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| Verizon Wireless  MTC Core Analytics  User Guide |
| MTC Core Analytics  October 2016 |

Notices

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| \* Action types: Approve, Review, Inform, File, Action Required, Attend Meeting, Other (please specify) | | | | |

Table of contents

[1 Introduction 9](#_Toc462704543)

[1.1 Purpose 9](#_Toc462704544)

[1.2 Audience 9](#_Toc462704545)

[1.3 References 9](#_Toc462704546)

[2 Vertica Table Schema 10](#_Toc462704547)

[3 ETL Workflows 11](#_Toc462704548)

[4 MTC Core Analytics Reports 15](#_Toc462704549)

[4.1 Interacting with Tableau Reports 15](#_Toc462704550)

[4.1.1 Common Icons 15](#_Toc462704551)

[4.1.2 Export Views 15](#_Toc462704552)

[4.2 SGSIWF KPI Reports 17](#_Toc462704553)

[4.2.1 System Performance KPI Dashboard 20](#_Toc462704554)

[4.2.2 Call Related KPI Dashboard 52](#_Toc462704555)

[4.2.3 Capacity KPI Dashboard 72](#_Toc462704556)

[4.2.4 Trending KPI Dashboard 84](#_Toc462704557)

[4.2.5 Trending KPI (Per Sec) Dashboard 93](#_Toc462704558)

[4.3 SMSC KPI Reports 100](#_Toc462704559)

[4.3.1 SMSC KPI Report Dashboard 101](#_Toc462704560)

List of figures

[**Figure 1** SGS workflow 11](#_Toc462704465)

[**Figure 2** SGS workflow 13](#_Toc462704466)

[**Figure 3** Tableau Toolbar 15](#_Toc462704467)

[**Figure 4** Export Toolbar 16](#_Toc462704468)

[**Figure 5** Export PDF Dialog Box 16](#_Toc462704469)

[**Figure 6** System Performance KPI Report dashboard 20](#_Toc462704470)

[**Figure 7** LocationUpdateIdx worksheet 23](#_Toc462704471)

[**Figure 8** LocationUpdateIdx worksheet filters 24](#_Toc462704472)

[**Figure 9** KPI – Intra-VLR Location Update Success Rate Definition 25](#_Toc462704473)

[**Figure 10** KPI – Inter-VLR Location Update Success Rate Definition 26](#_Toc462704474)

[**Figure 11** KPI – Overall Location Update Success Rate Definition 28](#_Toc462704475)

[**Figure 12** SMSIdx worksheet 30](#_Toc462704476)

[**Figure 13** SMSIdx worksheet filters 31](#_Toc462704477)

[**Figure 14** KPI – Network SMS Received Success Rate Definition 33](#_Toc462704478)

[**Figure 15** KPI – Network SMS Sent Success Rate Definition 35](#_Toc462704479)

[**Figure 16** SGsApPagingIdx worksheet 37](#_Toc462704480)

[**Figure 17** KPI – SGsAp Paging Success Rate Definition 37](#_Toc462704481)

[**Figure 18** MSUIdx worksheet 39](#_Toc462704482)

[**Figure 19** MSUIdx worksheet filters 40](#_Toc462704483)

[**Figure 20** KPI – M3UA MSU Receive Success Rate Definition 41](#_Toc462704484)

[**Figure 21** KPI – M3UA MSU Transmit Success Rate Definition 42](#_Toc462704485)

[**Figure 22** SMS-RestoreIDx worksheet 43](#_Toc462704486)

[**Figure 23** SMS-RestoreIdx worksheet filters 44](#_Toc462704487)

[**Figure 24** KPI – SMS Restore Data Success Rate Definition 45](#_Toc462704488)

[**Figure 25** SCTPIdx worksheet 46](#_Toc462704489)

[**Figure 26** SCTPIdx worksheet filters 48](#_Toc462704490)

[**Figure 27** KPI – SCTP Packets Received Deviations Definition 48](#_Toc462704491)

[**Figure 28** KPI – SCTP Packets Transmitted Deviations Definition 49](#_Toc462704492)

[**Figure 29** Call Related KPI Report dashboard 52](#_Toc462704493)

[**Figure 30** SMSPerUser worksheet 55](#_Toc462704494)

[**Figure 31** SMSPerUser worksheet filters 56](#_Toc462704495)

[**Figure 32** KPI – MO SMS per Subscriber Rate Definition 57](#_Toc462704496)

[**Figure 33** KPI – MT SMS per Subscriber Rate Definition 58](#_Toc462704497)

[**Figure 34** LocationSubRate worksheet 59](#_Toc462704498)

[**Figure 35** LocationSubRate worksheet filters 61](#_Toc462704499)

[**Figure 36** KPI – Location Registration per Subscriber Rate Definition 61](#_Toc462704500)

[**Figure 37** KPI – Location Update per Subscriber Rate Definition 62](#_Toc462704501)

[**Figure 38** VLRPerSub worksheet 63](#_Toc462704502)

[**Figure 39** VLRPerSub worksheet filters 65](#_Toc462704503)

[**Figure 40** KPI – VLR Cancel per Subscriber Rate Definition 65](#_Toc462704504)

[**Figure 41** KPI – VLR Purge per Subscriber Rate Definition 66](#_Toc462704505)

[**Figure 42** KPI – VLR Ready for Short Message per Subscriber Rate Definition 67](#_Toc462704506)

[**Figure 43** SGsPerSub worksheet 68](#_Toc462704507)

[**Figure 44** SGsPerSub worksheet filters 69](#_Toc462704508)

[**Figure 45** KPI – SGs Alert per Subscriber Rate Definition 70](#_Toc462704509)

[**Figure 46** KPI – SGs Detach per Subscriber Rate Definition 71](#_Toc462704510)

[**Figure 47** Capacity KPI Report dashboard 72](#_Toc462704511)

[**Figure 48** CapacityKPISUM worksheet 74](#_Toc462704512)

[**Figure 49** CapacityKPISUM worksheet filters 76](#_Toc462704513)

[**Figure 50** KPI –Number of Active Subscribers Definition 76](#_Toc462704514)

[**Figure 51** KPI –Number of Active Subscribers Definition 77](#_Toc462704515)

[**Figure 52** CapacityKPIAVG worksheet 78](#_Toc462704516)

[**Figure 53** KPI –Number of Active Subscribers Definition 78](#_Toc462704517)

[**Figure 54** KPI –Total SMS Attempts Definition 79](#_Toc462704518)

[**Figure 55** BusyHour worksheet 81](#_Toc462704519)

[**Figure 56** BusyHour worksheet filters 82](#_Toc462704520)

[**Figure 57** KPI – Busy Hour SMS Attempts Definition 82](#_Toc462704521)

[**Figure 58** Trending KPI dashboard 84](#_Toc462704522)

[**Figure 59** Trending KPI worksheet 86](#_Toc462704523)

[**Figure 60** TrendingKPI worksheet filters 88](#_Toc462704524)

[**Figure 61** KPI – Location Cancellation Requests Definition 88](#_Toc462704525)

[**Figure 62** KPI – SCTP Packets Received Definition 89](#_Toc462704526)

[**Figure 63** KPI – SCTP Packets Transmitted Definition 90](#_Toc462704527)

[**Figure 64** KPI – SGs Messages Received Definition 91](#_Toc462704528)

[**Figure 65** KPI – SGs Messages Transmitted Definition 91](#_Toc462704529)

[**Figure 66** TrendingKPI (Per Sec) worksheet filters 94](#_Toc462704530)

[**Figure 67** Trending KPI (Per Sec) worksheet 94](#_Toc462704531)

[**Figure 68** TrendingKPI (Per Sec) worksheet filters 96](#_Toc462704532)

[**Figure 69** KPI – Location Cancellation Requests Definition 96](#_Toc462704533)

[**Figure 70** KPI – SCTP Packets Received Definition 97](#_Toc462704534)

[**Figure 71** KPI – SCTP Packets Transmitted Definition 98](#_Toc462704535)

[**Figure 72** KPI – SGs Messages Received Definition 98](#_Toc462704536)

[**Figure 73** KPI – SGs Messages Transmitted Definition 99](#_Toc462704537)

[**Figure 74** SMSC KPI Report dashboard 101](#_Toc462704538)

[**Figure 75** BusyHourSM worksheet 102](#_Toc462704539)

[**Figure 76** BusyHourSM worksheet filters 104](#_Toc462704540)

[**Figure 77** KPI – Busy Hour Short Message Definition 104](#_Toc462704541)

[**Figure 78** KPI – Busy Hour Short Message Attempts Definition 105](#_Toc462704542)

List of tables

[**Table 1** Common Icons in Tableau Reports 15](#_Toc462704454)

[**Table 2** System Performance KPI Report Dashboard filter 21](#_Toc462704455)

[**Table 3** System Performance KPI to Worksheet Redirection Table 22](#_Toc462704456)

[**Table 4** Call Related KPI Report Dashboard filter 53](#_Toc462704457)

[**Table 5** Call Related KPI to Worksheet Redirection Table 54](#_Toc462704458)

[**Table 6** Capacity KPI Report Dashboard filter 73](#_Toc462704459)

[**Table 7** Capacity KPI to Worksheet Redirection Table 73](#_Toc462704460)

[**Table 8** Trending KPI Report Dashboard filter 85](#_Toc462704461)

[**Table 9** Trending KPI to Worksheet Redirection Table 85](#_Toc462704462)

[**Table 10** SMSC KPI Report Dashboard filter 101](#_Toc462704463)

[**Table 11** SMSC KPI to Worksheet Redirection Table 102](#_Toc462704464)

# Introduction

## Purpose

The purpose of this document is to guide users through the Verizon Wireless MTC Core Analytics reports.

## Audience

This document is developed for all individuals interacting with the Verizon Wireless SPS Management Complex.

## References

Tableau 8.2 Desktop Online Help System:

<http://onlinehelp.tableau.com/v8.2/pro/online/windows/en-us/help.htm>

# Vertica Table Schema

The *SGSIWF* and *SMSC* systems require data to be read from various Vertica database tables in order to visual data using Tableau. Find the schemas used for this below:

**SGSIWF Schema:**

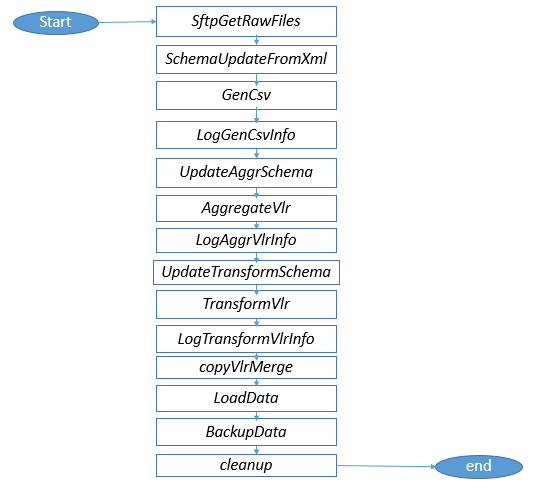


**SMSC Schema:**



# ETL Workflows

**SGS Workflow**



1. SGS workflow

**SftpGetRawFiles**: The sftp connection is made to the server containing raw files and the files are copied to /mtccore/xmldata for further processing of data.

**SchemaUpdateFromXml ->SchemaFromXmlCmd** : If the input xmls file has new fields the logic schema is updated, and update sql is generated else the create sql is generated if it is new.

**GenCsv: -> XmlToCsvCmd** The raw files are parsed and original schema attributes and new schema attributes are checked further generating data to the csv files.

**LogGenCsvInfo**: The GenCsv ETL log is sent to the Kafka bootstrap server producer with topic name and is logged.

**UpdateAggrSchema**: The logical schema is checked if it contains the aggregate new table and accordingly the new table csv attributes and types is updated and the create table is generated. If logical schema already has aggregate table information then update schema and alter table occurs . The new aggregate tables involved are PoolType\_vlr\_aggr, MME\_PoolType\_wss7\_aggr, MME\_PoolType\_vlr\_aggr, PoolType\_vlr\_TechnologyType\_aggr.

**AggregateVlr**: Mapreduce job gets the csv files from /mtccore/csvdata/ and aggregates the VLR from the csv files.

**LogAggVlrinfo**: The AggregateVlr ETL log is sent to the Kafka bootstrap server producer with topic name and is logged.

**UpdateTransformSchema**: The additional field names and types if not present in logical schema is updated and accordingly the schema is also updated.

**TransformVlr**: Mapreduce job transforms the aggregate results based on the average active subscriber number.

**LogTransformVlrInfo**: The TransformVlr-Info ETL log is sent to the Kafka bootstrap server producer with topic name and is logged.

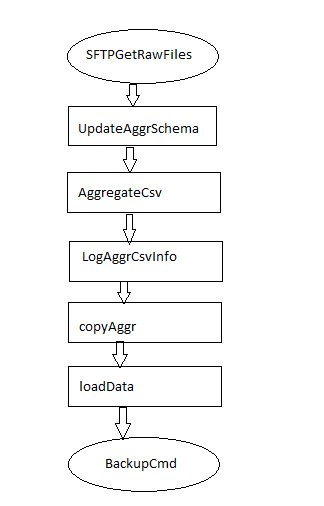
**copyVlrMerge**: Copy the vlr merge from /mtccore/csvdata/trans/ to /mtccore/csvdata/csv/{wf:id}/ path and delete the files from the source location.

**LoadData**: Get the csv filename and using the same derive the sql file and execute the sqls.

**BackupData**: Create the zip file containing xml and csv files.

**Cleanup**: Cleans the data specific to workflow id in the *csvdata* folder.

**SMSC Workflow**



1. SGS workflow

**SftpGetRawFiles:**To SFTP raw files which contains the data to be loaded in Database tables created for SMSC. It filters respective previous day raw files in source folder,executes SFTP command and transfers files to destination.

**UpdateAggrSchema:** SMSC schema contains each table mapped against raw file and SPA\_Merge aggregation table. If there is any change in table structure, schema information will be updated.SMSC contains Aggregation table called SPA\_Merge which contains all other table's columns are present.

For example, 33 tables are present in SMSC schema. 33 tables has 220 columns approximately. Then SPA\_Merge table schema will have all 220 columns.

**AggregateCsv:** AggregateCSV command calculates sum of every raw file data grouped per hour and date.

**LogAggrCsvInfo:** Logs the information about process.

**copyAggr:** Copies the aggregated raw file information into csv file

**loadData:** Loads each raw file data into corresponding SMSC table.Loads aggregated raw file data into SPA\_Merge

**BackupData:** Creates zip of raw files processed on the day and move the zip into data history folder.

# MTC Core Analytics Reports

The Verizon Wireless MTC Core Analytics is a reporting and monitoring solution created to provide insight into the operation of the SPS platform.

This section addresses the visualization of SPS application metrics or KPIs, using Tableau as the presentation layer for a Vertica database data warehouse that collects and aggregates SPS transaction data.

## Interacting with Tableau Reports

Viewing, interacting, and exporting data is possible through the use of various icons present in almost every report.

### Common Icons

|  |  |  |
| --- | --- | --- |
| Icon | Icon Name | Description |
|  | Export | Export the view as an Image, Data, Crosstab or PDF; refer to the Export Views section on page 26 for more details. |
|  | Revert All | Revert the view to its original state. |
|  | Pause Automatic Updates | Pause updates from the data source when making changes to the view to avoid an update after every change. |
|  | Resume Automatic Updates | Resume updates from the data source. |
|  | Refresh Data | Manually update the view to retrieve the latest data from the data source. |
|  | Share | Share the link to a published view or workbook via email or embedded into another webpage, wiki, or web application. |
|  | Download | Download a published workbook from the Tableau Server. |
|  | Drill Down | Expands a field to reveal additional information. |
|  | Drill Up | Collapses a field to hide additional information. |
|  | View Data | Displays the underlying data for the selected mark. |

1. Common Icons in Tableau Reports

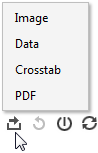
### Export Views

Published views can be exported as images, data, crosstab, or PDFs:

1. Click the Export button on the toolbar located at the bottom center of a view.



1. Tableau Toolbar
2. Select either Image, Data, Crosstab, or PDF.



1. Export Toolbar

Export as Image

The Image option allows you to export the view as an image.

Export as Data

The Data option allows you to export the view as a text file.

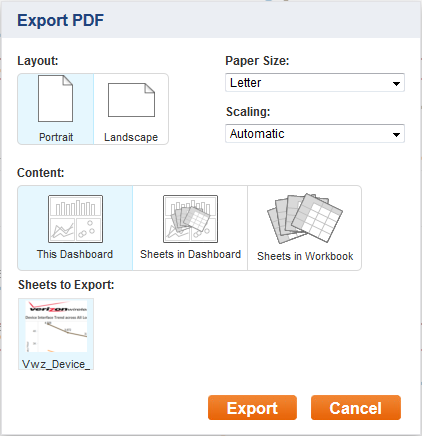
Export as Crosstab

The Crosstab option allows you to export the view into a new Excel workbook.

Export as PDF

The PDF option allows you to export the view or workbook as a PDF.

After selecting the PDF option, the Export PDF Dialog Box appears and allows you to select the page orientation, paper size, scaling, content, and the sheets available for export.



1. Export PDF Dialog Box

## SGSIWF KPI Reports

The SGS-IWF system has several Tableau Dashboards and worksheets that contain visualizations of the KPIs. The dashboards are as follows: *System Performance KPI Report, Call Model Related KPI Report, Capacity KPI Report, Trending KPI Report and Trending KPI Report (Per Second).* Each of the dashboards contain controllers that filter the data according to user specifications.

The following lists the report in bold, followed by the KPI that is visualized in that report (Click while holding the *ctrl* button to redirect to that KPI’s definition):

* **System Performance KPI Report**
  + [Inter-VLR Location Update Success Rate](#_KPI_–_Inter-VLR)
  + [Intra-VLR Location Update Success Rate](#_KPI_–_Intra-VLR)
  + [Overall Location Update Success Rate](#_KPI_–_Overall)
  + [SGs Messages Received Success Rate](#_KPI_–_SGs_2)
  + [SGs Messages Transmitted Success Rate](#_KPI_–_SGs_3)
  + [Network SMS Received Success Rate](#_KPI_–_Network)
  + [Network SMS Sent Success Rate](#_KPI_–_Network_1)
  + [M3UA MSU Receive Success Rate](#_KPI_–_M3UA_1)
  + [M3UA MSU Transmit Success Rate](#_KPI_–_M3UA_2)
  + [SMS Restore Data Success Rate](#_KPI_–_SMS)
  + [SCTP Packets Received Deviation](#_KPI_–_SCTP)
  + [SCTP Packet Transmitted Deviation](#_KPI_–_SCTP_1)
* **Call Model Related KPI Report**
  + [MO SMS per Subscriber](#_KPI_–_MO) Rate
  + [MT SMS per Subscriber Rate](#_KPI_–_MT)
  + Location Registration per Subscriber Rate
  + [Location Update per Subscriber Rate](#_KPI_–_Location_1)
  + [VLR Cancel per Subscriber](#_KPI_–_VLR) Rate
  + [VLR Purge per Subscriber](#_KPI_–_VLR_1) Rate
  + VLR [Ready for Short Message Subscriber Rate](#_KPI_–_VLR_2)
  + [SGs Alert per Subscriber Rate](#_KPI_–_SGs)
  + [SGs Detach per Subscriber Rate](#_KPI_–_SGs_1)
* **Capacity KPI Report**
  + [Number of Active Subscribers (SUM)](#_KPI_–_Number)
  + [Number of Active Subscribers (AVG)](#_KPI_–_Number_1)
  + [Total SMS Attempts](#_KPI_–_Total_1)
  + [Busy Hour SMS Attempts](#_KPI_–_Busy_2)
* **Trending KPI Report**
  + [Location Cancellation Requests](#_KPI_–_Location_2)
  + [SCTP Packets Received](#_KPI_–_SCTP_2)
  + [SCTP Packets Transmitted](#_KPI_–_SCTP_3)
  + [SGs Messages Received](#_KPI_–_SGs_2)
  + [SGs Messages Transmitted](#_KPI_–_SGs_3)
* **Trending KPI Report** **(Per Second)**
  + [Location Cancellation Requests](#_KPI_–_Location_3)
  + [SCTP Packets Received](#_KPI_–_SCTP_2)
  + [SCTP Packets Transmitted](#_KPI_–_SCTP_3)
  + [SGs Messages Received](#_KPI_–_SGs_2)
  + [SGs Messages Transmitted](#_KPI_–_SGs_3)

The following dimensions can be used to drill down data into a more defined granularity as needed by the user:

* **Time Unit Function**
  + Hour/Day/Month/Year, etc.
* **Time Range:**
  + Start Time
  + End Time

### System Performance KPI Dashboard

*System Performance KPI Dashboard*displays all system KPIs in a several cross tab tables with their current running total displayed horizontally across the KPI title. The user is able to use several filter to drill down the data further by time unit and time range.



1. System Performance KPI Report dashboard

The following filters and parameters can be used in this dashboard:

| Filter/Parameter | Filter/Parameter Name | Description |
| --- | --- | --- |
|  | Time Unit Selection | Allows the user to filter by various date/time units that will affect the worksheet displayed on the dashboard. User can filter by year, quarter, month, day, hour and minute. |
|  | Start Date/Time Filter | Allows the user to filter by a specific start date/time value that will be included as the start time of a date range filter. |
|  | End Date/Time Filter | Allows the user to filter by a specific start date/time value that will be included as the end time of a date range filter. |

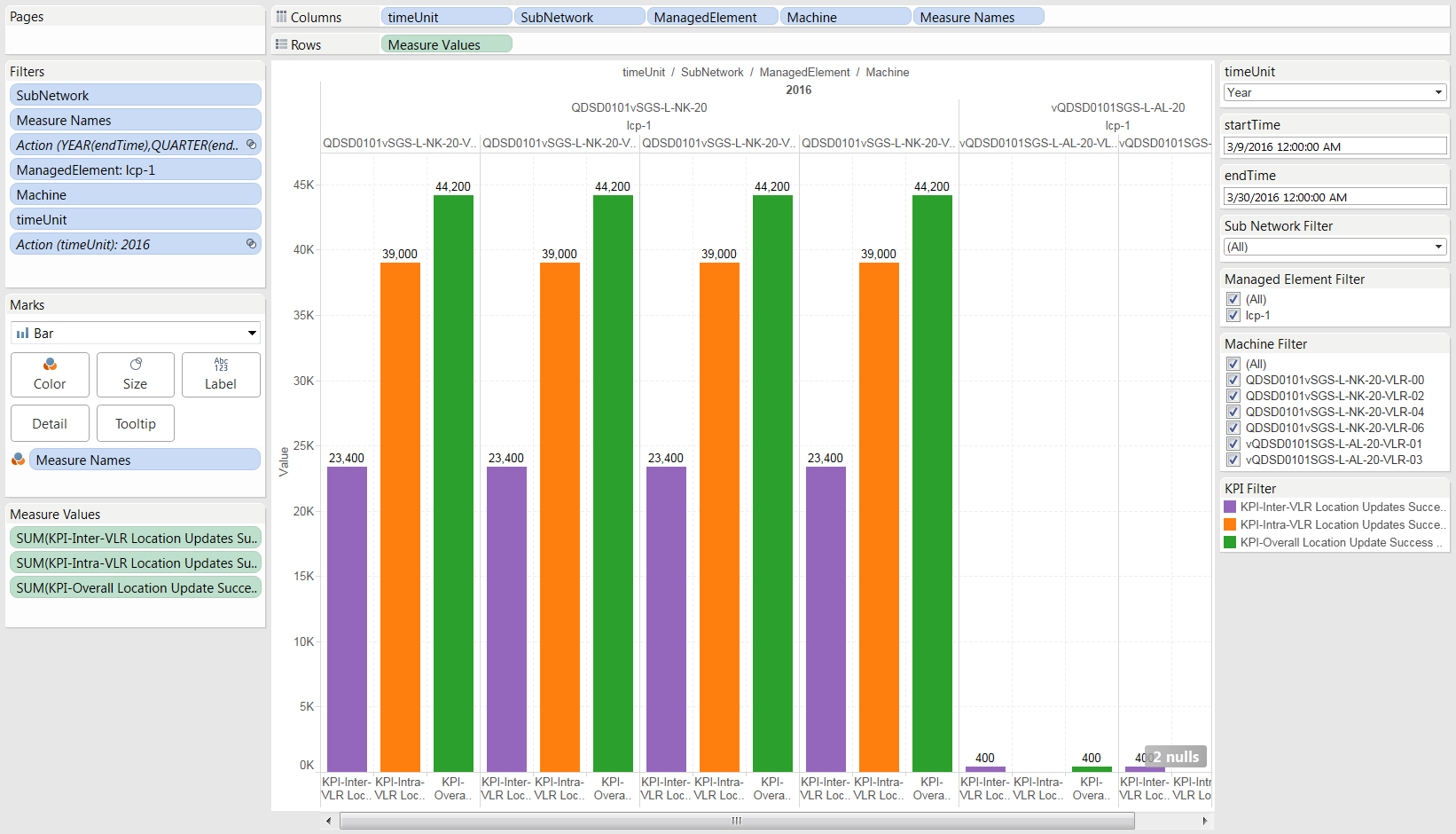
1. System Performance KPI Report Dashboard filter

When a user clicks on a particular KPI point in the line graph, the user will be redirected to the KPI’s corresponding worksheet where there are able to view/edit the KPI in a more defined granularity. The following table contains the KPI dashboard to worksheet redirection information:

|  |  |
| --- | --- |
| **KPI** | **Worksheet Redirection** |
| KPI-Inter-VLR Location Updates Success Rate | LocationUpdateIdx |
| KPI-Intra-VLR Location Updates Success Rate | LocationUpdateIdx |
| KPI-Overall Location Update Success Rate | LocationUpdateIdx |
| KPI-M3UA MSU Receive Success Rate | MSUIdx |
| KPI-M3UA MSU Transmit Success Rate | MSUIdx |
| KPI-Network SMS Receive Success Rate | SMSIdx |
| KPI-Network SMS Sent Success Rate | SMSIdx |
| KPI-SMS Restore Data Success Rate | SMS-RestoreIdx |
| KPI-SGsAp Paging Success Rate | SGsAPPagingSuccessRate |
| KPI-SCTP Packets Received deviations | SCTPIdx |
| KPI-SCTP Packets Transmitted deviations | SCTPIdx |

1. System Performance KPI to Worksheet Redirection Table

#### LocationUpdateIdx Worksheet



1. LocationUpdateIdx worksheet

This worksheet contains KPI information pertaining to the following KPIs (click on KPI below to be directed to its definition):

• [KPI-Inter-VLR Location Updates Success Rate](#_KPI-_Inter-VLR_Location)

• [KPI-Intra-VLR Location Updates Success Rate](#_KPI_–_Intra-VLR)

• [KPI-Overall Location Updates Success Rate](#_Overall_Location_Update)

The following filters and parameters can be used in the worksheet:

| Filter/Parameter | Filter/Parameter Name | Description |
| --- | --- | --- |
|  | timeUnit | Allows the user to filter by various date/time units that will affect the worksheet displayed on the dashboard. User can filter by year, quarter, month, day, hour and minute. |
|  | startTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the start time of a date range filter. |
|  | endTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the end time of a date range filter. |
|  | Sub Network Filter | Allows the user to filter the worksheet by selected subnetwork elements in the list. |
|  | Managed Element Filter | Allows the user to filter the worksheet by the selected management elements in the list. |
|  | Machine Filter | Allows the user to filter the worksheet by the selected machine elements in the list. |
|  | Measure Names | Allows the user to filter the graph on the work sheet by selected KPIs on the list. Click on the element(s) you would like to filter. |

1. LocationUpdateIdx worksheet filters

##### KPI – Intra-VLR Location Update Success Rate

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | LocationUpdateIdx |
| **Vertica Table Used** | MME\_PoolType\_vlr |
| **KPI Definition** | sum(succIntraVLRLocationUpdates)/sum(attIntraVLRLocationUpdates), TimeUnitFunction(endTime), SystemDimension group by TimeUnitFunction(endTime), SystemDimension |

1. KPI – Intra-VLR Location Update Success Rate Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension MME):**

**SQL:** select sum(succIntraVLRLocationUpdates)/sum(attIntraVLRLocationUpdates) as AggIntraVlrUpdate, date(endTime), hour(endTime), MME from sgsiwf. MME\_PoolType\_vlr\_ group by date(endTime), hour(endTime), MME;

**Result:**

AggVlrUpdate | date | hour | MME

------------------------+------------+------+----------

1.00000000000000000000 | 2016-03-28 | 6 | 10.00000

1.00000000000000000000 | 2016-03-28 | 7 | 16.00000

1.00000000000000000000 | 2016-03-28 | 6 | 16.00000

1.00000000000000000000 | 2016-03-28 | 6 | 13.00000

0.00000000000000000000 | 2016-03-09 | 1 | 12.00000

1.00000000000000000000 | 2016-03-28 | 6 | 8.00000

1.00000000000000000000 | 2016-03-28 | 6 | 5.00000

1.00000000000000000000 | 2016-03-28 | 6 | 12.00000

--more--

**Sample SQL Query (based on timeUnit of Day and Dimensions of MME and Machine):**

**SQL:** select sum(succIntraVLRLocationUpdates)/sum(attIntraVLRLocationUpdates) as AggIntraVlrUpdate, date(endTime), Machine, MME from sgsiwf. MME\_PoolType\_vlr\_ group by date(endTime), Machine, MME;

**Results:**

AggVlrUpdate | date | Machine | MME

------------------------+------------+---------------------------------+----------

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-04 | 9.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-00 | 1.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-06 | 7.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-00 | 12.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-06 | 5.00000

0.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-04 | 3.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-02 | 6.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-06 | 1.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-04 | 15.00000

--more—

##### KPI – Inter-VLR Location Update Success Rate

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | LocationUpdateIdx |
| **Vertica Table Used** | MME\_PoolType\_vlr |
| **KPI Definition** | sum(succInterVLRLocationUpdates)/sum(attInterVLRLocationUpdates), TimeUnitFunction(endTime), SystemDimension group by TimeUnitFunction(endTime), SystemDimension |

1. KPI – Inter-VLR Location Update Success Rate Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension MME):**

**SQL:** select sum(succInterVLRLocationUpdates)/sum(attInterVLRLocationUpdates) as AggInterVlrUpdate, date(endTime), hour(endTime), MME from sgsiwf. MME\_PoolType\_vlr\_ group by date(endTime), hour(endTime), MME;

**Result:**

AggInterVlrUpdate | date | hour | MME

------------------------+------------+------+----------

1.00000000000000000000 | 2016-03-28 | 6 | 7.00000

1.00000000000000000000 | 2016-03-28 | 7 | 7.00000

0.00000000000000000000 | 2016-03-28 | 7 | 9.00000

1.00000000000000000000 | 2016-07-07 | 1 | 0.00000

1.00000972507220866115 | 2016-03-28 | 6 | 3.00000

1.00000000000000000000 | 2016-03-28 | 7 | 4.00000

0.00000000000000000000 | 2016-03-28 | 7 | 14.00000

1.00000000000000000000 | 2016-03-28 | 7 | 1.00000

1.00000000000000000000 | 2016-03-28 | 7 | 5.00000

0.00000000000000000000 | 2016-03-09 | 1 | 10.00000

--more—

**Sample SQL Query (based on timeUnit of Day and Dimensions of MME and Machine):**

**SQL:** select sum(succInterVLRLocationUpdates)/sum(attInterVLRLocationUpdates) as AggInterVlrUpdate, date(endTime), Machine, MME from sgsiwf. MME\_PoolType\_vlr\_ group by date(endTime), Machine, MME;;

**Results:**

AggInterVlrUpdate | date | Machine | MME

------------------------+------------+---------------------------------+----------

0.00000000000000000000 | 2016-03-09 | vQDSD0101SGS-L-AL-20-VLR-01 | 9.00000

0.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-00 | 15.00000

0.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-04 | 10.00000

0.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-06 | 16.00000

0.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-00 | 12.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-06 | 5.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-02 | 1.00000

0.00000000000000000000 | 2016-03-09 | vQDSD0101SGS-L-AL-20-VLR-01 | 10.00000

0.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-06 | 15.00000

0.99996177808355310935 | 2016-03-09 | vQDSD0101SGS-L-AL-20-VLR-03 | 1.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-06 | 2.00000

--more—

##### KPI – Overall Location Update Success Rate

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | LocationUpdateIdx |
| **Vertica Table Used** | MME\_PoolType\_vlr |
| **KPI Definition** | sum(succInterVLRLocationUpdates + succIntraVLRLocationUpdates)/sum(attInterVLRLocationUpdates + attIntraVLRLocationUpdates), TimeUnitFunction(endTime), SystemDimension group by TimeUnitFunction(endTime), SystemDimension |

1. KPI – Overall Location Update Success Rate Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension MME):**

**SQL:** select sum(succInterVLRLocationUpdates + succIntraVLRLocationUpdates)/sum(attInterVLRLocationUpdates + attIntraVLRLocationUpdates) as AggVlrUpdate, date(endTime), hour(endTime), MME from sgsiwf. MME\_PoolType\_vlr\_ group by date(endTime), hour(endTime), MME;

**Result:**

AggVlrUpdate | date | hour | MME

------------------------+------------+------+----------

1.00000000000000000000 | 2016-03-28 | 6 | 10.00000

0.99999922687386447099 | 2016-03-28 | 6 | 8.00000

1.00000000000000000000 | 2016-03-28 | 7 | 16.00000

1.00000000000000000000 | 2016-03-28 | 6 | 16.00000

0.00000000000000000000 | 2016-03-09 | 1 | 12.00000

1.00000000000000000000 | 2016-03-28 | 6 | 5.00000

1.00000000000000000000 | 2016-03-28 | 6 | 12.00000

0.99999029456010093657 | 2016-03-28 | 6 | 6.00000

0.99998107637574748316 | 2016-03-09 | 1 | 1.00000

1.00000000000000000000 | 2016-03-28 | 6 | 13.00000

1.00000000000000000000 | 2016-03-28 | 7 | 12.00000

1.00000000000000000000 | 2016-03-28 | 7 | 11.00000

**Sample SQL Query (based on timeUnit of Day and Dimensions of MME and Machine):**

**SQL:** select sum(succInterVLRLocationUpdates + succIntraVLRLocationUpdates)/sum(attInterVLRLocationUpdates + attIntraVLRLocationUpdates) as AggVlrUpdate, date(endTime), Machine, MME from sgsiwf. MME\_PoolType\_vlr\_ group by date(endTime), Machine, MME;

**Results:**

AggVlrUpdate | date | Machine | MME

------------------------+------------+---------------------------------+----------

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-04 | 7.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-02 | 10.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-06 | 9.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-00 | 3.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-02 | 14.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-00 | 2.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-02 | 0.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-00 | 9.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-02 | 7.00000

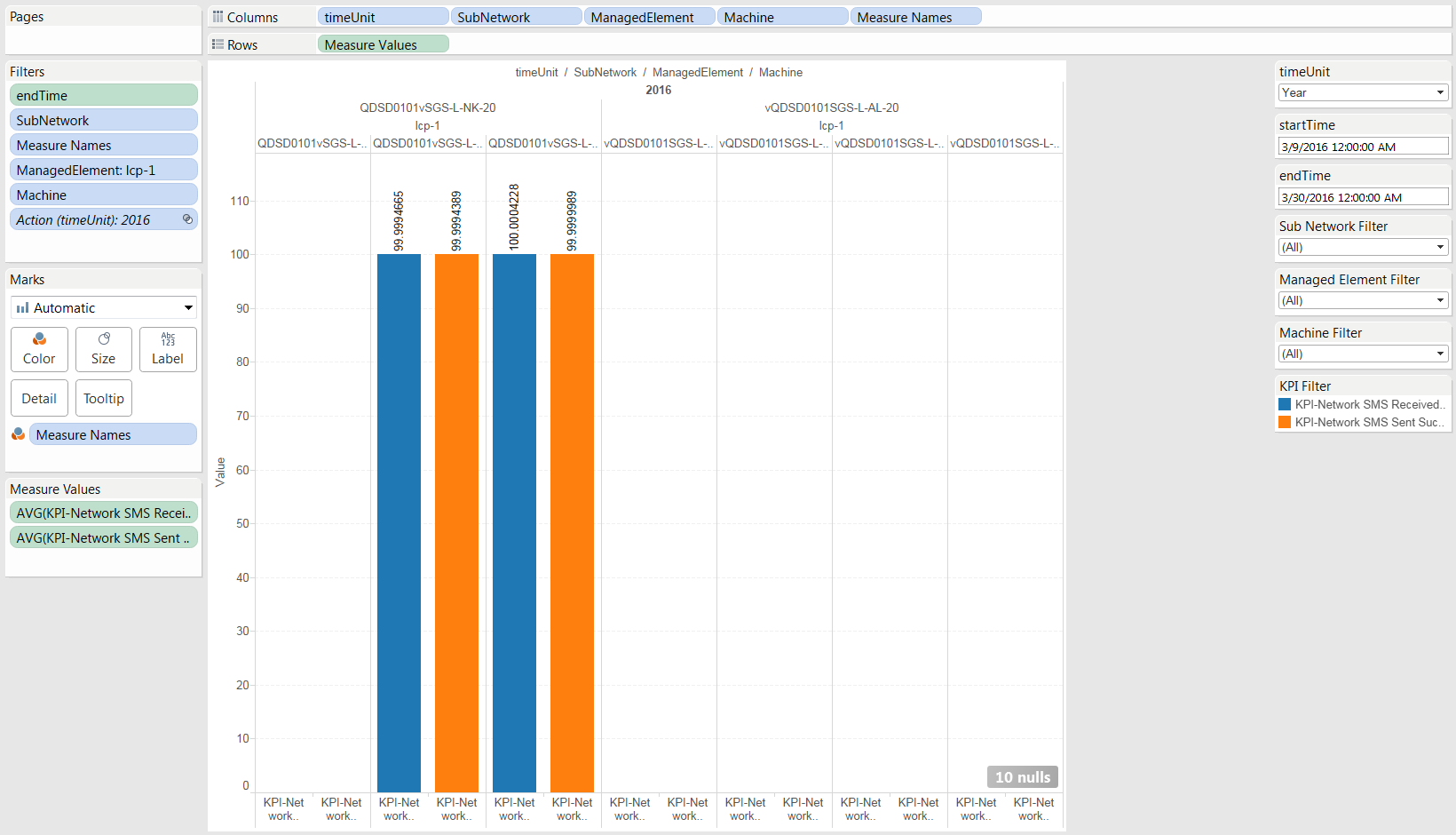
0.00000000000000000000 | 2016-03-09 | vQDSD0101SGS-L-AL-20-VLR-01 | 3.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-04 | 1.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-00 | 13.00000

--more--

#### SMSIdx Worksheet



1. SMSIdx worksheet

This worksheet contains KPI information pertaining to the following KPIs (click on KPI below to be directed to its definition):

• [KPI-Network SMS Receive Success Rate](#_KPI_–_Network)

• [KPI-Network SMS Sent Success Rate](#_KPI_–_Network_1)

The following filters and parameters can be used in the worksheet:

| Filter/Parameter | Filter/Parameter Name | Description |
| --- | --- | --- |
|  | timeUnit | Allows the user to filter by various date/time units that will affect the worksheet displayed on the dashboard. User can filter by year, quarter, month, day, hour and minute. |
|  | startTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the start time of a date range filter. |
|  | endTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the end time of a date range filter. |
|  | Sub Network Filter | Allows the user to filter the worksheet by selected subnetwork elements in the list. |
|  | Managed Element Filter | Allows the user to filter the worksheet by the selected management elements in the list. |
|  | Machine Filter | Allows the user to filter the worksheet by the selected machine elements in the list. |
|  | Measure Names | Allows the user to filter the graph on the work sheet by selected KPIs on the list. Click on the element(s) you would like to filter. |

1. SMSIdx worksheet filters

##### KPI – Network SMS Received Success Rate

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | SMSIdx |
| **Vertica Table Used** | MME\_PoolType\_wss7\_ |
| **KPI Definition** | sum(succOpForMobileTerminatingPointToPointSMs)/sum(attOpForMobileTerminatingPointToPointSMs- VS.mobTermSMSBusyFail), TimeUnitFunction(endTime), SystemDimension group by TimeUnitFunction(endTime), SystemDimension |

1. KPI – Network SMS Received Success Rate Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension MME):**

**SQL:** sum(succOpForMobileTerminatingPointToPointSMs)/sum(attOpForMobileTerminatingPointToPointSMs- VS\_mobTermSMSBusyFail) as AggrResult, date(endTime), hour(endTime), MME from sgsiwf.MME\_PoolType\_wss7\_ group by date(endTime), hour(endTime), MME;

**Result:**

AggrResult | date | hour | MME

------------------------+------------+------+----------

0.99994520022467907882 | 2016-03-28 | 7 | 5.00000

0.00000000000000000000 | 2016-03-28 | 7 | 9.00000

1.00000000000000000000 | 2016-07-07 | 1 | 0.00000

0.00000000000000000000 | 2016-03-28 | 7 | 11.00000

| 2016-03-09 | 1 | 5.00000

1.00001369244040365314 | 2016-03-28 | 7 | 4.00000

0.00000000000000000000 | 2016-03-28 | 7 | 14.00000

1.00001372985144300739 | 2016-03-28 | 7 | 1.00000

**Sample SQL Query (based on timeUnit of Day and Dimensions of MME and Machine):**

**SQL:** select sum(succOpForMobileTerminatingPointToPointSMs)/sum(attOpForMobileTerminatingPointToPointSMs- VS\_mobTermSMSBusyFail) as AggrResult, date(endTime), Machine, MME from sgsiwf.MME\_PoolType\_wss7\_ group by date(endTime), Machine, MME;

**Result:**

AggrResult | date | Machine | MME

------------------------+------------+---------------------------------+----------

| 2016-03-28 | QDSD0101vSGS-L-NK-20-WLS-01 | 0.00000

1.00001685140014070919 | 2016-03-28 | QDSD0101vSGS-L-NK-20-WLS-03 | 2.00000

| 2016-03-28 | QDSD0101vSGS-L-NK-20-WLS-01 | 5.00000

| 2016-03-09 | vQDSD0101SGS-L-AL-20-WLS-00 | 11.00000

0.99998736371237282103 | 2016-03-28 | QDSD0101vSGS-L-NK-20-WLS-02 | 7.00000

| 2016-03-09 | vQDSD0101SGS-L-AL-20-WLS-02 | 5.00000

1.00000000000000000000 | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46-WLS-01 | 0.00000

--more--

##### KPI – Network SMS Sent Success Rate

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | SMSIdx |
| **Vertica Table Used** | MME\_PoolType\_wss7\_ |
| **KPI Definition** | sum(succOpForMobileOriginatingPointToPointSMs)/sum(attOpForMobileOriginatingPointToPointSMs), TimeUnitFunction(endTime), SystemDimension group by TimeUnitFunction(endTime), SystemDimensionTimeUnitFunction(endTime), SystemDimension group by TimeUnitFunction(endTime), SystemDimension |

1. KPI – Network SMS Sent Success Rate Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension MME):**

**SQL:** sum(succOpForMobileOriginatingPointToPointSMs)/sum(attOpForMobileOriginatingPointToPointSMs) as AggrResult, date(endTime), hour(endTime), MME from sgsiwf.MME\_PoolType\_wss7\_ group by date(endTime), hour(endTime), MME;

**Result:**

AggrResult | date | hour | MME

------------------------+------------+------+----------

1.00000000000000000000 | 2016-03-28 | 6 | 5.00000

0.00000000000000000000 | 2016-03-28 | 7 | 16.00000

0.00000000000000000000 | 2016-03-28 | 6 | 16.00000

0.00000000000000000000 | 2016-03-28 | 6 | 13.00000

0.00000000000000000000 | 2016-03-28 | 6 | 10.00000

0.00000000000000000000 | 2016-03-09 | 1 | 12.00000

0.00000000000000000000 | 2016-03-28 | 6 | 8.00000

0.00000000000000000000 | 2016-03-28 | 6 | 12.00000

--more—

**Sample SQL Query (based on timeUnit of Day and Dimensions of MME and Machine):**

**SQL:** sum(succOpForMobileOriginatingPointToPointSMs)/sum(attOpForMobileOriginatingPointToPointSMs) as AggrResult, date(endTime), Machine, MME from sgsiwf.MME\_PoolType\_wss7\_ group by date(endTime), Machine, MME;

**Result:**

AggrResult | date | Machine | MME

------------------------+------------+---------------------------------+----------

0.00000000000000000000 | 2016-03-09 | vQDSD0101SGS-L-AL-20-WLS-03 | 11.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-WLS-03 | 2.00000

| 2016-03-28 | QDSD0101vSGS-L-NK-20-WLS-01 | 5.00000

| 2016-03-09 | vQDSD0101SGS-L-AL-20-WLS-00 | 11.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-WLS-02 | 7.00000

| 2016-03-09 | vQDSD0101SGS-L-AL-20-WLS-00 | 12.00000

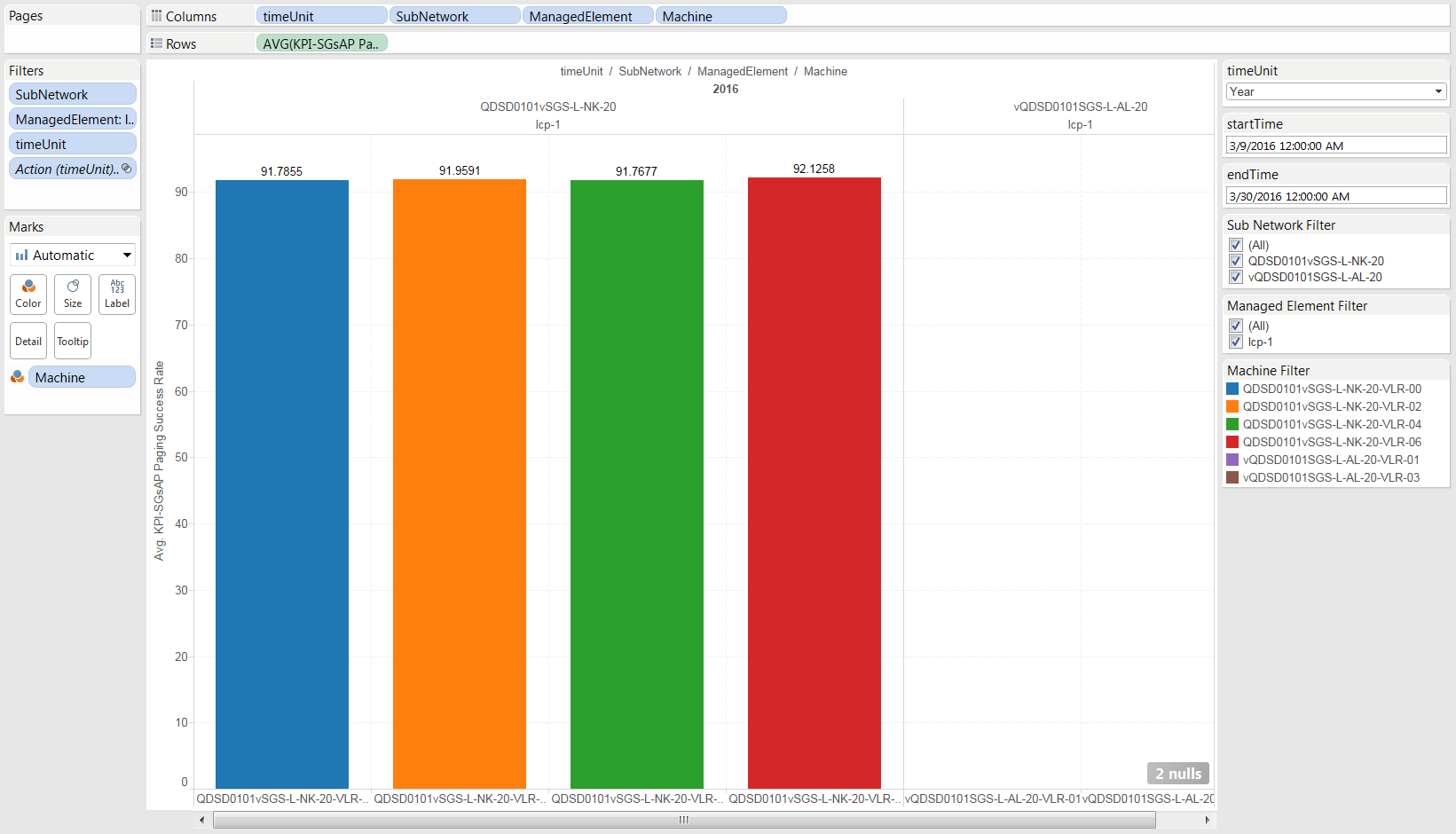
| 2016-03-28 | QDSD0101vSGS-L-NK-20-WLS-01 | 0.00000

| 2016-03-28 | QDSD0101vSGS-L-NK-20-WLS-01 | 7.00000

| 2016-03-09 | vQDSD0101SGS-L-AL-20-WLS-02 | 5.00000

0.00000000000000000000 | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46-WLS-01 | 0.00000 --more--

#### SGsApPagingIdx Worksheet



1. SGsApPagingIdx worksheet

This worksheet contains KPI information pertaining to the following KPIs (click on KPI below to be directed to its definition):

• [KPI-SGsAp Paging Success Rate](#_KPI-SGsAp_Paging_Success)

##### KPI-SGsAp Paging Success Rate

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | SGsApPagingIdx |
| **Vertica Table Used** | BearerCallType\_LAC\_MME\_PoolType\_vlr\_ |
| **KPI Definition** | sum(VS.SGsAPPageResponse)/sum(VS.SGsAPPageRequest), TimeUnitFunction(endTime), SystemDimension group by TimeUnitFunction(endTime), SystemDimension |

1. KPI – SGsAp Paging Success Rate Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension MME):**

**SQL:** select sum(VS\_SGsAPPageResponse)/sum(VS\_SGsAPPageRequest) as AggSGSAP, date(endTime), hour(endTime), MME from sgsiwf.BearerCallType\_LAC\_MME\_PoolType\_vlr\_ group by date(endTime), hour(endTime), MME;

**Result:**

AggSGSAP | date | hour | MME

------------------------+------------+------+---------

0.91915271730924877667 | 2016-03-28 | 6 | 6.00000

0.00000000000000000000 | 2016-03-09 | 1 | 1.00000

0.91918519965674915733 | 2016-03-28 | 6 | 5.00000

0.91921193953128591164 | 2016-03-28 | 6 | 4.00000

0.91918222582775396533 | 2016-03-28 | 6 | 0.00000

0.91917541494764647414 | 2016-03-28 | 7 | 0.00000

0.91918523366154029211 | 2016-03-28 | 6 | 1.00000

0.91917454858125537403 | 2016-03-28 | 7 | 3.00000

0.00000000000000000000 | 2016-03-09 | 1 | 2.00000

--more—

**Sample SQL Query (based on timeUnit of Day and Dimensions of MME and Machine):**

**SQL:** select sum(VS\_SGsAPPageResponse)/sum(VS\_SGsAPPageRequest) as AggSGSAP, date(endTime), Machine, MME from sgsiwf.BearerCallType\_LAC\_MME\_PoolType\_vlr\_ group by date(endTime), Machine, MME;

**Result:**

AggSGSAP | date | Machine | MME

------------------------+------------+---------------------------------+---------

0.92655210643015521064 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-06 | 6.00000

0.91252067746513170601 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-00 | 0.00000

0.00000000000000000000 | 2016-03-09 | vQDSD0101SGS-L-AL-20-VLR-01 | 0.00000

0.00000000000000000000 | 2016-03-09 | vQDSD0101SGS-L-AL-20-VLR-01 | 1.00000

0.92688220140321231248 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-06 | 4.00000

0.91932823263177963643 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-00 | 5.00000

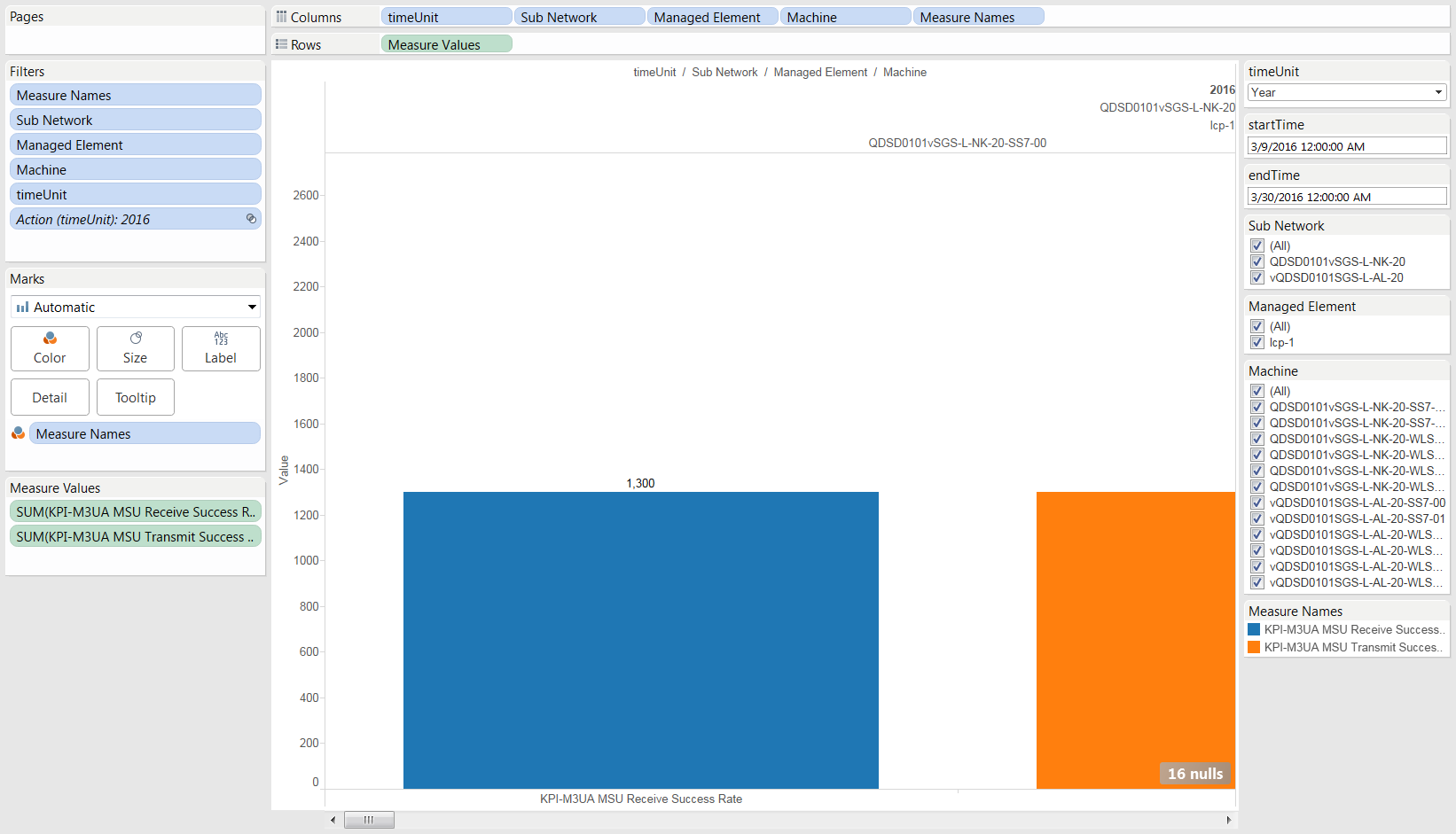
1.00000000000000000000 | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46-VLR-00 | 0.00000

0.92402193662382690737 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-02 | 3.00000

0.91627703353471674985 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-04 | 5.00000

--more—

#### MSUIdx Worksheet



1. MSUIdx worksheet

This worksheet contains KPI information pertaining to the following KPIs (click on KPI below to be directed to its definition):

• [KPI-M3UA MSU Receive Success Rate](#_KPI_–_M3UA)

• [KPI-M3UA MSU Transmit Success Rate](#_KPI_–_M3UA_1)

The following filters and parameters can be used in the worksheet:

| Filter/Parameter | Filter/Parameter Name | Description |
| --- | --- | --- |
|  | timeUnit | Allows the user to filter by various date/time units that will affect the worksheet displayed on the dashboard. User can filter by year, quarter, month, day, hour and minute. |
|  | startTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the start time of a date range filter. |
|  | endTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the end time of a date range filter. |
|  | Sub Network Filter | Allows the user to filter the worksheet by selected subnetwork elements in the list. |
|  | Managed Element Filter | Allows the user to filter the worksheet by the selected management elements in the list. |
|  | Machine Filter | Allows the user to filter the worksheet by the selected machine elements in the list. |
|  | Measure Names | Allows the user to filter the graph on the work sheet by selected KPIs on the list. Click on the element(s) you would like to filter. |

1. MSUIdx worksheet filters

##### KPI – M3UA MSU Receive Success Rate

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | MSUIdx |
| **Vertica Table Used** | PoolType\_nss7\_ |
| **KPI Definition** | sum(VS.M3UAMsuTransmitSucc)/sum(VS.M3UAMsuTransmit), TimeUnitFunction(endTime), SystemDimension group by TimeUnitFunction(endTime), SystemDimension |

1. KPI – M3UA MSU Receive Success Rate Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension MME):**

**SQL:** select sum(VS\_M3UAMsuReceiveSucc)/sum(VS\_M3UAMsuReceive) as AggrResult, date(endTime), hour(endTime),PoolID from sgsiwf.PoolType\_nss7\_ group by date(endTime), hour(endTime), PoolID;

**Result:**

AggrResult | date | hour | PoolID

------------------------+------------+------+---------

0.00000000000000000000 | 2016-03-28 | 6 | 5.00000

0.00000000000000000000 | 2016-03-09 | 1 | 4.00000

0.00000000000000000000 | 2016-03-09 | 1 | 1.00000

0.00000000000000000000 | 2016-03-28 | 6 | 3.00000

0.00000000000000000000 | 2016-07-07 | 1 | 1.00000

0.00000000000000000000 | 2016-03-09 | 1 | 5.00000

0.00000000000000000000 | 2016-03-28 | 7 | 4.00000

--more—

**Sample SQL Query (based on timeUnit of Day and Dimensions of Pool ID and Machine):**

**SQL:**

select sum(VS\_M3UAMsuReceiveSucc)/sum(VS\_M3UAMsuReceive) as AggrResult, date(endTime), Machine, PoolID from sgsiwf.PoolType\_nss7\_ group by date(endTime), Machine, PoolID;

**Result:**

AggrResult | date | Machine | PoolID

------------------------+------------+---------------------------------+---------

0.00000000000000000000 | 2016-03-09 | vQDSD0101SGS-L-AL-20-WLS-02 | 5.00000

0.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-WLS-03 | 4.00000

0.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-WLS-00 | 2.00000

1.00000000000000000000 | 2016-03-09 | vQDSD0101SGS-L-AL-20-SS7-00 | 0.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-SS7-01 | 1.00000

0.00000000000000000000 | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46-WLS-01 | 3.00000

1.00000000000000000000 | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46-SS7-00 | 0.00000

0.00000000000000000000 | 2016-03-09 | vQDSD0101SGS-L-AL-20-WLS-02 | 4.00000

0.00000000000000000000 | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46-SS7-00 | 1.00000

##### KPI – M3UA MSU Transmit Success Rate

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | MSUIdx |
| **Vertica Table Used** | PoolType\_nss7\_ |
| **KPI Definition** | sum(VS.M3UAMsuTransmitSucc)/sum(VS.M3UAMsuTransmit), TimeUnitFunction(endTime), SystemDimension group by TimeUnitFunction(endTime), SystemDimension |

1. KPI – M3UA MSU Transmit Success Rate Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension MME):**

**SQL:** Select sum(VS\_M3UAMsuTransmitSucc)/sum(VS\_M3UAMsuTransmit) as AggrResult, date(endTime), hour(endTime),PoolID from sgsiwf.PoolType\_nss7\_ group by date(endTime), hour(endTime), PoolID;

**Result:**

AggrResult | date | hour | PoolID

------------------------+------------+------+---------

0.00000000000000000000 | 2016-03-09 | 1 | 4.00000

0.00000000000000000000 | 2016-03-09 | 1 | 1.00000

0.00000000000000000000 | 2016-03-28 | 6 | 5.00000

0.00000000000000000000 | 2016-03-28 | 7 | 3.00000

1.00000054697982355525 | 2016-03-28 | 6 | 0.00000

1.00000000000000000000 | 2016-03-28 | 7 | 0.00000

0.00000000000000000000 | 2016-03-09 | 1 | 2.00000

1.00000000000000000000 | 2016-03-28 | 6 | 1.00000

--more—

**Sample SQL Query (based on timeUnit of Day and Dimensions of MME and Machine):**

**SQL:** select sum(VS\_M3UAMsuTransmitSucc)/sum(VS\_M3UAMsuTransmit) as AggrResult, date(endTime), Machine, PoolID from sgsiwf.PoolType\_nss7\_ group by date(endTime), Machine, PoolID;

**Result:**

AggrResult | date | Machine | PoolID

------------------------+------------+---------------------------------+---------

1.00000000000000000000 | 2016-03-09 | vQDSD0101SGS-L-AL-20-SS7-00 | 0.00000

1.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-SS7-01 | 1.00000

0.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-WLS-03 | 4.00000

0.00000000000000000000 | 2016-03-09 | vQDSD0101SGS-L-AL-20-WLS-02 | 5.00000

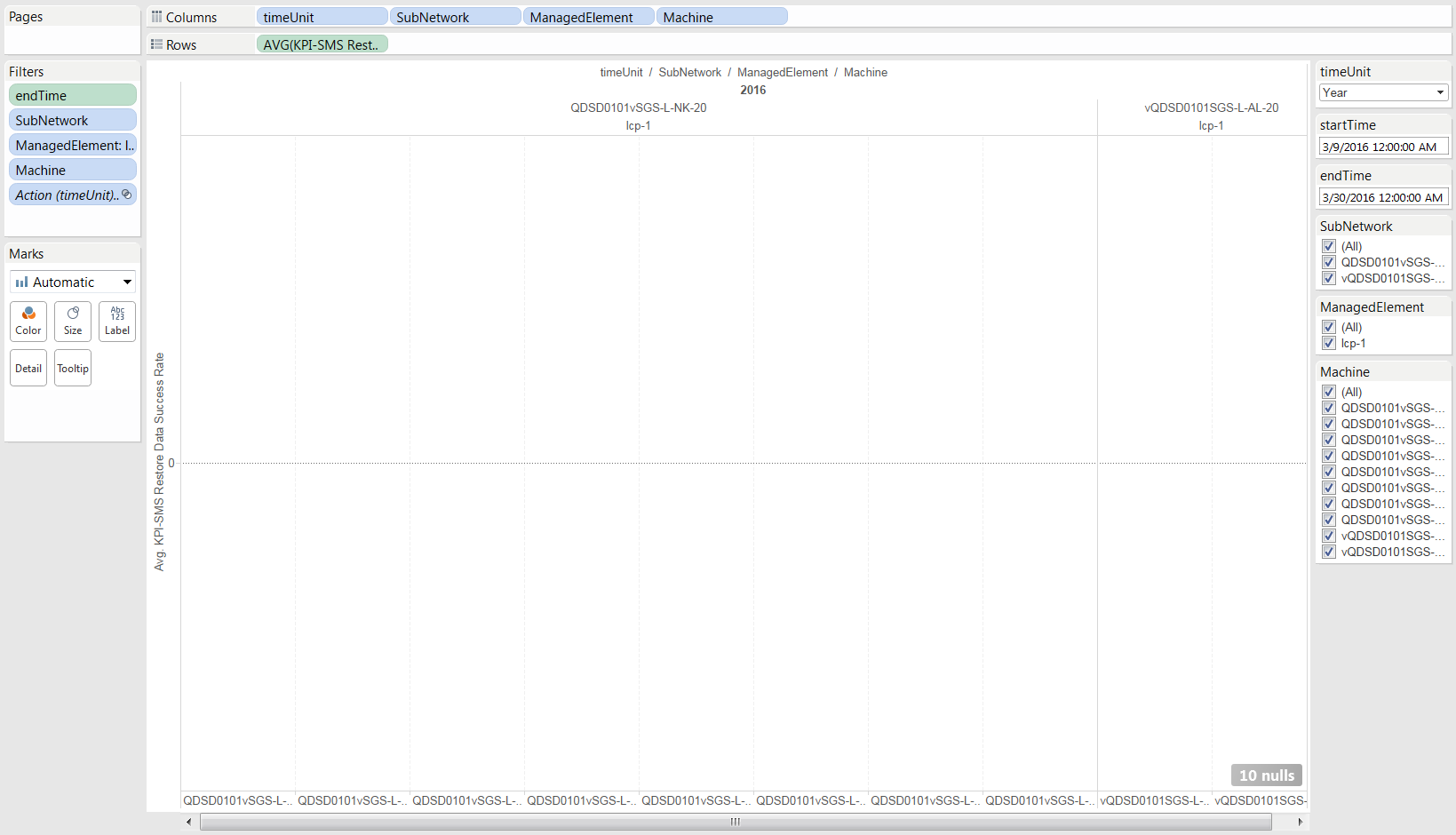
0.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-WLS-00 | 2.00000

0.00000000000000000000 | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46-SS7-01 | 0.00000

1.00000000000000000000 | 2016-03-09 | vQDSD0101SGS-L-AL-20-SS7-01 | 0.00000

0.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-WLS-00 | 3.00000

#### SMS-RestoreIdx Worksheet



1. SMS-RestoreIDx worksheet

This worksheet contains KPI information pertaining to the following KPIs (hold the control button and click on KPI below to be directed to its definition):

• [KPI-SMS Restore Data Success Rate](#_KPI_–_SMS_1)

The following filters and parameters can be used in the worksheet:

| Filter/Parameter | Filter/Parameter Name | Description |
| --- | --- | --- |
|  | timeUnit | Allows the user to filter by various date/time units that will affect the worksheet displayed on the dashboard. User can filter by year, quarter, month, day, hour and minute. |
|  | startTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the start time of a date range filter. |
|  | endTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the end time of a date range filter. |
|  | Sub Network Filter | Allows the user to filter the worksheet by selected subnetwork elements in the list. |
|  | Managed Element Filter | Allows the user to filter the worksheet by the selected management elements in the list. |
|  | Machine Filter | Allows the user to filter the worksheet by the selected machine elements in the list. |

1. SMS-RestoreIdx worksheet filters

##### KPI – SMS Restore Data Success Rate

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | SMS-RestoreIdx |
| **Vertica Table Used** | PoolType\_vlr\_ |
| **KPI Definition** | sum(succMTSMSVLRRestore)/sum(attMTSMSVLRRestore), TimeUnitFunction(endTime), SystemDimension group by TimeUnitFunction(endTime), SystemDimension |

1. KPI – SMS Restore Data Success Rate Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension Pool ID):**

**SQL:** select sum(VS\_succMTSMSVLRRestore)/sum(VS\_attMTSMSVLRRestore) as AggrResult, date(endTime), hour(endTime),PoolID from sgsiwf.PoolType\_vlr\_ group by date(endTime), hour(endTime), PoolID;

**Result:**

AggrResult | date | hour | PoolID

------------------------+------------+------+---------

0.00000000000000000000 | 2016-03-28 | 6 | 6.00000

0.00000000000000000000 | 2016-03-09 | 1 | 1.00000

0.00000000000000000000 | 2016-03-28 | 6 | 5.00000

0.00000000000000000000 | 2016-03-28 | 6 | 0.00000

0.00000000000000000000 | 2016-03-28 | 7 | 0.00000

0.00000000000000000000 | 2016-03-28 | 7 | 3.00000

0.00000000000000000000 | 2016-03-09 | 1 | 2.00000

0.00000000000000000000 | 2016-03-28 | 6 | 4.00000

--more—

**Sample SQL Query (based on timeUnit of Day and Dimensions of Pool ID and Machine):**

**SQL:** select sum(VS\_succMTSMSVLRRestore)/sum(VS\_attMTSMSVLRRestore) as AggrResult, date(endTime), Machine, PoolID from sgsiwf.PoolType\_vlr\_ group by date(endTime), Machine, PoolID;

**Result:**

AggrResult | date | Machine | PoolID

------------------------+------------+---------------------------------+---------

0.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-01 | 1.00000

0.00000000000000000000 | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46-VLR-01 | 1.00000

0.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-04 | 4.00000

0.00000000000000000000 | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46-VLR-01 | 0.00000

0.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-01 | 0.00000

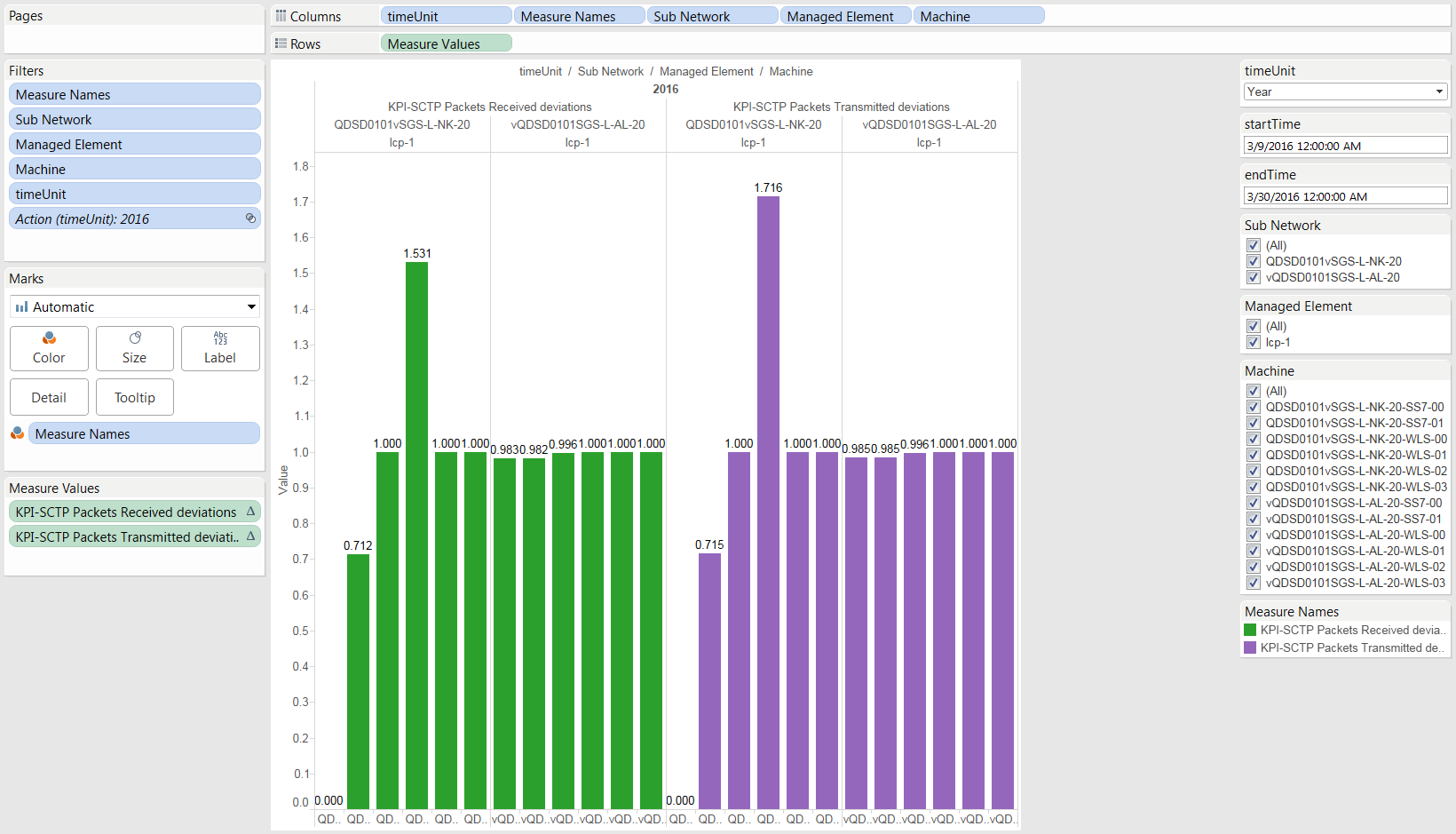
0.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-00 | 1.00000

0.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-06 | 7.00000

0.00000000000000000000 | 2016-03-28 | QDSD0101vSGS-L-NK-20-VLR-03 | 2.00000

--more—

#### SCTPIdx Worksheet



1. SCTPIdx worksheet

This worksheet contains KPI information pertaining to the following KPIs (hold the control button and click on KPI below to be directed to its definition):

• [KPI-SCTP Packets Received deviations](#_KPI_–_SCTP_4)

• [KPI-SCTP Packets Transmitted deviations](#_KPI_–_SCTP_5)

The following filters and parameters can be used in the worksheet:

| Filter/Parameter | Filter/Parameter Name | Description |
| --- | --- | --- |
|  | timeUnit | Allows the user to filter by various date/time units that will affect the worksheet displayed on the dashboard. User can filter by year, quarter, month, day, hour and minute. |
|  | startTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the start time of a date range filter. |
|  | endTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the end time of a date range filter. |
|  | Sub Network Filter | Allows the user to filter the worksheet by selected subnetwork elements in the list. |
|  | Managed Element Filter | Allows the user to filter the worksheet by the selected management elements in the list. |
|  | Machine Filter | Allows the user to filter the worksheet by the selected machine elements in the list. |
|  | Measure Names | Allows the user to filter the graph on the work sheet by selected KPIs on the list. Click on the element(s) you would like to filter. |

1. SCTPIdx worksheet filters

##### KPI – SCTP Packets Received Deviations

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | SCTPIdx |
| **Vertica Table Used** | PoolType\_nss7\_ |
| **KPI Definition** | deviation from 7 day MA of VS.SctpInSCTPPacks (25% minor, 50% major, 75% critical) |

1. KPI – SCTP Packets Received Deviations Definition

**Sample SQL Query (based on timeUnit of Minute):**

**SQL:** select date, hour, minute, InSctpPacks, maInSctpPacks, (InSctpPacks/maInSctpPacks-1)\*100 from ( select date, hour, minute, InSctpPacks, avg(InSctpPacks) over (order by date, hour, minute ROWS BETWEEN 7 PRECEDING AND CURRENT ROW) as maInSctpPacks from (select date(endTime) as date, hour(endTime) as hour, minute(endTime) as minute, sum(VS\_SctpInSCTPPacks) as InSctpPacks from sgsiwf.PoolType\_nss7\_ group by date, hour, minute) as tbl1 ) as tbl2;

**Result:**

date | hour | minute | InSctpPacks | maInSctpPacks | ?column?

------------+------+--------+---------------+------------------+---------------------

2016-03-09 | 1 | 50 | 183586.00000 | 183586 | 0

2016-03-28 | 6 | 5 | 2688157.00000 | 1435871.5 | 87.2143154871449

2016-03-28 | 6 | 10 | 2683980.00000 | 1851907.66666667 | 44.9305517931689

2016-03-28 | 6 | 15 | 2691168.00000 | 2061722.75 | 30.5300627836599

2016-03-28 | 6 | 20 | 2684985.00000 | 2186375.2 | 22.8053172209418

2016-03-28 | 6 | 25 | 2689147.00000 | 2270170.5 | 18.4557283252513

2016-03-28 | 6 | 30 | 2689543.00000 | 2330080.85714286 | 15.427024420857

2016-03-28 | 6 | 35 | 2681864.00000 | 2374053.75 | 12.9655973458899

2016-03-28 | 6 | 40 | 2685494.00000 | 2686792.25 | -0.048319701681443

2016-03-28 | 6 | 45 | 2685529.00000 | 2686463.75 | -0.0347948115808405

2016-03-28 | 6 | 50 | 2683772.00000 | 2686437.75 | -0.0992299188767753

2016-03-28 | 6 | 55 | 2691096.00000 | 2686428.75 | 0.17373436760606

2016-03-28 | 7 | 0 | 2684203.00000 | 2686331 | -0.0792158524024034

2016-03-28 | 7 | 5 | 2690686.00000 | 2686523.375 | 0.154944678268443

2016-07-07 | 1 | 25 | 122.00000 | 2350345.75 | -99.9948092743376

(15 rows)

**Sample SQL Query (based on timeUnit of Hour):**

**SQL:** select date,hour,InSctpPacks, maInSctpPacks, (InSctpPacks/maInSctpPacks-1)\*100 from ( select date,hour,InSctpPacks, avg(InSctpPacks) over (order by date,hour ROWS BETWEEN 7 PRECEDING AND CURRENT ROW) as maInSctpPacks from (select date(endTime) as date,hour(endTime) as hour,sum(VS\_SctpInSCTPPacks) as InSctpPacks from sgsiwf.PoolType\_nss7\_ group by date,hour) as tbl1 ) as tbl2;

**Results:**

date | hour | InSctpPacks | maInSctpPacks | ?column?

------------+------+----------------+------------------+-------------------

2016-03-09 | 1 | 183586.00000 | 183586 | 0

2016-03-28 | 6 | 29554735.00000 | 14869160.5 | 98.7653237047243

2016-03-28 | 7 | 5374889.00000 | 11704403.3333333 | -54.0780606501086

2016-07-07 | 1 | 122.00000 | 8778333 | -99.9986102144906

(4 rows)

**Sample SQL Query (based on timeUnit of Day):**

**SQL:**

select date,InSctpPacks, maInSctpPacks, (InSctpPacks/maInSctpPacks-1)\*100 from ( select date,InSctpPacks, avg(InSctpPacks) over (order by date ROWS BETWEEN 7 PRECEDING AND CURRENT ROW) as maInSctpPacks from (select date(endTime) as date,sum(VS\_SctpInSCTPPacks) as InSctpPacks from sgsiwf.PoolType\_nss7\_ group by date) as tbl1 ) as tbl2;**Results:**

date | InSctpPacks | maInSctpPacks | ?column?

------------+----------------+---------------+------------------

2016-03-09 | 183586.00000 | 183586 | 0

2016-03-28 | 34929624.00000 | 17556605 | 98.954319471219

2016-07-07 | 122.00000 | 11704444 | -99.998957660868

(3 rows)

##### KPI – SCTP Packets Transmitted Deviations

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | SCTPIdx |
| **Vertica Table Used** | PoolType\_nss7\_ |
| **KPI Definition** | deviation from 7 day MA of VS.SctpOutSCTPPacks (25% minor, 50% major, 75% critical) |

1. KPI – SCTP Packets Transmitted Deviations Definition

**Sample SQL Query (based on timeUnit of Minute):**

**SQL:** select date, hour, minute, OutSctpPacks, maOutSctpPacks, (OutSctpPacks/maOutSctpPacks-1)\*100 from ( select date, hour, minute, OutSctpPacks, avg(OutSctpPacks) over (order by date, hour, minute ROWS BETWEEN 7 PRECEDING AND CURRENT ROW) as maOutSctpPacks from (select date(endTime) as date, hour(endTime) as hour, minute(endTime) as minute, sum(VS\_SctpOutSCTPPacks) as OutSctpPacks from sgsiwf.PoolType\_nss7\_ group by date, hour, minute) as tbl1 ) as tbl2;

**Result:**

date | hour | minute | OutSctpPacks | maOutSctpPacks | ?column?

------------+------+--------+---------------+------------------+----------------------

2016-03-09 | 1 | 50 | 184208.00000 | 184208 | 0

2016-03-28 | 6 | 5 | 3103589.00000 | 1643898.5 | 88.794441992617

2016-03-28 | 6 | 10 | 3098862.00000 | 2128886.33333333 | 45.5625860093673

2016-03-28 | 6 | 15 | 3106678.00000 | 2373334.25 | 30.8993033745668

2016-03-28 | 6 | 20 | 3099641.00000 | 2518595.6 | 23.0702142098557

2016-03-28 | 6 | 25 | 3103560.00000 | 2616089.66666667 | 18.6335483658881

2016-03-28 | 6 | 30 | 3104358.00000 | 2685842.28571429 | 15.5822892696178

2016-03-28 | 6 | 35 | 3096718.00000 | 2737201.75 | 13.1344446933807

2016-03-28 | 6 | 40 | 3099925.00000 | 3101666.375 | -0.0561432078587165

2016-03-28 | 6 | 45 | 3101323.00000 | 3101383.125 | -0.00193865116229208

2016-03-28 | 6 | 50 | 3098412.00000 | 3101326.875 | -0.0939879966699753

2016-03-28 | 6 | 55 | 3105495.00000 | 3101179 | 0.139172875864313

2016-03-28 | 7 | 0 | 3098832.00000 | 3101077.875 | -0.0724223992601303

2016-03-28 | 7 | 5 | 3105632.00000 | 3101336.875 | 0.138492694380377

2016-07-07 | 1 | 25 | 120.00000 | 2713307.125 | -99.9955773528586

(15 rows)

**Sample SQL Query (based on timeUnit of Hour):**

**SQL:** select date, hour, OutSctpPacks, maOutSctpPacks, (OutSctpPacks/maOutSctpPacks-1)\*100 from ( select date, hour,OutSctpPacks, avg(OutSctpPacks) over (order by date, hour ROWS BETWEEN 7 PRECEDING AND CURRENT ROW) as maOutSctpPacks from (select date(endTime) as date, hour(endTime) as hour, sum(VS\_SctpOutSCTPPacks) as OutSctpPacks from sgsiwf.PoolType\_nss7\_ group by date, hour) as tbl1 ) as tbl2;

**Results:**

date | hour | OutSctpPacks | maOutSctpPacks | ?column?

------------+------+----------------+----------------+-------------------

2016-03-09 | 1 | 184208.00000 | 184208 | 0

2016-03-28 | 6 | 34118561.00000 | 17151384.5 | 98.9259875784372

2016-03-28 | 7 | 6204464.00000 | 13502411 | -54.0492138774327

2016-07-07 | 1 | 120.00000 | 10126838.25 | -99.9988150299527

(4 rows)

**Sample SQL Query (based on timeUnit of Day):**

**SQL:** select date,OutSctpPacks, maOutSctpPacks, (OutSctpPacks/maOutSctpPacks-1)\*100 from ( select date,OutSctpPacks, avg(OutSctpPacks) over (order by date ROWS BETWEEN 7 PRECEDING AND CURRENT ROW) as maOutSctpPacks from (select date(endTime) as date,sum(VS\_SctpOutSCTPPacks) as OutSctpPacks from sgsiwf.PoolType\_nss7\_ group by date) as tbl1 ) as tbl2;

**Results:**

date | OutSctpPacks | maOutSctpPacks | ?column?

------------+----------------+----------------+-------------------

2016-03-09 | 184208.00000 | 184208 | 0

2016-03-28 | 40323025.00000 | 20253616.5 | 99.0904932953579

2016-07-07 | 120.00000 | 13502451 | -99.9991112724645

(3 rows)

### Call Related KPI Dashboard

*Call Related KPI Dashboard* displays all call related KPIs in several cross tab tables with their current running total displayed horizontally across the KPI title. The user is able to use several filters to drill down the data further by time unit and time range.



1. Call Related KPI Report dashboard

The following filters and parameters can be used in this dashboard:

| Filter/Parameter | Filter/Parameter Name | Description |
| --- | --- | --- |
|  | Time Unit Selection | Allows the user to filter by various date/time units that will affect the worksheet displayed on the dashboard. User can filter by year, quarter, month, day, hour and minute. |
|  | Start Date/Time Filter | Allows the user to filter by a specific start date/time value that will be included as the start time of a date range filter. |
|  | End Date/Time Filter | Allows the user to filter by a specific start date/time value that will be included as the end time of a date range filter. |

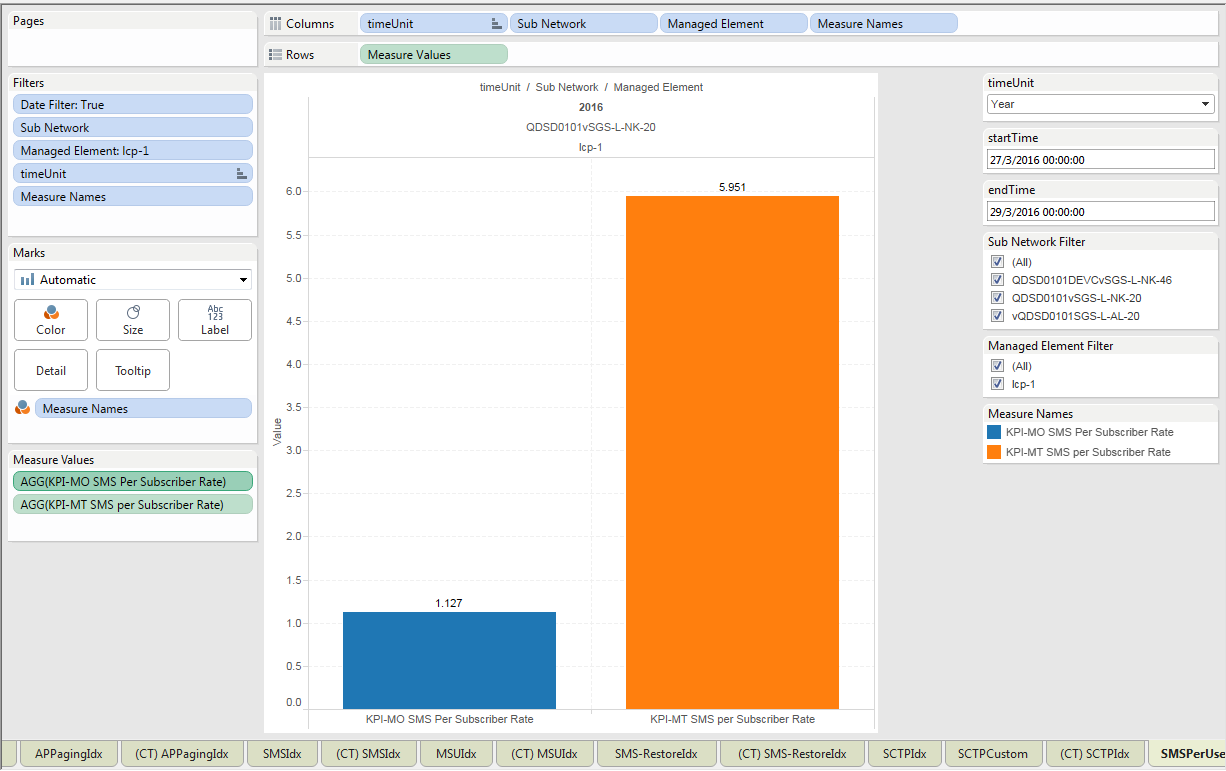
1. Call Related KPI Report Dashboard filter

When a user clicks on a particular KPI point in the line graph, the user will be redirected to the KPI’s corresponding worksheet where there are able to view/edit the KPI in a more defined granularity. The following table contains the KPI dashboard to worksheet redirection information:

|  |  |
| --- | --- |
| **KPI** | **Worksheet Redirection** |
| KPI-MO SMS per Subscriber Rate | SMSPerUser |
| KPI-MT SMS per Subscriber Rate | SMSPerUser |
| KPI-Purge per Subscriber Rate | VLRPerSub |
| KPI-Ready for Short Message per Subscriber Rate | VLRPerSub |
| KPI-VLR Cancel per Subscriber | VLRPerSub |
| KPI-Location Registration per Subscriber Rate | LocationSubRate |
| KPI-Location Update per Subscriber | LocationSubRate |
| KPI-SGs Alert per Subscriber Rate | SGsPerSub |
| KPI-SGs Detach per Subscriber Rate | SGsPerSub |

1. Call Related KPI to Worksheet Redirection Table

#### SMSPerUser Worksheet



1. SMSPerUser worksheet

This worksheet contains KPI information pertaining to the following KPIs (hold the control button and click on KPI below to be directed to its definition):

• [KPI-MO SMS per Subscriber Rate](#_KPI_–_MO)

• [KPI-MT SMS per Subscriber Rate](#_KPI_–_MT)

The following filters and parameters can be used in the worksheet:

| Filter/Parameter | Filter/Parameter Name | Description |
| --- | --- | --- |
|  | timeUnit | Allows the user to filter by various date/time units that will affect the worksheet displayed on the dashboard. User can filter by year, quarter, month, day, hour and minute. |
|  | startTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the start time of a date range filter. |
|  | endTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the end time of a date range filter. |
|  | Sub Network Filter | Allows the user to filter the worksheet by selected subnetwork elements in the list. |
|  | Managed Element Filter | Allows the user to filter the worksheet by the selected management elements in the list. |
|  | Measure Names | Allows the user to filter the graph on the work sheet by selected KPIs on the list. Click on the element(s) you would like to filter. |

1. SMSPerUser worksheet filters

##### KPI – MO SMS per Subscriber Rate

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | SMSPerUser |
| **Vertica Table Used** | ‘MME\_PoolType\_wss7\_aggr’ + ‘PoolType\_vlr\_aggr’ on endTime, subnetwork, managedElement |
| **KPI Definition** | attOpForMobileOriginatingPointToPointSMs/NumActiveSubscribers |

1. KPI – MO SMS per Subscriber Rate Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension Subnetwork):**

**SQL:** select sum(attOpForMobileOriginatingPointToPointSMs)/avg(aveActiveSubsNum) as AggrResult, date(vlr.endTime), hour(vlr.endTime), vlr.SubNetwork from sgsiwf.MME\_PoolType\_wss7\_aggr wss7,sgsiwf.PoolType\_vlr\_aggr vlr where wss7.endTime=vlr.endTime and wss7.SubNetwork=vlr.SubNetwork group by date(vlr.endTime), hour(vlr.endTime), vlr.SubNetwork;

**Result:**

AggrResult | date | hour | SubNetwork

------------------------------+-----------------+-------+--------------------------------------------

0.0192492734574281 | 2016-03-28 | 7 | QDSD0101vSGS-L-NK-20

NaN | 2016-07-07 | 1 | QDSD0101DEVCvSGS-L-NK-46

0.105942455635707 | 2016-03-28 | 6 | QDSD0101vSGS-L-NK-20

0 | 2016-03-09 | 1 | vQDSD0101SGS-L-AL-20

(4 rows)

**Sample SQL Query (based on timeUnit of Day and Dimension Subnetwork):**

**SQL:** select sum(attOpForMobileOriginatingPointToPointSMs)/avg(aveActiveSubsNum) as AggrResult, date(vlr.endTime), vlr.SubNetwork from sgsiwf.MME\_PoolType\_wss7\_aggr wss7, sgsiwf.PoolType\_vlr\_aggr vlr where wss7.endTime=vlr.endTime and wss7.SubNetwork=vlr.SubNetwork group by date(vlr.endTime), vlr.SubNetwork;

**Results:**

AggrResult | date | SubNetwork

---------------------------------+----------------+---------------------------------------------

0 | 2016-03-09 | vQDSD0101SGS-L-AL-20

NaN | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46

0.125191729090263 | 2016-03-28 | QDSD0101vSGS-L-NK-20

(3 rows)

##### KPI – MT SMS per Subscriber Rate

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | SMSPerUser |
| **Vertica Table Used** | ‘MME\_PoolType\_wss7\_aggr’ + ‘PoolType\_vlr\_aggr’ on endTime, subnetwork, managedElement |
| **KPI Definition** | Sum(attOpForMobileTerminatingPointToPointSMs)/avg(aveActiveSubsNum) ,TimeUnitFunction(endTime) group by TimeUnitFunction(endTime) |

1. KPI – MT SMS per Subscriber Rate Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension Network):**

**SQL:** select sum(attOpForMobileTerminatingPointToPointSMs)/avg(aveActiveSubsNum) as AggrResult, date(vlr.endTime), hour(vlr.endTime), vlr.SubNetwork from sgsiwf.MME\_PoolType\_wss7\_aggr wss7, sgsiwf.PoolType\_vlr\_aggr vlr where wss7.endTime=vlr.endTime and wss7.SubNetwork=vlr.SubNetwork group by date(vlr.endTime), hour(vlr.endTime), vlr.SubNetwork;

**Result:**

AggrResult | date | hour | SubNetwork

-----------------------------+----------------+-------+---------------------------------------------

0.101660475866331 | 2016-03-28 | 7 | QDSD0101vSGS-L-NK-20

Infinity | 2016-07-07 | 1 | QDSD0101DEVCvSGS-L-NK-46

0.559517843010495 | 2016-03-28 | 6 | QDSD0101vSGS-L-NK-20

0 | 2016-03-09 | 1 | vQDSD0101SGS-L-AL-20

(4 rows)

**Sample SQL Query (based on timeUnit of Day and Dimension Subnetwork):**

**SQL:** select sum(attOpForMobileTerminatingPointToPointSMs)/avg(aveActiveSubsNum) as AggrResult, date(vlr.endTime), vlr.SubNetwork from sgsiwf.MME\_PoolType\_wss7\_aggr wss7, sgsiwf.PoolType\_vlr\_aggr vlr where wss7.endTime=vlr.endTime and wss7.SubNetwork=vlr.SubNetwork group by date(vlr.endTime), vlr.SubNetwork;

**Results:**

AggrResult | date | SubNetwork

-----------------------------+----------------+---------------------------------------------

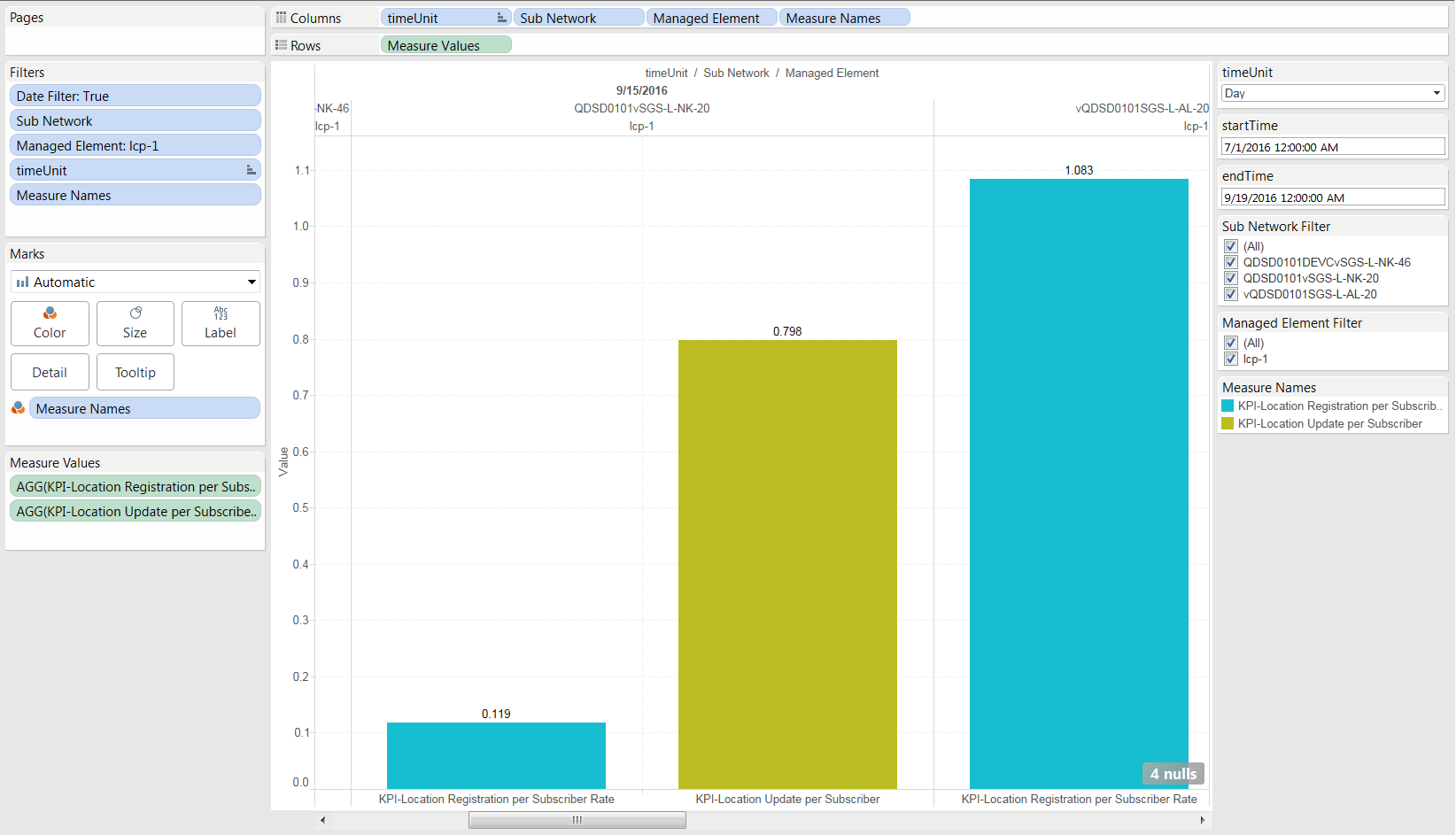
Infinity | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46

0 | 2016-03-09 | vQDSD0101SGS-L-AL-20

0.66117831886134 | 2016-03-28 | QDSD0101vSGS-L-NK-20

(3 rows)

#### LocationSubRate Worksheet



1. LocationSubRate worksheet

This worksheet contains KPI information pertaining to the following KPIs (hold the control button and click on KPI below to be directed to its definition):

• [KPI-Location Registration per Subscriber Rate](#_KPI_–_Location)

• [KPI-Location Update per Subscriber](#_KPI_–_Location_1)

The following filters and parameters can be used in the worksheet:

| Filter/Parameter | Filter/Parameter Name | Description |
| --- | --- | --- |
|  | timeUnit | Allows the user to filter by various date/time units that will affect the worksheet displayed on the dashboard. User can filter by year, quarter, month, day, hour and minute. |
|  | startTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the start time of a date range filter. |
|  | endTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the end time of a date range filter. |
|  | Sub Network Filter | Allows the user to filter the worksheet by selected subnetwork elements in the list. |
|  | Managed Element Filter | Allows the user to filter the worksheet by the selected management elements in the list. |
|  | Measure Names | Allows the user to filter the graph on the work sheet by selected KPIs on the list. Click on the element(s) you would like to filter. |

1. LocationSubRate worksheet filters

##### KPI – Location Registration per Subscriber Rate

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | LocationSubRate |
| **Vertica Table Used** | MME\_PoolType\_vlr\_aggr+ ‘PoolType\_vlr\_aggr’ on endTime, subnetwork, managedElement |
| **KPI Definition** | Sum(attInterVLRLocationUpdate)/avg(aveActiveSubsNum) , TimeUnitFunction(endTime) group by TimeUnitFunction(endTime) |

1. KPI – Location Registration per Subscriber Rate Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension Subnetwork):**

**SQL:** select sum(attInterVLRLocationUpdates)/avg(aveActiveSubsNum) as AggrResult, date(vlr.endTime), hour(vlr.endTime), vlr.SubNetwork from sgsiwf.MME\_PoolType\_vlr\_aggr mvlr, sgsiwf.PoolType\_vlr\_aggr vlr where mvlr.endTime=vlr.endTime and mvlr.SubNetwork=vlr.SubNetwork group by date(vlr.endTime), hour(vlr.endTime), vlr.SubNetwork;

**Result:**

AggrResult | date | hour | SubNetwork

-------------------------------+---------------+-----+------------------------------------------------

0.0216764678598819 | 2016-03-28 | 7 | QDSD0101vSGS-L-NK-20

0.216669773138779 | 2016-03-09 | 1 | vQDSD0101SGS-L-AL-20

0.119292289644694 | 2016-03-28 | 6 | QDSD0101vSGS-L-NK-20

Infinity | 2016-07-07 | 1 | QDSD0101DEVCvSGS-L-NK-46

(4 rows)

**Sample SQL Query (based on timeUnit of Day and Dimension Subnetwork):**

**SQL:** select sum(attInterVLRLocationUpdates)/avg(aveActiveSubsNum) as AggrResult, date(vlr.endTime), vlr.SubNetwork from sgsiwf.MME\_PoolType\_vlr\_aggr mvlr, sgsiwf.PoolType\_vlr\_aggr vlr where mvlr.endTime=vlr.endTime and mvlr.SubNetwork=vlr.SubNetwork group by date(vlr.endTime), vlr.SubNetwork;

**Results:**

AggrResult | date | SubNetwork

-----------------------------+----------------+---------------------------------------------

Infinity | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46

0.140968757501693 | 2016-03-28 | QDSD0101vSGS-L-NK-20

0.216669773138779 | 2016-03-09 | vQDSD0101SGS-L-AL-20

(3 rows)

##### KPI – Location Update per Subscriber

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | LocationSubRate |
| **Vertica Table Used** | MME\_PoolType\_vlr\_aggr+ ‘PoolType\_vlr\_aggr’ on endTime, subnetwork, managedElement |
| **KPI Definition** | Sum(attIntraVLRLocationUpdate)/avg(aveActiveSubsNum) , TimeUnitFunction(endTime) group by TimeUnitFunction(endTime) |

1. KPI – Location Update per Subscriber Rate Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension Subnetwork):**

**SQL:** select sum(attIntraVLRLocationUpdates)/avg(aveActiveSubsNum) as AggrResult, date(vlr.endTime), hour(vlr.endTime), vlr.SubNetwork from sgsiwf.MME\_PoolType\_vlr\_aggr mvlr, sgsiwf.PoolType\_vlr\_aggr vlr where mvlr.endTime=vlr.endTime and mvlr.SubNetwork=vlr.SubNetwork group by date(vlr.endTime), hour(vlr.endTime), vlr.SubNetwork;

**Result:**

AggrResult | date | hour | SubNetwork

------------------------------+--------------+--------+---------------------------------------------

0.140806715940473 | 2016-03-28 | 7 | QDSD0101vSGS-L-NK-20

0.774905141148542 | 2016-03-28 | 6 | QDSD0101vSGS-L-NK-20

NaN | 2016-07-07 | 1 | QDSD0101DEVCvSGS-L-NK-46

0 | 2016-03-09 | 1 | vQDSD0101SGS-L-AL-20

(4 rows)

**Sample SQL Query (based on timeUnit of Day and Dimension Subnetwork):**

**SQL:** select sum(attIntraVLRLocationUpdates)/avg(aveActiveSubsNum) as AggrResult, date(vlr.endTime), vlr.SubNetwork from sgsiwf.MME\_PoolType\_vlr\_aggr mvlr, sgsiwf.PoolType\_vlr\_aggr vlr where mvlr.endTime=vlr.endTime and mvlr.SubNetwork=vlr.SubNetwork group by date(vlr.endTime), vlr.SubNetwork;

**Results:**

AggrResult | date | SubNetwork

-----------------------------+----------------+-----------------------------------------------

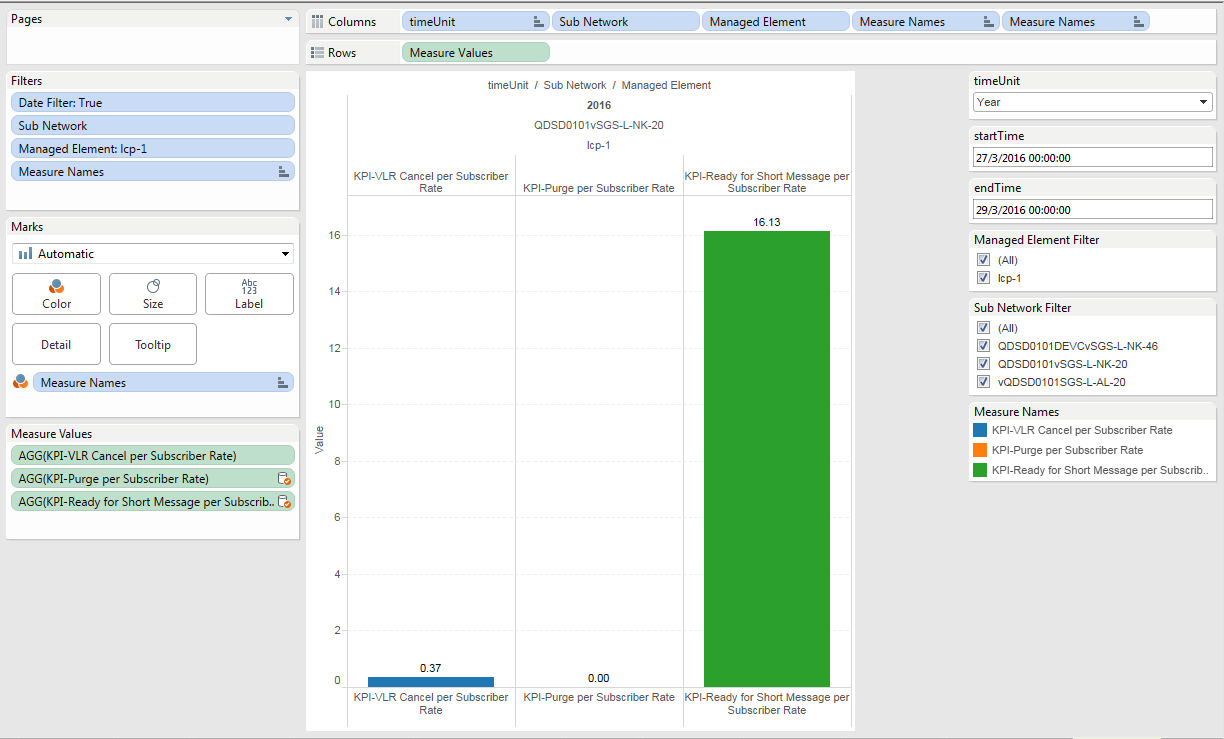
0 | 2016-03-09 | vQDSD0101SGS-L-AL-20

NaN | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46

0.915711857070193 | 2016-03-28 | QDSD0101vSGS-L-NK-20

(3 rows)

#### VLRPerSub Worksheet



1. VLRPerSub worksheet

This worksheet contains KPI information pertaining to the following KPIs (hold the control button and click on KPI below to be directed to its definition):

• [KPI-VLR Cancel per Subscriber Rate](#_KPI_–_VLR)

• [KPI-Purge per Subscriber Rate](#_KPI_–_VLR_1)

• [KPI-Ready for Short Message per Subscriber Rate](#_KPI_–_VLR_2)

The following filters and parameters can be used in the worksheet:

| Filter/Parameter | Filter/Parameter Name | Description |
| --- | --- | --- |
|  | timeUnit | Allows the user to filter by various date/time units that will affect the worksheet displayed on the dashboard. User can filter by year, quarter, month, day, hour and minute. |
|  | startTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the start time of a date range filter. |
|  | endTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the end time of a date range filter. |
|  | Sub Network Filter | Allows the user to filter the worksheet by selected subnetwork elements in the list. |
|  | Managed Element Filter | Allows the user to filter the worksheet by the selected management elements in the list. |
|  | Measure Names | Allows the user to filter the graph on the work sheet by selected KPIs on the list. Click on the element(s) you would like to filter. |

1. VLRPerSub worksheet filters

##### KPI – VLR Cancel per Subscriber Rate

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | VLRPerSub |
| **Vertica Table Used** | PoolType\_vlr\_TechnologyType\_aggr+ ‘PoolType\_vlr\_aggr’ on endTime, subnetwork, managedElement |
| **KPI Definition** | Sum(VS.locationCancellationRqsts)/avg(aveActiveSubsNum),  TimeUnitFunction(endTime) group by TimeUnitFunction(endTime) |

1. KPI – VLR Cancel per Subscriber Rate Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension Subnetwork):**

**SQL:** select Sum(VS\_locationCancellationRqsts)/avg(aveActiveSubsNum) as AggrResult, date(vlr.endTime), hour(vlr.endTime), vlr.SubNetwork from sgsiwf.PoolType\_vlr\_TechnologyType\_aggr tvlr, sgsiwf.PoolType\_vlr\_aggr vlr where tvlr.endTime=vlr.endTime and tvlr.SubNetwork=vlr.SubNetwork group by date(vlr.endTime), hour(vlr.endTime), vlr.SubNetwork;

**Result:**

AggrResult | date | hour | SubNetwork

-------------------------------+----------------+-------+---------------------------------------------

Infinity | 2016-07-07 | 1 | QDSD0101DEVCvSGS-L-NK-46

0.0343915053574063 | 2016-03-28 | 6 | QDSD0101vSGS-L-NK-20

0 | 2016-03-09 | 1 | vQDSD0101SGS-L-AL-20

0.0062410583982137 | 2016-03-28 | 7 | QDSD0101vSGS-L-NK-20

(4 rows)

**Sample SQL Query (based on timeUnit of Day and Dimension Subnetwork):**

**SQL:** select Sum(VS\_locationCancellationRqsts)/avg(aveActiveSubsNum) as AggrResult, date(vlr.endTime), vlr.SubNetwork from sgsiwf.PoolType\_vlr\_TechnologyType\_aggr tvlr, sgsiwf.PoolType\_vlr\_aggr vlr where tvlr.endTime=vlr.endTime and tvlr.SubNetwork=vlr.SubNetwork group by date(vlr.endTime), vlr.SubNetwork;

**Results:**

AggrResult | date | SubNetwork

------------------------------+-----------------+----------------------------------------------

0 | 2016-03-09 | vQDSD0101SGS-L-AL-20

Infinity | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46

0.0406325637529795 | 2016-03-28 | QDSD0101vSGS-L-NK-20

(3 rows)

##### KPI – VLR Purge per Subscriber Rate

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | VLRPerSub |
| **Vertica Table Used** | PoolType\_vlr\_aggr |
| **KPI Definition** | sum(MMEVLRImpDtchdSubRecPrgd+VLRImpDtchdSubRecPrgd+VLRSprChgrSuspndSubRecPrgd+VLRCapExceededPurged+VS.manualVLRPurge) /NumActiveSubscribers |

1. KPI – VLR Purge per Subscriber Rate Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension Subnetwork):**

**SQL:** sum(VS\_MMEVLRImpDtchdSubRecPrgd+VS\_VLRImpDtchdSubRecPrgd+VS\_VLRSprChgrSuspndSubRecPrgd+VS\_VLRCapExceededPurged+VS\_manualVLRPurge)/avg(aveActiveSubsNum) as AggrResult, date(endTime), hour(endTime),SubNetwork from sgsiwf.PoolType\_vlr\_aggr group by date(endTime), hour(endTime), SubNetwork;

**Result:**

AggrResult | date | hour | SubNetwork

---------------+---------------+------+--------------------------------------------

0 | 2016-03-28 | 7 | QDSD0101vSGS-L-NK-20

NaN | 2016-07-07 | 1 | QDSD0101DEVCvSGS-L-NK-46

0 | 2016-03-28 | 6 | QDSD0101vSGS-L-NK-20

0 | 2016-03-09 | 1 | vQDSD0101SGS-L-AL-20

(4 rows)

**Sample SQL Query (based on timeUnit of Day and Dimension Subnetwork):**

**SQL:** select sum(VS\_MMEVLRImpDtchdSubRecPrgd+VS\_VLRImpDtchdSubRecPrgd+VS\_VLRSprChgrSuspndSubRecPrgd+VS\_VLRCapExceededPurged+VS\_manualVLRPurge)/avg(aveActiveSubsNum) as AggrResult, date(endTime), SubNetwork from sgsiwf.PoolType\_vlr\_aggr group by date(endTime), SubNetwork;

**Results:**

AggrResult | date | SubNetwork

---------------+-----------------+-----------------------------------------------

0 | 2016-03-28 | QDSD0101vSGS-L-NK-20

0 | 2016-03-09 | vQDSD0101SGS-L-AL-20

NaN | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46

(3 rows)

##### KPI – VLR Ready for Short Message per Subscriber Rate

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | VLRPerSub |
| **Vertica Table Used** | PoolType\_vlr\_aggr |
| **KPI Definition** | sum(VS.attReadyForSM)/avg(aveActiveSubsNum), TimeUnitFunction(endTime) group by TimeUnitFunction(endTime) |

1. KPI – VLR Ready for Short Message per Subscriber Rate Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension Subnetwork):**

**SQL:** select sum(VS\_attReadyForSM)/avg(aveActiveSubsNum) as AggrResult, date(endTime), hour(endTime),SubNetwork from sgsiwf.PoolType\_vlr\_aggr group by date(endTime), hour(endTime), SubNetwork;

**Result:**

AggrResult | date | hour | SubNetwork

----------------------------------+---------------+-------+---------------------------------------------

0.00826914978078513 | 2016-03-28 | 7 | QDSD0101vSGS-L-NK-20

0.0455136087893971 | 2016-03-28 | 6 | QDSD0101vSGS-L-NK-20

NaN | 2016-07-07 | 1 | QDSD0101DEVCvSGS-L-NK-46

7.32239855149643e-05 | 2016-03-09 | 1 | vQDSD0101SGS-L-AL-20

(4 rows)

**Sample SQL Query (based on timeUnit of Day and Dimension Subnetwork):**

**SQL:** select sum(VS\_attReadyForSM)/avg(aveActiveSubsNum) as AggrResult, date(endTime), SubNetwork from sgsiwf.PoolType\_vlr\_aggr group by date(endTime), SubNetwork;

**Results:**

AggrResult | date | SubNetwork

------------------------------------+-----------------+-----------------------------------------------

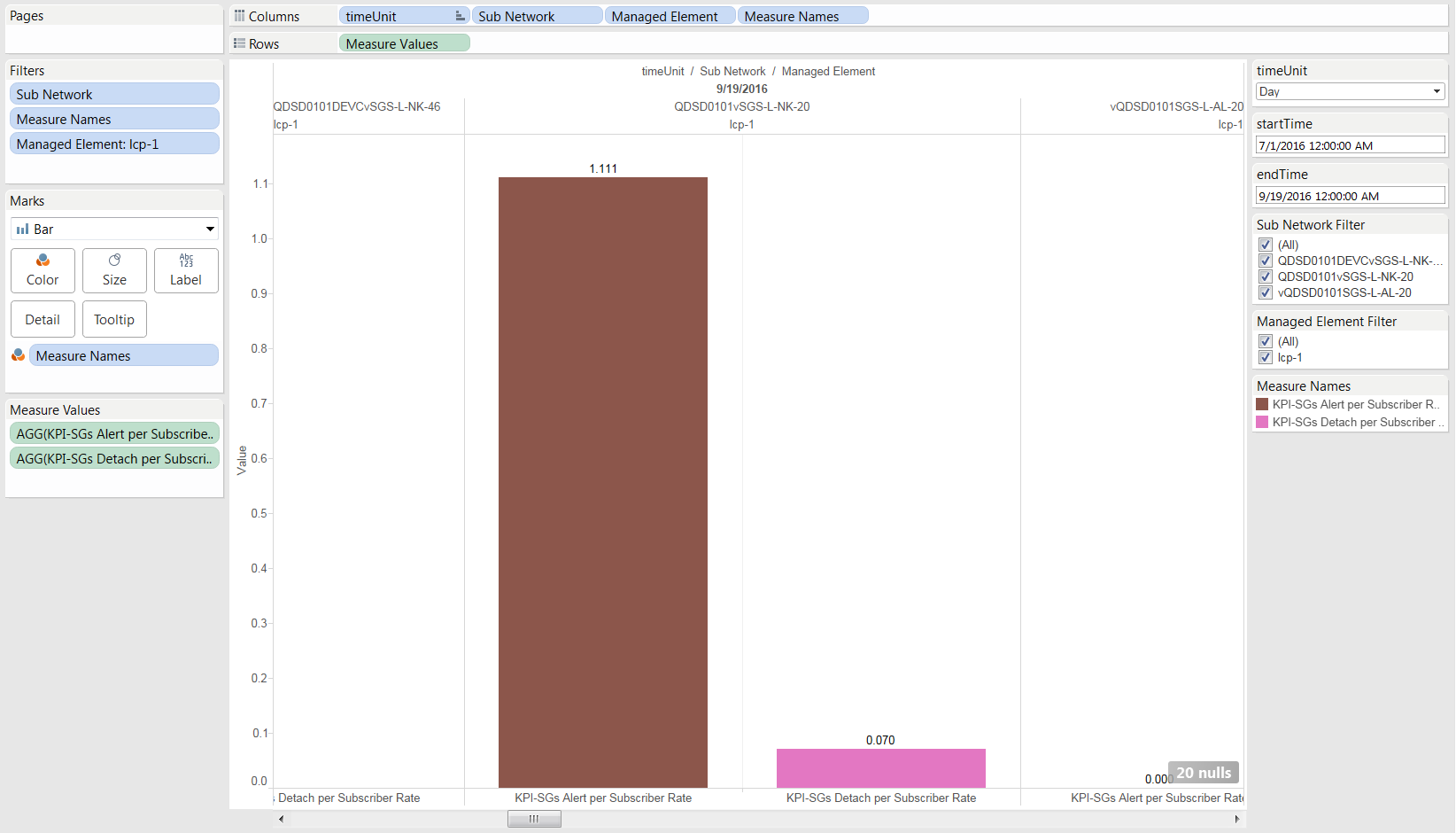
NaN | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46

7.32239855149643e-05 | 2016-03-09 | vQDSD0101SGS-L-AL-20

0.0537827585688441 | 2016-03-28 | QDSD0101vSGS-L-NK-20

(3 rows)

#### SGsPerSub Worksheet



1. SGsPerSub worksheet

This worksheet contains KPI information pertaining to the following KPIs (hold the control button and click on KPI below to be directed to its definition):

• [KPI-SGs Alert per Subscriber Rate](#_KPI_–_SGs)

• [KPI-SGs Detach per Subscriber Rate](#_KPI_–_SGs_1)

The following filters and parameters can be used in the worksheet:

| Filter/Parameter | Filter/Parameter Name | Description |
| --- | --- | --- |
|  | timeUnit | Allows the user to filter by various date/time units that will affect the worksheet displayed on the dashboard. User can filter by year, quarter, month, day, hour and minute. |
|  | startTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the start time of a date range filter. |
|  | endTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the end time of a date range filter. |
|  | Sub Network Filter | Allows the user to filter the worksheet by selected subnetwork elements in the list. |
|  | Managed Element Filter | Allows the user to filter the worksheet by the selected management elements in the list. |
|  | Measure Names | Allows the user to filter the graph on the work sheet by selected KPIs on the list. Click on the element(s) you would like to filter. |

1. SGsPerSub worksheet filters

##### KPI – SGs Alert per Subscriber Rate

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | SGsPerSub |
| **Vertica Table Used** | MME\_PoolType\_vlr\_aggr+ ‘PoolType\_vlr\_aggr’ on endTime, subnetwork, managedElement |
| **KPI Definition** | Sum(VS.SGsAPAlertRequest)/avg(aveActiveSubsNum), TimeUnitFunction(endTime) group by TimeUnitFunction(endTime) |

1. KPI – SGs Alert per Subscriber Rate Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension Subnetwork):**

**SQL:** select sum(VS\_SGsAPAlertRequests)/avg(aveActiveSubsNum) as AggrResult, date(vlr.endTime), hour(vlr.endTime), vlr.SubNetwork from sgsiwf.MME\_PoolType\_vlr\_aggr mvlr,sgsiwf.PoolType\_vlr\_aggr vlr where mvlr.endTime=vlr.endTime and mvlr.SubNetwork=vlr.SubNetwork group by date(vlr.endTime), hour(vlr.endTime), vlr.SubNetwork;

**Result:**

AggrResult | date | hour | SubNetwork

--------------------------------+-----------------+------+--------------------------------------------------

0.00826949819023069 | 2016-03-28 | 7 | QDSD0101vSGS-L-NK-20

NaN | 2016-07-07 | 1 | QDSD0101DEVCvSGS-L-NK-46

0 | 2016-03-09 | 1 | vQDSD0101SGS-L-AL-20

0.0455136087893971 | 2016-03-28 | 6 | QDSD0101vSGS-L-NK-20

(4 rows)

**Sample SQL Query (based on timeUnit of Day and Dimension Subnetwork):**

**SQL:** select sum(VS\_SGsAPAlertRequests)/avg(aveActiveSubsNum) as AggrResult, date(vlr.endTime), vlr.SubNetwork from sgsiwf.MME\_PoolType\_vlr\_aggr mvlr,sgsiwf.PoolType\_vlr\_aggr vlr where mvlr.endTime=vlr.endTime and mvlr.SubNetwork=vlr.SubNetwork group by date(vlr.endTime), vlr.SubNetwork;

**Results:**

AggrResult | date | SubNetwork

---------------------------------+----------------+-----------------------------------------------

0 | 2016-03-09 | vQDSD0101SGS-L-AL-20

0.0537831069783667 | 2016-03-28 | QDSD0101vSGS-L-NK-20

NaN | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46

(3 rows)

##### KPI – SGs Detach per Subscriber Rate

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | SGsPerSub |
| **Vertica Table Used** | MME\_PoolType\_wss7\_aggr+ ‘PoolType\_vlr\_aggr’ on endTime, subnetwork, managedElement |
| **KPI Definition** | Sum(DetachMsgsProcs)/avg(aveActiveSubsNum),TimeUnitFunction(endTime) group by TimeUnitFunction(endTime) |

1. KPI – SGs Detach per Subscriber Rate Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension Subnetwork):**

**SQL:** select sum(VS\_DetachMsgsProcs)/avg(aveActiveSubsNum) as AggrResult, date(vlr.endTime), hour(vlr.endTime), vlr.SubNetwork from sgsiwf.MME\_PoolType\_wss7\_aggr wss7,sgsiwf.PoolType\_vlr\_aggr vlr where wss7.endTime=vlr.endTime and wss7.SubNetwork=vlr.SubNetwork group by date(vlr.endTime), hour(vlr.endTime), vlr.SubNetwork;

**Result:**

AggrResult | date | hour | SubNetwork

--------------------------------+----------------+-------+----------------------------------------------

0.00826949819023069 | 2016-03-28 | 7 | QDSD0101vSGS-L-NK-20

Infinity | 2016-07-07 | 1 | QDSD0101DEVCvSGS-L-NK-46

0.0455136087893971 | 2016-03-28 | 6 | QDSD0101vSGS-L-NK-20

0 | 2016-03-09 | 1 | vQDSD0101SGS-L-AL-20

(4 rows)

**Sample SQL Query (based on timeUnit of Day and Dimension Subnetwork):**

**SQL:** select sum(VS\_DetachMsgsProcs)/avg(aveActiveSubsNum) as AggrResult, date(vlr.endTime), vlr.SubNetwork from sgsiwf.MME\_PoolType\_wss7\_aggr wss7,sgsiwf.PoolType\_vlr\_aggr vlr where wss7.endTime=vlr.endTime and wss7.SubNetwork=vlr.SubNetwork group by date(vlr.endTime), vlr.SubNetwork;

**Results:**

AggrResult | date | SubNetwork

----------------------------------+-----------------+-------------------------------------------

0 | 2016-03-09 | vQDSD0101SGS-L-AL-20

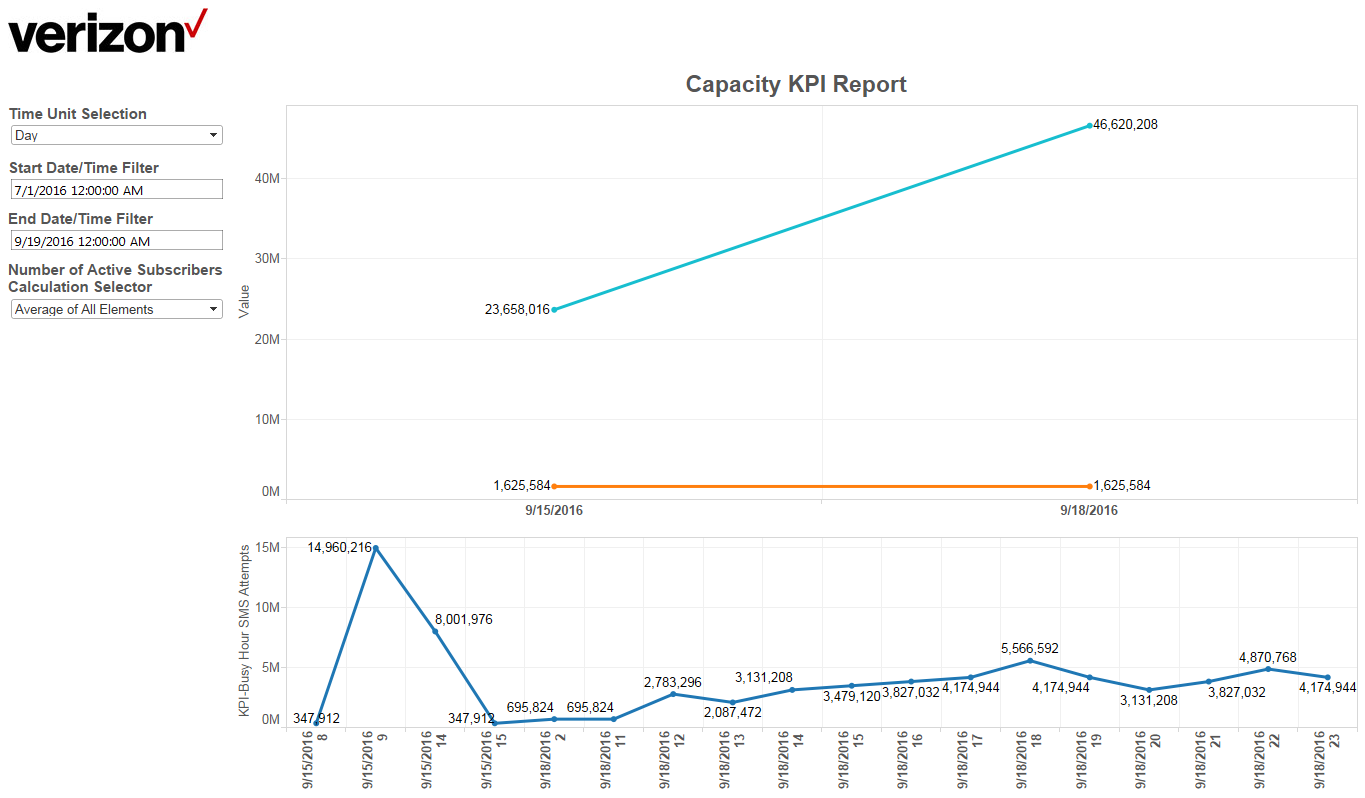
Infinity | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46

0.0537831069783667 | 2016-03-28 | QDSD0101vSGS-L-NK-20

(3 rows)

### Capacity KPI Dashboard

*Capacity KPI Dashboard* displays all call related KPIs in several cross tab tables with their current running total displayed horizontally across the KPI title. The user is able to use several filters to drill down the data further by time unit and time range. This report also has the functionality to allow the user to change how the top graph KPIs are aggregated; by the SUM or the AVERAGE.



1. Capacity KPI Report dashboard

The following filters and parameters can be used in this dashboard:

| Filter/Parameter | Filter/Parameter Name | Description |
| --- | --- | --- |
|  | Time Unit Selection | Allows the user to filter by various date/time units that will affect the worksheet displayed on the dashboard. User can filter by year, quarter, month, day, hour and minute. |
|  | Start Date/Time Filter | Allows the user to filter by a specific start date/time value that will be included as the start time of a date range filter. |
|  | End Date/Time Filter | Allows the user to filter by a specific start date/time value that will be included as the end time of a date range filter. |
|  | Number of Active Subscribers Calculation Selector | Allows the user to select which function to apply to the KPIs displayed: average or summation. |

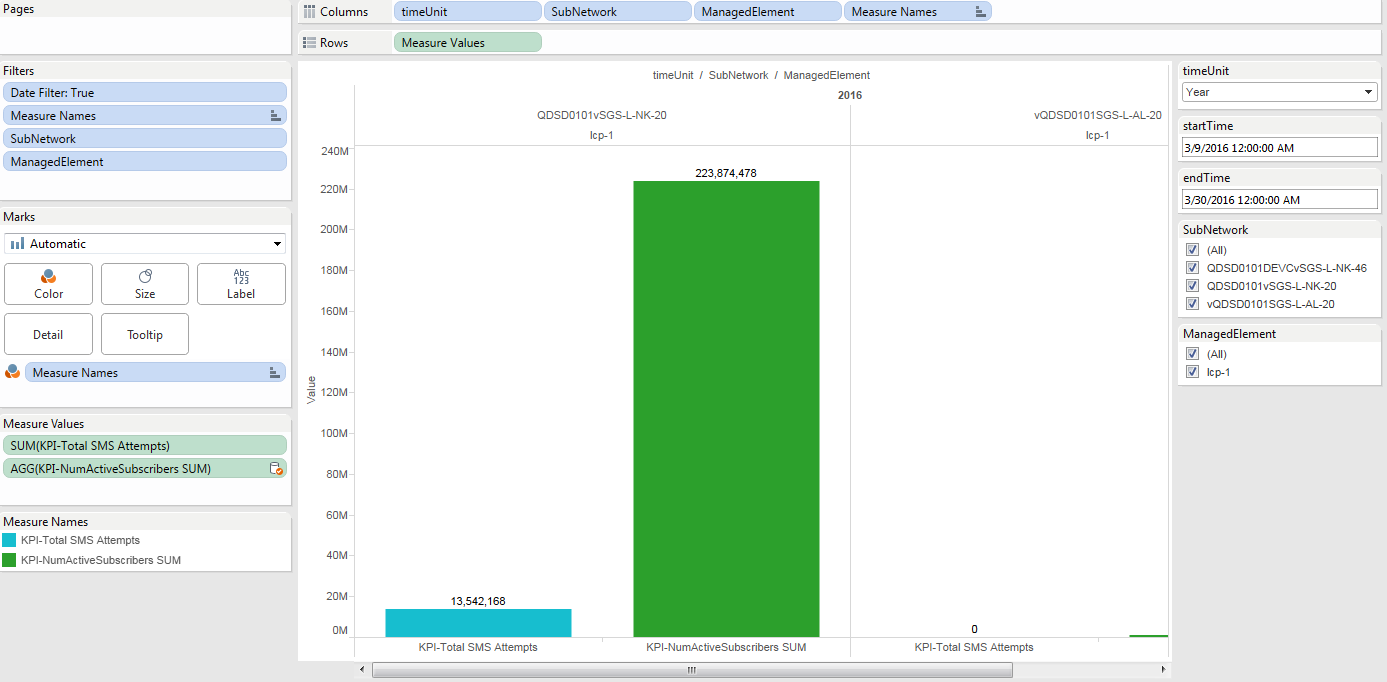
1. Capacity KPI Report Dashboard filter

When a user clicks on a particular KPI point in the line graphs, the user will be redirected to the KPI’s corresponding worksheet where there are able to view/edit the KPI in a more defined granularity. The following table contains the KPI dashboard to worksheet redirection information:

|  |  |
| --- | --- |
| **KPI** | **Worksheet Redirection** |
| KPI-Total SMS Attempts | CapacityKPISUM/CapacityKPIAVG |
| KPI-NumActiveSubscribers AVG | CapacityKPIAVG |
| KPI-NumActiveSubscribers SUM | CapacityKPISUM |
| KPI-Busy Hour SMS Attempts | BusyHour |

1. Capacity KPI to Worksheet Redirection Table

#### CapacityKPISUM Worksheet



1. CapacityKPISUM worksheet

This worksheet contains KPI information pertaining to the following KPIs (hold the control button and click on KPI below to be directed to its definition):

• [KPI-TotalSMSAttempts](#_KPI_–_Total)

• [KPI-NumActiveSubscribers SUM](#_KPI_–_Number)

The following filters and parameters can be used in the worksheet:

| Filter/Parameter | Filter/Parameter Name | Description |
| --- | --- | --- |
|  | timeUnit | Allows the user to filter by various date/time units that will affect the worksheet displayed on the dashboard. User can filter by year, quarter, month, day, hour and minute. |
|  | startTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the start time of a date range filter. |
|  | endTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the end time of a date range filter. |
|  | Sub Network Filter | Allows the user to filter the worksheet by selected subnetwork elements in the list. |
|  | Managed Element Filter | Allows the user to filter the worksheet by the selected management elements in the list. |
|  | Measure Names | Allows the user to filter the graph on the work sheet by selected KPIs on the list. Click on the element(s) you would like to filter. |

1. CapacityKPISUM worksheet filters

##### KPI – Number of Active Subscribers (SUM)

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | CapacityKPISUM |
| **Vertica Table Used** | PoolType\_vlr\_aggr |
| **KPI Definition** | VS.aveNumVLRSubs - VS.aveNumVlrSubsSCsuspended |

1. KPI –Number of Active Subscribers Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension Subnetwork):**

**SQL:** select sum(aveActiveSubsNum) as AggrResult, date(endTime), hour(endTime),SubNetwork from sgsiwf.PoolType\_vlr\_aggr group by date(endTime), hour(endTime), SubNetwork;

**Result:**

AggrResult | date | hour | SubNetwork

-------------------------+-----------------+------+------------------------------------------------

0.00000 | 2016-07-07 | 1 | QDSD0101DEVCvSGS-L-NK-46

300448.00000 | 2016-03-09 | 1 | vQDSD0101SGS-L-AL-20

63144081.00000 | 2016-03-28 | 6 | QDSD0101vSGS-L-NK-20

11480745.00000 | 2016-03-28 | 7 | QDSD0101vSGS-L-NK-20

(4 rows)

**Sample SQL Query (based on timeUnit of Day and Dimension Subnetwork):**

**SQL:** select sum(aveActiveSubsNum) as AggrResult, date(endTime), SubNetwork from sgsiwf.PoolType\_vlr\_aggr group by date(endTime), SubNetwork;

**Results:**

AggrResult | date | SubNetwork

--------------------------+----------------+---------------------------------------------

0.00000 | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46

74624826.00000 | 2016-03-28 | QDSD0101vSGS-L-NK-20

300448.00000 | 2016-03-09 | vQDSD0101SGS-L-AL-20

(3 rows)

##### KPI – Total SMS Attempts

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | CapacityKPISUM |
| **Vertica Table Used** | MME\_PoolType\_wss7\_ |
| **KPI Definition** | attOpForMobileTerminatingPointToPointSMs + attOpForMobileOriginatingPointToPointSMs |

1. KPI –Number of Active Subscribers Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension Subnetwork):**

**SQL:** select sum(attOpForMobileTerminatingPointToPointSMs + attOpForMobileOriginatingPointToPointSMs) as AggrResult, date(endTime), hour(endTime),SubNetwork from sgsiwf. MME\_PoolType\_wss7\_ group by date(endTime), hour(endTime), SubNetwork;

**Result:**

AggrResult | date | hour | SubNetwork

----------------------+----------------+------+----------------------------------------------

694067.00000 | 2016-03-28 | 7 | QDSD0101vSGS-L-NK-20

0.00000 | 2016-03-09 | 1 | vQDSD0101SGS-L-AL-20

1.00000 | 2016-07-07 | 1 | QDSD0101DEVCvSGS-L-NK-46

3819989.00000 | 2016-03-28 | 6 | QDSD0101vSGS-L-NK-20

(4 rows)

**Sample SQL Query (based on timeUnit of Day and Dimension Subnetwork):**

**SQL:** select sum(attOpForMobileTerminatingPointToPointSMs + attOpForMobileOriginatingPointToPointSMs) as AggrResult, date(endTime), SubNetwork from sgsiwf. MME\_PoolType\_wss7\_ group by date(endTime), SubNetwork;

**Results:**

AggrResult | date | SubNetwork

-----------------------+----------------+----------------------------------------------

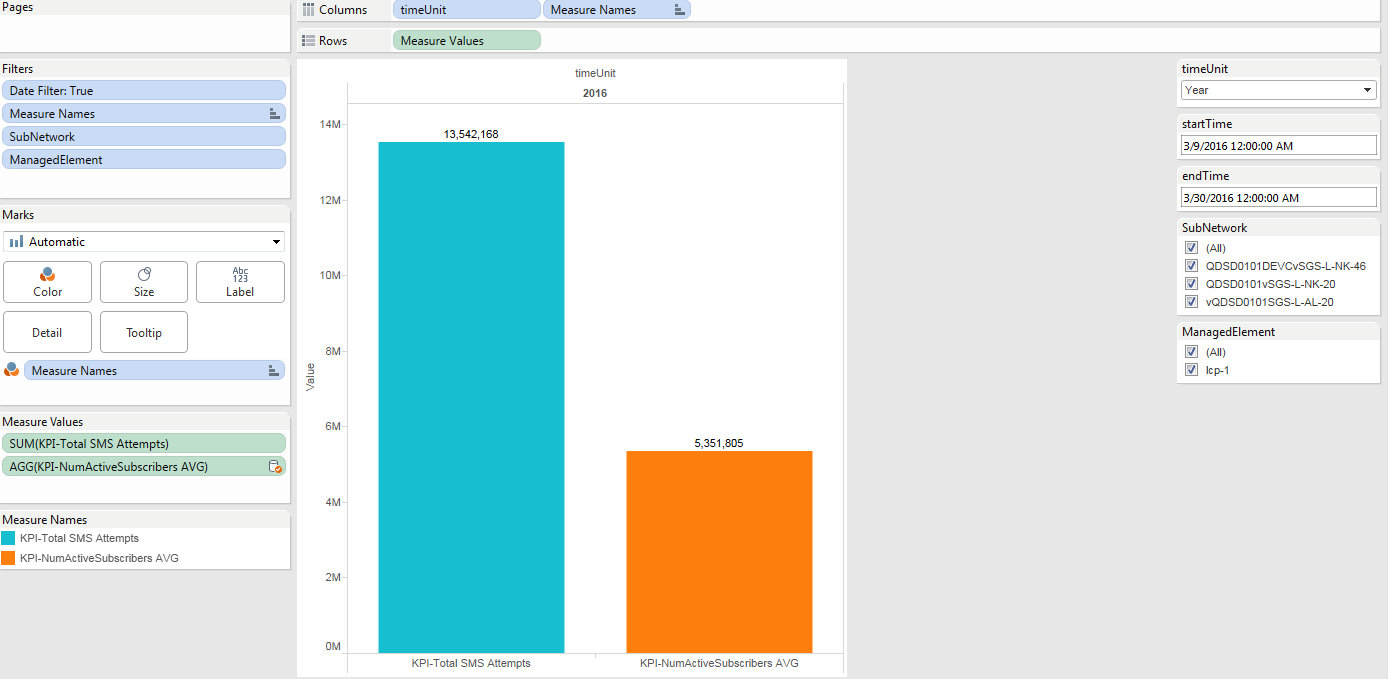
4514056.00000 | 2016-03-28 | QDSD0101vSGS-L-NK-20

0.00000 | 2016-03-09 | vQDSD0101SGS-L-AL-20

1. | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46

(3 rows)

#### CapacityKPIAVG Worksheet



1. CapacityKPIAVG worksheet

This worksheet contains KPI information pertaining to the following KPIs (hold the control button and click on KPI below to be directed to its definition):

• [KPI-TotalSMSAttempts](#_KPI_–_Total_1)

• [KPI-NumActiveSubscribers AVG](#_KPI_–_Number_1)

##### KPI – Number of Active Subscribers (AVG)

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | CapacityKPISUM |
| **Vertica Table Used** | PoolType\_vlr\_aggr |
| **KPI Definition** | select avg(aveActiveSubsNum) as AggrResult, date(endTime), SubNetwork from sgsiwf.PoolType\_vlr\_aggr group by date(endTime), SubNetwork; |

1. KPI –Number of Active Subscribers Definition

**Sample SQL Query (based on timeUnit of Hour and Dimensions Subnetwork and ManagedElement):**

**SQL:** select avg(aveActiveSubsNum) as AggrResult, date(endTime), hour(endTime),SubNetwork, ManagedElement from sgsiwf.PoolType\_vlr\_aggr group by date(endTime), hour(endTime), SubNetwork, ManagedElement;

**Result:**

AggrResult | date | hour | SubNetwork | ManagedElement

----------------------+----------------+-------+--------------------------------------------+-----------------------------

2870186 | 2016-09-21 | 13 | QDSD0101vSGS-L-NK-20 | lcp-1

3228959.25 | 2016-09-22 | 22 | QDSD0101vSGS-L-NK-20 | lcp-1

2870186 | 2016-09-19 | 8 | QDSD0101vSGS-L-NK-20 | lcp-1

0 | 2016-09-20 | 8 | QDSD0101DEVCvSGS-L-NK-46 | lcp-1

0 | 2016-09-22 | 13 | QDSD0101DEVCvSGS-L-NK-46 | lcp-1

0 | 2016-09-21 | 5 | QDSD0101DEVCvSGS-L-NK-46 | lcp-1

2870186 | 2016-09-25 | 23 | QDSD0101vSGS-L-NK-20 | lcp-1

0 | 2016-09-23 | 10 | QDSD0101DEVCvSGS-L-NK-46 | lcp-1

0 | 2016-09-19 | 23 | QDSD0101DEVCvSGS-L-NK-46 | lcp-1

2870186 | 2016-09-26 | 8 | QDSD0101vSGS-L-NK-20 | lcp-1

…

0 | 2016-09-20 | 23 | QDSD0101DEVCvSGS-L-NK-46 | lcp-1

(603 rows)

**Sample SQL Query (based on timeUnit of Day and Dimensions Subnetwork and ManagedElement):**

**SQL:** select avg(aveActiveSubsNum) as AggrResult, date(endTime), SubNetwork, ManagedElement from sgsiwf.PoolType\_vlr\_aggr group by date(endTime), SubNetwork, ManagedElement;

**Results:**

AggrResult | date | SubNetwork

---------------------------+----------------+---------------------------------------------

0 | 2016-09-26 | QDSD0101DEVCvSGS-L-NK-46

0 | 2016-09-23 | QDSD0101DEVCvSGS-L-NK-46

0 | 2016-09-24 | QDSD0101DEVCvSGS-L-NK-46

0 | 2016-09-18 | QDSD0101DEVCvSGS-L-NK-46

0 | 2016-09-25 | QDSD0101DEVCvSGS-L-NK-46

3114125.85895118 | 2016-09-23 | QDSD0101vSGS-L-NK-20

2941940.65 | 2016-09-25 | QDSD0101vSGS-L-NK-20

…

254810.329113924 | 2016-09-18 | vQDSD0101SGS-L-AL-20

(30 rows)

##### KPI – Total SMS Attempts

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | CapacityKPISUM |
| **Vertica Table Used** | MME\_PoolType\_wss7\_ |
| **KPI Definition** | attOpForMobileTerminatingPointToPointSMs + attOpForMobileOriginatingPointToPointSMs |

1. KPI –Total SMS Attempts Definition

**Sample SQL Query (based on timeUnit of Hour and Dimensions Subnetwork and ManagedElement):**

**SQL:** select sum(attOpForMobileTerminatingPointToPointSMs + attOpForMobileOriginatingPointToPointSMs) as AggrResult, date(endTime), hour(endTime),SubNetwork from sgsiwf. MME\_PoolType\_wss7\_ group by date(endTime), hour(endTime), SubNetwork;

**Result:**

AggrResult | date | hour | SubNetwork

----------------------+----------------+------+-------------------------------------------------

0.00000 | 2016-03-09 | 1 | vQDSD0101SGS-L-AL-20

1.00000 | 2016-07-07 | 1 | QDSD0101DEVCvSGS-L-NK-46

3819989.00000 | 2016-03-28 | 6 | QDSD0101vSGS-L-NK-20

(4 rows)

**Sample SQL Query (based on timeUnit of Day and Dimension Subnetwork and ManagedElement):**

**SQL:** select sum(attOpForMobileTerminatingPointToPointSMs + attOpForMobileOriginatingPointToPointSMs) as AggrResult, date(endTime), hour(endTime),SubNetwork, ManagedElement from sgsiwf. MME\_PoolType\_wss7\_ group by date(endTime), hour(endTime), SubNetwork, ManagedElement;

**Results:**

AggrResult | date | hour | SubNetwork | ManagedElement

-----------------------+----------------+-------+---------------------------------------------+---------------------------------

6610309.00000 | 2016-09-23 | 11 | QDSD0101vSGS-L-NK-20 | lcp-1

11.00000 | 2016-09-25 | 20 | QDSD0101DEVCvSGS-L-NK-46 | lcp-1

17.00000 | 2016-09-24 | 0 | QDSD0101DEVCvSGS-L-NK-46 | lcp-1

8001953.00000 | 2016-09-15 | 14 | QDSD0101vSGS-L-NK-20 | lcp-1

0.00000 | 2016-09-22 | 9 | vQDSD0101SGS-L-AL-20 | lcp-1

3479110.00000 | 2016-09-20 | 9 | QDSD0101vSGS-L-NK-20 | lcp-1

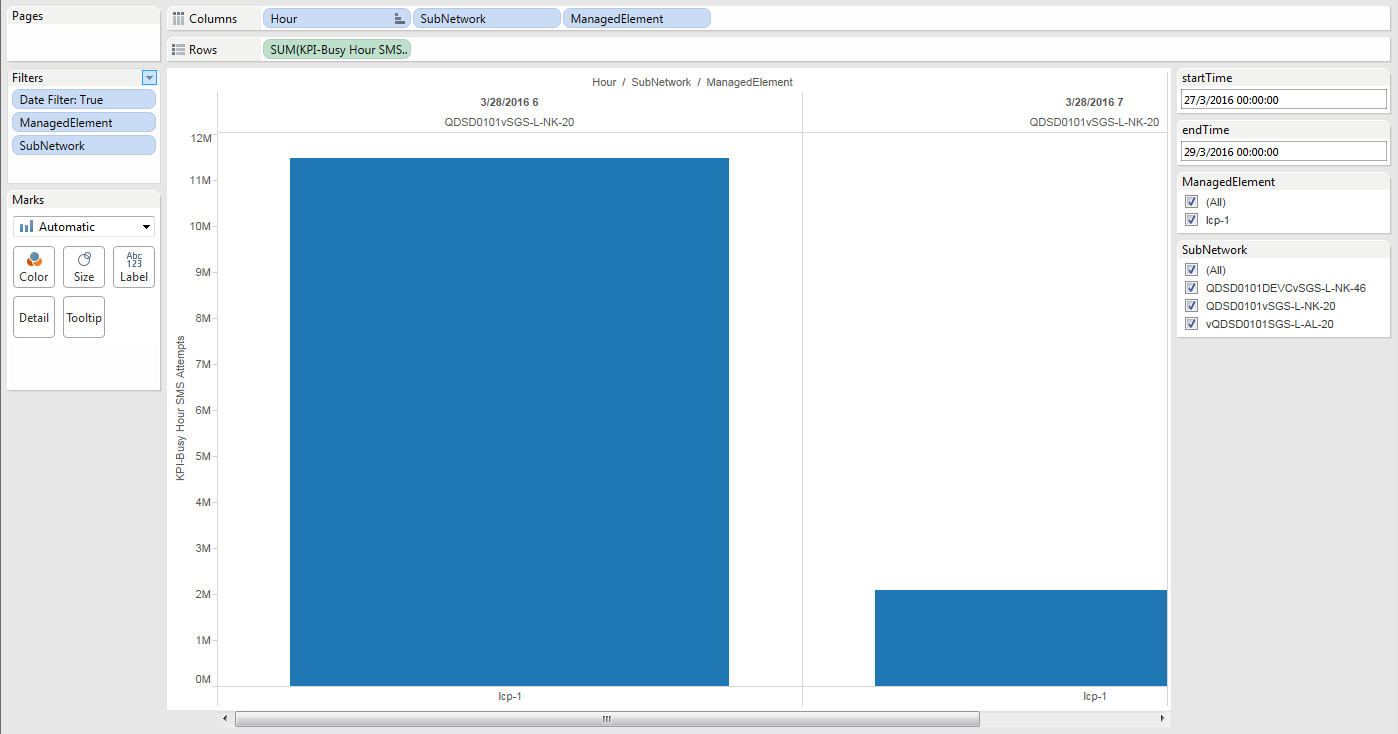
4870754.00000 | 2016-09-19 | 1 | QDSD0101vSGS-L-NK-20 | lcp-1

…

5218665.00000 | 2016-09-21 | 16 | QDSD0101vSGS-L-NK-20 | lcp-1

(603 rows)

#### BusyHour Worksheet



1. BusyHour worksheet

This worksheet contains KPI information pertaining to the following KPI (hold the control button and click on KPI below to be directed to its definition):

• [KPI-Busy Hour SMS Attempts](#_KPI_–_Busy_2)

The following filters and parameters can be used in the worksheet:

| Filter/Parameter | Filter/Parameter Name | Description |
| --- | --- | --- |
|  | startTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the start time of a date range filter. |
|  | endTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the end time of a date range filter. |
|  | Sub Network Filter | Allows the user to filter the worksheet by selected subnetwork elements in the list. |
|  | Managed Element Filter | Allows the user to filter the worksheet by the selected management elements in the list. |

1. BusyHour worksheet filters

##### KPI – Busy Hour SMS Attempts

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | CapacityKPISUM |
| **Vertica Table Used** | MME\_PoolType\_wss7\_ |
| **KPI Definition** | (attOpForMobileOriginatingPointToPointSMs + attOpForMobileTerminatingPointToPointSMs) |

1. KPI – Busy Hour SMS Attempts Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension Subnetwork):**

**SQL:** select sum(attOpForMobileOriginatingPointToPointSMs + attOpForMobileTerminatingPointToPointSMs) as AggrResult, date(endTime), hour(endTime),SubNetwork from sgsiwf.MME\_PoolType\_wss7\_ group by hour(endTime), date(endTime), SubNetwork;

**Result:**

AggrResult | date | hour | SubNetwork

------------------------+-----------------+-------+---------------------------------------------

694067.00000 | 2016-03-28 | 7 | QDSD0101vSGS-L-NK-20

0.00000 | 2016-03-09 | 1 | vQDSD0101SGS-L-AL-20

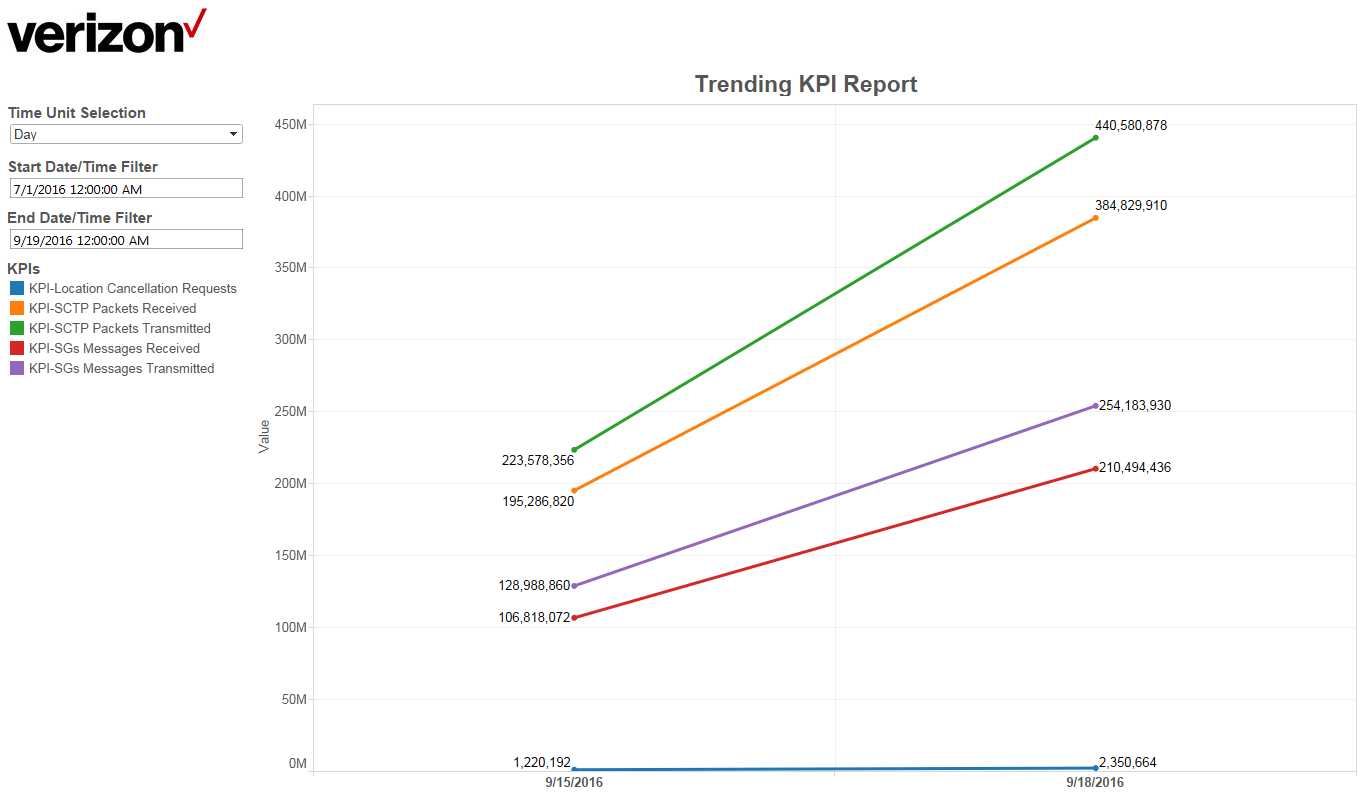
3819989.00000 | 2016-03-28 | 6 | QDSD0101vSGS-L-NK-20

1.00000 | 2016-07-07 | 1 | QDSD0101DEVCvSGS-L-NK-46

(4 rows)

### Trending KPI Dashboard

*Trending KPI Dashboard* displays all trending KPIs in several crosstab tables with their current running total displayed horizontally across the KPI title. The user is able to use several filters to drill down the data further by time unit and time range.



1. Trending KPI dashboard

The following filters and parameters can be used in this dashboard:

| Filter/Parameter | Filter/Parameter Name | Description |
| --- | --- | --- |
|  | Time Unit Selection | Allows the user to filter by various date/time units that will affect the worksheet displayed on the dashboard. User can filter by year, quarter, month, day, hour and minute. |
|  | Start Date/Time Filter | Allows the user to filter by a specific start date/time value that will be included as the start time of a date range filter. |
|  | End Date/Time Filter | Allows the user to filter by a specific start date/time value that will be included as the end time of a date range filter. |
|  | KPI | Allows the user to highlight a specific KPI on the graph. |

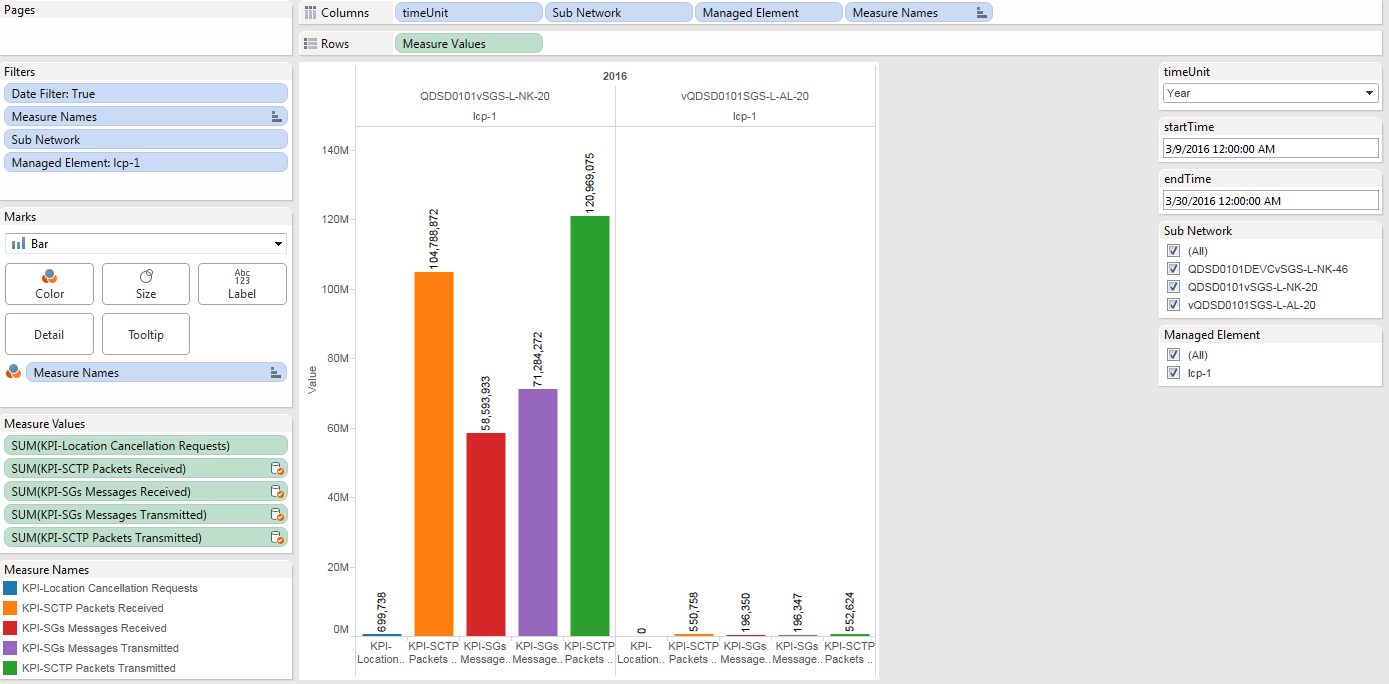
1. Trending KPI Report Dashboard filter

When a user clicks on a particular KPI point in the line graph, the user will be redirected to the KPI’s corresponding worksheet where there are able to view/edit the KPI in a more defined granularity. The following table contains the KPI dashboard to worksheet redirection information:

|  |  |
| --- | --- |
| **KPI** | **Worksheet Redirection** |
| KPI-Location Cancellation Requests | TrendingKPI |
| KPI-SCTP Packets Received | TrendingKPI |
| KPI-SCTP Packets Transmitted | TrendingKPI |
| KPI-SGs Messages Received | TrendingKPI |
| KPI-SGsMessages Transmitted | TrendingKPI |

1. Trending KPI to Worksheet Redirection Table

#### Trending KPI Worksheet



1. Trending KPI worksheet

This worksheet contains KPI information pertaining to the following KPIs (hold the control button and click on KPI below to be directed to its definition):

• [KPI-Location Cancellation Requests](#_KPI_–_Location_2)

• [KPI-SCTP Packets Received](#_KPI_–_SCTP_6)

• [KPI-SCTP Packets Transmitted](#_KPI_–_SCTP_3)

• [KPI-SGs Messages Received](#_KPI_–_SGs_2)

• [KPI-SGs Messages Transmitted](#_KPI_–_SGs_3)

The following filters and parameters can be used in the worksheet:

| Filter/Parameter | Filter/Parameter Name | Description |
| --- | --- | --- |
|  | timeUnit | Allows the user to filter by various date/time units that will affect the worksheet displayed on the dashboard. User can filter by year, quarter, month, day, hour and minute. |
|  | startTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the start time of a date range filter. |
|  | endTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the end time of a date range filter. |
|  | Sub Network Filter | Allows the user to filter the worksheet by selected subnetwork elements in the list. |
|  | Managed Element Filter | Allows the user to filter the worksheet by the selected management elements in the list. |
|  | Measure Names | Allows the user to filter the graph on the work sheet by selected KPIs on the list. Click on the element(s) you would like to filter. |

1. TrendingKPI worksheet filters

##### KPI – Location Cancellation Requests

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | TrendingKPI |
| **Vertica Table Used** | PoolType\_vlr\_TechnologyType\_ |
| **KPI Definition** | sum(VS.locationCancellationRqsts) TimeUnitFunction(endTime), SystemDimension group by TimeUnitFunction(endTime), SystemDimension group by TimeUnitFunction(endTime), SystemDimension |

1. KPI – Location Cancellation Requests Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension Subnetwork):**

**SQL:** select sum(VS\_locationCancellationRqsts) as AggrResult,date(endTime), hour(endTime),SubNetwork from sgsiwf.PoolType\_vlr\_TechnologyType\_ group by date(endTime),hour(endTime), SubNetwork;

**Result:**

AggrResult | date | hour | SubNetwork

---------------------+----------------+--------+--------------------------

35826.00000 | 2016-03-28 | 7 | QDSD0101vSGS-L-NK-20

197420.00000 | 2016-03-28 | 6 | QDSD0101vSGS-L-NK-20

2.00000 | 2016-07-07 | 1 | QDSD0101DEVCvSGS-L-NK-46

0.00000 | 2016-03-09 | 1 | vQDSD0101SGS-L-AL-20

(4 rows)

**Sample SQL Query (based on timeUnit of Day and Dimensions of MME and Subnetwork):**

**SQL:** select sum(VS\_locationCancellationRqsts) as AggrResult,date(endTime), SubNetwork from sgsiwf.PoolType\_vlr\_TechnologyType\_ group by date(endTime), SubNetwork;

**Results:**

AggrResult | date | SubNetwork

---------------------+----------------+-----------------------------------------------

2.00000 | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46

233246.00000 | 2016-03-28 | QDSD0101vSGS-L-NK-20

0.00000 | 2016-03-09 | vQDSD0101SGS-L-AL-20

(3 rows)

##### KPI – SCTP Packets Received

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | TrendingKPI |
| **Vertica Table Used** | PoolType\_nss7\_ |
| **KPI Definition** | VS.SctpInSCTPPacks sum(VS.SctpInSCTPPacks) TimeUnitFunction(endTime), SystemDimension group by TimeUnitFunction(endTime), SystemDimension |

1. KPI – SCTP Packets Received Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension Subnetwork):**

**SQL:** select sum(VS\_SctpInSCTPPacks) as AggrResult,date(endTime), hour(endTime),SubNetwork from sgsiwf.PoolType\_nss7\_ group by date(endTime),hour(endTime), SubNetwork;

**Result:**

AggrResult | date | hour | SubNetwork

------------------------+----------------+-------+----------------------------------------------

122.00000 | 2016-07-07 | 1 | QDSD0101DEVCvSGS-L-NK-46

29554735.00000 | 2016-03-28 | 6 | QDSD0101vSGS-L-NK-20

183586.00000 | 2016-03-09 | 1 | vQDSD0101SGS-L-AL-20

5374889.00000 | 2016-03-28 | 7 | QDSD0101vSGS-L-NK-20

(4 rows)

**Sample SQL Query (based on timeUnit of Day and Dimension Subnetwork):**

**SQL:** select sum(VS\_SctpInSCTPPacks) as AggrResult,date(endTime), SubNetwork from sgsiwf.PoolType\_nss7\_ group by date(endTime), SubNetwork;

**Results:**

AggrResult | date | hour | SubNetwork

-------------------------+----------------+-------+------------------------------------------------

6204464.00000 | 2016-03-28 | 7 | QDSD0101vSGS-L-NK-20

34118561.00000 | 2016-03-28 | 6 | QDSD0101vSGS-L-NK-20

120.00000 | 2016-07-07 | 1 | QDSD0101DEVCvSGS-L-NK-46

184208.00000 | 2016-03-09 | 1 | vQDSD0101SGS-L-AL-20

(4 rows)

##### KPI – SCTP Packets Transmitted

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | TrendingKPI |
| **Vertica Table Used** | PoolType\_nss7\_ |
| **KPI Definition** | sum(VS.SctpOutSCTPPacks) TimeUnitFunction(endTime), SystemDimensiongroup by TimeUnitFunction(endTime), SystemDimension |

1. KPI – SCTP Packets Transmitted Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension Subnetwork):**

**SQL:** select sum(VS\_SctpOutSCTPPacks) as AggrResult,date(endTime), hour(endTime),SubNetwork from sgsiwf.PoolType\_nss7\_ group by date(endTime),hour(endTime), SubNetwork;

**Result:**

AggrResult | date | hour | SubNetwork

------------------------+----------------+-------+---------------------------------------------

6204464.00000 | 2016-03-28 | 7 | QDSD0101vSGS-L-NK-20

34118561.00000 | 2016-03-28 | 6 | QDSD0101vSGS-L-NK-20

120.00000 | 2016-07-07 | 1 | QDSD0101DEVCvSGS-L-NK-46

184208.00000 | 2016-03-09 | 1 | vQDSD0101SGS-L-AL-20

(4 rows)

**Sample SQL Query (based on timeUnit of Day and Dimensions of MME and Machine):**

**SQL:** select sum(VS\_SctpOutSCTPPacks) as AggrResult,date(endTime), SubNetwork from sgsiwf.PoolType\_nss7\_ group by date(endTime), SubNetwork**;**

**Results:**

AggrResult | date | SubNetwork

-------------------------+----------------+----------------------------------------------------

120.00000 | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46

184208.00000 | 2016-03-09 | vQDSD0101SGS-L-AL-20

40323025.00000 | 2016-03-28 | QDSD0101vSGS-L-NK-20

(3 rows)

##### KPI – SGs Messages Received

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | TrendingKPI |
| **Vertica Table Used** | MME\_PoolType\_wss7\_ |
| **KPI Definition** | sum(VS.SctpPacketReceive) TimeUnitFunction(endTime), SystemDimension group by TimeUnitFunction(endTime), SystemDimension |

1. KPI – SGs Messages Received Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension Subnetwork):**

**SQL:** select sum(VS\_SctpPacketReceive) as AggrResult,date(endTime), hour(endTime),SubNetwork from sgsiwf.MME\_PoolType\_wss7\_ group by date(endTime),hour(endTime), SubNetwork;

**Result:**

AggrResult | date | hour | SubNetwork

-----------------------+----------------+---------+-----------------------------------------------

65450.00000 | 2016-03-09 | 1 | vQDSD0101SGS-L-AL-20

16528195.00000 | 2016-03-28 | 6 | QDSD0101vSGS-L-NK-20

6.00000 | 2016-07-07 | 1 | QDSD0101DEVCvSGS-L-NK-46

3003116.00000 | 2016-03-28 | 7 | QDSD0101vSGS-L-NK-20

(4 rows)

**Sample SQL Query (based on timeUnit of Day and Dimensions Subnetwork):**

**SQL:** select sum(VS\_SctpPacketReceive) as AggrResult,date(endTime), SubNetwork from sgsiwf.MME\_PoolType\_wss7\_ group by date(endTime), SubNetwork;

**Results:**

AggrResult | date | SubNetwork

------------------------+----------------+---------------------------------------------------

19531311.00000 | 2016-03-28 | QDSD0101vSGS-L-NK-20

6.00000 | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46

65450.00000 | 2016-03-09 | vQDSD0101SGS-L-AL-20

(3 rows)

##### KPI – SGs Messages Transmitted

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | TrendingKPI |
| **Vertica Table Used** | MME\_PoolType\_wss7\_ |
| **KPI Definition** | sum(VS.SctpPacketTransmit) TimeUnitFunction(endTime), SystemDimension group by TimeUnitFunction(endTime), SystemDimension |

1. KPI – SGs Messages Transmitted Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension Subnetwork):**

**SQL:** select sum(VS\_SctpPacketTransmit) as AggrResult,date(endTime), hour(endTime),SubNetwork from sgsiwf.MME\_PoolType\_wss7\_ group by date(endTime),hour(endTime), SubNetwork;

**Result:**

AggrResult | date | hour | SubNetwork

----------------+------------+------+---------------------------------------------------------------

3653513.00000 | 2016-03-28 | 7 | QDSD0101vSGS-L-NK-20

20107911.00000 | 2016-03-28 | 6 | QDSD0101vSGS-L-NK-20

7.00000 | 2016-07-07 | 1 | QDSD0101DEVCvSGS-L-NK-46

65449.00000 | 2016-03-09 | 1 | vQDSD0101SGS-L-AL-20

(4 rows)

**Sample SQL Query (based on timeUnit of Day and Dimension Subnetwork):**

**SQL:** select sum(VS\_SctpPacketTransmit) as AggrResult,date(endTime), SubNetwork from sgsiwf.MME\_PoolType\_wss7\_ group by date(endTime), SubNetwork;

**Results:**

AggrResul | date | SubNetwork

-------------------------+---------------+---------------------------------------------------

65449.00000 | 2016-03-09 | vQDSD0101SGS-L-AL-20

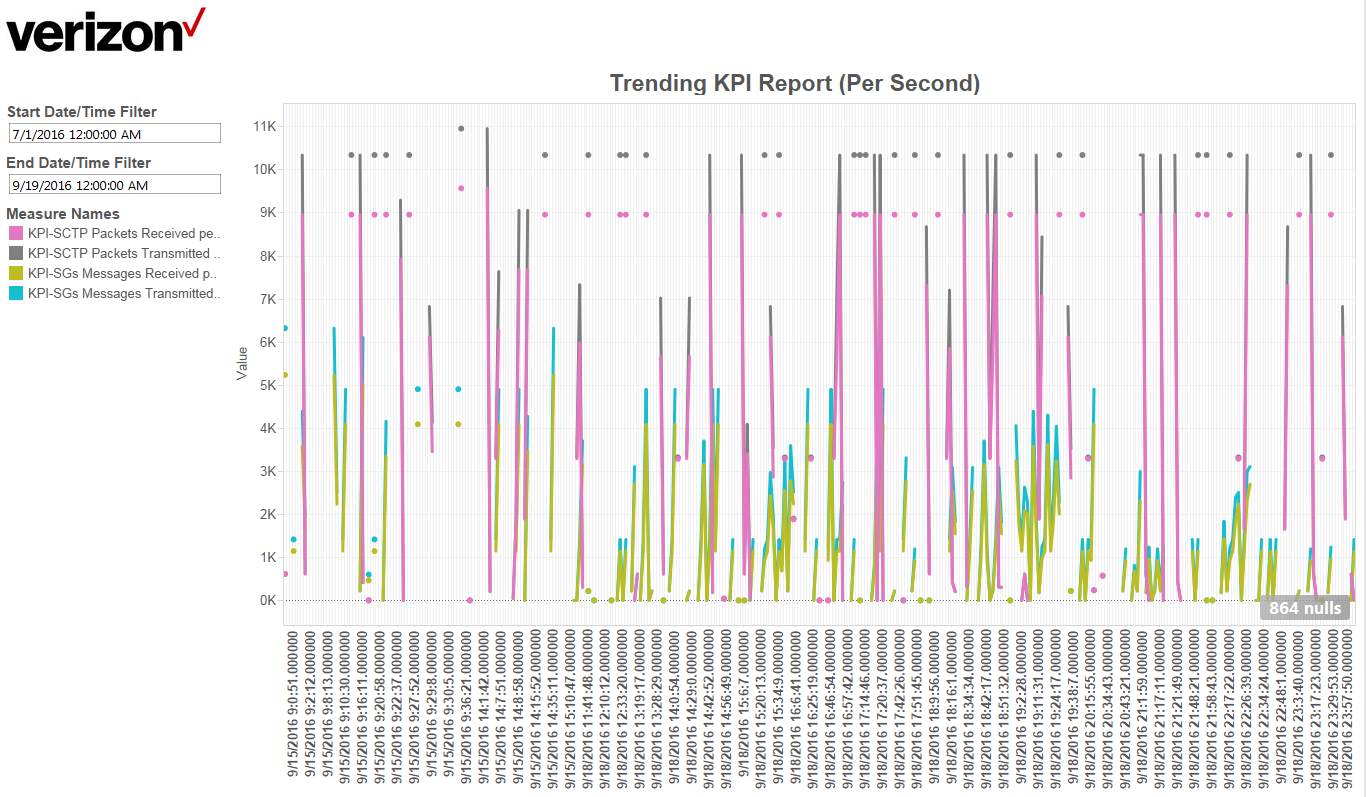
7.00000 | 2016-07-07 | QDSD0101DEVCvSGS-L-NK-46

23761424.00000 | 2016-03-28 | QDSD0101vSGS-L-NK-20

(3 rows)

### Trending KPI (Per Sec) Dashboard

*Trending KPI (Per Second) Dashboard* displays all trending KPIs in several crosstab tables with their current running total displayed horizontally across the KPI title. The user is able to use several filters to drill down the data further by time unit and time range. This dashboard is similar in behavior to the Trending KPI dashboard but lacks the *Time Unit Selection* filter and displays the KPIs by the unit of *“second”* for the specified time range.

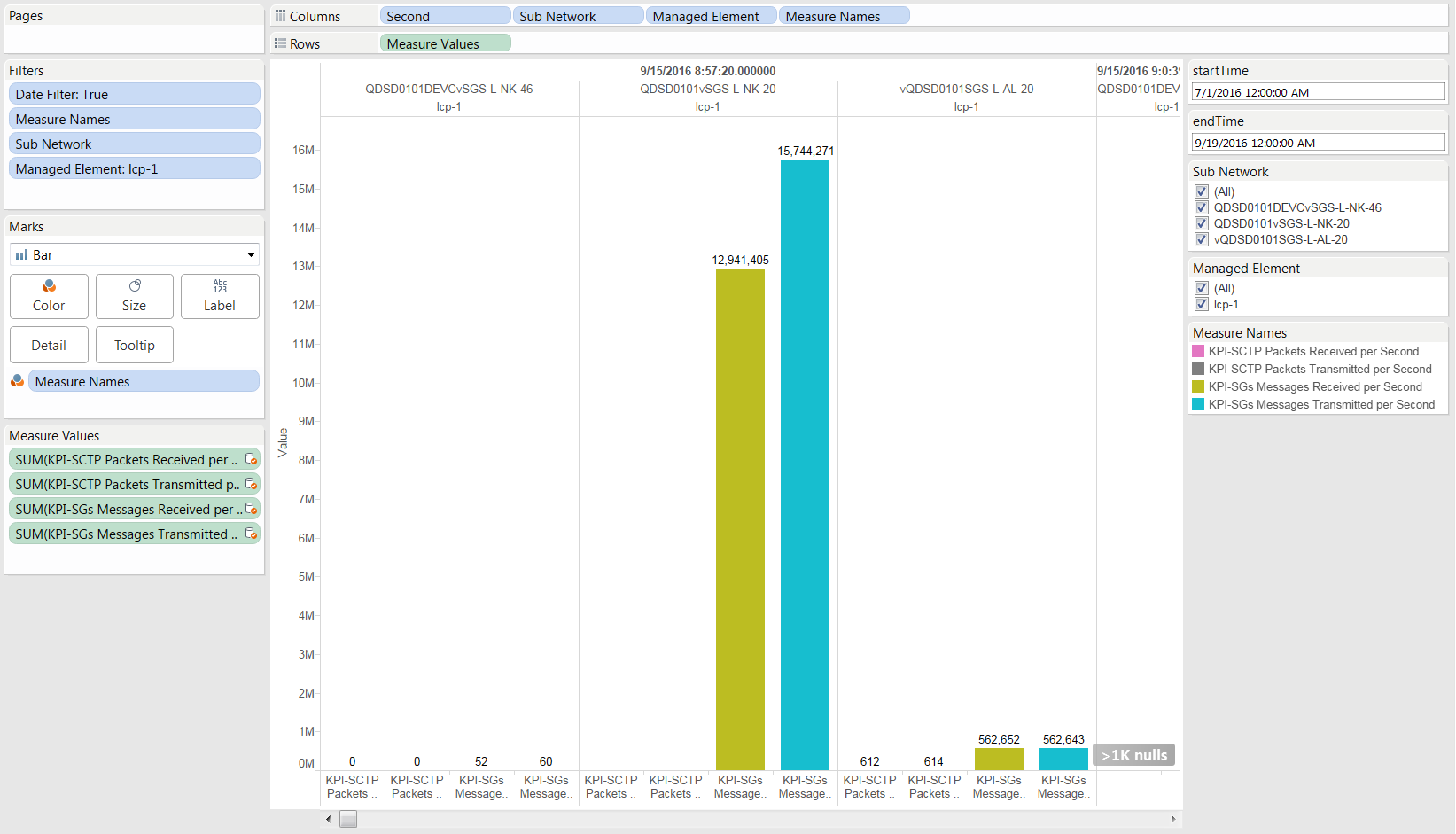


The following filters and parameters can be used in this dashboard:

| Filter/Parameter | Filter/Parameter Name | Description |
| --- | --- | --- |
|  | Start Date/Time Filter | Allows the user to filter by a specific start date/time value that will be included as the start time of a date range filter. |
|  | End Date/Time Filter | Allows the user to filter by a specific start date/time value that will be included as the end time of a date range filter. |
|  | KPI | Allows the user to highlight a specific KPI on the graph. |

1. TrendingKPI (Per Sec) worksheet filters

#### Trending KPI Worksheet (Per Sec)



1. Trending KPI (Per Sec) worksheet

This worksheet contains KPI information pertaining to the following KPIs (hold the control button and click on KPI below to be directed to its definition):

• [KPI-Location Cancellation Requests](#_KPI_–_Location_4)

• [KPI-SCTP Packets Received](#_KPI_–_SCTP_2)

• [KPI-SCTP Packets Transmitted](#_KPI_–_SCTP_3)

• [KPI-SGs Messages Received](#_KPI_–_SGs_2)

• [KPI-SGs Messages Transmitted](#_KPI_–_SGs_3)

The following filters and parameters can be used in the worksheet:

| Filter/Parameter | Filter/Parameter Name | Description |
| --- | --- | --- |
|  | timeUnit | Allows the user to filter by various date/time units that will affect the worksheet displayed on the dashboard. User can filter by year, quarter, month, day, hour and minute. |
|  | startTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the start time of a date range filter. |
|  | endTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the end time of a date range filter. |
|  | Sub Network Filter | Allows the user to filter the worksheet by selected subnetwork elements in the list. |
|  | Managed Element Filter | Allows the user to filter the worksheet by the selected management elements in the list. |
|  | Measure Names | Allows the user to filter the graph on the work sheet by selected KPIs on the list. Click on the element(s) you would like to filter. |

1. TrendingKPI (Per Sec) worksheet filters

##### KPI – Location Cancellation Requests

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | TrendingKPI |
| **Vertica Table Used** | PoolType\_vlr\_TechnologyType\_ |
| **KPI Definition** | sum(VS.locationCancellationRqsts) TimeUnitFunction(endTime), SystemDimension group by TimeUnitFunction(endTime), SystemDimension group by TimeUnitFunction(endTime), SystemDimension |

1. KPI – Location Cancellation Requests Definition

**Sample SQL Query (based on timeUnit of Second and Dimension Subnetwork):**

**SQL:** select sum(VS\_locationCancellationRqsts) as AggrResult,date(endTime), second(endTime),SubNetwork from sgsiwf.PoolType\_vlr\_TechnologyType\_ group by date(endTime),second(endTime), SubNetwork;

**Result:**

AggrResult | date | second | SubNetwork

--------------+------------+--------+--------------------------

49919.00000 | 2016-09-21 | 9 | QDSD0101vSGS-L-NK-20

86053.00000 | 2016-09-21 | 46 | QDSD0101vSGS-L-NK-20

61364.00000 | 2016-09-21 | 47 | QDSD0101vSGS-L-NK-20

63960.00000 | 2016-09-21 | 45 | QDSD0101vSGS-L-NK-20

40984.00000 | 2016-09-21 | 29 | QDSD0101vSGS-L-NK-20

45869.00000 | 2016-09-21 | 3 | QDSD0101vSGS-L-NK-20

155156.00000 | 2016-09-21 | 17 | QDSD0101vSGS-L-NK-20

…

##### KPI – SCTP Packets Received

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | TrendingKPI |
| **Vertica Table Used** | PoolType\_nss7\_ |
| **KPI Definition** | VS.SctpInSCTPPacks sum(VS.SctpInSCTPPacks) TimeUnitFunction(endTime), SystemDimension group by TimeUnitFunction(endTime), SystemDimension |

1. KPI – SCTP Packets Received Definition

**Sample SQL Query (based on timeUnit of Second and Dimension Subnetwork):**

**SQL:** select sum(VS\_SctpInSCTPPacks) as AggrResult,date(endTime), second(endTime),SubNetwork from sgsiwf.PoolType\_nss7\_ group by date(endTime),second(endTime), SubNetwork;

**Result:**

AggrResult | date | second | SubNetwork

------------------------+----------------+----------+--------------------------------------------

16351617.00000 | 2016-09-21 | 9 | QDSD0101vSGS-L-NK-20

12875809.00000 | 2016-09-21 | 46 | QDSD0101vSGS-L-NK-20

3104436.00000 | 2016-09-21 | 47 | QDSD0101vSGS-L-NK-20

18251651.00000 | 2016-09-21 | 45 | QDSD0101vSGS-L-NK-20

12946450.00000 | 2016-09-21 | 29 | QDSD0101vSGS-L-NK-20

20518250.00000 | 2016-09-21 | 3 | QDSD0101vSGS-L-NK-20

…

##### KPI – SCTP Packets Transmitted

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | TrendingKPI |
| **Vertica Table Used** | PoolType\_nss7\_ |
| **KPI Definition** | sum(VS.SctpOutSCTPPacks) TimeUnitFunction(endTime), SystemDimensiongroup by TimeUnitFunction(endTime), SystemDimension |

1. KPI – SCTP Packets Transmitted Definition

**Sample SQL Query (based on timeUnit of Second and Dimension Subnetwork):**

**SQL:** select sum(VS\_SctpOutSCTPPacks) as AggrResult,date(endTime), second(endTime),SubNetwork from sgsiwf.PoolType\_nss7\_ group by date(endTime),second(endTime), SubNetwork;

**Result:**

AggrResult | date | hour | SubNetwork

------------------------+----------------+-------+---------------------------------------------

6204464.00000 | 2016-03-28 | 7 | QDSD0101vSGS-L-NK-20

34118561.00000 | 2016-03-28 | 6 | QDSD0101vSGS-L-NK-20

120.00000 | 2016-07-07 | 1 | QDSD0101DEVCvSGS-L-NK-46

184208.00000 | 2016-03-09 | 1 | vQDSD0101SGS-L-AL-20

(4 rows)

##### KPI – SGs Messages Received

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | TrendingKPI |
| **Vertica Table Used** | MME\_PoolType\_wss7\_ |
| **KPI Definition** | sum(VS.SctpPacketReceive) TimeUnitFunction(endTime), SystemDimension group by TimeUnitFunction(endTime), SystemDimension |

1. KPI – SGs Messages Received Definition

**Sample SQL Query (based on timeUnit of Second and Dimension Subnetwork):**

**SQL:** select sum(VS\_SctpPacketReceive) as AggrResult,date(endTime), second(endTime),SubNetwork from sgsiwf.MME\_PoolType\_wss7\_ group by date(endTime),second(endTime), SubNetwork;

**Result:**

AggrResult | date | second | SubNetwork

----------------------+----------------+----------+------------------------------------------------

196350.00000 | 2016-09-22 | 28 | vQDSD0101SGS-L-AL-20

130900.00000 | 2016-09-22 | 44 | vQDSD0101SGS-L-AL-20

261800.00000 | 2016-09-22 | 38 | vQDSD0101SGS-L-AL-20

130900.00000 | 2016-09-22 | 22 | vQDSD0101SGS-L-AL-20

…

##### KPI – SGs Messages Transmitted

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | TrendingKPI |
| **Vertica Table Used** | MME\_PoolType\_wss7\_ |
| **KPI Definition** | sum(VS.SctpPacketTransmit) TimeUnitFunction(endTime), SystemDimension group by TimeUnitFunction(endTime), SystemDimension |

1. KPI – SGs Messages Transmitted Definition

**Sample SQL Query (based on timeUnit of Second and Dimension Subnetwork):**

**SQL:** select sum(VS\_SctpPacketTransmit) as AggrResult,date(endTime), second(endTime),SubNetwork from sgsiwf.MME\_PoolType\_wss7\_ group by date(endTime),second(endTime), SubNetwork;

**Result:**

AggrResult | date | second | SubNetwork

-----------------------+-----------------+----------+-----------------------------------------

9659383.00000 | 2016-09-22 | 31 | QDSD0101vSGS-L-NK-20

6571929.00000 | 2016-09-22 | 4 | QDSD0101vSGS-L-NK-20

7145880.00000 | 2016-09-22 | 57 | QDSD0101vSGS-L-NK-20

7539916.00000 | 2016-09-22 | 5 | QDSD0101vSGS-L-NK-20

8765474.00000 | 2016-09-22 | 26 | QDSD0101vSGS-L-NK-20

14870310.00000 | 2016-09-22 | 56 | QDSD0101vSGS-L-NK-20

## SMSC KPI Reports

The SMSC system has several Tableau Dashboards and worksheets that contain visualizations of the KPIs. The workbook contains one dashboard. The dashboard contains controllers that filter the data according to user specifications.

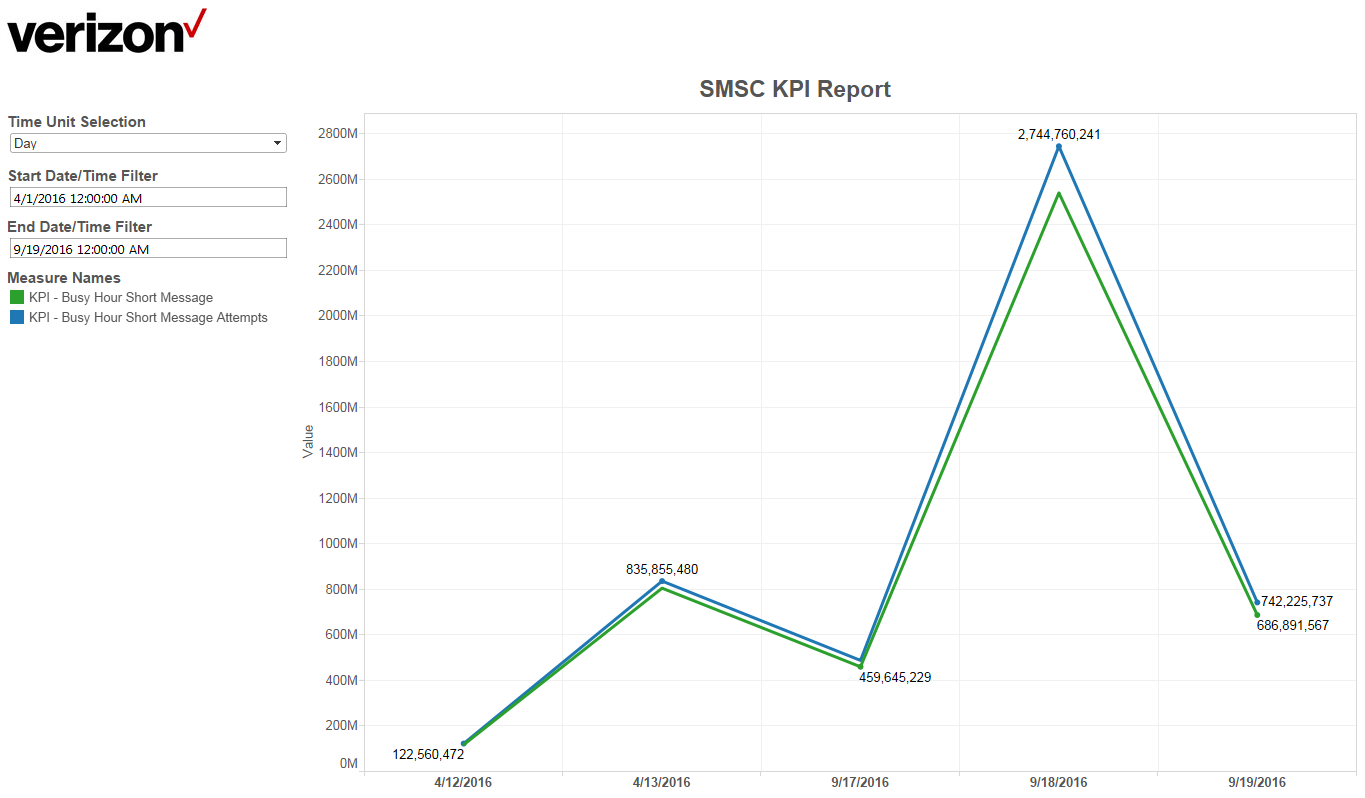
The following lists the report in bold, followed by the KPI that is visualized in that report (Click while holding the *ctrl* button to redirect to that KPI’s definition):

* **SMSC KPI Report**
  + [Busy Hour Short Message](#_KPI_–_Busy)
  + [Busy Hour Short Message Attempts](#_KPI_–_Busy_1)

The following dimensions can be used to drill down data into a more defined granularity as needed by the user:

* **Time Unit Function**
  + Hour/Day/Month/Year, etc.
* **Time Range:**
  + Start Time
  + End Time

### SMSC KPI Report Dashboard



1. SMSC KPI Report dashboard

The following filters and parameters can be used in this dashboard:

| Filter/Parameter | Filter/Parameter Name | Description |
| --- | --- | --- |
|  | Time Unit Selection | Allows the user to filter by various date/time units that will affect the worksheet displayed on the dashboard. User can filter by year, quarter, month, day, hour and minute. |
|  | Start Date/Time Filter | Allows the user to filter by a specific start date/time value that will be included as the start time of a date range filter. |
|  | End Date/Time Filter | Allows the user to filter by a specific start date/time value that will be included as the end time of a date range filter. |

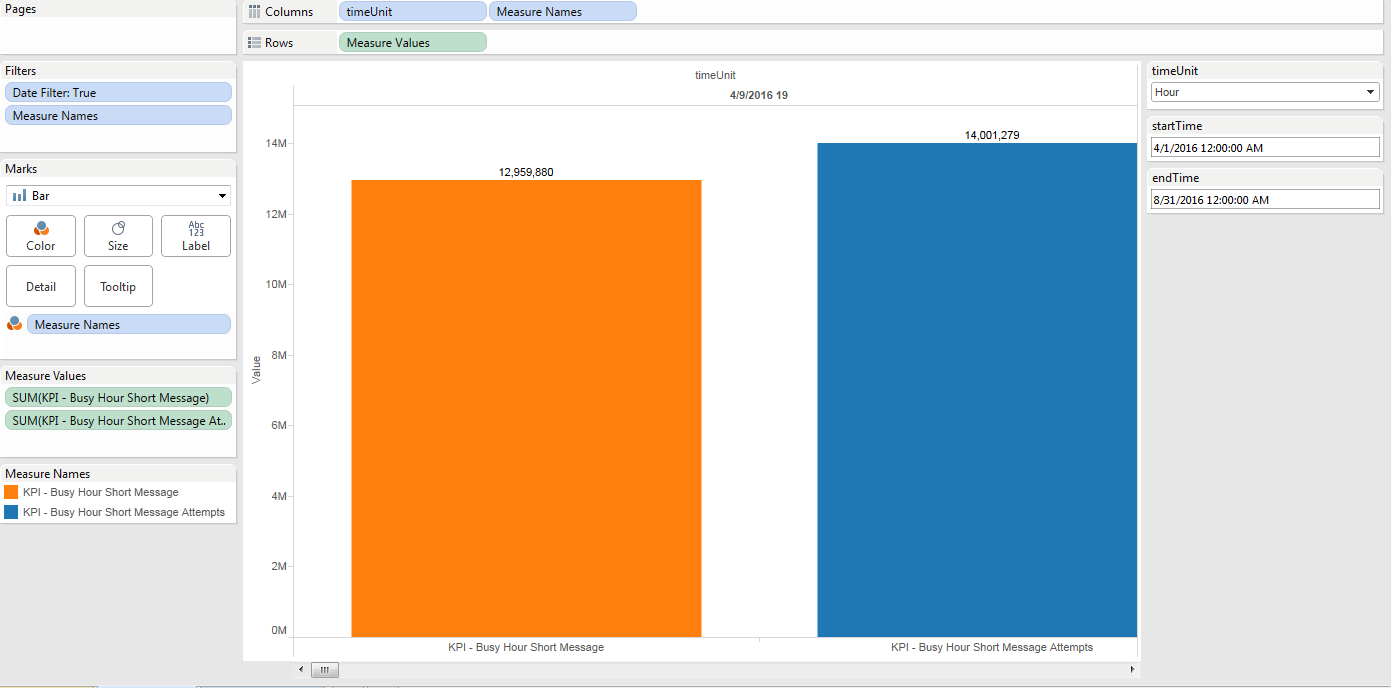
1. SMSC KPI Report Dashboard filter

When a user clicks on a particular KPI point in the line graph, the user will be redirected to the KPI’s corresponding worksheet where there are able to view/edit the KPI in a more defined granularity. The following table contains the KPI dashboard to worksheet redirection information:

|  |  |
| --- | --- |
| **KPI** | **Worksheet Redirection** |
| KPI-Busy Hour Short Message | BusyHourSM |
| KPI-Busy Hour Short Message Attempts | BusyHourSM |

1. SMSC KPI to Worksheet Redirection Table

#### BusyHourSM Worksheet



1. BusyHourSM worksheet

This worksheet contains KPI information pertaining to the following KPIs (click on KPI below to be directed to its definition):

• KPI-Busy Hour Short Message

• KPI-Busy Hour Short Message Attempts

The following filters and parameters can be used in the worksheet:

| Filter/Parameter | Filter/Parameter Name | Description |
| --- | --- | --- |
|  | timeUnit | Allows the user to filter by various date/time units that will affect the worksheet displayed on the dashboard. User can filter by year, quarter, month, day and hour. |
|  | startTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the start time of a date range filter. |
|  | endTime | Allows the user to filter the worksheet by a specific start date/time value that will be included as the end time of a date range filter. |
|  | Measure Names | Allows the user to filter the graph on the work sheet by selected KPIs on the list. Click on the element(s) you would like to filter. |

1. BusyHourSM worksheet filters

##### KPI – Busy Hour Short Message

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | BusyHourSM |
| **Vertica Table Used** | SPA\_merge |
| **KPI Definition** |  |

1. KPI – Busy Hour Short Message Definition

**Sample SQL Query (based on timeUnit of Day/Hour):**

**SQL:**



**Result:**

**Sample SQL Query (based on timeUnit of Day/Hour):**

**SQL:**

SUM | schedTimeDay | schedTimeHour

--------------------+---------------------+--------------------------

0.000 | 2016-04-12 | 3

0.000 | 2016-04-12 | 11

0.000 | 2016-04-12 | 12

0.000 | 2016-04-12 | 14

0.000 | 2016-04-12 | 6

0.000 | 2016-04-12 | 7

0.000 | 2016-04-12 | 9

0.000 | 2016-04-12 | 10

0.000 | 2016-04-12 | 13

0.000 | 2016-04-12 | 15

18727059.000 | 2016-04-12 | 16

23574448.000 | 2016-04-12 | 17

0.000 | 2016-04-12 | 4

0.000 | 2016-04-12 | 5

0.000 | 2016-04-12 | 8

23570088.000 | 2016-04-12 | 18

1. rows)

##### KPI – Busy Hour Short Message Attempts

|  |  |
| --- | --- |
| **Item** | **Definition** |
| **Tableau Worksheet** | BusyHourSM |
| **Vertica Table Used** | SPA\_merge |
| **KPI Definition** |  |

1. KPI – Busy Hour Short Message Attempts Definition

**Sample SQL Query (based on timeUnit of Hour and Dimension MME):**

**SQL:**

****

**Result:**

SUM | schedTimeDay | schedTimeHour

--------------------+---------------------+----------------------------

0.000 | 2016-04-12 | 3

0.000 | 2016-04-12 | 11

0.000 | 2016-04-12 | 12

0.000 | 2016-04-12 | 14

0.000 | 2016-04-12 | 4

0.000 | 2016-04-12 | 5

0.000 | 2016-04-12 | 8

24879244.000 | 2016-04-12 | 18

0.000 | 2016-04-12 | 6

0.000 | 2016-04-12 | 7

0.000 | 2016-04-12 | 9

0.000 | 2016-04-12 | 10

0.000 | 2016-04-12 | 13

0.000 | 2016-04-12 | 15

19903838.000 | 2016-04-12 | 16

24884422.000 | 2016-04-12 | 17

**Sample SQL Query (based on timeUnit of Day and Dimensions of MME and Machine):**

**SQL:**

**Results:**