OmniSci and RAPIDS: End-to-End Open Source Data Science Workflow

NVIDIA GTC | San Jose | March 20, 2019

RAPIDS

slides: https://speakerdeck.com/omnisci

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Venkat Krishnamurthy
VP, Product

🐦 @niviksha
✉️ venkat.krishnamurthy@omnisci.com
in /in/vkcmu/

Aaron Williams
VP, Global Community

🐦 @_arw_
✉️ aaron@omnisci.com
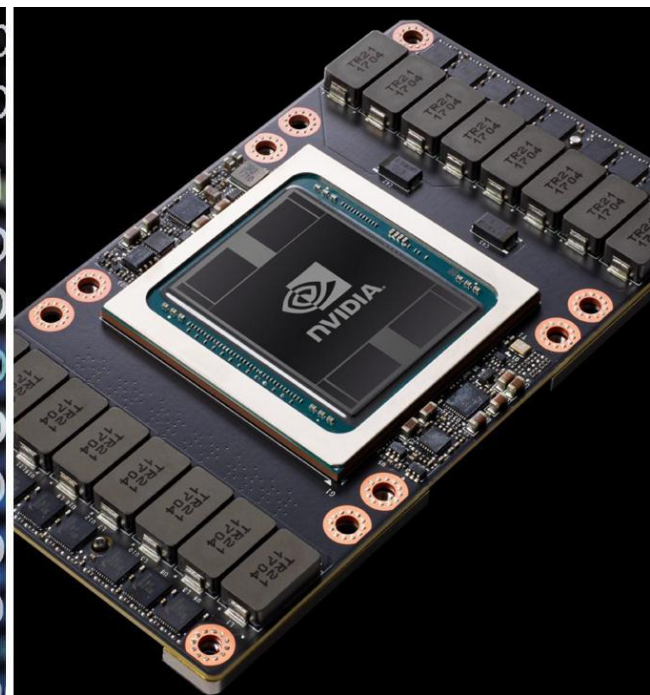in /in/aaronwilliams/
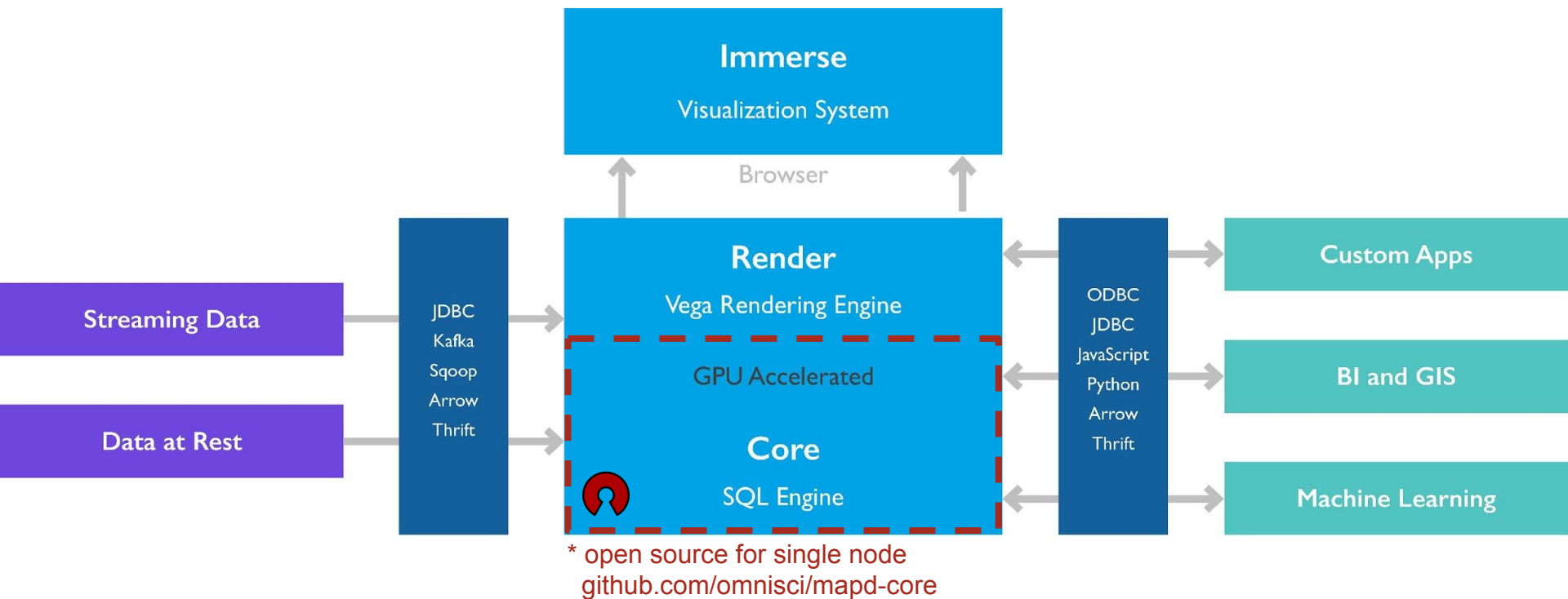�
 /williamsaaron

Fast Hardware + Fast Software

3-Tier Memory Caching

Query Compilation

In-Situ Rendering

Immerse

Visualization System

Browser

Render

Vega Rendering Engine

GPU Accelerated

Core

SQL Engine

Streaming Data

Data at Rest

JDBC
Kafka
Sqoop
Arrow
Thrift

ODBC
JDBC
JavaScript
Python
Arrow
Thrift

Custom Apps

BI and GIS

Machine Learning

* open source for single node
github.com/omnisci/mapd-core

Data Integration

Platform

Develop and Accelerate

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Camp Fire Demo

Structural Damage   Show All

2018-11-21 00:00:00

1-9%	600
10-25%	97
26-50%	25
>50%	18,649

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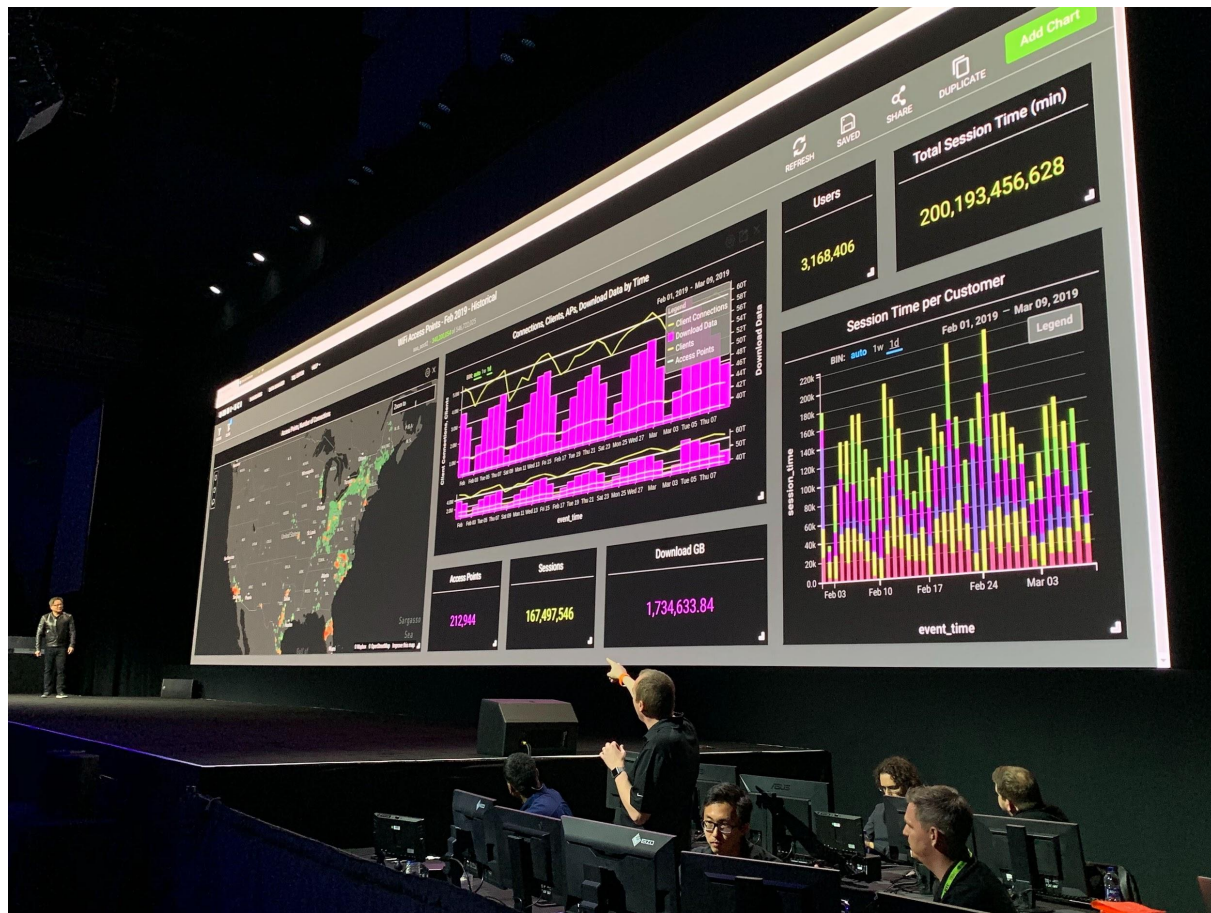
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WiFi Access Points Demo

Unifying GPU-accelerated Analytics and Data Science

Altair: https://altair-viz.github.io/

Ibis: http://ibis-project.org/

jupyter

Immerse
Visualization System

Browser

Render
Vega Rendering Engine

GPU Accelerated

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JDBC
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Python
Arrow
Thrift

Custom Apps

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Machine Learning

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OmniSci query result set
in-GPU to RAPIDS

GPU-resident outputs from
RAPIDS ML algorithms

RAPIDS
Open GPU Data Science

cuDF
Analytics

cuML
Machine Learning

cuGraph
Graph Analytics

Deep Learning

Visualization

Apache Arrow   In GPU Memory

✔ With OmniSci's Arrow-capable python API (and via Ibis), OmniSci can output results direct to cudf, and integrate with RAPIDS via Python (requires pymapd 0.7.0).

✔ OmniSci's JupyterLab integration (and support for Altair and Ibis) allows for connecting, querying, in-notebook visualization and extraction of data

OmniSci User Defined Functions (coming 2019) will allow deeper, lower-level integration with **RAPIDs** libraries
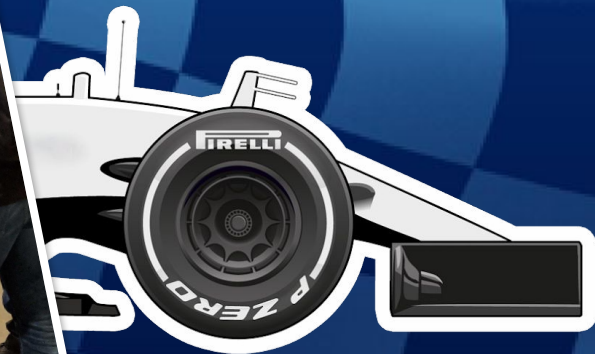
Collecting Telemetry from the OmniSci Grand Prix

Thank you!

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🐦 @niviksha
✉️ venkat.krishnamurthy@omnisci.com
in /in/vkcmu/

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in /in/aaronwilliams/
○ /williamsaaron

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