

CLIENT
TECHNOLOGY
DAYS

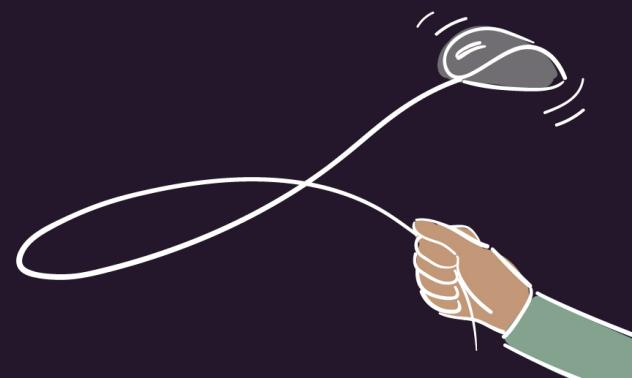
SCHLIEREN
27. & 28. SEPTEMBER 2017



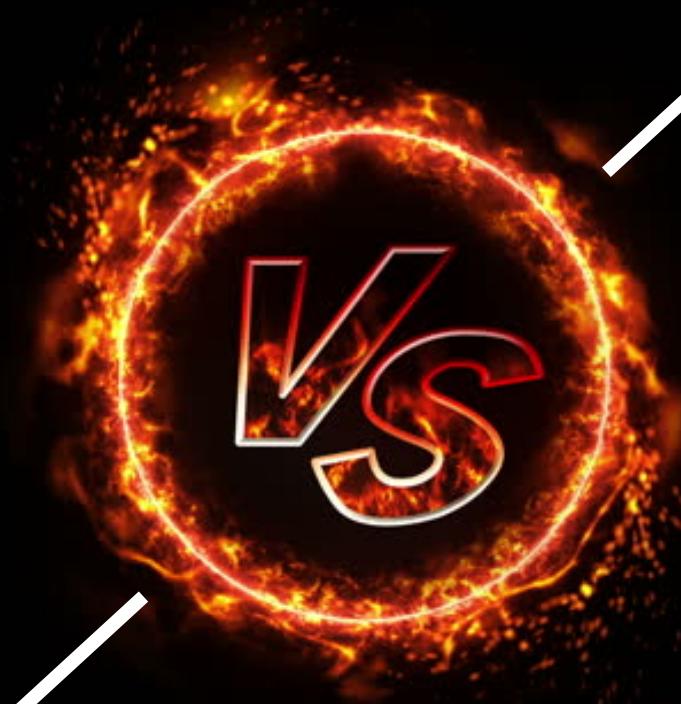
ML and SWE

Python meets JVM

Wolfgang Giersche, Joel Akeret



AI in Enterprise?



The logo features the words "THE CHALLENGE" in white, bold, sans-serif capital letters. The letters are partially obscured by four overlapping, slanted geometric shapes: an orange triangle on the left, a grey triangle above it, a blue rectangle below it, and another grey triangle to the right. The background is a solid dark navy blue.

THE CHALLENGE



THE CHALLENGE

Build an image recognition service

Distribute the load among a GPU cluster



Mise en place

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Tools of the trade



ONE ROUND ONE



Know your enemy

-

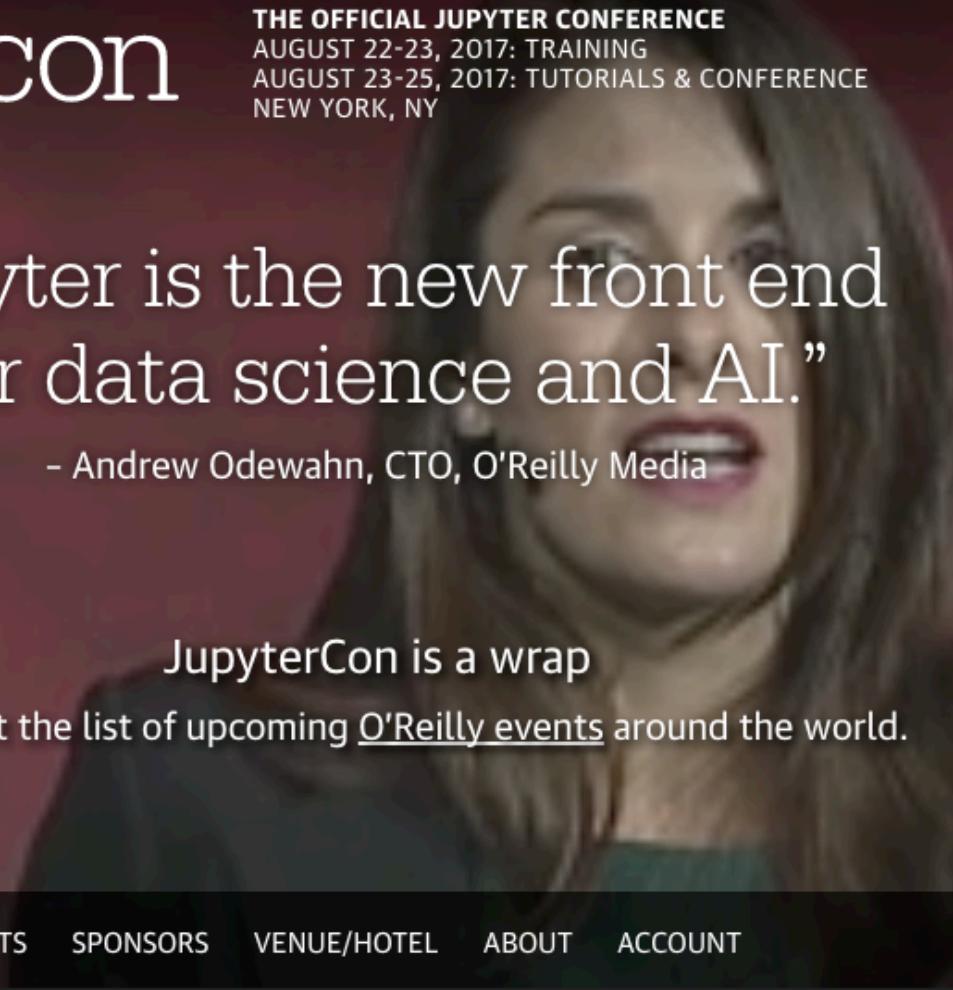
Explorative data analysis

jupytercon

THE OFFICIAL JUPYTER CONFERENCE
AUGUST 22-23, 2017: TRAINING
AUGUST 23-25, 2017: TUTORIALS & CONFERENCE
NEW YORK, NY

“Jupyter is the new front end
for data science and AI.”

- Andrew Odewahn, CTO, O'Reilly Media



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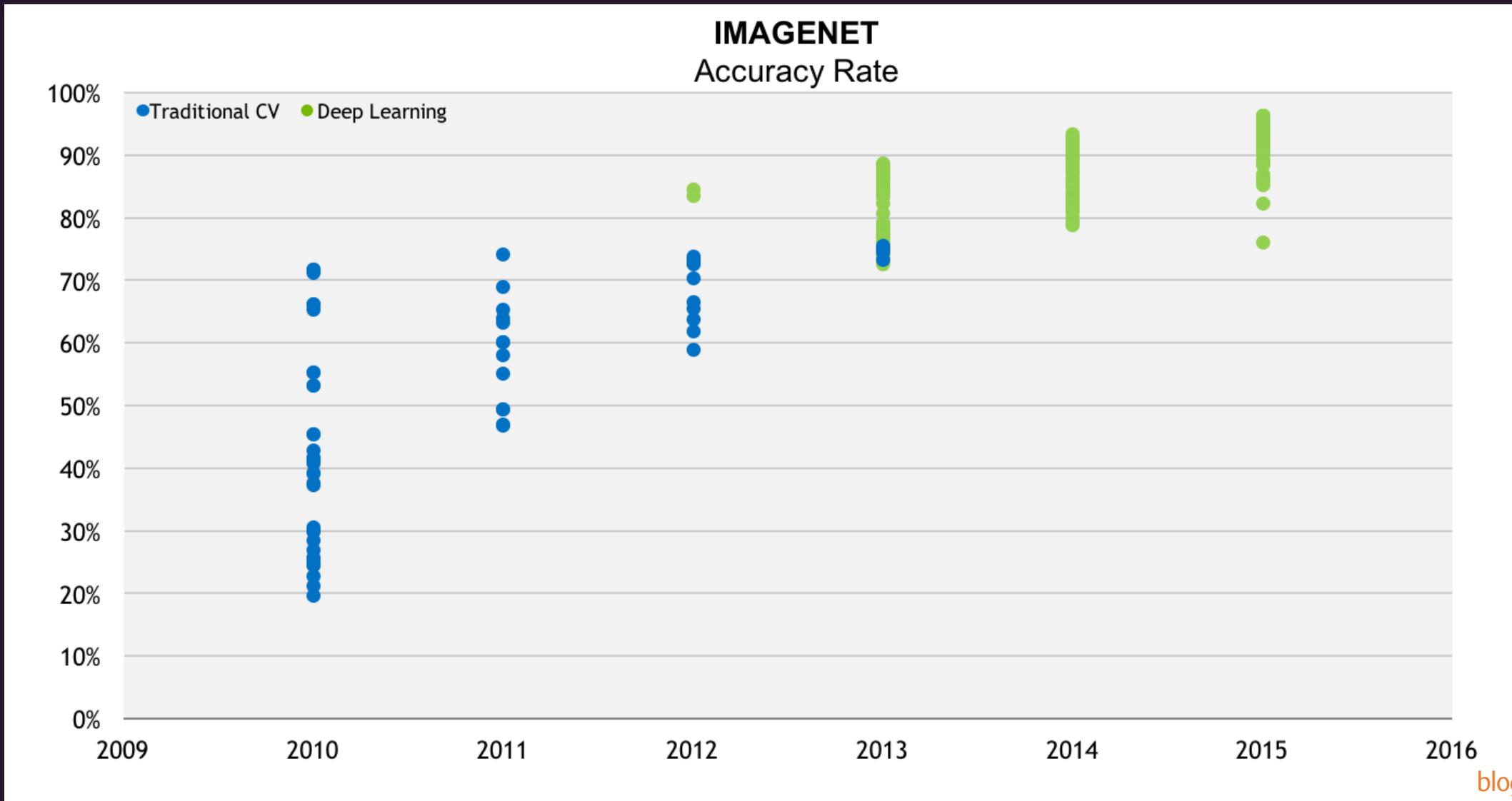


ROUND

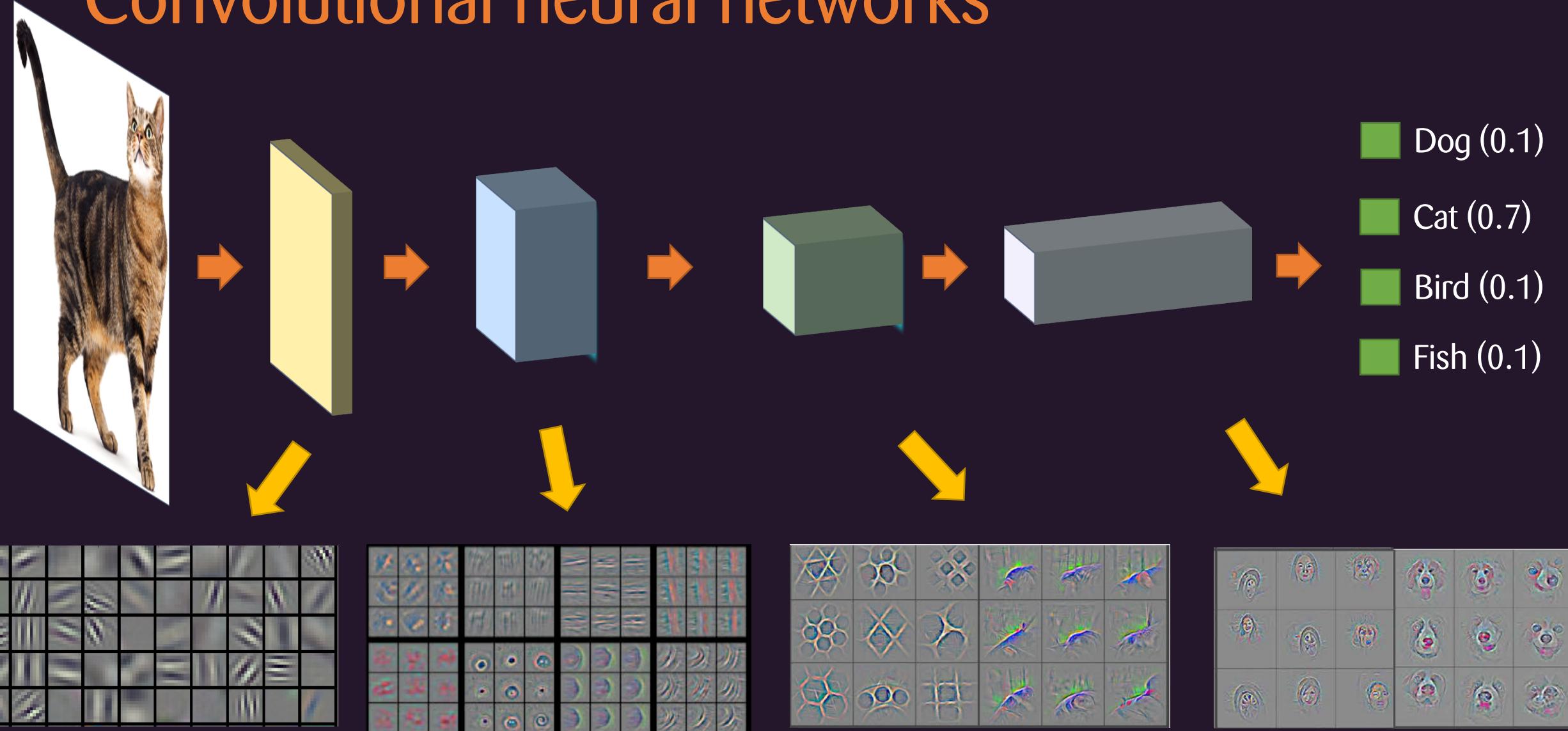


INTERLUDE

Success of Deep Learning

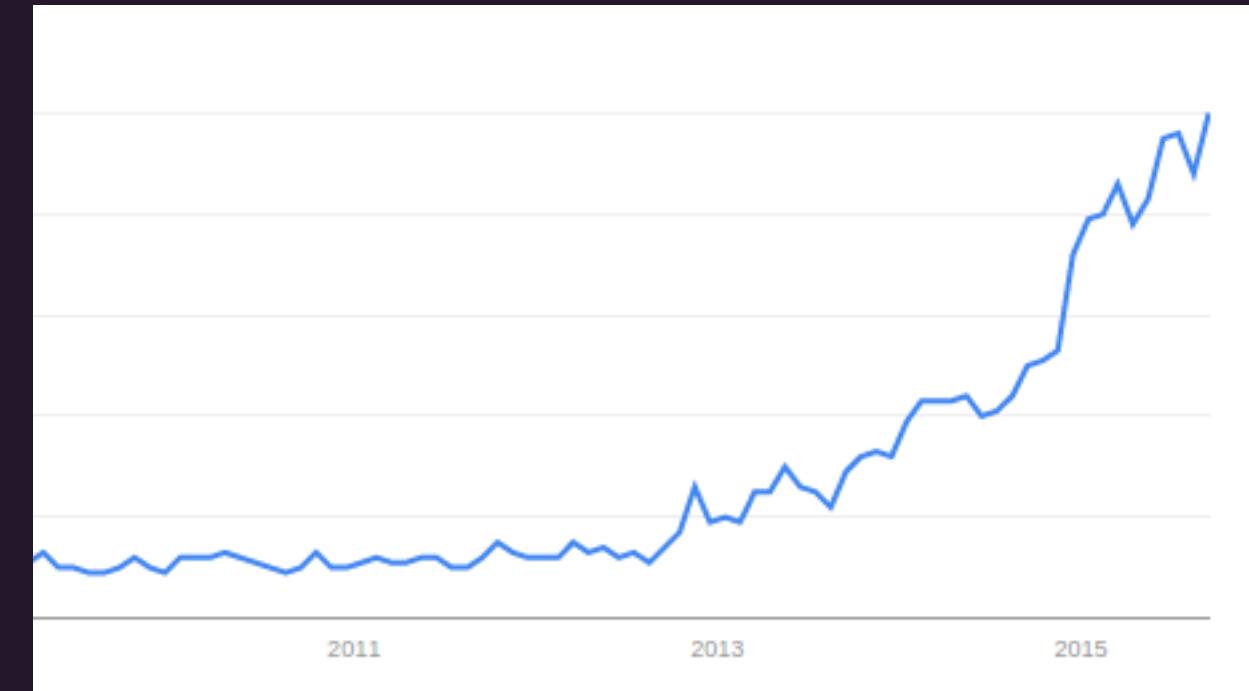


Convolutional neural networks

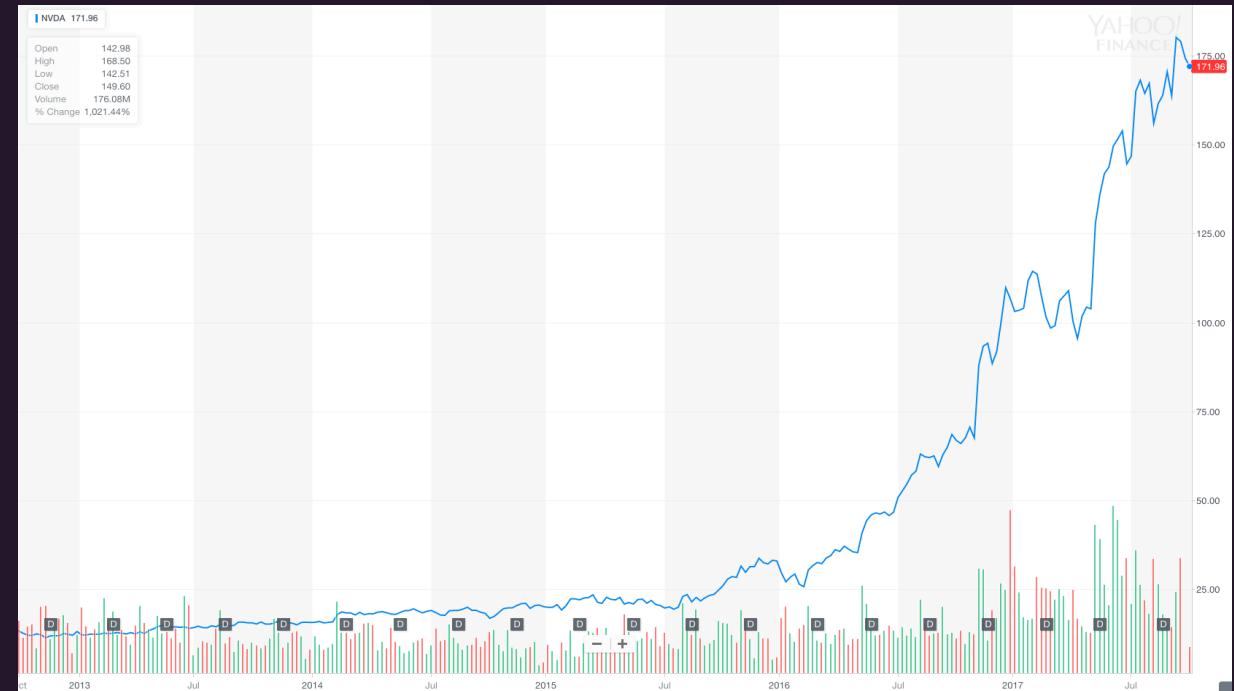


No DL without GPU

'Deep learning' Google Trends



NVIDIA Share price





Tame the beast

-

Building and training the model

Deep learning with Tensorflow & Keras

K Keras

Python Frontend

C++

GO

Java

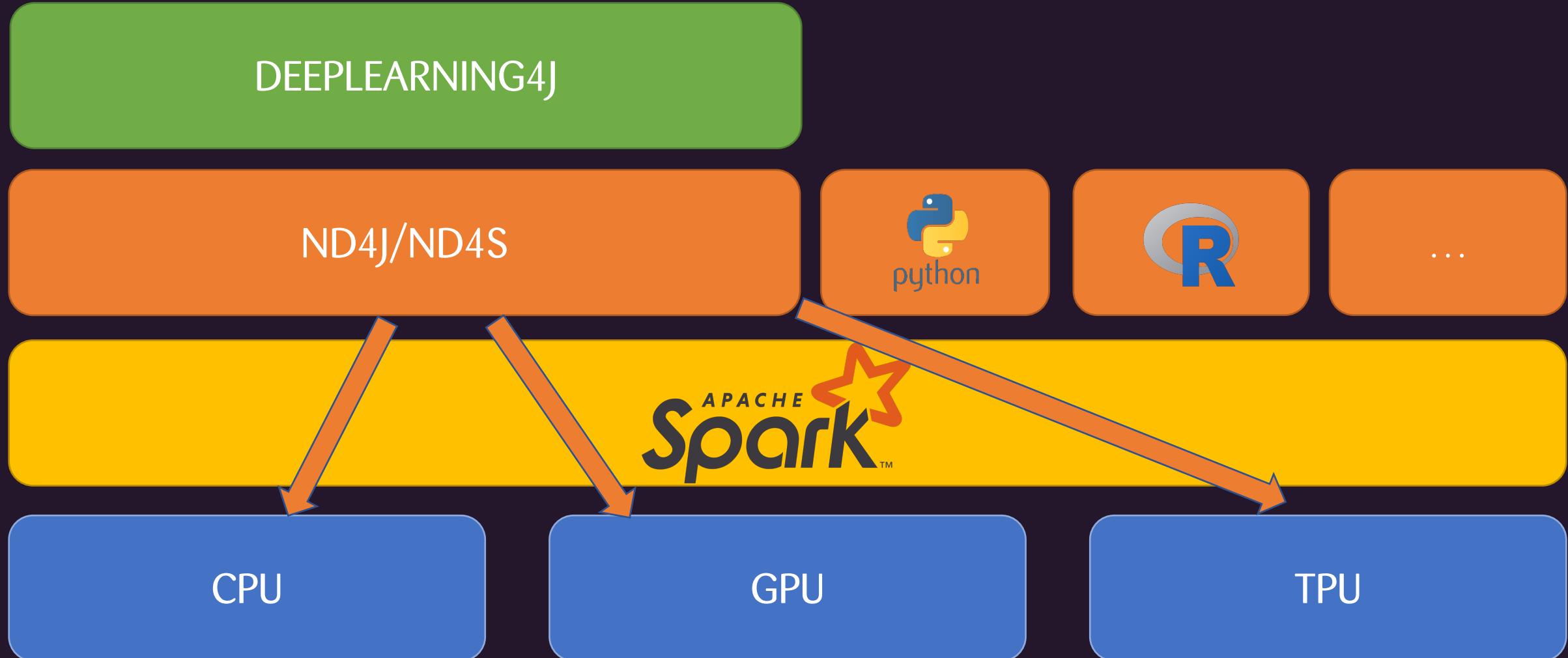


CPU

GPU

TPU

Deep learning with Spark/Scala





THREE **ROUND** THREE



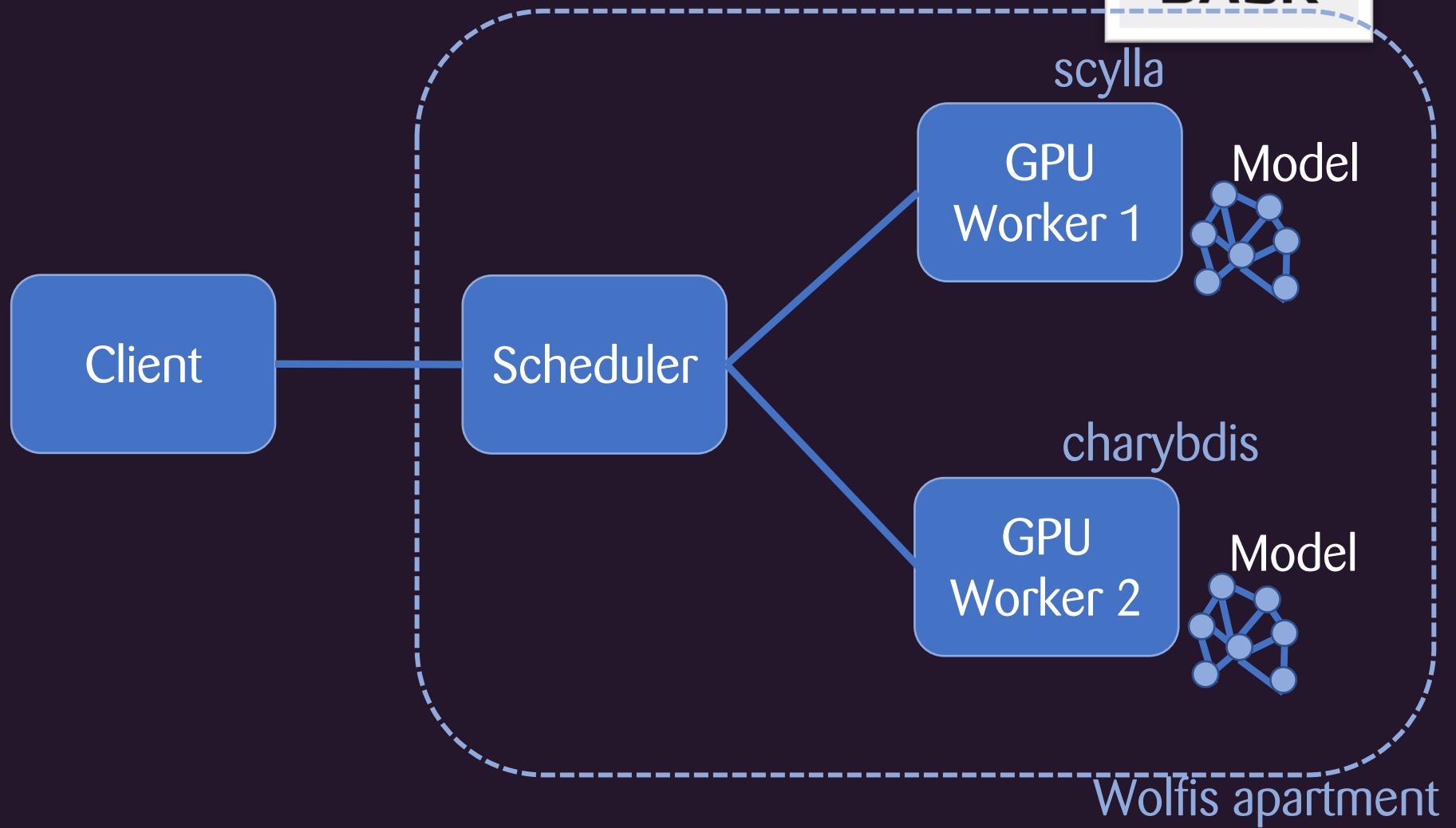
Go big

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Setup your cluster



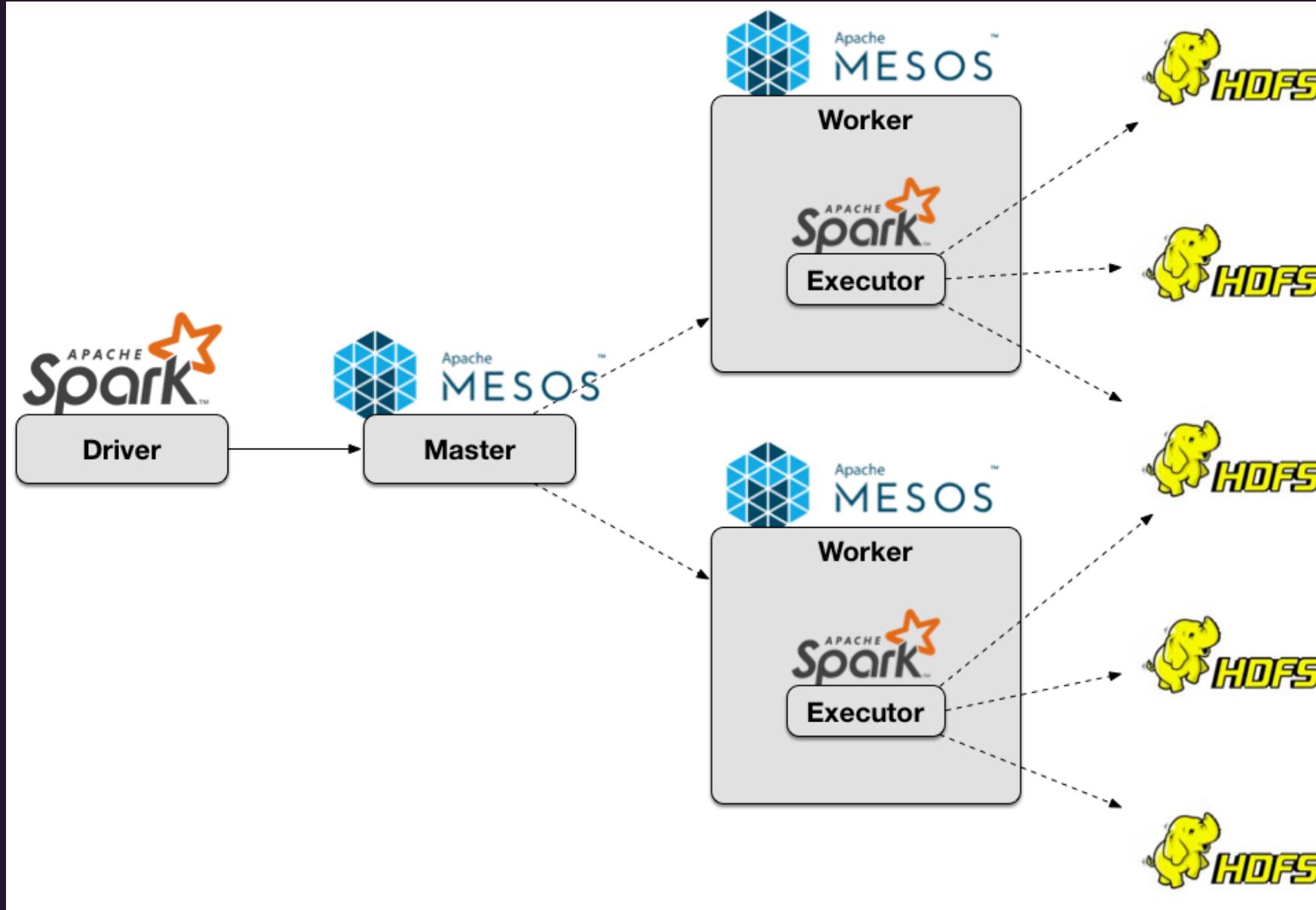
Interactive computing with DASK



A Distributed Computing Tech Stack

- HDFS
- Mesos Cluster: Broker for GPU in a cluster
- Scala or any other JVM Language - also Python
- Spark: Cluster, RDD, Graph, Integration, Algorithms, and Resilience!
- ND4J/ND4S: GPU-capable Tensor Arithmetic
- DL4J, RNN4J Deep Learning: CNN, RNN, etc

Spark on a Mesos Cluster





FOUR ROUND FOUR

The logo features the words "FOUR", "ROUND", and "FOUR" arranged in a triangular formation. "FOUR" is positioned at the top left and bottom right vertices, while "ROUND" is centered at the bottom vertex. All text is in a bold, white, sans-serif font. The letters are partially obscured by overlapping geometric shapes: an orange triangle pointing up and left, a grey triangle pointing down and left, and a blue triangle pointing down and right.

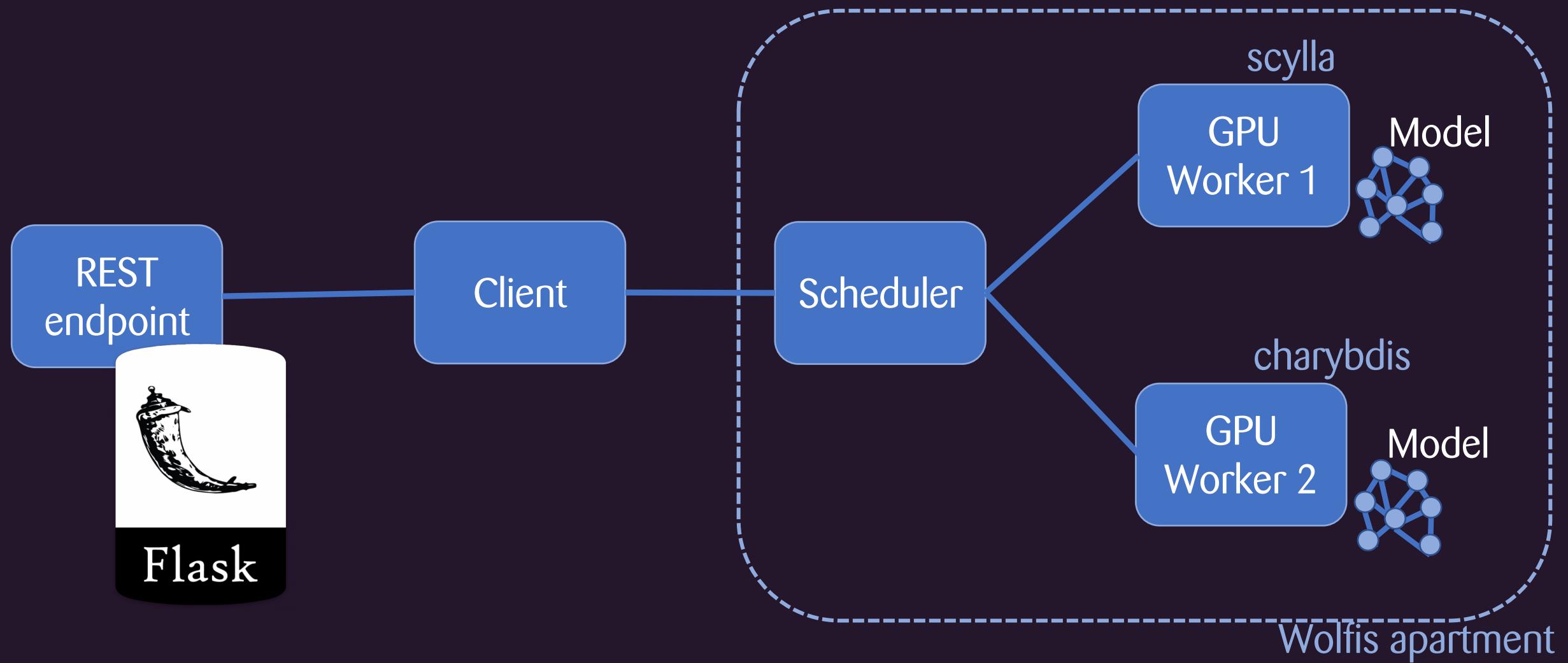


Open door

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Build a REST endpoint

REST endpoint to a cluster with FLASK



Resources

- Spark: <https://jaceklaskowski.gitbooks.io/>
- Deep learning intro: <http://neuralnetworksanddeeplearning.com/>
- Deep understanding ;-) : <http://colah.github.io/>
- Deep Knowledge: Coursera (all pretty good!)

THE END THE