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Oracle Cloud Infrastructure Data Source for Grafana

Mickey Boxell – Oracle Cloud Native Labs

#OracleCloudNative
cloudnative.oracle.com

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Who am I?

Mickey Boxell

Cloud Advocate, etc.

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Share best practices and build original solutions and content for cloud developers with a key focus on cloud native/container native, open source, and DevOps

http://cloudnative.oracle.com/

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Oracle Cloud

- Public cloud with enterprise grade governance and security
- Virtual Machine and Bare Metal infrastructure - same set of APIs used for both
- Managed Kubernetes: Container Engine for Kubernetes (OKE)
- Image Registry: Oracle Cloud Infrastructure Registry (OCIR)
- Non-oversubscribed network, low latency, high throughput, predictable network and CPU performance

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Why Grafana?

- Oracle Cloud Monitoring offers valuable telemetry data from a number of resources
- Our users have enough dashboards to keep track of already
- Grafana offers a centralized dashboard to view metrics from countless different sources

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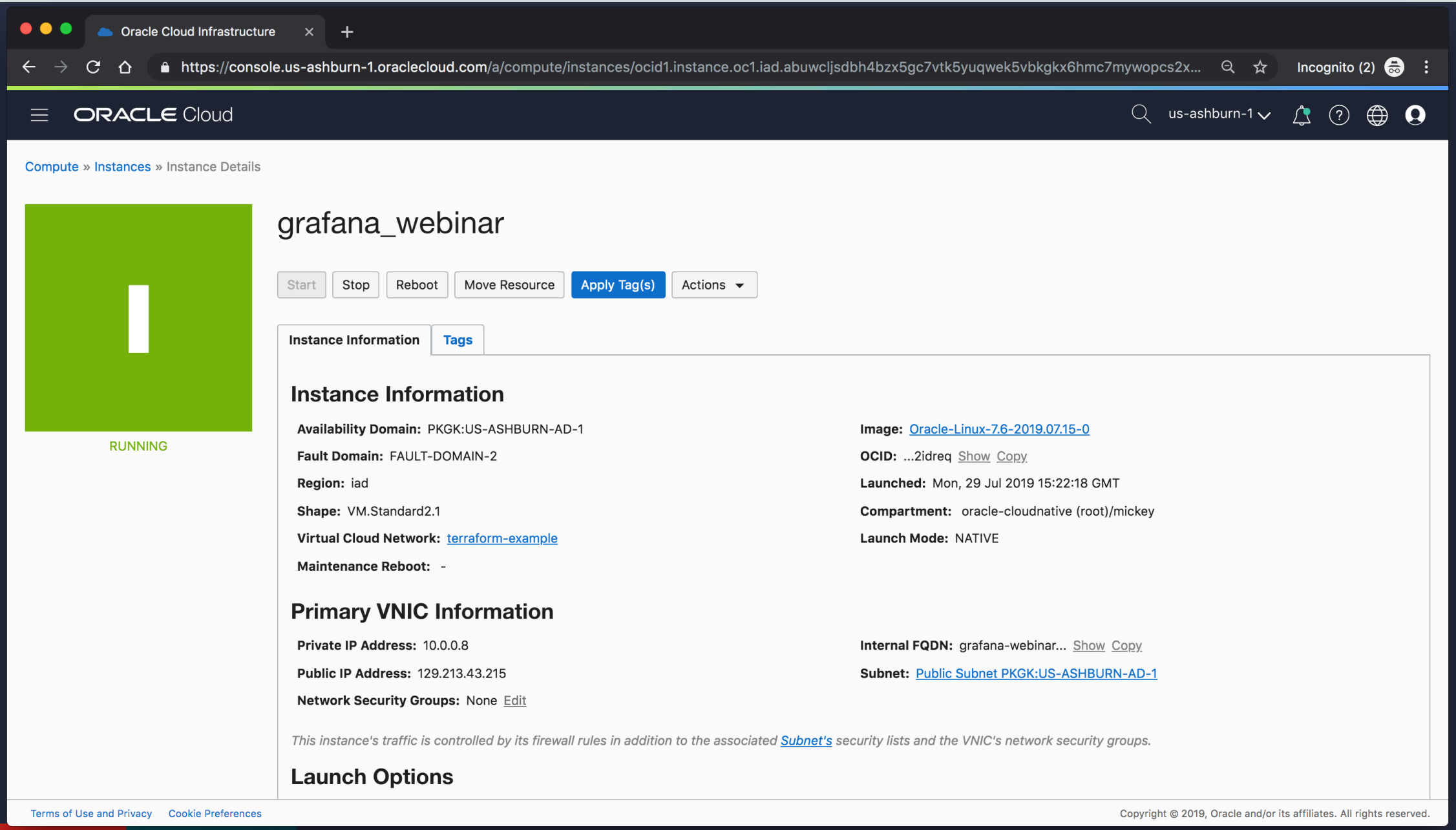

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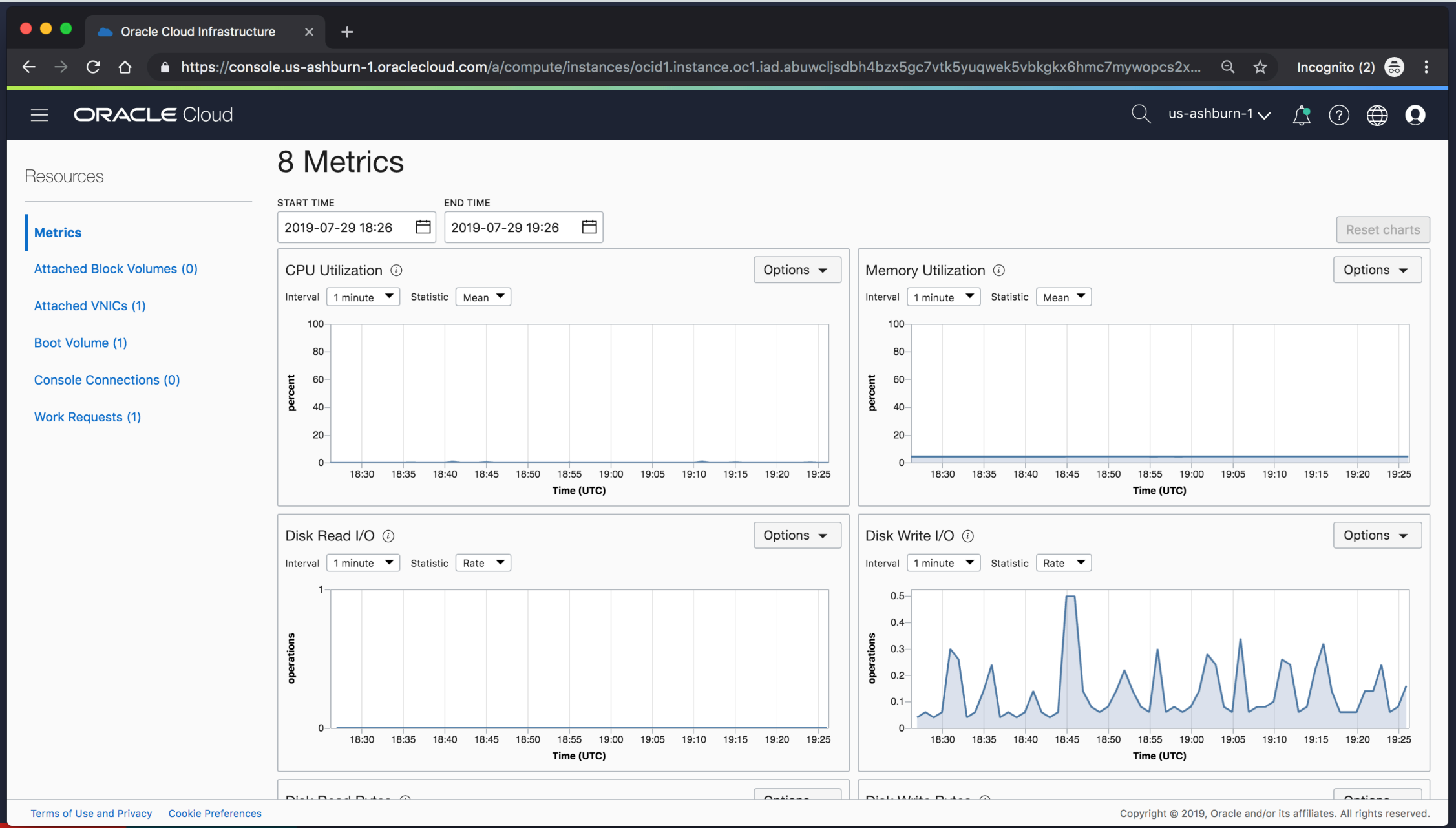

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Grafana and Oracle: Installation Options

- Use the grafana-cli tool to install the Oracle Cloud plugin from the command line: grafana-cli plugins install oci-datasource
- Install from the binary (pre-Grafana 6.0.0)
- Update your Grafana pod in Kubernetes with:

```
- name: GF_INSTALL_PLUGINS
  value: oci-datasource
```

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Grafana and Oracle: Authentication Options

- Local Installation: Oracle Cloud CLI (API key pair)
- Oracle Cloud Installation: Dynamic Group/Instance Principals

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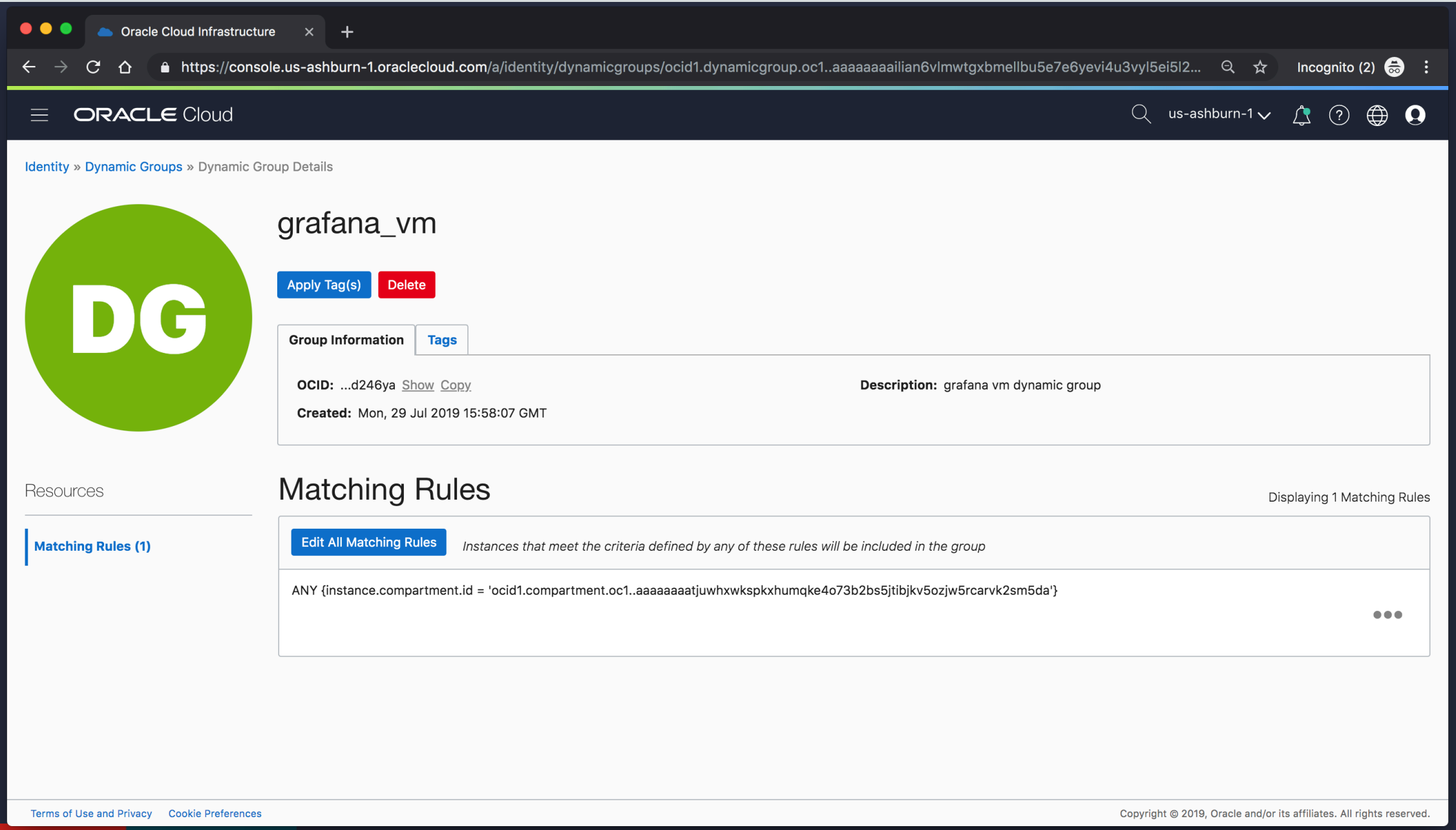

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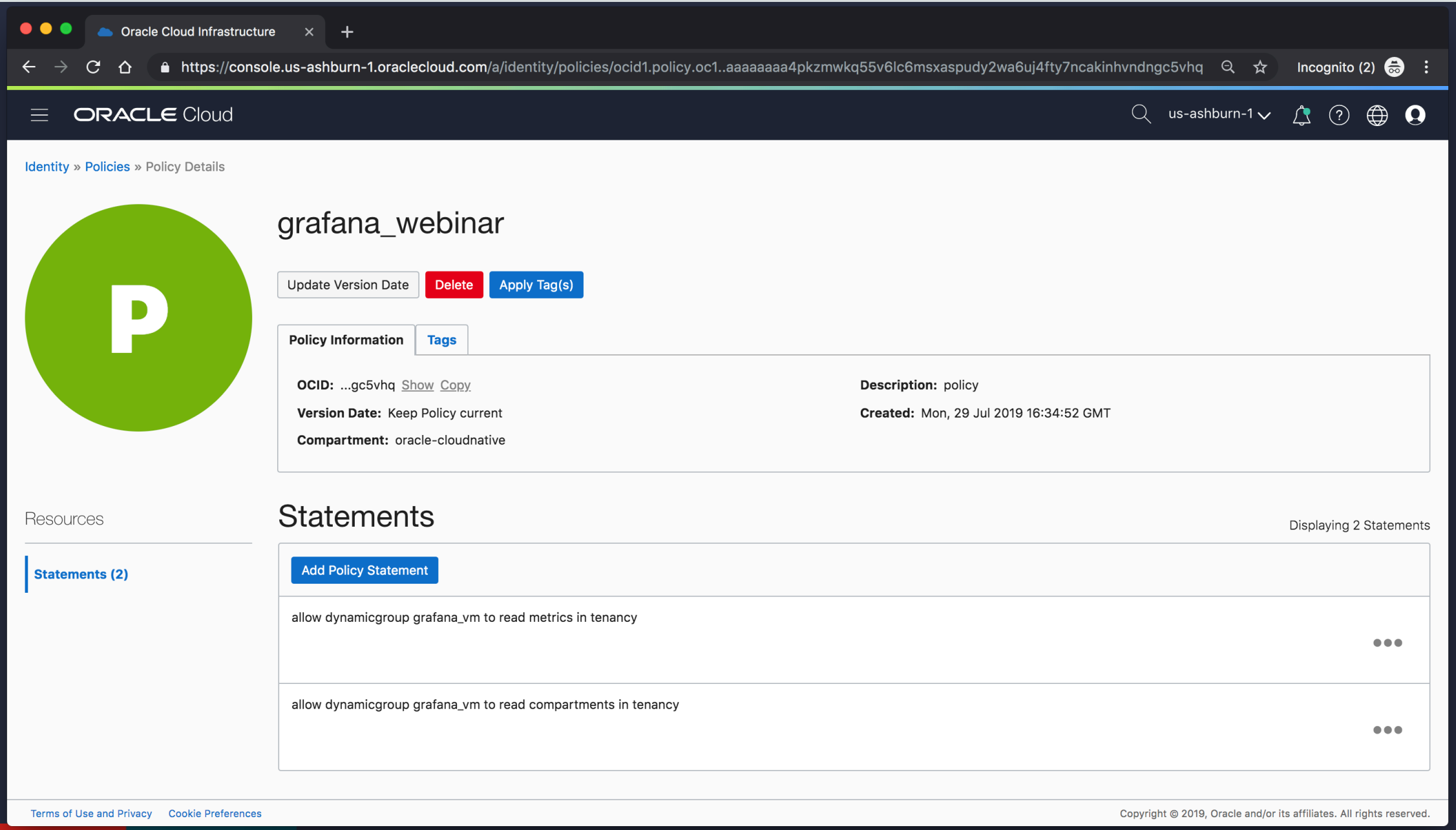

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Features

- Query Editor
- Dimensions
- Templating
- Custom Metrics Namespaces

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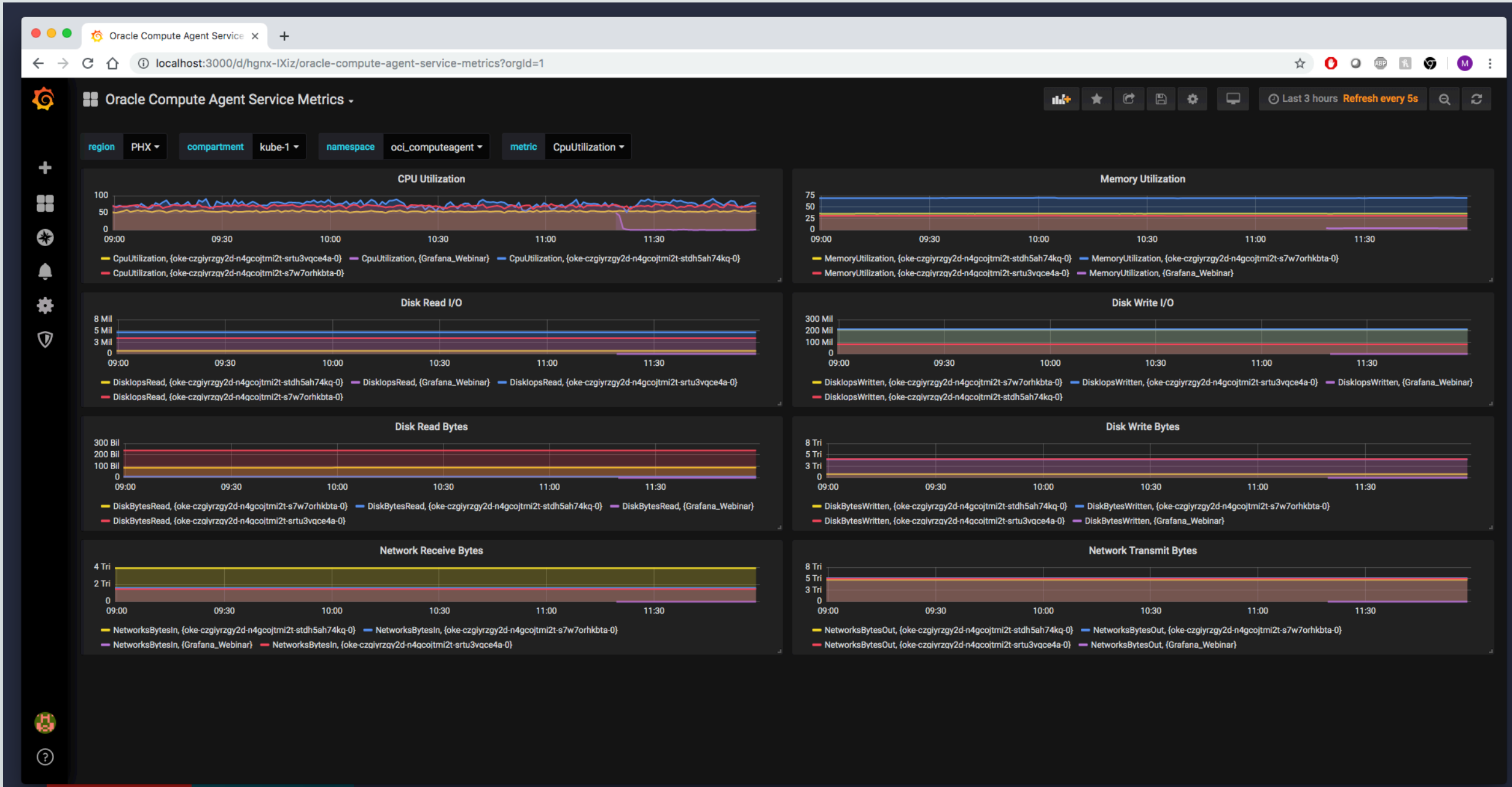

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Query Editor

- Simplifies the querying process with pre-built lists of variables
- Choose Region (IAD, PHX, etc.), Compartment, Namespace (computeAgent, blockStore, etc), Resolution, Metric (CpuUtilization, etc.), Aggregation (mean(), min(), etc.) , and Window

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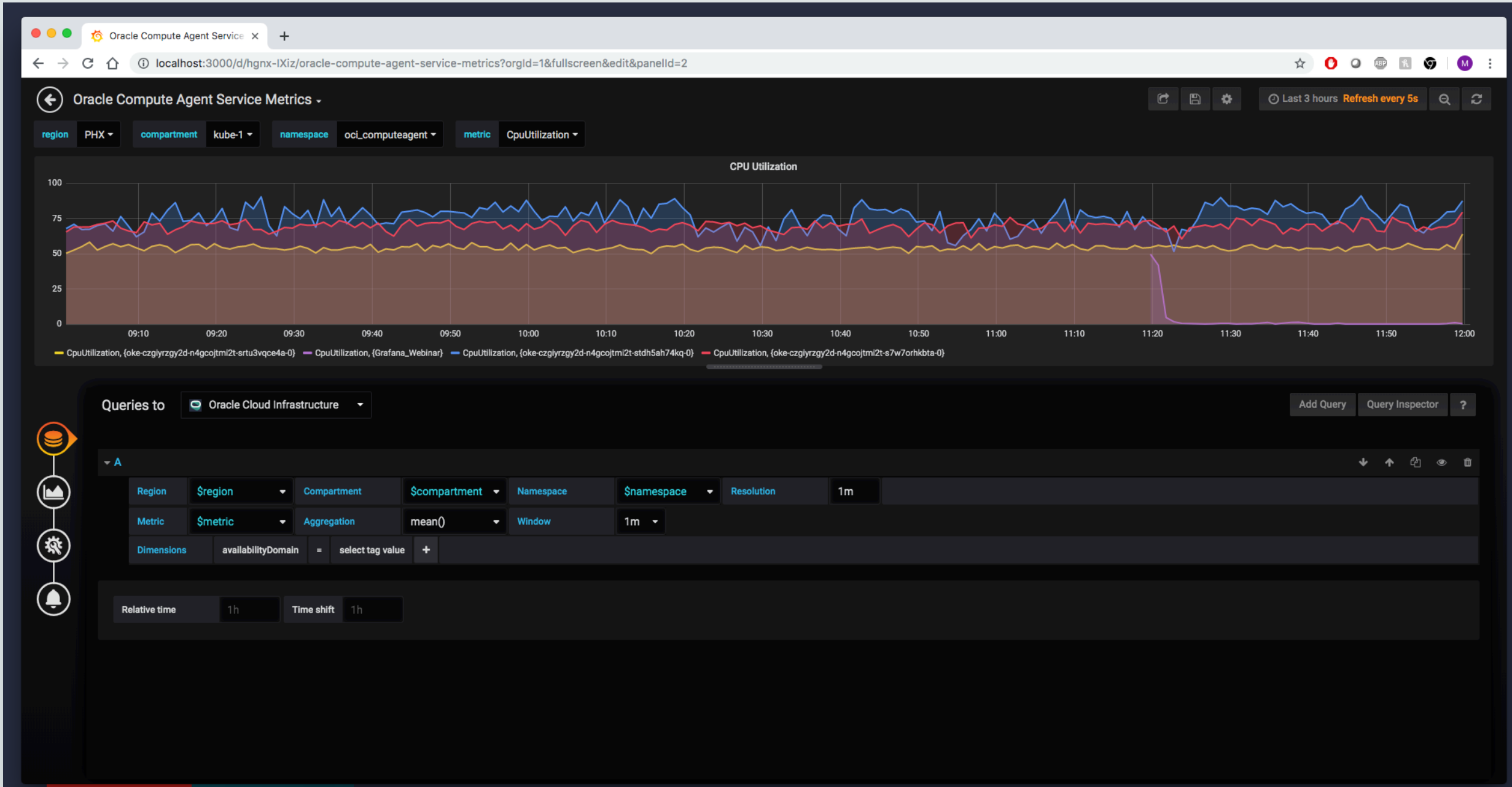

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Example Metrics

Compute Agent:

- CpuUtilization
- DiskBytesRead
- DiskBytesWritten
- DisklopsRead
- DisklopsWritten
- MemoryUtilization
- NewtorksBytesIn
- NewtorksBytesOut

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Example Metrics

Metric	Metric Display Name	Unit	Description
CpuUtilization	CPU Utilization	percent	Activity level from CPU. Expressed as a percentage of total time.
DiskBytesRead	Disk Read Bytes	bytes	Read throughput. Expressed as bytes read per interval.
DiskBytesWritten	Disk Write Bytes	bytes	Write throughput. Expressed as bytes written per interval.
DisklopsRead	Disk Read I/O	operations	Activity level from I/O reads. Expressed as reads per interval.
DisklopsWritten	Disk Write I/O	operations	Activity level from I/O writes. Expressed as writes per interval.
MemoryUtilization	Memory Utilization	percent	Space currently in use. Measured by pages. Expressed as a percentage of used pages.
NetworksBytesIn	Network Receive Bytes	bytes	Network receipt throughput. Expressed as bytes received.
NetworksBytesOut	Network Transmit Bytes	bytes	Network transmission throughput. Expressed as bytes transmitted.

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Dimensions

- Add specificity to graphs by means of dimensions
- Dimensions provide an additional filter for queries
- For example: choosing AvailabilityDomain as your tag value for a ComputeAgent query will provide you with the option to graph only compute resources from a particular availability domain (e.g. PHX-AD-1)

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Example Dimensions

Compute Agent:

- FaultDomain
- ResourceId
- ImageId
- AvailabilityDomain
- Shape
- Region
- InstancePoolID
- ResourceDisplayName

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Example Dimensions

- AVAILABILITYDOMAIN: The availability domain where the instance resides
- FAULTDOMAIN: The fault domain where the instance resides
- IMAGEID: The OCID of the image for the instance
- INSTANCEPOOLID: The instance pool the instance belongs to
- REGION: The region where the instance resides
- RESOURCEDISPLAYNAME: The human-readable name of the instance
- RESOURCEID: The OCID of the instance
- SHAPE: The shape of the instance

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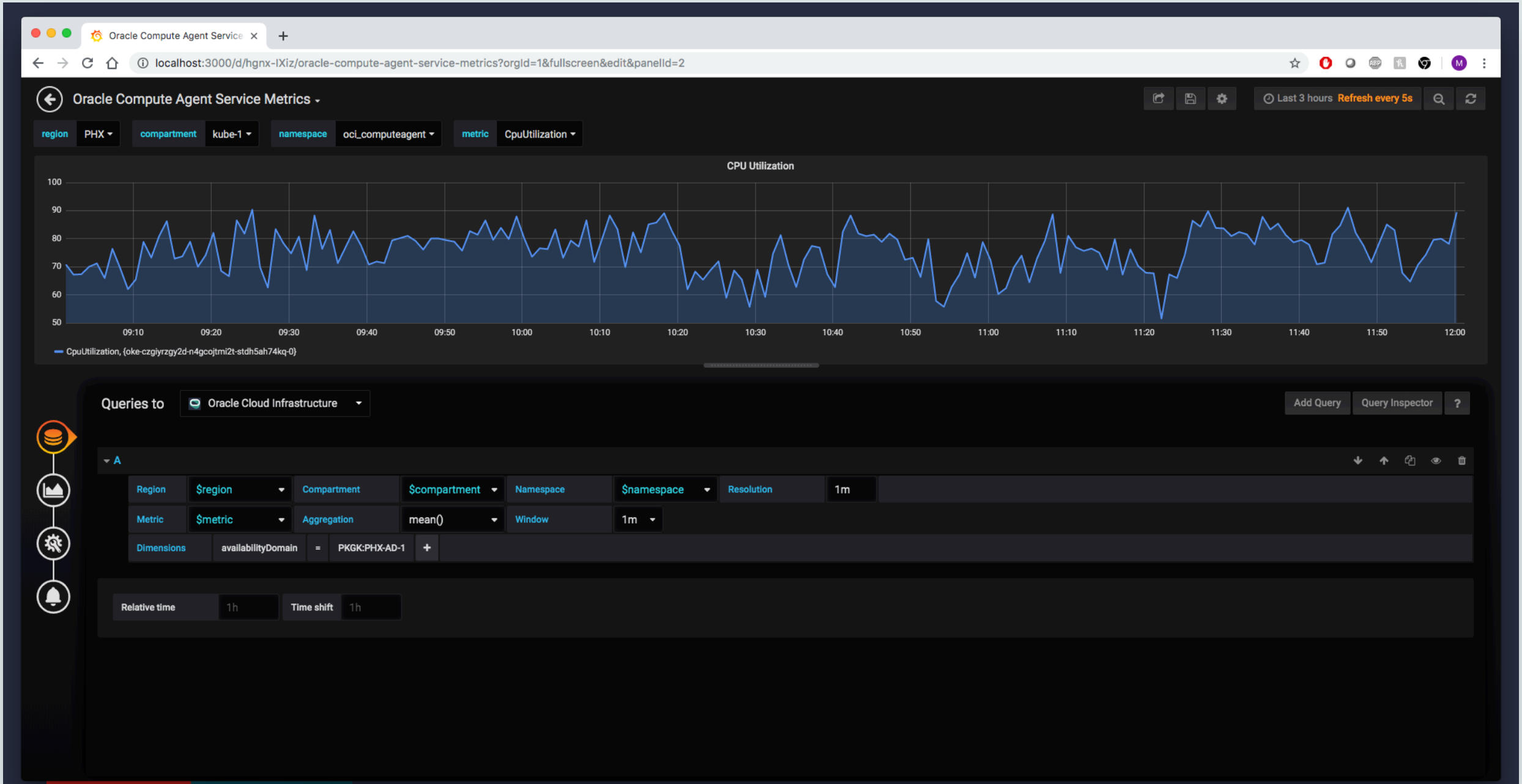

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Templating

- Dynamically interact with graphs using templating
- Change graphs on the fly to visualize additional information
- For example: switch the region being queried for all graphs on a given dashboard from PHX to IAD

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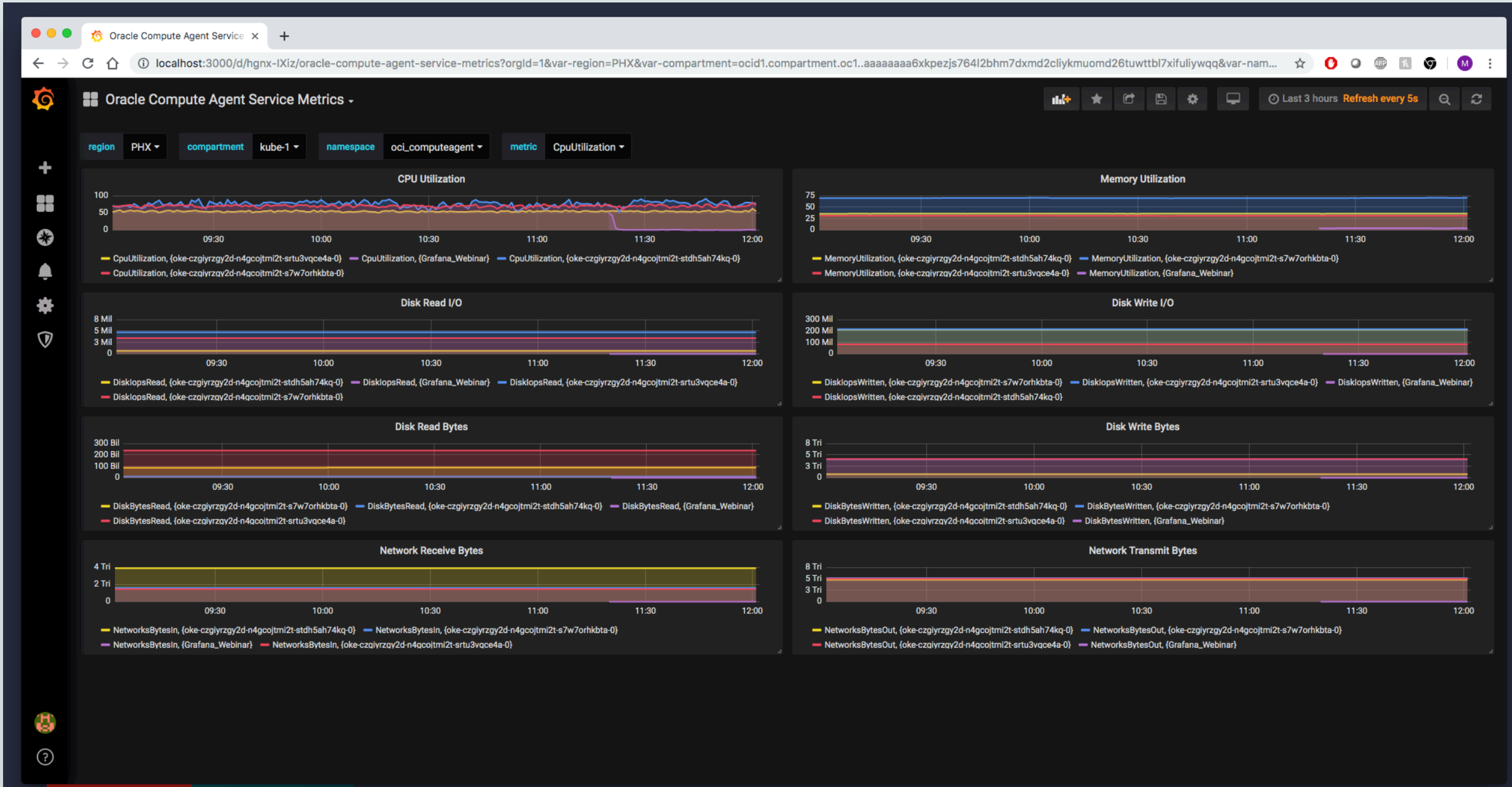

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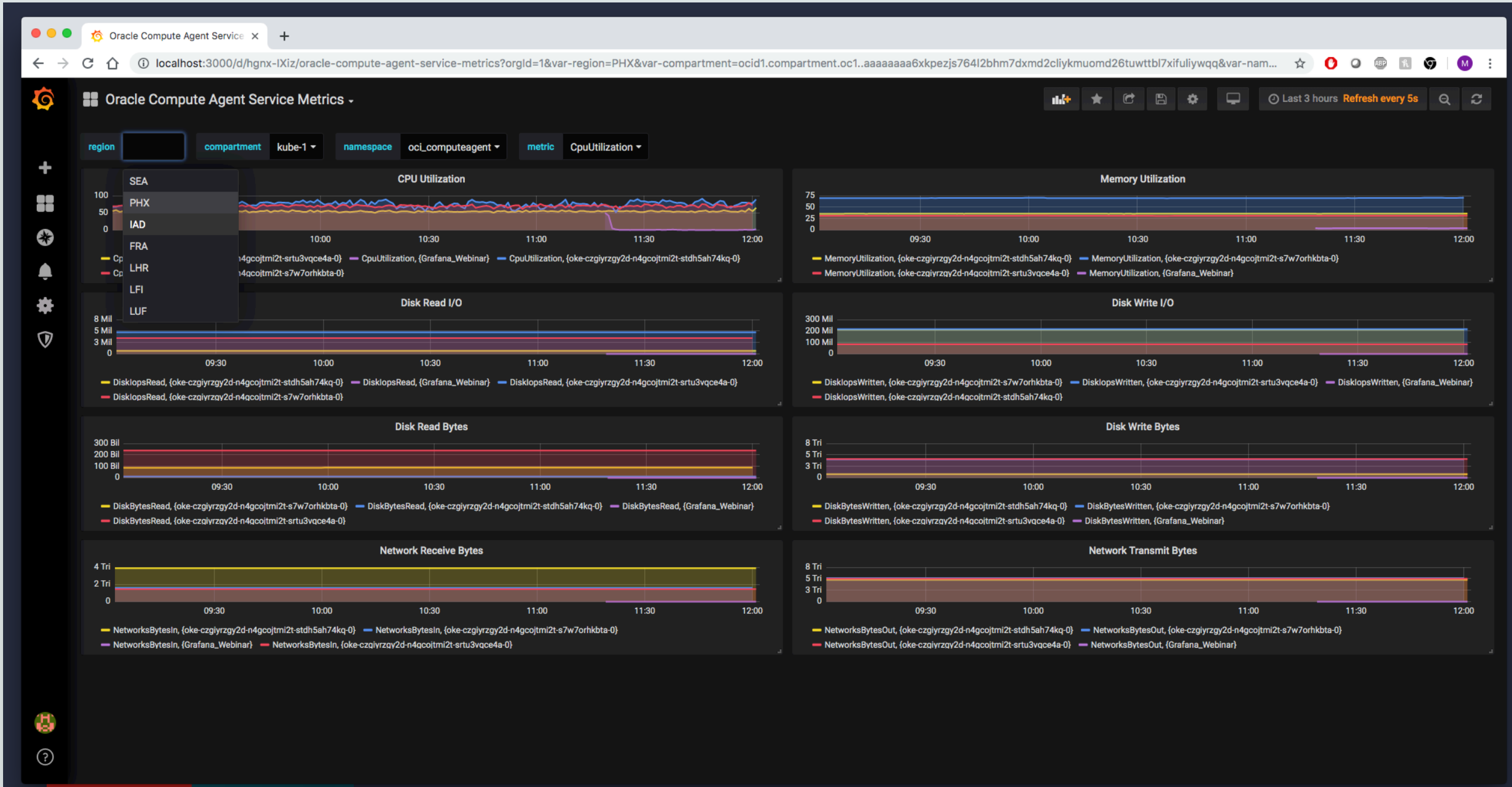

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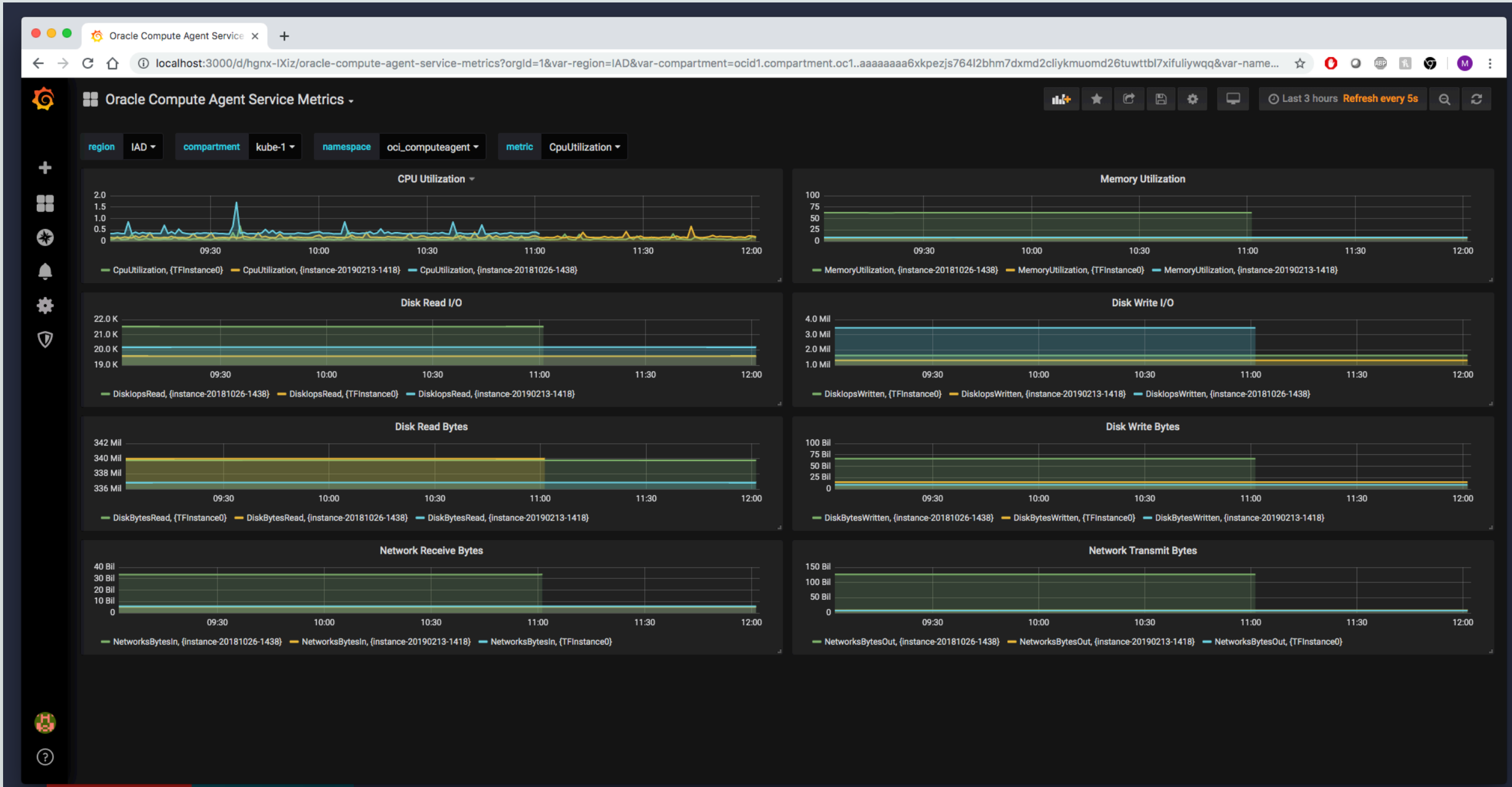

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Custom Metrics

- Publish custom metrics data points to the Monitoring service using PostMetricData in the Monitoring API
- Query those metrics from the Grafana UI as you would any other resource metrics

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Key Takeaways

- The Oracle Cloud Infrastructure Data Source for Grafana provides access to monitoring data for Oracle Cloud resources
- Grafana can be used as a centralized dashboard to view helpful data from Oracle and non-Oracle resources side by side

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Questions?

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Thank You!

And special thanks to Grafana for hosting this webinar!

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