

## Dell Technologies Customer Results

**2 hours vs.  
9 months**

to run analysis<sup>1</sup>

**218% ROI**

over 3 years<sup>2</sup>

**1.9 million**

rules applied to 165 million  
transactions per hour<sup>3</sup>

# Reference Architectures for H2O.ai

Improve customer experiences, streamline processes,  
decrease waste and fraud

Organizations across a wide range of industries are taking note of the ability of artificial intelligence (AI) to help them reduce risk, create value and uncover new opportunities. And AI is driven by data — how it's analyzed, managed, stored, processed, protected and leveraged. Emerging technologies, such as Internet of Things (IoT) and mobile technologies and applications, are creating data at speeds and volumes never imagined. This data needs AI to be converted into the fuel that enables organizations to make better decisions, faster.

However, deploying systems capable of running AI workloads can be complex, requiring extensive integration and testing of the hardware and software. That's why Dell Technologies is working with H2O.ai to bring you engineering-validated designs for H2O.ai.

H2O<sup>®</sup> is a fully open-source distributed in-memory AI and machine learning (ML) platform with linear scalability. Hundreds of thousands of data scientists in over 18,000 global enterprises trust H2O because it supports some of the most widely used statistical and ML algorithms — including gradient boosted machines, generalized linear models, deep learning (DL) and more.

H2O is also incredibly flexible. It works on bare metal, with existing Apache<sup>®</sup> Hadoop<sup>®</sup> or Apache Spark<sup>®</sup> clusters. It can ingest data directly from HDFS, Spark, S3, Microsoft<sup>®</sup> Azure<sup>®</sup> Data Lake or other data sources into its in-memory distributed key value store. In addition, H2O has industry-leading AutoML functionality that automatically runs through algorithms and their hyper-parameters to produce a leaderboard of the best performing models.

H2O takes advantage of the computing power of distributed systems and in-memory computing to accelerate ML using its industry parallelized algorithms, which take advantage of fine-grained in-memory MapReduce. Data scientists can quickly and easily deploy models into production with Java<sup>®</sup> (POJO) and binary formats (MOJO).

Dell Technologies partners with H2O.ai to create engineering-validated reference architectures specifically for H2O software, to enhance performance for AI and ML workloads that are critical for advancing business objectives. For added flexibility, Dell Technologies Reference Architectures for H2O.ai use a flexible building-block approach to system design, where individual building blocks can be combined to build a system that's optimized specifically for your unique workloads and use cases.

<sup>1</sup> Dell EMC Case Study, [Autonomous Mining](#), accessed February 2020.

<sup>2</sup> Forrester Study commissioned by Dell EMC, [The Total Economic Impact of Dell EMC Ready Solutions for AI, Machine Learning with Hadoop](#), August 2018.

<sup>3</sup> Dell EMC white paper, [Fighting fraud the smart way — with data analytics and artificial intelligence](#), December 2018.

## Resources

- Get the [reference architecture](#)
- [PowerEdge reference architectures](#)
- Visit a [Customer Solution Center](#)
- Explore the [Dell Technologies HPC & AI Innovation Lab](#).

## Learn more

[delltechnologies.com/ai](https://delltechnologies.com/ai)

[delltechnologies.com/hpc](https://delltechnologies.com/hpc)

## Reference Architecture Components

Servers	Networking	Software
<ul style="list-style-type: none"><li>• PowerEdge R740XD</li></ul>	<ul style="list-style-type: none"><li>• Management: PowerSwitch S3148-ON (1GbE)</li><li>• Cluster: PowerSwitch S5224F-ON (10/25GbE)</li></ul>	<ul style="list-style-type: none"><li>• H2O.ai Sparkling Water</li><li>• H2O.ai Driverless AI</li></ul>

## H2O.ai and Dell Technologies

Dell Technologies and H2O.ai engineering teams collaborate to design tested and tuned systems optimized for your AI and ML workloads.

H2O.ai is the creator of the leading open-source ML and AI platform trusted by hundreds of thousands of data scientists driving value in over 18,000 enterprises globally. The vision of H2O.ai is to democratize intelligence for everyone with award-winning “AI to do AI” data science platforms.

Dell Technologies enables organizations to modernize, automate and transform their data center using industry-leading converged infrastructure, servers, storage and data protection technologies. Businesses get a trusted foundation to transform their IT and develop new and better ways to work through hybrid cloud, the creation of cloud-native applications, and big data solutions.

## Intel® Technologies for Analytics and AI

This reference architecture takes advantage of the 2nd Generation Intel® Xeon® Scalable processors with [Intel® Deep Learning Boost](#) (Intel® DL Boost).

Access Intel’s optimized software libraries at [software.intel.com/ai](https://software.intel.com/ai)

