NSF/IUCRC CAC PROJECT

MONITORING, VISUALIZING, AND PREDICTING HEALTH STATUS OF HPC CENTERS

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Measurement	Time	Tags	Fields
I.e. Tables	Required	Indexed	NOT indexed, Required

- Store data in tags if they're commonly-queried meta data
- Tag values are always interpreted as strings
- Store data in fields if use them with an InfluxQL function

Ref: https://docs.influxdata.com/influxdb/v1.7/concepts/schema_and_data_layout/

MEASUREMENTS

Metrics Saved in different measurements(tables), metrics include:

- BMC:
  - CPU_Temperature
  - Inlet_Temperature
  - CPU_Usage
  - Memory_Usage
  - Fan_Speed
  - Node_Power_Usage
- UGE:
  - Job_Info

Mar. 14, 2019, 11:44 PM

- BMC:
  - cluster_unified_metrics
- UGE:
  - Current_Jobs_ID
  - qu_1236124 etc.
  - ...

Oct. 17, 2019, 9:09 PM

PREVIOUS SCHEMA

Measurement: CPU_Temperature
Query: select * from CPU_Temperature WHERE host='10.101.1.1' limit 1
First data point: Mar. 14, 2019, 11:44 PM

time	tags	fields
(epoch time)	cluster host location	CPU1 Temp CPU2 Temp GET_proessing_time Inlet Temp cpuLowerThresholdCritical cpuLowerThresholdNonCritical cpuUpperThresholdCritical cpuUpperThresholdNonCritical error

PREVIOUS SCHEMA

Measurement: Job_Info
Query: select * from Job_Info where host='10.101.1.1' limit 1
First data point: Apr. 12, 2019, 1:39 PM

time	tags	fields
(epoch time)	cluster host location	error jobID job_data nodes startTime State submitTime User

CURRENT SCHEMA

Measurement: cluster_unified_metrics
Query: select * from cluster_unified_metrics where host='10.101.1.1' limit 1
First data point: Oct. 17, 2019, 9:09 PM

time	tags	fields
(epoch time)	host	CPU1_temp CPU2_temp CPUAveragePowerUsage CPUCores CPUCurrentPowerUsage CPUMaxPowerUsage CPUMinPowerUsage MemoryAveragePowerUsage MemoryCurrentPowerUsage MemoryMaxPowerUsage MemoryMinPowerUsage bmc_health_status cpu_health_status cpuusage fan1_health fan1_speed fan2_health fan2_speed fan3_health fan3_speed fan4_health fan4_speed host_health_status inlet_health_status inlet_temp jobID led_indicator memory_health_status memoryusage power_state powerusage_watts

CURRENT SCHEMA

Measurement: Current_Jobs_ID
Query: select * from cluster_unified_metrics where host='10.101.1.1' limit 1
First data point: Oct. 17, 2019, 9:09 PM

time	tags	fields
(epoch time)	cluster location	jobs_list

CURRENT SCHEMA

Measurement: qu_1236124
Query: select * from qu_1236124 limit 1

time	tags	fields
(epoch time)	cluster location	CPUCores app_name error id nodes_address startTime state submitTime total_nodes user

Series Cardinality:
The number of unique database, measurement, tag set, and field key combinations in an InfluxDB instance.

The series cardinality is 866,183 (at 14:10 pm) and is increasing because of new jobs information are saved in to new measurements.

High series cardinality asks for high memory usage

NEW SCHEMA

	Measurement	Time	Tags	Fields
BMC Metrics	cpu memory fan etc.	Epoch time	Node IP addr	cpu_temp memory_temp fan_speed etc.
Scheduler Metrics	scheduler	Epoch time	Node IP addr	job_list
	jobs	Epoch time (Only update when a new job is submitted)	job ID	start_time submit_time etc.

QUESTIONS?/COMMENTS?