MarkLogic for Policing & Law Enforcement

Information Sharing & Analysis

Today, police and law enforcement agencies are facing a multitude of challenges. With increased workloads, tightening budgets and new forms of criminal activity emerging – police and law enforcement agencies continue to struggle with an exponential growth of data. This information can be significant in volume, complex in structure, and comes streaming in from multiple sources in different formats and types. In order to analyse it effectively, it first needs to be aggregated.

Data is an organisation's most important and valuable asset. Linking multiple sources of data can help build an integrated and detailed picture of a person, a household, object or event which provides officers with time-sensitive, accurate intelligence that can help prevent crime and save lives. In a world where criminals are embracing cutting-edge technology to commit crimes and evade capture and prosecution – technology, infrastructure, and processes need to be state of the art. Organising data and being able to deliver insight and intelligence in real time is critical.

Why MarkLogic?

Addressing data challenges requires a new kind of database. MarkLogic® is the only Enterprise NoSQL database that has been proven to effectively support systems for a number of public safety, national security, government, and commercial organisations around the world.

There are several key reasons why police and law enforcement agencies are choosing to implement MarkLogic:

- **Easily Searchable:** Important details are often hidden within data sources. Examples include dashboard and body worn cameras, closed circuit television (CCTV), automated number plate recognition (ANPR) systems, and other digital formats. MarkLogic can extract, access, search, and store this critical information.

- **Secure Information Sharing:** Police and law enforcement agencies need to be able to share relevant information between departments and external agencies – such as healthcare and social services – to ensure the safety of at-risk individuals in a secure and timely manner.

- **Link Evidence:** MarkLogic can link evidence from multiple data sources on a chronological timeline that includes geographic and case references, and other related evidence. This creates a complete picture with both physical and digital evidence.

- **Flexibility and Agility:** MarkLogic adopts to open standards, which allows it to integrate with and complement existing investments in technology, such as case management tools, geospatial mapping, data analysis and investigation products, spreadsheets, and web-based applications. MarkLogic combines a schema-agnostic database, search engine, and application services in one technology with standard APIs and RESTful services that enable the delivery of applications in months – rather than years.

- **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.
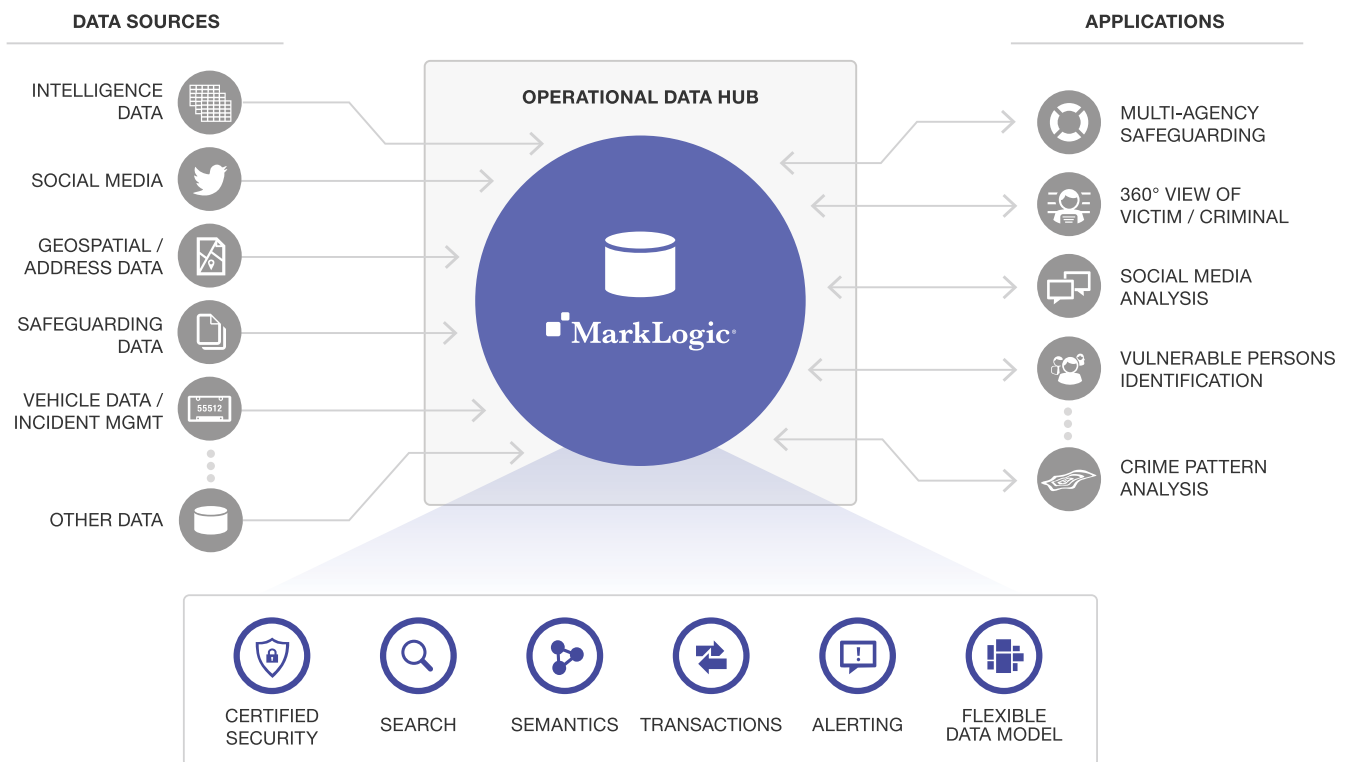
MarkLogic®

These capabilities define why MarkLogic is rapidly becoming the enterprise database of choice in modern, evidence-based policing and intelligence activities. Despite existing investments in traditional relational database technology, the adoption of MarkLogic is driven by complex data integration and search challenges.

Using MarkLogic for Policing

Improving Operational Efficiency: The Operational Data Hub

Police forces face constant budget pressure while trying to improve operational efficiency. Against this backdrop we are seeing may police forces merge and consolidate back office functions - which can be complex, time consuming and expensive. MarkLogic streamlines the integration of data across business and operational systems and allows the user to quantify efficiency and savings.

Challenges like these are addressed by deploying the MarkLogic Enterprise NoSQL platform as an Operational Data Hub which uses a flexible data model to bring together multiple data sources, while maintaining operational capability. Leveraging open standards, the Operational Data Hub solution provides a holistic, 360-degree view of all combined data from new and legacy applications to further create applications on top of one common database.


DATA SOURCES

- INTELLIGENCE DATA
- SOCIAL MEDIA
- GEOSPATIAL / ADDRESS DATA
- SAFEGUARDING DATA
- VEHICLE DATA / INCIDENT MGMT
- OTHER DATA

OPERATIONAL DATA HUB

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APPLICATIONS

- MULTI-AGENCY SAFEGUARDING
- 360° VIEW OF VICTIM / CRIMINAL
- SOCIAL MEDIA ANALYSIS
- VULNERABLE PERSONS IDENTIFICATION
- CRIME PATTERN ANALYSIS

CERTIFIED SECURITY | SEARCH | SEMANTICS | TRANSACTIONS | ALERTING | FLEXIBLE DATA MODEL

An example of the MarkLogic Operational Data Hub supporting multiple data-driven applications for intelligence and safeguarding

Countering Terrorism and Organised Crime: Intelligence-Led Policing

Terrorists and organised crime syndicates are adopting increasingly sophisticated techniques to conduct criminal activities and evade detection. Intelligence sharing between departments and external agencies is challenging. Failure to share information on a timely basis could have damaging consequences for citizens and police officers.

Using the data from the Operational Data Hub and leveraging the power of semantics to link data, MarkLogic allows officers, analysts and case workers to build a holistic real-time picture of a person, object, location and event (POLE) and their relationship and relevance to each other. This provides officers with critical insight that can lead to faster and more informed decision making and better outcomes.
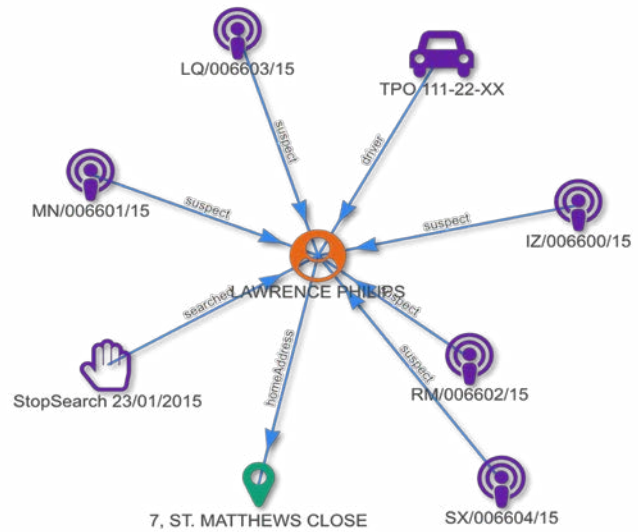
An Intelligence application running on MarkLogic which uses semantics to link data together into a 360-degree view

Effective and Timely Safeguarding: Multi-Agency Safeguarding Hub (MASH)

The police are part of a broad network of agencies, including social care, welfare, health and education, who are responsible for the protection of vulnerable children and adults. Unfortunately, and as a consequence of ineffective inter-agency information sharing—there have been a significant number of high profile cases in which late intervention resulted in avoidable loss of life.

MarkLogic is used to create a multi-agency safeguarding solution that brings together disparate data sources to help case officers obtain a more holistic view of an individuals considered at risk. The case officers can make an accurate and informed assessment on when and how to intervene based on history, current situation and a broader set of relevant information. Early intervention protects the vital reputation of law enforcement and more importantly—saves lives.

Crisis Management: Real-time Situational Awareness

When dealing with a crisis situation, law enforcement agencies need to be armed with accurate and real-time information in order to act quickly and decisively. Incomplete information can result in sub-optimal decisions which can place the lives of citizens, police officers and the reputation of the agency at risk. Typically, in such situations information comes from and is shared with multiple sources; is significant in volume and complex in nature and is usually fragmented and disconnected. Making sense of this information is critical.

MarkLogic has the ability to bring a diverse range of Police information systems together in a single view and is able to augment this with open source intelligence such as social media and geospatial data. Field response teams can be provided with real-time information securely via mobile devices. They should also be able to share real-time intelligence back to central command to update them on a situation as it evolves and allow an appropriate response.

Digital Forensics

Investigations generate a significant amount of digital data, and information is usually managed on a manual exhibit-by-exhibit basis, which is resource intensive and time consuming. Current systems are inflexible, making it difficult to accommodate new sources of data and evidence. MarkLogic offers a solution that can log, track and semantically link all the information and evidence in a case while maintaining its history. MarkLogic's bitemporal capability enables law enforcement to create a timeline against this information for evidentiary purposes.

About MarkLogic

As the world's best database for integrating data from silos, MarkLogic's operational and transactional Enterprise NoSQL database platform empowers our customers to build next generation applications on a unified, 360-degree view of their data. Headquartered in Silicon Valley, MarkLogic has offices throughout the U.S., Europe, Asia, and Australia.