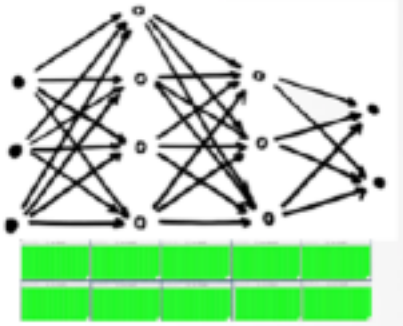

H2O.ai

What is H2O Deep Learning?

H2O Deep Learning:

Multi-layer fully-connected feed-forward Neural Network



all 320 cores on 10 nodes maxed out

\+ **distributed** processing on multi-node clusters

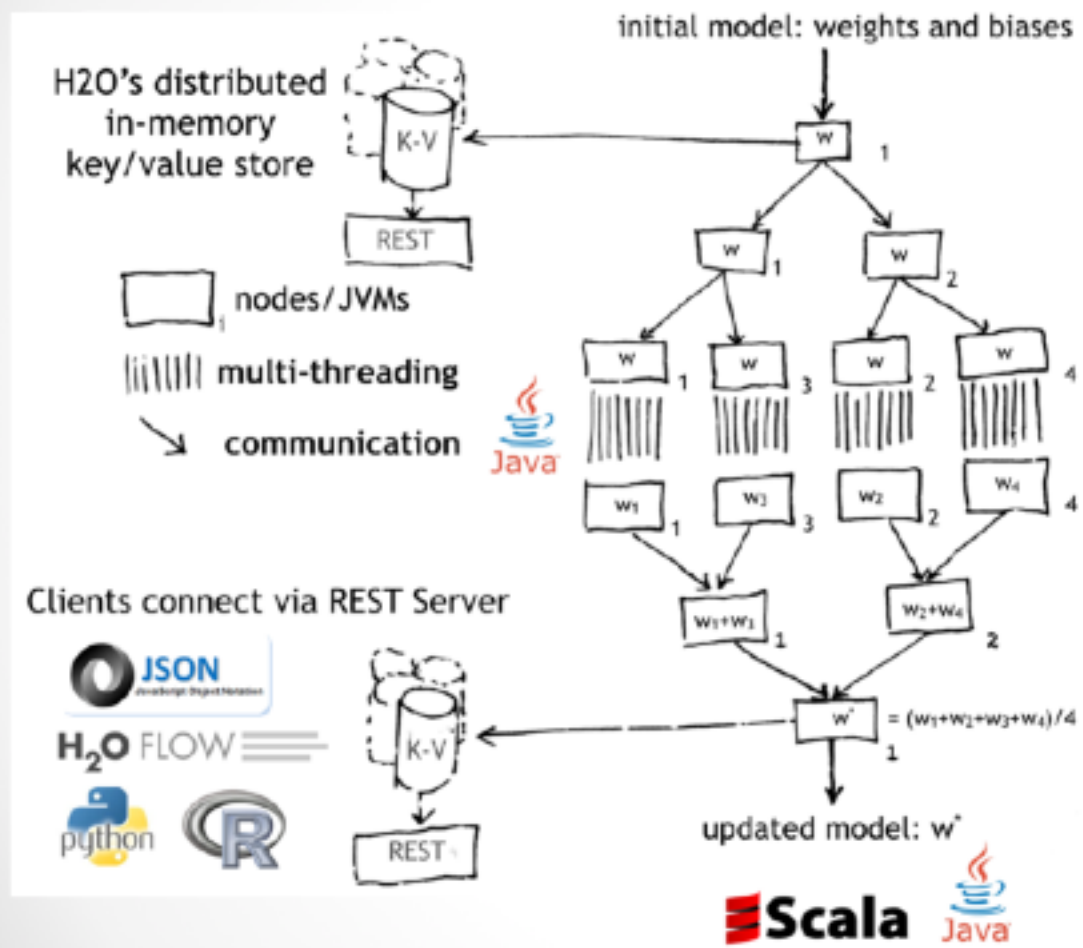
\+ **multi-threaded** speedup on multi-core CPUs

\+ **fully featured** for **fast** & **accurate** results

(automatic standardization, automatic handling of categorical and missing values, train/test data adaptation, model initialization, activation functions, multiple loss functions, autoencoder, load balancing, auto-tuning, adaptive learning rate, rate decay, momentum, L1/L2 penalty, dropout, hyper-parameter search, N-fold cross-validation, checkpointing, early stopping, variable importances, feature extraction, realtime model inspection, optimizations for sparse data and networks, etc.)

= **Easy-to-use scalable Deep Learning for large real-world datasets**
(insurance, healthcare, finance, fraud, churn, risk, IoT, etc.)

H2O Deep Learning Architecture



Map/Reduce Iterations

Map: training (fprop+bprop)
parallelized across all nodes and all CPU cores

Reduce: model aggregation
for global convergence

Shown here: Model averaging
New: Elastic averaging

Communication frequency is auto-tuned and user-controllable (affects convergence)

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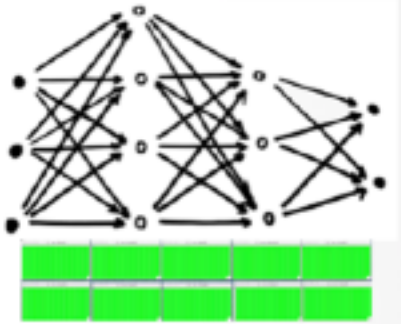

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