



# What's new in Ignite 2.7

Denis Magda

GridGain Product Management

Ignite PMC



# Agenda

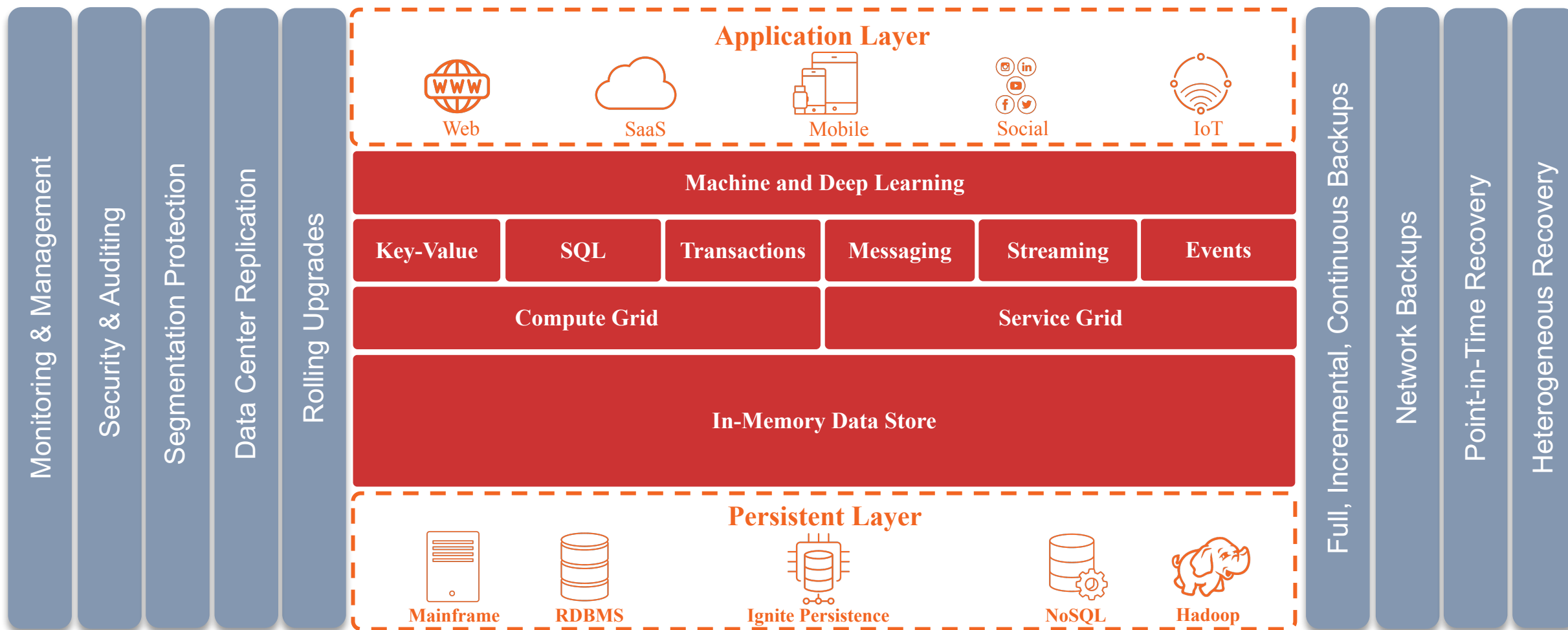


- Deep Learning at scale - TensorFlow integration
- Multi-language support – Thin clients
- Transparent data encryption
- Transaction SQL - Beta
- Q&A

# Deep Learning at Scale TensorFlow Integration



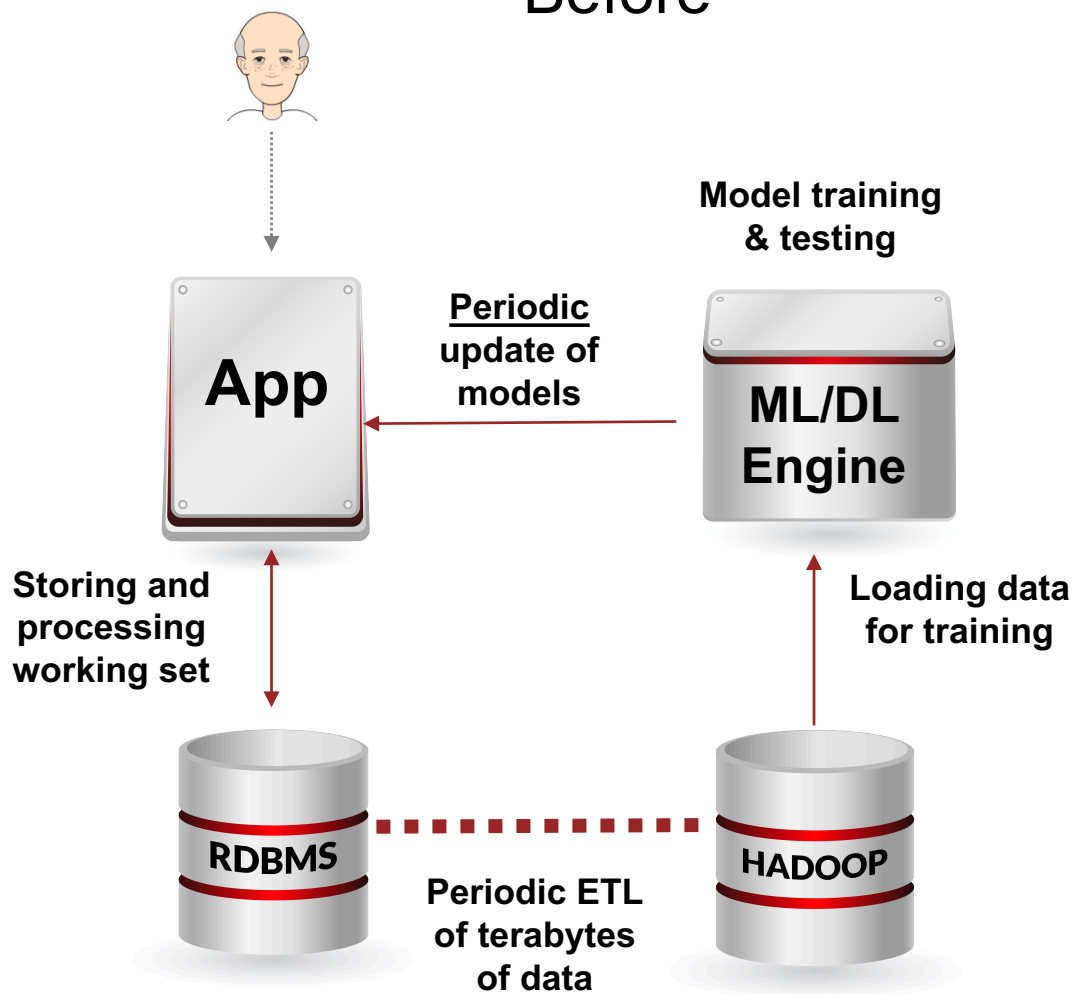
# Apache Ignite and GridGain Overview



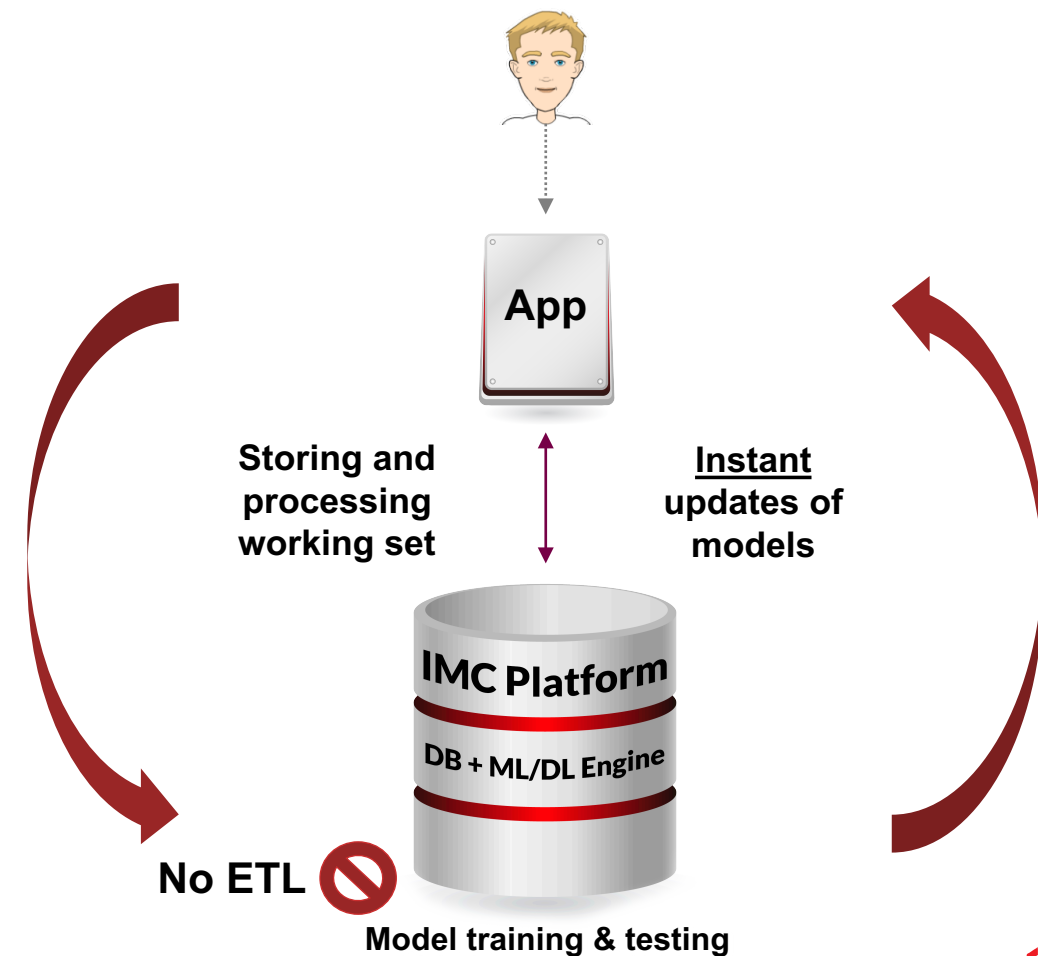
# Continuous Learning Framework Enables Simplified ML/DL Workflow — No ETL



Before

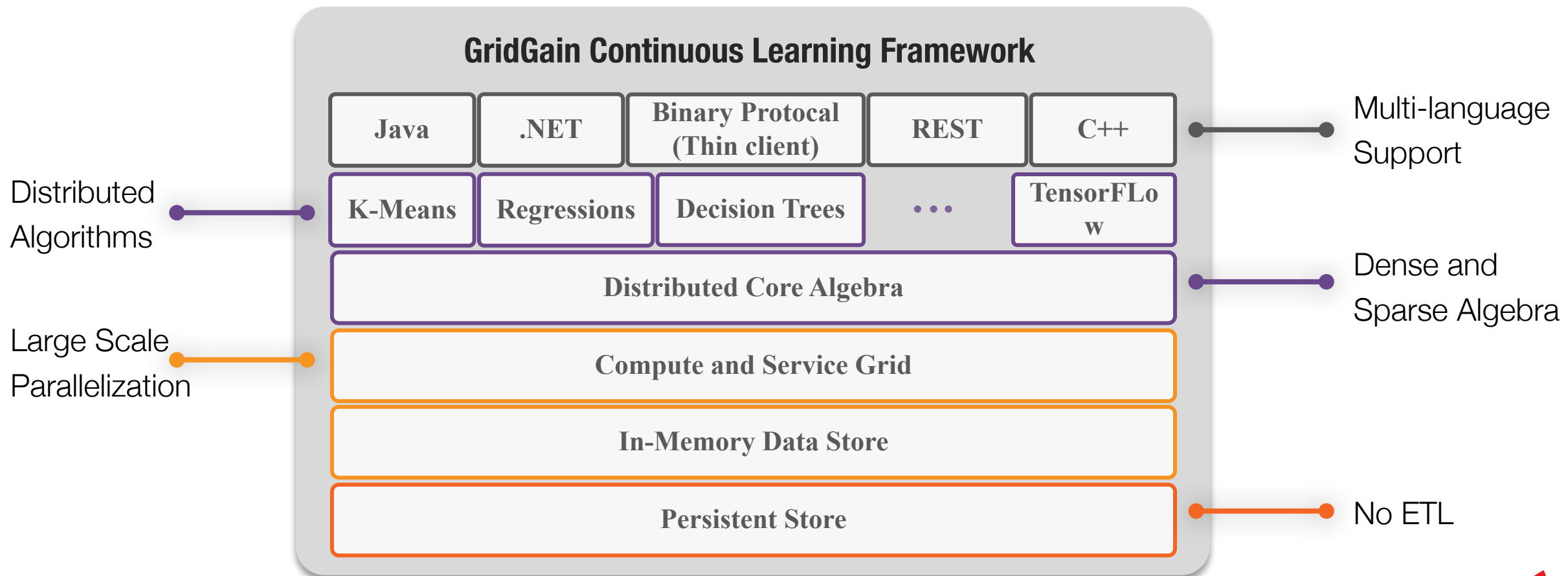


After (With CLF)



# Continuous Learning Framework

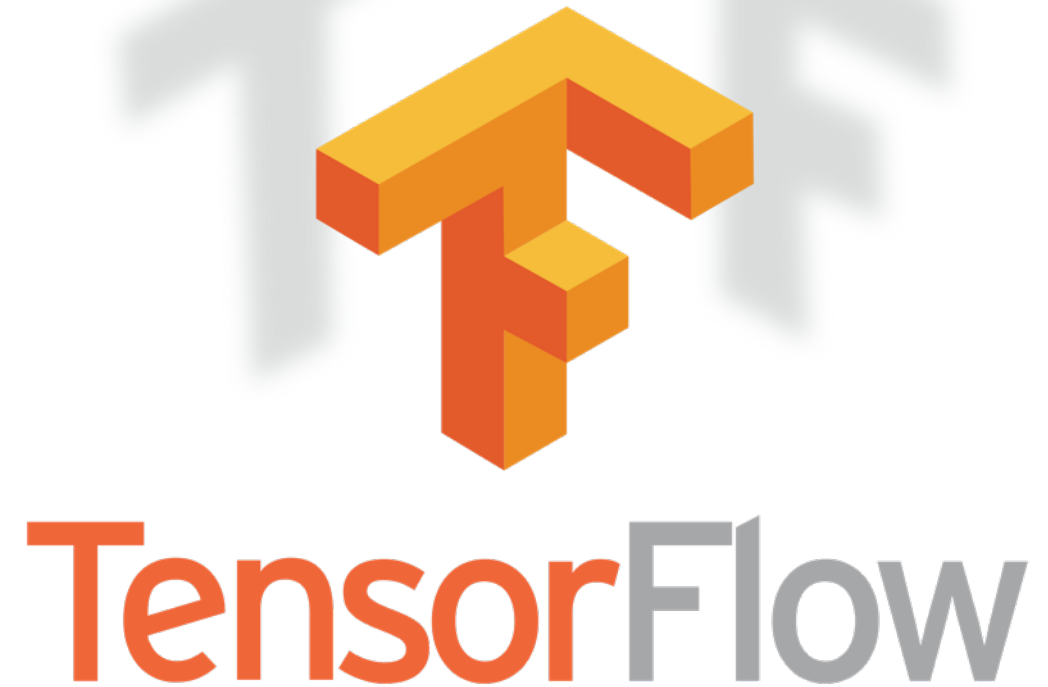
## *In-Memory Machine and Deep Learning*



# TensorFlow Integration



- Ignite as distributed data source
  - Perfect fit for distributed TF training
- Less ETL
  - TF nodes deployed together with Ignite nodes
  - In-machine data movement only
- TF tasks execution in-place in Ignite
  - Roadmap

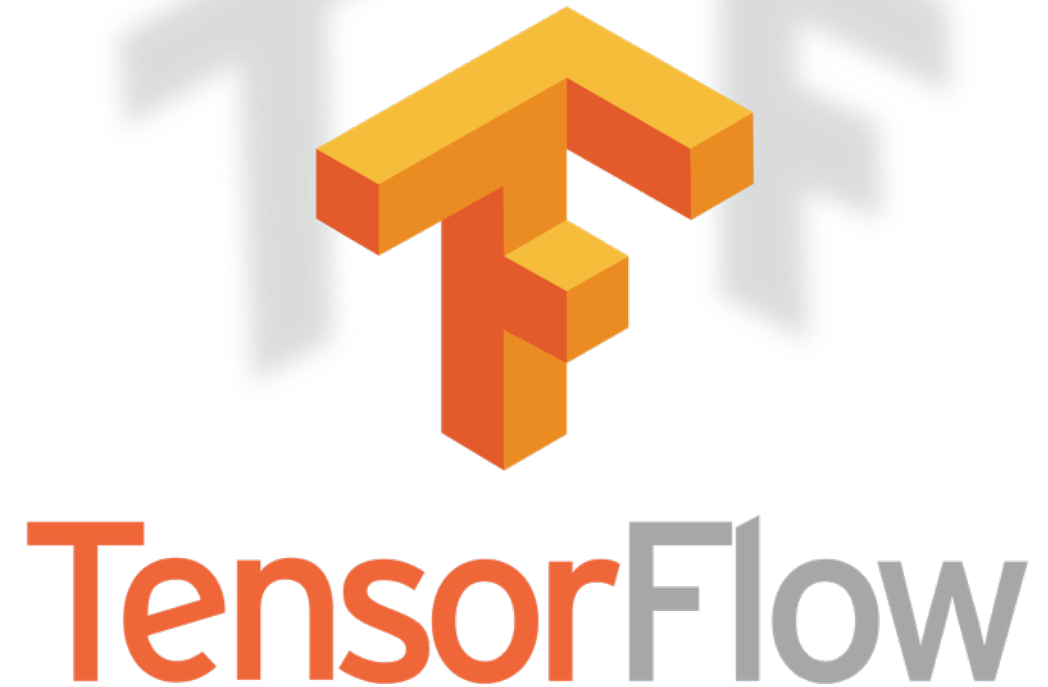




# TensorFlow Integration: Main Features



- Distribution of user tasks written in Python
- Automatic creation and maintenance of TF cluster
- Minimization of ETL costs
- Fault tolerance for both Ignite and TF instances





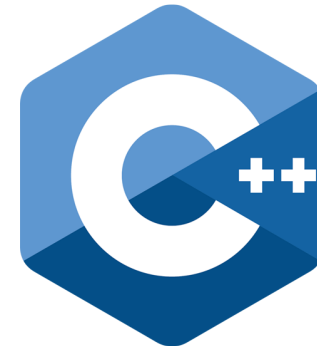
# Multi-language support Thin Clients



# Thin Clients



- Socket-level binary protocol
  - Cross-platform
- Thin Client is
  - An API above the protocol and
  - Language specific implementation
- Supported languages
  - Java, .NET, C++
  - Node.JS, Python, PHP



# Regular Client vs. Thin Client



	Regular (aka. Thick) Client	Thin Client
<b>Cluster Communication</b>	<ul style="list-style-type: none"><li>• Starts a JVM process</li><li>• Part of a cluster topology</li><li>• Several ports have to be opened</li></ul>	<ul style="list-style-type: none"><li>• Connects through a proxy</li><li>• TCP/IP connection</li><li>• One port has to be opened</li></ul>
<b>Scalability and performance</b>	<ul style="list-style-type: none"><li>• Best</li><li>• Goes to primary nodes directly</li></ul>	<ul style="list-style-type: none"><li>• Worse</li><li>• Communicates through the proxy</li><li>• Partition-awareness is to be supported</li></ul>
<b>Supported APIs</b>	<ul style="list-style-type: none"><li>• All Ignite and GridGain APIs</li></ul>	<ul style="list-style-type: none"><li>• Get/put, SQL, configuration</li></ul>
<b>Supported Languages</b>	<ul style="list-style-type: none"><li>• Java, .NET, C++</li><li>• Time consuming to support other language</li></ul>	<ul style="list-style-type: none"><li>• Easy to support any language</li><li>• Java, .NET, C++, Node.JS, Python, PHP are already available</li></ul>

# Transparent Data Encryption



# Transparent Data Encryption



- Sensitive and personal data encryption
- Applied for data on disk
  - Data (aka. partition) files
  - Write-ahead-logs
- Per-cache/table encryption
  - Cache encryption keys
  - Stored in system cache
- Master key
  - Used for persistence and transferring of cache keys
  - Pluggable store – JDK Store is available out of the box



# Transactional SQL Beta



# Transactional SQL - BETA



- Fully transactional support for SQL
  - SELECTs, INSERTs, UPDATEs, DELETEs
  - Based on MVCC
- Snapshot isolation
  - TRANSACTIONAL\_SNAPSHOT mode
  - Transactions are managed by coordinator
- Current limitations
  - <https://apacheignite.readme.io/docs/multiversion-concurrency-control>

```
BEGIN;  
  
INSERT INTO Person (id, name, city_id) VALUES (1, 'John Doe', 3);  
  
Update City SET population = population + 1 where id = 3;  
  
ROLLBACK;
```



# Resources

- TensorFlow Integrations:
  - <https://apacheignite.readme.io/docs/tensor-flow>
- Thin Clients:
  - <https://apacheignite.readme.io/docs/thin-clients>
- Transparent Data Encryption
  - <https://apacheignite.readme.io/docs/transparent-data-encryption>
- Transactional SQL
  - <https://apacheignite-sql.readme.io/docs/transactions>
  - <https://apacheignite.readme.io/docs/transactions>
- Full List of Changes
  - [https://ignite.apache.org/releases/2.7.0/release\\_notes.html](https://ignite.apache.org/releases/2.7.0/release_notes.html)



# Apache Ignite Support – Faster Time to Reliable Ignite



- Get up and running faster with 2 hours initial consultation
- Ensure fast, reliable Ignite with unlimited 9x5 global support
  - Unlimited web/e-mail support
  - Identify bugs, workarounds
  - Troubleshoot performance, reliability issues



<https://www.gridgain.com/products/services/support/support-apache-ignite>

# Any Questions?

@apacheignite

@gridgain

