HyperFlex

Simplifying your Data Center

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Our Innovation in Action

Cisco Multi-Cloud Architecture

Next-Gen Data Center Platforms	Software Defined Infrastructure	Multi-Cloud Orchestration
Cisco Nexus 9k with CloudScale	Unified Policy Orchestration	Across on-premise and public clouds
ACI additions on Nexus 7k	Automating across UCS, ACI & Storage	Bare-metal/Virtualized/ Containers
Cisco HyperFlex		Application Lifecycle Management

Key Challenges You Face

Business Speed

Operational Simplicity

Cloud Expectations

Hyperconvergence

First Gen HCI

Simplicity

Fast Time to Market

Hyperconvergence

Gaps

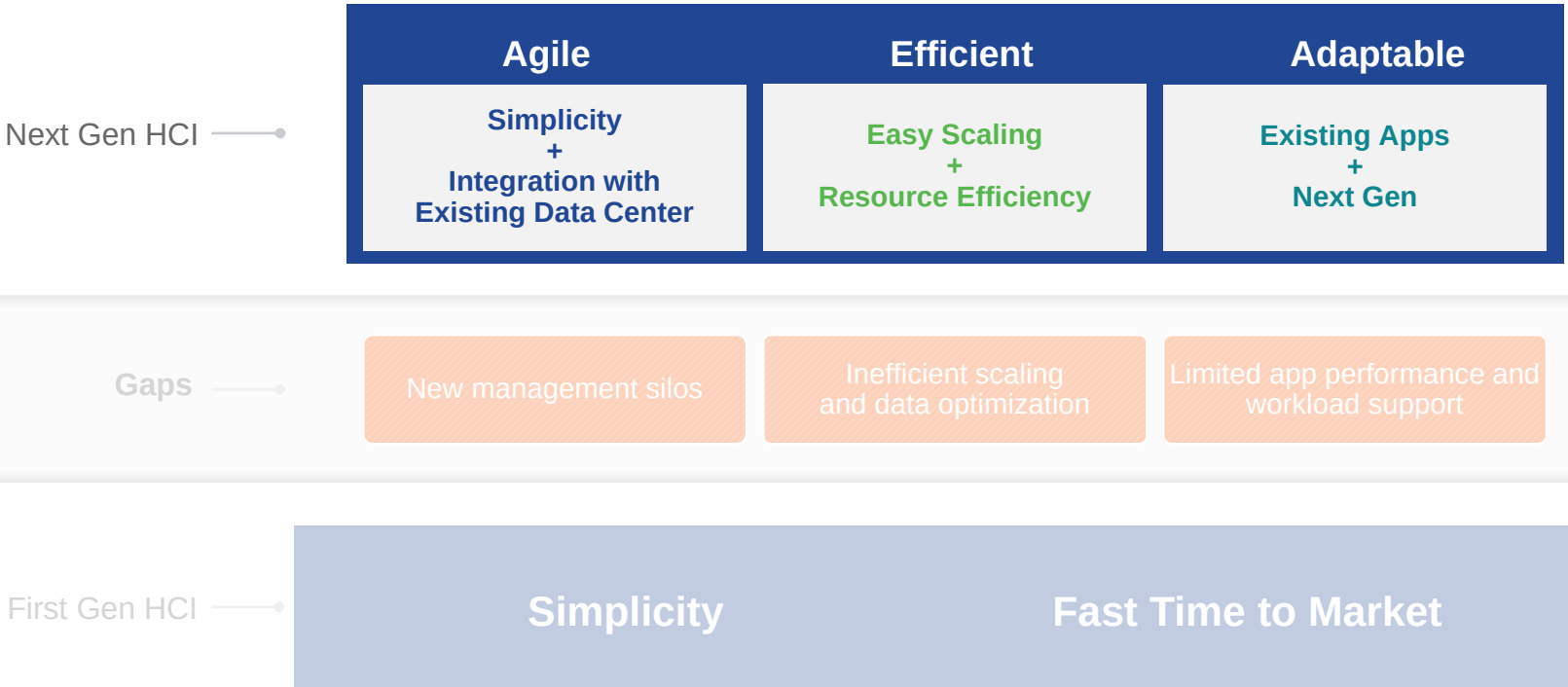
- New management silos
- Inefficient scaling and data optimization
- Limited app performance and workload support

First Gen HCI

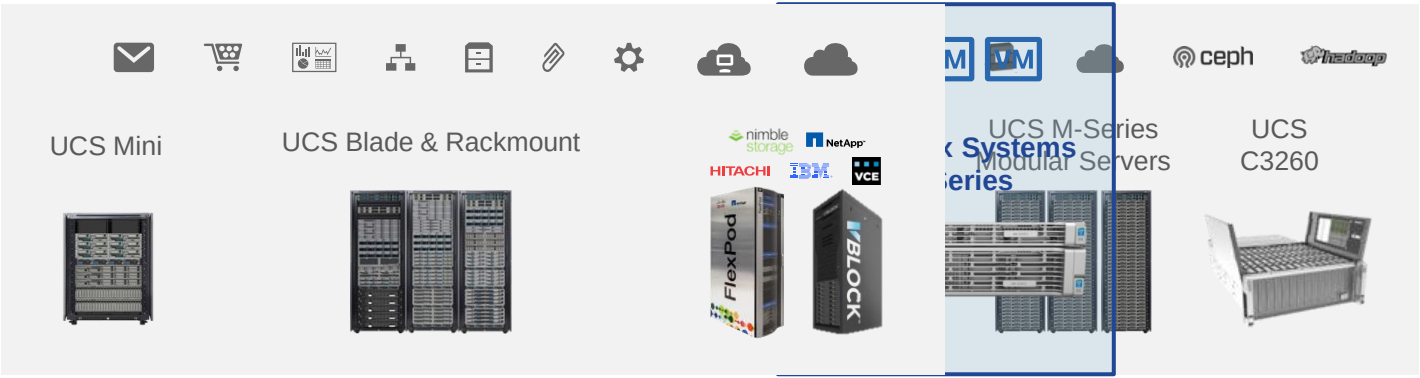
Simplicity

Fast Time to Market

IT is Looking for a Better Answer



Different Tools, Common Platform



Simplifying the Data Center

Traditional

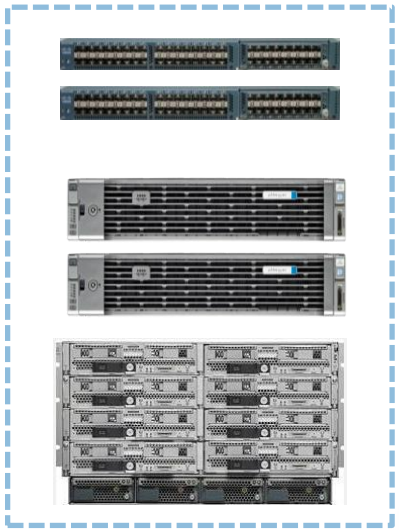
Converged

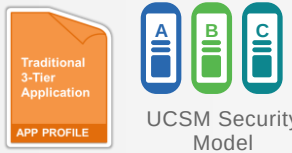
HyperConverged

Cisco UCS HyperFlex

Embedded and Distributed Security with UCS Manager

HyperFlex Stack



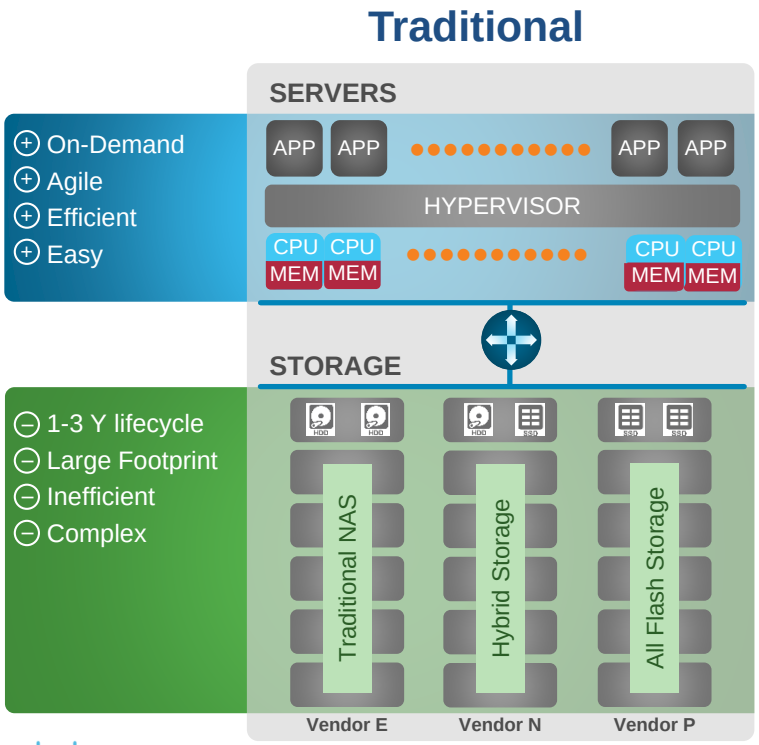


Automation of Security Policy

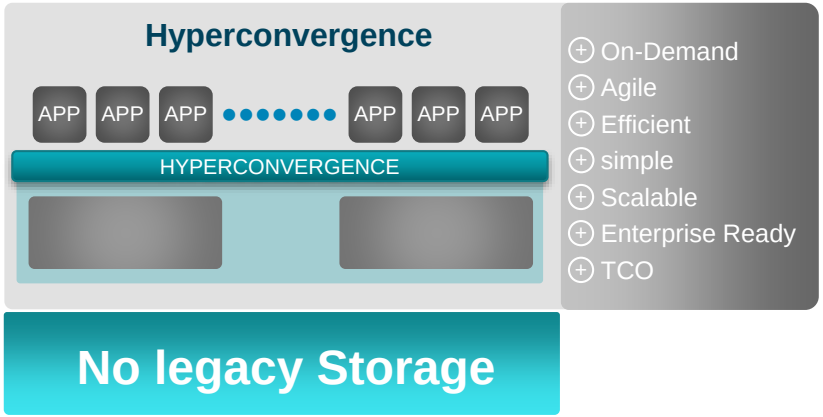
Analytics and Visibility

Secure Architecture

What is Hyperconvergence ?



Cisco HyperFlex includes the Network as well!

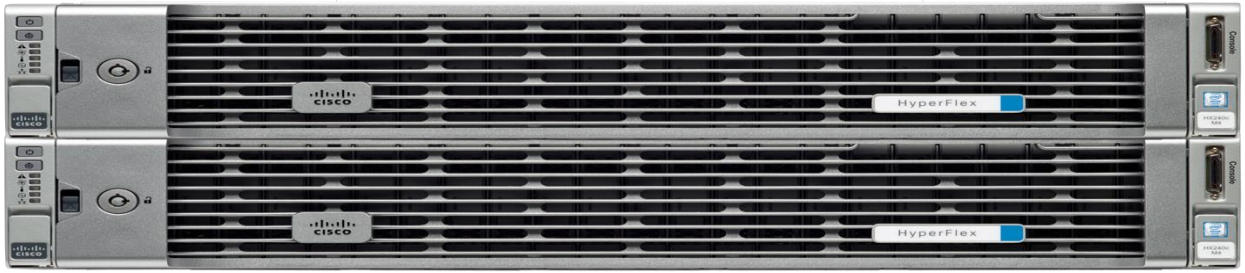


Introducing HyperFlex

Complete Hyperconvergence

Next Generation Data Management

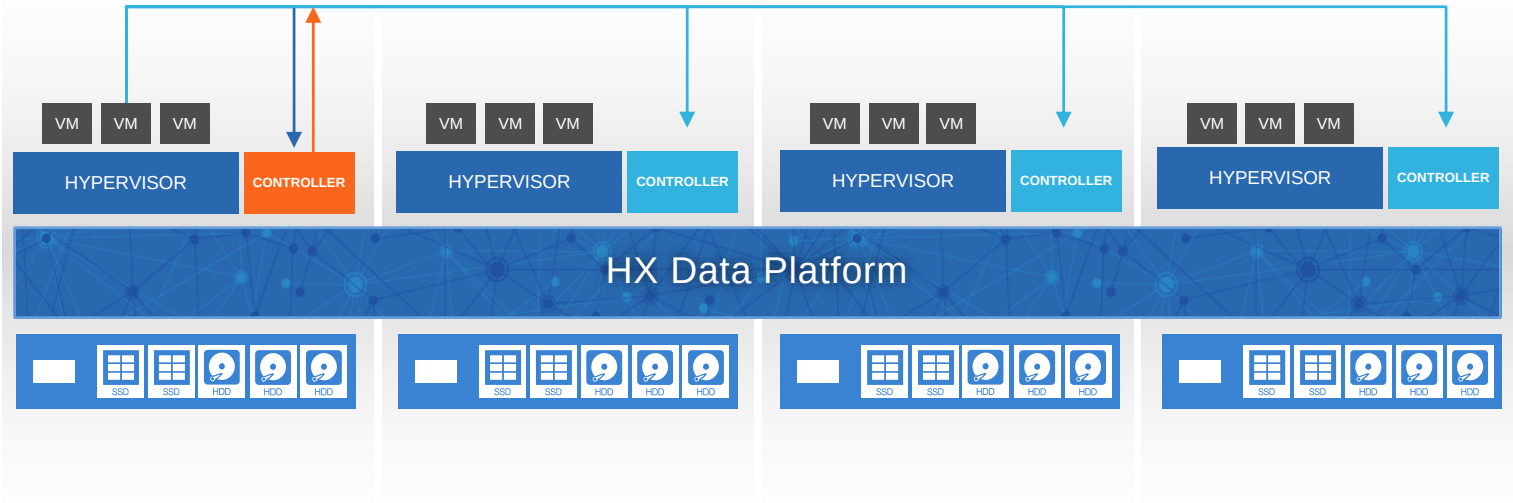
Future Ready Architecture



Data Placement

Writing locally is a misleading argument

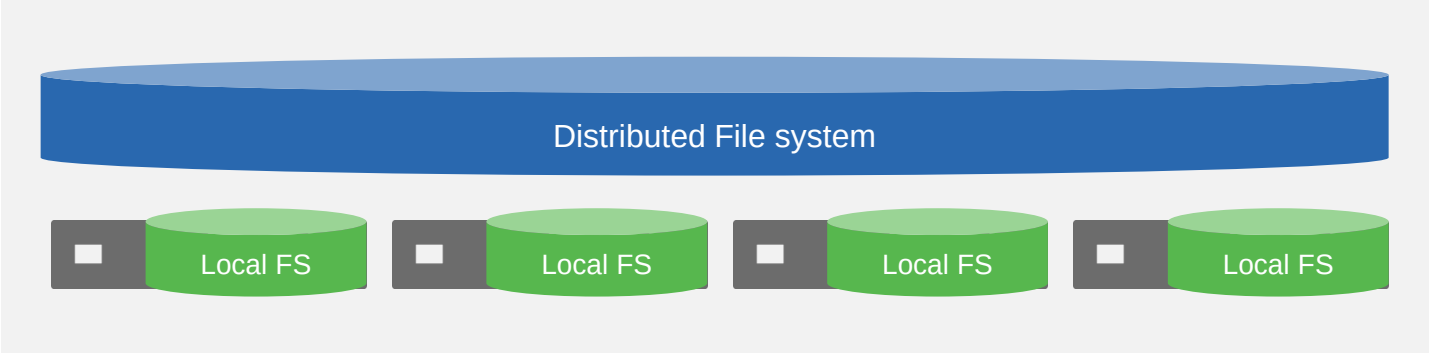
Striping data across nodes is several times better



Building on the Right Foundation

Cisco HX Data Platform

Unique Architecture



Built From the Ground Up for Hyperconvergence

Distributed Log-Structured File System Designed for Scale-out, Distributed Storage

Advanced Data Services (Snapshots, Clones) and Data Optimization (Inline Dedupe, Compression) Without Trade-offs

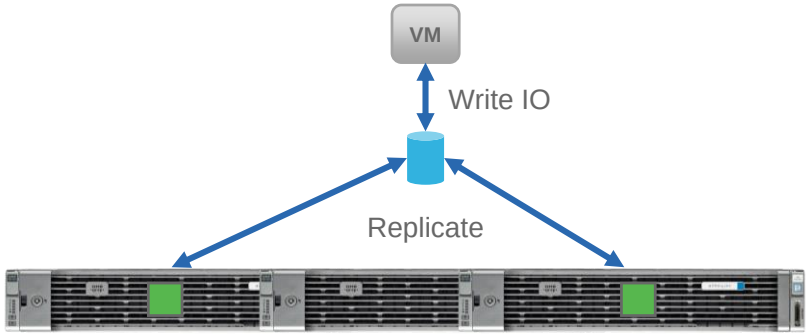
Better Flash Endurance and Disk Performance

Computing, Storage, Networking, and Hypervisor Integration

Eliminates Management Silos

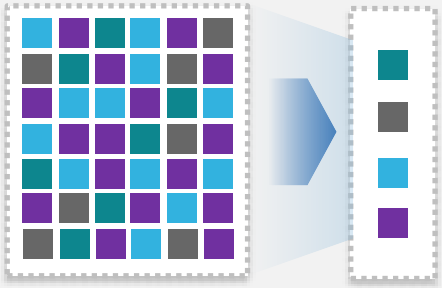
Data Protection and High Availability

Replication Factor = 3	Replication Factor = 2
Default Is Replication Factor = 3	Set at Cluster Creation Time
Every Block Is Written to 3 Different Nodes in the Cluster	Every Block Is Written to Min of 2 Different Nodes in the Cluster
Higher Availability to Survive Multi-Point Failures; Higher Device Protection	Can Survive a Single Node/Device Failure
Trades usable capacity for increased cluster resiliency	Usable Capacity is 50% of Raw Disk Capacity
Access Policy Is Strict (Default); Can Be Modified Via CLI	Access Policy Is Lenient



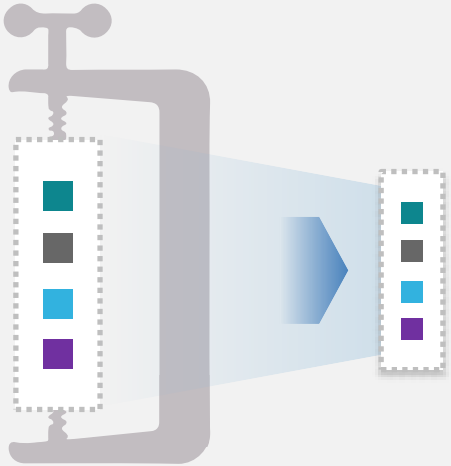
Inline Data Optimization

Deduplication

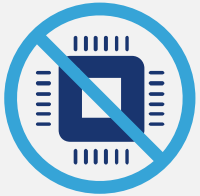


20–30% space savings

Compression



30–50% space savings



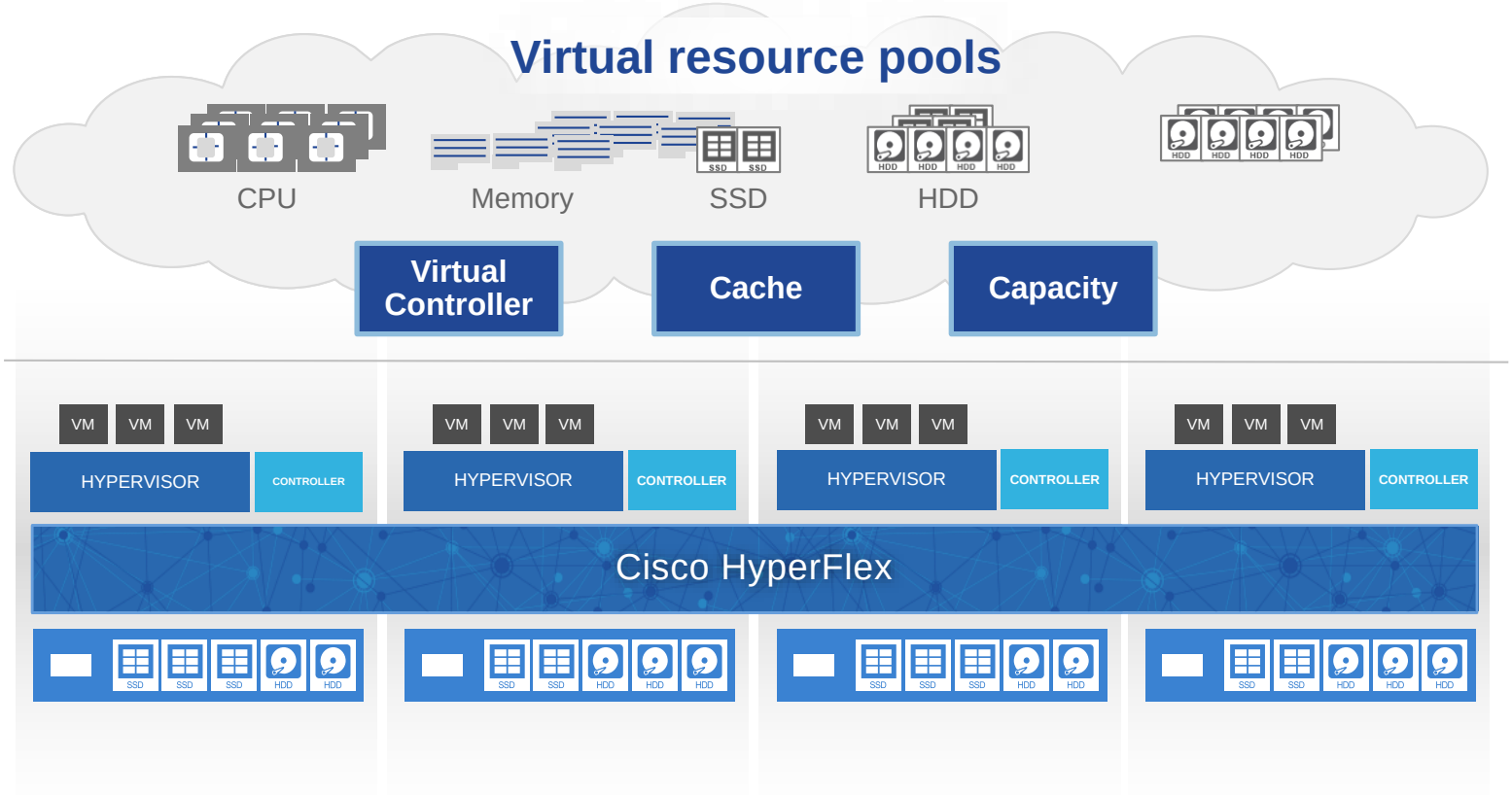
No Special Hardware

Low Performance Impact

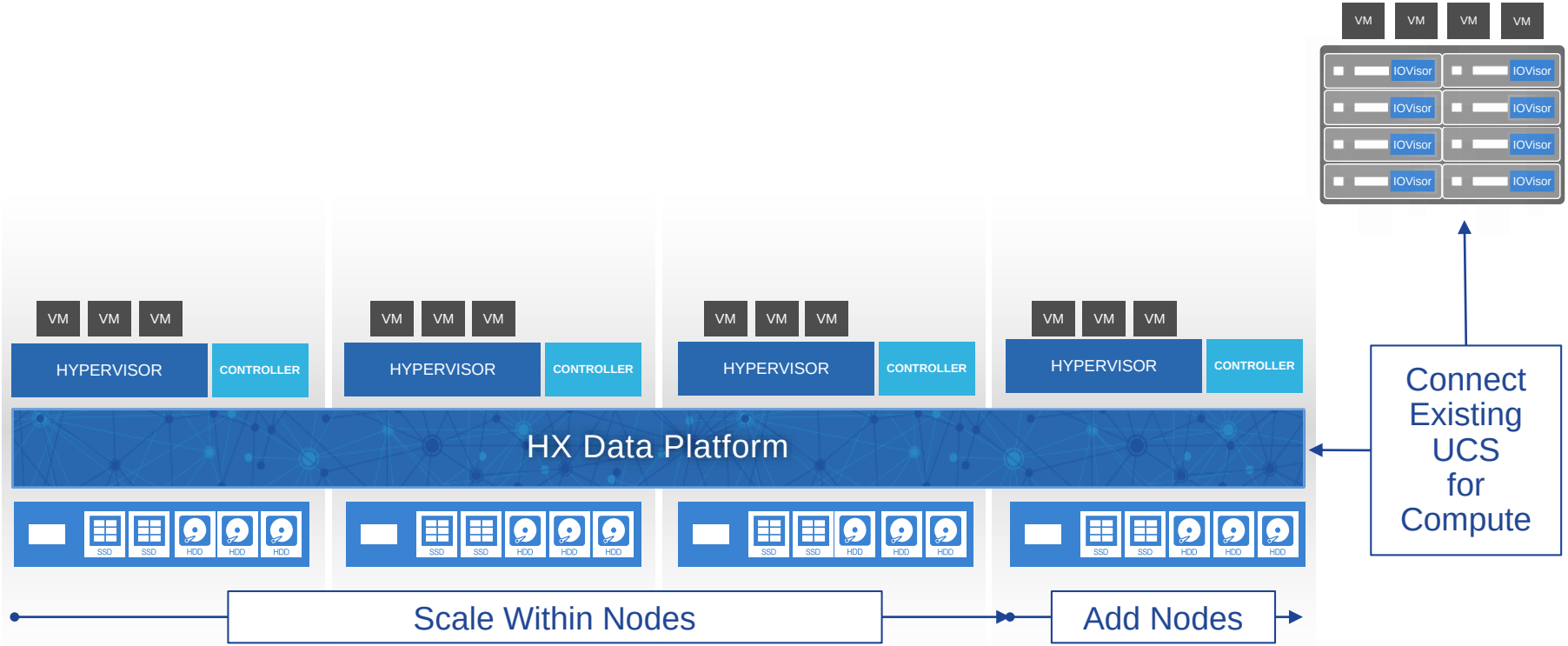
Easy Scaling

Application-View

Physical View



Independent Scaling



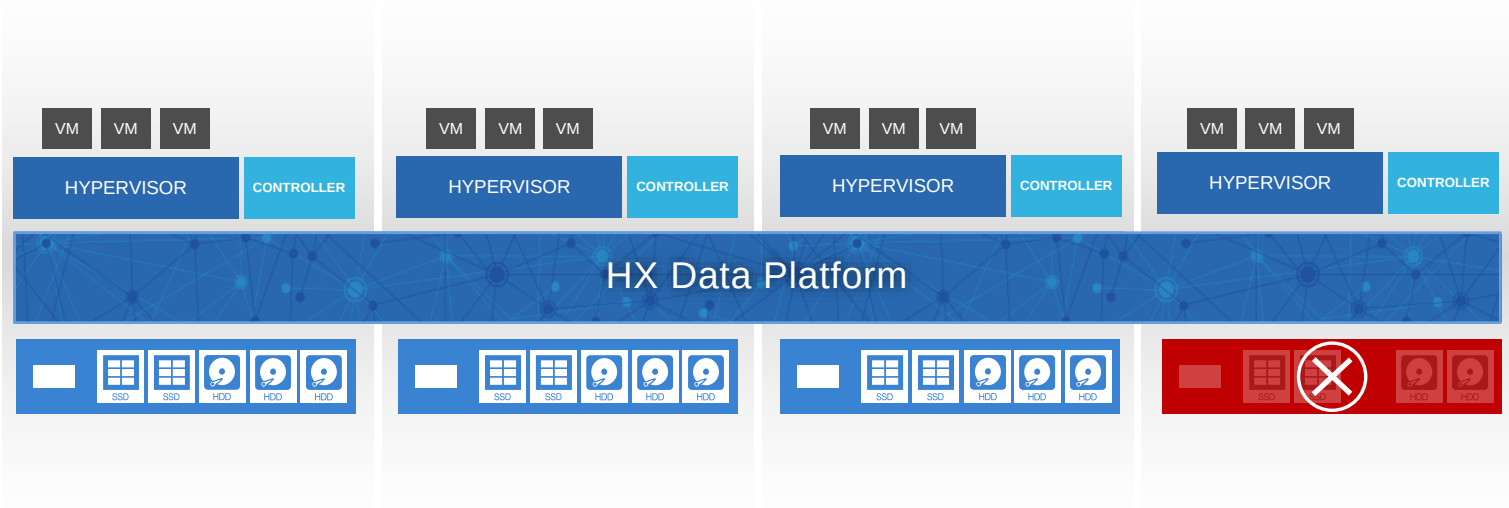
Efficient Resiliency and Recovery

VMs move. Data does not.

Ultra fast recovery process (n:n)

Replacement via UCS Service Profiles

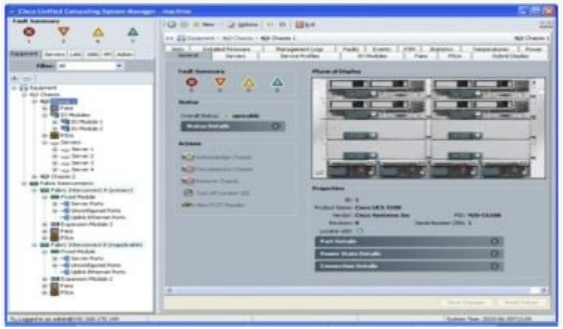
Automatically re-balances itself.

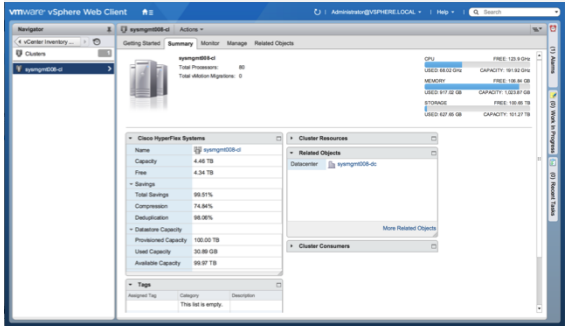


Simplifying Management

- UCS Manager
- Server & network settings inside Service Profiles

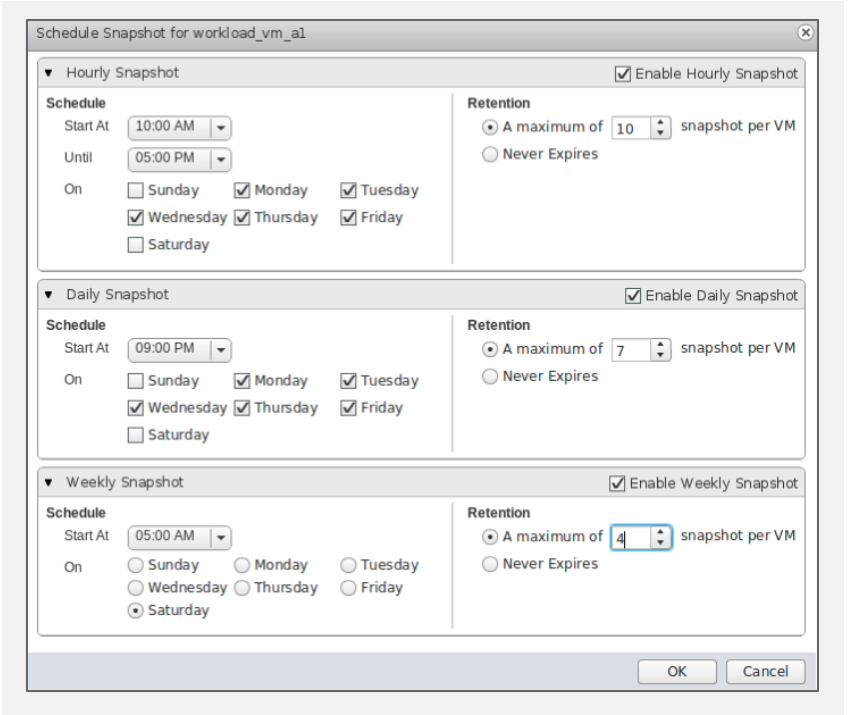
- Manage within vCenter
- **No learning curve**





Fast and Flexible Native Snapshots

- Pointer-based snapshots
  - Space-efficient
  - Fast creations and deletions
- Fine-grained or coarse-grained
  - VM-level or VM folder-level
- VAAI-integrated
  - Quiesced and crash-consistent
- Use vCenter Snapshot Manager
- Policy-based
  - Schedules, retention period

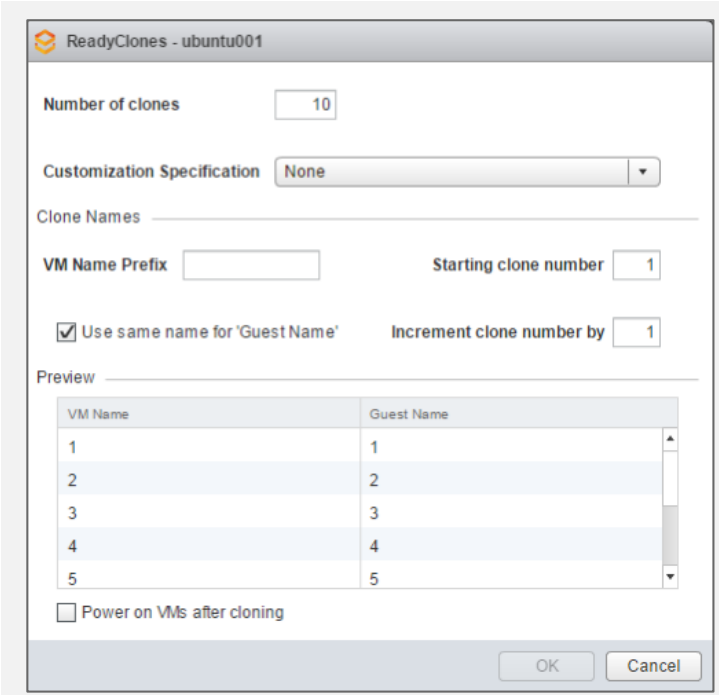


All This Functionality Enabled with the HX Data Platform FileSystem

Native VM Clones for Rapid Provisioning

- Pointer-Based Writeable Snapshots (Instantaneous Clones)
- VAAI integrated
- VM-level granularity

- Batch creation GUI
  - Apply unique names
  - Use customization spec to apply IP
  - Powerful tool to rapidly setup a large set of VMs using just VC (without scripting or View composer); Up to 256 clones in parallel per job
  - Golden/Base VM can be a template, powered on or powered off



Certifications/Ecosystem

VMware vSphere Storage APIs for Array Integration (VAAI) Offload VAAI Certification

VAAI VIB Installed

- Datastore advertises VAAI hardware acceleration capability

Clone Operations

- If the Virtual disk has no Redo log based snapshots
- Full clone operations only (no linked clone)
- Cisco HX ReadyClone feature is built on this
- Cloned Virtual disk is on the same datastore

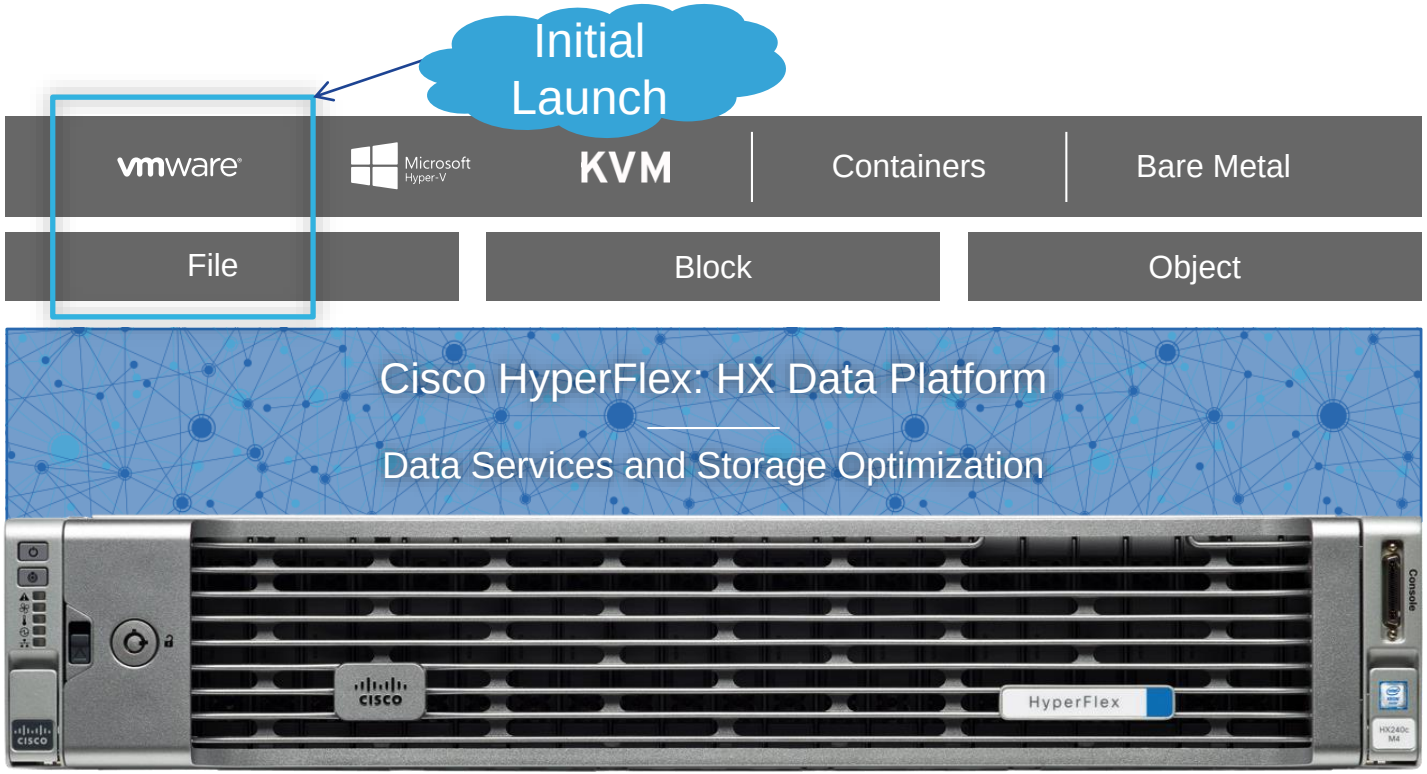
Snapshot Operations

- If the Virtual disk has 1 or more "native" snapshots
- Cisco HX Snapshot Now workflow ensures that the virtual disk has 1+ native snapshot
- Snapshot of the virtual disk is on the same datastore

Backup and DR

- Veeam (in progress)
- Zerto (certified)

Flexible, Extensible Infrastructure



Future Ready Architecture

API-Enabled Data Platform Supports Multiple Storage Formats

- Multiple Hyper-visors
- Containers
- Additional VM environments

HyperFlex Options

Select your Fabric Interconnects (6248 or 6296)

HX220c Nodes

Smallest footprint
3-8 Node Cluster

6 TB–16TB

Without any dedupe or compression

HX240c Nodes

Capacity-heavy
3-8 Node Cluster

11–60 TB

Without any dedupe or compression

HX240c + B200 M4

Compute-heavy hybrid
Up to 8 HyperFlex Nodes
+ 4 B200 M4 for compute

11–60 TB

Fully Productized Cisco Solution

- 3 single-sku base cluster options *and* full configure to order
- Annual subscription software model
- Factory integration of HW/SW including vSphere
- Flexible combinations of rack and blade with fully configurable options

Capacity Options

Usable Cluster Capacity

	3 Node	4 Node	5 Node	6 Node	7 Node	8 Node
HX220c 	6.02 TiB	8.03 TiB	10.04 TiB	12.04 TiB	14.05 TiB	16.06 TiB
HX240c 	23.09 TiB	30.79 TiB	38.48 TiB	46.18 TiB	53.88 TiB	61.58 TiB

Assumes: Full HDD population. RF3.
Note: The above calculations are before deduplication & compression. Effective capacity will be higher.
Consult with your Cisco CSE for the latest sizing & design guidance.

Cisco HyperFlex Systems Deployment Overview

Fast and Easy Installation

STEP 0

VMware and HX Data Performance Software Installed on Servers at Factory/Reseller Before Shipping to Customer

STEP 1

Rack Up Servers, Power on, and Add to vCenter

Drag and Drop Configuration (JSON) File

Create, Cluster, and Datastore

60 MINUTES OR LESS

Start Provisioning VMs

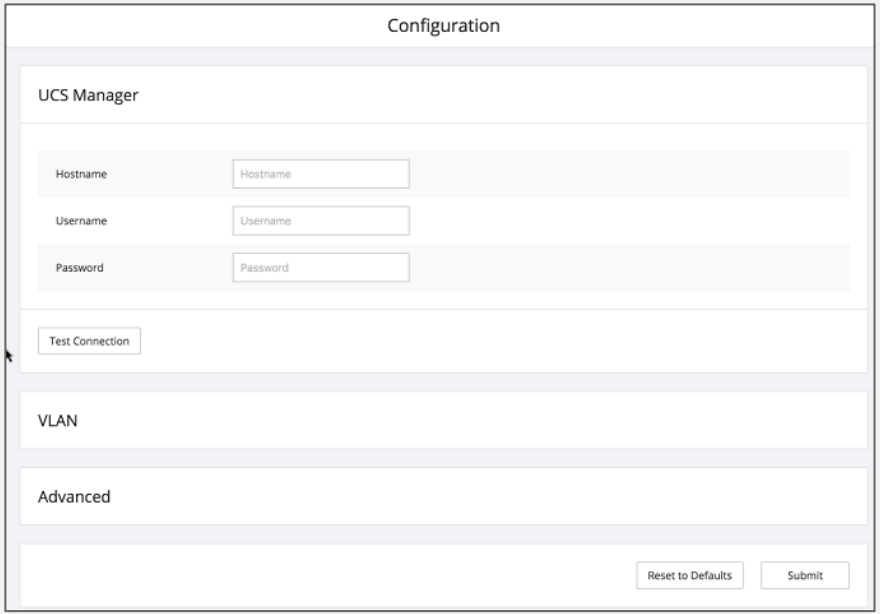
HyperFlex Deployment Workflow
Customer Onsite

Download HX Data Platform/
UCSM bundle from Cisco.com

HyperFlex Installer: UCS Configuration
- Auto-config. of UCSM policies and core templates
- Instantiate and assign Service Profiles

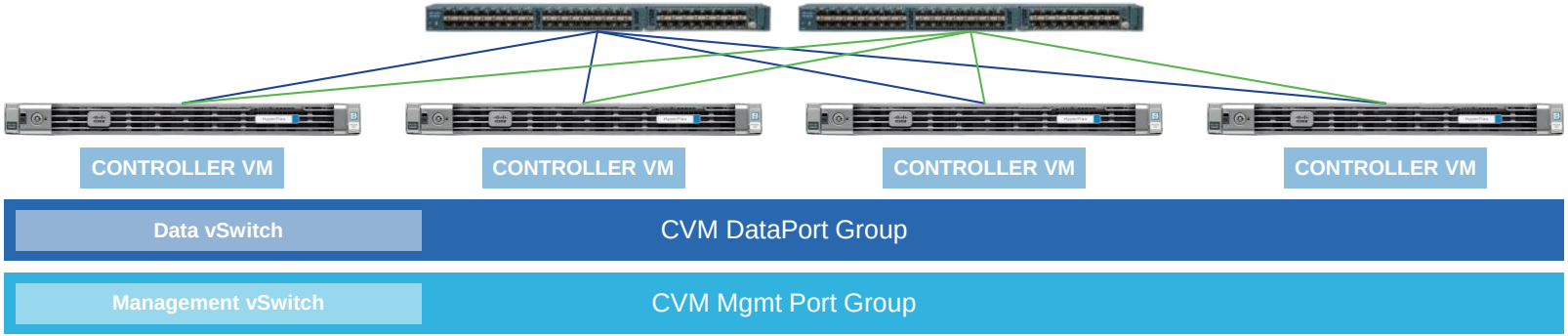
Configure ESX pre-requisites (manual)
- Set static IP Address for ESXi hosts
- Add hosts/datacenter/cluster to vCenter

HyperFlex Installer:
HX Data Platform Cluster Creation



UCS Integrated HyperFlex Networking

Predefined DC Network Policies



Shipped From Factory With Integrated Networking

High Performance, Flat and Predictably Latent Fabric

Simplified Network Deployments

- No specialized protocol requirements such as IPv6, Multicast

Plug and Play Networking with UCS Unified Fabric

Reduced Complexity, Simplified Decision Making and Deployment

Primary HyperFlex Use Cases

Virtual Desktop Infrastructure

- Low upfront costs
- Consistent performance
- Predictable scaling

Server Virtualization

- Reduce operational complexity
- Adaptive scaling
- Always-on resiliency

Test and Development

- Agile provisioning
- Frequent iterations
- Instant cloning and snapshots

Greenfield Location

- Fastest deployment
- Simple management
- Complex free infrastructure

HyperFlex Advantages

- Compute, Storage AND Network tightly coupled
- Fully integrated into UCSM and vCenter
- Preloaded and preconfigured out of the plant
- Scale Compute seperately
- Future-Ready Data Platform

cisco

Solving Your Challenges

Business Speed

Start in a few hours

Scale within minutes

Operational Simplicity

One management tool

One click storage provisioning

Cloud Expectations

Hyperscale for the “rest of us”

Many Choices…one Management

UCS Mini

Fourth Generation UCS

nimble storage NetApp HITACHI IBM VCE

VM VM VM

HyperFlex Systems HX-Series

UCS M-Series Modular Servers

ceph hadoop

UCS C3160

Mainstream Computing

Converged Infrastructure

Hyperconverged Infrastructure

Scale Out

Edge | Core Data Center | Cloud

One Infrastructure Management Model


CISCO