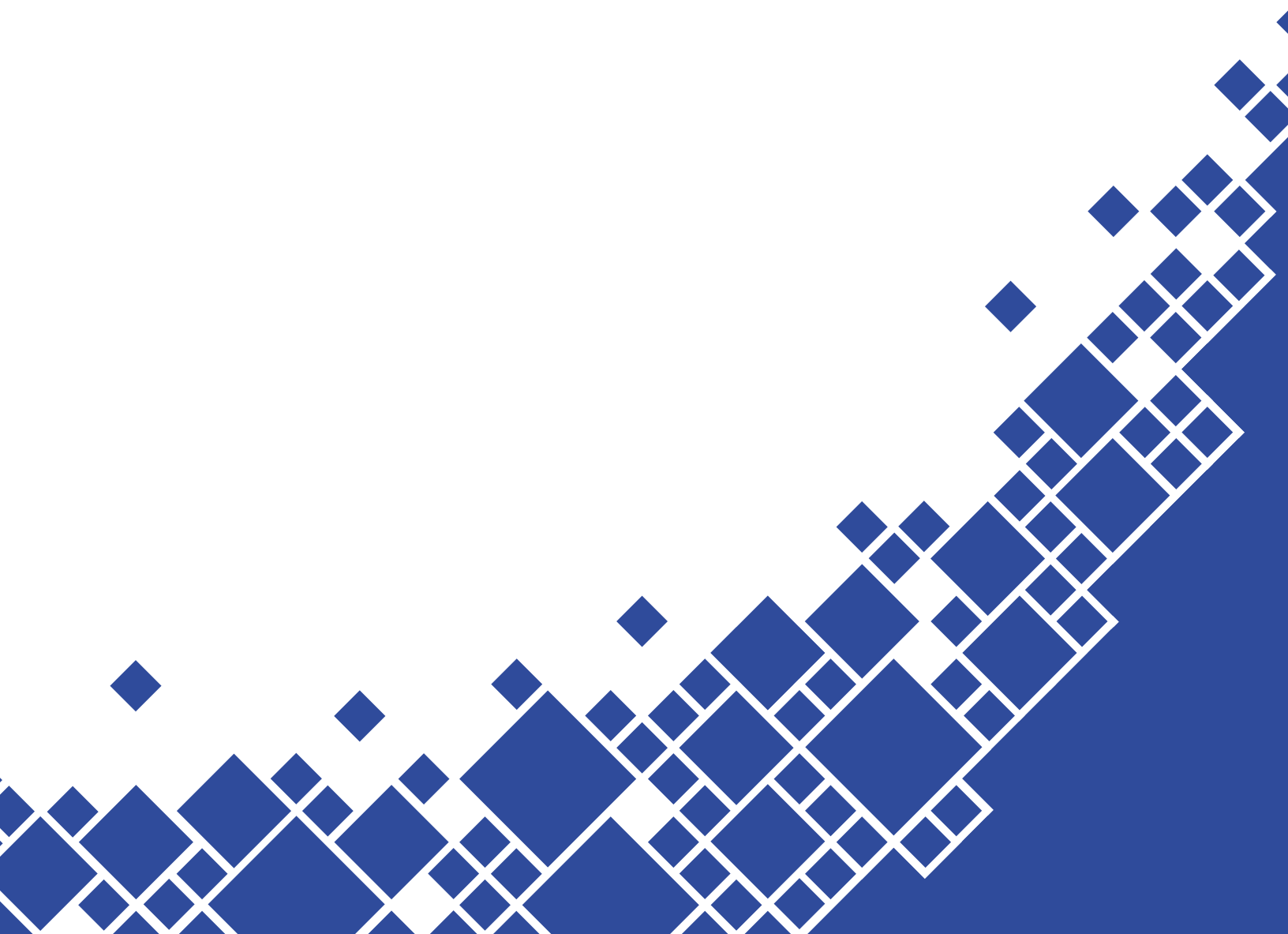




PRODUCT 360: RETAIL AND CONSUMER INDUSTRIES

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REDUCE CHURN

Customers often leave on-line or in-store before making a purchase because they are frustrated with your website's or store's search capabilities, or the recommendations and information they get to aid with purchase decisions. You can decrease the rates of cart abandonment by providing more useful information in a more user-friendly environment, based on your customers' needs.

“ Only 3 out of 100 people who visit a site actually buy something.

Of those who put items in their shopping carts, only 1 of 3 makes it to checkout.”

INCREASED CUSTOMER SATISFACTION & REDUCED COSTS

Having all relevant information available helps your representatives respond to the customer's request or complaint accurately, in a timely manner – and keeps the customer coming back to you instead of your competitors.

WHY IS BUILDING A PRODUCT 360 SOLUTION SO DIFFICULT?

There are a number of key challenges that retailers must overcome in order to achieve a Product 360:

DATA INGESTION

A typical retailer's product data is extremely complex – consisting of multiple sources of both structured and unstructured data that need to be ingested and integrated into a database on an ongoing basis. This heterogeneous data includes:

- Product information
- Digital images and videos
- Customer ratings
- Dynamic pricing, promotions
- Availability in-stock
- Consumer loyalty information
- Product Relationships (e.g. accessories, related products and services)

SEARCH AND UPDATES

Product related data changes often – with new models, new product innovations, and the addition of additional features like colors, sizes, and descriptive attributes. But unfortunately for most e-commerce search technologies built on relational database technology, the required pre-determined schema (that determines how the data is to be sorted and searched) restricts the number of attributes that can be associated with the data. As a result, consumer search is constrained and limited – and your customers often can't find what they're looking for! From a development perspective, updating pre-defined schemas is difficult and requires significant amounts of additional coding and development – costing your company time and money.

SUPPLIER ON-BOARDING

Part of the problem with search technologies bolted on to relational databases is the need to establish a schema upfront to ingest the data. It is difficult and time-consuming to add new suppliers and create new content products to feed the channel, because you need to force the supplier to collate and categorize their data into exactly the schema you've established. Distributors, for example, often restrict the number of suppliers – limiting sales opportunities – because they are unable to cope with the on-boarding issue for suppliers of slow-moving products or limited product sets.

RELATIONSHIPS AND CONTEXT

Gaining real benefit from a Product 360 requires creating linkages across a wide variety of product data and information. Remember, consumers buy:

- Recipes for dinner, e.g. wine and cheese pairings
- Entertainment solutions, e.g. TV + DVR + Cables + Delivery/Installation + Service
- Products and accessories, e.g. HP Printer + right toner cartridge

In the absence of context or linkages between the product data, the retailer loses the ability to cross-sell and up-sell consumers both in-store via well-informed sales associates and on-line by making the right linked product recommendations.

OPERATIONAL CAPABILITIES

Finally – and perhaps most importantly – the database needs to provide a real-time view of products, dynamic pricing, promotions, availability, product images, and videos. This is important so consumers can close their sales transactions on-line with the latest product information and in-store sales associates have access to up-to-date information – leading to better customer satisfaction and reduced rate of returns.

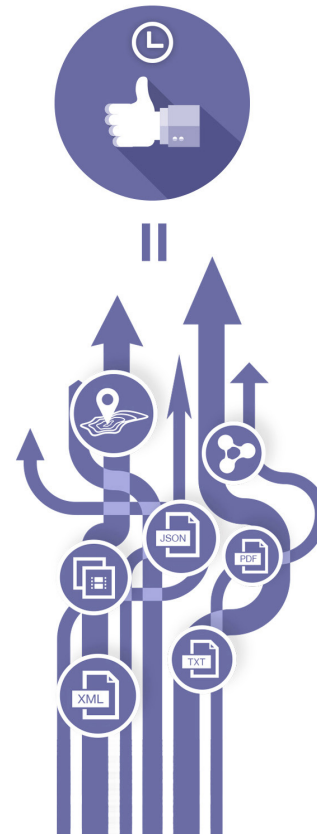
To summarize, any technology supporting a true Product 360 solution for e-commerce and in-store must be able to ingest multiple sources of structured and unstructured data, enable search and query of the data, and capture context and relationships between the data elements. And it must be able to do all this in real-time.

THE MARKLOGIC PRODUCT 360 SOLUTION

Global organizations use MarkLogic as the superior solution to their Product 360 issues. The MarkLogic Enterprise NoSQL platform provides a unique combination of capabilities to support the creation and ongoing support of a robust Product 360 solution.

EASE OF DATA INGESTION

For retailers the scale and complexity of product data that needs to be ingested is a major barrier that needs to be addressed upfront. MarkLogic is the only database that is optimized to store JSON, XML, RDF, and Geospatial data. MarkLogic can ingest the two most popular forms of document data—JSON and XML—natively, meaning there is no conversion required and no valuable data lost. MarkLogic can also handle all the other sources of data you need to use, from RDF (Resource Description Framework, the W3C standard for semantic “triples”) relationships to text, geospatial data, binary image and video files, and PDFs—without the need for conversion. MarkLogic users start with more answers available because they start with better data.



MarkLogic integrates complex data to power business insights

EASE OF DEVELOPMENT AND CHANGES TO PRODUCT DATA

One of the major problems with search technologies bolded on to relational databases is that they require extensive up-front schema development, they limit attributes based on which searches can be conducted, and they are difficult to update. Changes take considerable development time and cost you money. MarkLogic is a multi-model, document-oriented database that does not require a pre-defined schema before data is loaded into the database. Unlike with relational databases, you can change the data without mapping it to a fixed schema or hiding data in opaque objects. You can still store all of the information that you would find in the row of a relational table, but because it is stored and indexed as documents, you don't have to normalize the data, and you don't have to worry about how the shape of the data changes over time. This means you save enormous amounts of time and energy that would ordinarily be invested in ETL processes, and you also gain agility later on with future development.

SUPERIOR SEARCH CAPABILITIES

MarkLogic provides a superior enterprise search experience with no limitations on attribute search, and flexibility to drill down into the data to research alternative products and features. MarkLogic delivers the features that users now expect in an enterprise search application, such as type-ahead suggestions, relevance ranking, facets, snippeting, highlighted search terms, proximity boosting, relevance ranking, and multi-language support. And, you can search across documents, data, and triples using one query, which can be as complex (richly and granularly defined) as you need it to be. All of this comes built-in with MarkLogic – you don't have to bolt-on "Search" capabilities from any other solution. This simplifies your architecture, and makes things incredibly easy for DBAs and developers. Having integrated search means one less additional platform to worry about.

SEMANTICS AND LINKAGE CAPABILITIES TO PROVIDE CONTEXT AND RELATIONSHIPS

MarkLogic uses Semantics to store billions of relationships between associated and linked product types – for example, if you're looking to buy a TV set what cables or sound box or service and installations would link with it. With MarkLogic Semantics you can not only store and query these billions of facts and relationships; but infer new facts. These facts and relationships provide context for better search, and MarkLogic leverages those facts in several ways, e.g.:

- Find more relevant information by expanding the terms the user typed in
- Present more/better information about whatever the user is searching for
- Publish information dynamically to web or print or mobile

A SUPERIOR OPERATIONAL DATA WAREHOUSE

Product 360 calls for real-time, operational capabilities. Your data warehouse must be transactional and operational to enable websites, e-commerce, and other applications – while at the same time enabling analytics and storage of terabytes and potentially petabytes of data. In business for over 14 years, MarkLogic has been cited by multiple industry analysts as a leader in the operational and NoSQL database markets¹. We and our partners have deployed data integration, search, discovery, analysis, and content delivery solutions to some of the largest organizations in the world. These organizations need the unique combination of reliability, flexibility, and security that only the MarkLogic Enterprise NoSQL platform can provide.

CONCLUSION

MarkLogic's Product 360 solution for retail has significant business benefits:

- Supports efficient and effective product data ingestion, indexing, and supplier on-boarding – which have been a major issue with e-commerce growth and expansion
- Delivers superior built-in search and semantics capabilities to integrate complex data and power innovative applications
- Reduces cost and time for initial and ongoing development

Contact us to learn how a Product 360 can benefit your business.

¹ For example, see: Gartner Magic Quadrant for Operational Database Management Systems by Donald Feinberg, Merv Adrian, Nick Heudecker, October 16, 2014 Gartner, Inc., Critical Capabilities for Data Warehouse Database Management Systems, Roxane Edjlali and Mark A. Beyer, 18 August 2014

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