

# Nuclear Deterrence Lab Deploys MarkLogic to Manage Large, Complex Data Sets

CASE STUDY



INDUSTRY  
Public Sector

PRODUCT  
Progress® MarkLogic®

## SUMMARY

By applying cutting-edge science and technology, Lawrence Livermore National Laboratory has a mission to help secure the safety, security and effectiveness of the United States' nuclear deterrence programs. Doing that requires discovering, integrating and managing complex data sets that are large, unpredictable and highly variable. After researching a number of solutions, the laboratory implemented the Progress MarkLogic data platform to gain better insight into its data to conduct necessary testing to measure the effectiveness of its nuclear deterrence programs.

## Challenge

By applying cutting-edge science and technology, Lawrence Livermore National Laboratory (LLNL) has a mission to help secure the safety, security and effectiveness of the United States' nuclear deterrence programs. Doing that requires discovering, integrating and managing complex data sets that are large, unpredictable and highly variable.

In the words of Kim Budil, Director of Lawrence Livermore National Laboratory, "We apply cutting edge science and technology to address the most significant challenges facing the world today, working each day to translate our innovations into meaningful impact."

To meet that challenge, LLNL required a data management platform that could help eliminate its many data silos and build a unified data platform to generate more value from their data and make more informed decisions.

## Solution

LLNL looked at a number of technologies in its search for a data management platform, including document management systems, file sharing technologies and relational databases, but each came up short when it came to managing the organization's complex data sets. Coming across Progress MarkLogic in their search, they soon realized MarkLogic had the capabilities to manage their large, unpredictable, non-heterogenous data sets with optimal functionality.

The platform's ability to connect and manage complex data and create metadata to interpret data and contextualize it proved vital in helping LLNL achieve its mission.

**"MarkLogic has the ability to handle high variability, whether you want to store structured data that is indexed or have the metadata and the multi-terabyte file on Tier 2 storage. It's also flexible with its built-in search and retrieval functionality."**

**Valerie Noble**  
Deputy Chief Information Officer, LLNL

## Results

Once the MarkLogic platform was up and running, Lawrence Livermore National Laboratory was soon enjoying a number of improvements in its business processes, including:

### Improved Discoverability

Prior to MarkLogic, LLNL experienced severe difficulty with its data discovery efforts 6-12 months after it had been created.

### Established Traceability

With the MarkLogic platform, LLNL can track data from design to production for the lifetime of the system.

### Achieved Flexibility and Extensibility

According to the organization, MarkLogic stores relationships with far more extensibility and flexibility than a relational solution.

Prior to deploying MarkLogic, LLNL was faced with numerous data silos filled with vast amounts of structured and unstructured data. Additionally, tests conducted for nuclear safety produced even more data—and none of this data was linked. LLNL is using MarkLogic to improve the organization's data management strategy to more effectively maintain nuclear safety.

## About Lawrence Livermore National Laboratory

For 70 years, Lawrence Livermore National Laboratory has leveraged science and technology to make the world a safer place. Lawrence Livermore's defining responsibility is ensuring the safety, security and effectiveness of the nation's nuclear deterrent.








Use MarkLogic to better manage large, complex data sets and eliminate data silos. **Contact us today.**

## About Progress

Progress (Nasdaq: PRGS) provides software that enables organizations to develop and deploy their mission-critical applications and experiences, as well as effectively manage their data platforms, cloud and IT infrastructure. As an experienced, trusted provider, we make the lives of technology professionals easier. Over 4 million developers and technologists at hundreds of thousands of enterprises depend on Progress. Learn more at [www.progress.com](http://www.progress.com)

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