



AGILE
SECURE
SIMPLE

VXRACK™ SYSTEM 1000



EMC Converged
Platforms 

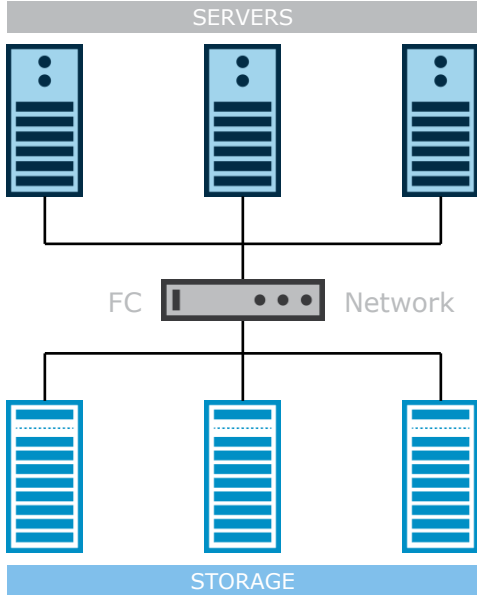
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 EMC²

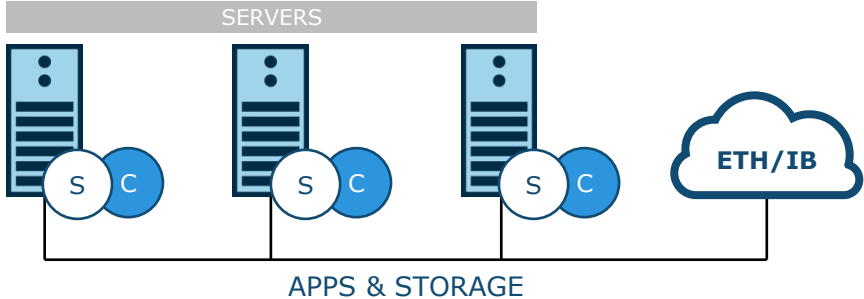
ЧТО ТАКОЕ ГИПЕРКОНВЕРГЕНТНАЯ ИНФРАСТРУКТУРА?

TRADITIONAL CONVERGED INFRASTRUCTURE



PHYSICAL SAN
Separate hardware for storage array and application host.

HYPER-CONVERGED INFRASTRUCTURE



VIRTUAL SAN
No physical storage array.
Storage and apps run on the same server.

В ЧЕМ ИНТЕРЕС К ГИПЕРКОНВЕРГЕНТНОСТИ?



Снижение стоимости
владения



Наивысшая скорость
реакции на запросы
потребителей



Быстрое достижение
результата



Единое управление
вычислительными
ресурсами и СХД



Новый тип конвергентных
систем



Новый тип ЦОД



Построен на недорогих
аппаратных платформах

EMC CONVERGED SYSTEMS



СПРОЕКТИРОВАНЫ



ПРОИЗВЕДЕНЫ



УПРАВЛЯЮТСЯ



ПОДДЕРЖИВАЮТСЯ



ОБНОВЛЯЮТСЯ

КАК ЕДИНЫЙ
ПРОДУКТ



VXRACK™ SYSTEM 1000



- Программно-управляемые СХД и сеть
- Старт с небольших размеров и неограниченный рост
- Независимое масштабирование вычислительных ресурсов и емкости
- Быстрое развертывание ресурсов для множества арендаторов

VXRACK SYSTEM 1000 OVERVIEW

HYPER-CONVERGED RACK SCALE ARCHITECTURE

- Fully Integrated ToR/Spine Switches
- Software-defined networking capable

Networking



- Standard x86
- Highly Configurable

Compute



Management



- Automated Provisioning
- Centralized Management

Storage



- Software-defined storage
- Enterprise-grade resiliency

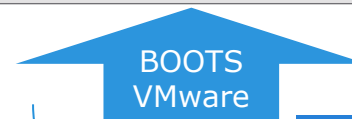
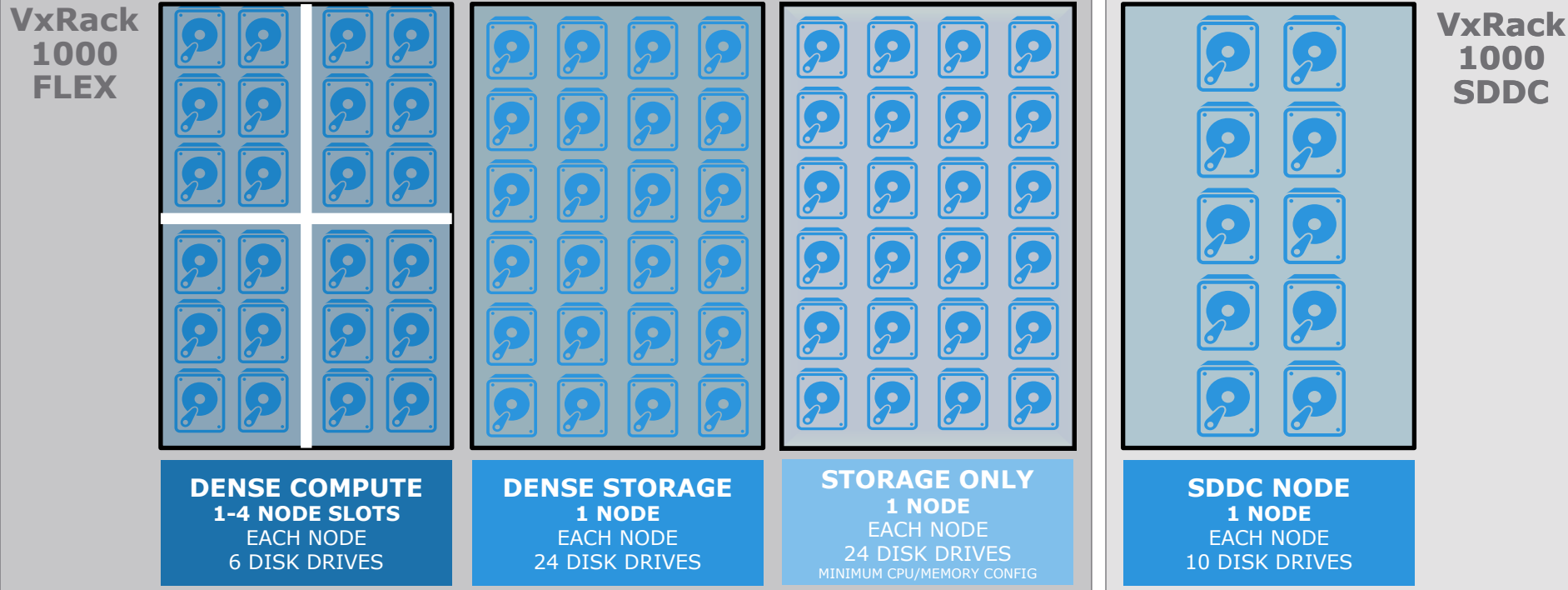


ВАРИАНТЫ ПО ДЛЯ VXRACK SYSTEM 1000

- VxRack System 1000 FLEX
 - На базе EMC ScaleIO
 - Программно-управляемое СХД для универсальных задач и сред
- VxRack System 1000 SDDC
 - На базе VMware EVO SDDC
 - Полноценное частное облако от VMware

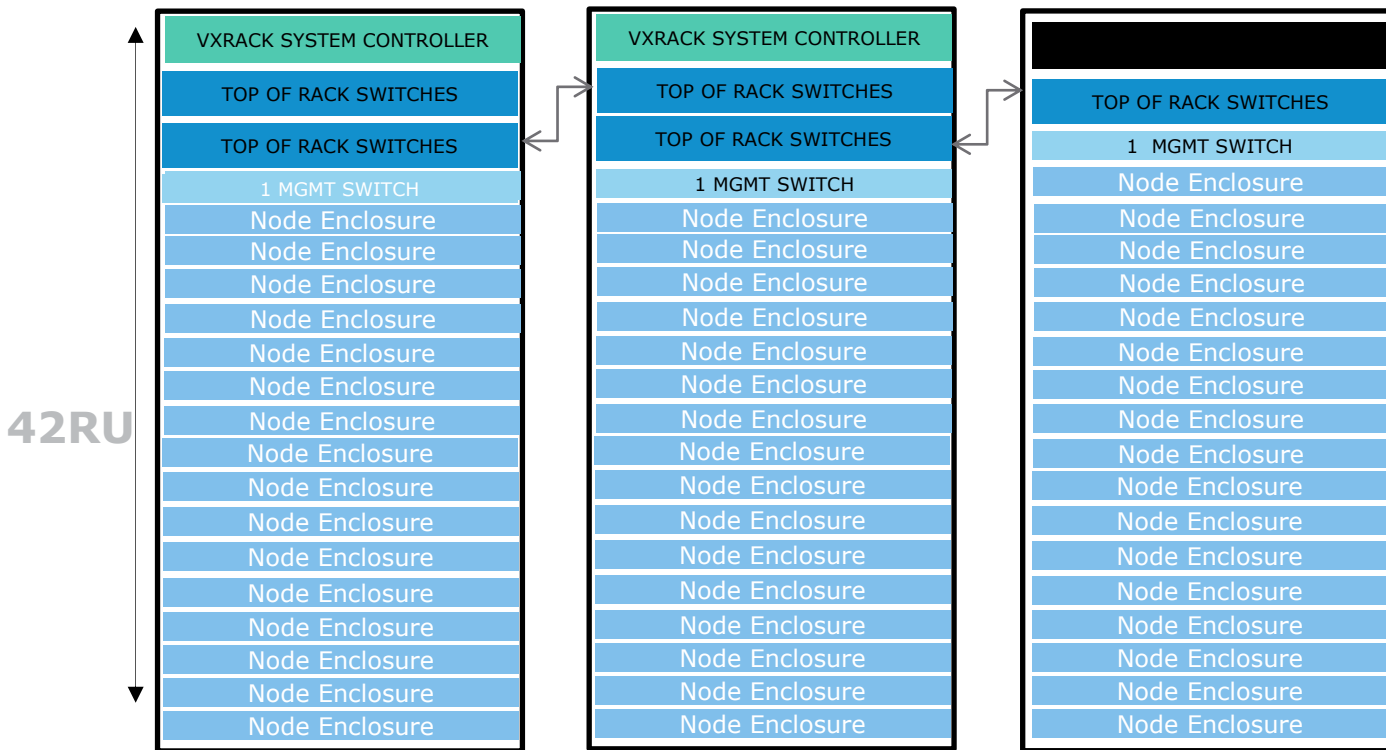


ТИПЫ УСТРОЙСТВ VXRACK



АРХИТЕКТУРА ДЛЯ ПОСТОЯННОГО РОСТА

MULTIPLE RACK SAMPLE CONFIGURATION (FLEX)



- START SMALL
- EASILY EXPAND
- MASSIVE SCALE OUT
- NO NETWORKING HASSLES
- STANDARDIZED WITH FLEXIBLE OPTIONS



VXRACK SYSTEM 1000 FLEX

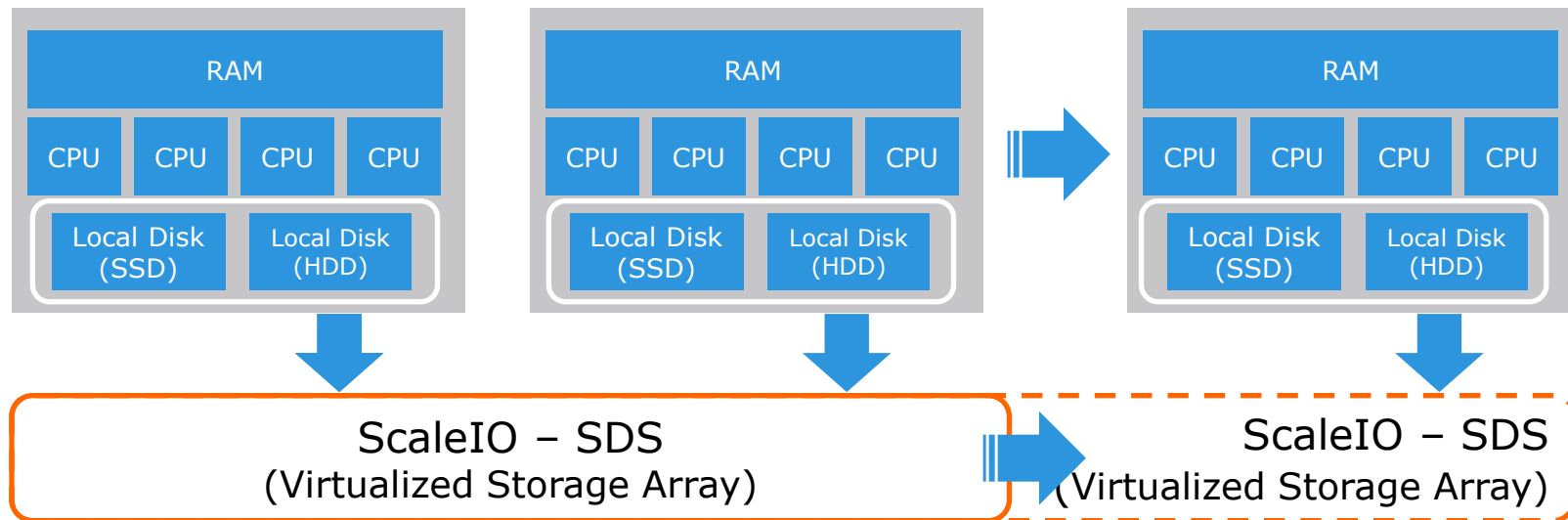
ОБЗОР VXRACK FLEX

ОСНОВНЫЕ ФУНКЦИИ И ВОЗМОЖНОСТИ



- Использует EMC ScaleIO
 - Виртуализация дисков, расположенных в серверах, и их превращение в единый распределенный SAN массив
- Создает гибкую основу для предоставления IaaS услуг в масштабах любых задач
- Позволяет обеспечить экстремальную масштабируемость – более 1000 узлов в одном кластере СХД
- Поддержка нескольких гипервизоров

МОДУЛЬНАЯ АРХИТЕКТУРА VXRACK FLEX



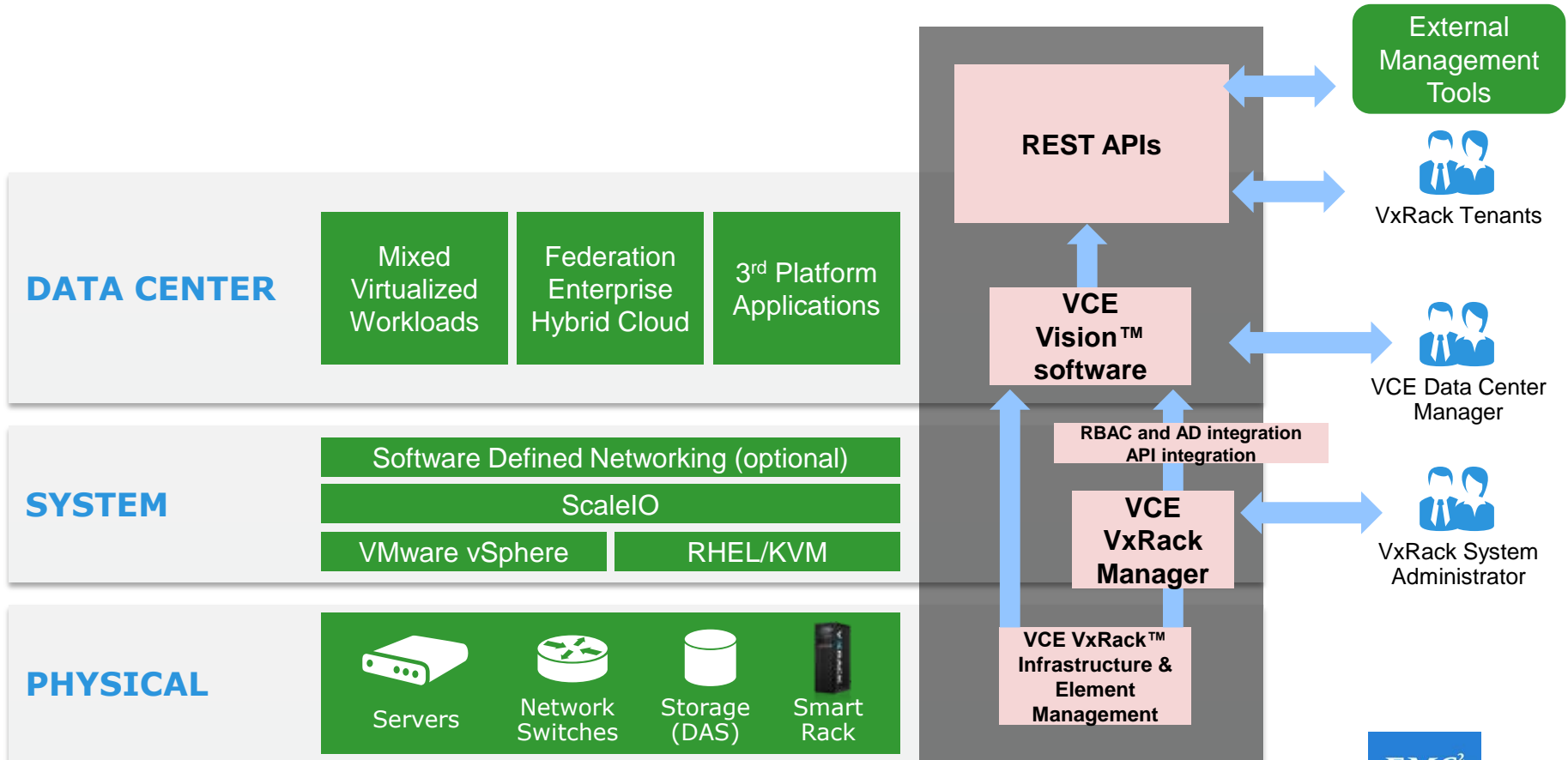
- **Modular Design**

- Simple form factor servers
- Local storage presented as shared storage
- Software defined storage array

- **Extensible scale**

- Add nodes to incrementally scale the infrastructure (100's of ScaleIO nodes)
- Automatically balances storage resources
- Node types (performance, hybrid, storage only) can be mixed

VXRACK SYSTEMS MANAGEMENT SOFTWARE





VXRACK SYSTEM 1000 SDDC

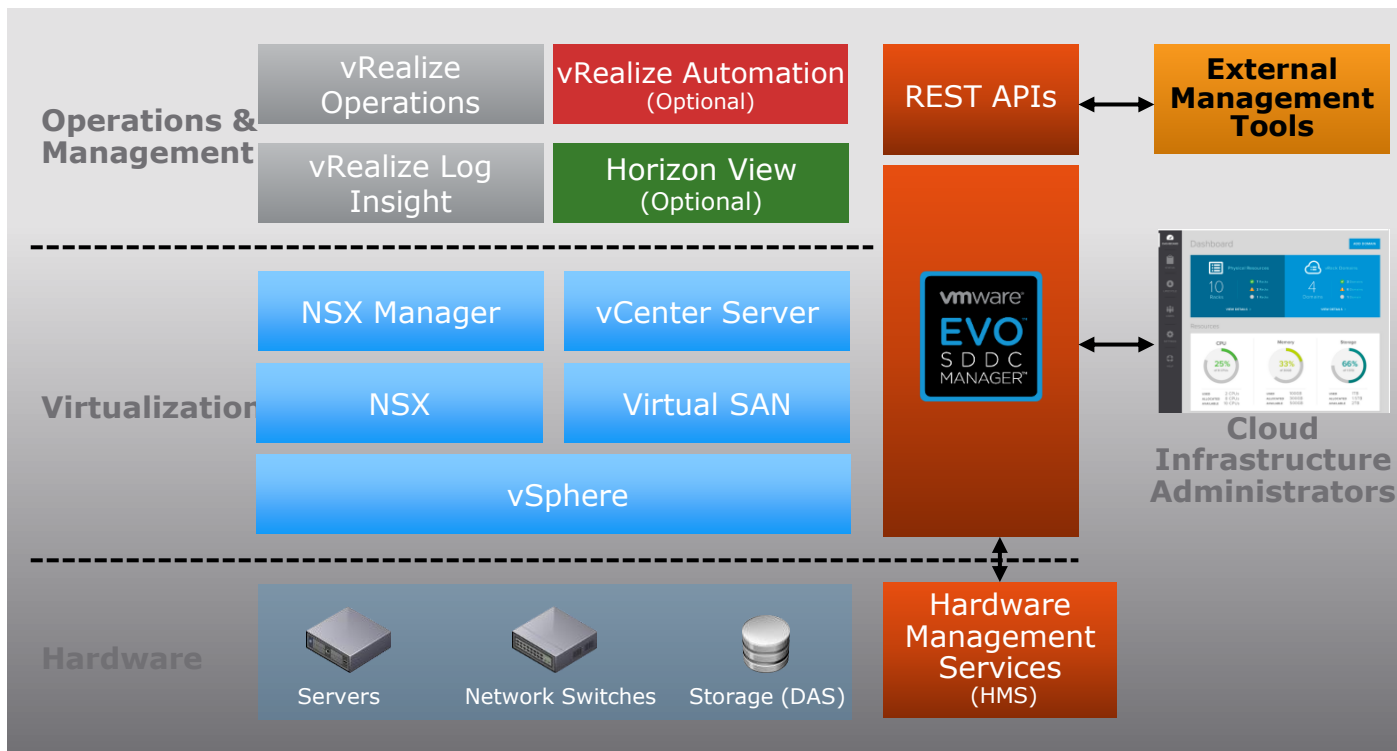
ОБЗОР VXSTACK SYSTEM 1000 SDDC



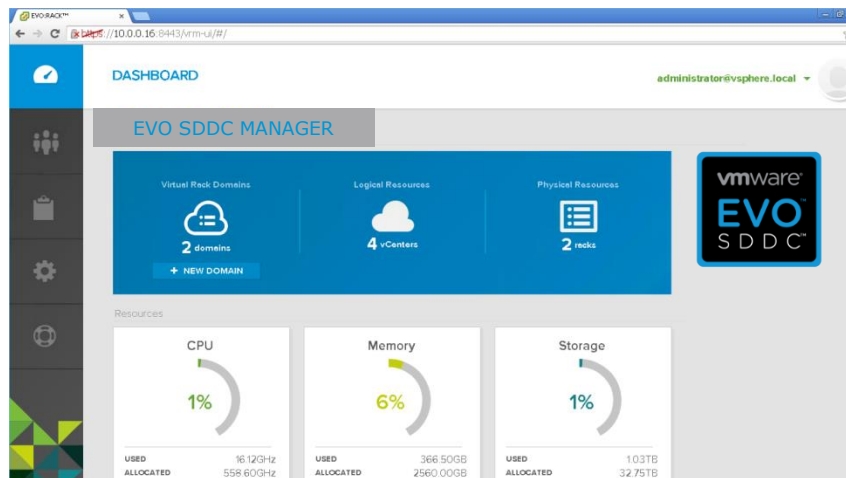
ОСНОВНЫЕ ФУНКЦИИ И ВОЗМОЖНОСТИ

- Использует VMware EVO SDDC
 - Предоставляет законченное и оптимизированное облачное решение на базе VMware
- Рост от нескольких серверов до сотен узлов
- VMware vSphere hypervisor
- VMware Virtual SAN
- Программно-управляемая сеть с VMware NSX™

EVO SDDC SOFTWARE ARCHITECTURE



EVO SDDC MANAGER



Simplifies:

- Initial system bring-up
- Configuration of physical and virtual resources
- Software and firmware lifecycle management
- Resource allocation to applications
- End to end system monitoring

Significant reduction
in infrastructure
bring-up time from
days to hours

Centralized access
and integrated view of
physical and virtual
infrastructure

Automated upgrade
and interoperability
pre-tested

Optimized usage
and ease of expansion

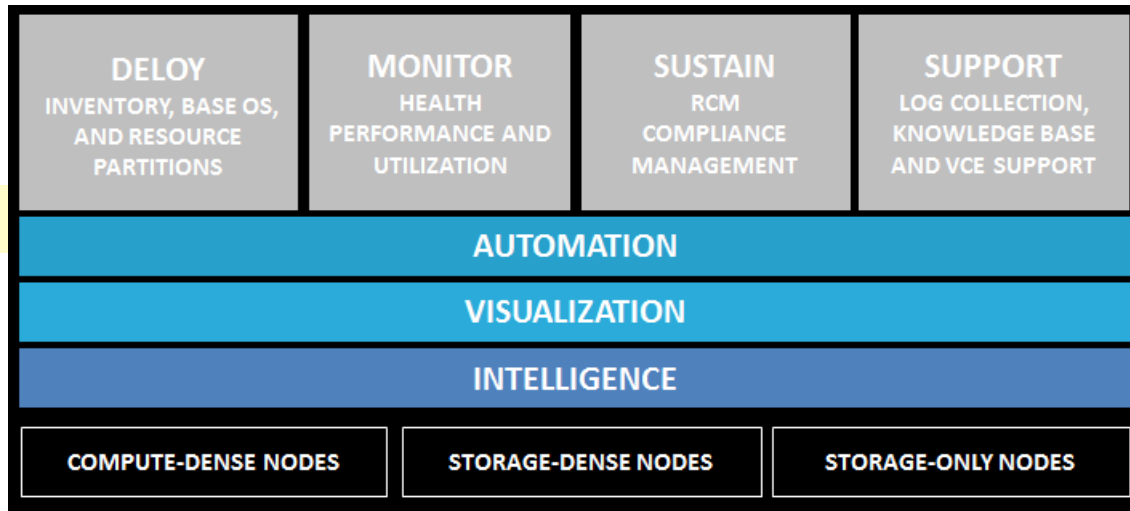
VCE VISION™ VXRACK MANAGER

HYPER-CONVERGED
INFRASTRUCTURE

HYPER-CONVERGED INFRASTRUCTURE
PROVISIONING, HEALTH AND LIFE CYCLE
MANAGEMENT



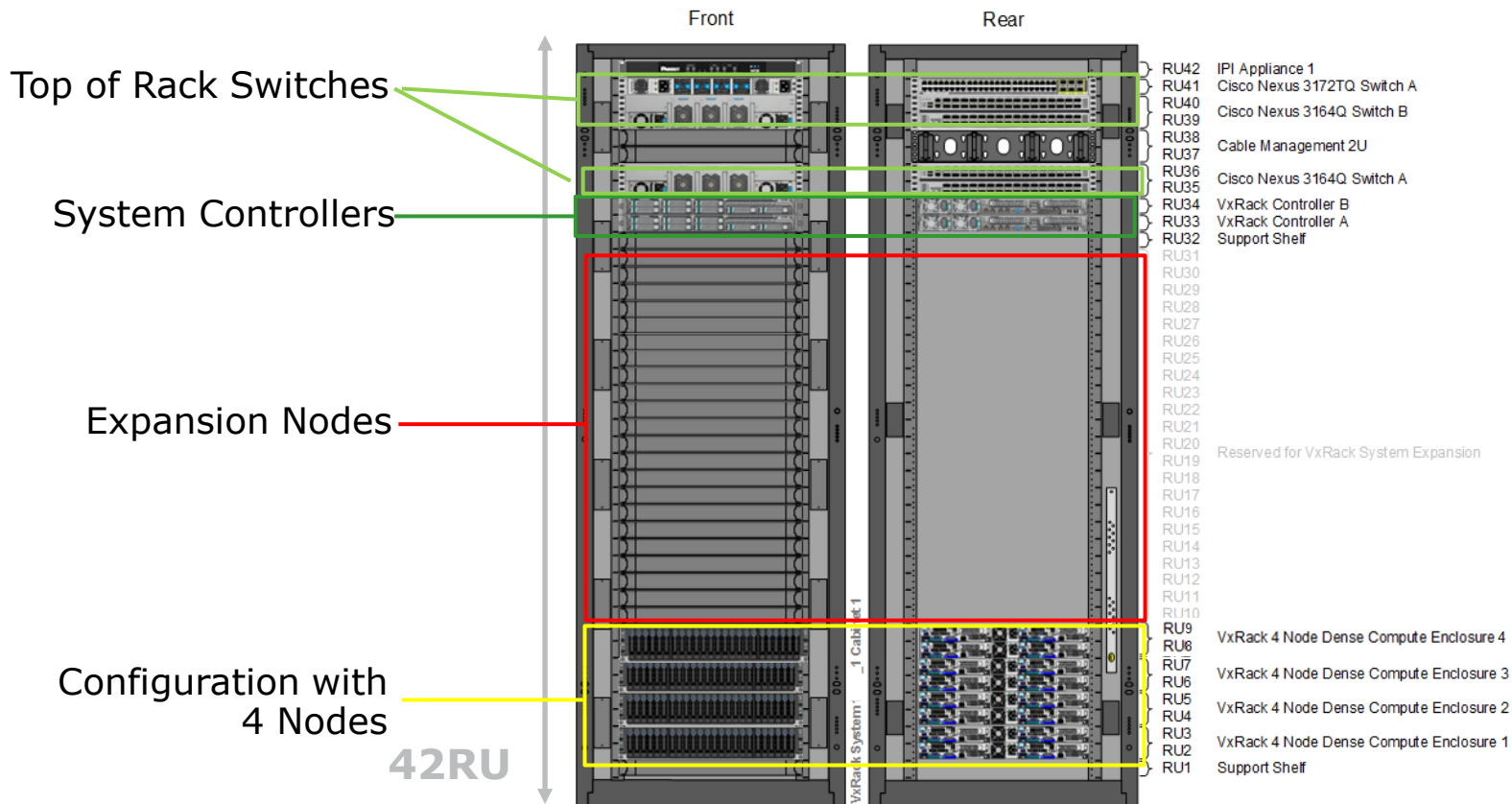
VCE VxRack System 1000



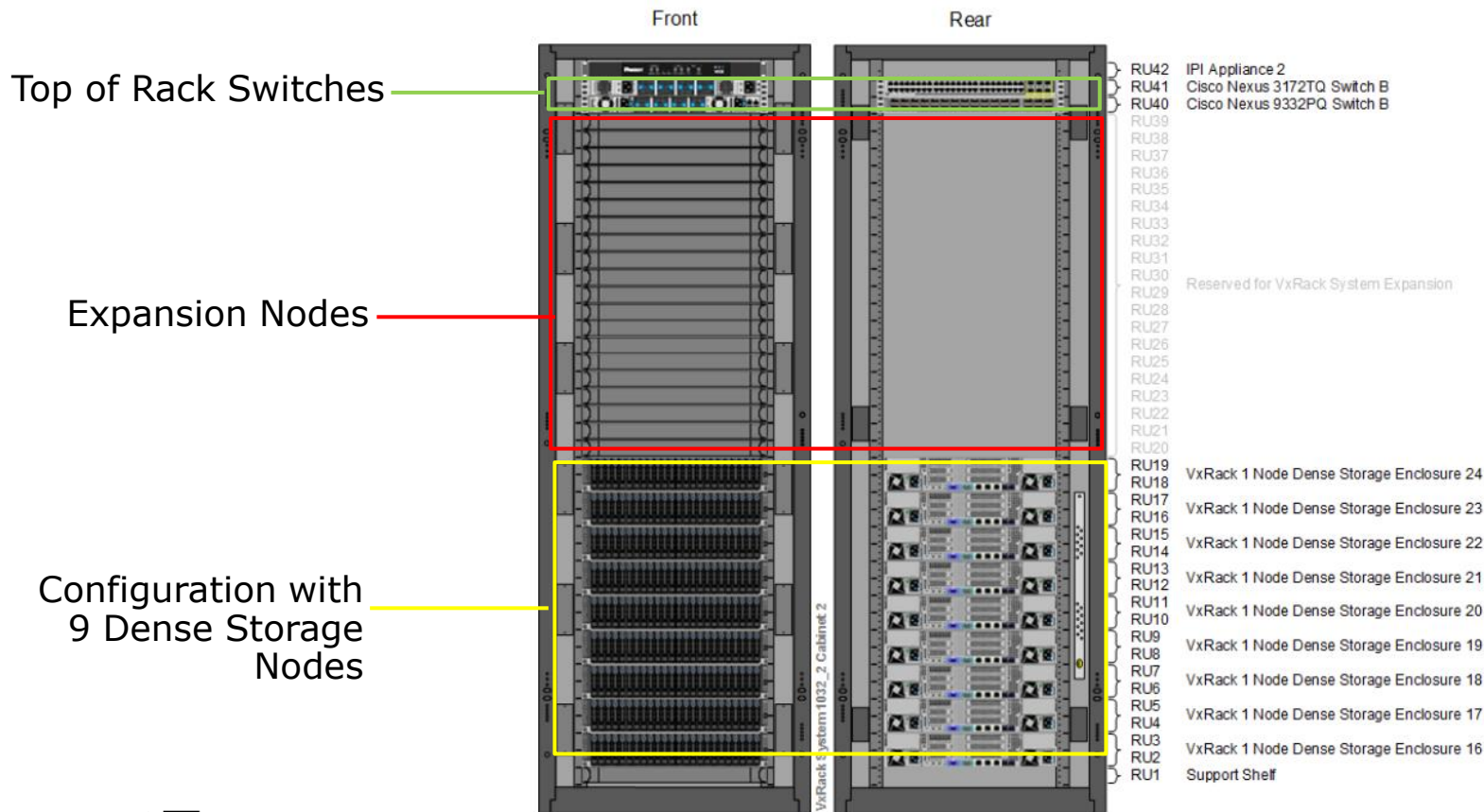
VXRACK FLEX - COMPONENTS

	Configuration Description	Model
Compute	VxRACK Branded (fixed configs)	<ul style="list-style-type: none"> • 2U4N (2RU , 4 Node Enclosure) • 2U1N (2RU , 1 Node Enclosure)
Network	Cisco	<ul style="list-style-type: none"> • 3172TQ-mgmt • 3132QX/3164Q 32/64 40G ports – VXLAN\Non ACI • Cisco 9332PQ Leaf (ACI (Direct Server Node connect))
	Spine	<ul style="list-style-type: none"> • vScale Fabric
Management	<ul style="list-style-type: none"> - 2x1RU Physical server - Unified VxRACK Management Tool 	<ul style="list-style-type: none"> • Single or resilient server pair configurations • VxRACK Manager, VCE Vision
Storage	Software Defined Storage	<ul style="list-style-type: none"> • EMC ScaleIO 1.32
Software/ Hypervisor	<ul style="list-style-type: none"> • vSphere V6.0 • RHEL/ScaleIO(storage only node configurations) 	
Physical Environment	Full Height 42RU Cabinet	<ul style="list-style-type: none"> • IPI (Intelligent Physical Infrastructure)
Data Protection	EMC Avamar 7.1.x EMC Data Domain 5.5.x	<ul style="list-style-type: none"> • Supported as VCE Data Protection Products

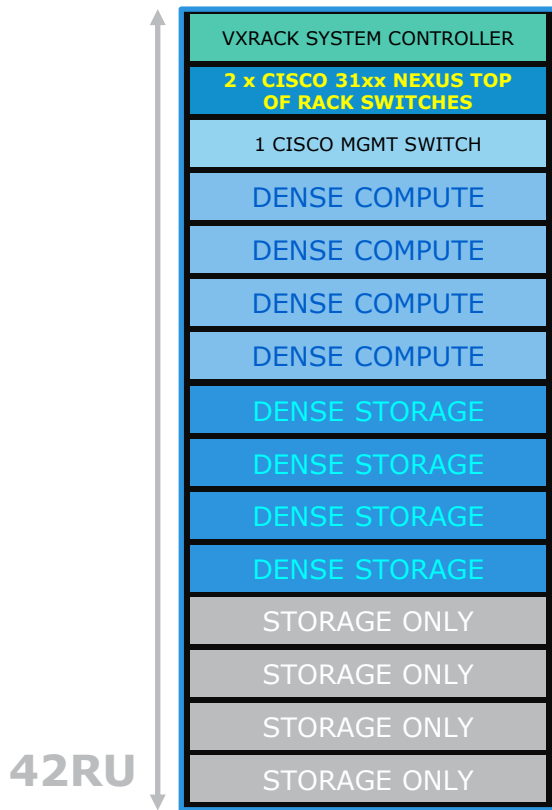
VXRACK FLEX DETAILS



EXPANSION CABINET DETAILS

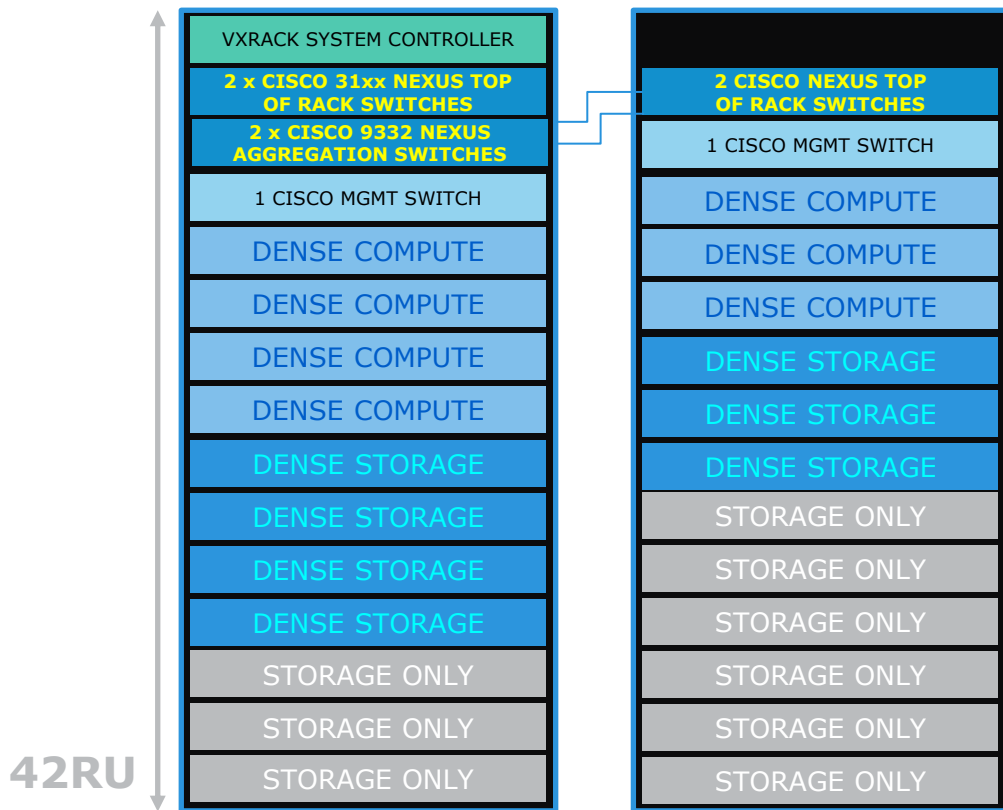


SAMPLE CONFIGURATION- UP TO 64/108 NODES



- Base configuration is a single rack
 - 3 node is minimum requirement for ScaleIO Cluster deployment
 - Can be any mix of dense compute/storage, storage only
- Management switch- Nexus 3172
- VxRack System Controller runs M&O components
- 'Top of Rack' switches- Nexus 3132 or 3164
 - Dense compute = up to 16x10GB per enclosure
 - Dense storage/storage only = up to 4x10GB per enclosure
- Nexus 31xx provide inter-node connectivity (10GB) and also customer network uplink (10GB or 40GB)

MULTIPLE RACK- SAMPLE CONFIGURATION



- For multiple rack systems, Nexus 9332 switches are added as an aggregation layer
- Inter-rack connectivity at multiple 40GB via Nexus 9332
 - Node connectivity still at 10GB via Nexus3132 or Nexus 3164
 - Customer uplink via Nexus 9332 (10GB or 40GB)
- Maximum of 216 nodes
 - Exact physical rack count depends on type of enclosures used
 - # of nodes is dependent on network topology

VXRACK 1000 FLEX - DENSE COMPUTE BLOCKS

2RU – 4 Node Enclosure

- Total 24 Drive Slots (6 Per Node)
- Total 16 x10Gbp/s NICs (4 Per Node)*
- Total 4x100Mb/s H/ware Mngmt (1 per Node)



Node Types	CPU Config	Memory Config	Disk config
2U4N – Perf High	Dual CPU E5-2680v3/12c/2.5Ghz	512GB RAM (16x32GB)	Fast (Large) - 6x800GB SSD (4.8TB) 32GB SATADOM controller
2U4N – Perf Medium	Dual CPU E5-2680v3/12c/2.5Ghz	256GB RAM (8x32GB)	Fast (Large) - 6x800GB SSD (4.8TB) 32GB SATADOM controller
2U4N – Hybrid high	Dual CPU E5-2680v3/12c/2.5Ghz	256GB RAM (8x32GB) or 512GB RAM (16x32GB)	Hybrid - 1x400GB SSD + 5x1.2TB HDD (6TB) 32GB SATADOM controller, <u>incl. CacheCade</u>
2U4N – Hybrid Medium	Dual CPU E5-2650v3/10c/2.3Ghz	256GB RAM (8x32GB) or 512GB RAM (16x32GB)	Hybrid - 1x400GB SSD + 5x1.2TB HDD (6TB) 32GB SATADOM controller, <u>incl. CacheCade</u>

VXRACK 1000 FLEX – DENSE STORAGE BLOCKS

2RU – 1 Node Enclosure



- **24 Drive Slots**
- **4 x 10Gbp/s NICs**
- **1x100Mb/s H/ware Management Port**

Node Types	CPU Config	Memory Config	Disk config
2U1N – Capacity Cached High	Dual CPU E5-2680v3/12c/2.5Ghz	256GB RAM (8x32GB) or 512GB RAM (16x32GB)	Hybrid - 2x400GB SSD + 22x1.2TB HDD (27.2TB) 32GB SATADOM controller, <u>incl. CacheCade</u>
2U1N – Capacity Cached Med	Dual CPU E5-2650v3/10c/2.3Ghz	256GB RAM (8x32GB) or 512GB RAM (16x32GB)	Hybrid - 2x400GB SSD + 22x1.2TB HDD (27.2TB) 32GB SATADOM controller, <u>incl. CacheCade</u>
2U1N – Capacity Max	Dual CPU E5-2650v3/10c/2.3Ghz	256GB RAM (8x32GB)	Capacity - 24x1.2TB HDD (28.8TB) 32GB SATADOM controller
2U1N – Capacity Mix SSD/DD	Dual CPU E5-2680v3/12c/2.5Ghz	256GB RAM (8x32GB)	Hybrid - 6x800GB SSD + 18x1.2TB HDD (26.4TB) 32GB SATADOM controller

VXRACK 1000 FLEX- STORAGE ONLY BLOCKS

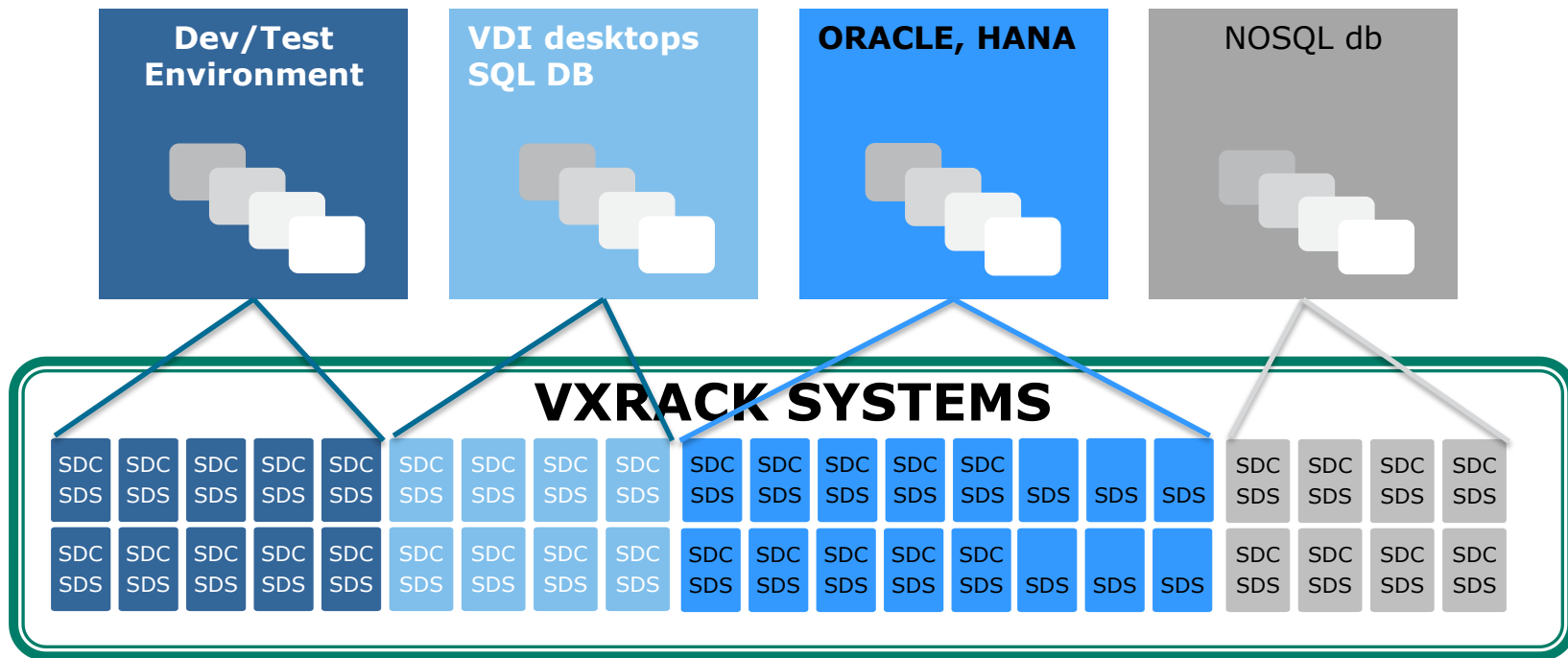
2RU – 1 Node Enclosure – Storage Only

- **24 Drive Slots**
- **4 x 10Gbp/s NICs**
- **1x100Mb/s H/ware Management Port**



Node Types	CPU Config	Memory Config	Disk config
2U1N – Storage only Max HDD	Single CPU E5-2650v3/10c/2.3Ghz	64GB RAM (8x8GB)	Capacity - 24x1.2TB HDD (28.8TB) 32GB SATADOM controller
2U1N – Storage only Mix SSD/HDD	Single CPU E5-2650v3/10c/2.3Ghz	64GB RAM (8x8GB)	Hybrid - 6x800GB SSD + 18x1.2TB HDD (26.4TB) 32GB SATADOM controller
2U1N – Storage only Cached	Single CPU E5-2650v3/10c/2.3Ghz	64GB RAM (8x8GB)	Hybrid - 2x400GB SSD + 22x1.2TB HDD (27.2TB) 32GB SATADOM controller, <u>incl. CacheCade</u>

SOLUTION ARCHITECTURE



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