LUMEN IT BRIEF

OVERVIEW
Lumen has three software components:

- Lumen Client software
- Lumen Virtual Appliance software
- Lumen Server software

The architecture of these three components is shown in Figure 1. These are described in more detail below.

LUMEN CLIENT
The Lumen Client runs in a web browser, and can be used from any internet-connected device. Supported browsers include:

- Google Chrome version 50 or higher on Linux, Mac OS X, Windows, and Android
- Mozilla Firefox 50.0 or higher on Linux, Mac OS X, and Windows
- Safari on iOS 9 or later

LUMEN VIRTUAL APPLIANCE
The Lumen Virtual Appliance is a software component that runs on the agency's network. It is responsible for extracting and uploading data from databases and file servers that an agency has elected to index in Lumen. Numerica configures and Virtual Appliance image and makes it available for the agency to download. The requirements for the Virtual Appliance are:

- VMWare, Xen, Microsoft HyperV, or any other virtualization environment that supports OVA format
- At least 2 cores, 4GB of RAM, and 50GB of disk space.
- Internet access to runlumen.com on ports 22 and 443.

LUMEN SERVER
The Lumen Server software is hosted in Numerica's secure, CJIS-compliant data center. Numerica is solely responsible for the maintenance and operation of all hardware and software necessary to support the Lumen Server software.

LUMEN INSTALLATION PROCESS
Lumen is designed to be simple to install and configure. Based on surveys of actual Lumen customers, we have estimated the actual labor required on the part of agency staff to install and configure Lumen. The labor required varies depending on the specific data sources included. No data mapping or translation process is required.

TASK	ESTIMATED LABOR REQUIRED
Download and install virtual appliance	1-3 Hours
Configure database access and views	5-40 Hours
Configure file server access	2-4 Hours
Create Lumen user accounts	1-2 Hours

The installation steps are described in more detail below:

• **Download and install Virtual Appliance.** Agency staff (typically an IT or network administrator) downloads the virtual appliance disk image, allocate space for it on the agency's virtualization infrastructure, and install and boot up the appliance.

• **Configure database access and views.** The Virtual Appliance must have access to the databases storing RMS, CAD, or other data sources that the agency has elected to index in Lumen. Typically, this is accomplished by having a database administrator create a read only account on the database server specifically for Lumen, and creating database views of the tables to be indexed into Lumen. During the process of creating views, the database administrator can elect to restrict records from being indexed in Lumen by ensuring that the view queries exclude those records. Numerica staff will provide assistance creating the views as a standard part of the installation process.

• **Configure file server access.** If the agency has elected to index content stored on a file server or content management system, the credentials for Lumen to access the content must be generated (typically performed by a network or IT administrator).

• **Create Lumen user accounts.** An IT administrator or other authorized person is responsible for creating Lumen user accounts for other users in the agency. This task is performed using the Lumen client software.

FREQUENTLY ASKED QUESTIONS

What happens to our data?

The Lumen virtual machine installed onsite connects to local data sources periodically, polls those data sources for updated records, and uploads the updated records to the Lumen Server software using an encrypted connection. The polling schedule can be selected by the customer, and can be as often as every few minutes if desired. Each update is typically a small amount of data.

How secure is Lumen?

Numerica has implemented a full suite of physical and logical security measures to protect sensitive law enforcement data from unauthorized access. For details, please see our 'Lumen Security Brief' white paper.

What RMS, database systems, and other data sources are supported?

Lumen supports virtually any RMS or CAD system. Database support includes (but is not limited to) Oracle, MS SQL Server, IBM DB2, and MySQL. Lumen can also process files stored on file servers, and in content management systems (including Microsoft Sharepoint).
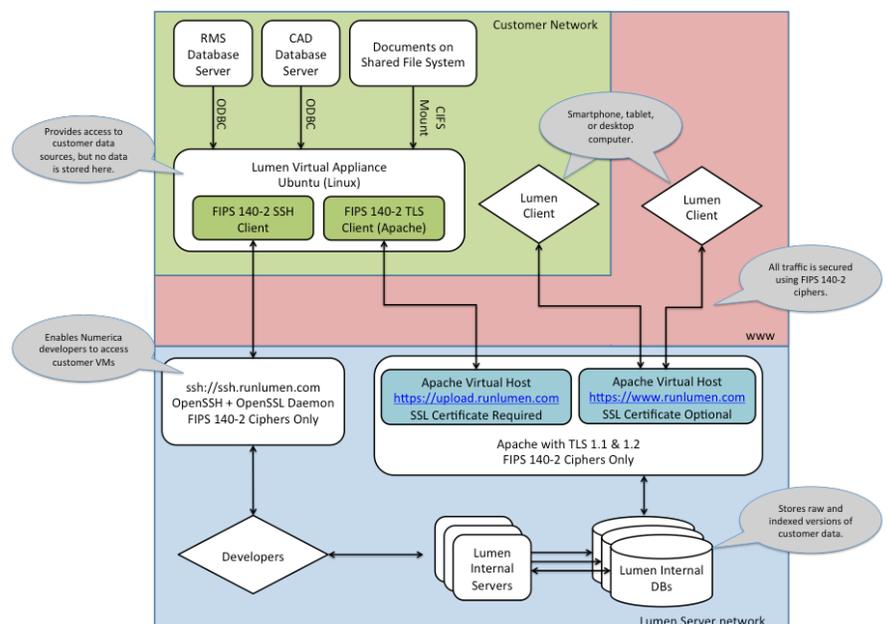

Figure 1. Lumen Client, Virtual Appliance, and Server architecture diagram.