CLOUD ACCELERATION +

XPRESSmp™

Accelerating Time-Critical Big Data.

USE CASE

Industry

Large government exascale computing environment with millions of inputs from lab computers and sensors

Solutions Addressed

- Massive ingest and scalability
- Low latency processing
- High-performance computing
- Real-time dynamic data value
- Data warehouse load time reduction

Results

- Linear scale as cores are added, resolving the limitations of MySQL
- Provides a platform that can scale on multi-core and many-core servers to support exascale clusters
- Increased efficiency reduces number of servers needed to process the workload

Using XPRESSmp™ in a High-Performance Computing Environment

Business Requirements

– Streamlined management of extremely high-volume data flow and computing power

– Real-time, scalable ingest and processing of massive data loads that exceed MySQL scalability and performance capabilities

– Data visualization and real-time monitoring to analyze and optimize performance of blades, servers and cores, to minimize downtime

The Story

A large, high-performance government data center needs to improve scalability, management, and overall operational efficiency of its real-time computer labs and sensor equipment. The center supports many hundreds of nodes and many thousands of cores with plans to expand to thousands of nodes and millions of cores. The challenge is how to efficiently manage exascale systems, schedule work in the cloud, ensure reliability, and manage the potential failure of cores. Every device constantly sends data updates via sensors about heat and energy usage, availability, and memory usage. The data center has to ingest and process this data in order to create modules predicting the reliability of systems and to schedule tasks accordingly for the most efficient results. Ingesting and processing the volume of inbound data is beyond the capabilities of the data center's installations of MySQL–which reach peak performance and max out at 8 cores.

XPRESSmp processes the massive amounts of data, optimizes performance, achieves load balancing, and minimizes downtime with real-time visualization and alerting to dashboards. Additionally, XPRESSmp scales linearly, enabling the center to add cores and secure linear scalability in performance with each added core. With XPRESSmp, five times fewer servers are needed to ingest and process the inbound streaming data.

XPRESSmp Use

– Massive data ingest from many concurrent connections

– Horizontal scalability to many-core systems to handle events from the exascale cluster

– Concurrent query for visualization output while maintaining required data ingest rate

– Application of right-now analysis with results delivered via real-time visualization and alerts to simplify management and predict failure of cores

uCIRRUS

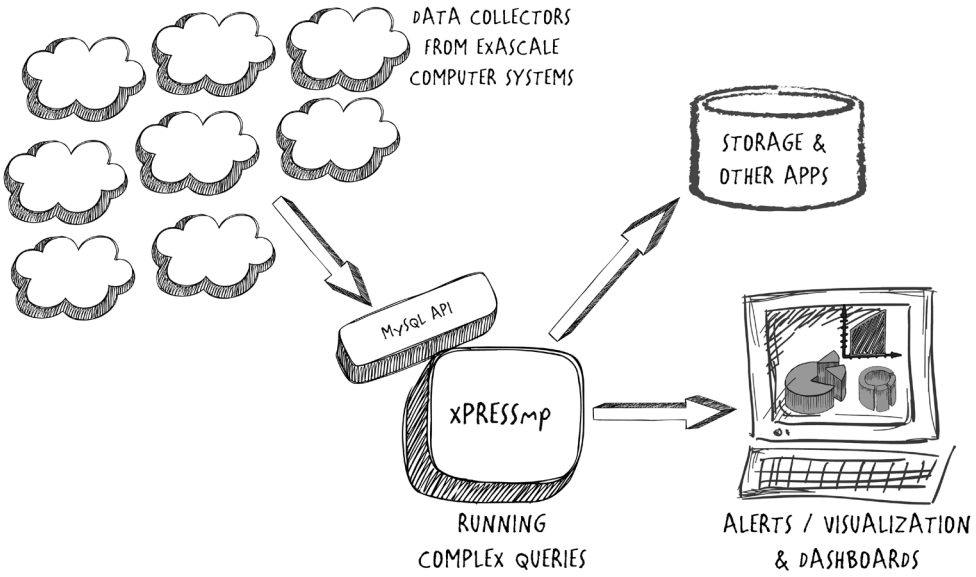
+ Accelerate.
+ Time-Critical.
+ Dynamic Data.

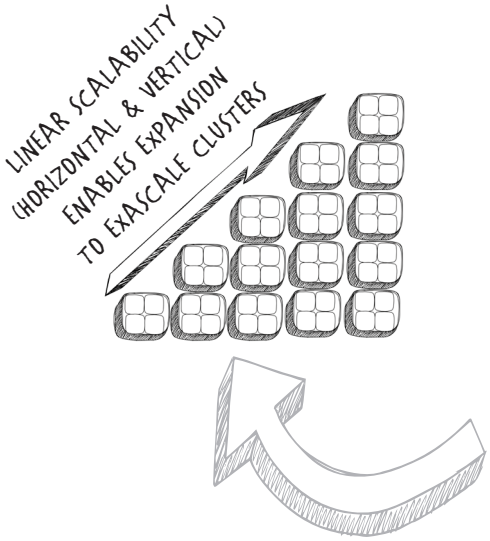
XPRESSmp™ Capabilities

– Several installations of XPRESSmp to handle the high volume of data, and true linear scalability

– Processing of data from multiple sources and devices in real time, while concurrently running queries related to system status visualization and reporting

– Real-time monitoring, alerting, and visualization capabilities





Results

– Provides a platform that can scale linearly on multi-core servers, resolving the limitations of MySQL

– Reduces the number of servers needed to process the workload, resulting in cost savings and reduction in complexity

– Cost-effective solution that can scale to support exascale clusters

– Enables real-time visibility into system—for resource optimization—through dynamic data dashboarding and visualization

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XPRESSmp™: In-Memory Processing for Time-Critical Big Data. Only from uCIRRUS.