Real-time Visualizations
How to visualize real-time data with custom charts

Eduardo Fernández Díaz, MicroStrategy World 2018 Las Vegas
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Agenda

• What is Real-time?
• Demo Architecture
• Data production
• Real-time plugin
• Live demonstration
Real-Time Visualizations
How to visualize real-time data with custom charts
What is Real-time?

“Near” Real-time (NRT)

• Traditionally: you look for the data
• The data is collected but not necessarily integrated instantly
• Process the data every day / hour / minute
• Speed is important but processing time in minutes is acceptable

Real-time

• Data comes to you
• Collect and integrate the data as soon as changes
• Continual input
• Constant processing
• Steady output of data
• Use cases:
  • Data streaming
  • Sensor networks
  • Bank ATMs
Demo Architecture

REST API

Streaming Process

Data Input

Kafka Data Queue

Kafka Consumer

HTTP Request

JSON API Server

Intelligent Cube

Real-time visualization

MicroStrategy Web/Mobile

Push / Get

Data

Get

Intelligence Server

Intelligent

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Demo Architecture

REST API

Streaming Process

Data Input → Kafka Data Queue → Kafka Consumer → HTTP Request

- JSON API Server
  - Push / Get Data
  - Data
  - Get

- Intelligent Cube
  - MicroStrategy Web/Mobile
  - Real-time visualization
MicroStrategy REST API
The heart of the platform

JSON Data API 10.4
• Stand alone server (deprecated)

• Reduced number of API Families:
  • Sessions
  • Cube
  • Datasets
  • Reports

• Only available until 10.10
MicroStrategy REST API
The heart of the platform

REST API from 10.9

• Part of MicroStrategy REST server

• HTTP requests:
  • POST
  • GET
  • PUSH
  • DELETE

• Light-weight JSON data
MicroStrategy REST API
The heart of the platform

**REST API families**

- Expanded REST API families
- Extended functionality and more flexibility
Demo Architecture

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Streaming Data Process

Stream Processing
• Kafka data queue
• Kafka consumer
• ETL process built in Kettle
Streaming Data Process

Stream Processing

Apache Kafka Consumer

Get Variables

Write to log

Construct URI

Create Curl command

Executable script to launch CURL request.

Execute a process

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Visualization plugin

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JSON API Server

Get

Data
Real-Time Visualization Plugin
Built with MicroStrategy SDK

**Real-Time Plugin**
- Built using MicroStrategy SDK
- Fully integrated with the platform
- Available for VI and Report Services
- Use of several javascript libraries:
  - Jquery
  - D3.js
  - Amcharts.js
Real-Time Visualization Plugin
Built with MicroStrategy SDK

Real-time Plugin
• Parameters using a standard data grid
• Use of REST API server to obtain the data.
• Different types of contents and charts
• Especial behaviors
Are you missing Anything?

Streaming Process

Kafka Data Queue → Kafka Consumer

HTTP Request

Intelligence Server

MicroStrategy Web/Mobile

Intelligent Cube

Real-time visualization

JSON API Server

Push / Get Data

Get Data
Data Input

Real-Time Data Input

• Social network interactions: Twitter, Facebook, Instagram...
• Telemetry systems
• Smart Cities
• IoT
• Random number generator
• Voice as data input?
Data Input

Alexa Echo

• Voice control
• Transforms order voices in actions
• Special Custom Skill
• Custom Lambda Function
Full Demo Architecture

Streaming Process

Data Input

Kafka Data Queue → Kafka Consumer

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Intelligent Cube

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Data

Get
Product Demonstration
Sentences Analysis
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