zapthink
zapnote

Doc. ID: ZTZN-1130-1
Released: Dec. 16, 2002

ZapThink ZapNote™

AGILIENCE

Analyst: Ron Schmelzer

Vendor Analysis: AGiLiENCE XPEERION

Spun off from Siemens in 2000, AGiLiENCE is focuses on providing XML data store technology for disconnected, laptop, and small footprint devices. Originally focused on building knowledge management (KM) systems for service-centric businesses, such as professional services companies, the company began looking at ways to provide software and services that innovated processes to increase service productivity and quality. Service-centric businesses workers need effective data storage, content management, and collaboration solutions to meet their needs, but AGiLiENCE found that the current set of enabling tools such as RDBMS, Content Management, and other server-centric solutions were inadequate. Knowledge workers collaborated in many complex ways that proved too complex, rigid, or expensive for these systems to solve.

The advent of XML provided a new means for representing knowledge in a way that was both portable and inexpensive. However, the storage technologies available at the time weren't able to cope with small, disconnected, and limited-power devices that were prevalent in KM environments. The result is a unique product called XPEERION that blends a potent XML data store with a tiny footprint aimed at distributed, "sometimes-connected" data storage needs. XPEERION was created as a small-footprint "Intelligent XML Processor" in order to support problem solving for a mobile service field-force at the customer site. Mobile service field forces require time-critical applications that fundamentally reside on their devices at their point of need – service delivered independent of location and connectivity.

Originally sold as part of a much larger Knowledge Management and Collaboration suite, AGiLiENCE is now offering XPEERION for third-party device application embedded applications. As such, AGiLiENCE is seeking to expand its partner relationships in order to help others gain the benefit of a small footprint, native XML data store.

Identifying the Value Proposition

AGiLiENCE is targeting a unique and distinct market segment for its XML data storage technology – knowledge workers that are often disconnected from the corporate network but nonetheless still need access to corporate information of different types. The XPEERION solution enables the distribution and storage of relevant content and data at the point of need, enabling time-critical decision making with just-in-time information.

XPEERION is an intelligent, just-in-time, in-context store. By just-in-time, AGiLiENCE means that they provide data storage solutions that do not need database design or setup, and by in-context, they mean that these data stores provide the rich capabilities to store XML data and metadata. Leveraging its unique capability to natively cache and process XML-content,

XPEERION provides users of "sometimes-connected" devices, such as mobile desktops, personal digital handhelds, and mobile phones, with an XML data store that combines the performance and flexibility of native XML processing with a small footprint engine and declarative language for specifying modular business rules. Traditional RDBMS solutions simply cannot provide high XML storage performance as well as sometimes-connected access to XML-based data in a small footprint. The need for distributed data stores is most apparent at the application and client tiers of n-Tier architectures and at all points in a peer-to-peer network. Application and client devices seldom have sophisticated data stores capable of handling the unique requirements of XML storage. Similarly, peer-to-peer participant nodes have sophisticated network and application capabilities while sacrificing intelligent data storage capabilities. XPEERION aims to solve these problems by providing the required information to support sophisticated application and client operation.

Users will find the greatest value proposition from using XPEERION in situations where they must use an operational data store for storage of transient data or information that is used in support of rules-processing and decision making. A few key application areas that will find greatest benefit from use of XPEERION include Web Services caching, synchronization of data, data integration, and device and application-embedded data stores.

Unique Selling Points and Competitive Differentiation

There are a number of unique features that help to differentiate XPEERION in the XML data store market. One of the biggest differentiators is the fact that the product has a very small memory, processor, and disk footprint. This footprint, which can be as small as a few hundred kilobytes, is particularly useful in scenarios where the data store is being used as an operational data store on laptops, handheld devices, and embedded in applications and devices of all sorts. While certainly many compromises must be made to achieve such a small footprint, the features that come with being able to fit in such a limited memory and disk space are quite beneficial for these environments.

The second major differentiator of the product is the fact that it has been compiled in ANSI C++ with few, if any, operating system dependencies. This means that the XPEERION application can be recompiled as needed to support a wide variety of operating systems, devices, and applications that need an operational XML data store. XPEERION could conceivably find its way into a variety of devices and client-side operating systems that other vendors will never support, such as Macintosh, Cisco routers, and Pocket PC devices.

The final key differentiator is XPEERION's rules-based processing engine. XPEERION's inferencing capabilities empower decision making, which allows applications to make decisions based on the structure of the content. The system's XML storage mechanism and query interface enables this capability by storing business rules and relevant content, and providing an easy mechanism to access both.

Realizing Return on Investment with AGiLiENCE XPEERION

- *Reduced costs for integration* – XPEERION provides companies with a distributed data store that unleashes content captured in proprietary file and database formats and functions well for data and application integration needs and reduces costs by putting a smart XML data store on every user's desktop that can be readily integrated with enterprise data stores.
- *Increasing visibility into data* — XPEERION's small footprint gives companies a mechanism to put smart XML data storage and search on clients of all types, giving a company full visibility and use of corporate data.

- *Reduced costs for application maintenance* – Changes to data and data structure do not impact existing data or applications, and are accessible immediately to users.
- *Shortened time to revenue* – XPEERION accelerates development times and minimizes the total-cost-of-ownership for application development and integration efforts.

Product Features and Functionality

Initially developed as an embedded product within the company's other offerings, XPEERION is now becoming available as a licensable product for embedding in other applications and devices. The various specifics of product features and functionality are detailed in this chapter.

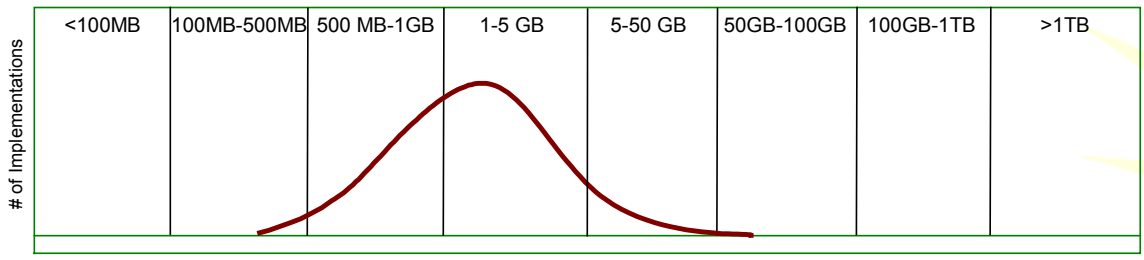
Indexing and Storage Technology

The XPEERION system is based on a straightforward, "persisted DOM" representation of XML in which the Document Object Model (DOM) for a particular XML document is represented in memory as a tree with associated metadata. This tree representation is persisted in a byte-for-byte binary representation on disk that retains all elemental data, attributes, and CDATA in the appropriate order, as well as including white space. XPEERION optimizes this DOM representation by mapping individual element and attributed data tokens to their position in the DOM. Since the index grows linearly with the size of the document and total data store, XPEERION's performance is linearly proportional to the amount of XML stored. XPEERION does not create a virtual root node for data, so individual documents of different data schema are stored as separate DOM representations. Attributes, explicit or automatically generated by the system, are inserted into the root node in order to identify particular documents or perform cross-document joins.

Document and Data Store Capacities

Since XPEERION is a data store mainly targeted at distributed, sometimes-connected, and often embedded data stores, clearly the size of the XML documents and total aggregate data storage capacity will map closely to the capabilities of the application or device the system is embedded within. The store performs most optimally for data stores of below 10 Gigabytes. While the system has been tested at data stores of up to 60 Gigabytes, practical implementations, as shown by Figure 1 below, will cluster around 1 Gigabyte.

Figure 1: Distribution of Data Store Sizes for "Typical" AGiLiENCE XPEERION Installations

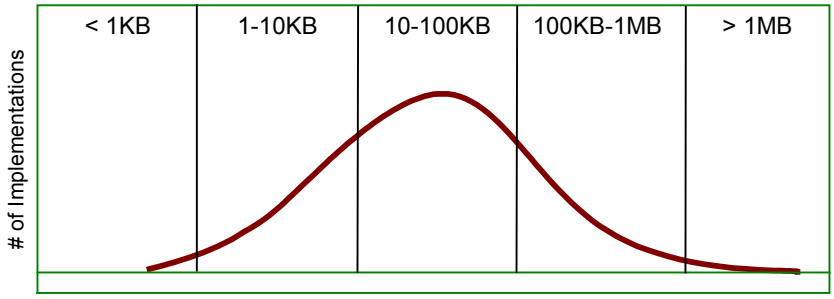


As noted previously, XPEERION scales linearly with the total size of the data store. As such, it will perform most optimally for smaller-sized data stores. However, scalability is a matter of simply getting more client devices involved. Rather than trying to store Gigabytes of data on a

laptop or other sometimes-connected device, users should adopt a strategy that places just the right or adequate amount of data on the device to be accessed by the application. Further information can be queried from a central repository as needed. This central repository can also be an XPEERION application or be another XML data storage solution.

As a desktop or distributed data store, XPEERION deals with semi-structured, transient, content that is most commonly in the sub-100Kb range. In a few installations, there are some very large individual documents due to the content-oriented nature of the application. The below chart shows the current distribution of document sizes for "typical" XPEERION installations:

Figure 2: Distribution of XML Document Sizes for "Typical" AGiLiENCE XMS Installations



Query Features and Mechanisms

XPEERION supports basic query features for XML documents: XPath and a proprietary language for querying based on its inferencing engine. The query mechanism is very straightforward, accepting XPath expressions for locating individual elements, whole documents, and subtrees of XML documents. XPath has been extended to support rules-processing functions as well as more in-depth search capability. Cross-document joins and document forest retrieval are supported through proprietary extensions of XPath that use temporary variables. Other extensions to XPath include the ability to create views through a proprietary "DefQuery" mechanism, full-text searching, relevancy operators using fuzzy matching mechanisms, and a limited set of semantic operators that can identify similar elements as well as rank relevancy of returned documents.

API features

Since XPEERION is a lightweight and small footprint data store, the system supports the most commonly used APIs to gain access to query interfaces. Specifically, the system is implemented as a server that listens on the device for HTTP queries over a specific, dedicated port. This port can accept and respond to XML formatted queries over HTTP. In addition to this interface, XPEERION supports a Java API that provides access to the XPEERION HTTP server via a programmatic interface.

Supported Platforms

As noted earlier, XPEERION is mainly targeted at client devices and application-tier solutions, and as such, the mix of supported platforms is notably different from those of other vendors. Users considering XPEERION should note that the main value proposition derived from use of

this solution is not at the data center, but rather at the nodes that participate in user-to-user collaborations.

Operating System	Version that first supported platform (or future release version and date)
Windows XP	**V1.0**
Windows 2000	**V1.0**
Windows NT 4.0	**V1.0**
Windows CE / Pocket PC	**Planned for 2003**
Linux	**Planned for 2003**
Solaris 2.8	**Planned for 2003**

AGiLiENCE only provided the minimum hardware and software requirements for the Microsoft Windows platform. As they roll out support for other platforms, ZapThink expects that they will provide minimum and preferred configurations for those operating environments.

Operating System	Hardware Requirements	Software Requirements
Windows 2000/XP	*Minimum*: Pentium II 266, 128 MB Ram, 1 MB of disk space required for server software	None

Version History

The AGiLiENCE XPEERION product has not yet been fully released, and as such, the first version is slated for release to individuals looking to OEM or embed the product early in 2003.

Date	Version
January 2003*	Release v1.0

(* Projected release dates)

Additional Software and Services

Currently, AGiLiENCE sells the XPEERION solution as part of a set of solutions. that fall under the general offering called the *Enterprise Productivity Suite* (EPS). Within EPS, there exist three primary offerings: the *Collaboration Package*, *Knowledge Package*, and a desktop *XML Search Engine*. Each of these offerings are described in this section to illustrate how the XPEERION solution is being used in production.

The Collaboration Package, also called SHARENET by the company, provides a solution that supports two main customer scenarios: project collaboration and ad-hoc community collaboration. In the first scenario, the company utilizes the XPEERION product as a supporting engine that helps users ensure that all project-related documents and files, as well as related communication, are stored in a single place. A User Directory & Yellow Pages feature provides a way to locate other users in the system and determine whether they are online for collaboration. On top of these services, the Collaboration Package provides services for team coordination and communication including team-based file service with document-management functionalities like versioning and check-in/check-out, Instant Messenger, chat rooms, and discussion forums for communicating between parties. Other project-lifecycle management features included configurable project portals, project planning and reporting templates, and a Project Management Information System (called "P.MIS") that includes the management of change requests through user-defined workflows that ensure appropriate

visibility and decision-making whenever crucial project parameters, such as budget or time, change. In the latter customer scenario, additional community collaboration functions include systems for monitoring and facilitating group interactions, an online feedback & incentive system, and a Community Expert System that automatically identifies subject-matter experts in communities by accounting both for the quantity and the quality of their contributions.

The Knowledge Package contains solutions for creating knowledge libraries. This package manages content lifecycles as well as business processes for the creation and maintenance of that content. In content-centric solutions, users want to store files with their metadata, and apply access rights management to these files. In business process-centric solutions, users want to facilitate the capturing, access, and exchange of critical business process content such as tips and tricks, best practices, problem solutions, and other key facts. AGiLiENCE's Database and eForm Studio Service facilitates these needs by allowing users to create their own logical database within minutes, without the need for database design skills. The AGiLiENCE Business-Process Studio allows users to define complex business processes, where content such as documents, customer tickets, and forms are routed to the appropriate user in the organization depending on the combination of specific criteria. On top of these functions, the solution offers information management services that provide a user with up-to-date notifications of latest changes to databases of interest.

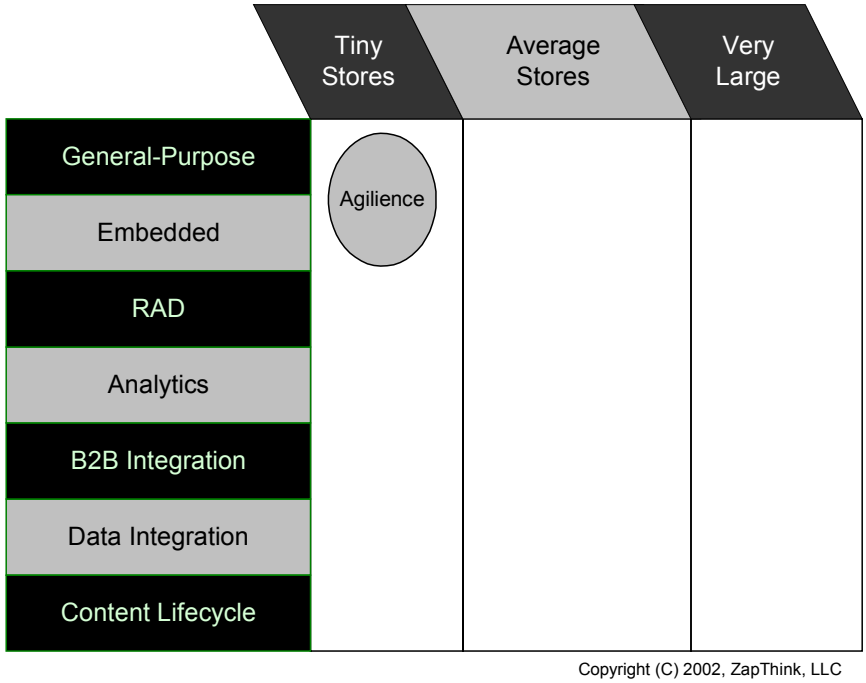
Another offering is the XML Search Engine, which enables fast, content-based searches on PC and group drives with the same level of efficiency as Google, but with better accuracy. The XML Search Engine leverages XPEERION's full-text high speed search in order to retrieve content embedded within documents such as Word documents, PowerPoint files, text documents, and other files of all types. The search results display relevant information, including file type, title, path and relevant excerpts. Other features include spelling correction, document viewers for Microsoft Office files, highlighted search keywords, and real-time suggestions and keyword matches displayed as users type in their keywords. The AGiLiENCE XML Search Engine also leverages XPEERION to provide search results ordered by relevance and rating and also includes a scheduler for scheduling the indexing on connected or remote drives at specific dates and hours.

In addition to these offerings, AGiLiENCE offers a portfolio of solutions for dealing with Intellectual Property Management, Collaborative Change Management, Human Resources, e-Learning, Call Center, and other solutions that are provided as ready-to-go service packages.

Applying AGiLiENCE to Particular XML-based Business Requirements

XML data stores can support quite a number of business requirements. However, there are specific features of AGiLiENCE that support particular business domains. Figure 3 below illustrates AGiLiENCE's functionality areas of strength. While the product can be applied to other areas on the chart, the below diagram illustrates key sweet spots where users can realized extra value through specific features, functionality, and performance enhancements targeted at their specific needs.

Figure 3: AGiLiENCE Functionality Coverage Area



The features that support different components of the coverage area are detailed below.

Content Lifecycle

In many ways, the XPEERION solution is targeted at solving critical storage and query issues relating to many forms of content. In particular, the AGiLiENCE Knowledge Management and Collaboration Suites, based on XPEERION, are targeted at helping disconnected users get the most out of corporate content while facilitating search on their local machines. In addition to these capabilities, AGiLiENCE provides the Layout Studio that empowers users to design their specific input forms, browser views and presentation formats for a given content category, as well as the Business-Process Studio that allows users to define also complex business processes, where content is routed through the organization based on specified criteria.

Efficient Search

One of the primary benefits of XPEERION is its applicability to facilitating search and retrieval of content and documents of all types on shared and local network storage. While usually users can only have access to shared files when they are connected to the local network, the AGiLiENCE XML Search Engine, based on XPEERION, allows users to identify relevant information and knowledge resources residing on your shared drive even when users are offline, such as on the road or at a customer site. The data store caches critical elements of the information, allowing users to gain access to this information and metadata without the need to have the original files themselves.

In addition to straightforward search capabilities, the XML Search Engine allows users to search and sort by relevancy as well as all documents that are similar to a given document. This feature is convenient for refining searches by specific type of content and result. Other

advanced search features include pattern matching, fuzzy logic, rule-chaining, late-variable binding, and advanced search technology for interactive searching.

Knowledge Management

AGiLiENCE Urgent Requests, based on XPEERION's ability to search and store online as well as offline content data, gives an organization a powerful tool for mining an organization's tacit knowledge, which is that part of company experience that is not yet captured and codified in any accessible content repository or knowledge library. XPEERION has been tailored to meet the needs of knowledge management, a set of features that expands upon Content Management by providing tools for mining information out of simple content. These needs are facilitated by AGiLiENCE's Database and eForm Studio Service that allows users to create their own logical database within minutes, without the need for programming skills.

Application Embedding

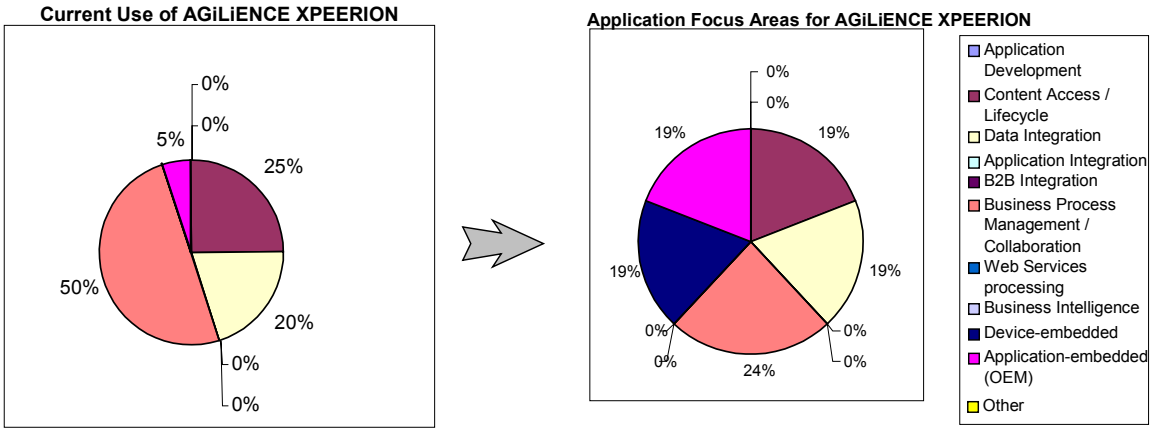
AGiLiENCE is pursuing an aggressive OEM strategy in which they seek other software application vendors to use XPEERION as a core data store for their XML persistence needs. In order to facilitate the embedding of their product into others' applications, they have tailored their solution in a number of key ways. XPEERION has a very small memory, disk space, and processor footprint, requiring just a few hundred kilobytes of memory for operation and a few hundred kilobytes of disk space (not including indexes) for the executables. Since the core of the data store is coded in ANSI C++, the system can easily be recompiled for new target systems with even smaller memory and disk space requirements.

XPEERION offers lightweight API that is easily usable by third-party developers, with a simple XML over HTTP interface and Java API calls that access this interface. The result is a product that combines a high-performance, transactional-aware XML storage solution and a low storage footprint that can support remote workers over wireless devices.

Current and Future Application Use Profiles

Most of the current implementations of AGiLiENCE XPEERION are embedded in Knowledge Management and Content Management solutions where the data store is used to facilitate access to critical information on the network. However, the company is looking to increasingly focus on embedding XPEERION into third-party applications of many different types, including Web Services caching, device embedding, and data integration. The following chart shows how the XPEERION application is currently being used and how the company foresees its use in the near future.

Figure 4: Application Use of AGiLiENCE XPEERION



Customers and Implementations

As of December 2002, AGiLiENCE has around twenty implementations of the XPEERION product across about 10 customers. The company plans to significantly increase the number of deployments through the addition of third-party application and device OEM and ISV partners. As mentioned earlier, all of the sales to date are not for the XPEERION product separately, but rather, for solutions that embed the XPEERION engine. As such, average prices and to-date sales do not reflect the long-term strategy for XPEERION going forward.

One important thing to note is that AGiLiENCE has been profitable and cash flow positive since they first released their solutions in 2001. Their year-to-year software license growth exceeds 125%, and their year-to-year consulting and professional services growth exceeds 80%. They hope to leverage this balance sheet strength into long-term viability for their data store product.

Pricing and Channel Sales

Today, pricing for XPEERION has not yet been formally set. Since the product is embedded within existing solutions, customers must first buy an AGiLiENCE total solution to obtain the data store. AGiLiENCE solutions are priced on a user-based (per-seat) pricing model that ranges from 100-450 Euro ($100-$450 USD) per seat, with a minimum 100 seats. However, the company plans to pursue separate pricing and licensing terms for embedding of XPEERION within others' solutions.

Over 75% of AGiLiENCE's revenue to date comes from software licenses and maintenance revenue, with the remainder taken up by consulting and solution services. As AGiLiENCE's channels develop, software licenses and maintenance revenue will continue to account for over 85% of total revenue. Today, the company makes over 60% of its sales directly, but this will change dramatically starting in 2003 to be highly dependent on ISV and third-party application developer licensing revenue combined with value-added reseller, system integrator, and solution partner resale channels. In the future, third-party channels are expected to contribute at least 70% of AGiLiENCE's bottom line.

Top vertical industries for AGiLiENCE today include the energy, automotive, healthcare, professional services, and government sectors. The company will continue to focus on these areas while placing added emphasis on the pharmaceutical and government markets.

Sales and Technology Partners

Paying particular attention to the importance of coordinated learning, knowledge and process management, AGiLiENCE has partnered with Docent to integrate AGiLiENCE's Enterprise-Productivity Suite with the Docent Enterprise learning management solution for the support and coordination of learning groups. AGiLiENCE has also formed partnerships with Xerox Global Services (XGS) and Fujitsu Siemens for consulting and professional services, and with Siemens ControlmatIc and Xerox Connect for technical and consulting value-add.

Product Performance Analysis

ZapThink asked AGiLiENCE to run a variety of performance analyses to help prospective customers understand how the data store will run in a typical implementation scenario. The below metrics show an example of performance for various different data store sizes, query types, and configurations. It is important to note that ZapThink did not attempt to provide a benchmark or definitive quantitative analysis of the particular product for comparison with other vendors. Instead, these figures are meant to help customers understand how the product will perform in typical or average implementation scenarios.

Performance Analysis Setup

In performing the below analysis, the following hardware and software configuration was used. Note that the Server and Client were on the same machine, since XPEERION is a small footprint data store.

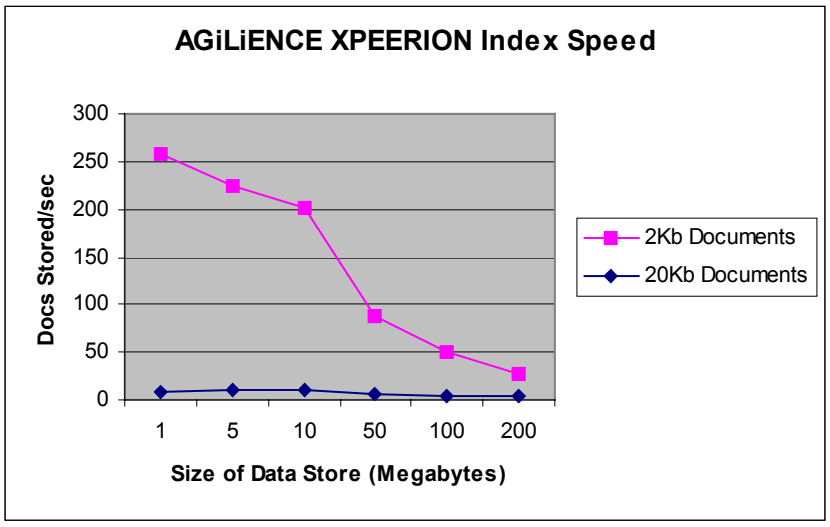
Software configuration:
Windows 2000
XPEERION version 0.44

Hardware configuration:
Intel Pentium IV, 750 MHz
1 GB RAM
40 GB Hard disk storage

XPEERION Indexing and Storage Performance

AGiLiENCE XPEERION performs in linearly with respect to the size of the data store . The larger the size of the data store, the slower it will perform. The same relationship holds with the size of the documents. Smaller documents will be accessed and stored faster than larger documents. At the small end of the range, XPEERION performs very quickly. Thus, it makes sense to think of XPEERION's sweet spot as being those applications where small footprint and small total aggregate documents are the norm. Web Services caching is a good example of such an application.

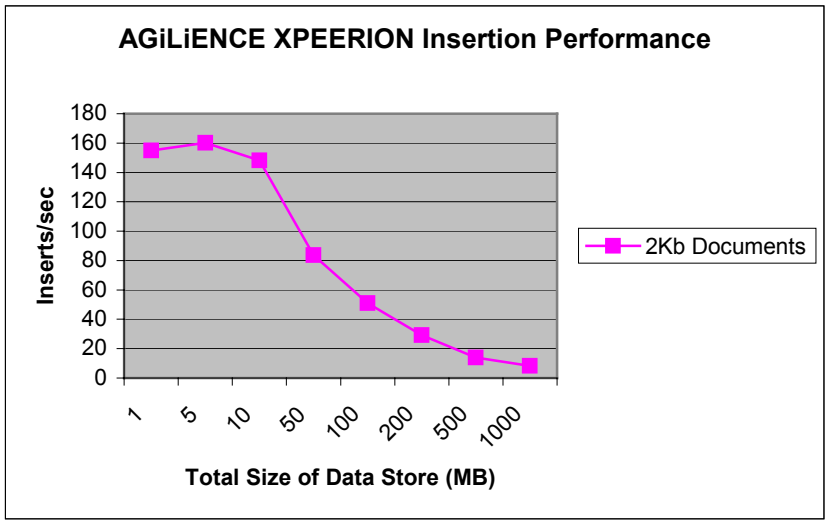
Figure 5: AGiLiENCE XPEERION Performance - Index Speed



XPEERION Insert Performance

AGiLiENCE XMS also shows similar insertion performance, with insertion of 2Kb documents taking linearly longer as the size of the data store grows. AGiLiENCE did not provide full set of figures for 20Kb document insertion. One can estimate that performance will follow the same general pattern as outlined above.

Figure 6: AGiLiENCE XPEERION Performance - Insert Speed

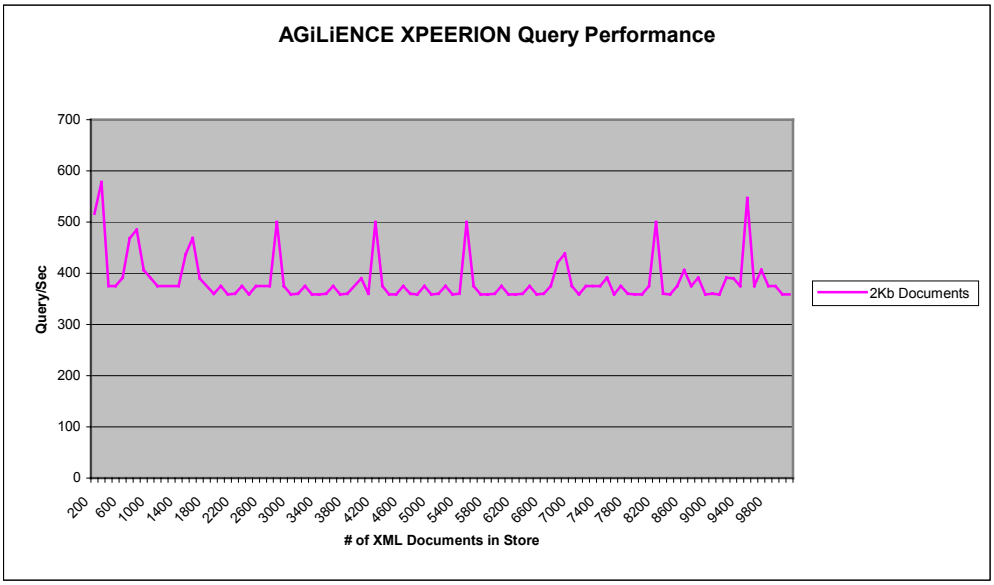


XPEERION Query Performance

Queries show well-behaved performance, regardless of the total data store size. Queries that target individual elements (such as picking up individual elements or paths from a select) are speedy and constant regardless of data store size. The below results show queries for

different quantities of 2KB XML documents in the data store. The spikes in the result are the data store are anomalies of the query test process.

Figure 7: AGiLiENCE XMS Query Performance



Conclusions

AGiLiENCE's XPEERION XML data storage engine is a unique solution for storing document content that can be accessed, searched, and operated on by limited memory and processor devices and applications that are sporadically connected to the corporate network. Rather than trying to play in the larger space of data center-based, enterprise-class data stores, AGiLiENCE is focusing on the market for knowledge workers and enterprise collaboration applications that require only a subset of the overall information to be able to formulate rules-based reasoning, content aggregation, and knowledge management applications.

What makes XPEERION different is that it is a small footprint, native XML data store with unique query capabilities that include intelligent inferencing, relevancy and semantic operators, and full-text search. The products and solutions built around XPEERION are compelling for many enterprise-class applications where the data store can be embedded in the client devices or application-tier solutions. XPEERION can thus be used in conjunction with many of the other XML data storage solutions that seek a more centralized role for XML data storage.

XPEERION is not really a solution that can be bought off-the-shelf. Rather, AGiLiENCE is seeking third-party OEM and ISV partners that can embed their product within larger solutions. Clearly, the product will be best suited for those applications that require a small footprint data store for such XML storage tasks as Web Services caching, data integration, transaction management, and other such tasks.

Company Profile

Profile: AGiLiENCE	(November 2002)
Company Name: The AGiLiENCE Group GmbH	
Date Founded: mid-2000	
Funding: Privately-held, Angel-funded	
Management Team (date joined):	
CEO (Strategy and Sales): Christian Kurtzke (Founder)	
CEO (Technology): Olivier Raiman (Founder)	
VP Engineering: Eric Fauquembergue (2000)	
VP Customer Service & Training: Gerd Stangneth (2000)	
Employees: 25	
% Development: 60% (15)	
Munich (HQ) Address and Phone:	
The AGiLiENCE Group GmbH	
Tegernseer Landstrasse 117	
D-81539 München	
+49 175 7223630	
Paris (Subsidiary) Address and Phone:	
AGiLiENCE SARL	
31, Place du Marché Saint Honoré	
F-75001 Paris	
+33 1 40 15 93 30	
URL: www.agilience.com	

Related Research

- *XML Data Storage* Multi-Client Study (ZTR-ST102)

-- continued --

About ZapThink, LLC

ZapThink is an IT market intelligence firm that provides trusted advice and critical insight into XML, Web Services, and Service Orientation. We provide our target audience of IT vendors, service providers and end-users a clear roadmap for standards-based, loosely coupled distributed computing – a vision of IT meeting the needs of the agile business.

ZapThink's role is to help companies understand these IT products and services in the context of SOAs and the vision of Service Orientation. ZapThink provides market intelligence to IT vendors who offer XML and Web Services-based products to help them understand their competitive landscape and how to communicate their value proposition to their customers within the context of Service Orientation, and lay out their product roadmaps for the coming wave of Service Orientation. ZapThink also provides implementation intelligence to IT users who are seeking guidance and clarity into how to assemble the available products and services into a coherent roadmap to Service Orientation. Finally, ZapThink provides demand intelligence to IT vendors and service providers who must understand the needs of IT users as they follow the roadmap to Service Orientation.

ZapThink's senior analysts are widely regarded as the 'go to analysts' for XML, Web Services, and SOAs by vendors, end-users, and the press. They are in great demand as speakers, and have presented at conferences and industry events around the world. They are among the most quoted industry analysts in the IT industry.

ZapThink was founded in October 2000 and is headquartered in Waltham, Massachusetts. Its customers include Global 1000 firms, public sector organizations around the world, and many emerging businesses. ZapThink Analysts have years of experience in IT as well as research and analysis. Its analysts have previously been with such firms as IDC and ChannelWave, and have sat on the working group committees for standards bodies such as RosettaNet, UDDI, CPExchange, ebXML, EIDX, and CompTIA.

Call, email, or visit the ZapThink Web site to learn more about how ZapThink can help you to better understand how XML and Web Services impact your business or organization.

ZAPTHINK CONTACT:
ZapThink, LLC
11 Willow Street
Suite 200
Waltham, MA 02453
Phone: +1 (781) 207 0203
Fax: +1 (786) 524 3186
info@zapthink.com