In-Memory Performance
Durability of Disk

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Apache Ignite and Apache Spark

Where Fast Data Meets the IoT

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Agenda

• IoT Demands to Software
• IoT Software Stack
  • Device OS/RTOS
  • Data Collection and Enrichment
  • NewSQL Database
  • Application APIs
• Demo
IoT Demands to Software

- Real-time Processing
- Analytics (BI, ML)
- Simple Scalability
- SQL, Geo-Spatial
- High-Availability
IoT Software Stack

- Application APIs
- NewSQL Database
- Data Collection and Enrichment
- Device OS/Real-Time OS
Apache MyNewt

Open Source RTOS
Cortex M, MIPS

Secured Bootloader

Bluetooth, Wifi, TCP/IP

Remote Firmware Upgrade
Data Collection and Enrichment

- Internet of Things
- Spark Streaming
- Ignite Cluster

DURABLE MEMORY
ON-DISK
Apache Ignite Database, Caching and Processing Platform

Memory-Centric Storage

Ignite Native Persistence
(Flash, SSD, Intel 3D XPoint)

Third-Party Persistence
(RDBMS, HDFS, NoSQL)

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Ignite and Spark Integration

Spark Application

- Share state and data among Spark jobs
- No data movement
- In-place query execution

In-Memory Shared RDD or DataFrame

- Boost DataFrame and SQL Performance
- SQL on top of RDDs

Yarn
 Mesos
 Docker
 HDFS

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1. Initial Query
2. Query execution over local data
3. Reduce multiple results in one
Comparing Ignite and Spark

- Distributed memory-centric **database**
- Fully fledged compute platform: SQL, transactions, key-value, collocated processing, ML/DL
- OLAP and OLTP

- Ingests data from HDFS or another storage
- Streaming and compute engine
- Inclined towards OLAP and focused on MR payloads
Ignite is a memory-centric store for Spark

- No data movement from Ignite to Spark
  - In-place query execution
- Boost DataFrame and SQL performance
- Share state and data among Spark jobs
- Faster data and streaming analytics
Any Questions?

Thank you for joining us. Follow the conversation. [http://ignite.apache.org](http://ignite.apache.org)

#apacheignite