. This further increases the complexity and cost of deploying and managing a Mark Logic Server.

### Oracle's Proven Leadership and Value

Oracle XML Database integrates tightly with a proven enterprise-grade RDBMS platform to support comprehensive XML data and content management capabilities. Oracle XML Database provides extensive support of industry standard APIs and Internet protocols to allow simple and cost-effective cooperation with other platforms and applications. There is also a large portfolio of enterprise applications certified to run on this reliable, available, scalable, and secure Oracle RDBMS platform. An XML application can take advantage of the extensive capabilities of Oracle XML Database to serve diverse usage scenarios. Deploying and managing such application with other cooperative applications on the same widely adopted platform further optimizes performance and scalability.

### A Costly Product to Purchase and Will Cost Much More to Maintain

Total cost of ownership is an important metric to consider when making a decision on an application platform. The initial purchase, training, development, deployment, and the long term management costs are well understood by IT decision makers. A platform with limited capabilities and proprietary API support such as the Mark Logic Server will require far greater costs to deploy and manage because of the much larger scope of a complete solution. There are additional long term risks associated with adopting a platform based on proprietary APIs.

### What We Know

Given limited capabilities of Mark Logic XML Server in comparison with Oracle Database Enterprise Edition, its exuberant pricing set at multiple times of Oracle's superior product offering is unjustified. With its support of three different XQuery "dialects", proprietary APIs, and few Internet protocols, a company adopting Mark Logic Server will face a steep learning curve for its developers and database administrators. The complexity of deploying and managing a complete solution with Mark Logic Server will add further to the cost. With little demand for Mark Logic Server, long term maintenance and expansion of the platform will face expertise shortage as well.

## Oracle's Proven Leadership and Value

Oracle XML Database is a free component of both Oracle Database Standard Edition and Enterprise Edition. With extensive support of industry standard APIs and Internet protocols, application developers can easily ramp up the learning curve. With Oracle RDBMS as the foundation, Oracle XML Database shares the same infrastructure and services with the underlying platform. Oracle DBAs can easily deploy and manage an XML application running on Oracle XML Database as they have done with other Oracle applications. The standards-based Oracle XML Database will also allow simple and cost-effective deployment with other applications and platforms to provide a complete solution.

## Questionable Long Term Viability

While a platform choice by an IT decision maker can have implications for over a decade, the longevity of a platform relies on the health of the company producing it. Does the company have a reliably revenue stream and an expanding customer base? Is the company responsive to the changing needs of its customers?

## What We Know

Mark Logic has had limited customer base and revenue stream since its founding in 2001. With limited support of international languages, Mark Logic's customers are largely based in the U.S. Faced with fierce competition from smaller and major software vendors. Mark Logic has many challenges to overcome in the short term as well as in the long run.

## Oracle's Proven Leadership and Value

Oracle Database has been the flagship product of Oracle Corporation, the largest enterprise software company in the world with annual revenue of \$23 billions. Oracle XML Database was first released in Oracle 9i Release 2 in 2002, and it is now in its fifth release in Oracle Database 11g Release 2. Oracle XML Database has a global customer base with thousands of customers. To target document-centric use cases, Oracle XML DB has provided repository support since its first release in Oracle9i Release 2. With access control, versioning, and deep integration with SQL and XQuery APIs, Oracle XML DB repository has been widely used.

## Conclusion

After examining Mark Logic XML Server in five areas critical to the life cycle management of XML applications, major weakness have been uncovered in all five areas. In a sharp contrast, Oracle XML Database excels in all five areas due to the following strengths:



- The first major database vendor to introduce a tightly integrated XML Database on a proven RDBMS platform. Oracle XML Database has had a wide spread adoption around the world satisfying a full range of XML application uses cases
- Oracle XML Database supports comprehensive XML data and content management capabilities, standards-based APIs, and Internet protocols to meet customers' evolving requirements
- A superior implementation with deep integration to offer simplified development, deployment, and management on a reliable, available, and scalable Oracle database platform

In summary, Oracle XML Database is the platform of choice for developing, deploying, and managing versatile, scalable, and complete XML data and content management applications. As Oracle XML Database continues to make major improvements in the future, it will remain to be the most powerful and cost-effective platform for XML applications.



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