Push API

How to create in-memory cubes for MicroStrategy from custom data sources

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A Little Bit About Myself

Henri-François is a Senior Sales Engineer at MicroStrategy France. He has strong functional and technical experience, which makes him a key resource for BI professionals, business users, and executives.

Henri-François is the initiator of the MicroStrategy 2-minute videos, a collection of quick demos regarding various functional and technical real-world examples.

He spent many years working for both small businesses and large corporations, and has developed a unique set of skills across all major industries (retail, healthcare, manufacturing, services, insurance, etc.), functional areas (sales, HR, finance, marketing, etc.) and technical expertise (cloud, mobile, analytics, architecture).

This grounding is greatly appreciated by the large accounts that he works closely with on a day-to-day basis.
Common Data Publishing Workflows
How hard can it be to get accurate data in a timely fashion?

Data Pull

OLTP
ERP
CRM
CSV

Validate → Clean → Transform → Aggregate → Load

ETL

Data Warehouse

OLAP
Data Mining
Reporting
Alerting

BI

April  May  June  July  August

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Pros and Cons of a “Pull Data” Workflow

Historically, Enterprise Data Warehouses have used the pull data model

**Pros:**
- Most fault tolerant
- Could be re-executed if anything went wrong
- Lose coupling between data source/storage and data consumer

**Cons:**
- Lack of real time information
- If pull is time scheduled, any failure call lead into delays
- Often less efficient pull process to discover what changed and only apply changes
Alternative workflows to traditional Enterprise ETL

Push and Search
Common Data Publishing Workflows

How hard can it be to get accurate data in a timely fashion?

Data Push

Stream / Subscription

ETL / ELT / Data Preparation

Enterprise Distributed Data Storage

OLAP

Data Mining

Reporting

Alerting

BI

Event 1

Event 2

Event 3

Event 4

Event 5

Service provider

OLTP

ERP

CRM

CSV
Common Data Publishing Workflows
How hard can it be to get accurate data in a timely fashion?

Data Search

Validate | Clean | Transform | Aggregate | Load

Stream / Subscription

ETL / ELT

Active Enterprise Distributed Data Storage

OLAP

Data Mining

Reporting

Alerting

BI

Service provider

OLTP

ERP

CRM

CSV

Request 1

Request 2

Request 3

Request 4

Request 5

...
MicroStrategy Capabilities to Help Address Common Application Challenges
MicroStrategy Capabilities
Did you know about all of them?

**MicroStrategy Triggers**
- Cube refresh and Report execution can leverage triggers that can be time- or event-based

**MicroStrategy XQuery**
- Is the language for querying XML data. XQuery for XML is like SQL for databases
- It is built on XPath expressions
- Is a W3C Recommendation (2007)
- While originally for XML, XQuery was extended to also work with JSON data sources (Web Services or Files)
- Allows for End-user-, time- or event-triggered execution
- Could be used with prompts

**MicroStrategy Data Import**
- Enhanced with MicroStrategy 10.7 “Data Connector SDK” to allow custom 3rd party connectors to various data sources
- The Data Connector SDK-built component can be used in various data refresh scenarios that are End-user-, time- or event-triggered

**MicroStrategy REST APIs**
- Starting with MicroStrategy 10.6, the MicroStrategy REST APIs offer the ability to have a 3rd party application create a in-memory cube on the MicroStrategy Platform
- With MicroStrategy 10.7, the 3rd party application can incrementally update the data inside an existing cube
- With MicroStrategy 10.9, REST APIs have been merged with MicroStrategy Library
MicroStrategy Data Management API
Data Push API released with MicroStrategy 10.6

Authentication end-point
• The /Sessions end-point allows for creating and closing session with the MicroStrategy system [Standard, LDAP]

Datasets end-point
• The /Datasets end-point allows for operations on in-memory cubes
• The end-points support for
  • Creating a new Intelligence Server in-memory cube [10.6]
  • Define Attributes / Metrics and their mapping [10.6]
  • Append data to an existing in-memory cube [10.7]
  • Replace/Update data in an existing in-memory cube [10.7]

Deployment
• Deployed by default on the MicroStrategy Cloud environments
• Separate download for on-premise deployments (https://software.microstrategy.com/)
• Deployed by default on MicroStrategyLibrary [10.9]
MicroStrategy Data Push API Capability

Anticipated use cases

__Non-MicroStrategy triggered data refresh workflows__
- Seamless integration with existing data preparation workflows / software (Paxata, Alteryx, Lavastorm, etc.)
- More efficient incremental data refresh processes

__Near real-time data publishing__
- Data Subscription-models can now easily integrate directly with MicroStrategy and keep the data flowing to populate Intelligent Cubes (Kafka, Censors, etc.)
MicroStrategy Data inside a 3rd Party Application: Data Push REST API

MicroStrategy-powered analytics applications

Push Data API

- Easy-to-use REST API to push data directly to the MicroStrategy Intelligence Server into a cube data structure
- Allow third party front-end or back-end applications to leverage transactional write back to MicroStrategy

What can you do with the APIs:

- Push data into new MicroStrategy data import cubes
- Append or update data in existing dataset data (row level)
- Leverage JSON Data API in subsequent requests to get dataset data in JSON format

```json
{
  "datasetId": "21F855B44A5B75E4E16089BD1A092B9E",
  "name": "Demo",
  "tables": [{
    "id": "E281851C158933CA4983912447173529",
    "name": "SALES_TABLE"
  }]
}
```

- Data Push APIs migrated to new RESTful server in 10.9
- Higher security with 10.9 will require some minor updates for session creation for code written before 10.9
- Stand-alone Data Push API Server deprecated but still available until 10.10
MicroStrategy JSON Data API
Documentation and sample online

https://lw.microstrategy.com/msdz/MSDL/_CurrentGARelease/docs/projects/WebSDK/Content/topics/json/JSON_Data_API_Uploading_External_Data.htm

https://developer.microstrategy.com/
To access the developer library

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MicroStrategy REST APIs

Deployment scenarios

**MicroStrategy as Data-as-a-Service provider for any type of application**

End User → 3rd party application → MicroStrategy REST Server → Intelligence Server

Internet | Firewall | DMZ | Firewall | Application Tier

**MicroStrategy as Analytics-as-a-Service provider for analytic applications**

End User → 3rd party application → MicroStrategy REST Server → Intelligence Server

Internet | Firewall | DMZ | Firewall | Application Tier
Demos

IoT – Real-Time In-Memory Analytics
MicroStrategy 2 minutes – Agile BI

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How it works

Driver=2017XYZ

Database

FTP Server

Pitch=358; Roll=4...

Real Time Stream of data...

MSTR Cube

MSTR Server

2017XYZ=HF
Key Takeaways for IoT

**Powerful In-Memory Engine**

**In-Memory Push API**

**Near Real-time Dashboards**

**R Scoring capabilities**
Top 5 Use Cases

• Insurance contract optimization

• Industry 4.0 - Manufacturing automation

• Supply Chain Alerts consolidation

• Real Time sales monitoring

• Digital Marketing
Internet of Things – To Go Further
Options and considerations

Use Usher to generate logs and activity

Stream multiple devices in Kafka

Index it with search engines

Use MicroStrategy Connector SDK or Web Services APIs

Quickly create your own analytics dashboards
Thank You!