DEPLOYING A HIGHLY AVAILABLE RED HAT VIRTUALIZATION MANAGER

SELF-HOSTED ENGINE

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redhat.

AGENDA

Very simple

- What is Self-Hosted Engine?
- Deployment Walkthrough
- Demonstration

WHAT IS SELF-HOSTED ENGINE?

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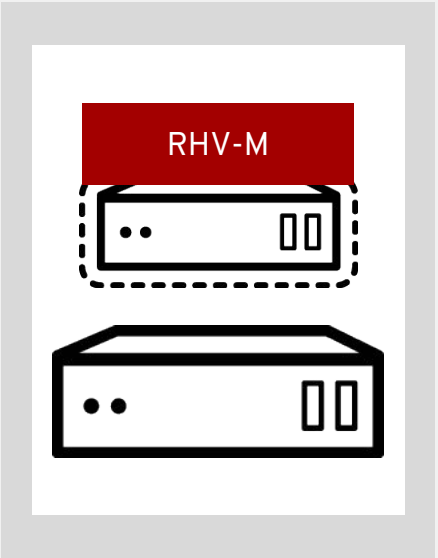
WHAT IS SELF-HOSTED ENGINE?

- “Engine” is synonymous with Red Hat Virtualization Manager
- Self-Hosted Engine is also referred to as “Hosted Engine” or “HE”
- In Hosted Engine RHV-M runs as a virtualized appliance



RHV-M Appliance (“Engine”)

Virtual Machine

RHEL Host
or
Red Hat Virtualization Host

WHY CONSIDER IT AS A DEPLOYMENT OPTION?

- Provides High Availability for Red Hat Virtualization Manager (RHV-M)
- Reduces the overall footprint of a RHV deployment
- Reduces the steps needed to deploy RHV
- Reduces the operational needs of RHV

WHAT HAPPENS IF RHV-M GOES DOWN?

RHV-M is “the brains of the operation” - if RHV-M goes down, there is:

- No access to manage resources (compute, network, storage, or users)
- No access for REST API (backup, recovery, reporting, automation)
- No means of providing service to virtual resources (HA, load balance, optimization, quotas, QoS)

If any virtual resources (compute, storage, network) are already in operation, then they will remain in operation should RHV-M go down.

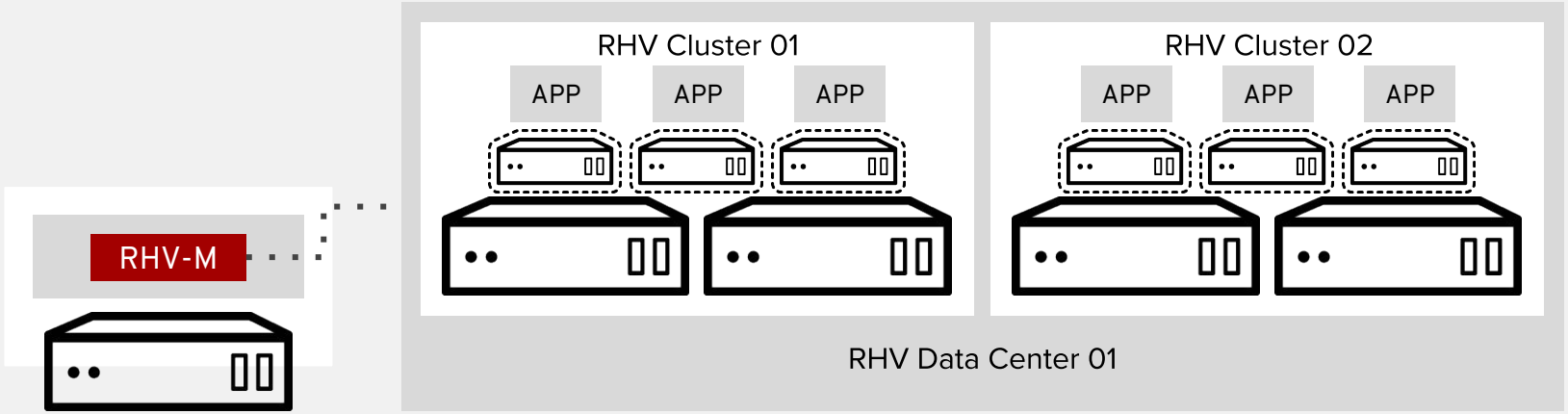
CONFIGURATION OPTIONS

What are the primary ways RHV-M can be deployed?

Three primary deployment methods:

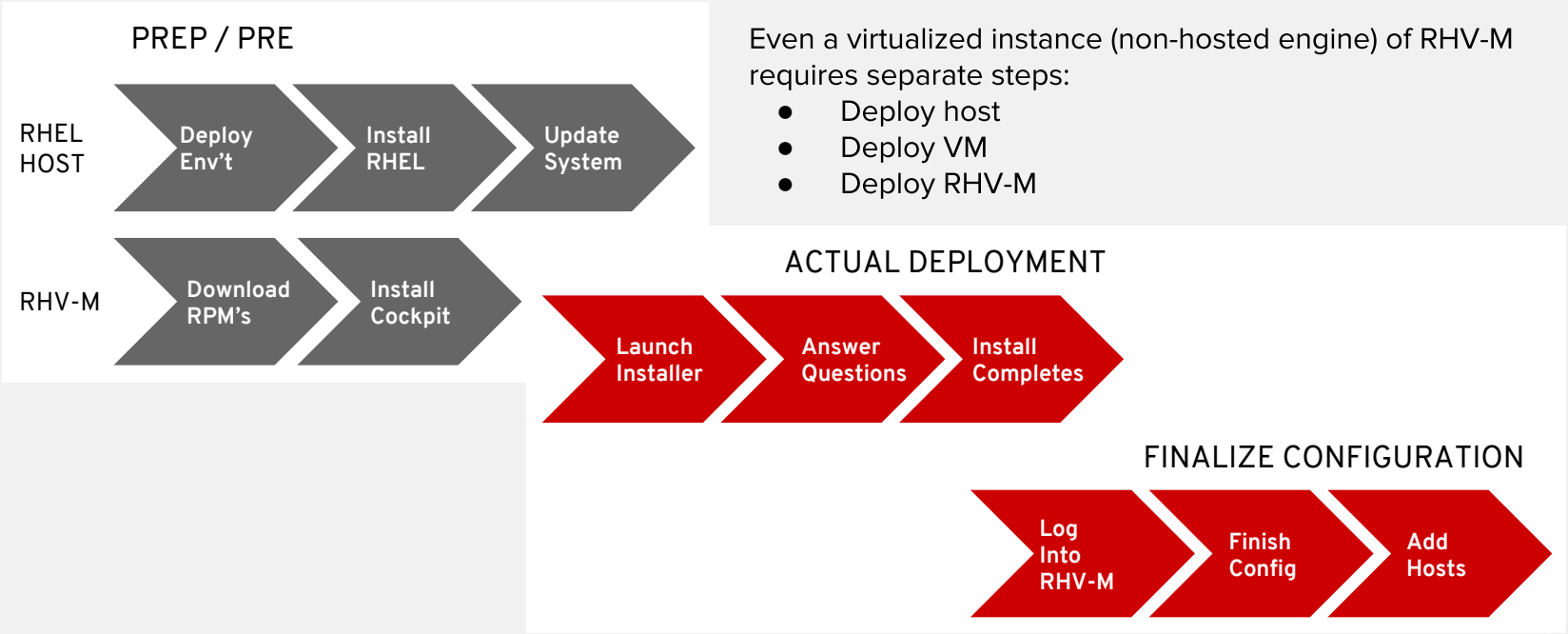
- Standard (non-HA)
- Hosted Engine with RHEL
- Hosted Engine with RHVH

STANDARD RHV-M DEPLOYMENT



Standard deployment of RHV-M
(No high availability for RHV-M)

WORKFLOW FOR STANDARD DEPLOYMENT

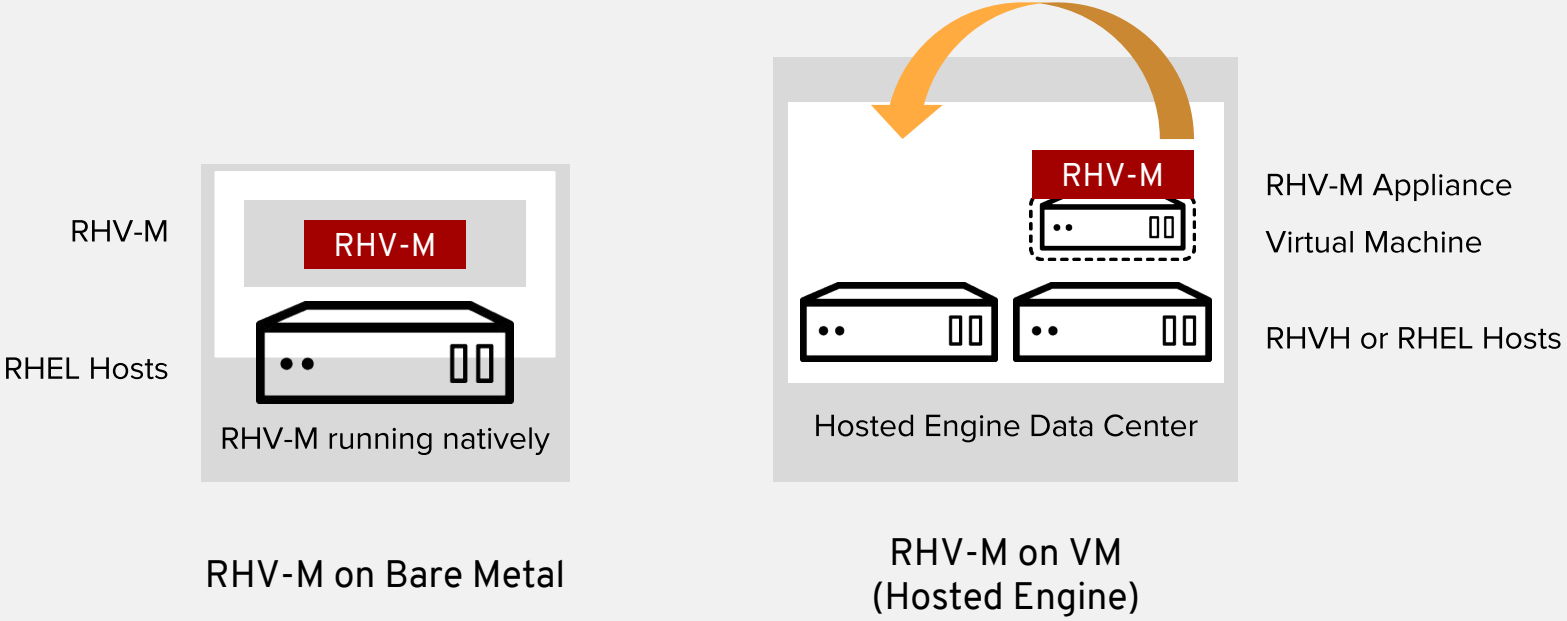


Even a virtualized instance (non-hosted engine) of RHV-M requires separate steps:

- Deploy host
- Deploy VM
- Deploy RHV-M

COMPARING RHV-M DEPLOYMENTS

Physical vs Virtual Appliance

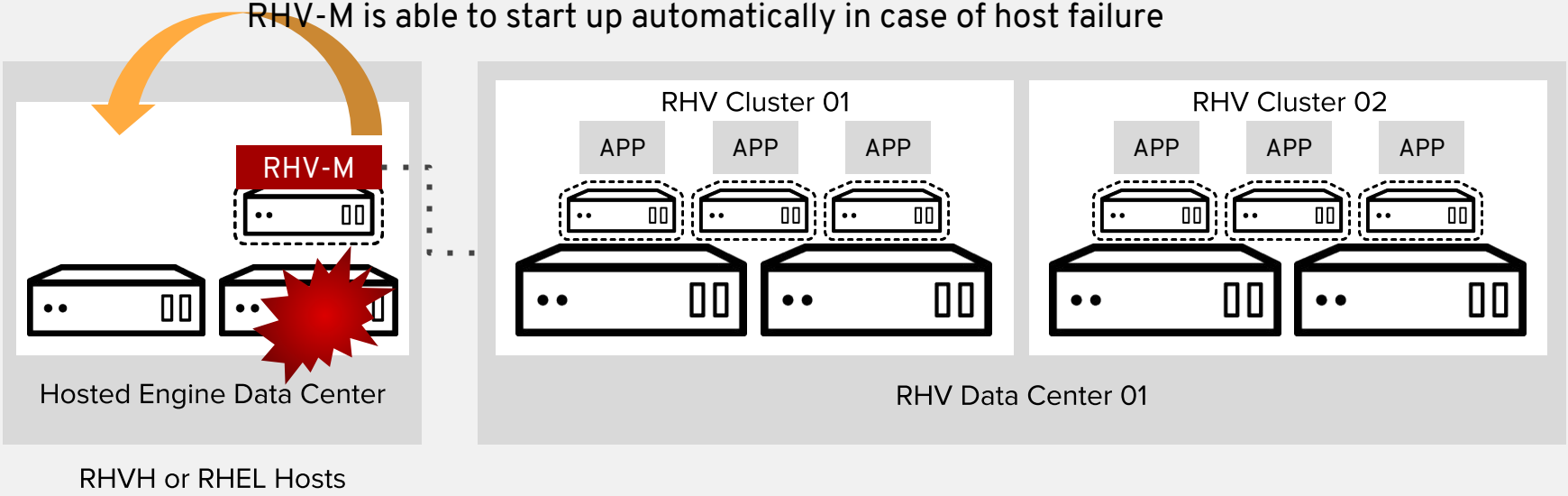


RHV-M on Bare Metal

RHV-M on VM
(Hosted Engine)

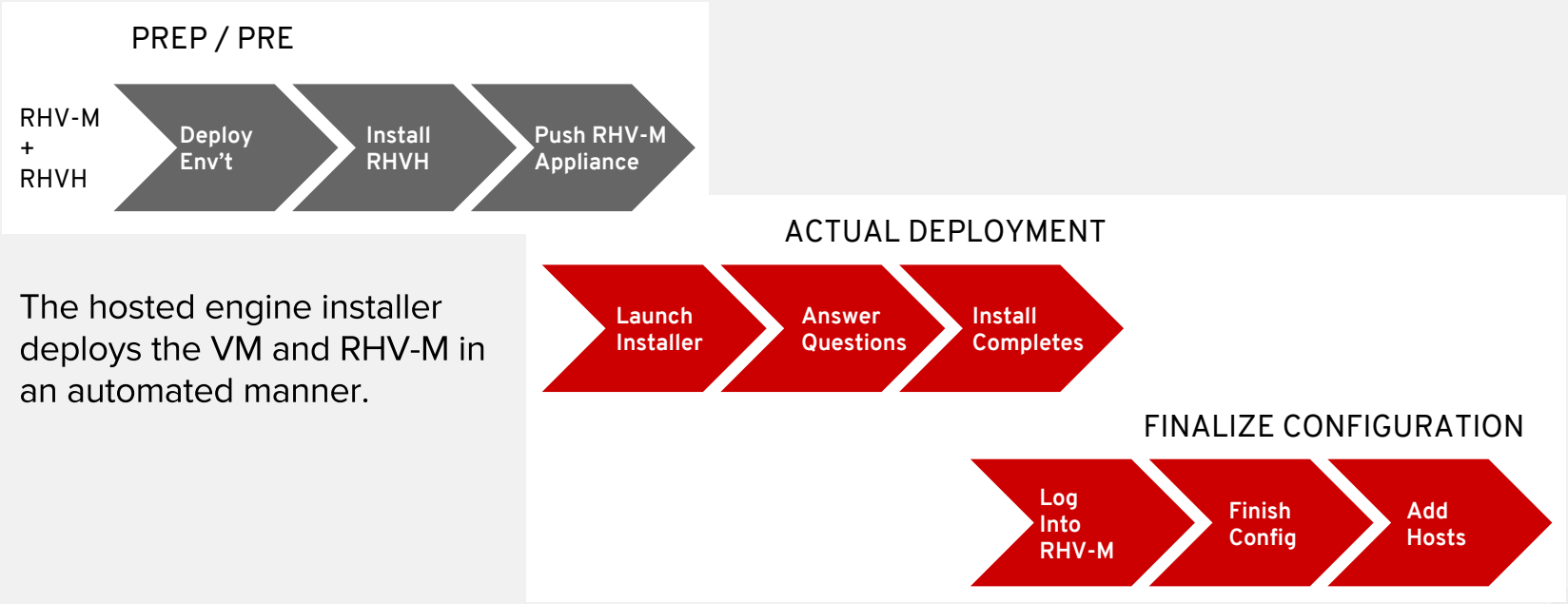
SELF-HOSTED ENGINE DEPLOYMENT

Highly Available



RHV-M in Self-Hosted Engine Deployment
(High availability for RHV-M)

WORKFLOW FOR SELF-HOSTED ENGINE



The hosted engine installer deploys the VM and RHV-M in an automated manner.

DEPLOYMENT OPTIONS

Considerations for Standard Deployment and Self-Hosted Engine

Standard Deployment

Pro's

- Easy for lab
- Easy to customize

Con's

- No High Availability
  - (but if you don't need it…)

Hosted Engine Deployment

Pro's

- High Availability for RHV-M
- Reduced hardware footprint
- Less to manage

Con's

- Not as easy to separate components

USE CASE ALONE DETERMINES WHICH ONE IS BETTER FOR YOUR ENVIRONMENT

DEPLOYMENT OPTIONS - PRO'S & CON'S

Weighing RHEL Self-Hosted Against RHVH Self-Hosted

Hosted Engine (RHEL)

Pro's

- Ability to customize per security, business needs

Con's

- Not as "purpose built" as compared to RHVH

Hosted Engine (RHVH)

Pro's

- Appliance approach to host & management (pre-configured)

Con's

- No custom FS layout

USE CASE ALONE DETERMINES WHICH ONE IS BETTER FOR YOUR ENVIRONMENT

REQUIREMENTS

Hosted Engine (RHEL)

- RHEL 7.3 (new install)
- Hosted Engine VM v7.3
- Storage deployed for RHV-M
- FQDN for RHV-M
- NTP for all hosts and RHV-M
- 5GB in /var
- ovirt-hosted-engine & screen packages

Hosted Engine (RHVH)

- RHVH 7.3 (new install)
- Hosted Engine VM v7.3
- Storage deployed for RHV-M
- Storage deployed for hosted engine
- FQDN for RHV-M and host
- NTP for all hosts and RHV-M
- 5GB /var

BEST PRACTICES FOR DEPLOYING HOSTED ENGINE

Pay attention!

- Read & follow the install documentation
- Fully prepared environment
- NTP, DNS, FQDN
  - Have info on hand!!
- Other redundant/HA components
  - Switches, HBA's, NICs, Power
- Document your own environment
- Directory Services
  - Identity Manager, Active Directory
- Integrate with Red Hat Satellite
  - Software life cycle for hosts and VMs
  - Provision hosts and VMs
- No Local Users | Operators only on hosts
- Standardize Hardware

DEPLOYMENT WALKTHROUGH

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DEPLOYMENT WALKTHROUGH

RHVH

- Deploy RHVH plus special RHV-M image
- Pay special attention to disk layout
  - 5GB for /var (initially deployed host only)
  - LVM Thin Pools
- Subscribe to Red Hat CDN
- Install RHV-M appliance image (.ova)

DEPLOYMENT WALKTHROUGH

HOSTED ENGINE DEPLOYMENT

- Log into “Cockpit” - Secure HTTP, port 9090
- Select “tuned” Virtualization Host profile
- Launch Hosted Engine installer
- Answer the prompts (FQDN, NFS exports, IP info, etc)
- Look out for velociraptors
- Watch for VNC information - able to watch deployment on console

DEPLOYMENT WALKTHROUGH

Finalize configuration

- Log into RHV-M
- Add VM storage
  - This triggers finalization of hosted engine configuration
  - Hosted engine storage appears
  - Hosted engine VM appears
- Add additional hosts
- TEST FAILOVER!!

DEPLOYMENT WALKTHROUGH

Final testing

- Can you log into RHV-M?
- Can you finish the configuration (storage, add host, etc)?
- Will RHV-M live migrate from host to host?
- Does the `hosted-engine --vm-status` command provide positive results?
- Does RHV-M automatically restart when failure is caused?

DEMONSTRATIONS

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TIME TO DEMO!!

What will you see?

- Build RHVH
- Launch install
- Add Host
- Test Live Migration
- Test Failover

HOSTED ENGINES

Recorded demos

LAUNCH DEMOS

- RHVH 4.1 Deploy
- Hosted Engine 4.1 Deploy
- Hosted Engine 4.1 Failover

WRAP-UP

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WHAT DO I GAIN FROM USING HOSTED ENGINE?

(in addition to protection from velociraptors*)

High Availability greatly reduce interruptions to:

- Administrative access to managed resources (compute, network, storage, users)
- REST API operations (backup, recovery, reporting, automation)
- SLA's to virtual resources (HA, load balance, optimization, quotas, QoS)

Hosted Engine streamlines:

- Deployment time for RHV
- Operational needs for RHV
- Hardware needs for RHV

*not really

ADDITIONAL INFORMATION

Documents and such

- https://docs.redhat.com
- https://access.redhat.com/documentation/en-us/red_hat_virtualization/4.1/html/self-hosted_engine_guide/

QUESTIONS?

“WE HAVE HOSTED ENGINE”

RED HAT SUMMIT

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