

# Vitrage

## Demo for OPNFV Doctor

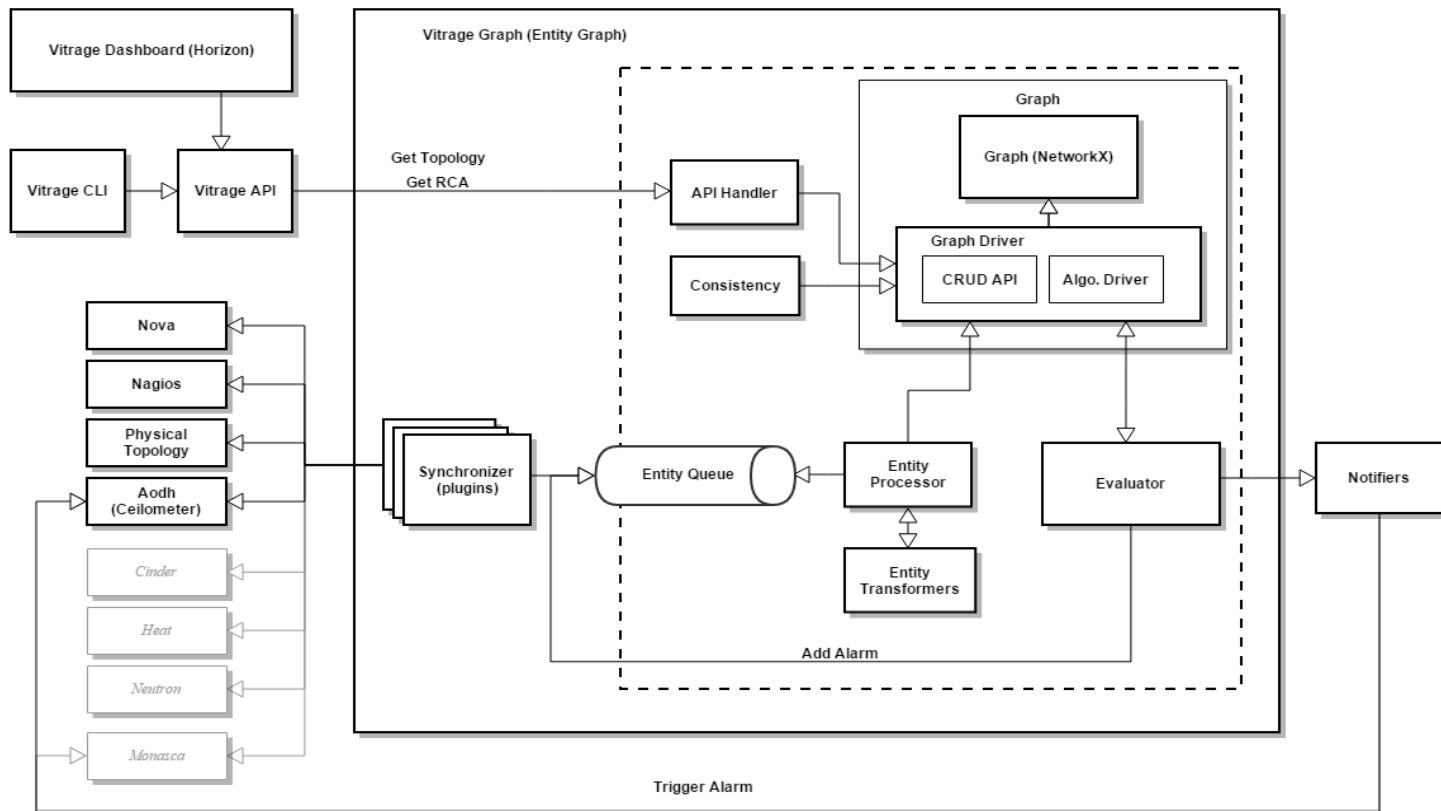
Ohad Shamir, Ifat Afek, Alexey Weyl

9-Feb-2016

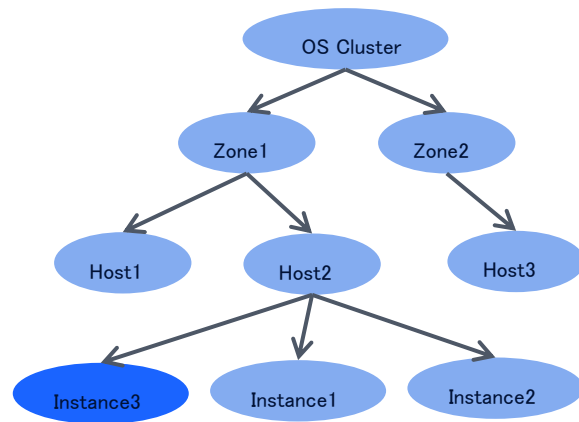
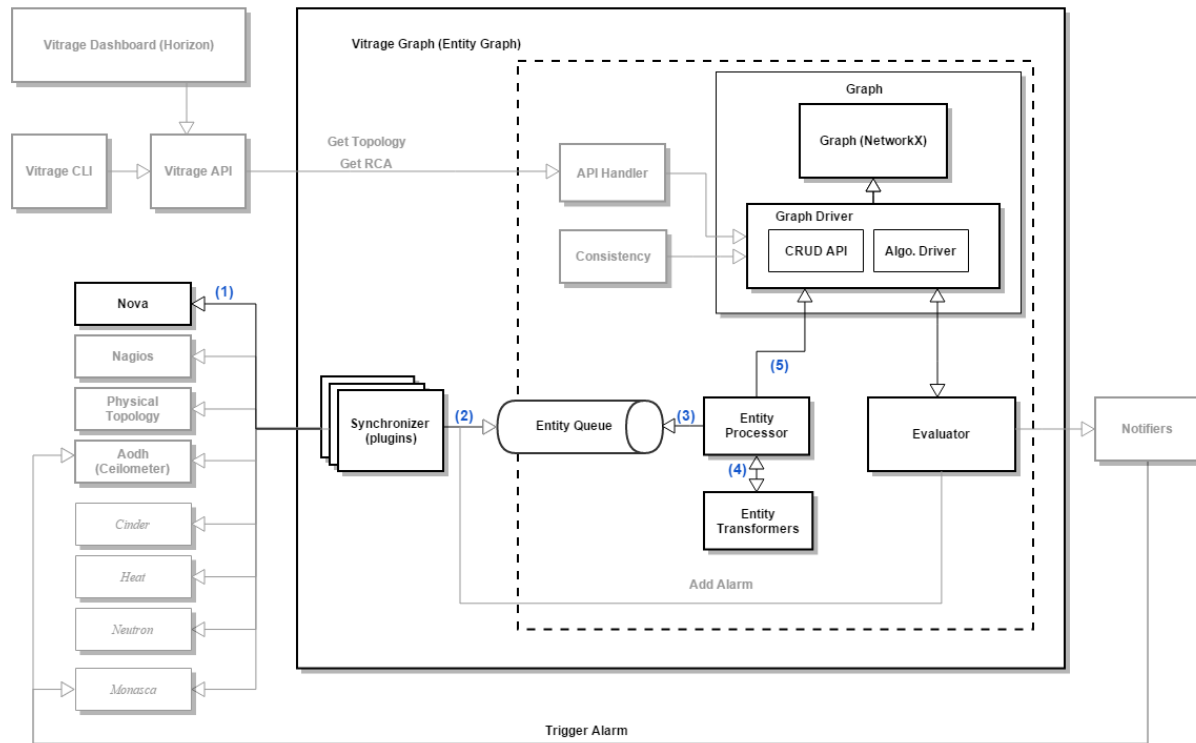
## Vitrage added value to OpenStack (Mitaka Release 4/2016)

- Resource Topology - Physical to Virtual to Application correlation
- Deduced Alarms and states
  - Raising an alarm based on analysis of system (from direct alarms + correlation between entities)
  - Vitrage can't modify state directly but will expose states for other OpenStack projects (e.g. Nova) or external systems
- Root Cause Analysis – correlation (dependency graph) between alarms

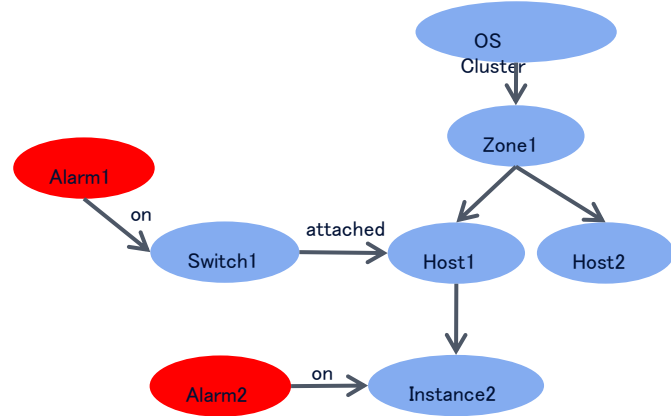
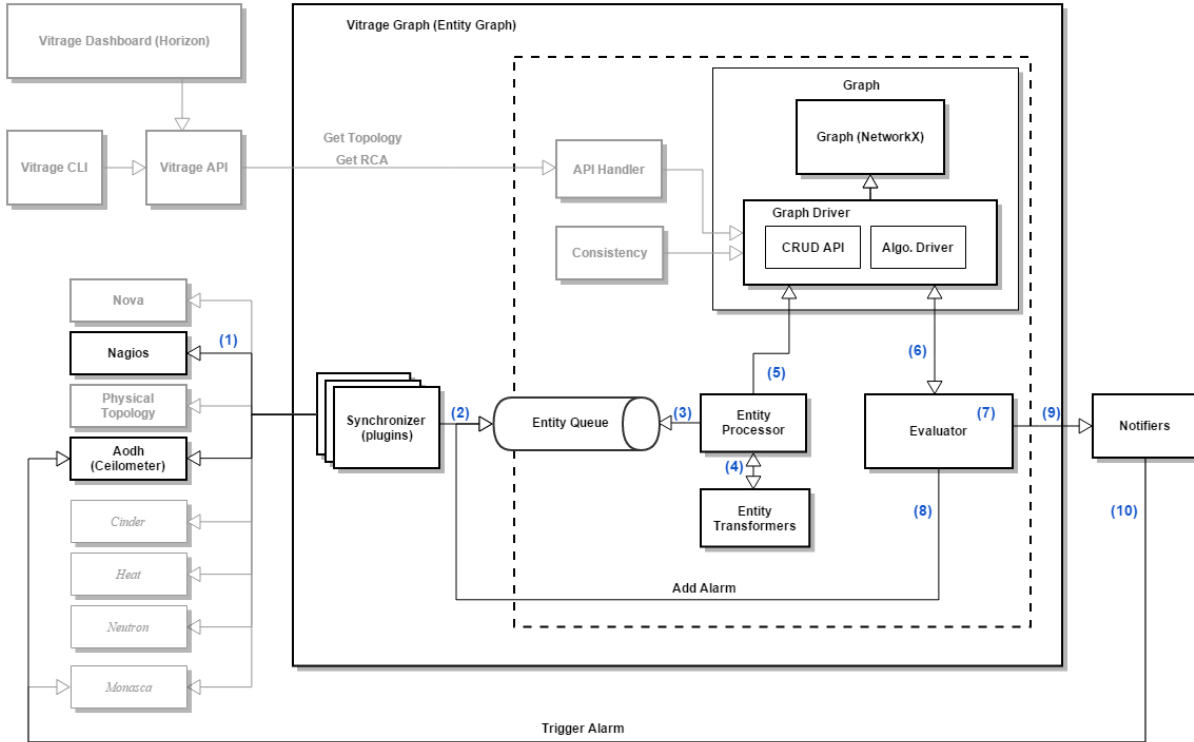
# Vitrage Architecture



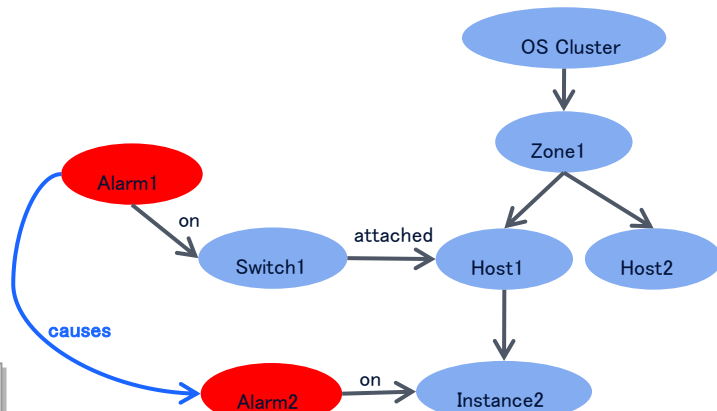
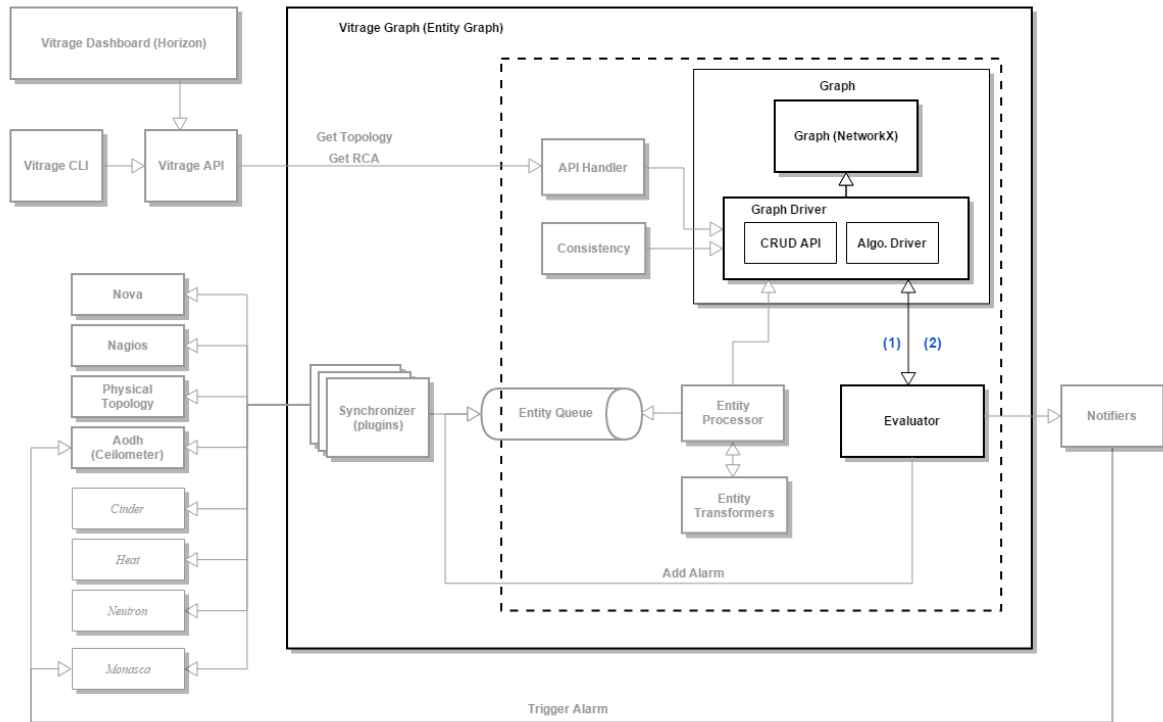
# Use Case 1 – Add Nova Instance



## Use Case 2 – Nagios Alarm Causes Deduced Alarm



## Use Case 3 – Create RCA Insights



## What we are going to demo today?

- System Topology for Nova entities
  - Vitrage plug-in for Horizon
  - Nova entities and the relationship between them
  - Nova status (red/yellow/green)
- Nagios alarms on a selected host

\* No deduced alarms and RCA yet (will be ready in the coming weeks)

# Demo



# Vitrage Templates

- In Vitrage we use configuration files, called "templates", to express rules regarding raising deduced alarms, setting deduced states, and detecting RCA links
- Vitrage will come with wide set of out-of-the-box templates
- The template is written in YAML language, with the following structure:

```
metadata: ...
definitions:
  entities:
    - entity: ...
    - entity: ...
  relationships:
    - relationship: ...
    - relationship: ...
scenarios:
  scenario:
    condition: <if statement true do the action>
    actions:
      - action: ...
```

## Vitrage Templates – Example 1

- Example: This template will cause an alarm to be raised on any Host in state "ERROR"

```
metadata:  
  id=deduced_alarm_for_all_host_in_error  
definitions:  
  entities:  
    - entity:  
      category: RESOURCE  
      type: HOST  
      state: ERROR  
      template_id: host_in_error  
  scenarios:  
    scenario:  
      condition: host_in_error  
      actions:  
        - action:  
          type: raise_alarm  
          properties:  
            alarm_type: HOST_IN_ERROR_STATE  
            target: host_in_error
```

## Vitrage Templates – Example 2

- Example: deduced alarm – host high CPU load

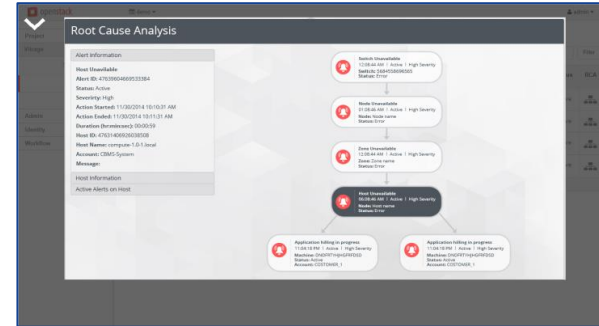
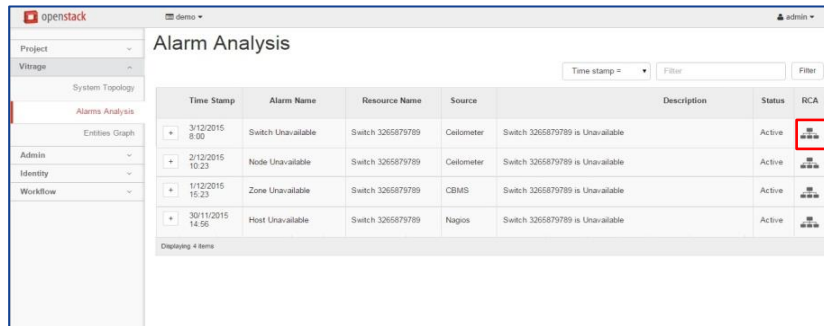
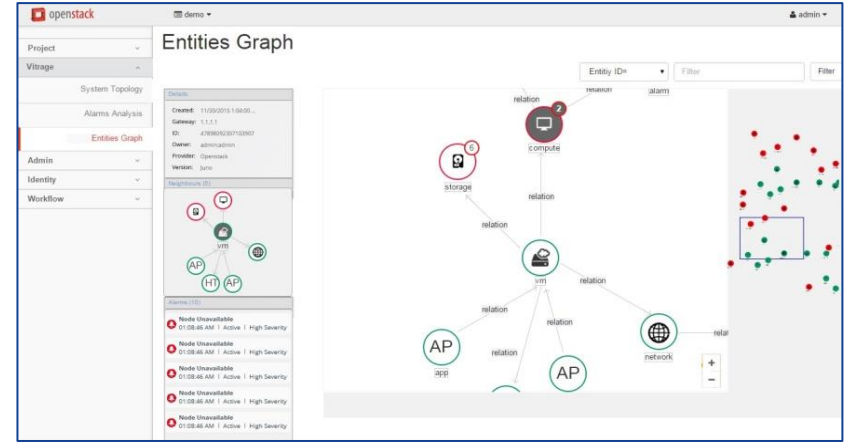
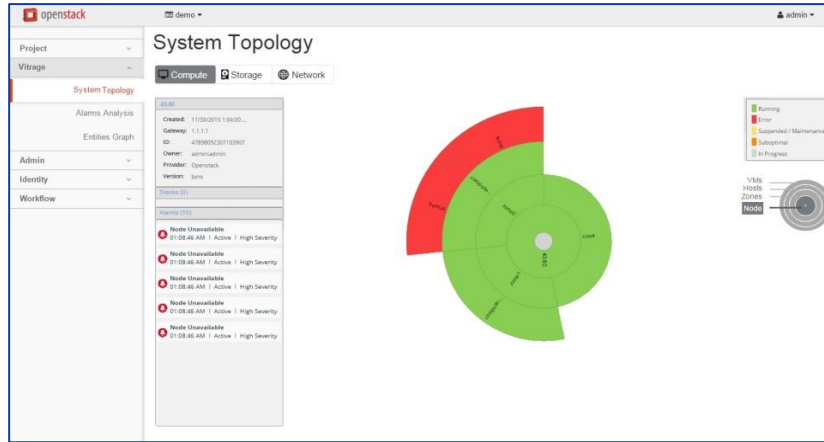
```
metadata:
  id:host_high_cpu_load_to_instance_cpu_suboptimal

definitions:
  entities:
    - entity:
        category: ALARM
        type: HOST_HIGH_CPU_LOAD
        template_id: 1
    - entity:
        category: RESOURCE
        type: HOST
        template_id: 3
    - entity:
        category: RESOURCE
        type: INSTANCE
        template_id: 4

  relationships:
    - relationship:
        source: 1
        target: 3
        type: on
        template_id : alarm_on_host
    - relationship:
        source: 3
        target: 4
        type: contains
        template_id : host_contains_instance

  scenarios:
    scenario:
      condition: alarm_on_host and host_contains_instance
      actions:
        - action:
            type: raise_alarm
            properties:
              alarm_type: INSTANCE_CPU_SUBOPTIMAL_PERFORMANCE
              target: 4
        - action:
            type: set_state
            properties:
              state: SUBOPTIMAL
              target: 4
```

# Vitrage UI (for Mitaka)



## Vitrage – Roadmap (Newton)

Extend integration with data sources and monitoring tools (OpenStack and external open source tools) – add plug-ins (synchronizers) for: Zabbix, Monasca, Heat, etc'

Integration with other OpenStack services to modify states of entities and to raise deduced alarms

Alarm aggregation (i.e. grouping alarms by categories, such as resources and severity, making them more manageable and understandable)

Advanced use cases – add RCA and deduced alarms patterns

Persistent Graph DB – add graph drivers for other graph databases (e.g. Neo4J, Titan)

## Communications and Meetings

- Wiki/Documentation: <https://wiki.openstack.org/wiki/Vitrage>
- Project at Launchpad: <http://launchpad.net/vitrage>
- Weekly meetings: Wednesday at 0900 UTC in **#openstack-meeting-3** at freenode
- Contact persons:
  - Ohad Shamir – [ohad.shamir@nokia.com](mailto:ohad.shamir@nokia.com)
  - Ifat Afek (PTL) – [ifat.afek@nokia.com](mailto:ifat.afek@nokia.com)

**NOKIA**