

Reference Architecture with Grid Dynamics for Open Source Data Science

Purpose-built machine and deep learning infrastructure based on the Kubernetes ecosystem

Dell Technologies Customer Results

2 hours vs. 9 months

to run analysis¹

218% ROI

over 3 years²

1.9 million

rules applied to 165 million transactions per hour³

Artificial intelligence (AI) and its subsets, machine learning (ML) and deep learning (DL), have ushered in a new era for modern businesses. As organizations look to leverage advanced analytics and AI, they are faced with numerous challenges ranging from the diversity and rapid evolution of tools and frameworks to standing up a production data science platform for machine learning models.

Grid Dynamics® is at the forefront of cloud-native big data platforms. With expertise in implementing reliable data lakes, data pipelines, data warehouses, machine learning platforms and end-to-end analytical data platforms, Grid Dynamics can help reduce time to market and cost with a cloud-native stack.

That's why Dell Technologies is partnering with Grid Dynamics to create powerful solutions that make it easier to adopt and use open-source AI and ML application stacks. For those looking to migrate an existing data platform based on open source technologies, move from a legacy platform based on proprietary products, implement a new cloud-native platform, or implement a specific capability on a cloud-native stack, this Reference Architecture provides a foundation.

The expert engineering and data scientist teams at Dell Technologies and Grid Dynamics collaborate closely to develop architectures specifically for AI and ML solutions. For added flexibility, the Dell engineering-validated design with Grid Dynamics for open source data science platforms has a modular design, so building blocks can be combined to build a system that's optimized specifically for your unique workloads and use cases.

Reference Architecture Components

High availability Kubernetes	Application nodes	Ceph storage	Networking	Software
<ul style="list-style-type: none"> 3x PowerEdge R640 	<ul style="list-style-type: none"> 4x PowerEdge R740xd 	<ul style="list-style-type: none"> 3x PowerEdge R740xd2 	<ul style="list-style-type: none"> 1x PowerSwitch S3148-ON 1GbE 2x PowerSwitch S5224-ON 10/25GbE 	<ul style="list-style-type: none"> Kubeflow on SUSE® CaaS Platform Kubeflow on Canonical® Charmed Kubernetes Cluster

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

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

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

Resources

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

Learn more

delltechnologies.com/ai
delltechnologies.com/hpc

Grid Dynamics and Dell Technologies

Dell Technologies and Grid Dynamics collaborate to test and tune AI systems that are purpose-designed to speed and simplify open source data science platforms.

Grid Dynamics is a leading provider of technology consulting, agile co-creation and scalable engineering and data science services for Fortune 500® corporations undergoing digital transformation. Grid Dynamics collaborates with clients on digital transformation initiatives that span strategy consulting, early prototypes and enterprise-scale delivery of new digital 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



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