

GENI Monitoring Collector

GEC 21

October 22, 2014

Wednesday, 1.30pm - 3.30pm

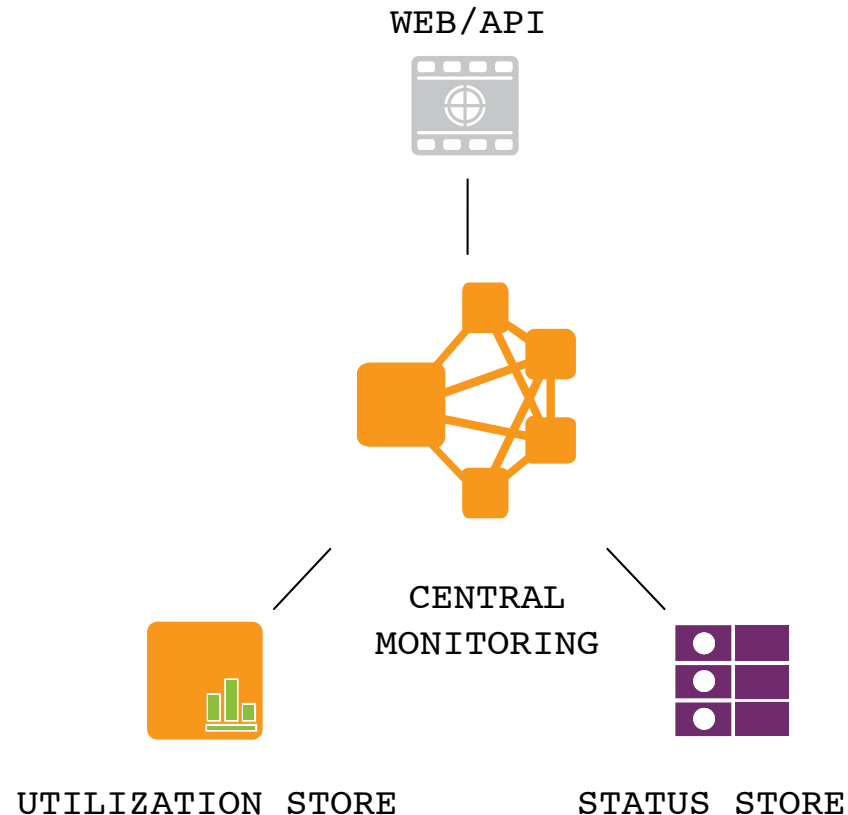
History

->

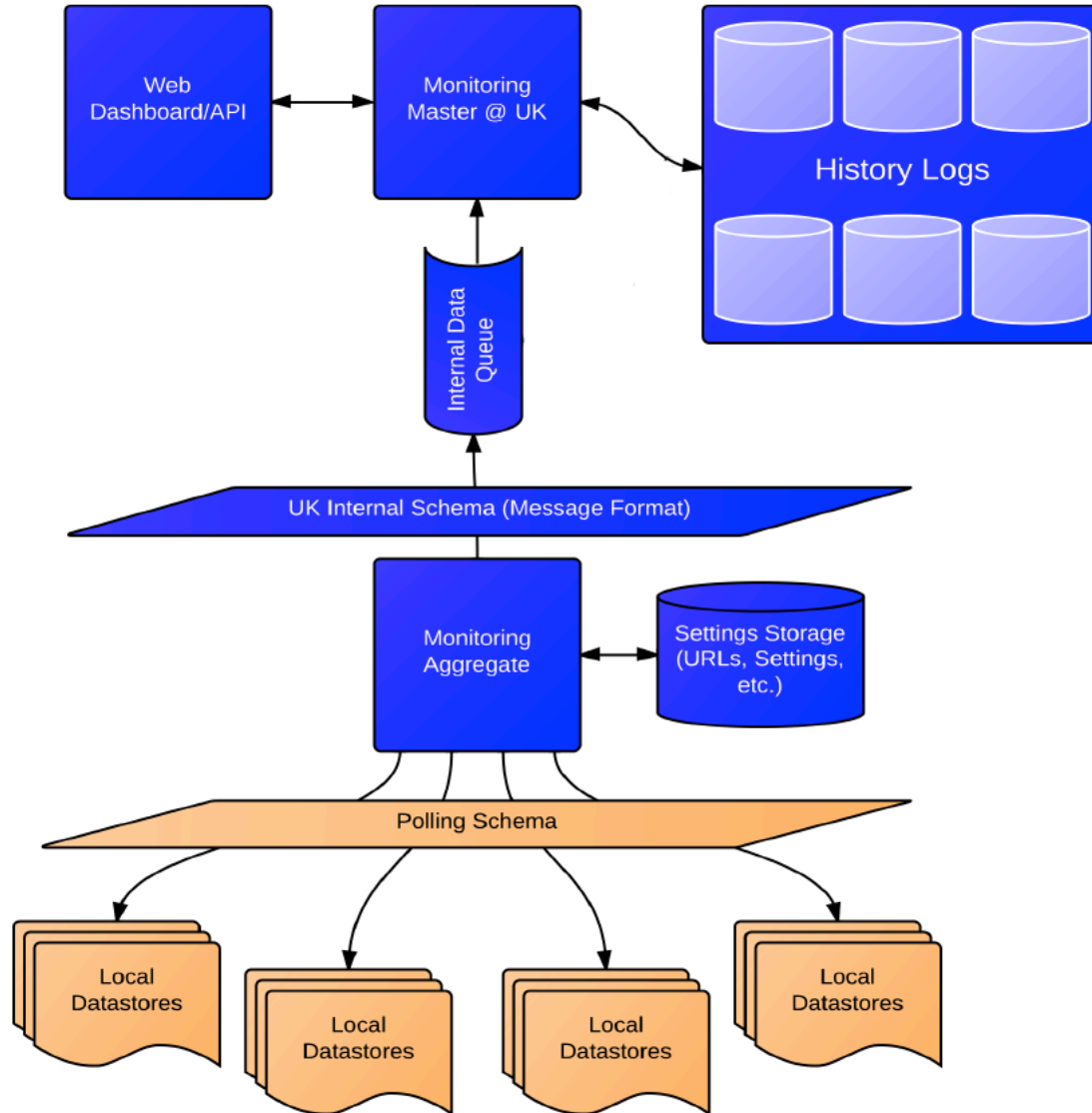
Current State

Central Monitoring/ Status/Utilization/Reporting

- Provide status reporting for all GENI slices and slivers within and between GENI racks.
- Provide "live" measurement information on end-to-end GENI slices via a web/API interface.
- Provide archival storage for GENI rack measurement data.



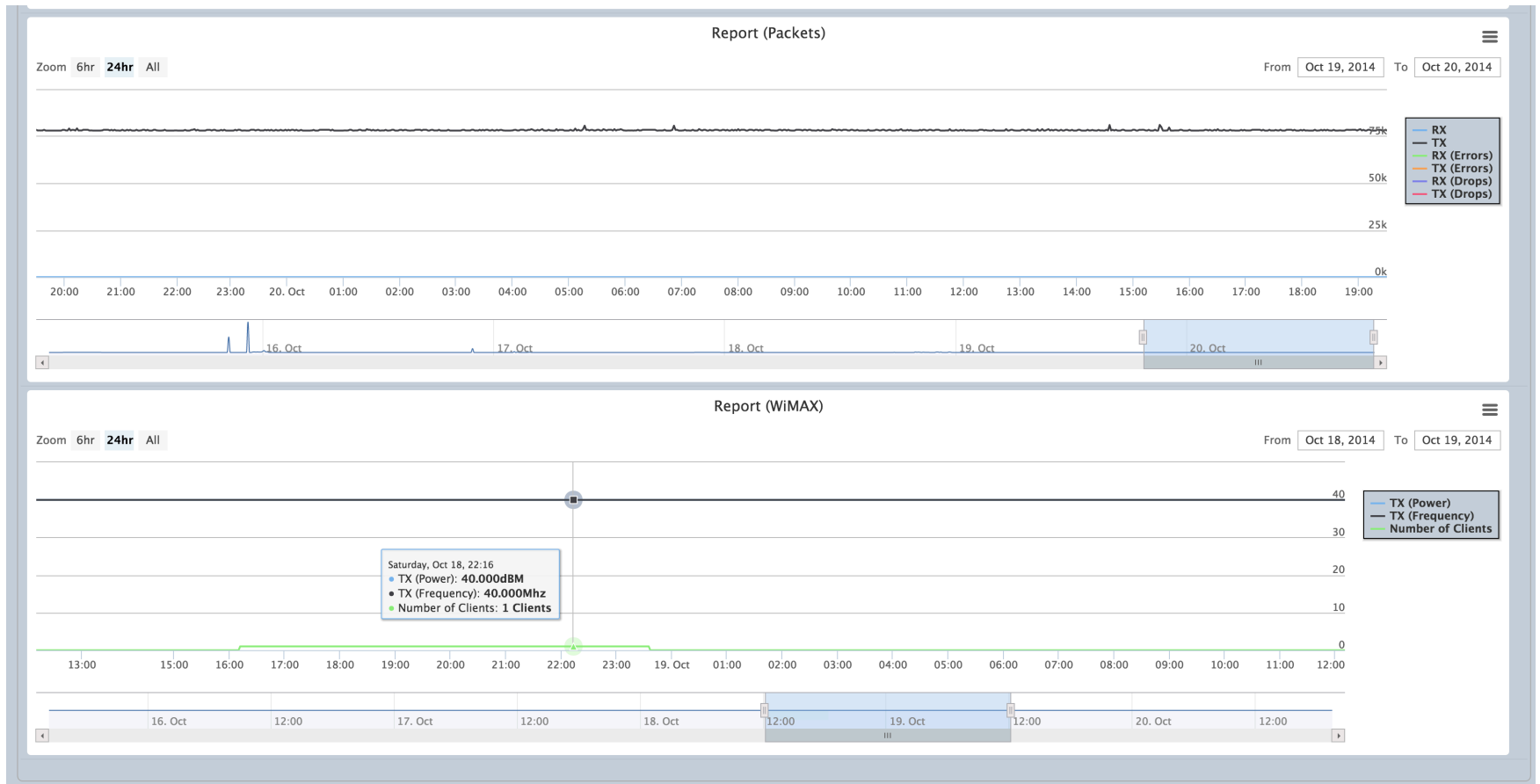
Current Architecture



Monitoring Collector Demo



- Updated Collector to handle both v1 and v2 of the Monitoring Schema as well as new WiMAX data.



Slice Topology View Demo

Info

URN: urn:publicid:IDN+ch.geni.net:gpo-infra+slice+tuptystitch
ID: ch.geni.net_gpo-infra_slice_tuptystitch
UUID: ch.geni.net_gpo-infra_slice_tuptystitch
URL: https://ch.geni.net/info/slice/ch.geni.net_gpo-infra_slice_tuptystitch
Created: Oct 10 2014 17:17:43
Expires: Oct 23 2014 04:00:00
Schema Version: v1

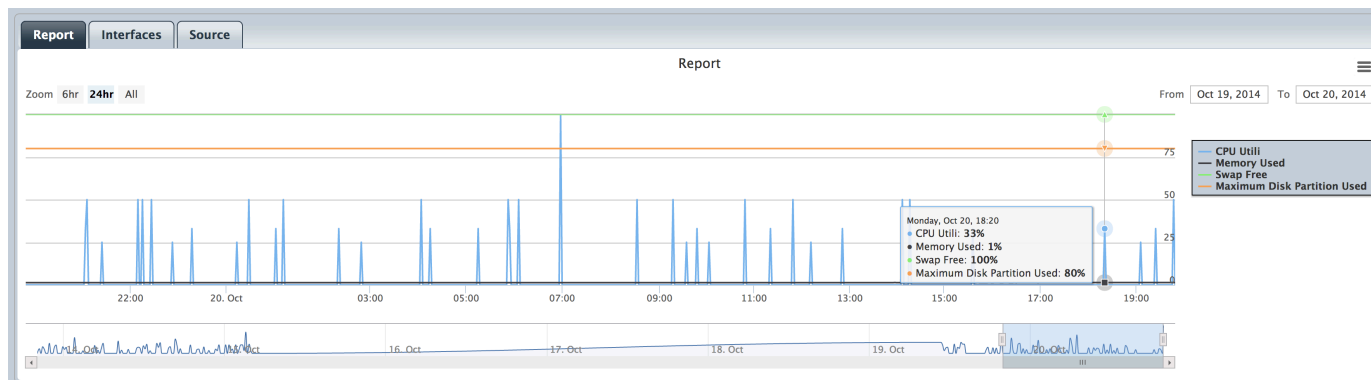
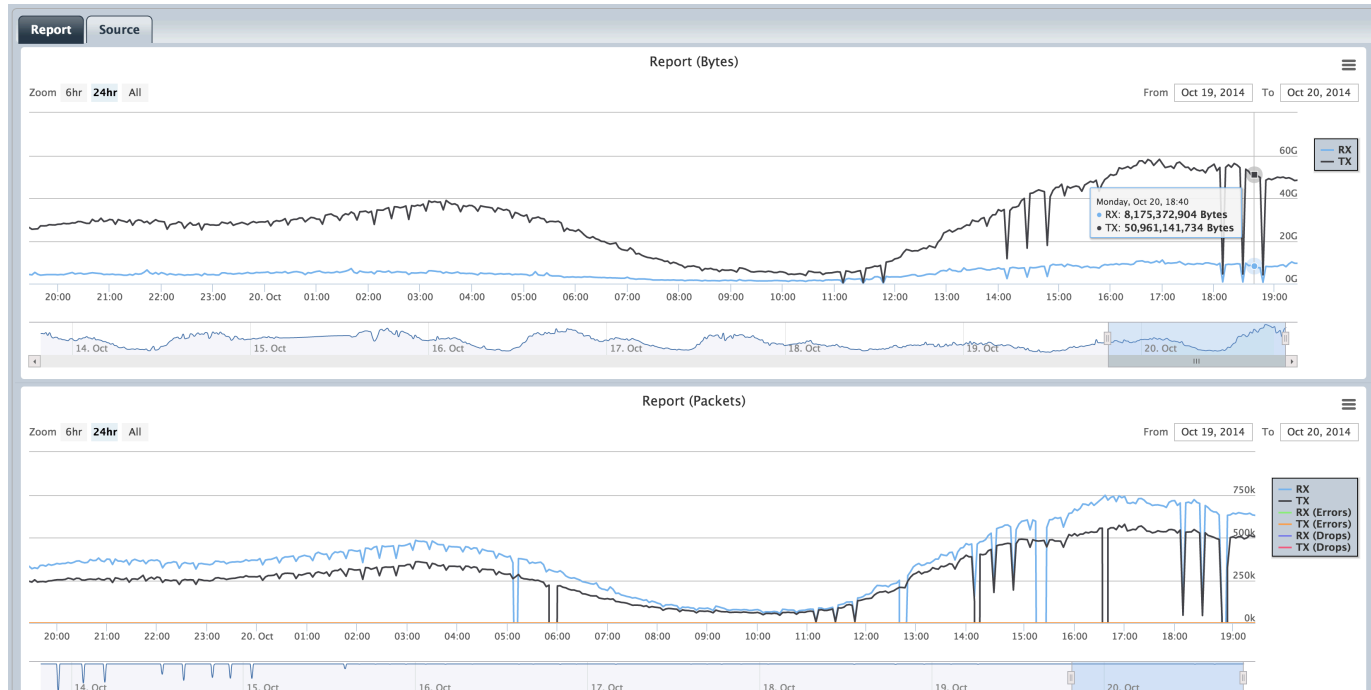
Map
Members
Slivers
Source

```

graph TD
    A[exogeni.net_ucdvmsite_sliver_d97bd14c-8ee0-4ab9-8b1d-dc9e8105309b_vm2] --- B[I2-CLEV-STAR-VLAN-13588]
    B --- C[ch.geni.net_gpo-infra_slice_tuptystitch]
    C --- D[sdn-sw.clev.net.Internet2.edu:100GigabitEthernet3/2:3076]
    E[sdn-sw.star.net.Internet2.edu:100GigabitEthernet7/1:3076] --- B
    
```

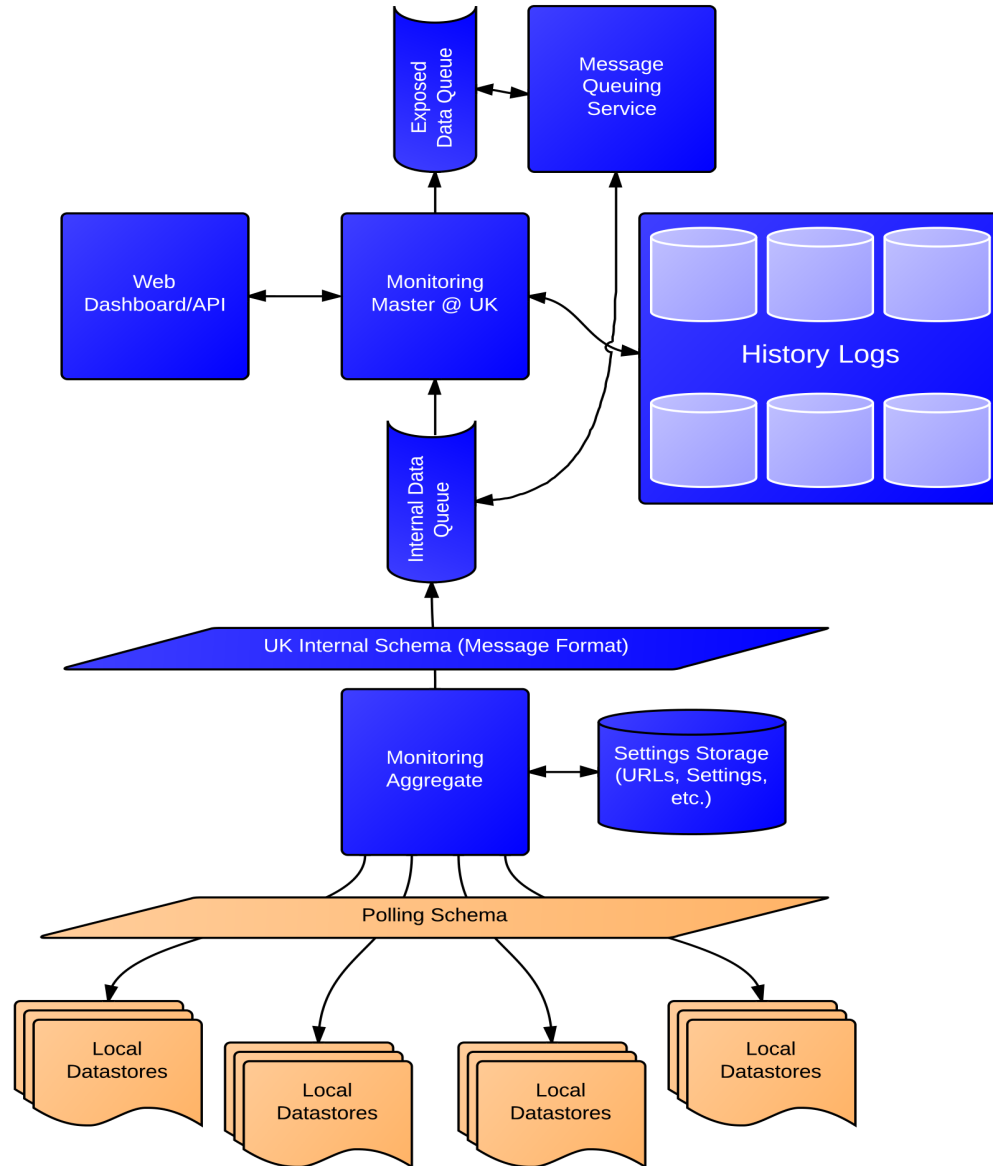
The diagram illustrates a network topology with several nodes and their interconnections. The nodes are represented by circles of varying colors (black, red, yellow). The connections are shown as lines between these nodes. The central node is 'ch.geni.net_gpo-infra_slice_tuptystitch', which is highlighted with a yellow border. It is connected to 'I2-CLEV-STAR-VLAN-13588' (red border), which in turn connects to 'exogeni.net_ucdvmsite_sliver_d97bd14c-8ee0-4ab9-8b1d-dc9e8105309b_vm2' (red border) and 'sdn-sw.clev.net.Internet2.edu:100GigabitEthernet3/2:3076' (black border). Additionally, 'sdn-sw.star.net.Internet2.edu:100GigabitEthernet7/1:3076' (black border) is connected to 'I2-CLEV-STAR-VLAN-13588'.

Historic Usage Aggregate Usage Demo

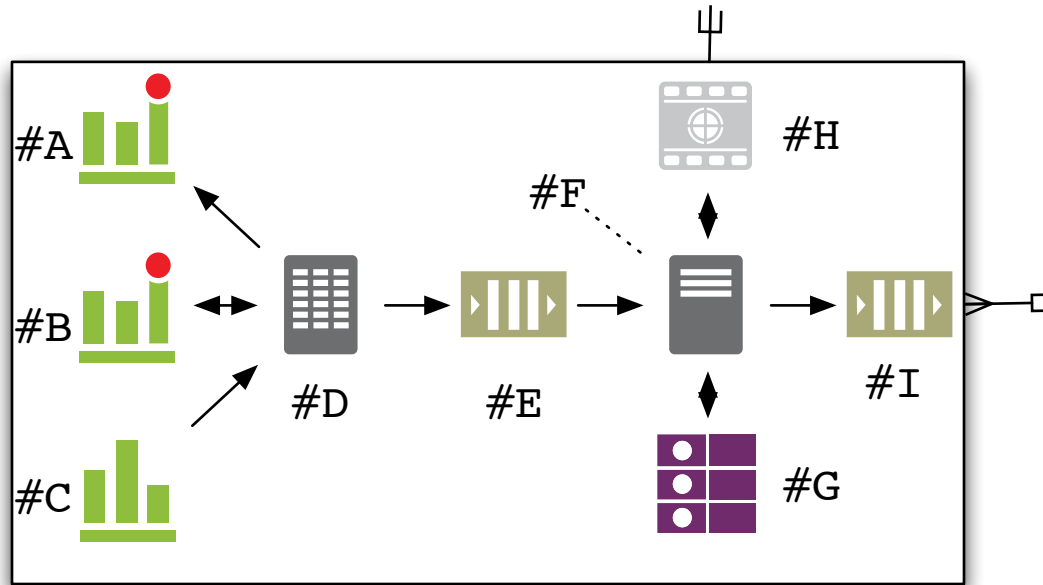


For Next GEC

Next GEC Architecture



Accessing Historic Data

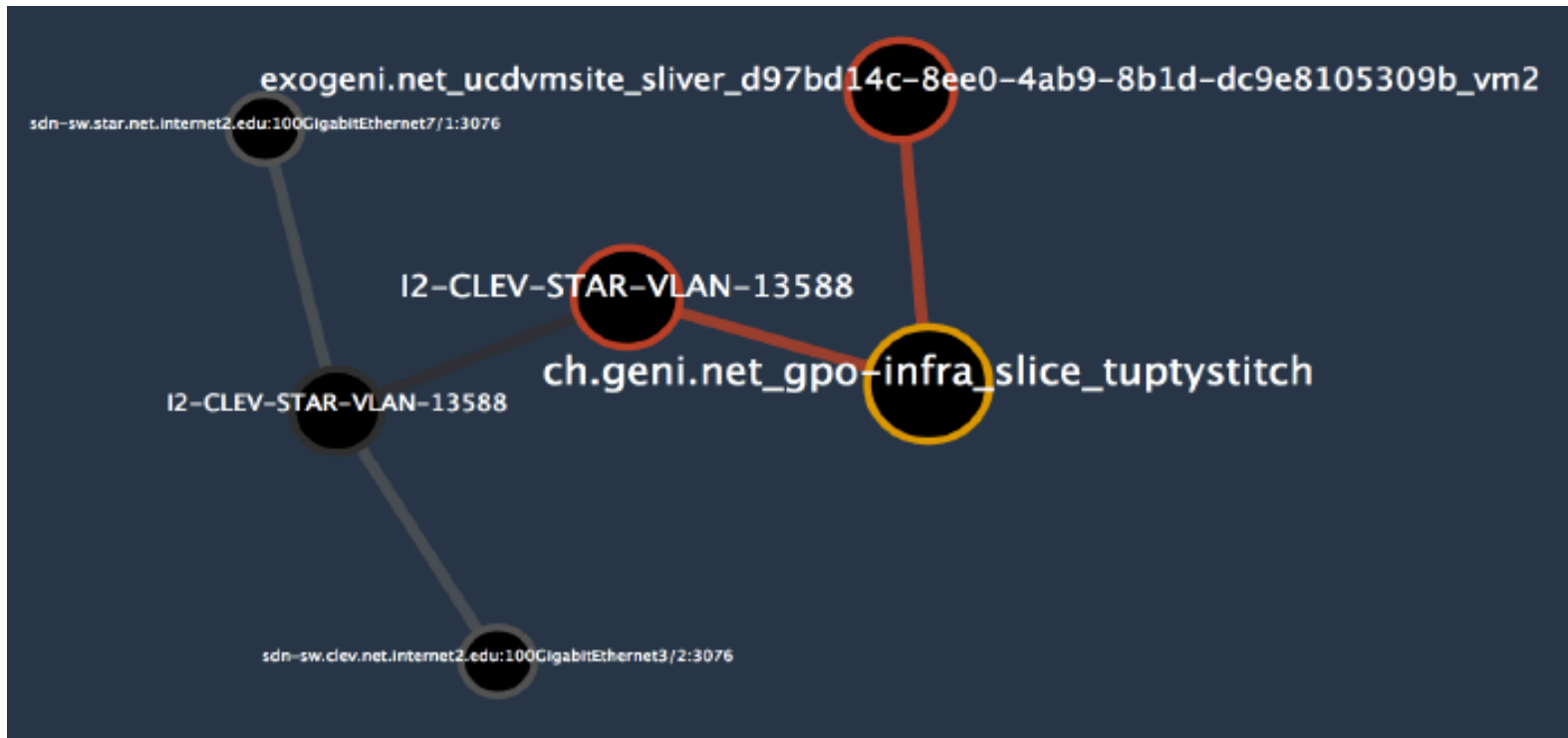


#H: A RESTful API / Web layer will be exposed for accessing data on the *State Controller*. Data exposed will include resource states for resources and causes for the state transitions.

#I: Queuing Publish/Subscribe system that allows for pattern-based (matching) subscriptions. State transition and utilization will be emitted on this queue. *Will be used by central monitoring.

GraphDB

- Keep state information in graph DB.
- Graph operations on monitoring relations.



Alerting on Monitoring Stream

-In a typical database we query existing data based on some declarative language.

-We can think of ESPER as like an upside down SQL, where if events occur in the future, results will be emitted.

-Using the ESPER query language, EPL (similar to SQL) complex events can be described.

```
select count(*) from MyEvent(somefield = 10).win:time(3 min) having count(*) >= 5
```

-There exist a stream of events named *MyEvent*.

-In the *MyEvent stream* there are events that contain a field named: *somefield*

-In a 3 minute window, if *somefield = 10* five or more times, emit data.

FUTURE STATE

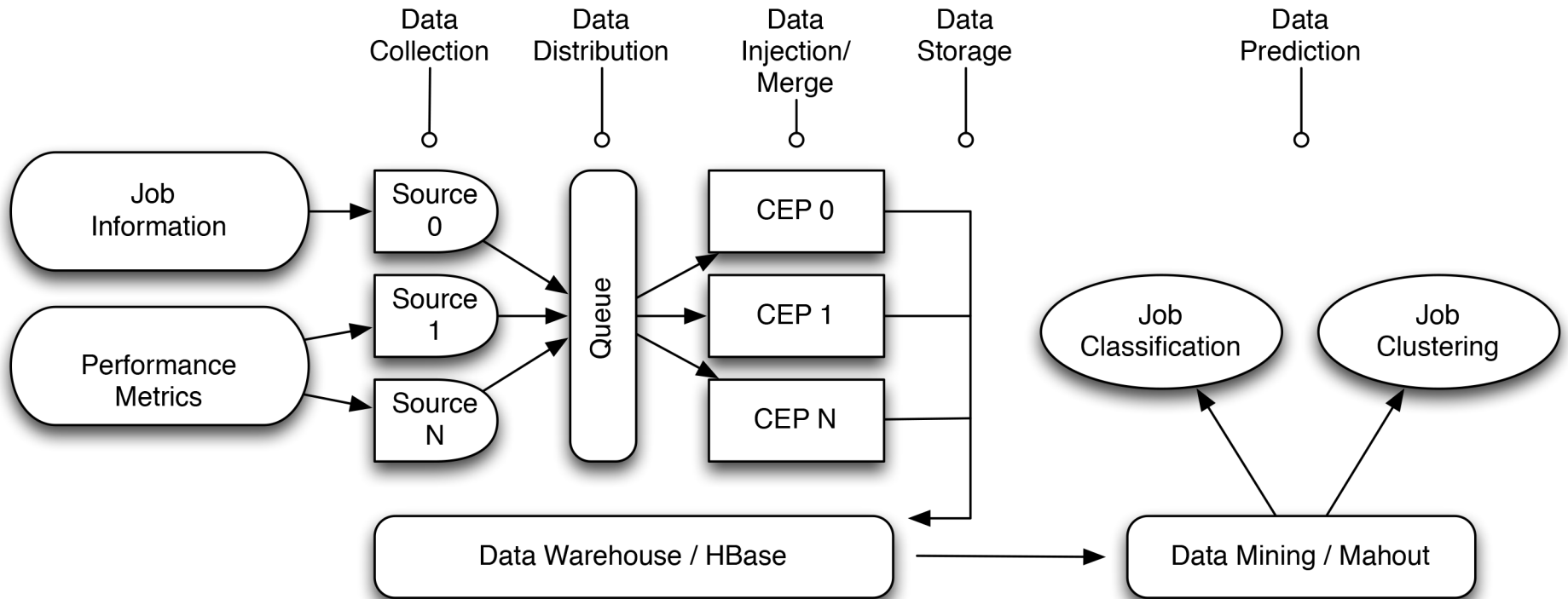
Hybrid Feedback

Monitoring Stream



Knowledge Discovery

-Workload Classification



Thanks!

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