

RED HAT
SUMMIT

Bringing DevOps to Networking With Ansible

Automate your network operations

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**MANAGING NETWORKS
HASN'T CHANGED
IN 30 YEARS.**

PEOPLE

E

Domain specific skillsets

Vendor oriented experience

Siloed organizations

Legacy operational practices

PRODUCTS

Infrastructure-focused features

Baroque, CLI-only methodologies

Siloed technologies

Monolithic, proprietary platforms

Traditional Network Operations

Legacy culture

Risk averse

Proprietary solutions

Siloed from others

“Paper” practices,

MOPs

“Artisanal” networks

Next-Gen Network Operations

Community culture

Risk aware

Open solutions

Teams of heroes

Infrastructure as code

Virtual prototyping



COMMIT, VERIFY, CHECK

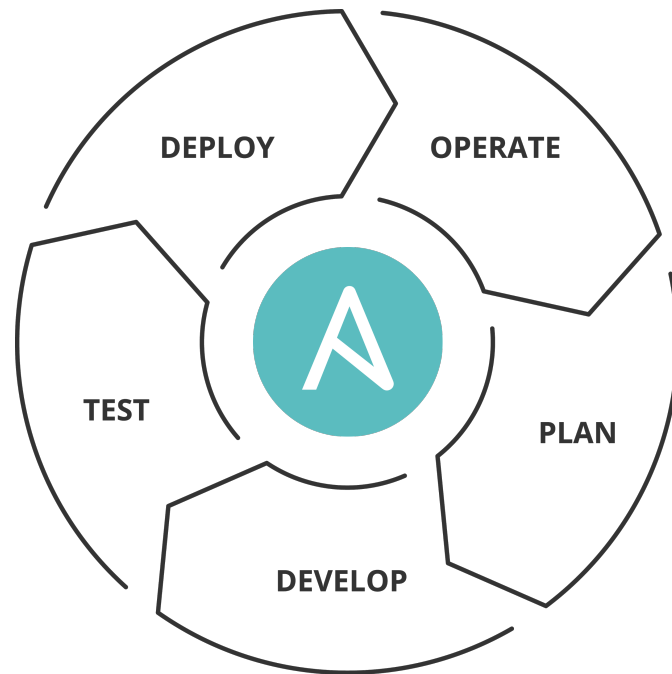
It's your single source of truth

- Backups/restores can be automated
- Changes can be incremental or wholesale
- Manage “golden” versions of configurations

Configuration management and verification

Ensure an on-going steady-state

- Daily, weekly, monthly scheduled tasks

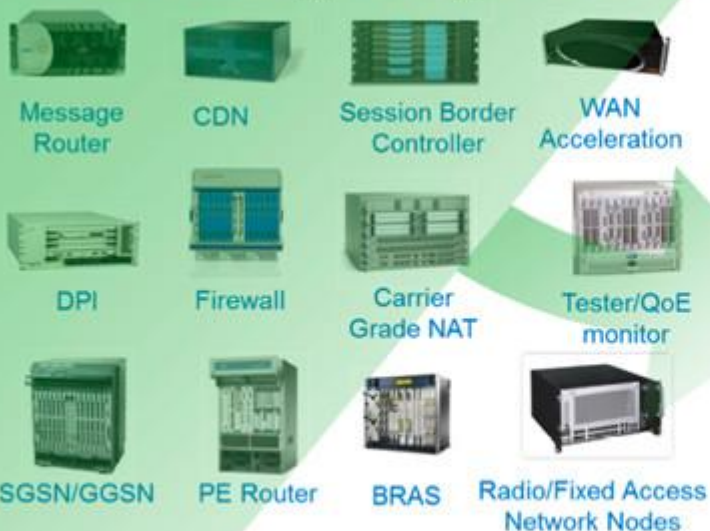


AUTOMATION USE CASE EXAMPLES

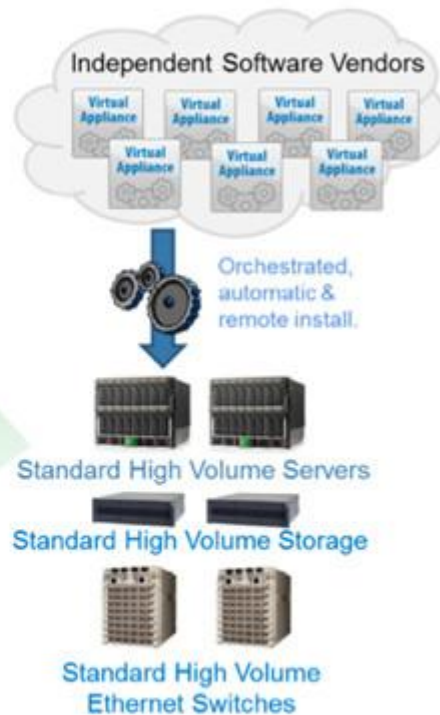
- **Information / Inventory Retrieval and Configuration**
 - Ad hoc or bulk Iteration over specific network segments
 - Credential management with Tower Vault
- **State Checking and Validation**
 - Compare running configs to desired configs
- **Continuous Compliance**
 - Combining stateful validation with schedules
 - Logging and Aggregation

NFV USE CASE

Classical Network Appliance Approach



- Fragmented non-commodity hardware.
- Physical install per appliance per site.
- Hardware development large barrier to entry for new vendors, constraining innovation & competition.



Network Functions Virtualisation Approach

JUNE 22

**#ANSIBLEFEST
LONDON
2017**

ANSIBLE @



ansible.com/summit

The logo for Red Hat Summit, featuring the words "RED HAT" in a smaller font above "SUMMIT" in a larger, bold font, all contained within a white speech bubble shape.

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ENSURING INTEROPERABILITY ACROSS RED HAT PRODUCTS

Managing your open hybrid cloud

Mike Amburn Dixon, Senior Principal Product Manager
Steven Huels, Senior Manager

April 3, 2017

Ensuring Interoperability

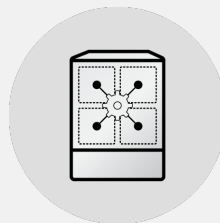
1



Consolidated funnel for
defining interop
requirements
& test scenarios



2



Automated,
continuous
verification &
reporting platform



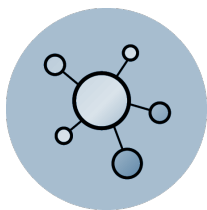
3



Intuitive, trusted, up-to-
date knowledge
resources

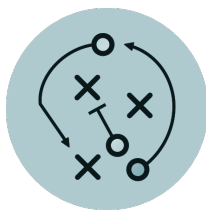
Validating Product Interoperability

Continuous Integration Workflow



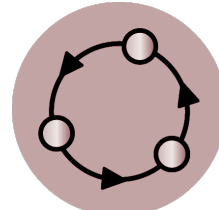
Interop Requirements Definition

Collect and categorize product interoperability requirements across multiple product releases



Integration Scenario Definition

Define product releases, product interoperability requirements, and architectures to validate



Interop CI Execution

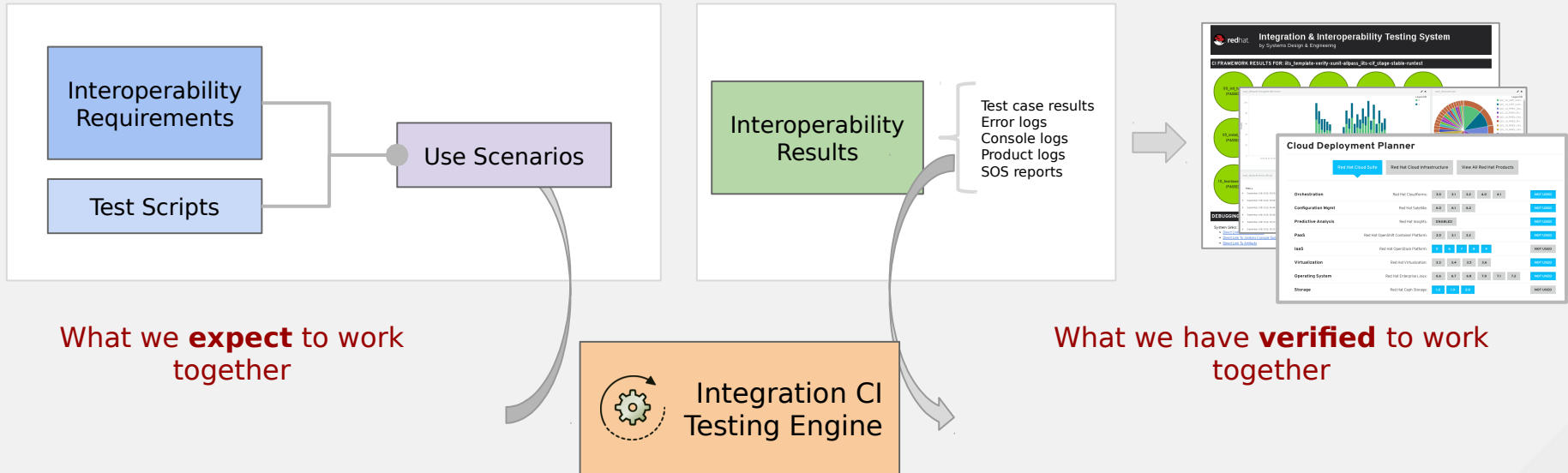
Execute automated product deployment, configuration, and validation



Integration Test Results

Aggregate logs and results for analysis and report results back to stakeholders

Integration & Interoperability Testing Platform



The Cloud Deployment Planner

A visual tool to determine compatibility across hybrid cloud products

Build your hybrid cloud solution

Cloud Deployment Planner

Use this interactive tool to quickly determine which products are appropriate for your organization and use case. Or view our [comprehensive compatibility matrix](#) across numerous feature categories and Red Hat products.

Red Hat Cloud Suite | Red Hat Cloud Infrastructure | View All Options

- SYSTEMS MANAGEMENT**
 - Red Hat Satellite
- MANAGEMENT**
 - Red Hat CloudForms
 - Red Hat Insights
- CONTAINERS**
 - Red Hat OpenShift Container Platform
- VIRTUALIZATION**
 - Red Hat Virtualization
- PRIVATE CLOUD**
 - Red Hat OpenStack Platform
- PLATFORM**
 - Red Hat Enterprise Linux
- STORAGE**
 - Red Hat Ceph Storage

BUILD

View interoperability information

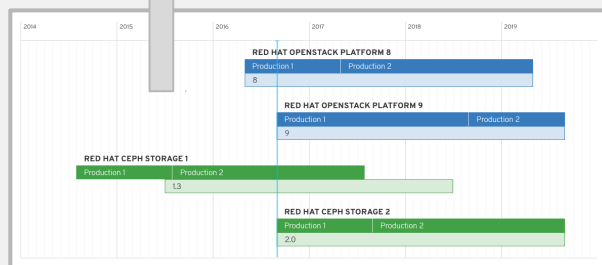
STORAGE

Red Hat Ceph Storage capabilities with Red Hat OpenStack Platform

This section summarizes the supported compatibility of storage features provided by Red Hat Ceph Storage and used by Red Hat OpenStack Platform.

Red Hat Ceph Storage	1.2				1.3				2.0						
	5	6	7	8	9	5	6	7	8	9	5	6	7	8	9
Red Hat OpenStack Platform	5	6	7	8	9	5	6	7	8	9	5	6	7	8	9
Cinder Driver	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Glance Driver	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Manila	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Nova Driver	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
OpenStack Director	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Swift (API compatible)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

View product lifecycles



RED HAT
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LOG AGGREGATION

To better manage your Red Hat footprint

Miguel Pérez Colino
Strategic Design Team - ISBU
2017-05-03

@mmmmmmpt 

Agenda

Managing your Red Hat footprint with Log Aggregation

- The Situation
- The Challenge
- The Solution

THE SITUATION

Cloud Deployments

They do really scale ...

- Higher scalability
- More workloads per physical machine (multi-tenant)
- Network and Storage also Software Defined
- Containers and Microservices providing more granularity

<https://www.cncf.io/blog/2016/08/23/deploying-1000-nodes-of-openshift-on-the-cncf-cluster-part-1/>

The screenshot shows the top of a web browser displaying the Cloud Native Computing Foundation (CNCf) website. The header includes the CNCf logo and navigation links for About, Projects, Community, and Newsroom. The main content area features the article title "Deploying 1000 nodes of OpenShift on the CNCF Cluster (Part 1)" by Brett Preston, dated August 23, 2016. The author is identified as Jeremy Eder, a Senior Principal Software Engineer at Red Hat. The article text describes the deployment of a 1000-node OpenShift cluster on Red Hat OpenStack. A table is included in the article, listing various Kubernetes objects and their quantities.

Kubernetes Object	Quantity
Nodes	1,000
Namespaces (projects)	13,000
Pods	52,000
Build Configs	39,000
Templates	78,000
Image Streams	13,000
Deployment Configs and Services	39,000 (Incl. 13,000 Replication Controllers)
Secrets	260,000
Routes	39,000

Cloud Deployment

Act as one single thing ...



... and need to be managed and operated as one

THE CHALLENGE

Data (What)

Data + Information flow in Log Aggregation

Generate

Ingest

Collect

Process

Store

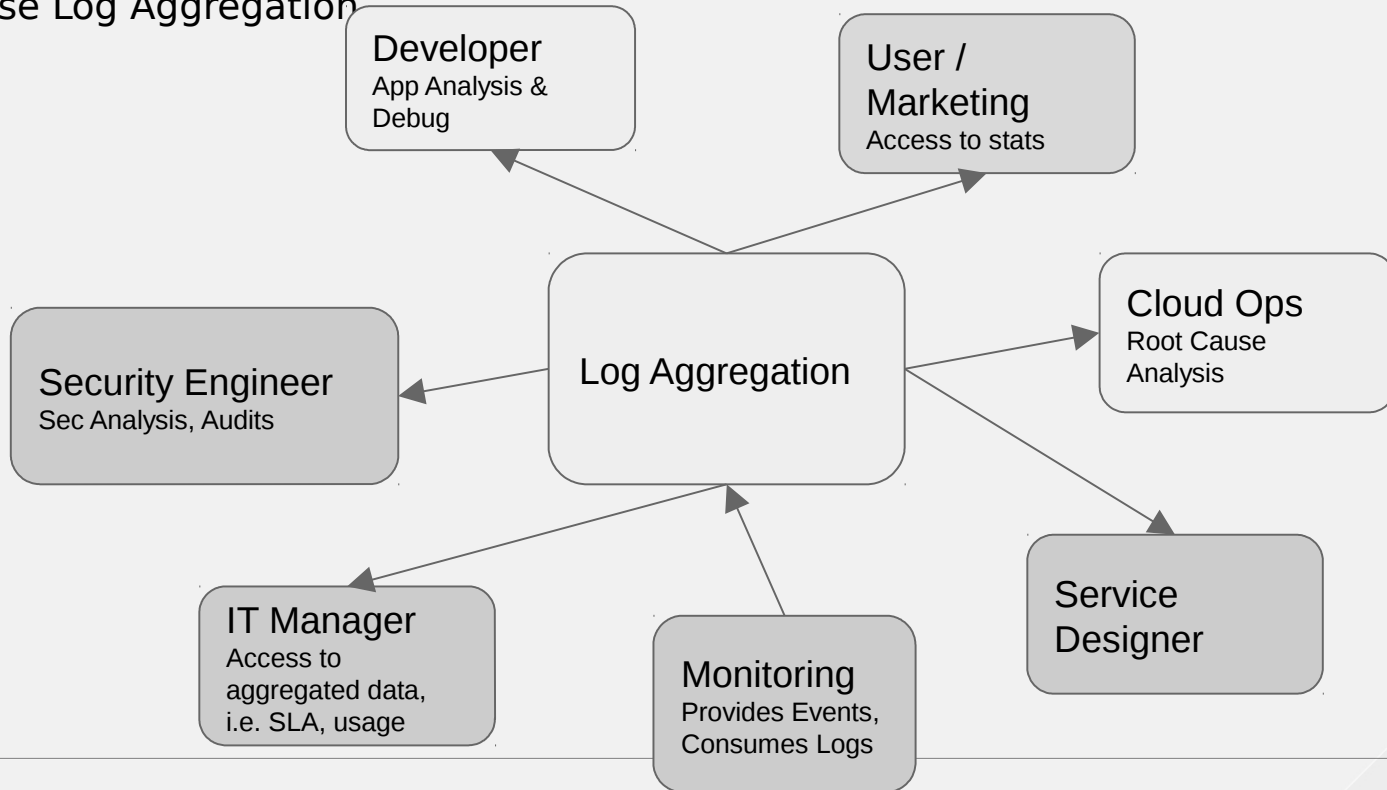
Query

View

Derived from: <http://www.dataintensive.info/>

Personas (Who)

That can use Log Aggregation



Personas (Motivation)

That need Log Aggregation

“Application (multi-tiered) launched from CloudForms returns error”



Cloud Suite User

“I want to proactively know about active or potential degradation of service”



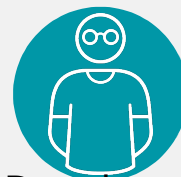
Cloud Ops
(Apps)

“User reports that their VM request failed and returned error”



Cloud Ops
(OpenStack)

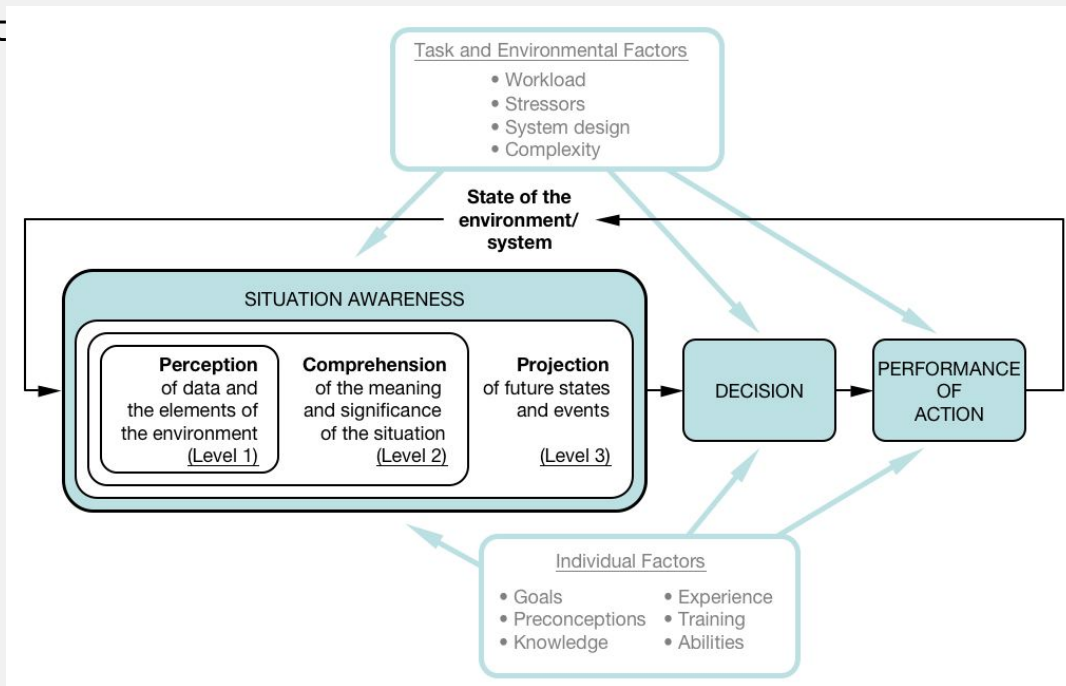
“My recent commit resulted in Jenkins test failure”



Developer
(OpenShift)

Situational Awareness (Why)

Or the need of it

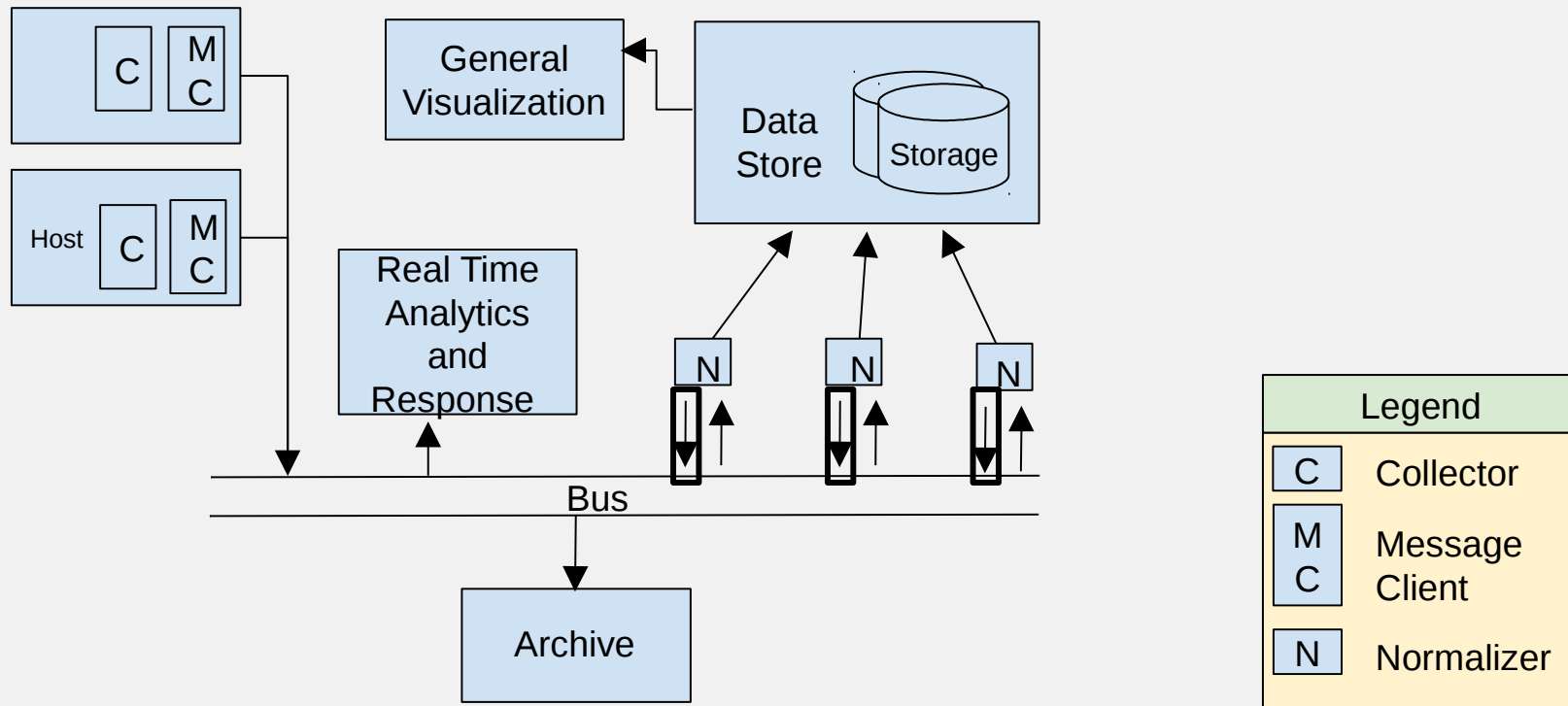


Source: https://en.wikipedia.org/wiki/Situation_awareness

THE SOLUTION

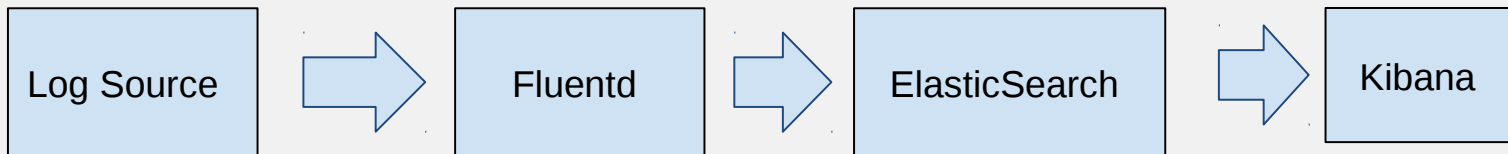
Architecture

Proposed General Architecture



Implementation

Introduction to EFK



- TCP/UDP
- HTTP
- File: Text
- Stdout: CSV, JSON, MessagePack
- syslog/journal

- Parsing
- Filtering
- Enriching
- Deleting
- Output Buffering

Index and store data and metadata making search fast and reliable

- User Interface for:
- Search
 - Graph
 - Dashboard

Current Status

Being delivered and supported



OpenShift Container Platform 3.5

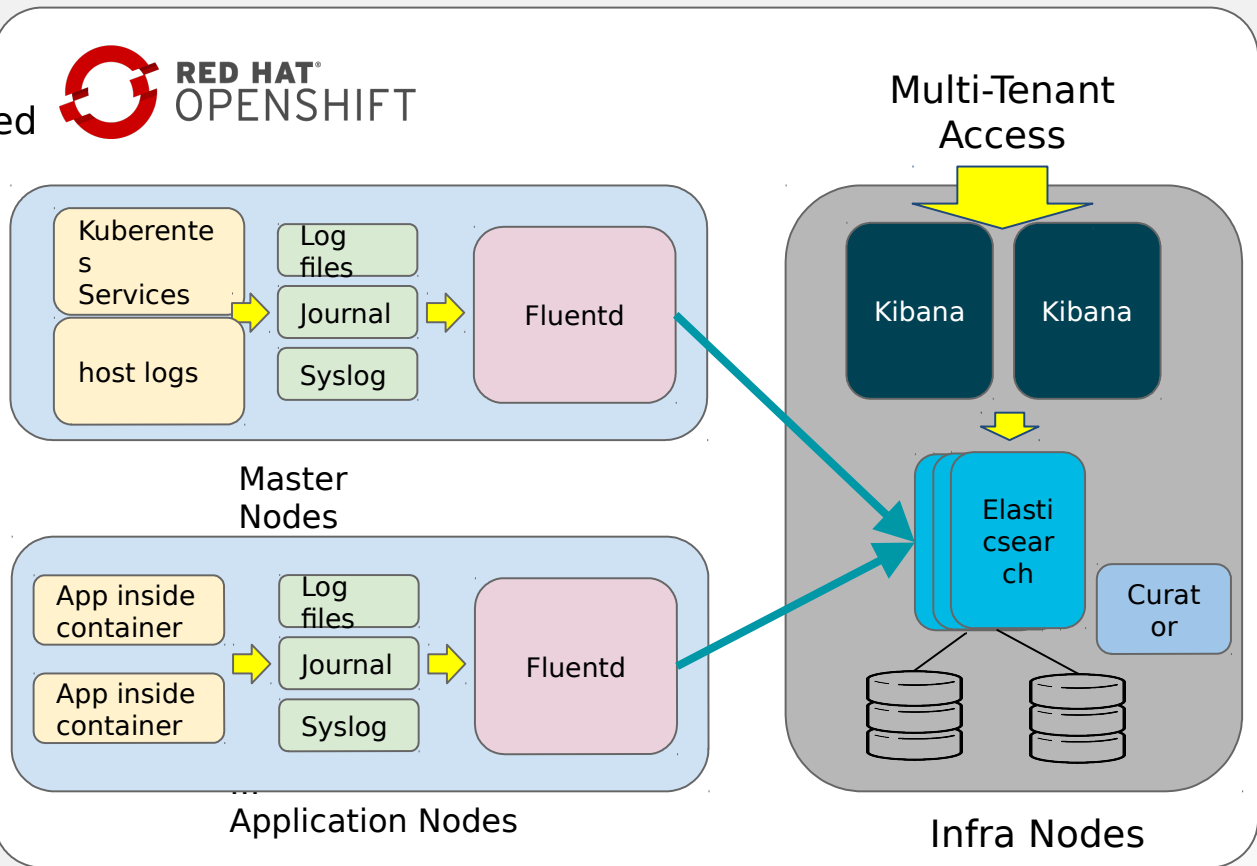
- Full EFK stack provided as containers

OpenStack Platform 10

- Fluentd as log collector

Red Hat Virtualization

- Coming Soon!



BEYOND ...

Common Data Model

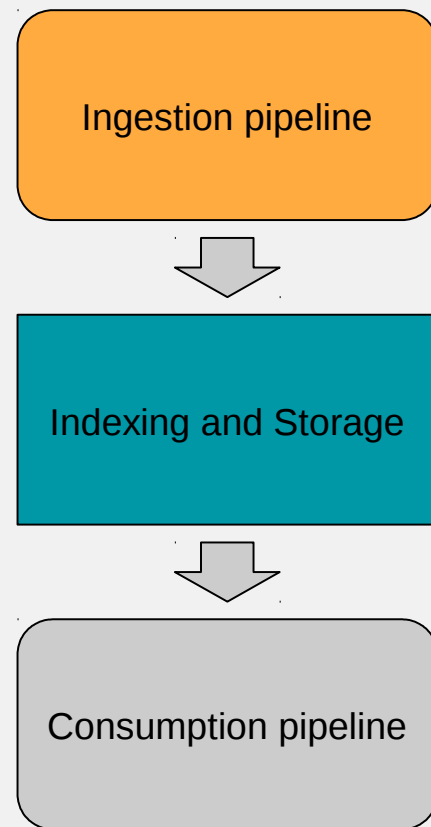
To ensure integration and interoperability

What Is It?

- A Data Model for Logs (and other data) to identify and tag data (i.e. log fields)

Why?

- Alignment/Correlation with different RH products
- Improved maintainability of Data
- Better presentation/data consumption
- Enables 3rd party ecosystem
- Facilitates deep learning analysis of data



Common Data Model

Example ...

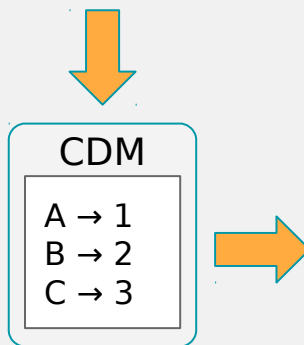
Data extracted:

- Container name
- Pod name
- Namespace name
- Docker container ID

K8S data queried:

- Pod UID
- Pod labels
- Pod host
- Namespace UID.

```
[root@asherkho-ose-sec containers]# tail -1 /var/log/containers/cakephp-example-1-nzx3e_t
est_cakephp-example-6dcac0cd68b8b56a569505457235c511340e7b9edf7c911ce3ca34af4ea17973.log
{"log":"10.1.0.1 - - [03/Jun/2016:13:53:58 -0400] \"GET / HTTP/1.1\" 200 64124 \"-\" \"Go
1.1 package http\\\"\\n\",\"stream\":\"stdout\",\"time\":\"2016-06-03T17:53:59.054842936Z\"}
```



t hostname	asherkho-ose-sec.os1.phx2.r edhat.com
t k8s_nodename	asherkho-ose-sec.os1.phx2.r edhat.com
t k8s_object_meta.labels	{"deployment"=>"cakephp-exa mple-1", "deploymentconfi g"=>"cakephp-example", "nam e"=>"cakephp-example"}
t k8s_object_meta.name	cakephp-example-1-nzx3e
t k8s_object_meta.namespace	test
t k8s_object_meta.namespace_id	176f3960-2380-11e6-a91f-fa1 63ebe1970
t k8s_object_meta.uid	3d3269a8-275e-11e6-a91f-fa1 63ebe1970
t kind	Pod_log
t message	10.1.0.1 - - [03/Jun/2016:1 3:54:58 -0400] "GET / HTTP/ 1.1" 200 64124 "-" "Go 1.1 package http"

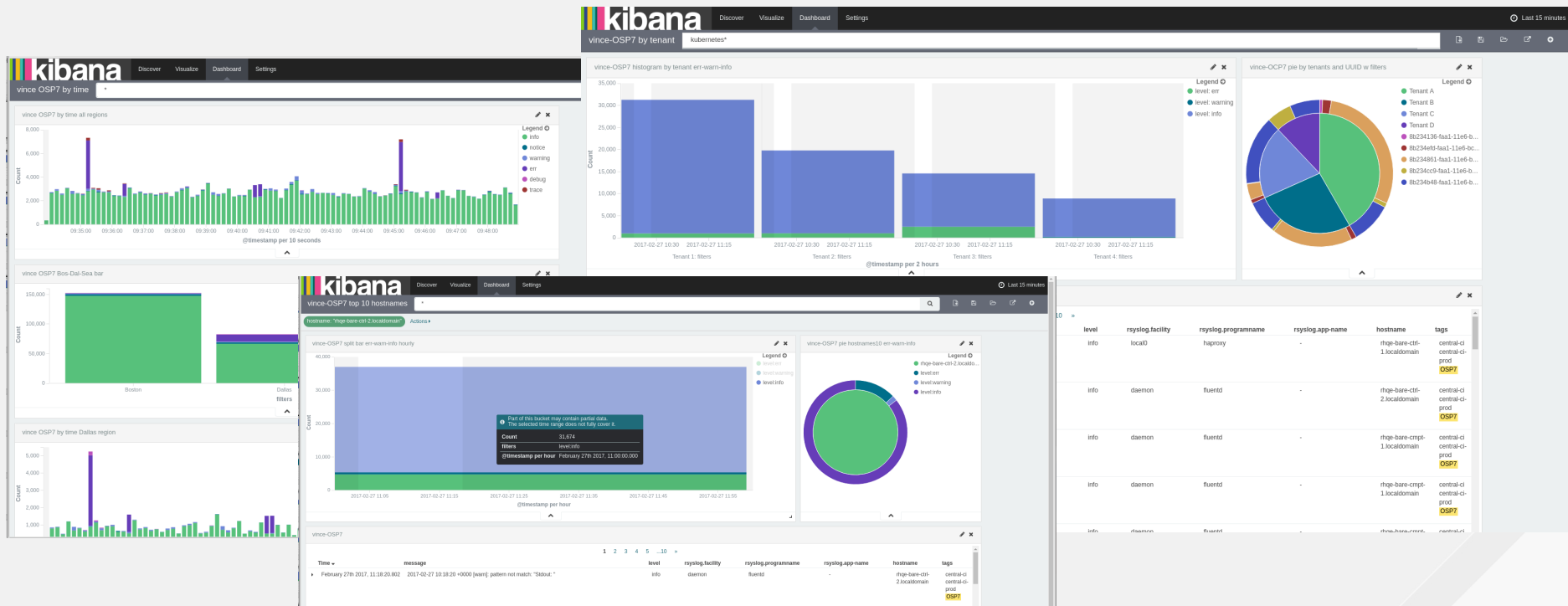
All merged into output log in JSON

Format

Images Credit: Anton Sherkhonov
[@peatz]

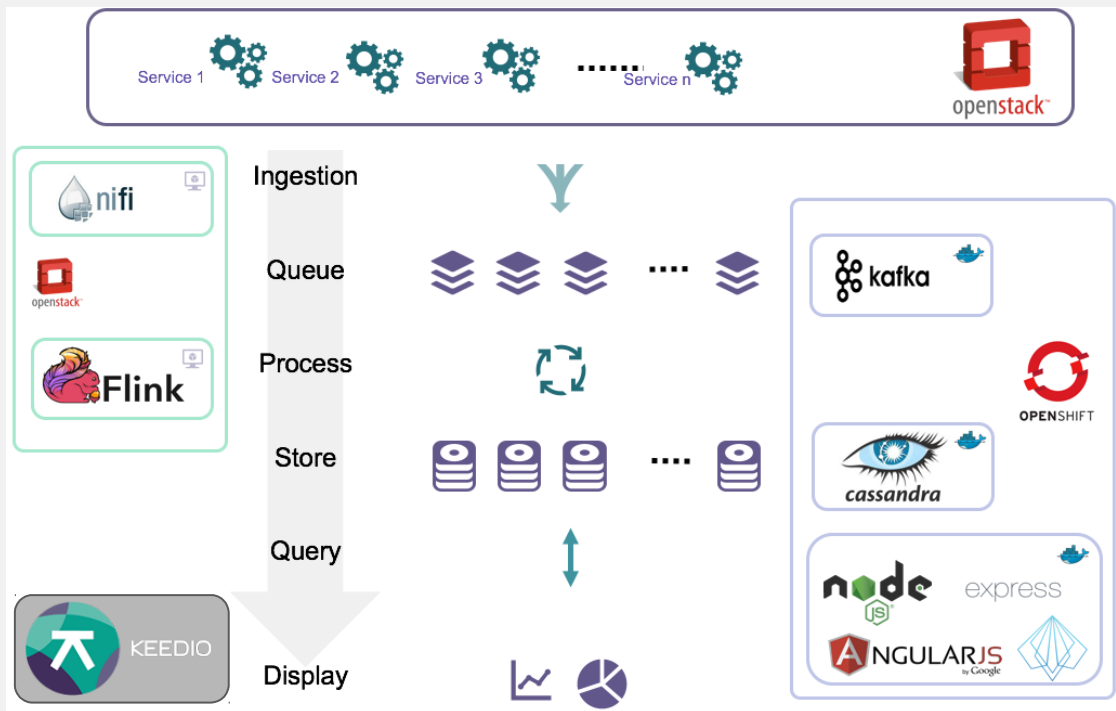
User Experience

Prototyping and validating dashboards for users



Exploring different approaches

Prototyping with alternative toolsets with partners



Slide Credits: Luca Rosellini (Keedio)

ACTION!

Do you want to know more?

See a demo of EFK ...

Red Hat booth @ Expo Center

DevSecOps Zone Security Pod



Tushar
Katarki

User Experience

Tell us your use cases ...



Vince
Conzola



STRATEGIC DESIGN PRACTICE

Are you a Red Hat Cloud Infrastructure customer interested in improving operations with log aggregation? If so, we'd love to talk with you about your environment and use cases.

Visit the **User Experience Design** booth located in:

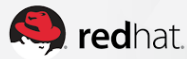


**Partner Pavilion
Exhibit Hall A**

Pair up with us + share your feedback with

Vince

to receive a gift!



Learn about the Red Hat UXD team at redhat.com/uxd

How are you doing it?

Please, provide your feedback ...

<http://bit.ly/log-aggregation>

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Red Hat Virtualization Analytics - Transitioning to Metrics Store

Yaniv Dary
Senior Technical Product Manager, Red Hat

Shirly Radco
BI Software Engineer, Red Hat

May 2017

RED HAT VIRTUALIZATION OVERVIEW

RHV MANAGER

DATA CENTER 1

VM

VM

VM



Hypervisor



Hypervisor

CLUSTER A



Storage



Network W

DATA CENTER 2

VM

VM

VM



Hypervisor



Hypervisor

CLUSTER B



Storage



Network X

VM

VM

VM



Hypervisor



Hypervisor

CLUSTER C



Network Y



Network Z

DATA ANALYTICS IS MOVING FORWARD



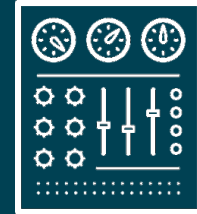
NEXT-GENERATION ANALYTICS

New ways for real-time metrics and Logs data collection and storage



ADVANCED MONITORING PLATFORM

Modern visualization and alerting for time series data and logs



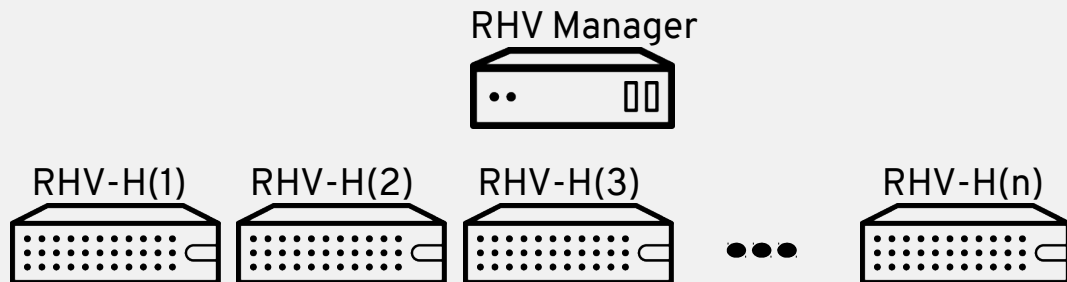
SMART MANAGEMENT

Trigger actions according to metrics and logs roles and thresholds

METRICS AND LOGS - COLLECTION FLOW

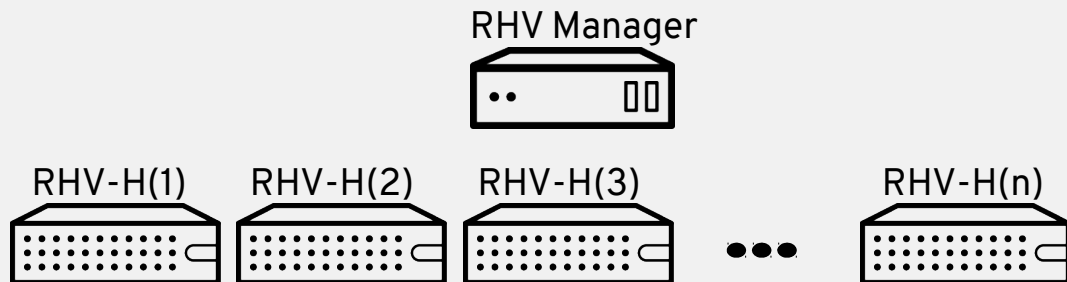
RHV DATA COLLECTION - ARCHITECTURE

RED HAT
VIRTUALIZATION



RHV DATA COLLECTION - ARCHITECTURE

RED HAT
VIRTUALIZATION



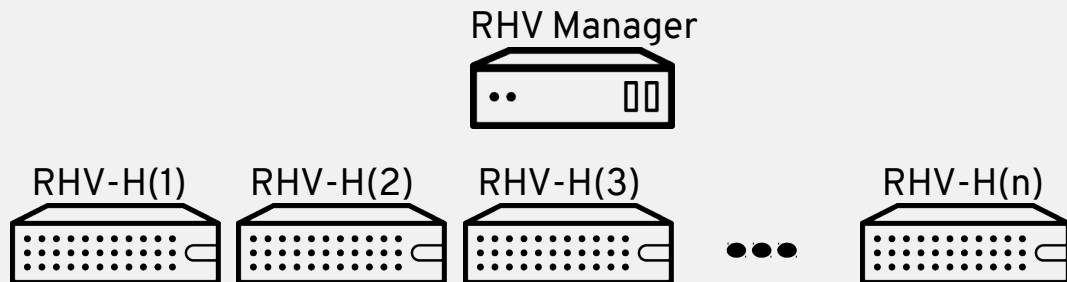
collectd

Simple and powerful
daemon that gathers
metrics from various
sources

- **Host Statistics**
- **VM Statistics**
- **PostgreSQL Statistics**

RHV DATA COLLECTION - ARCHITECTURE

RED HAT
VIRTUALIZATION



collectd

Simple and powerful daemon that gathers **metrics** from various sources

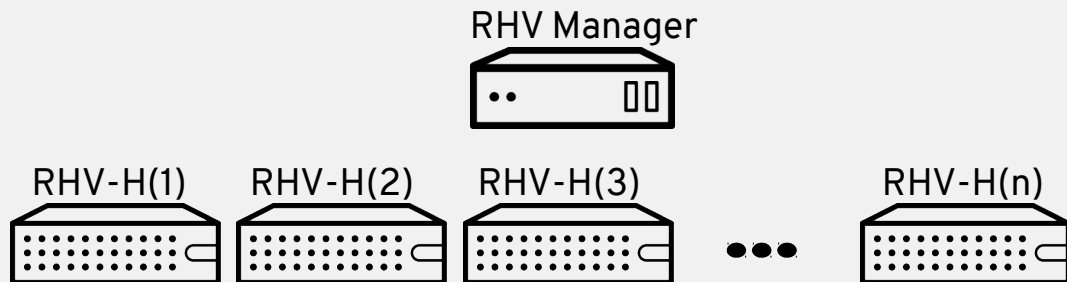


fluentd

Data collector that unifies the **metrics** and **logs** data

RHV DATA COLLECTION - ARCHITECTURE

RED HAT
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collectd

Simple and powerful daemon that gathers **metrics** from various sources



fluentd

Data collector that unifies the **metrics** and **logs** data

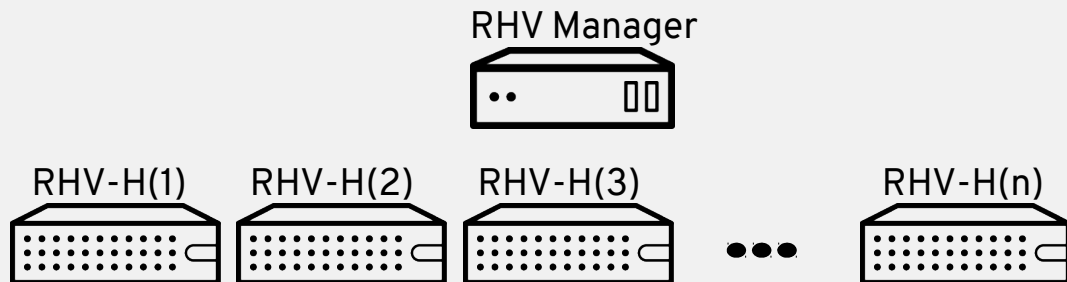


Metrics Store

Visualize trends in real time, slice and dice your data on the fly

RHV DATA COLLECTION - ARCHITECTURE

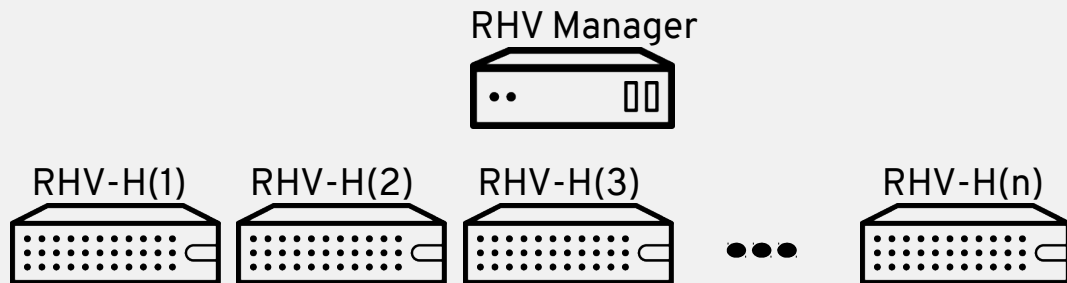
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RHV DATA COLLECTION - ARCHITECTURE

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Metrics Store



fluentd



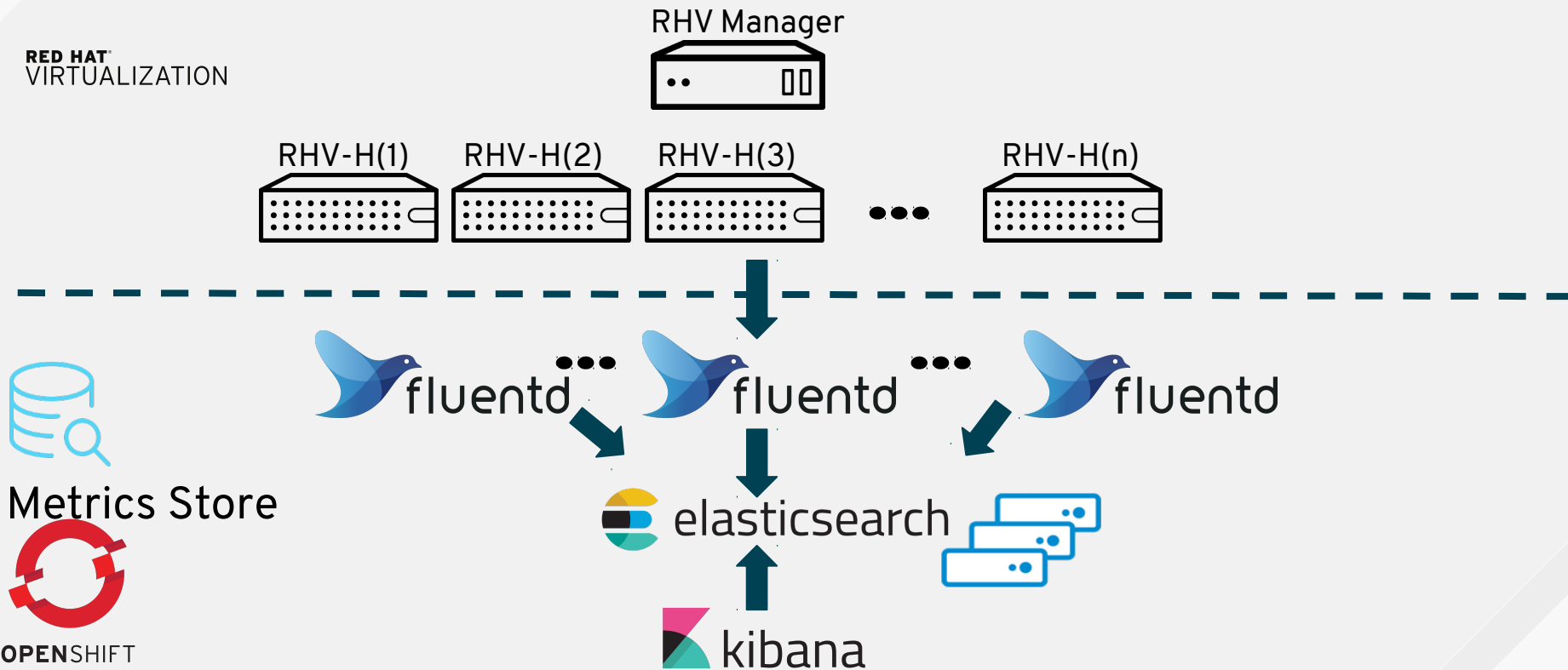
elasticsearch



kibana

RHV DATA COLLECTION - ARCHITECTURE

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DEMO



THANK YOU



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twitter.com/RedHatNews



youtube.com/user/RedHatVideos

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EXPERIENCE
OPEN SOURCE.**