VCF Upgrade Pathways
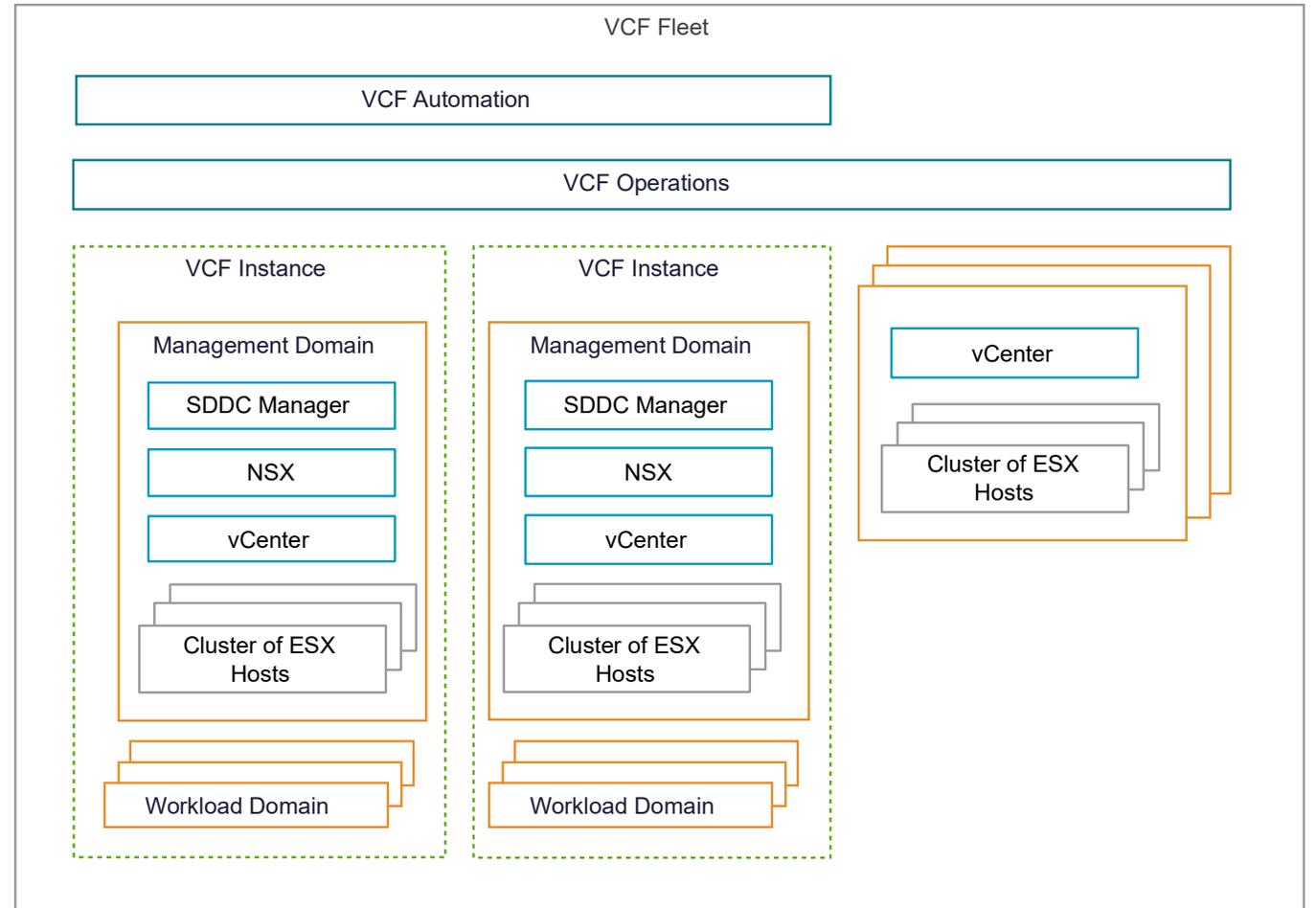**Prerequisites, limitations, and pitfalls**

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- VCDX #268
- Broadcom Knight

Important VCF 9.x Concepts

- VCF Fleet
- VCF Instance
- Management Domain
- Workload Domain

Changed VCF 9.x Naming

Old Naming	VCF 9.x Naming
Aria Operations / vRealize Operations	VCF Operations
Aria Operations for Logs / vRealize Log Insight	VCF Operations for Logs
Aria Operations for Networks / vRealize Network Insight	VCF Operations for Networks
Aria Automation / vRealize Automation	VCF Automation
Aria Suite Lifecycle / vRealize Suite Lifecycle Manager	VCF Fleet Management*
vCenter Server	vCenter
ESXi	ESX
Workspace ONE Access / VMware Identity Manager	VCF Identity Broker*

* New component / appliance

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Upgrade Pathways

- Deploy
  - Install a new VCF Fleet or VCF Instance

- Upgrade
  - Upgrade an existing VCF 5.x environment to VCF 9.x

- Converge
  - Convert an existing vSphere 8.x* or 9.x instance to a new VCF Fleet or VCF Instance as a **Management Domain**

- Import
  - Add an existing vSphere 8.x instance to a VCF Instance as a **Workload Domain**

* Only instances with NSX

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Upgrade

Architecture

Mandatory Required Components for VCF 9.x

Core Components

- SDDC Manager

- NSX Manager

- vCenter

- ESX

Management Components

- VCF Operations

- VCF Operations Fleet Management

- VCF Operations Collector

- VCF Automation

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Supported Scenario's

Scenarios

- VCF

- VCF + Aria Suite

Important considerations

- No upgrade path for VCF on Dell VxRail

- No upgrade path for Aria Operations for Logs (redeploy)

- No upgrade path for Workspace ONE Access (replaced by VCF Identity Broker)

Requirements / Pre-requisites

Minimum versions (as of VCF 9.0.1)

- Aria Suite Lifecycle: **v8.18 Patch 2**

- Aria Operations: **v9**

- Aria Automation: **v8.18**

- Aria Operations for Networks: **v6.13**

- VCF Core Components: **v5.0**

Recommended versions

- VCF Core Components: **v5.2**

Requirements / Pre-requisites

Hardware

- Validate if hardware is compatible with ESX 9
- TPM modules running on firmware version 2.0
  - If not, disable in BIOS

SDDC Manager

- No failed workflows
- No resources in activating or error state
- No expired passwords
- No expired certificates
- Backup VCF management components (config-based or image-based)

* vVols deprecated in vSphere 9.x

Requirements / Pre-requisites

vCenter

- Temporary IP address for each vCenter instance (out-of-place upgrade)
- Not joined to Active Directory*
- Updated vSAN HCL database

vSphere

- vSphere Lifecycle Manager Images
- Fully Automated Dynamic Resource Scheduler (DRS)

Not Supported

- Enhanced Linked Mode (ELM)**

* Deprecation of Integration Windows Authentication
** How to deactivate Enhanced Linked Mode
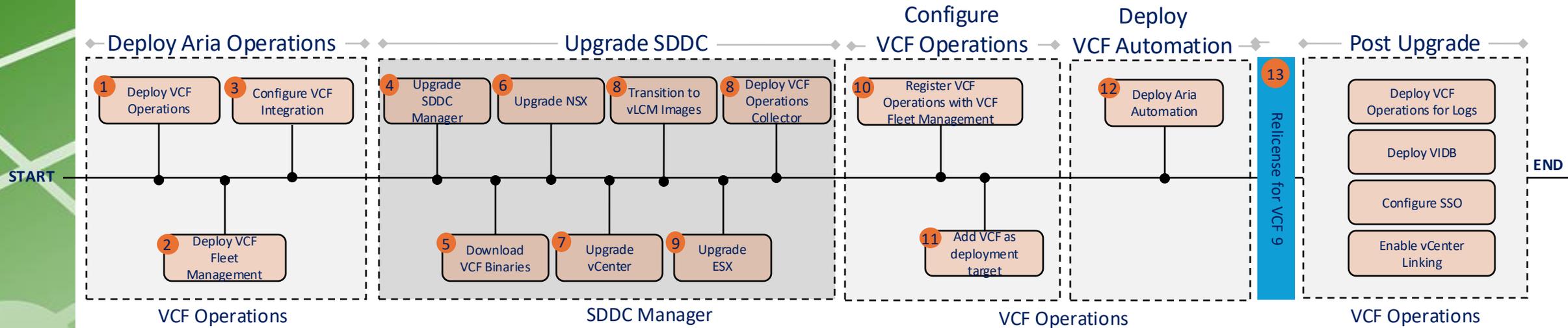
Requirements / Pre-requisites
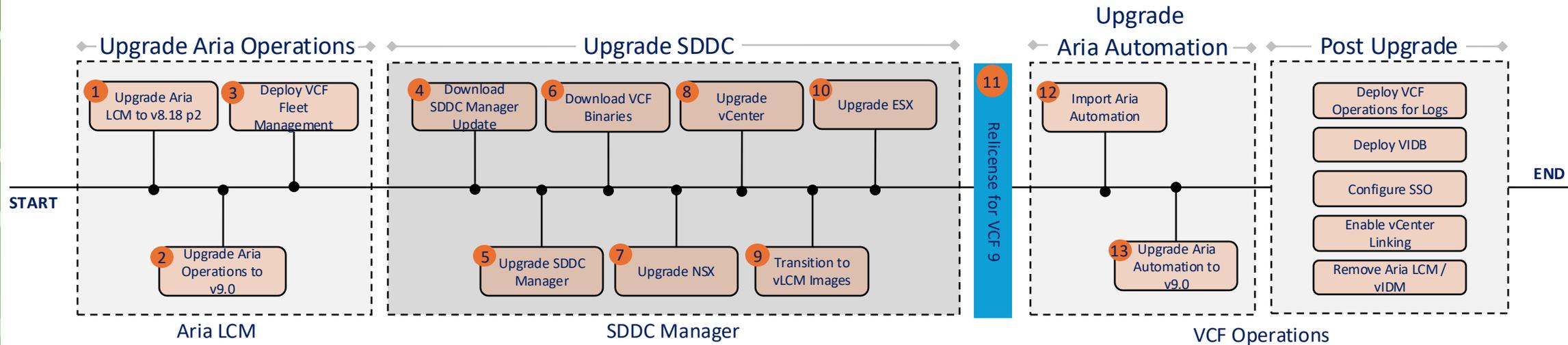
NSX

- NSX in a healthy state

- Manage unsupported features*
    - Objects created with the Manager API
    - Multi-NSX (vCenter instance with multiple NSX Managers registered)
    - Compute Managers without service accounts

* Manage Unsupported Features

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VCF

VCF + Aria Suite

Upgrade Aria Operations

Upgrade SDDC

Upgrade Aria Automation

Post Upgrade

1 Upgrade Aria LCM to v8.18 p2
3 Deploy VCF Fleet Management
4 Download SDDC Manager Update
6 Download VCF Binaries
8 Upgrade vCenter
10 Upgrade ESX
11 Relicense for VCF 9
12 Import Aria Automation

Deploy VCF Operations for Logs
Deploy VIDB
Configure SSO
Enable vCenter Linking
Remove Aria LCM / vIDM

2 Upgrade Aria Operations to v9.0
5 Upgrade SDDC Manager
7 Upgrade NSX
9 Transition to vLCM Images
13 Upgrade Aria Automation to v9.0

START
END

Aria LCM
SDDC Manager
VCF Operations

Converge

Architecture

Architecture

- First vCenter instance becomes the management domain

- Including all vSphere clusters

- Additional vCenter instances must be added later as Workload Domains (day-2 operation)

Important Considerations

- Environments with a **single** vCenter instance will match VCF Consolidated Architecture

- Environments with multiple vCenter instances can combine the converge and import paths

ToR Switch   ToR Switch

Management Domain

Management Resource Pool

Workload Resource Pool

NSX Edge Resource Pool

ESXi Hosts

Rack 1

Supported Scenario's

Scenarios

- vSphere only
- vSphere + Aria Suite
- vSphere + NSX
- vSphere + NSX + Aria Suite

Important considerations

- No converge path for Dell VxRail
- New VCF Fleet or VCF Instance
- No upgrade path for Aria Operations for Logs (redeploy)
- No upgrade path for Workspace ONE Access (replaced by VCF Identity Broker)

Requirements / Pre-requisites

Minimum versions (as of VCF 9.0.1)

- vSphere Only: **vSphere 9.x**

- vSphere + NSX: **vSphere 8.0 Update 1a, NSX 4.1.0**

- Aria Suite Lifecycle: **v8.18 Patch 2**

- Aria Operations and Automation: **v8.18**

- Aria Operations for Networks: **v6.13**

Recommended versions

- vSphere 8.0 Update 3

- NSX 4.2.1

Requirements / Pre-requisites

Minimum Hardware*

- Simple Deployment Model with vSAN: **3 nodes per availability zone**
- Simple Deployment Model with FC/NFS/VMFS/iSCSI: **2 nodes per availability zone**
- High Availability Deployment Model: **4 nodes per availability zone**

Not Supported**

- vVols Datastores

Important Considerations

- vSphere cluster hosting the vCenter instance will be the default management cluster
- Datastore hosting the vCenter instance will be the principal storage type

* Standalone hosts or single host clusters as secondary cluster
** vVols deprecated in vSphere 9.x

Requirements / Pre-requisites

Networking

- Virtual Distributed Switch (VDS) or combination of standard switches and VDS
- Dedicated network for vMotion
- VDS with Link Aggregation Control Protocol (LACP)
- Static assigned IP addresses for VMkernel interfaces
- Multiple 10 Gbps physcial uplinks connected to a VDS
- Single 10 Gbps pNIC connected to a standard switch

Not Supported

- Custom vCenter ports
- Cisco Virtual Switches (Nexus 1000v)
- Multiple NSX Managers registered to vCenter instance
- NSX Bare Metal Edge nodes

Important Considerations

- Portgroup used for vCenter connectivity will be the default VM management network

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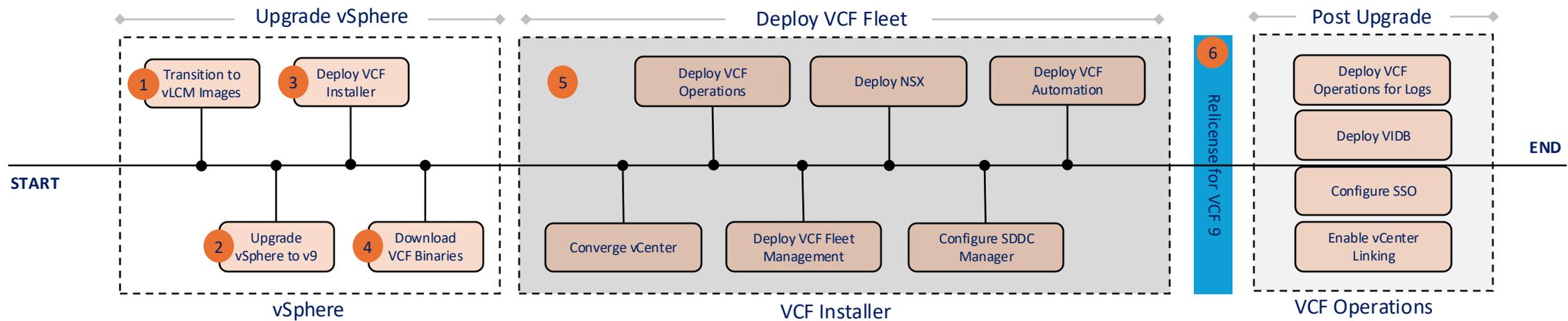
Requirements / Pre-requisites

vSphere

- vSphere Lifecycle Manager Images

- Fully Automated Dynamic Resource Scheduler (DRS)

Not Supported
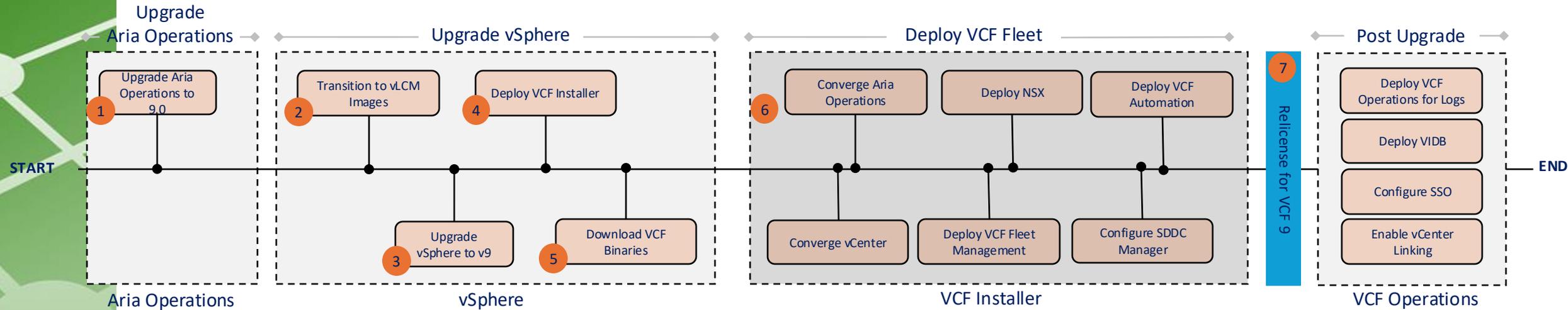
- Enhanced Linked Mode (ELM)*

- vCenter High Availability

- Dell VxRail

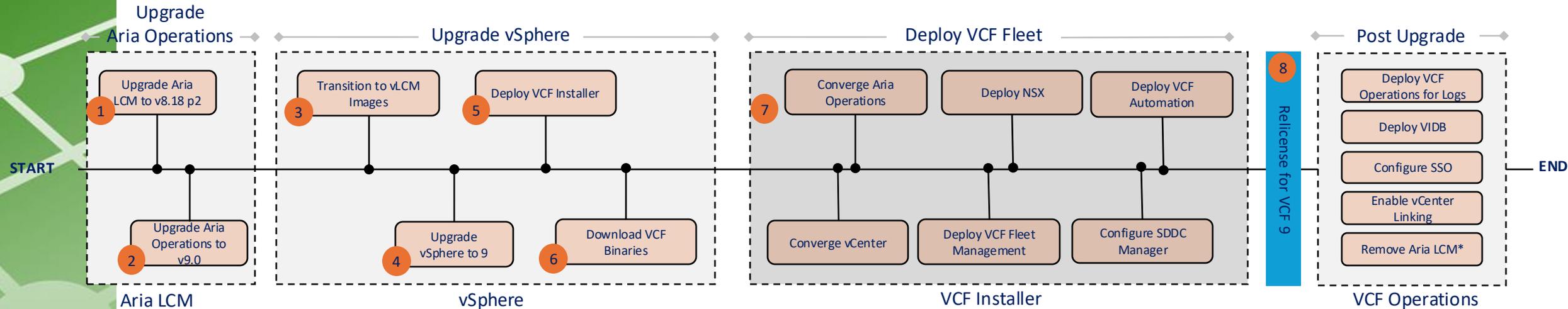* How to deactivate Enhanced Linked Mode
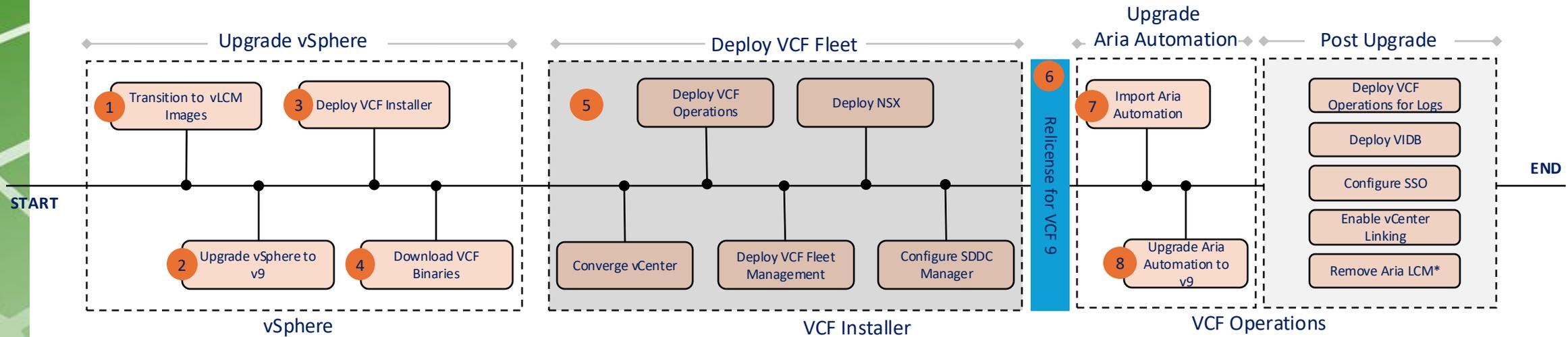
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vSphere Only

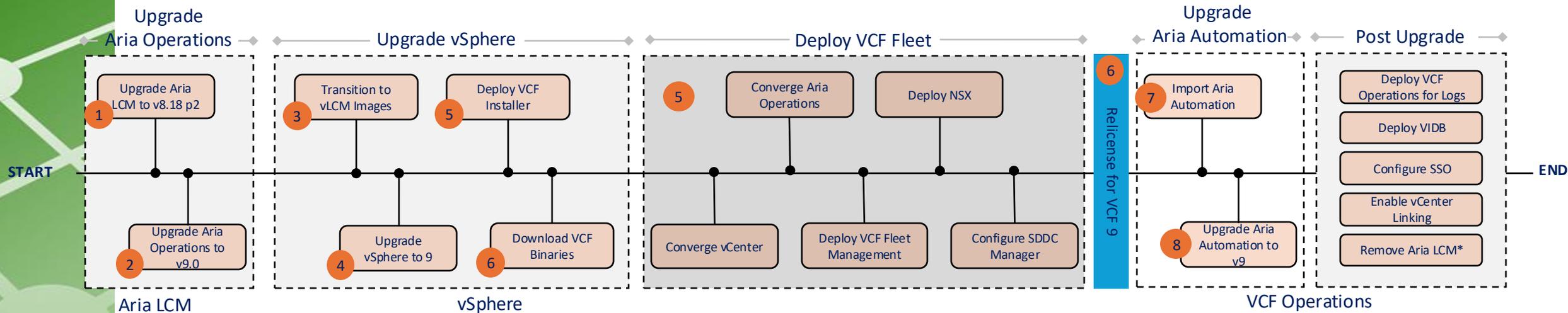# vSphere + Aria Operations

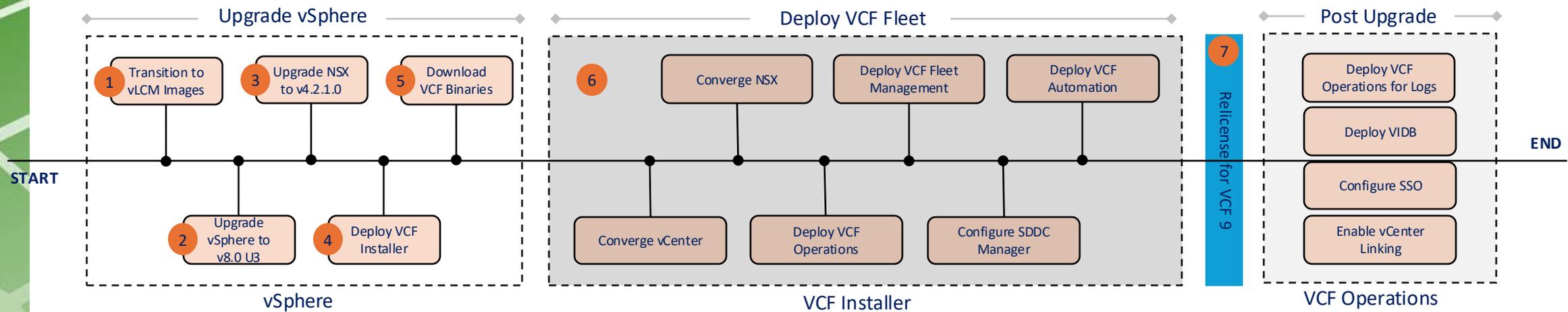# vSphere + Aria Operations + Aria LCM
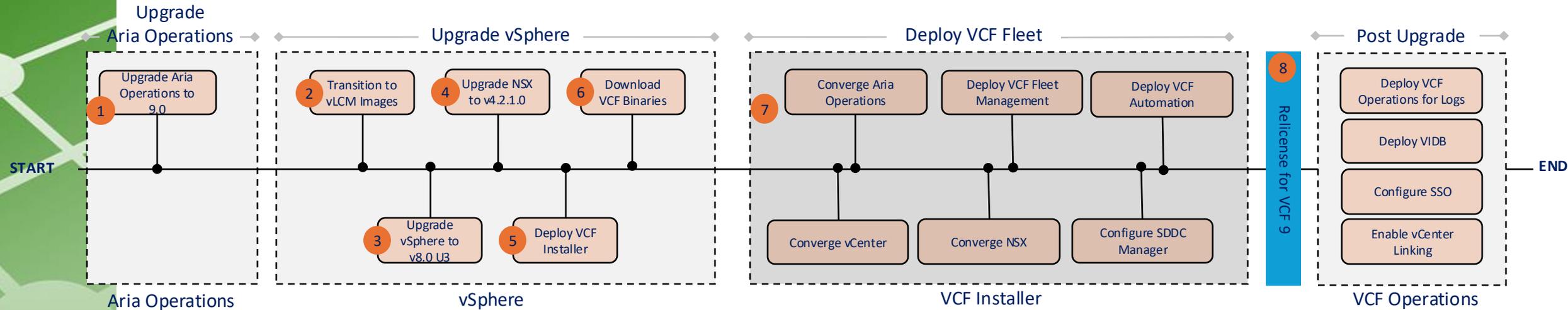
vSphere + Aria Automation + Aria LCM

vSphere + Aria Operations + Aria Automation + Aria LCM

vSphere + NSX
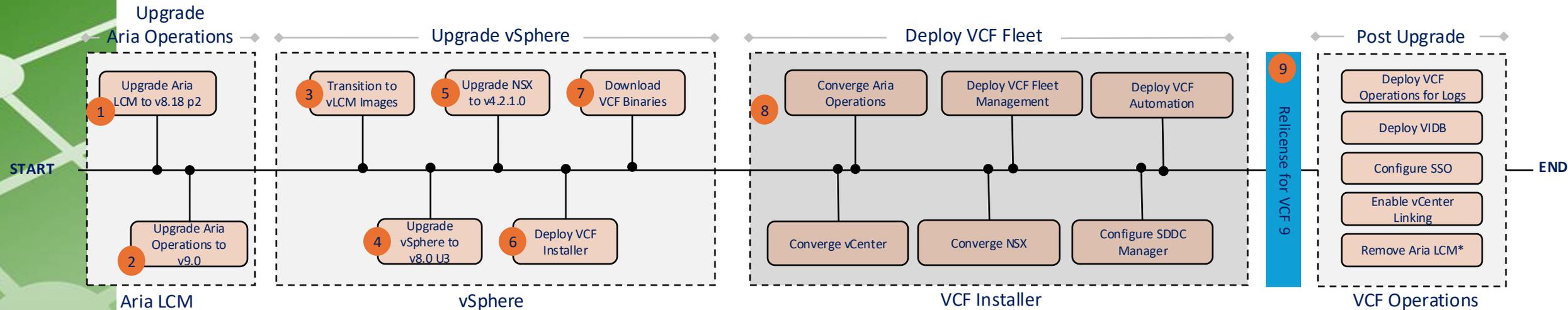
vSphere + NSX + Aria Operations

vSphere + NSX + Aria Operations + Aria LCM

Upgrade Aria Operations

1 — Upgrade Aria LCM to v8.18 p2

2 — Upgrade Aria Operations to v9.0

Aria LCM

Upgrade vSphere

3 — Transition to vLCM Images

5 — Upgrade NSX to v4.2.1.0

7 — Download VCF Binaries

4 — Upgrade vSphere to v8.0 U3

6 — Deploy VCF Installer

vSphere

Deploy VCF Fleet

8 — Converge Aria Operations

Deploy VCF Fleet Management

Deploy VCF Automation

Converge vCenter

Converge NSX

Configure SDDC Manager

VCF Installer

9 — Relicense for VCF 9

Post Upgrade

Deploy VCF Operations for Logs

Deploy VIDB

Configure SSO

Enable vCenter Linking

Remove Aria LCM*

VCF Operations

START

END

vSphere + NSX + Aria Operations + Aria Automation + Aria LCM

Import

Architecture

Architecture

- vCenter instance becomes a Workload Domain

- Including all vSphere clusters

Important Considerations

- If a NSX Manager is present, it will be imported as a dedicated NSX Manager

- If no NSX Manager is present, choose between shared or dedicated NSX Manager

- Management domain NSX Manager cannot be used for imported Workload Domains

- NSX Manager and vCenter instance need to be connected to the same network

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Supported Scenario's

Scenarios

- Existing standalone vCenter instance in the inventory

- External vCenter instance

Important considerations

- No import path for Dell VxRail

- Upgrade imported Workload Domain to VCF 9 not immediately needed

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Requirements / Pre-requisites

Minimum versions (as of VCF 9.0.1)

- vSphere : **vSphere 8.0 Update 1a**

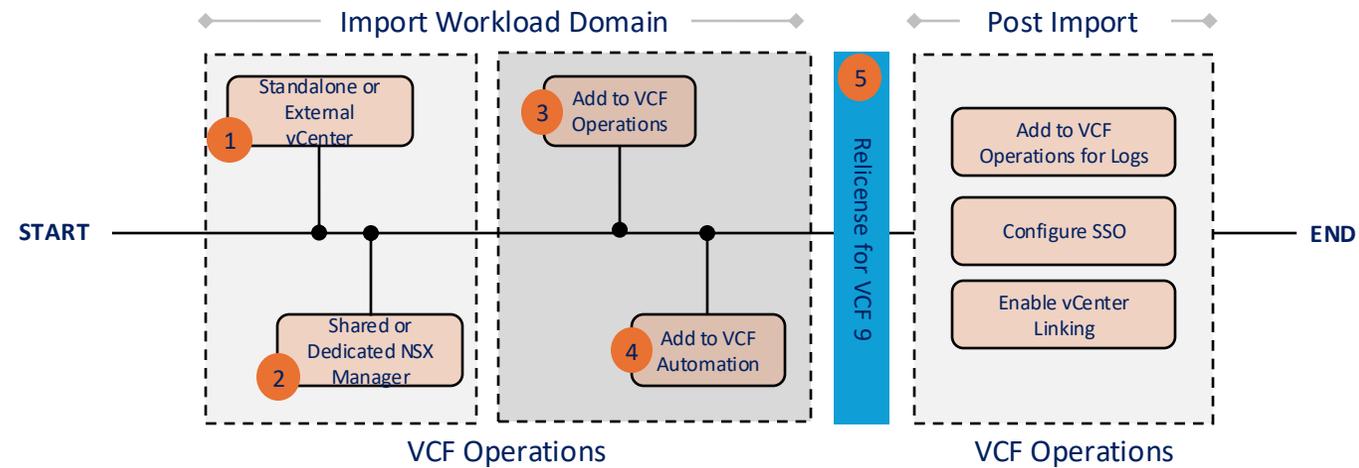- NSX: **NSX 4.1.0**

Recommended versions

- vSphere 8.0 Update 3
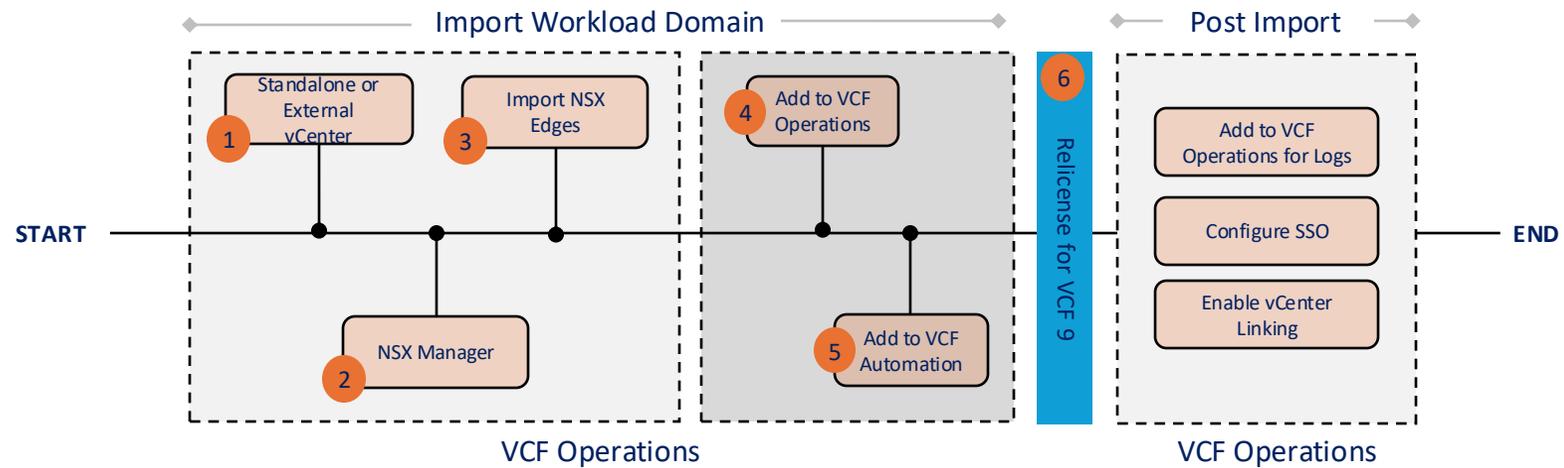
- NSX 4.2.1

Requirements / Pre-requisites

Hardware / Storage / Networking / vSphere / etc

- Same requirements and pre-requisites as for a Converge

vSphere Only

Import Workload Domain — **Post Import**

- Standalone or External vCenter (1)
- Shared or Dedicated NSX Manager (2)
- Add to VCF Operations (3)
- Add to VCF Automation (4)
- Relicense for VCF 9 (5)
- Add to VCF Operations for Logs
- Configure SSO
- Enable vCenter Linking

VCF Operations

START — END

vSphere + NSX

Key Takeaways

General Key Takeaways

- Upgrade paths depends on the source architecture and environment
  - Available hardware
  - Complexity of the environment
- Validate hardware compatibility and hardware sizing
- Validate requirements and pre-requisites
- Mandatory management components
  - VCF Operations and VCF Automation
- Always start with VCF Fleet Management Components

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General Key Takeaways

- Check for unsupported features in use
  - ELM, IWA, NSX Service Insertion
- Post-Upgrade tasks can be complex and/or time consuming
  - Re-deployment of VCF Operations for Logs
  - Workspace ONE Access to VCF Identity Broker migration
  - VDS version upgrade / vSAN format upgrade
- New VCF 9.x constructs may require a re-design after the upgrade
  - No upgrade path for NSX VPC Networking
  - VCF Automation All-Apps Organisation tenant model requires a Workload Domain with a dedicated NSX Manager
  - AVI Load Balancer Essentials license is not available anymore

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General Key Takeaways

- Validate 3th part software interoperability
  - Backup, monitoring, privileged access management, etc
- VxRail is not an option in VCF 9.x

Upgrade Key Takeaways

- Skip-level upgrade is supported from VCF 5.0 to VCF 9.0
- Upgrade of VCF Management Components performed manually
  - Aria LCM or direct
- Upgrade of VCF Core Components performed via SDDC Manager or manually
- Always follow the correct update sequence for VCF Core components
  - SDDC Manager
  - NSX (Global and Local)
  - vCenter
  - ESX
- Workload Domains can be upgraded later in time

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Converge Key Takeaways

- Single vCenter environment matches VCF Consolidated Architecture

- Combine converge with import for multiple vCenter instances

- All clusters in the vCenter instance will be imported

- Minimum versions are important
  - Newer is better

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Import Key Takeaways

- Existing NSX Manager will become a dedicated NSX Manager
  - Not shared with other workload domains / Isolated Workload Domain
  - Can impact logical routing & switching or micro-segmentation design
- Management domain NSX Manager cannot be used for imported Workload Domains
- NSX Manager and vCenter instance need to be connected to the same network
- Upgrade imported Workload Domain to VCF 9 not immediately needed

Questions?

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Thank you!

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