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Enterprise Linux

Linux System Roles

One playbook to rule them all

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Simplified configuration with Linux System Roles and Ansible

Overview of Linux System Roles

Introduction to Storage role

How to use it and demo time

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I bet you've been here before...

```
# My wicked cool automation scripts

do.clever.stuff(with_my_servers)

automate  --all-the-things

Watch.it.break  --every-time  --change
#  $@%!$@%!$@%!$@%!$@%!$@%!

rinse.repeat
```

Image by www_slon_pics from Pixabay

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Simplify the admin work

How can we make servers management easier

in an automatable way,

at scale?

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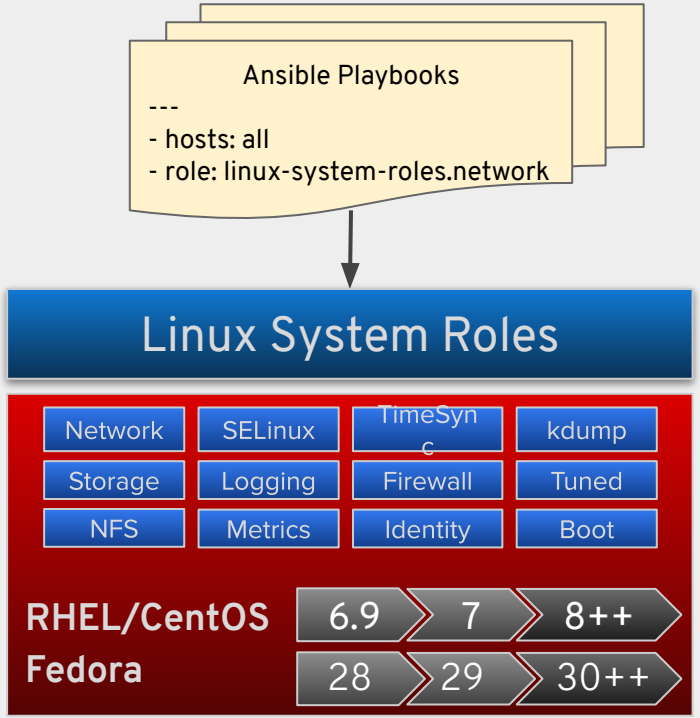
Easier Administration with ANSIBLE



A collection of Ansible roles and modules

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Easier Administration with  ANSIBLE

Ansible is an **open source automation platform**

It is **very simple to setup** and yet powerful.

Helps with **configuration management, application deployment, task automation**.

It can do **IT orchestration**, where you have to run tasks in sequence and create a chain of events which must happen **on several different servers or devices.**

It doesn't use an agent on the remote host.

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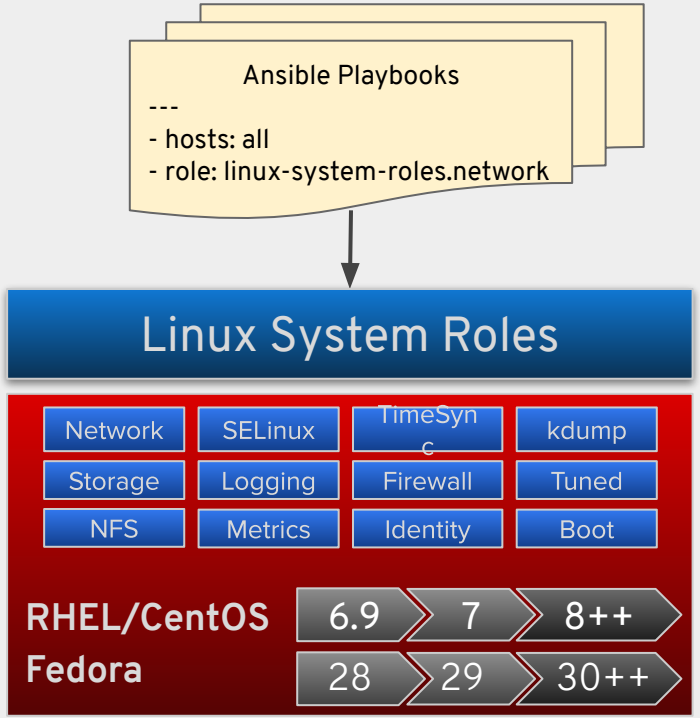
Easier Administration with ANSIBLE



A collection of Ansible roles and modules

Abstract ***configuration*** from ***implementation***

Maintained by subject matter experts

Evolves with subsystem

Consistent configuration **interface** to RHEL/Fedora/CentOS

Compatible and tested with RHEL 6, 7, 8+ and Fedora

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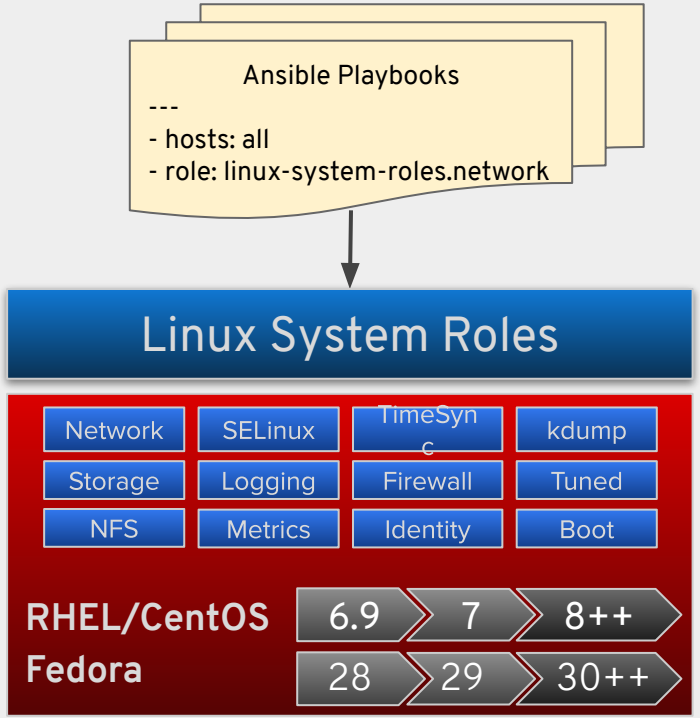
Easier Administration with ANSIBLE



RELEASED ROLES

- **Network**
- Security-Enhanced Linux (SELinux)
- **TimeSync**
- Email (Postfix)
- kdump (kernel crash dump)

TARGETED ROLES

- **Storage**
- Logging
- **Image builder**
- **Web Console (cockpit)**
- SAP Hana
- MS SQL Server
- Metrics
- Network file system (NFS)
- Bootloader
- **Firewall**
- More…

Roles in Demo

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Storage role

Principles

Simplify local storage configuration

- provide a concise model to describe the storage layout
- provide reasonable defaults where possible
- handle non-essential details automatically
- reuse existing storage management logic

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Storage role

Examples

Create and mount a file system on a whole unpartitioned disk (including /etc/fstab entry)

```
---
- hosts: all
  vars:
    - storage_volumes:
      - name: backup
        type: disk
        disks: ['sdc']
        mount_point: /backup
        #fs_type: xfs
  roles:
    - role: linux-system-roles.storage
```


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Storage role

Examples

Example: two (lvm) volumes in a single pool

```
---
- hosts: all
  vars:
    storage_pools:
      - name: mongo
        #type: lvm
        disks: [‘sdd’, ‘sde’]
        volumes:
          - name: data
            #type: lvm
            mount_point: /var/lib/mongo
            size: 500g
            #fs_type: xfs
          - name: logs
            mount_point: /var/log/mongodb
            size: 40g
```


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Storage role

Examples

Example: more options

```
---
- hosts: all
  vars:
    storage_pools:
      - name: acme_app
        #type: lvm
        disks: ['/dev/mapper/mpathb']
        volumes:
          - name: data
            mount_point: /opt/acme/data
            size: 100g
            fs_type: xfs
            fs_label: acme_data
            fs_create_options: '-i 512'
            mount_options: '-l internal'
```


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Storage role

Status & Roadmap

- **Status**
  - v1.0.2 released
  - planned for inclusion in RHEL 8.1.0, Fedora 32
  - supported
    - whole disk, whole disk w/ single partition, lvm (basic)
- **Roadmap**
  - encryption (LUKS)
  - RAID (md)
  - LVM thin provisioning
  - LVM cache
  - LVM RAID
  - compression & deduplication (VDO)
  - stratis

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Storage role

Challenges

Challenging, high-value features

- automatic device name
- automatic size
- automatic disk selection
- percentage-based size

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Logging role

Principles

- High level architecture
- Simplify logging deployment on multiple hosts
- Collect multiple logs to multiple destinations
- Apply default settings where possible

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Logging role

Architecture

Rsyslog

Since Red Hat Enterprise Linux 6, **November 2010**, rsyslogd became **the default**.

- Multi-threading
- TCP, SSL, TLS, RELP
- Diverse destinations
- Filter any part of syslog message
- Fully configurable output format
- Suitable for enterprise-class relay chains

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Logging role

By Default:

- **All system and kernel messages** get passed to rsyslogd.
- Logs are sent to **files/ logged-in users** based on their **Syslog Facilities** and **Severity**

```
---
- hosts: all
  roles:
    - role: linux-system-roles.logging
```


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Logging role

User custom configuration file

List of custom configuration files are deployed to /etc/rsyslog.d/

```
---
- hosts: all
  vars:
    logging_outputs:
      - name: custom_files-test
        type: custom_files
        custom_config_files: [ '/path/to/custom_A.conf', '/path/to/custom_B.conf' ]
```


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Logging role

Journal to Elasticsearch

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Logging role

Journal to Elasticsearch

```
---
- hosts: all
  vars:
    use_omelasticsearch_cert: true
    logging_outputs:
      - name: journald-logs-elasticsearch
        type: elasticsearch
        server_host: 'es.example.com'
        index_prefix: 'project.test'
        ca_cert: /path/to/elasticsearch_ca_cert_file
        cert: /path/to/elasticsearch_client_cert_file
        key: /path/to/elasticsearch_client_key_file
        logs_collections:
          - name: 'journald'
```


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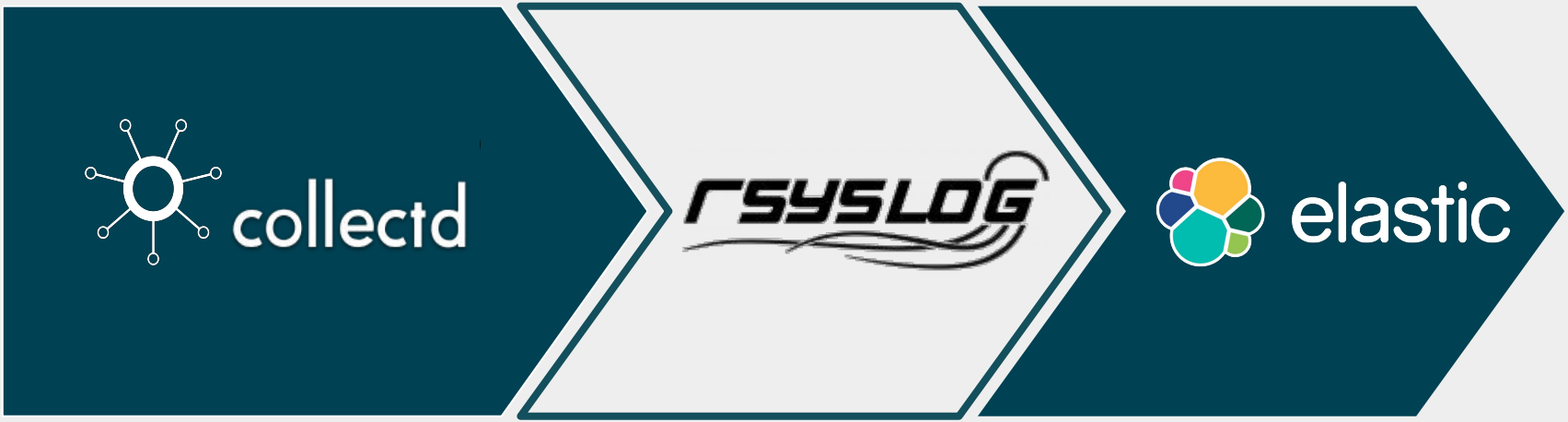
oVirt - Full monitoring solution



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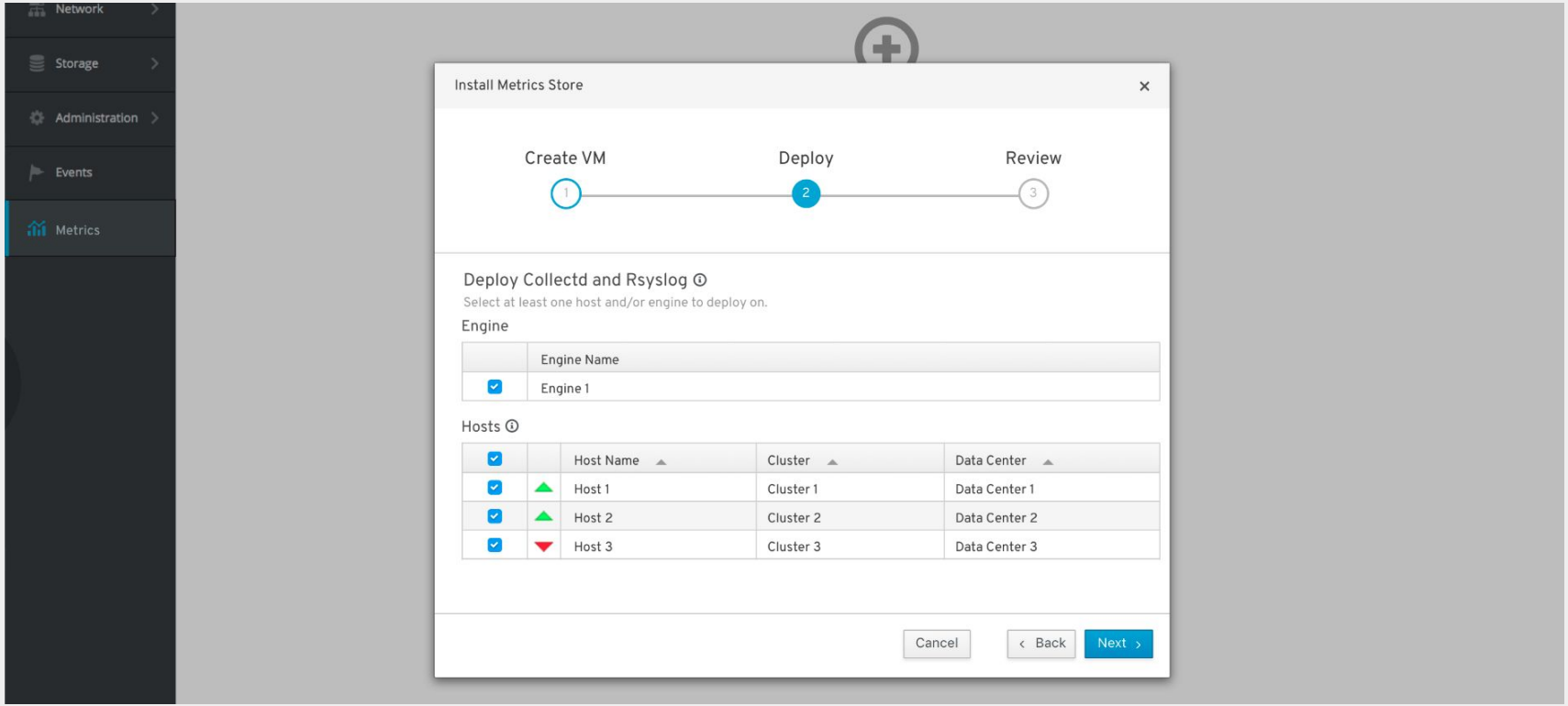
oVirt - Full monitoring solution



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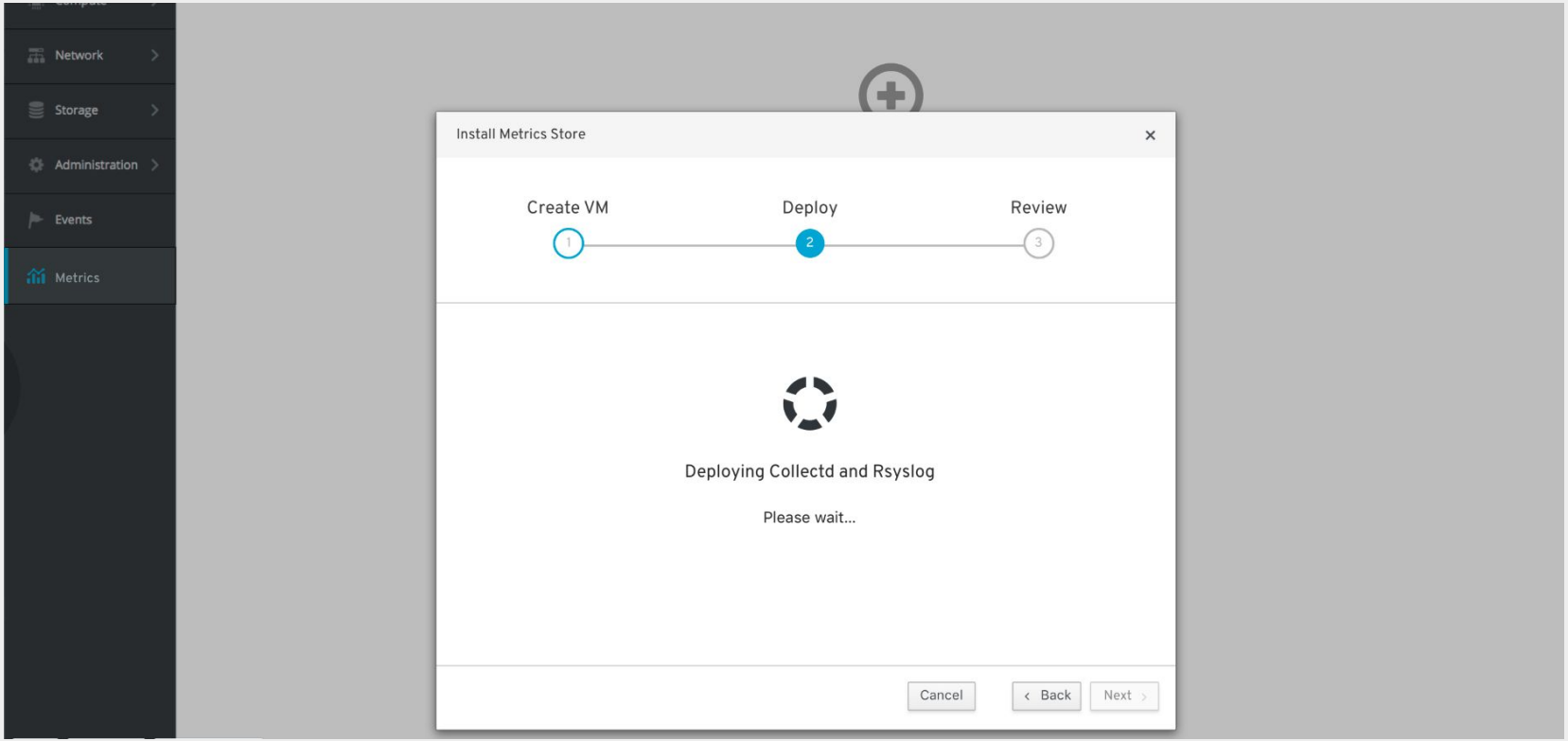
oVirt - Full monitoring solution



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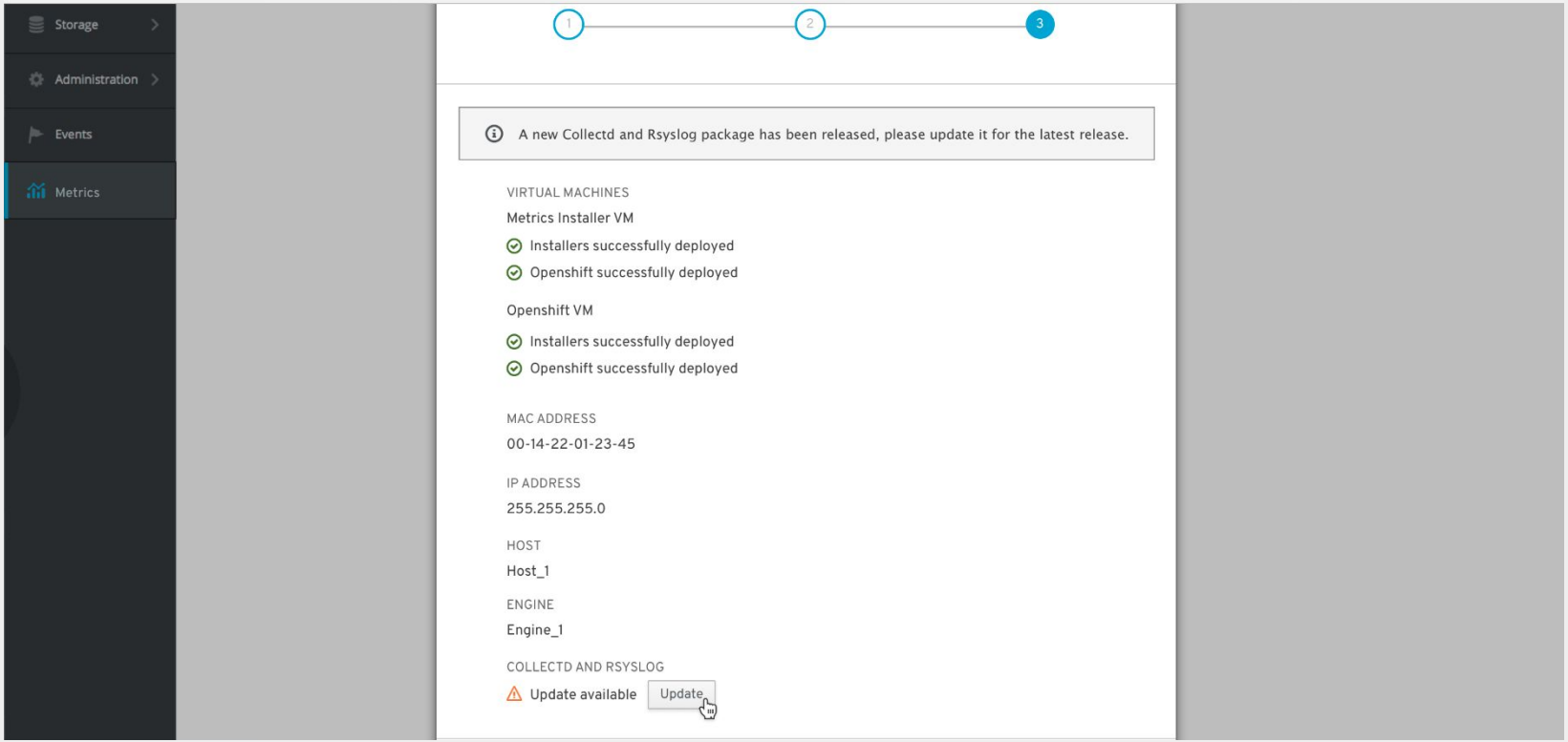
oVirt - Full monitoring solution



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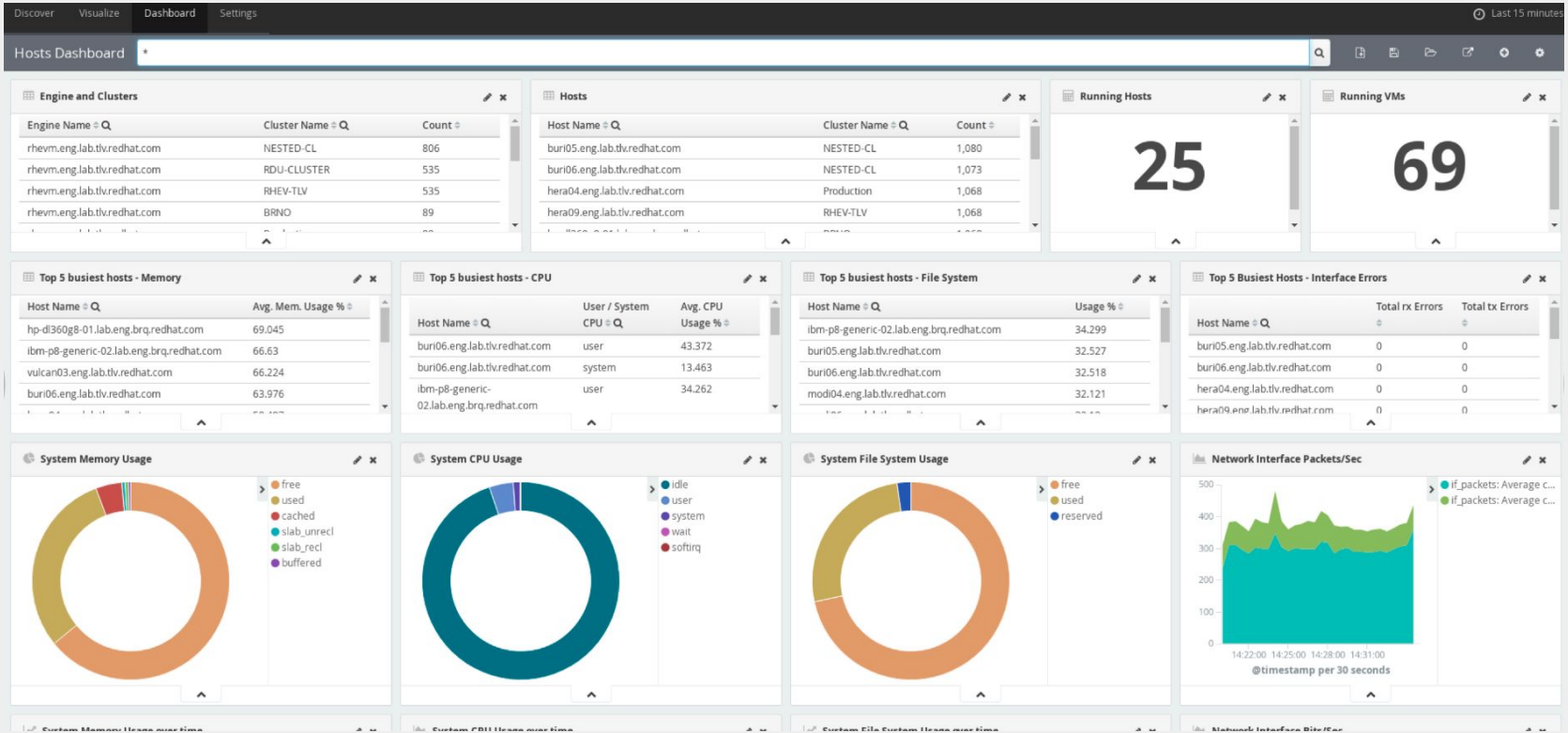
oVirt - Full monitoring solution



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Logging role

Status & Roadmap

- **Status**
  - In development
  - Supported
    - Deploy **default rsyslog.conf**
    - Send **journal** logs **to Elasticsearch**
    - Deploy **custom configuration** files
  - Used by oVirt for sending **logs** and Collectd **metrics** to **Elasticsearch**
- **Roadmap**
  - Profile based configuration (General, Resilient, Security, etc.)
  - Additional inputs
  - Additional outputs:
    - Remote rsyslog (server/client)
    - Remote message bus (Kafka, AMQP)

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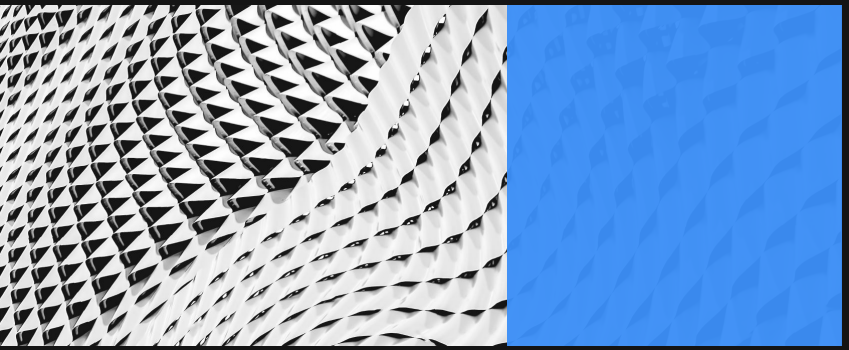
IT'S DEMO TIME!



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Give it a try

```
# ansible-galaxy install linux-system-roles.postfix
# ansible-galaxy install linux-system-roles.kdump
# ansible-galaxy install linux-system-roles.network
# ansible-galaxy install linux-system-roles.selinux
# ansible-galaxy install linux-system-roles.timesync
# ansible-galaxy install linux-system-roles.storage
```


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Documentation & References

Landing page and overview -
https://linux-system-roles.github.io/

Link to Galaxy page -
https://galaxy.ansible.com/linux-system-roles/

Link github project -
https://github.com/linux-system-roles

Example playbooks
https://github.com/linux-system-roles/linux-system-roles.github.io/tree/master/demo
https://github.com/linux-system-roles/linux-system-roles.github.io/tree/master/demo/devconf-demo

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Providing Feedback & Requests

Tell us...

- What new features or capabilities you need.
- What is needed.
- What needs to be fixed.

Methods...

- Open an issue at the upstream linux-system-roles project on github.
- Pull requests welcome!

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Thank you

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