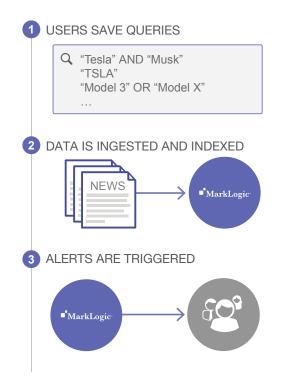# MarkLogic®

Real-Time Alerting

Organizations need a 360 view of their data, and they need advanced methods for searching their data with sub-second response times. However, it is not enough to just be able to discover data in the database. You also need the *database* to proactively alert you when *it* discovers data of interest—you need a database that talks back.

With real-time alerting, MarkLogic® provides active notifications when data is ingested that a user may be interested in. For example, imagine you want to get notified immediately anytime a politician says a particular word or phrase. As fast as the speech transcripts can be added to MarkLogic, the alerts can go out. MarkLogic can handle hundreds of thousands of saved queries for alerting, and can send hundreds of millions of alerts per day.

1 USERS SAVE QUERIES

> "Tesla" AND "Musk"
> "TSLA"
> "Model 3" OR "Model X"
> …

2 DATA IS INGESTED AND INDEXED

NEWS → MarkLogic

3 ALERTS ARE TRIGGERED

MarkLogic →

A Database That Talks Back

MarkLogic is smarter than the typical database, providing the ability to alert users when data is ingested that matches a pre-defined query. And, unlike with most databases, performance is not compromised as data speeds and volumes increase.

- **Massive Scalability** – Handle millions of alerts per day across a database with billions of documents

- **Fast Performance** – Stream data in real-time and get results in milliseconds, without performance degradation

- **Avoid Schema-specific Triggers** – Unlike triggers in a relational database, MarkLogic alerts are schema-agnostic

- **Designed for Complex Queries** – Alerts may involve long, complex queries with multiple constraints, and can include boolean logic, structure-aware queries, proximity queries, range queries, and even geospatial queries

How Real-Time Alerting Works

One of MarkLogic's distinguishing features is built-in search, which is powered by MarkLogic's sophisticated indexes. Alerting is made possible by the same indexing, though it works a bit differently. In typical, "forward looking" searches, documents are ingested and indexed so that a query can efficiently bring back the documents that match that query. Real-time alerting works in the opposite way.

For alerting, rather than indexing documents, the queries are indexed. These saved queries, or *Reverse Queries,* get indexed in a special index called the *Reverse Index*. Using this index, anytime a new document is added or an old document is updated, MarkLogic finds all possible matching queries. MarkLogic uses a unified expression tree to finish the job extremely efficiently, and other custom features such as as custom directed acyclic graph (DAG) to resolve more complex reverse queries. But, there is also an Alerting API that makes it easy for developers to create scalable alerting applications without having to understand such low level alerting components.

Key Use Cases

- **Media and Publishing** – Provide personalized subscription capability for news and information
- **Financial Services** – Get alerts on new financial information related to compliance or investment research
- **Law Enforcement and National Security** – Get proactive notification on persons, code words, or events of interest

More Information

- **Concepts Guide** – Indexing (http://docs.marklogic.com/guide/concepts/indexing)
- **Developers Guide** – Creating Alerting Applications (http://docs.marklogic.com/guide/search-dev/alerts)

About MarkLogic

MarkLogic is the world's best database for integrating data from silos, providing an operational and transactional Enterprise NoSQL database platform that integrates data better, faster, with less cost. Visit www.marklogic.com for more information.