Component Monitoring

Google Cloud

Agenda

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System metrics

Apigee software is combination of Java, C++ and PHP apps. As with any other system, basic system health checks must be conducted to ensure OS, process, network and hardware health.

Among others, the following metrics are commonly collected for Apigee components and underlying infrastructure:

- **CPU Utilization** – Specifies the basic statistics (User/System/IO Wait/Idle) of CPU utilization. For example, total CPU used by the system.
- **Free/Used Memory** – Specifies the system memory utilization as bytes. For example, physical memory used by the system.
- **Disk Space Usage** – Specifies the file system information based on the current disk usage. For example, hard disk space used by the system.
- **Load Average** – Specifies the number of processes waiting to run.
- **Network Statistics** – Network packets and/or bytes transmitted and received, along with the transmission errors about a specified component.

Thresholds for each of these metrics may vary by customer. Ideal maximum values may depend on allocated hardware, DC network traffic, TPS, and other factors.

Component Status

- Edge components (for example, edge-management-server) expose a service management API on a custom port
- Valid API calls vary by component, but all components support a set of core calls used to check status:
  - `/v1/servers/self`
  - `/v1/servers/self/up`
  - `/v1/servers/self/uuid`
- To call a component API, use curl or your HTTP client of choice:

```
> curl http://router-addr:8081/v1/servers/self/up
```

Component	API Port
edge-management-server	8080
edge-router	8081
edge-message-processor	8082
edge-qpid-server	8083
edge-postgres-server	8084

Log events

Router health check of the Message Processor

The Router implements a health check mechanism to determine which of the Message Processors are working as expected. If a Message Processor is detected as down or unreachable, the Router can automatically take the Message Processor out of rotation. These events are captured in `/opt/apigee/var/log/edge-router/logs/system.log`

Mark Down event

```
2014-05-06 15:51:52,159 org: env: RPCClientClientProtocolChildGroup-RPC-0 INFO CLUSTER - ServerState.setState() :
State of 2a8a0e0c-3619-416f-b037-8a42e7ad4577 is now DISCONNECTED. handle = <MP_IP> at 1399409512159

2014-04-17 12:54:48,512 org: env: nioEventLoopGroup-2-2 INFO HEARTBEAT - HBTracker.gotResponse() : No HeartBeat
detected from /<MP_IP>:<PORT> Mark Down
```

Mark Up event

```
2014-05-06 16:07:29,054 org: env: RPCClientClientProtocolChildGroup-RPC-0 INFO CLUSTER - ServerState.setState() :
State of 2a8a0e0c-3619-416f-b037-8a42e7ad4577 is now CONNECTED. handle = <IP> at 1399410449054

2014-04-17 12:55:06,064 org: env: nioEventLoopGroup-4-1 INFO HEARTBEAT - HBTracker.updateHB() : HeartBeat detected
from /<IP>:<PORT> Mark Up
```

See official documentation for configuration options and additional details:
`http://docs.apigee.com/private-cloud/latest/what-monitor`

JMX monitoring

Apigee Java components expose JMX interfaces for you to consume. The Mbeans exposed only provide read operations.

```
service:jmx:rmi:///jndi/rmi://<ip address>:<port>/platform
```

Out-of-the-box these interfaces are not protected by authentication. JMX authentication can be enable using:

```
/opt/apigee/apigee-service/bin/apigee-service edge-management-server change_jmx_auth -f
<configFile>

http://docs.apigee.com/private-cloud/latest/how-monitor#enablingjmxauthenticationandsettingthejmxp
assword
```

Open source components such as Cassandra also expose JMX interfaces:

```
service:jmx:rmi:///jndi/rmi://<ip address>:7199/jmxrmi

http://docs.apigee.com/private-cloud/latest/how-monitor#apachecassandra-cassandrajmxstatistics
```

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Apache ZooKeeper

Checking ZooKeeper status:
Ensure the ZooKeeper process is running. ZooKeeper writes a PID file to

```
/opt/apigee/var/run/apigee-zookeeper/apigee-zookeeper.pid
```

Check the status:

```
apigee-zookeeper status
```

Test ZooKeeper ports:
Ensure that you can establish a TCP connection to ports 2181 and 3888.
Ensure that you can read values from the ZooKeeper database.

```
/opt/apigee/apigee-zookeeper/bin/zkCli.sh
```

Run the four-letter command ruok:
Test if server is running in a non-error state. A successful response returns "imok".

```
echo ruok | nc <host> 2181
```

Run the four-letter command, stat:
List server performance and connected clients statistics.

```
echo stat | nc <host> 2181
```

Apache Cassandra

Look for the "Up" and "Normal" for all nodes:

```
nodetool -h localhost ring
```

Check thrift status:

```
nodetool -h statusthrift
```

OpenLDAP

You can monitor the OpenLDAP to see whether the specific requests are served properly. In other words, check for a specific search that returns the right result.

Use ldapsearch (yum install openldap-clients) to query the entry of the system admin. This entry is used to authenticate all API calls.

```
ldapsearch -b "uid=admin,ou=users,ou=global,dc=apigee,dc=com" -x -W -D "cn=manager,dc=apigee,dc=com" -H
ldap://localhost:10389 -LLL
```

Thank You

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