MarkLogic®

SOLUTIONS

MarkLogic for Law Enforcement

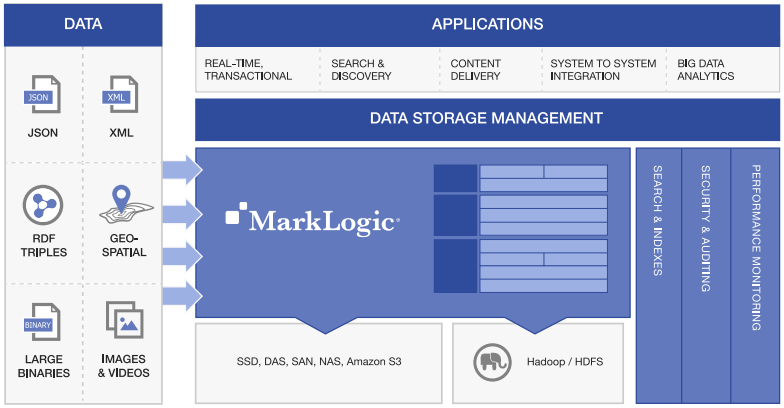
Information Sharing & Analysis

It takes a different kind of database to meet new challenges. MarkLogic® is the only Enterprise NoSQL database platform – and is proven in systems supporting millions of users in hundreds of Law Enforcement, Public Safety, National Security, Civilian Government, and Commercial organizations around the world. Law Enforcement organizations are faced with criminals that move across geographic and cyber boundaries with impunity – and only MarkLogic has the flexibility to handle any kind of data and organize it to meet the growing and changing demands for real-time law enforcement information sharing, analysis, and data fusion.

Police are overloaded with data and need ways to correlate or organize this content in real-time to fight crime. MarkLogic is quickly becoming the enterprise database at the forefront of intelligence-led, evidence-based policing, and the wider requirement for big data solutions for law enforcement. This rapid push to deploy MarkLogic Server in national, regional, and local police organizations is being driven by organizations that already have significant investments in technology, but find themselves facing new kinds of criminals and threats – which present a data integration and search challenge that cannot be met by legacy case management systems.

Why MarkLogic?

There are several key reasons why law enforcement organizations are choosing to implement MarkLogic.



- **Easily Searchable:** Important metadata can be hidden behind dashboard cameras, CCTV, license plate readers and other digital formats. MarkLogic can extract, access, search, and store information like date/time and location that isn't found on the surface of these files.
- **Secure Information Sharing:** Law enforcement organizations need to share important information with others who need to know it, while safeguarding information that could reveal sources and methods. MarkLogic supports compartmentalization of data and the ability to manage objects including people, organizations, events, places, timelines, arrest records, surveillance reports, and intercepts along with key metadata to preserve pedigree, chain of custody, time-span validity, security tags, and more.
- **Link Evidence:** MarkLogic can link evidence across time, geography, case number, related evidence, and patterns – and associate physical records with digital evidence to create a "big picture" record.
- **Objects and Entities:** MarkLogic can extract entities from content, making profile correlation and matching much easier.

- **Flexibility and Agility:** MarkLogic can integrate with and complement existing investments in technology like case management, lawful phone and data intercept, forensic and lab systems, and more. The platform combines a schema-agnostic database, search engine, and application services in one technology stack – including standard APIs and RESTful services – which allows MarkLogic and our partners to deliver applications in weeks and months, versus the years typically required with other technologies.

- **Scalability and Elasticity:** MarkLogic scales horizontally in clusters on commodity hardware to hundreds of nodes, petabytes of data, and billions of documents — and still processes tens of thousands of transactions per second.

The new world of Law Enforcement and Public Safety requires all of these capabilities – because of significant changes in the types of data that are needed, different analytical techniques, and varied downstream consumers of analysis and reports. MarkLogic customers regularly bring together dozens of variable, volatile, and growing data sources – while readily adjusting their information applications to support new methods of investigation and analysis.

An Intelligence-Led Policing Platform

One of our national law enforcement customers, in the middle of a far-reaching investigation spanning several countries and cyberspace, regularly needs to look at arrest, scene of crime, address attendance, social media data, device data (phone, laptop, flash drive…), seized media, as well as healthcare system, education, and probation information.

With major crimes you do not know where the investigation is going to bring you. Digital investigations need to bring together social media, biometrics, CCTV, official records and institutional records. MarkLogic is able to do this, and organize the information for use with geospatial, link analysis, and search – extending the value of existing police systems while reducing the time and cost of integration and new application development.

New Generation Emergency Response & Investigation

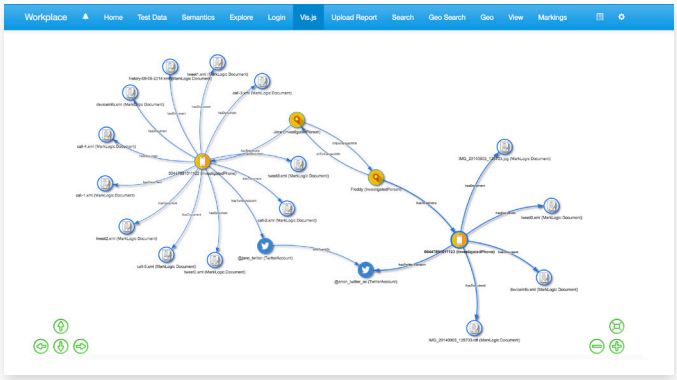
A customer came to MarkLogic because they were ready to rethink how to modernize Emergency Response and Investigation. As part of this, they are improving and expanding their situational awareness capabilities. They have emergency operators answering calls to their emergency services phone line systems and they also have an online portal that allows citizens to report an incident or complaint. However, these systems were not integrated and investigators had to go to each system separately to look for information.

Additionally, they realized that for major incidents or even those in remote areas, the initial pictures or even video may come from social media like Twitter*. MarkLogic worked with their integrator and in six weeks built a pilot system that brings together their internal incident reporting systems and social media sources. This system utilized MarkLogic's powerful semantic capability and also includes an end-user application that combines commercial Link Analysis, Mapping, and Timeline analysis tools. In other words, investigators have a unified workspace to visualize, annotate, validate, and vet information and decide what should or should not be part of a developing case. In production, the system will also tie in CCTV and license plate readers.

Risk Management

Another customer is implementing MarkLogic at the county police level for secured information sharing between departments, other counties, and national agencies, and as a platform for a wide variety of data intensive processes.

The information needed to solve crimes comes from multiple sources — frequently across divisions, departments, agencies, and jurisdictions. The MarkLogic platform integrates this information and supports workflow across the organization, such as a risk assessment process driven by:



Semantics drives automated link analysis

- **Faceted Search and drill-down of multi-agency data**
- **Event collation (and alerting) –** e.g. a person catching the attention of several agencies in a short space of time
- **Risk Profiling –** "look for persons that match this profile" (predictive care/policing)
- **Outcome tuning –** "based on past cases, given the profile of this person, intervening in this manner gives the best outcome"
- **Semantic relationships –** "look for all people that are related to this place, organization, gang, crime, etc."

Conclusion

For police, big data isn't theoretical. Even as intelligence-led policing grows around the world, the nature of criminality is putting law enforcement professionals in a state of information overload. Our Law Enforcement customers realize this and are depending on MarkLogic to help them rein in the variety of information while readily integrating with users' favorite link analysis, geospatial, and other analytical tools.

Organizations around the word are building modern situational awareness, intelligence fusion, interagency information sharing, detached operations, and emergency management solutions on the MarkLogic Enterprise NoSQL database platform – the only enterprise-grade NoSQL database and cited by multiple industry analysts as a leader in the operational and NoSQL database markets. We and our partners are able to help customers harness big data in innovative ways while reducing both the upfront and ongoing costs associated with the old way of designing, deploying and operating mission-critical systems.

About MarkLogic

For more than a decade, MarkLogic has delivered a powerful, agile, and trusted Enterprise NoSQL database platform that enables organizations to turn all data into valuable and actionable information. Organizations around the world rely on MarkLogic's enterprise-grade technology to power the new generation of information applications. MarkLogic is headquartered in Silicon Valley with offices in Boston, Chicago, Frankfurt, London, Manila, Munich, New York, Paris, Singapore, Stockholm, Sydney, Tokyo, Utrecht, and Washington D.C. For more information, please visit www.marklogic.com.

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