VCE Solution Abstract

# County of Santa Barbara (EOC & SB) Vblock Solution for Mixed Workload

vArchitect: Corey Goya
Reviewed: Phil Davis

SFDC ID: P1029085
Version: v4 Date: December 18, 2013

# Control (EOC / Goleta)

| Vblock | Scenario | ID | Environment | Delivery Location | Install Location |
|---|---|---|---|---|---|
| 01 | P1029805 | 20131120102522S | Mixed Workload | EOC/Goleta | Goleta, CA |
| | LMI-AMP | 20131209093014 | | | |
| 01 | Services | 20131021111721 | Deployment & Implementation | EOC/Goleta, CA | Goleta, CA |
| | | | | | |
| 02 | P1029085 | 20131218084204A | Mixed Workload | SB | Santa Barbara, CA |
| | LMI-AMP | 20131209091713 | | | |
| 02 | Services | 20131119084238 | Deployment & Implementation | SB | Santa Barbara, CA |

# Design Participants

| Customer | Role | Phone | Email | Location/Address |
|---|---|---|---|---|
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| | | | | |
| **VCE** | **Role** | **Phone** | **Email** | **Location/Address** |
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| | | | | |

# Background

## Business Objectives

- County of Santa Barbara has identified a requirement to provide a refreshed platform to support a mixed workload VMware infrastructure.
- Provide a standardized infrastructure that can be deployed and implemented quickly to minimize migration.

## Technical Objectives

- Provide a stable, fault tolerant, and high performance infrastructure platform to support their current VMware infrastructure with the ability to grow. Estimated growth of 10% per year.
- Approach for mixed workload will take into account general purpose application workloads as well as SQL and SharePoint.
- Existing server configurations provided by the County of Santa Barbara.
- Utilize existing available licenses owned by the County of Santa Barbara if possible.

## Planned Expansions

- Ensure DAE and UCS Chassis capacity and scalability exists in the solution to allow future capacity planning
- This expansion will be dependent on facilities demands such as floor space, heating, power, cooling as well as maximums in the scalable solution

# Vblock™ System 340

## True Converged infrastructure

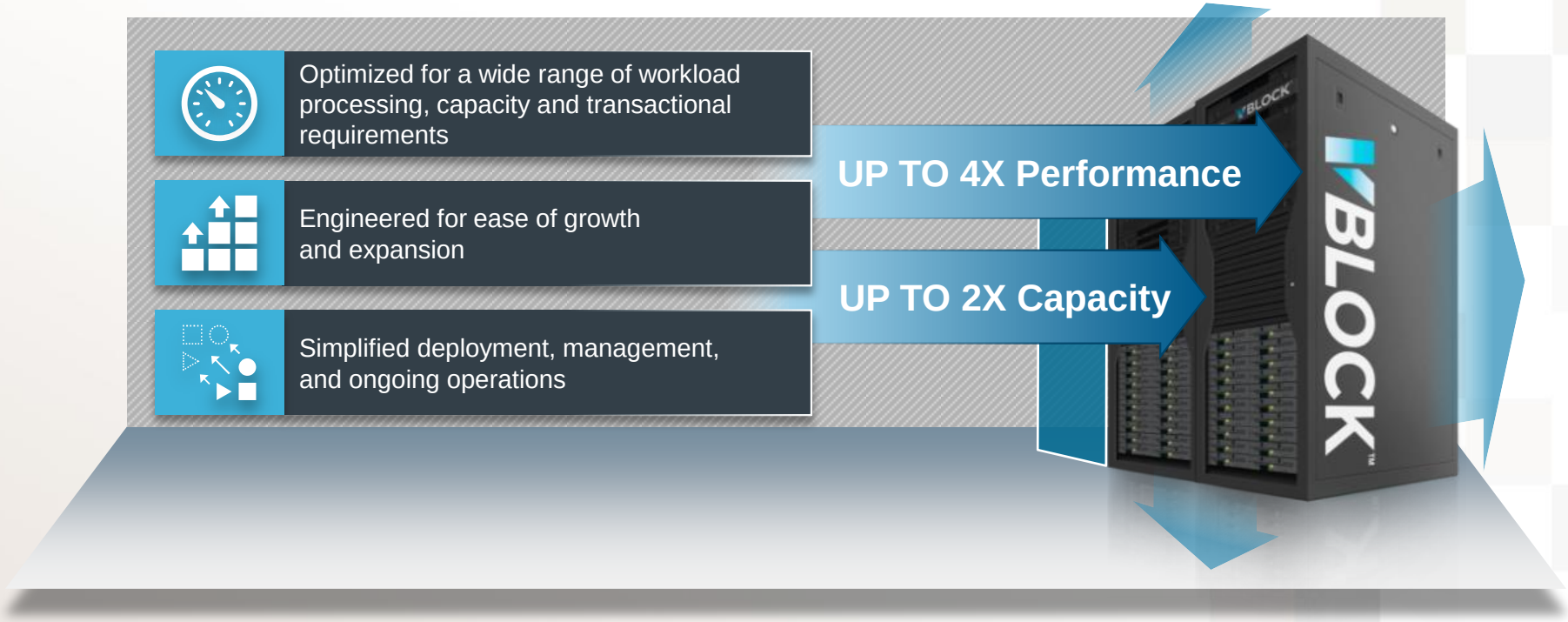

- ENGINEERED
- MANUFACTURED
- MANAGED
- SUPPORTED
- SUSTAINED

As **ONE** PRODUCT

cisco EMC² vmware

# Vblock™ System 340

ENTERPRISE-CLASS AND SERVICE PROVIDER CONVERGED INFRASTRUCTURE



# Component Requirements (EOC)

## Customer Provided

The client's current VMware infrastructure supports approximately 300-400 Virtual Machines. The primary use of this solution is to support mixed workload production business applications as well as some database instances and web applications.

## Compute

- Growth: There are 2xUCS5108 Chassis configured in this solution. There are **10** empty slots for additional blade servers before additional chassis are required. This solution can scale to 8-chassis and 64-(half-width) blade servers. This solution is configured with 86 drives and can scale to *500 drives
  - **Max number of drives for the VNX5600 based on 2.5: form factor.*
- Server sizing for mixed workload :
  - 300-400 Virtual Machines
  - (6) x B200-M3 half-width blade servers, each with 2x8-core CPU.
  - RAM on blade servers is (512GB) to facilitate current and future memory requirements.

## Storage

- (6) 25 x 2.5" DAEs
- (6) 15 x 3.5" DAEs
- 89 TB "Usable" Storage
- Includes 2 x X-Blades for NFS/CIFS integration.

## Management

- Vblock 340 will come with VCE Vision Intelligent Operations.

## Data Protection

- EMC RecoverPoint and Gen5 RPAs.

# Component Requirements (SB)

## Customer Provided

The client's current VMware infrastructure supports approximately 300-400 Virtual Machines. The primary use of this solution is to support mixed workload production business applications as well as some database instances and web applications.

## Compute

- Growth: There are 2xUCS5108 Chassis configured in this solution. There are **12** empty slots for additional blade servers before additional chassis are required. This solution can scale to 8-chassis and 64-(half-width) blade servers. This solution is configured with 86 drives and can scale to *500 drives
  - **Max number of drives for the VNX5600 based on 2.5: form factor.*
- Server sizing for mixed workload :
  - 300-400 Virtual Machines
  - (**4**) x B200-M3 half-width blade servers, each with 2x8-core CPU.
  - RAM on blade servers is (512GB) to facilitate current and future memory requirements.

## Storage

- (6) 25 x 2.5" DAEs
- (6) 15 x 3.5" DAEs
- 89 TB "Usable" Storage
- Includes 2 x X-Blades for NFS/CIFS integration.

## Management

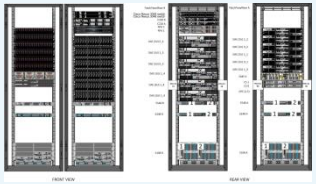
- Vblock 340 will come with VCE Vision Intelligent Operations.

## Data Protection

- EMC RecoverPoint and Gen5 RPAs.

# Vblock Scenario (EOC)

## Vblock™ Infrastructure Summary



2 x Vblock™ Cabinets
208v-30A, Single-Phase

| | |
|---|---|
| **Compute** | 2 x Cisco UCS 5108 blade server chassis<br>6 x Cisco UCS B200-M3 blades, 2.7GHz 512GB<br>2 x Cisco UCS 6248UP Fabric Interconnects<br>2 x Cisco UCS 2204XP Fabric Extenders |
| **Storage** | EMC VNX 5600 Unified Storage (90TB usable)<br>EMC VNX FAST Suite<br>EMC PowerPath/VE (Customer Providing) |
| **Network** | Cisco Nexus 1000V Virtual Switch (Essentials)<br>2 x Cisco Nexus 5548UP Switch<br>8 x 10GbE SR SFPs |
| **Management** | VCE Advanced Management Infrastructure (LMI)<br>VCE Vision Intelligent Operations<br>EMC Unisphere<br>EMC Secure Remote Support |

## SW Licensing

| SW Licensing | License Quantity | Provided By |
|---|---|---|
| VMware vSphere 5.1.x Enterprise Plus Edition (per CPU socket) - Blades | 12 | County of Santa Barbara |
| VMware vSphere 5.0.x Enterprise Plus Edition (per CPU socket) – AMP | 2 | County of Santa Barbara |
| VMware vCenter Server (Standard) - AMP | 1 | County of Santa Barbara |
| Microsoft SQL Server Edition - AMP | 2 | VCE |
| Microsoft Windows Standard Edition (Supports 2-VMs) – AMP | 4 | VCE |
| Nexus 1000V Essentials eDelivery (per CPU socket) | 2 | VCE |
| EMC PowerPath/VE (per host) | 6 | County of Santa Barbara |
| VCE Vision Intelligent Operations | 1 | VCE |

## Storage Summary

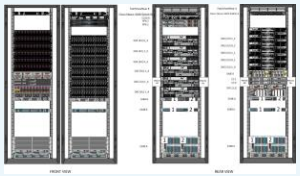
| | | | | |
|---|---|---|---|---|
| **Array** | VNX 5600, 89TB usable –Unified Array - File (CIFS and NFS) & Block (FC, iSCSI, and FCoE) | | | |
| | **Tier** | **Drive Qty** | **Size GB** | **Drive Type** |
| **Vault / Boot / Cache** | Vault | 1 | 600 | 10K SAS, 2.5” |
| | ESX Boot | 0 | 300 | 15K SAS, 2.5” |
| | Bare Metal Boot | 0 | n/a | n/a |
| | FAST Cache | 5 | 200 | EFD, 2.5” |
| | **Tier** | **Drive Qty** | **Size GB** | **Drive Type** |
| **Global Hot Spare** | T1 | 1 | 200 | EFD, 2.5” |
| | T2 | 2 | 600 | 10K SAS, 2.5” |
| | T3 | 2 | 3000 | 7.2K SAS, 3.5” |
| | **Tier** | **Drive Qty** | **Usable GB** | **RAID Type** |
| **Storage Pool** | T1 (200GB) | 5 | 734 | R5 (4+1) |
| | T2 (600GB 10K) | 40 | 17632 | R5(4+1) |
| | T3 (3TB 7200) | 32 | 70776 | R6 (6+2) |
| | Total Capacity | 77 | 89142 | |

## Services and Support

| | |
|---|---|
| **VCE Support** | 4 year Core Support |
| **VCE Services** | VCE Deployment & Implementation Services Factory Build, Shipping and Handling<br>EMC RecoverPoint Implementation For Unified Quickstart. |

# Vblock Scenario (SB)

## Vblock™ Infrastructure Summary



2 x Vblock™ Cabinets
208v-30A, Single-Phase

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|---|---|
| **Compute** | 2 x Cisco UCS 5108 blade server chassis<br>4 x Cisco UCS B200-M3 blades, 2.7GHz 512GB<br>2 x Cisco UCS 6248UP Fabric Interconnects<br>2 x Cisco UCS 2204XP Fabric Extenders |
| **Storage** | EMC VNX 5600 Unified Storage (89TB usable)<br>EMC VNX FAST Suite<br>EMC PowerPath/VE (Customer Providing) |
| **Network** | Cisco Nexus 1000V Virtual Switch (Essentials)<br>2 x Cisco Nexus 5548UP Switch<br>8 x 10GbE SR SFPs |
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| VMware vSphere 5.0.x Enterprise Plus Edition (per CPU socket) – AMP | 2 | County of Santa Barbara |
| VMware vCenter Server (Standard) - AMP | 1 | County of Santa Barbara |
| Microsoft SQL Server Edition - AMP | 2 | VCE |
| Microsoft Windows Standard Edition (Supports 2-VMs) – AMP | 4 | VCE |
| Nexus 1000V Essentials eDelivery (per CPU socket) | 2 | VCE |
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| VCE Vision Intelligent Operations | 1 | VCE |

## Storage Summary

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| | **Tier** | **Drive Qty** | **Size GB** | **Drive Type** |
| **Vault / Boot / Cache** | Vault | 1 | 600 | 10K SAS, 2.5” |
| | ESX Boot | 0 | 300 | 15K SAS, 2.5” |
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| | T3 (3TB 7200) | 32 | 70776 | R6 (6+2) |
| | Total Capacity | 77 | 89142 | |

## Services and Support

| | |
|---|---|
| **VCE Support** | 4 year Core Support |
| **VCE Services** | VCE Deployment & Implementation Services Factory Build, Shipping and Handling<br>EMC RecoverPoint Implementation For Unified Quickstart. |

# Customization / Licensing Requirements

| ID P1029085 | Description |
|---|---|
| 20131120102522S | (EOC) VB340-5600: PowerPath VE removed from Vblock. County of Santa Barbara will be responsible for PowerPath licensing and will be required to provide the license file to VCE during the Logical Config Survey.<br><br>VMware vSphere Enterprise Plus License removed from Vblock. County of Santa Barbara is responsible for providing VMware vSphere Enterprise Plus licensing to manage the Vblock. |
| 20131218084204A | (SB) VB340-5600: PowerPath VE removed from Vblock. County of Santa Barbara will be responsible for PowerPath licensing and will be required to provide the license file to VCE during the Logical Config Survey.<br><br>VMware vSphere Enterprise Plus License removed from Vblock. County of Santa Barbara is responsible for providing VMware vSphere Enterprise Plus licensing to manage the Vblock. |
| 20131209093014 | (EOC) LMI-AMP-2P: vCenter License removed from Vblock. County of Santa Barbara will be responsible for vCenter licensing and will be required to provide the license file to VCE during the Logical Config Survey. |
| 20131209091713 | (SB) LMI-AMP-2P: vCenter License removed from Vblock. Count of Santa Barbara will be responsible for vCenter licensing and will be required to provide the license file to VCE during the Logical Config Survey. |
| | |

# Expansion (EOC)

| Included | UCS Chassis | UCS Blades | 5600 Storage |
|---|---|---|---|
| Included in solution | 2 | 6 | 88 drives |
| Licensed in solution | 2 | 6 | 88 drives |
| **Max per Component** | | | |
| Vblock Maximum | 8 x chassis | 64 x blades (half-width) | 500 x drives |
| Maximum with included cabinets | 4 | 48 | 150 x 2.5” drives*<br>90 x 3.5” drives* |

- *VCE Blade Chassis and Slots are pre-wired and pre-configured with Fabric Extenders and Fabric Interconnect cables so that all chassis can be used provided they are licensed via the Fabric Interconnect port licensing, which is enabled by the purchase of Chassis Activation Kits (CAKs)*
- *Flexible licensing model allows customer to select from purchasing all slot/chassis licenses up front, or to purchase them as they are consumed in a “Pay as you Grow” model. In that case, chassis are licensed or activated ONLY AS THEY ARE NEEDED. This is the default behavior, however, upon written request, a Customer may choose UPFRONT licensing and purchases all potentially needed CAKs with the Vblock.*
- *A minimum of 2 chassis are licensed in all cases to allow blades to be spread between chassis for redundancy purposes.*
- **Potential rack space for additional DAEs. Any combination of (1) 2.5” 25-slot DAE and (1) 3.5” 15-slot DAE or (2) 2.5” 25-slot DAEs. This would increase the number of specific drive size accordingly.*

# Expansion (SB)

| Included | UCS Chassis | UCS Blades | 5600 Storage |
|---|---|---|---|
| Included in solution | 2 | 4 | 88 drives |
| Licensed in solution | 2 | 4 | 88 drives |
| **Max per Component** | | | |
| Vblock Maximum | 8 x chassis | 64 x blades (half-width) | 500 x drives |
| Maximum with included cabinets | 4 | 48 | 150 x 2.5” drives*<br>90 x 3.5” drives* |

- *VCE Blade Chassis and Slots are pre-wired and pre-configured with Fabric Extenders and Fabric Interconnect cables so that all chassis can be used provided they are licensed via the Fabric Interconnect port licensing, which is enabled by the purchase of Chassis Activation Kits (CAKs)*
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- *A minimum of 2 chassis are licensed in all cases to allow blades to be spread between chassis for redundancy purposes.*
- **Potential rack space for additional DAEs. Any combination of (1) 2.5” 25-slot DAE and (1) 3.5” 15-slot DAE or (2) 2.5” 25-slot DAEs. This would increase the number of specific drive size accordingly.*

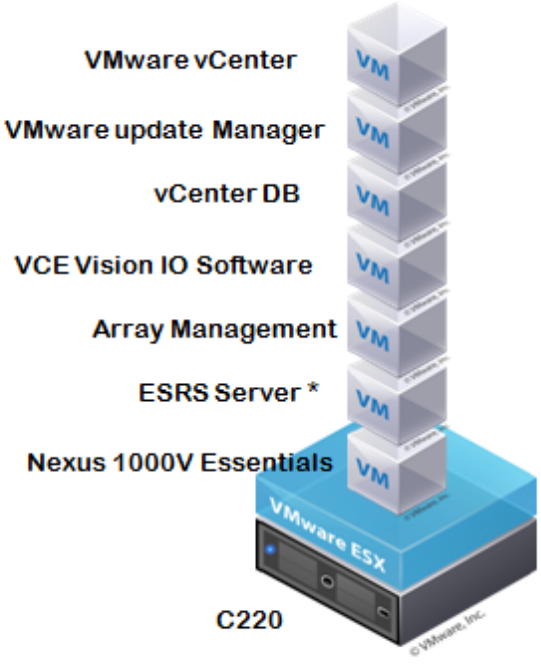
# What is the AMP?

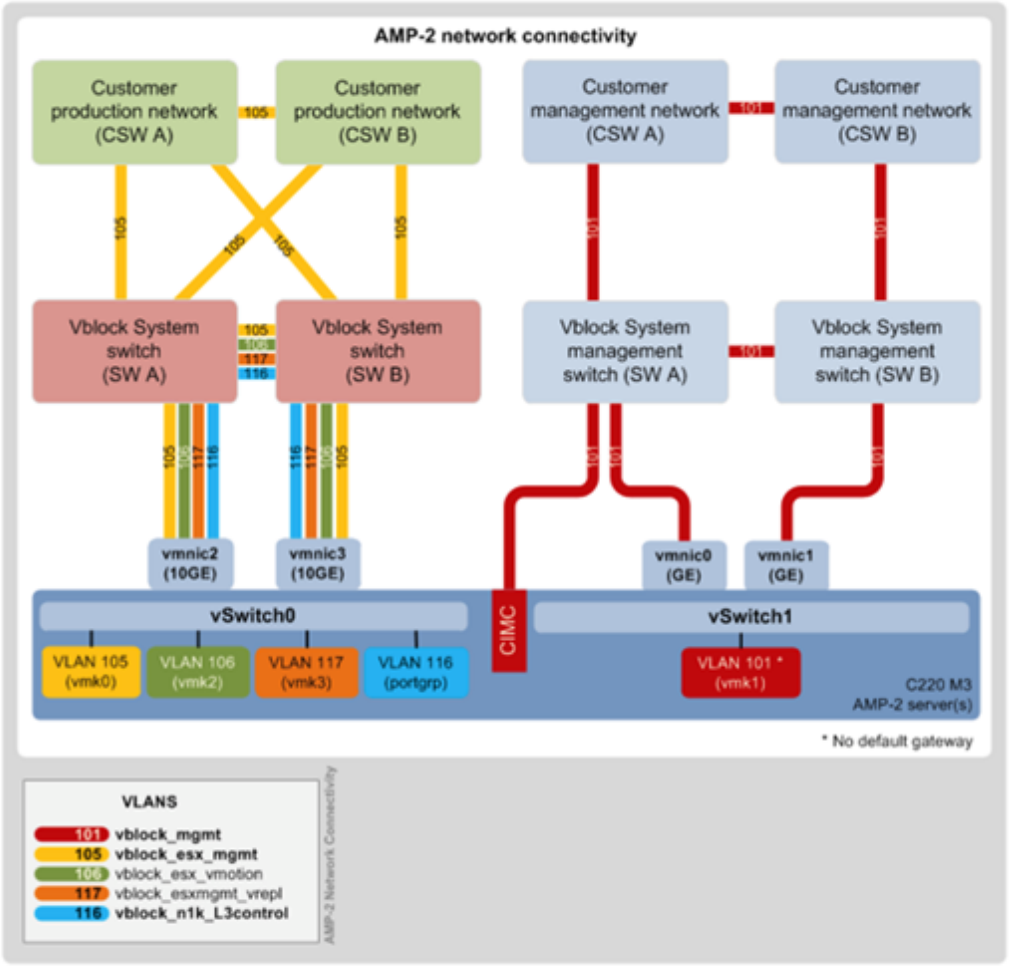
## Self-Contained, Out-of-Band Management for Vblock™

- Hardware
  - Cisco C220 rack-mounted servers running VMware ESXi
  - Cisco Nexus 3048 switches
- Management Software
  - UIM "Optional"
  - vSphere components
  - Nexus 1000V
  - Storage management tools

Clarification Requested

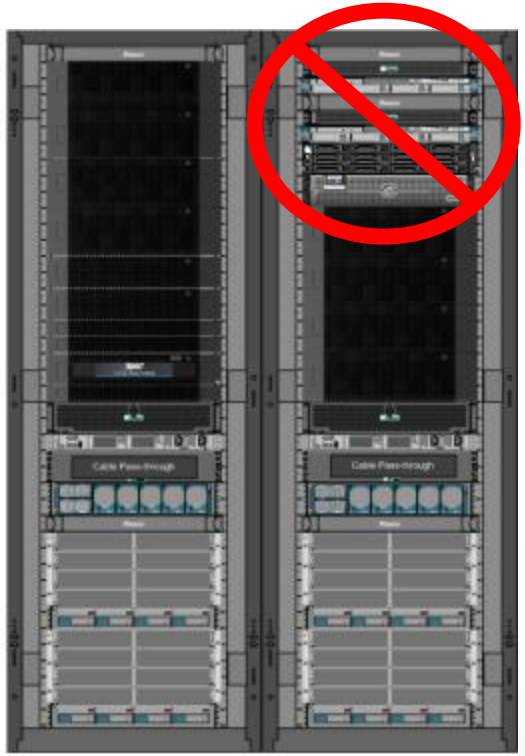
# VBLOCK AMP-2



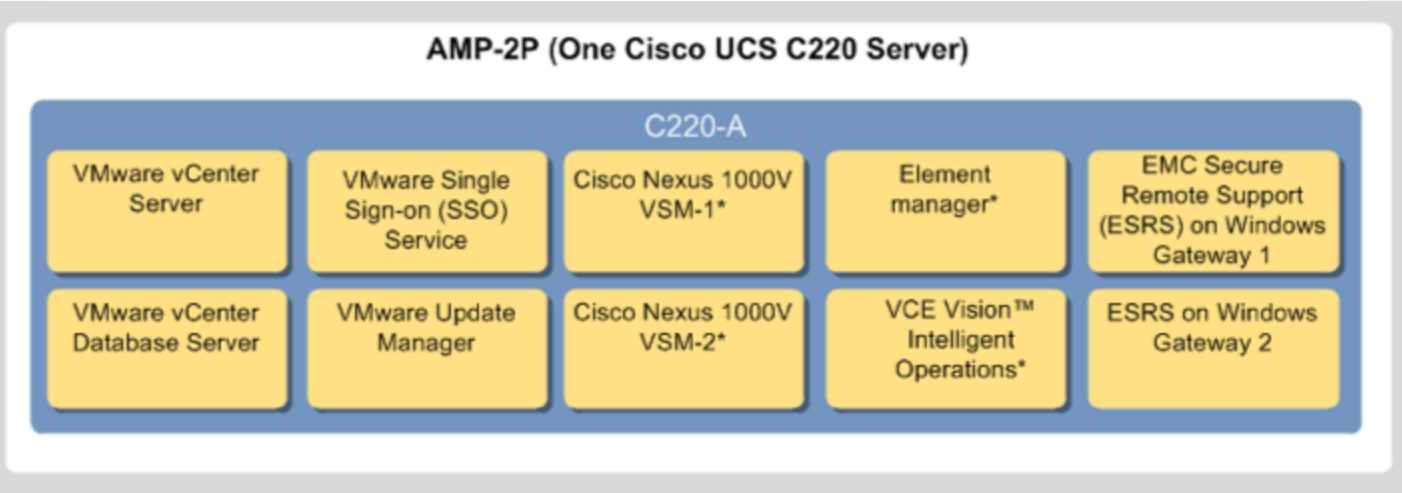
# Resiliency

In the event of an AMP failure, Vblock platform application workloads continue without interruption.



# LMI - AMP

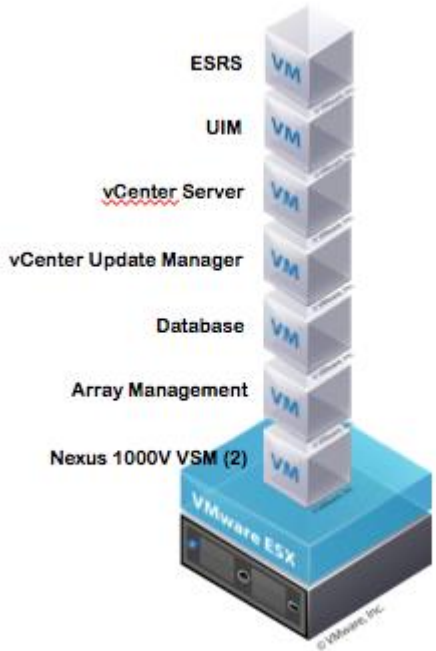
This form factor uses a dedicated Cisco UCS C220 Server to run management workload applications.



# AMP Components

The AMP-2 is a single-server system using local disk to boot ESXi.  It is intended to be a basic out-of-band management environment.

It is built with a set of core management systems that enable Vblock platforms to be logically configured in VCE manufacturing and provides ongoing management functionality.



# HA-AMP Features

## C220 Cisco Servers

- Highly available using VMware HA in the HA AMP
- Operates all management servers and appliances
- Local disk boot with shared storage in the HA AMP

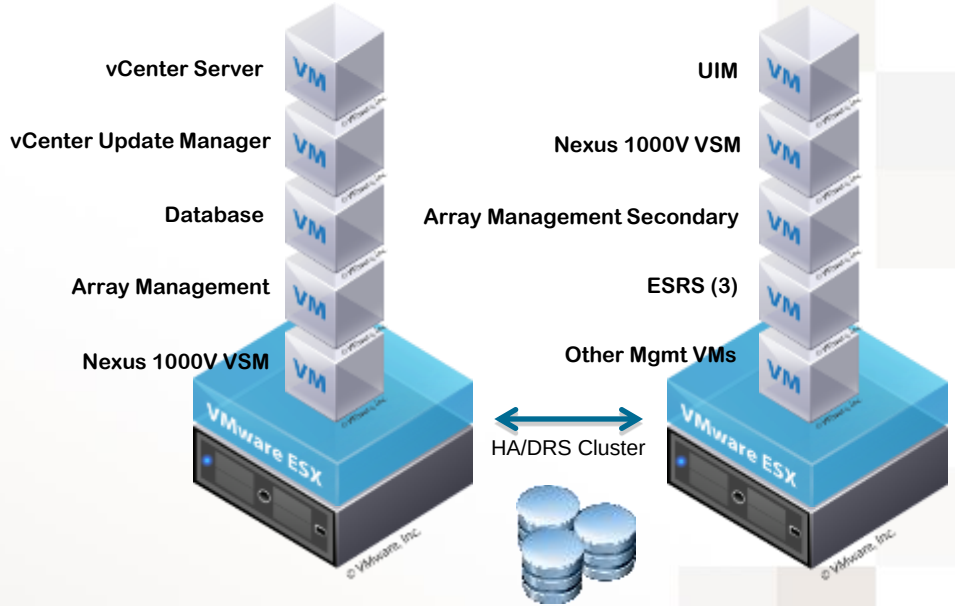
## Nexus 3048 Management Switches

- Out-of-band (OOB) management of all Vblock platform devices at the IP level
- Remotely manage all devices without need of physical data center access

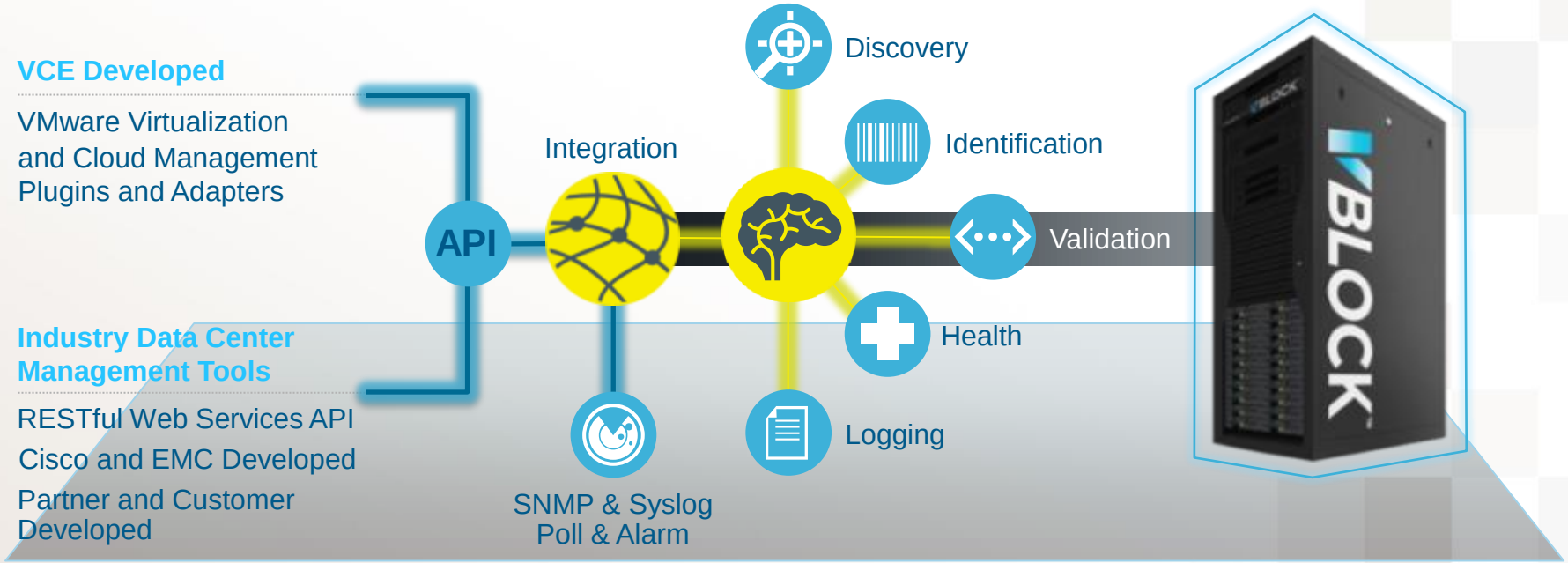
# HA AMP

The HA AMP is a two-server system using shared storage for the Vblock platform management servers. It is designed to be a highly available out-of-band management environment.

It is built with a set of core management systems that enable Vblock platforms
to be logically configured in VCE manufacturing and provides ongoing management functionality.

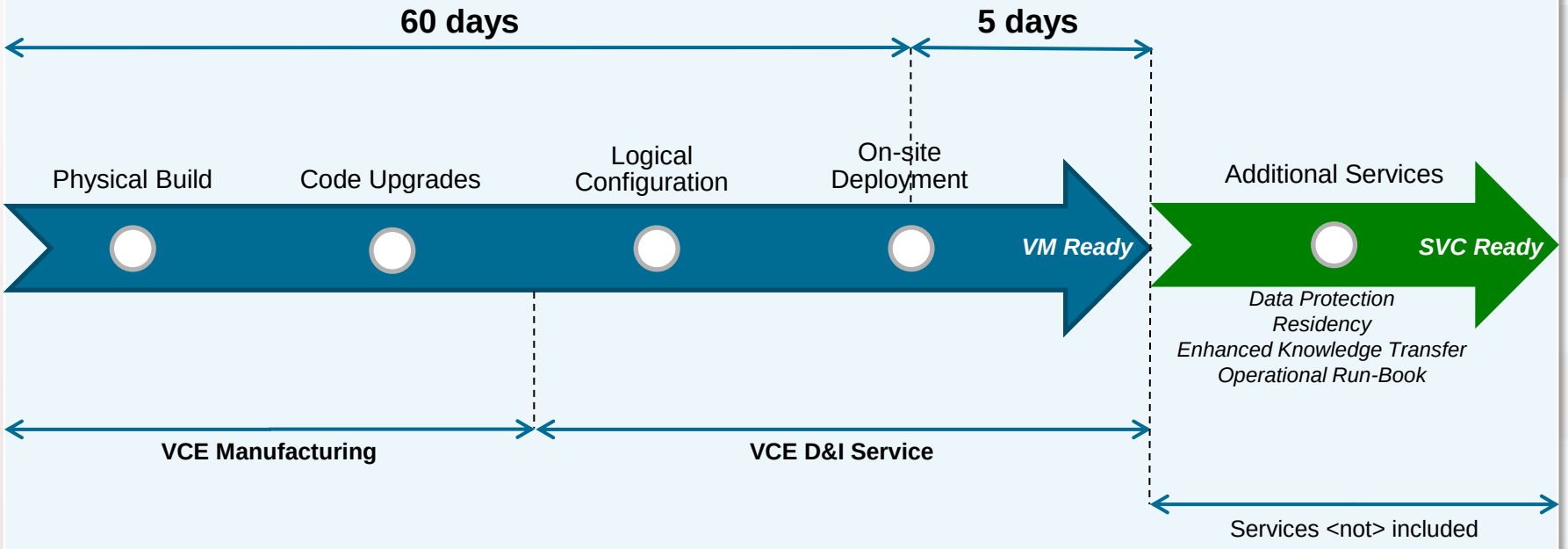


# VCE Vision Intelligent Operations Design



# Implementation

## VCE Deployment and Implementation (D&I) Services




*Timeline represents typical VCE lead times.

*Vblock delivery may be impacted by completion of LCS, component shortage or other factors outside VCE control. On-site deployment time may be impacted by data center access, customer availability or solution complexity.

# VCE release and configuration management

## Customer Challenge

Component updates to data center components require ongoing staff and management resources

## VCE Strategy

Provide customers access to software, firmware, and supporting documentation in a predictable timeframe

## VCE Solution

Deliver Vblock platform maintenance process with validated software, firmware releases every 6 months – minimizing management costs, maximizing availability

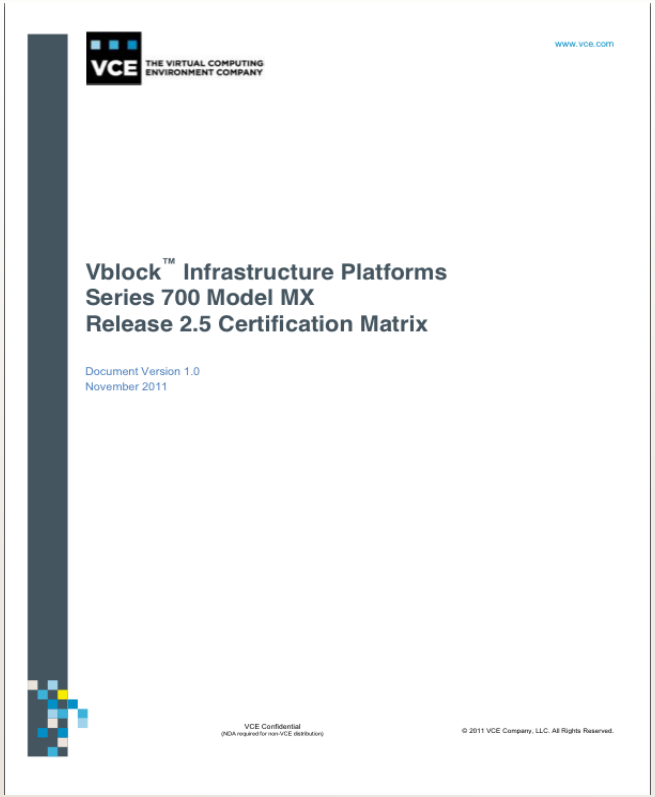
***Simplified process improves productivity, availability***

# VCE release and configuration management cont

- A Specific Set of VMware, Cisco & EMC components which are:
  - Defined by VCE Product Management
  - Designed by VCE Platform Engineering
  - Validated by VCE Quality Assurance
  - Documented by VCE Tech Pubs
  - Supported by VCE Customer Support Services

- Each release is uniquely identified by a Vblock version number
  - VMware, Cisco & EMC component products are uniquely identified by their individual version numbers

# RELEASE MATRICES



VCE THE VIRTUAL COMPUTING ENVIRONMENT COMPANY

www.vce.com

Vblock™ Infrastructure Platforms
Series 700 Model MX
Release 2.5 Certification Matrix

Document Version 1.0
November 2011

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(NDA required for non-VCE distribution)

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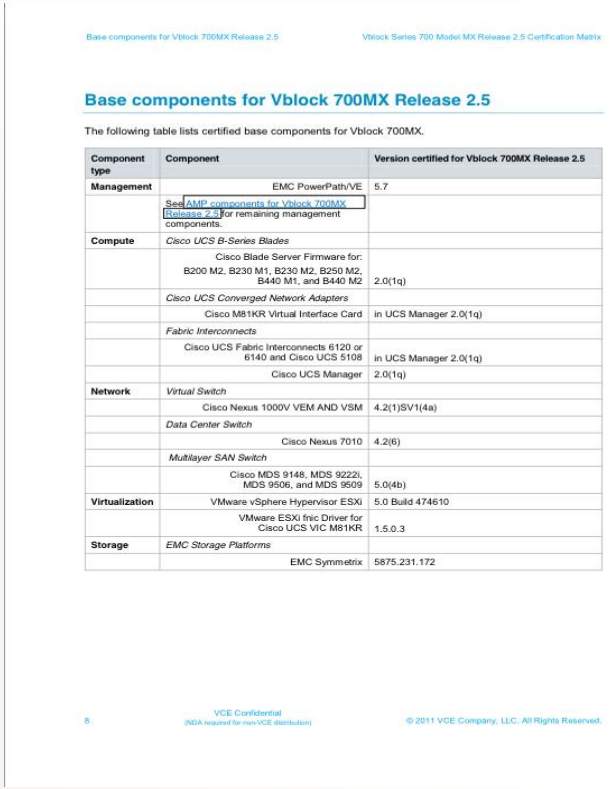
Specific, defined, tested and approved software/firmware.

Published for major and maintenance releases.



Base components for Vblock 700MX Release 2.5 — Vblock Series 700 Model MX Release 2.5 Certification Matrix

## Base components for Vblock 700MX Release 2.5

The following table lists certified base components for Vblock 700MX.

| Component type | Component | Version certified for Vblock 700MX Release 2.5 |
|---|---|---|
| **Management** | EMC PowerPath/VE | 5.7 |
| | See AMP components for Vblock 700MX Release 2.5 for remaining management components. | |
| **Compute** | *Cisco UCS B-Series Blades* | |
| | Cisco Blade Server Firmware for: B200 M2, B230 M1, B230 M2, B250 M2, B440 M1, and B440 M2 | 2.0(1q) |
| | *Cisco UCS Converged Network Adapters* | |
| | Cisco M81KR Virtual Interface Card | in UCS Manager 2.0(1q) |
| | *Fabric Interconnects* | |
| | Cisco UCS Fabric Interconnects 6120 or 6140 and Cisco UCS 5108 | in UCS Manager 2.0(1q) |
| | Cisco UCS Manager | 2.0(1q) |
| **Network** | *Virtual Switch* | |
| | Cisco Nexus 1000V VEM AND VSM | 4.2(1)SV1(4a) |
| | *Data Center Switch* | |
| | Cisco Nexus 7010 | 4.2(6) |
| | *Multilayer SAN Switch* | |
| | Cisco MDS 9148, MDS 9222i, MDS 9506, and MDS 9509 | 5.0(4b) |
| **Virtualization** | VMware vSphere Hypervisor ESXi | 5.0 Build 474610 |
| | VMware ESXi fnic Driver for Cisco UCS VIC M81KR | 1.5.0.3 |
| **Storage** | *EMC Storage Platforms* | |
| | EMC Symmetrix | 5875.231.172 |

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# VCE release and configuration management summary

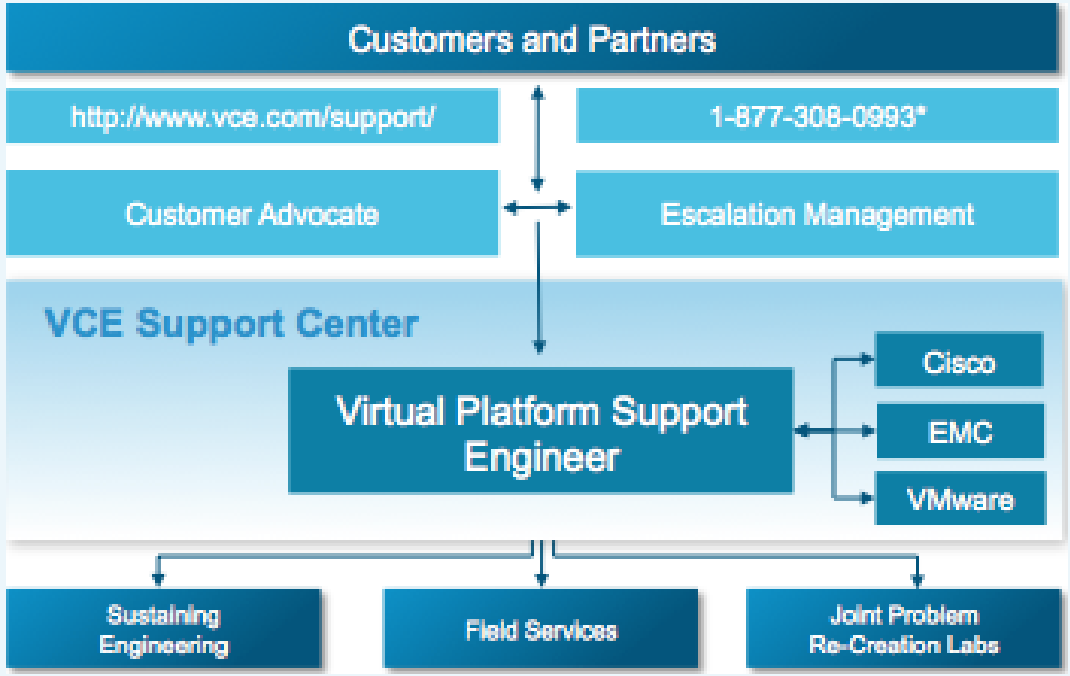
## What do Customers Receive?

- Release Announcement
- Certification Matrix
- Release Notes
- Upgrade Documentation
- System Documentation
- Access to Customer installable component updates

# Support

## VCE™ Core Support

- 24x7x365 technical support
- Assigned Customer Advocate
- VCE Connect support portal
- Rapid onsite parts replacement
- Escalation management
- Software certification matrices and documentation
- Remote reactive support patch implementation



# Vblock 340 (VNX 5600)

| POU | Power specifications |
|---|---|
| NEMA L15-30P | 3-phase Delta / 30A / 208V |
| IEC 60309<br>EC 309 3P4W SPLASH PROOF 460P9S | 3-phase Delta / 60A / 208V |
| IEC 60309<br>IEC309 2P3W SPLASH PROOF 360P6S | Single phase / 60A / 208V |
| NEMA L6-30P | Single phase / 30A / 208V (half-height) |

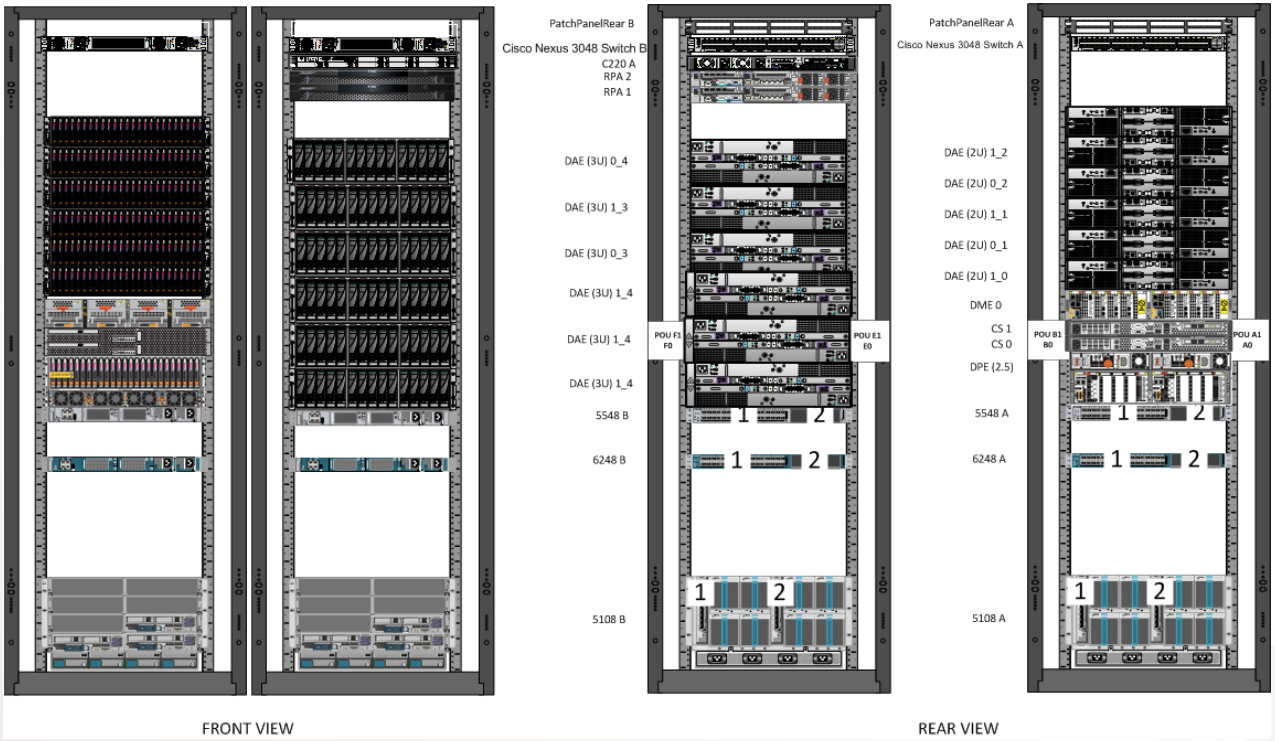
PLUG
30 AMP, 250V, SINGLE-PHASE
TWIST LOCK
NEMA L6-30P

VB340-5600 utilizes 208-250v 30A Single Phase power.

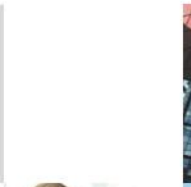
NEMA L6-30P Twist Lock

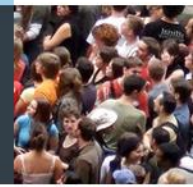
# Appendix – Rack Elevation

# Vblock – Elevation (EOC & SB)



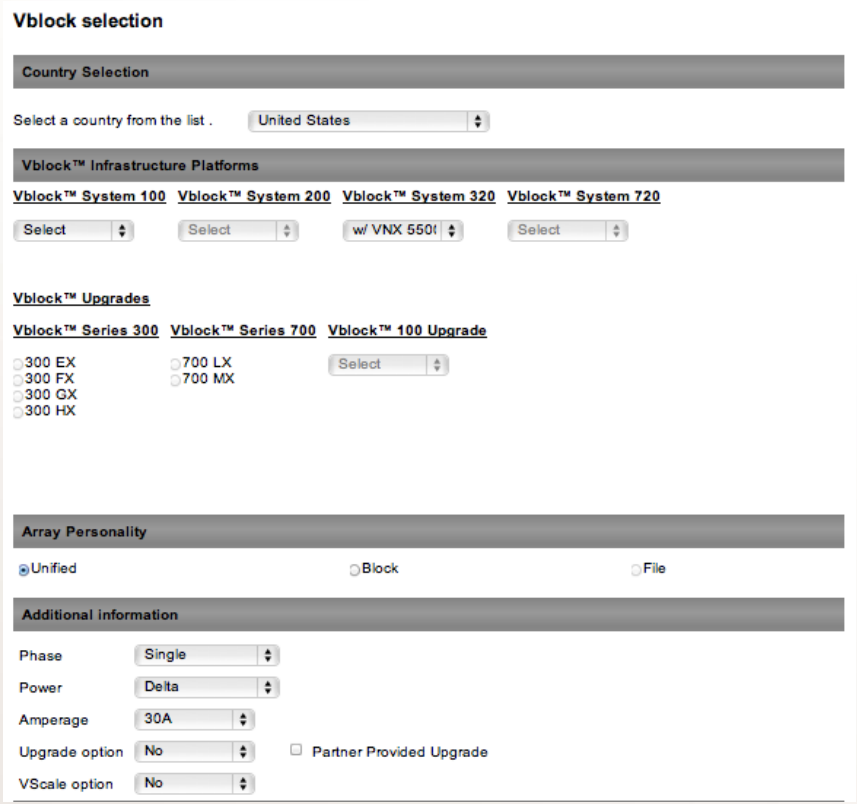

Available rack space for UCS Chassis expansion and DAE(s) for future Expansion





# Appendix - ACT Output

# ACT - TYPE




Output tool reflects a VNX 5500. The final configuration will be a VNX 5600. VCE tools currently do not allow this output

# ACT - COMPUTE

**Compute Scenario 1**

Over-Subscription

FEX: 2204 FEX-FI: 4-Links FI: 6248 FC Uplinks: 4 IP Uplinks: 8 Chassis Per Domain: 8

Modify Over-subscription

Power Option: max

| Virt Blade Pack (2) Qty | Bare Metal Pack (2) Qty | Total Packs | Slots Used | Slots Avail. | Pwr (W) | Cores | Virt Memory | Bare Metal Memory | Lead time (Days) |
|---|---|---|---|---|---|---|---|---|---|
| 3 | 0 | 3 | 6 | 64 | 2526 | 96 | 3072 | 0 | 30 |

Type: B200 M3 CPU: 2.7GHz Memory: 512GI VIC: 1240

**Compute Scenario Totals**

| Total Virtualized * | Total Bare Metal * | | Total Slots Used | Remaining Slots | Total Pwr (W) | Total Cores | Total Virt Memory | Total Bare Metal Memory | Total Lead time (Days) |
|---|---|---|---|---|---|---|---|---|---|
| 3 | 0 | | 6 | 58 | 2526 | 96 | 3072 | 0 | 30 |

**Blade Chassis Section**

Total Chassis(5108) 2 Total Licensed 2 5108 Slots Available 10

**Software Section**

**Nexus 1000v:**

Does this customer have a N1KV ELA or VSPP agreement? No

Virtual Networking Option: N1KV Essentials Editio

1 CPU License 0 4 CPU License 3 16 CPU License 0 32 CPU License 0

**vSphere:**

Does this customer have a VMWare ELA or VSPP agreement? Yes

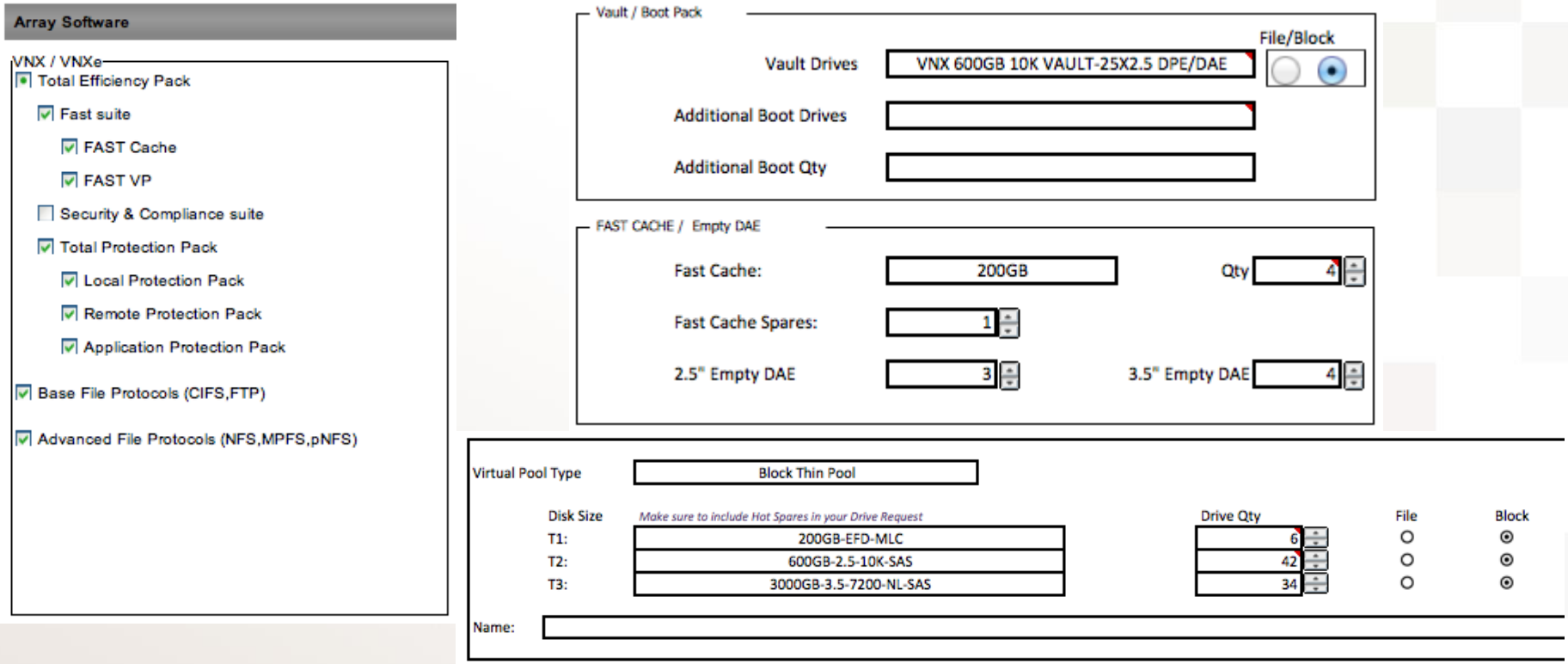
Please make sure to select the opt-out reason from the Opt-out tab on the main screen

**UIM:**

Install UIM ? No

Require UIM Foundation License No

# STORAGE



# ACT - NETWORK

**Port Count** — Collapse

**Fabric Interconnects**

| To 5108 | To Nexus Customer Traffic | DJL2 | To SAN | Physical Ports | | | Licensed Ports | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Included | Purchased | Buffer | Included | Purchased | Buffer |
| 16 | 16 | 0 | 8 | 64 | 0 | 24 | 24 | 16 | 0 |

| Unified IP Ports | | | | Physical Ports | | | Storage Licensed Ports | | |
|---|---|---|---|---|---|---|---|---|---|
| To FI Customer Traffic | To Data Mover | To RPA /Avm / DD | AMP/ VPC | Incl. | Purch. | Buffer | Incl. | Purch. | Buffer |
| 16 | 4 | 2 | 8 | | | | | | |

| Unified FC Ports | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| To FI | To Array/ Engine | To Data Mover | To RPA/ VPLEX | AMP/ VPC | 64 | 32 | 38 | 0 | 32 | 12 |
| 8 | 8 | 0 | 4 | 0 | | | | | | |

**Transceivers**

| Twinax | 10G SFP+ | 1G SFP | 1/2/4/8G SFP | Customer Uplink | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | 10G-SR | 10G-LR | 1G-T | 1G-SX | 1G-LX |
| 40 | 14 | 2 | 28 | 8 | 0 | 0 | 0 | 0 |

**Uplink** — Collapse

Transceiver 1: SFP-10G-SR(10SR) Count: 8

Transceiver 2: SFP-10G-SR(10SR) Count: 0

Transceiver 3: SFP-10G-SR(10SR) Count: 0

**Ethernet Base** — Collapse

Select a Switch type: 5548UP

| Slots | Ports |
|---|---|
| 1 | L2Daughter |
| 2 | N55-M16UP |
| Total Ports | 96 |

☑ Unified Network

☐ Is Disjoint Layer 2 required?

How many Disjoint Networks will the FIs Connect to? 1

SFP Type? 1G SFP

**Ethernet Total Ports: 96**

# ACT - CONFIGURATION

## Configuration

Number of years of maintenance to include? 4

AMP Servers 0 ☑ Is this Configuration for a Vblock 340?

AMP backup N/A

**System Management**

☑ **Include Vision OS Software**

**VCE Vision (tm) Intelligent Operations**

VCE Vision (tm) Intelligent Operations is a default component within this Vblock system. All features are included by default in this software. The system will include the following components, represents as a suite on the BOM.

VCE Vision(tm) Intelligent Operations for Vblock™ System 320 w/ VNX 5500

... System library

... System library compliance checker

... plugin for vCenter Server (Requires vCenter 5.0 Update 1 or greater)

... adapter for vCenter operations Manager (Requires vCenter operations 5.6 Mgmt Suite Advanced or Enterprise)
S'n'S autocalculated to match the VCE support associated with this Vblock system.

# ACT - ELEVATION

**Build Elevation for Modular Vblock**

| Permit Combination Of: | Network | ☑ | Compute | ☑ | Storage |
|---|---|---|---|---|---|
| Cable Routing: | Pass-tl | Pass-tl | Pass-tl | Pass-tl | Pass-tl |
| Distance between Racks: | 0 M | 0 M | 0 M | 0 M | 0 M |

How many racks do you spread 8 chassis? 3

Permit Customer Racking of AMP: No

Permit Customer Racking of Network Components: No

Reserve Space for Compute Expansion ☑

Split all equipment ☑

Max Power(KW): 0


cisco EMC² vmware