NSF/IUCRC CAC PROJECT

INTEGRATED VISUALIZING, MONITORING, AND MANAGING HPC SYSTEMS

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- Schema in rfInfluxDB

- Converting schema

- Performance Comparison

```
357    // opens a Polling channel to receive events from metric reports
358    exports.openChannelPolling = function (url, callback, metrics) {
359      if (metrics) {
360        metrics.forEach(function (metric) {
361          exports.requestRedfishResource(url, `/redfish/v1/TelemetryService/MetricReportDefinitions/${metric}`, "GET", function (erro
362            var cronTime = parseRecurrenceInterval(data);
363            var source = new cron.CronJob(cronTime, function () {
364              //console.log(`${url}redfish/v1/TelemetryService/MetricReports/${metric}`);
365              exports.requestRedfishResource(url, `/redfish/v1/TelemetryService/MetricReports/${metric}`, "GET", function (error, resp
366                if (response.statusCode == 404) {
367                  callback(Error(data), null);
368                } else {
369                  var [metricError, metricData] = exports.parseMetricReport(data, null);
370                  callback(metricError, metricData);
371                }
372              });
```

rfInfluxDB fetches metrics from "/Redfish/v1/TelemetryService/MetricReports/"

```
[lijie@nagios ~]$  curl -ks -u root:nivipnut https://10.101.1.1/redfish/v1/TelemetryService/ | jq '.'
{
  "error": {
    "code": "Base.1.0.GeneralError",
    "message": "A general error has occurred. See ExtendedInfo for more information.",
    "@Message.ExtendedInfo": [
      {
        "@odata.type": "#Message.v1_0_0.Message",
        "MessageId": "Base.1.0.InternalError",
        "Message": "failed, Request URI: /redfish/v1/TelemetryService/ is invalid"
      }
    ]
  }
}
```

Ref: https://github.com/JonHass/rfInfluxDB/blob/master/controllers/RedfishController.js

- CPU temperature, Inlet temperature and fan speed

  - "/redfish/v1/Chassis/System.Embedded.1/Thermal/"

- Power usage

  - "/redfish/v1/Chassis/System.Embedded.1/Power/"

- System health

  - "/redfish/v1/Systems/System.Embedded.1/"

- BMC health

  - "/redfish/v1/Managers/iDRAC.Embedded.1/"

RFINFLUXDB SCHEMA VS MONSTER SCHEMA

Measurement name comes from
data["MetricValues"]["MetricId"]

FanSensor, CPUSensor, ThermalSensor

Measurements:

Thermal, Power, Health,
UGE, NodeJobs, JobsInfo

```
"time":

"measurement":

"tags":
        "MetricReportDefinition":

        "Server":

        "Label":

        "ContextID":
"fields":
        "value":
```

Schema in rfInfluxDB

```
"time":

"measurement":

"tags":

        "NodeId":

        "Label":

"fields":
        "Reading":
```

Schema in MonSTer

UPDATE SCHEMA

```
SELECT "Reading" AS "Value" INTO hpcc_metrics_phase1..ThermalSensor FROM
       updated_schema..Thermal GROUP BY * WHERE Label = "CPU1Temp"
```

```
SELECT "Reading" AS "Value" INTO hpcc_metrics_phase1..FanSensor FROM
       updated_schema..Thermal GROUP BY * WHERE Label = "FAN_1"
```

"time": 1583792296,

"measurement": "Thermal",

"tags":

    "NodeId": "101.10.1.1"

    "Label": "FAN_1",

"fields":

    "Reading": 9310

→

"time": 1583792296,

"measurement": "FanSensor",

"tags":

    "NodeId": "101.10.1.1"

    "Label": "FAN_1",

"fields":

    "Value": 9310

"time": 1583792296,

"measurement": "Thermal",

"tags":

    "NodeId": "101.10.1.1"

    "Label": "CPU1Temp",

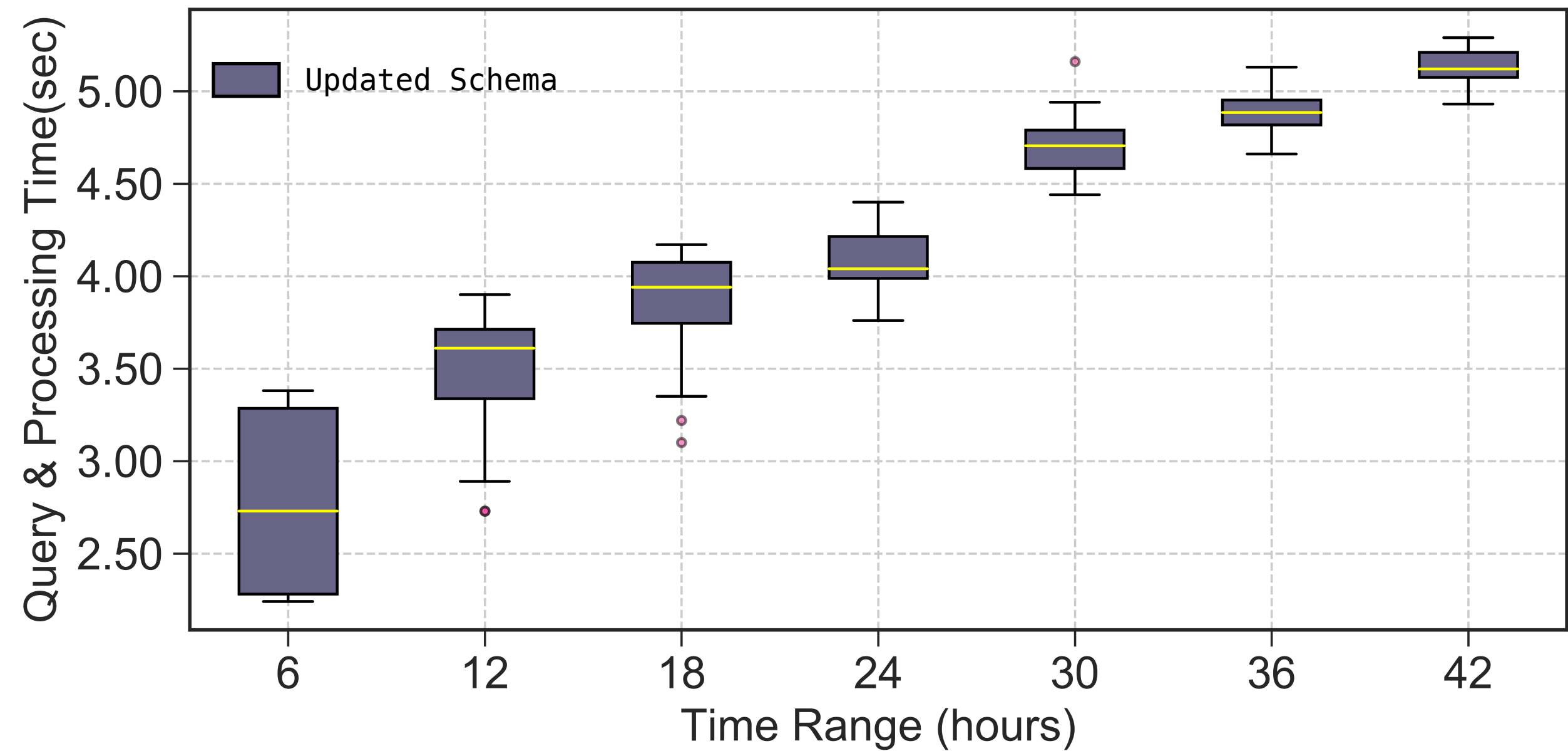**"fields"**:

    "Reading": 45

→

"time": 1583792296,

"measurement": "ThermalSensor",

"tags":

    "NodeId": "101.10.1.1"

    "Label": "CPU1Temp",

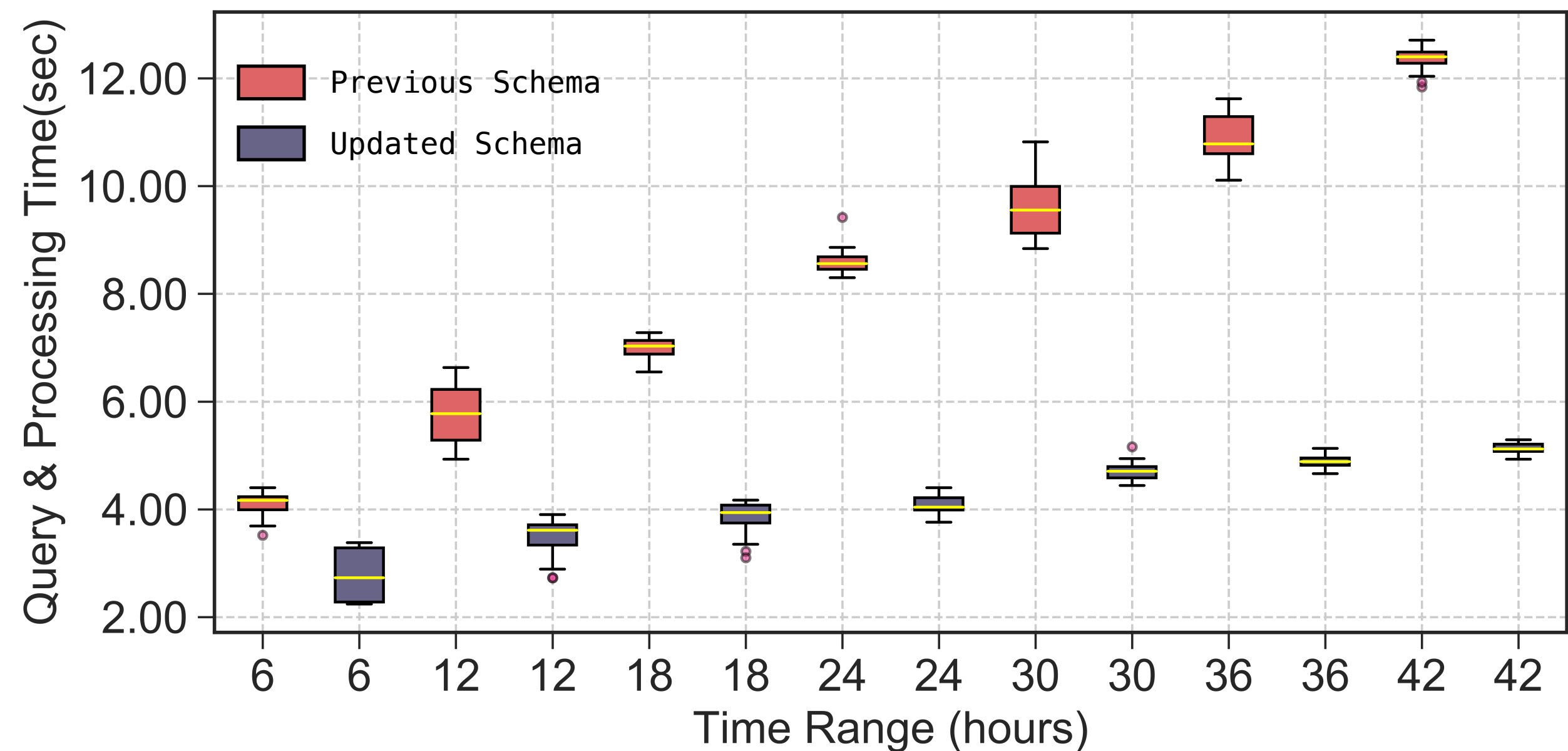**"fields"**:

    "Value": 45

Previous Schema   Updated Schema

Performance of using **updated Schema**
Time interval "5m", value type "max"
Each query was run 20 times

PERFORMANCE

Performance comparison

Time interval "5m", value type "max"

Using updated schema is up to 2.4x faster
more scalable in terms of querying time

QUESTIONS?/COMMENTS?