

NSF/IUCRC CAC PROJECT

INTEGRATED VISUALIZING, MONITORING, AND MANAGING HPC SYSTEMS

Jie Li

Doctoral Student, TTU

10/02/2020

Advisors:

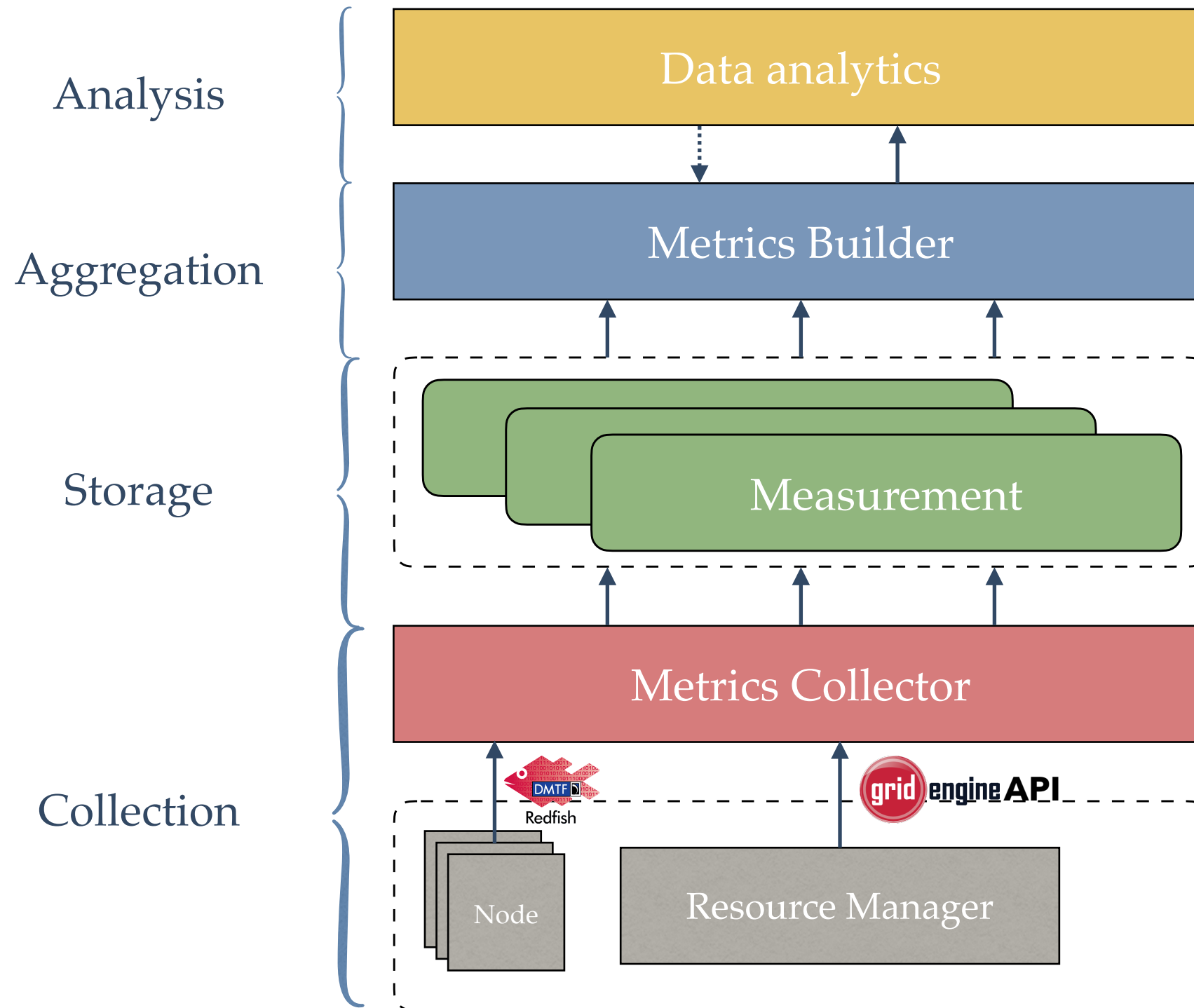
Mr. Jon Hass, SW Architect, Dell Inc.

Dr. Alan Sill, Managing Director, HPCC, TTU

Dr. Yong Chen, Associate Professor, CS Dept, TTU

Dr. Tommy Dang, Assistant Professor, CS Dept, TTU

MONSTER FRAMEWORK



- Metrics from BMC:

- Temperature
 - CPU1, CPU2, Inlet
- Fan speed
 - Fan1, Fan2, Fan3, Fan4
- Power usage
- BMC health (Not used in data analytics)
- System health (Not used in data analytics)

- Metrics from UGE:

- CPU usage
- Memory usage
- Swap usage (Not used in data analytics)
- Load average (Not used in data analytics)
- Job info
 - Start time
 - Submit time
 - Finish time (estimated)
 - Job name
 - Job id
 - User
 - Total nodes
 - Total CPU cores
 - Node list



```
"time": 1583792296,  
"measurement": "FanSensor",  
"tags":  
  "NodeId": "101.10.1.1"  
  "Label": "FAN_1",  
"fields":  
  "Value": 9310
```

```
"time": 1583792296,  
"measurement": "TempSensor",  
"tags":  
  "NodeId": "101.10.1.1"  
  "Label": "CPU1Temp",  
"fields":  
  "Value": 45
```

```
"time": 1583792296,  
"measurement": "Power",  
"tags":  
  "NodeId": "101.10.1.1"  
  "Label": "NodePower",  
"fields":  
  "Value": 318
```

```
"time": 1583792296,  
"measurement": "Health",  
"tags":  
  "NodeId": "101.10.1.1"  
  "Label": "System",  
"fields":  
  "Value": 1
```



```
"time": 1583792296,  
"measurement": "CPUUsage",  
"tags":  
  "NodeId": "101.10.1.1"  
  "Label": "UGE",  
"fields":  
  "Value": 50
```

```
"time": 1583792296,  
"measurement": "MemUsage",  
"tags":  
  "NodeId": "101.10.1.1"  
  "Label": "UGE",  
"fields":  
  "Value": 45
```

```
"time": 1583792296,  
"measurement": "SwapUsage",  
"tags":  
  "NodeId": "101.10.1.1"  
  "Label": "UGE",  
"fields":  
  "Value": 0.64
```

```
"time": 1583792296,  
"measurement": "Load",  
"tags":  
  "NodeId": "101.10.1.1"  
  "Label": "UGE",  
"fields":  
  "Value": 10.01
```



```
"time": 1583792296,  
"measurement": "NodeJobs",  
"tags":  
  "NodeId": "101.10.1.1"  
"fields":  
  "JobList": "[123456,  
               123457]"
```

```
"time": 0,  
"measurement": "JobsInfo",  
"tags":  
  "JobId": 123456  
"fields":  
  "StartTime": 1583792200  
  "SubmitTime": 1583791200  
  "TotalNodes": 2  
  "NodeList": "[ '101.10.1.1-18',  
                '101.10.1.2-36' ]"  
  "CPUCores": 54  
  "JobName": "test"  
  "User": "abc"
```

Finish time is derived from the NodeJobs



QUESTIONS?/COMMENTS?