

Extreme Search* Enterprise Storage Restores Utility to Data Lakes

Lewis Rhodes Labs is collaborating with Intel to optimize existing analytics tools with Extreme Search –scalable enterprise storage with indwelling search capacity. Because all analytics start with search.

Challenges

- Existing search methods struggle to support the demand of rapidly expanding data lakes.
- Indexing does not scale, ingest barely keeps up, and specialized analytics are backlogged by the long latency of data preparation.
- Data lakes contain mixtures of data types and structures that require a range of tools for access. Sorting and structuring becomes unmanageable.

Data lakes were conceived as a scalable way to accommodate rapidly-accumulating data volumes in a more cost-effective manner and, theoretically, they work. Unfortunately, searching massive data lakes can be prohibitively slow, especially when critical data is sparse within enterprise data lakes. Data lakes were designed to be an efficient collection of diverse data, but, when collections sit unused, data lakes become the problem instead of the solution –a problem that demands a novel technology able to scale data utility on pace with data accumulation.

Data Lakes Need Extreme Search

Extreme Search is an expandable solid-state drive (SSD) storage appliance with indwelling search. Raw data search is accessed with two python commands. The distributed file system keeps it simple to use, and no matter how much storage you add, the content search will complete in <12 minutes. That's it. Just search when you need to, for whatever you need, and get results fast. Byte-level visibility on massive data lakes without expensive ingest or indexing.

Extreme Search is Novel Technology

Extreme Search combines unique neuromorphic hardware acceleration on Intel Agilex® 7 FPGAs with software that imbeds grep-style search function into data lake storage. Each 4-terabyte (TB) encrypted SSD sits next to the compute to scan its own files. All SSDs complete search in <12 minutes. Additional storage has additional search capacity so time-to-result never increases beyond the maximum of 12 minutes it takes to search 4 TBs of data. The solution scales to multiple servers containing many petabytes (PB) of data with no change in search time.



Improve Analytics in Real Time

Slow data analytics decreases FSI firms’ ability to react quickly to market shifts when specialized artificial intelligence (AI) or machine learning (ML) analytics are backlogged by the long latency of data preparation. Lewis Rhodes Labs’ Extreme Search was designed specifically to solve this problem.

Extreme Search servers generate the list of files containing matches for the patterns requested, where the file list can then be automatically fed directly into existing analytics toolsets, sent to AI/ML tasks, or used to direct more specialized search with a small subset of files. Extreme Search scales easily to accommodate data set growth from TBs to PBs without impacting search time.

Extreme Search rapidly identifies data patterns of interest to feed the next level of analytics –whether that be refined search, correction, outlier analysis, or running ML jobs. This search can include both local and distributed data sets –all in real time.

Accelerate SIEM Tools

Slow search limits security and surveillance capacity while increasing risk of successful fraudulent activity and cyber compromise. Data security and surveillance need fast search of raw data because improved data visibility means decreased risk from cyberattacks.

Organizations continue to generate more and more data each day, leading to performance challenges –especially when trying to index all incoming data. Extreme Search finds indications of compromise in raw data in minutes, not days, without complex ingest or indexing.

Benefits for FSI Organizations

Increased Accesibility

- ✓ Faster analysis of unstructured data
- ✓ Improved operational use of data
- ✓ More real-time research capacity

Better Protection

- ✓ Faster threat detection and remediation
- ✓ Improved surveillance
- ✓ More robust fraud detection

Specialized security information and event management (SIEM) solutions provide essential and robust response platforms but raw data search remains necessary for unindexed events, and regular expression search can be painfully slow. Lewis Rhodes Labs’ Extreme Search solution finds evidence of rare events rapidly and on demand, allowing more optimized threat assessment, detection, and remediation.

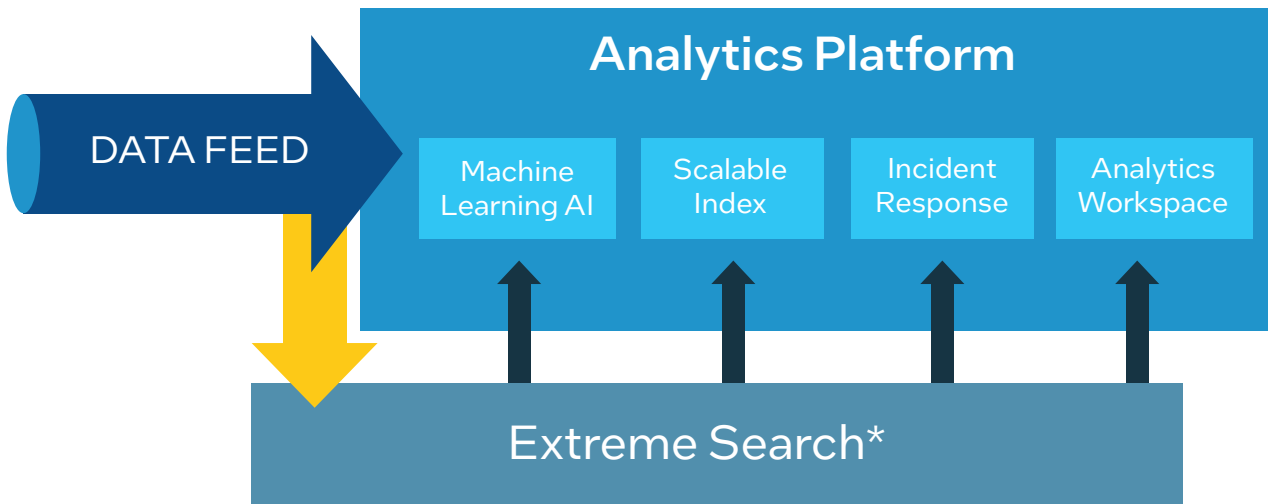


Figure 1. Rapid Search Accelerates Existing Analytics Platforms

Unprecedented Visibility on Distributed Data

Extreme Search provides central visibility on distributed data sets across FSI firms' global locations. Data is searched in place, overcoming the data movement obstacles inherent in distributed data centers –providing a unique opportunity for situational awareness on remote data sets.

Risk analysis, fraud detection, and cyber forensics for FSI firms all require the rapid identification of critical information that is sparse and often distributed across global sites. Extreme Search provides a central operations analyst with visibility and access to PBs of data even when it's located across multiple, physical locations.

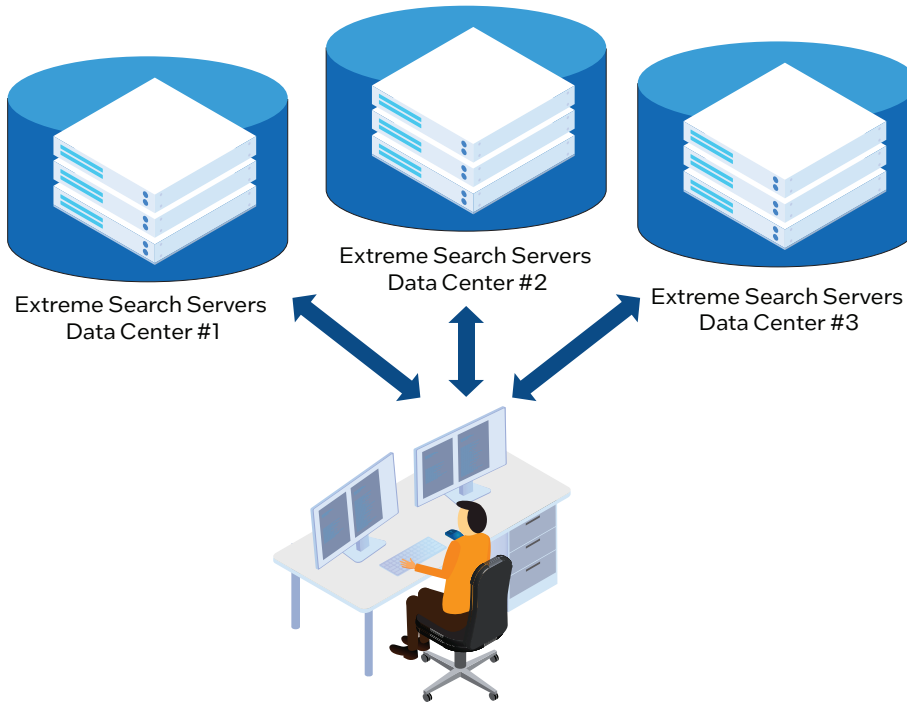


Figure 2. Unprecedented Visibility on Distributed Data

Extreme Search Storage Server System Configurations

Extreme Search storage, on premises or in hybrid cloud, has the capacity to search all data locally in minutes and presents a scalable, affordable model for data management. Extreme Search storage fits into existing ecosystems and is available in the latest servers with Intel® Xeon® processors from Dell and HPE.



Lewis Rhodes Labs, Inc. is a neuromorphic technology company in Concord, MA that has invented a neuromorphic processor to search data with unparalleled speed and low power consumption, reimagining big data utilization.

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