

RDW™

Executive Summary. Building and managing public safety data warehouse and information sharing systems is often complex and expensive. Agencies considering implementation of such a system should consider the following key characteristics:

- **Ownership and Access.** There should be no question of who owns the data: the contributing agencies. A data warehouse system should allow access to the underlying data using a documented, standards-based Application Programmer Interface (API). This enables agencies to connect off-the-shelf software applications from other vendors to the data warehouse, or even to develop custom applications using in-house or contract software developers - all at the discretion of the agency. Furthermore, if future needs change substantially, the data warehouse should offer a well-defined path for migrating data to another system. Agencies being "locked-in" to proprietary solutions, unable to migrate data to a new vendor or access their data using whatever means best serve their needs, is not acceptable when it comes to critical public safety information.
- **Data Integration Flexibility and Costs.** The introduction of new technology, offering value-added capabilities to law enforcement, is a reality in modern policing. Therefore, any regional law enforcement data warehouse and information sharing system deployed today is required to be flexible – capable of integrating new data types without the burden of exorbitant data integration fees. Otherwise, the data warehouse can become outdated and brittle.
- **Scalability.** A modern data warehouse and information sharing system architecture should accommodate "scaling out" as new data is added. As the volume of data grows, the system should scale flexibly to accommodate the increased demand, without reducing operational responsiveness or system availability. Traditional relational database systems usually fall short on scalability, whereas modern NoSQL-based systems can reliably scale to very large data volumes while maintaining performance and cost-effectiveness.
- **Software-as-a-Service vs. Onsite Deployment.** Hosted "software as a service" (SaaS) is becoming an attractive option for many institutions, including an increasing number of public safety agencies, because of the substantial cost savings that can be realized. Nevertheless, security or other concerns may drive some agencies to prefer an on-site system under their own physical control. A regional law enforcement data warehouse should offer the ability to run either in a SaaS environment, or in an on-site physical deployment.

Introducing the Regional Data Warehouse. Leveraging its Lumen platform, Numerica now offers the *Regional Data Warehouse (RDW)* for public safety agencies that need a scalable, accessible, cost-effective data warehouse to enable and enhance regional data sharing.

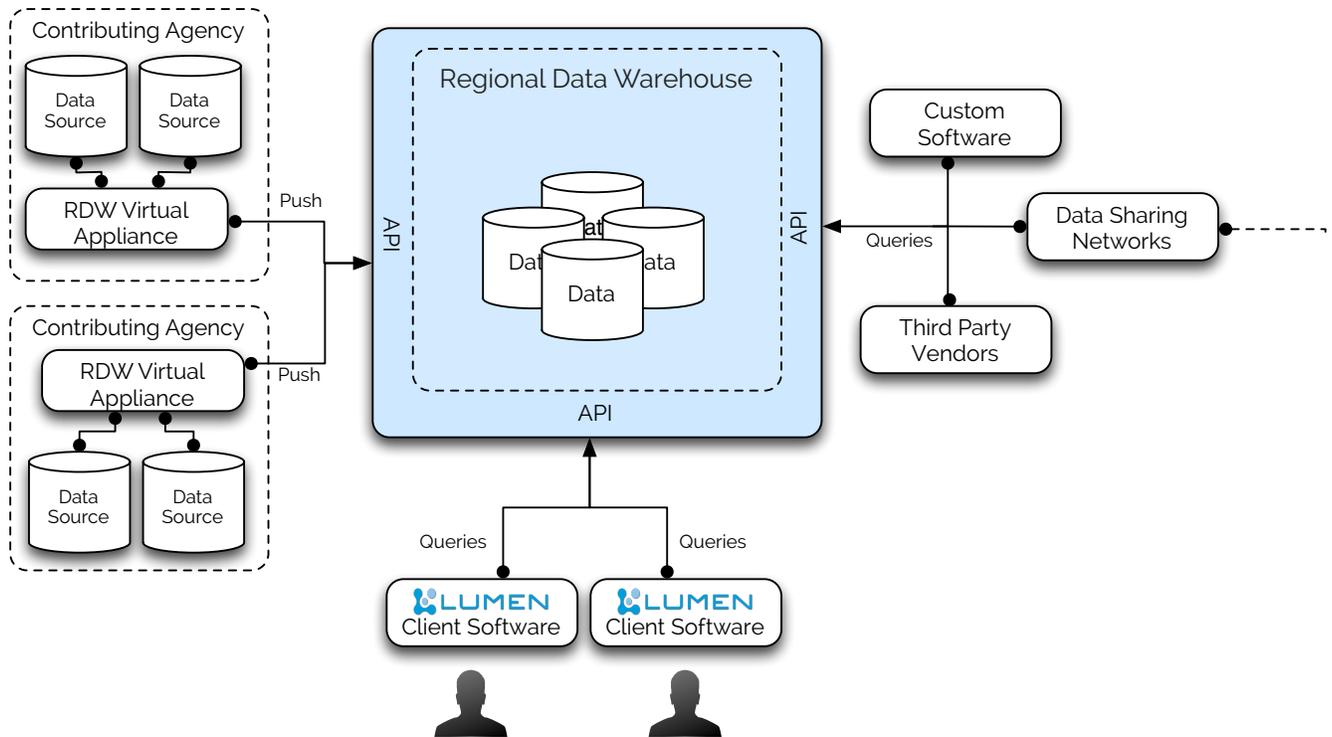


Figure 1. The RDW, shown highlighted in blue, integrates data from contributing agencies into a single data warehouse. The RDW API is the layer through which software systems access the data in the warehouse. The API is for use by the Lumen Client Software, third party vendor software, other data sharing networks, or even custom applications and systems created by law enforcement agencies. There is no limit on how many systems or what kinds of systems can connect to the RDW API. The RDW Virtual Appliances connect to agency data sources such as RMS/CAD databases, and push the data to the RDW.

The RDW offers the following features:

- Flexible, Scalable, Future-Proof Data Integration.** Based on modern NoSQL technologies, the RDW can quickly integrate data from a wide variety of sources, even homegrown databases. The RDW is "future proof" because it can integrate virtually any electronic data sources, including one that haven't been invented yet. Furthermore, the RDW's NoSQL underpinnings allow it to offer a significant cost and performance advantage over relational data warehouses (see Figure 2).

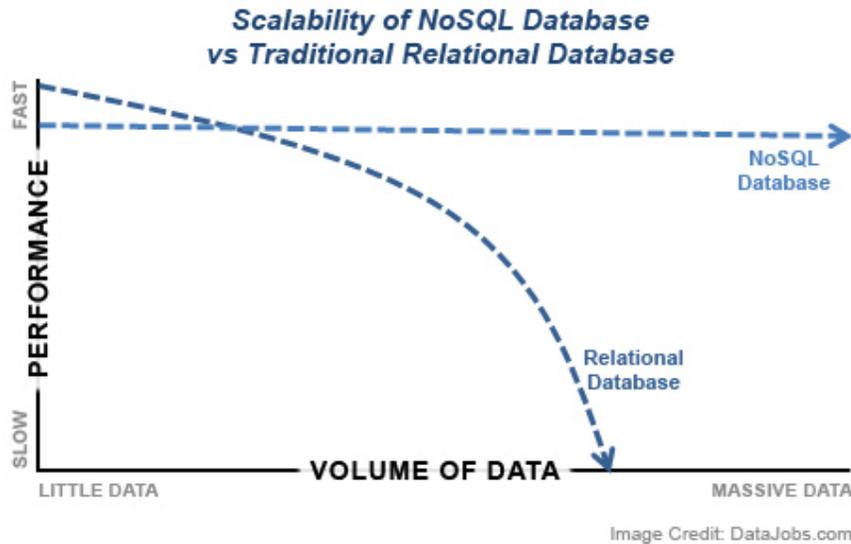


Figure 2. Relational databases hit a performance wall as the volume of data grows. NoSQL-based systems such as the RDW can scale without effective limits while maintaining performance and cost-effectiveness.

- **Standards-based Application Programmer Interface.** The RDW offers customers an API based on the latest web technology standards. The RDW API can be used to integrate third party software, custom in-house software, or even connections to external data sharing networks. With the RDW, public safety agencies don't have to worry about lock in, because they can use whatever tools they need to make the best use of their data. The RDW API offers a full featured data import, query and analytics capability.
- **Flexible Deployment.** The RDW can be hosted as SaaS in Numerica's secure data center, or deployed in dedicated servers at a customer site, with no limitations on available features in either deployment option.
- **CJIS Compliant.** With public safety data, security is a given for the RDW. Whether hosted or on-site, the RDW is an end-to-end CJIS-compliant solution.
- **Data Migration.** Future needs can never be predicted with complete certainty. To offer customers maximum flexibility, the RDW offers a non-proprietary migration path to transfer data to another system, even to competing vendor's solution.
- **Lumen Client Software (optional).** With the Lumen Client Software, the power of the RDW is magnified. Deep queries, powerful analytics, and massive cross-agency search sets are available through an easy-to-use, web-based user experience. With the Lumen Client Software, there are no Java applications to manage, and no IT headaches required to deploy upgrades.