Nutanix and Red Hat: The Power to Simplify

Modern Infrastructure for Modern Apps

Cloud-native deployment is the new modern standard. It's time for change.

750M

applications by 2026[1]

40%

of firms will take a cloud first strategy[2]

50+%

already have containerized applications[3]

52%

of digital transformation is driven by operational efficiency[4]

87%

of organizations are currently developing and deploying cloud native or plan to in the next 12 months[5]

[1]IDC Market Note: '750 million logical applications' Document #US48441921, December 2021
[2]Source: Predictions 2023: Cloud Computing, Forrester Report, October 2022
[3]Source: The State of Containerization Infrastructure, IDC Infobrief, February 2023
[4,5]Source: ESG Technical Review, Red Hat OpenShift on Nutanix HCI, October 2022

There's no doubt industries are facing huge challenges.

All while trying to automate traditional IT infrastructure and adopt cloud-native technologies.

They need modern, integrated full-stack infrastructure solutions to help regain control, drive better ROI, and innovate with reduced risk.

So we forged a **powerful strategic partnership** to help do just that.

NUTANIX | **Red Hat**

Together, we provide a best-in-class hybrid cloud experience to help you build, scale, and manage traditional and cloud-native applications across the edge, datacenter, and cloud.

Automate traditional infrastructure

Adopt cloud-native technologies

Deploy containerized applications at scale

Support an ever-growing diversity of workloads

Extend platforms and applications to the edge

Kubernetes is complex and difficult at scale.

Plethora of options but only few certified solutions

Enterprises seeking freedom of choice in hybrid and multicloud infrastructure and Kubernetes platforms demand vendor-certified solutions.

Unique challenges at scale with management, cost, and performance

Kubernetes is a complex platform with fast evolution. Lifecycle management can prove a major challenge.

Disparate infrastructure for modern applications

Legacy infrastructure wasn't built to handle the dynamic, rapidly scalable requirements of Kubernetes.
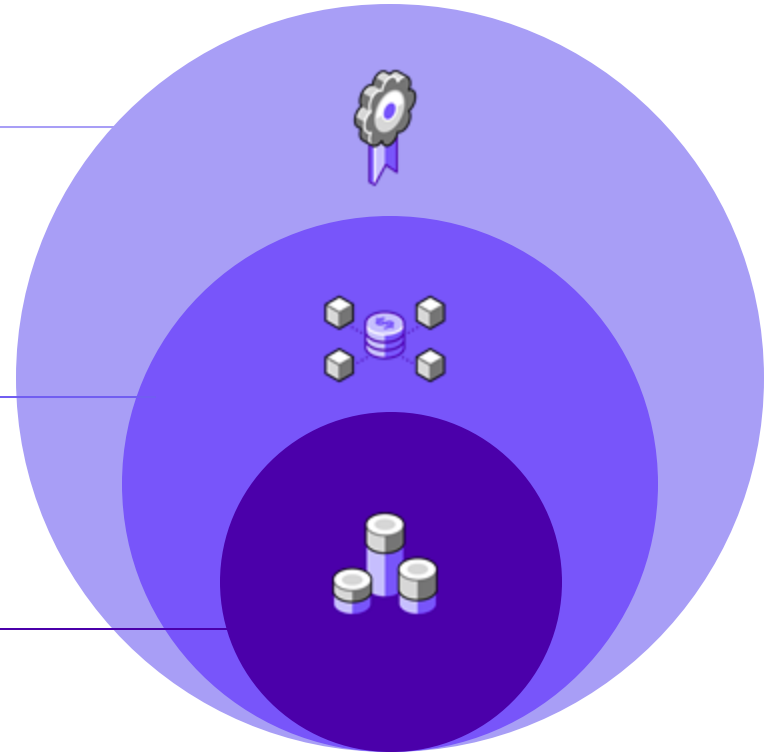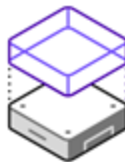
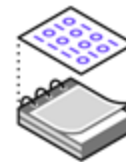# Cloud Native is Better on Nutanix

Scalable Infrastructure

Kubernetes Clusters
Worker Node Pools
HCI Infrastructure Scale

Invisible Infrastructure

Kubernetes & Virtualization
Seamless Lifecyle Ops
Automation Ready

Built-In Data Services

Volumes, Files, Objects
Database as a Service
Certified CSI Drivers

Server consolidation is...

- Overall reduction in acquisition costs

- Reduced hosting costs
  - Energy
  - Rack space

- Lower maintenance costs
  - Purchase
  - Operations and outage management

- Reduced ecological footprint

Maintaining operational conditions

- Virtualization eliminates hardware heterogeneity
  - No OS to adapt
  - No different behavior from one node to the next

- Flexible provisioning
  - Mixed environments
  - Simplified automation

- Node protection via snapshots
  - Makes upgrade safer

- Hosting of all types of kubernetes clusters (Prod/Preprod)

What about security ?

- Simple and secure FW/Driver updates
  - More regular updates, to avoid exploiting security vulnerabilities.
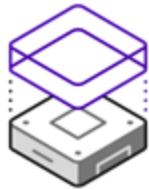
- Automated STIG

- Easier segregation of kubernetes clusters
  - Create as many k8s clusters as you need for your different "customers"

Nutanix and Red Hat: Collaborative Power

Scalable Infrastructure

Kubernetes Clusters
Worker Node Pools
HCI Infrastructure Scale

Cloud Operating Model

Kubernetes & Virtualization
Seamless Lifecycle Ops
Automation Ready
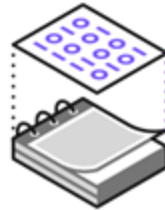
Consolidated Data Services

Volumes, Files, Objects
Databases as a Service
Certified CSI Drivers

Red Hat Enterprise Linux (RHEL)

Optimized platform for enterprise apps and critical databases

Red Hat OpenShift Container Platform (OCP)

Leading Kubernetes (K8s) platform that runs on hybrid cloud

Nutanix Cloud Platform

AHV Unlocks the Hybrid Cloud

AHV Powers All Clouds
AHV is a powerful, hybrid substrate software foundation.

AHV is Feature Complete
AHV focuses on running your applications without complexity.

AHV is Fully Integrated Into Nutanix
Take advantage of all the features of a complete hybrid cloud Nutanix can offer.

AHV has Security Built-In
Hardened by default, secured through automation, ready for what's next.

AHV
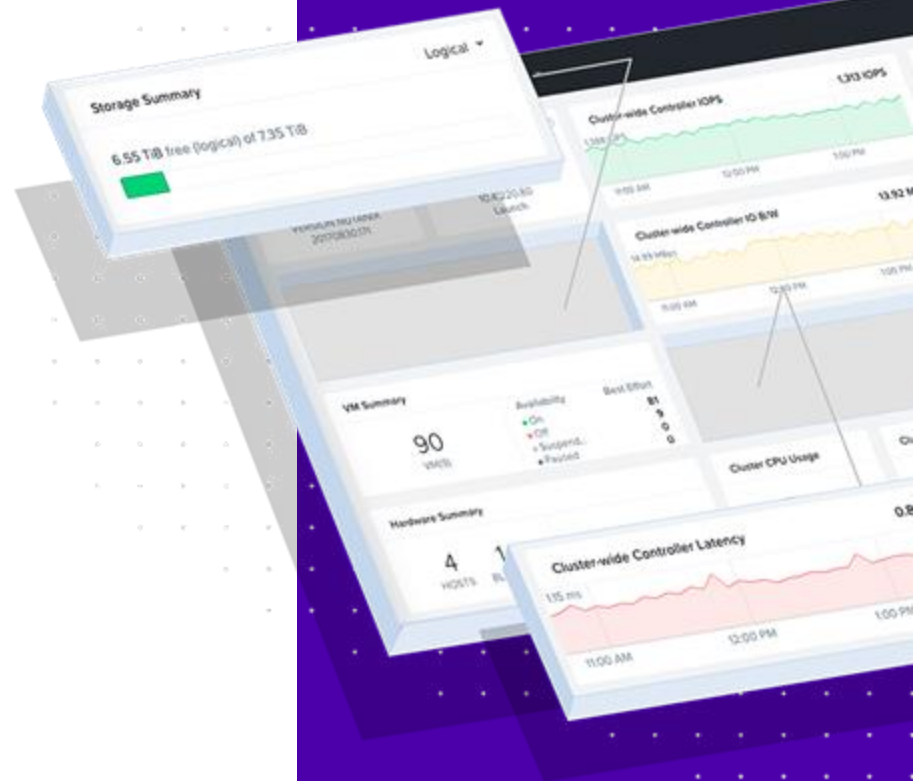
Nutanix AHV is a Red Hat Certified Hypervisor

Giving you a simplified Kubernetes framework for containerized stateful applications.

Reduced Time to Market

Accelerated Application Deployment
IT admins and DevOps can automate and launch applications in minutes with required policies for infrastructure management

Lowered Cost

Agile and Efficient Resource Allocation
K8s applications increase resource utilization across compute, storage, and networking with increased resource multiplexing

Improved Developer Productivity

Kubernetes/Cloud Native Tools and Services
Self-service tools provide autonomy to K8s admins or developers to operate without reaching out to IT administrators

Simplify Persistent Storage Integration
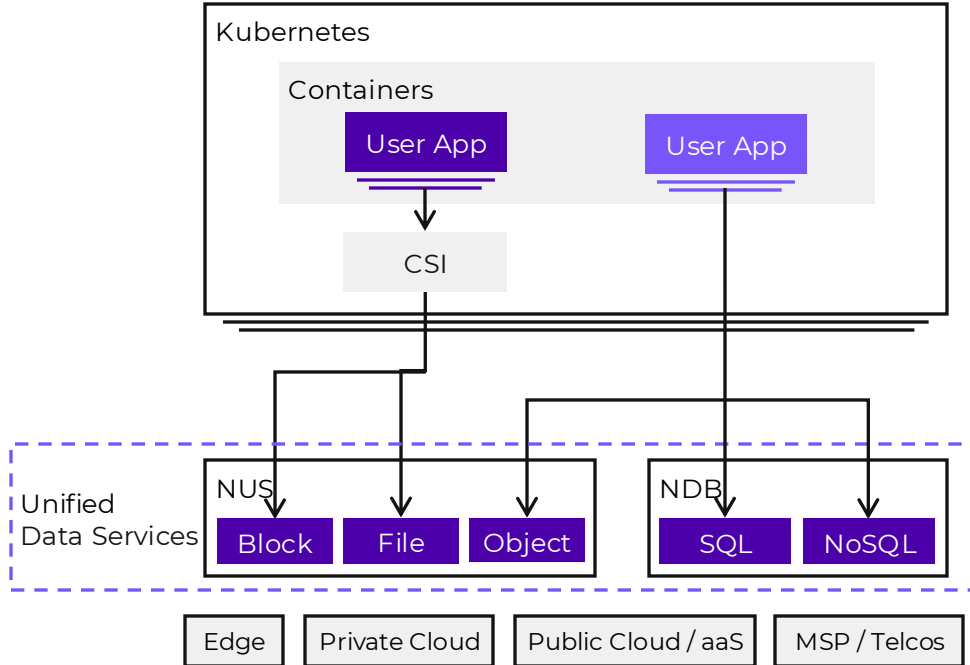
Unified Data Services

- Security & Encryption
- Data efficiency
- Performance

Container Storage (CSI-based)

- Installable via Helm Chart
- Dynamic provisioning
- Volume clone, snapshot and restore
- Persistent Volume resize support for Volumes and Dynamic Files mode
- No topology support or data locality

OpenShift on Nutanix

Best-in-class, full-stack solution for DevOps and container management
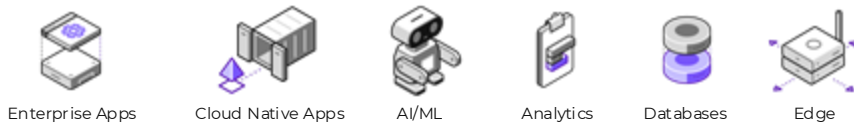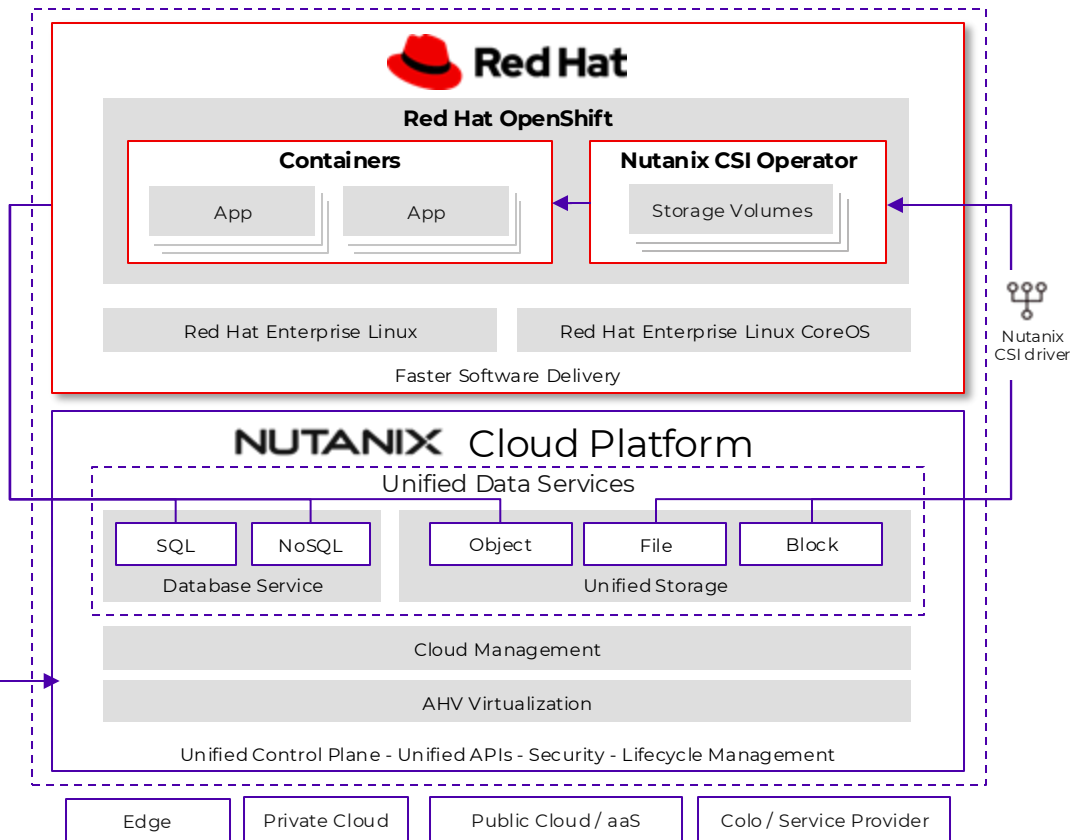
- Simple to deploy, manage, and scale

- Leverages built-in data services and a full-featured CSI from Nutanix

- Databases can be easily deployed in VMs (via Nutanix NDB) and consumed by OpenShift applications

- Customers get enterprise-grade support from both vendors

Enterprise Apps · Cloud Native Apps · AI/ML · Analytics · Databases · Edge

Red Hat

Red Hat OpenShift

Containers

App · App

Nutanix CSI Operator

Storage Volumes

Red Hat Enterprise Linux · Red Hat Enterprise Linux CoreOS

Faster Software Delivery

Nutanix CSI driver

NUTANIX Cloud Platform

Unified Data Services

SQL	NoSQL
Database Service

| Object | File | Block |
Unified Storage

Cloud Management

AHV Virtualization

Unified Control Plane - Unified APIs - Security - Lifecycle Management

Deployment

Nutanix Self-Service

OpenShift IPI

Assisted Installer

ACM

Automated Cluster Creation

Edge · Private Cloud · Public Cloud / aaS · Colo / Service Provider

15

Install

You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.

Red Hat OpenShift

Administrator

Home
Operators
Workloads
Networking
Storage
Builds
Observe
Compute
User Management
Administration

Admin C...

My Apps
Marketplace
Projects

IAM
LCM
Licensing

Settings

kube:admin

Filters

Overview

Cluster

Getting started resources ⓘ

Set up your cluster
Finish setting up your cluster with recommended configurations.

Add identity providers →
Configure alert receivers →

View all steps in documentation ⧉

Build with guided documentation
Follow guided documentation to build applications and familiarize yourself with key features.

Monitor your sample application →
Get started with Quarkus using a Helm Chart →

View all quick starts

Explore new admin features
Explore new features and resources within the admin perspective.

API Explorer →
OperatorHub →

See what's new in OpenShift 4.12 ⧉

Details   View settings

Cluster API address
https://api.ocp-source.bdf.ntnx.fr:6443

Cluster ID
c09547cd-153c-49a0-b24a-
d862cb48528b

OpenShift Cluster Manager ⧉

Infrastructure provider
Nutanix

OpenShift version
4.12.19
⊙ Update cluster

Service Level Agreement (SLA)
Self-support, 60 day trial
⚠ 56 days remaining
Manage subscription settings ⧉

Update channel
stable-4.12

Cluster inventory

5 Nodes

277 Pods   7 ⊘

Status   View alerts

✓ Cluster   ✓ Control Plane   ✓ Operators

⚠ Insights   ✓ Dynamic Plugins
1 issue found

⬆ A cluster version update is available   Update cluster

⚠ HighOverallControlPlaneMemory   View details
13 juin 2023, 15:07

Given three control plane nodes, the overall memory utilization may only be about 2/3 of all available capacity. This is because if a single control plane node fails, the kube-apiserver and etcd my be slow to respond. To fix this, increase memory of the control plane nodes.

⚠ InsightsRecommendationActive   View details
12 juin 2023, 10:41

Insights recommendation "Prometheus metrics data will be lost when the Prometheus pod is restarted or recreated" with total risk "Low" was detected on the cluster. More information is available at

Cluster utilization   Filter by Node type ▾   1 hour ▾

Resource   Usage   15:15   15:30   15:45   16:00

CPU   3,67   10
16,33 available of 20

Activity   View events

Ongoing

There are no ongoing activities.

Recent events   ⏸ Pause

16:14   ℗ Stopping container re...   >
16:14   ℗ Created container reg...   >
16:14   ℗ Started container regi... >
16:14   ℗ Successfully pulled im... >
16:14   ℗ Add eth0 [10.130.0.22...   >
16:14   ℗ Pulling image "registry... >
16:14   ℗ Successfully assigned ... >
16:11   ℗ Stopping container re...   >
16:11   ℗ Started container regi... >
16:11   ℗ Created container reg...   >
16:11   ℗ Successfully pulled im... >
16:11   ℗ Add eth0 [10.130.0.219... >
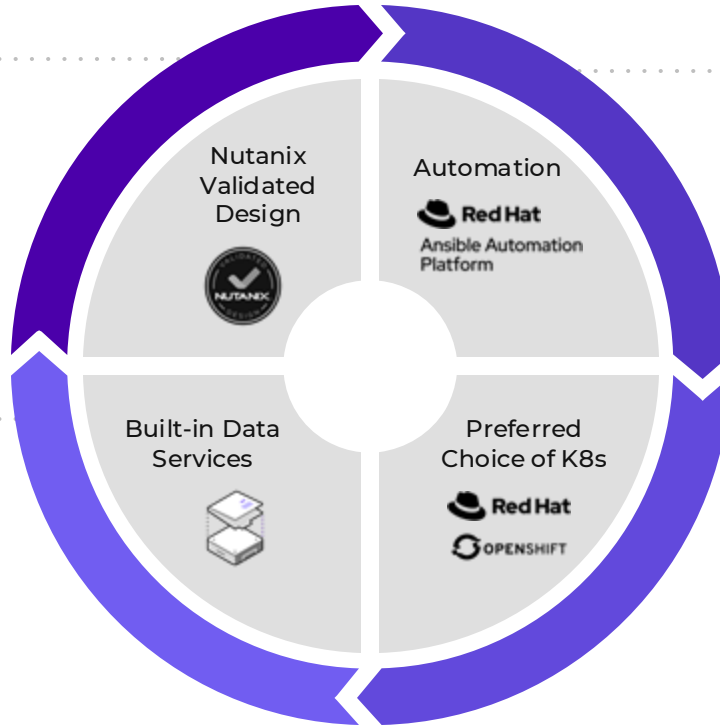16:11   ℗ Pulling image "registry... >

5

Nutanix Simplifies Running Modern Apps

Accelerated Time to Value

- Best-in-class Design Guidance
- AOS 6.5 with Red Hat OpenShift
- Enterprise Edge with AI

Databases, Files, Objects Certified Operators, CSI & COSI Drivers

Nutanix Validated Design

Automation
Red Hat
Ansible Automation Platform

Built-in Data Services

Preferred Choice of K8s
Red Hat
OPENSHIFT

Self-Healing Architecture Linear Performance Scaling Virtualization

- Red Hat Ansible Certified Content Collection for Nutanix Cloud Platform

Powerful Partnership

- Red Hat is the leader in vendor supported open source platforms, tooling, and automation

Onboard K8s Clusters into PC to Gain Visibility
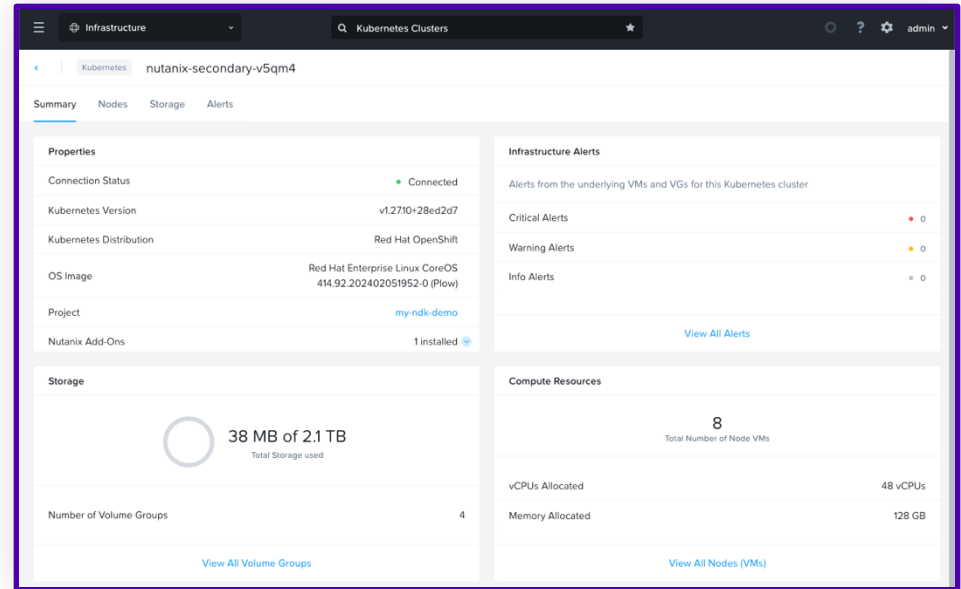
Kubernetes Clusters as First-class Entity
Onboard NKE, OCP, or any CNCF certified
distribution running on Nutanix into Prism Central

Monitor Resources Usage
Manage infrastructure cost-effectively

Persistent Volumes Correlation
Efficient storage troubleshooting at scale

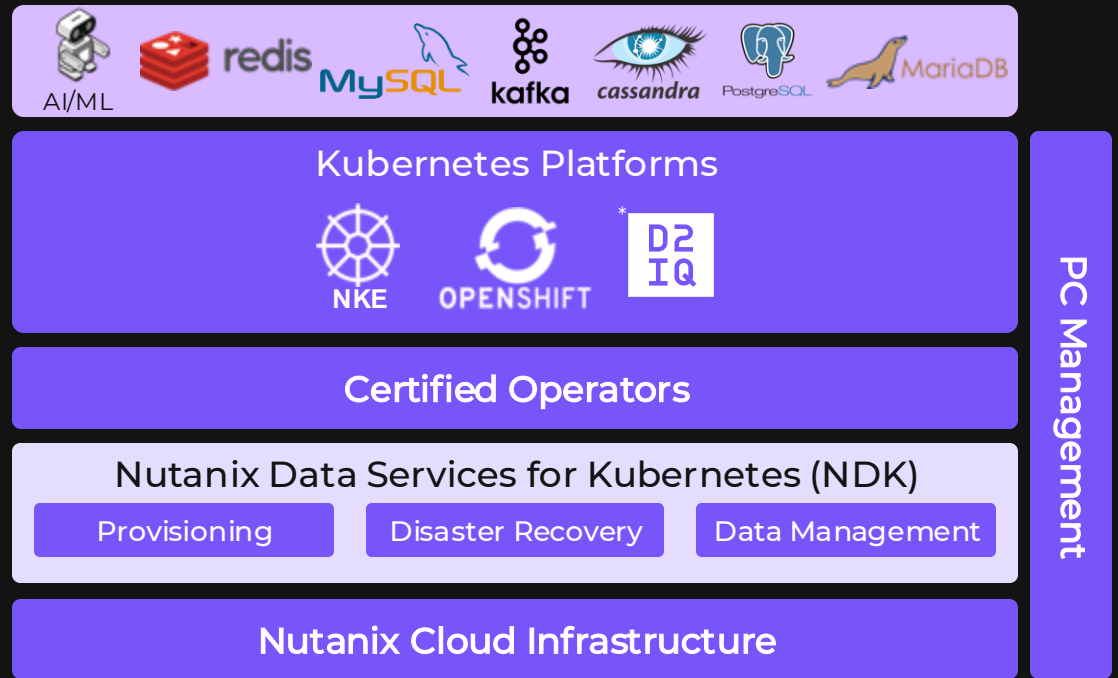# NDK Simplifies Containerized Stateful Apps

Data protection and management
Support for async replication and low RTO

App-centric data management
Self-service tools for snapshot, disaster recovery, copy data management

Support multiple user personas
Storage policies to adhere to compliance regulations

AI/ML · redis · MySQL · kafka · cassandra · PostgreSQL · MariaDB

Kubernetes Platforms

NKE · OPENSHIFT · D2 IQ *

Certified Operators

Nutanix Data Services for Kubernetes (NDK)

| Provisioning | Disaster Recovery | Data Management |

Nutanix Cloud Infrastructure

PC Management

*Under consideration

Independent Report Tells our Success Story

ESG testing revealed that the joint solution enabled...

View source of data and **full report here**

Deployment of a six-node Red Hat OpenShift cluster in under

30 minutes

Recovery of a failed database from a snapshot in less than

2 minutes

Provisioning of storage and deployment of it to a cloud-native application in less than

5 minutes

Creation of a new database for development/recovery from a snapshot in less than

2 minutes

Success Stories

Challenges Faced by Insurance Provider*

- Struggled deploying containers at-scale.

- Needed to reduce time-to-market.

- Lagging behind due to a merger.

With Nutanix and Red Hat

Faster and more efficient.

- Technical consistency and flexibility across infrastructures and clouds.

- Can effortlessly run Red Hat OpenShift on Nutanix HCI with a lower management headcount.

- A resilient and cost-effective virtualization platform for delivering customer-facing applications faster

- Delivers a better customer experience, with fewer resources tied up managing the environment.

- Provides simplicity and integration via provided installer, storage, and container storage interface (CSI).

*Case study information is taken from real client success stories. Client names anonymized.

Challenges Faced by Pharmaceutical Manufacturer*

- Wasted time figuring out how to integrate and connect everything.
- Difficult to get support and advice in case of problems.
- Concerned about their ability to manage the disparate environment.

With Nutanix and Red Hat

Feature-rich, scalable, and manageable.

- A resilient and cost-effective virtualization platform for Red Hat OpenShift with Nutanix HCI and AHV.

- Time savings because OpenShift Platform Plus is a fully integrated, configured, and tested solution.

- Gained a trusted partner who shares best practices and roadmaps, offers help when needed, and opens up its network.

* Case study information is taken from real client success stories. Client names anonymized.

Drive It Like You Own **IT**

Take **Red Hat OpenShift on Nutanix** for a Test Drive

It's free and easy. Follow the link in the chat to explore.

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