

# DSX Desktop



# Introducing the Data Science Experience



## Learn

Built-in learning to get started or go the distance with advanced tutorials



## Create

The best of open source and IBM value-add to create state-of-the-art data products



## Collaborate

Community and social features that provide meaningful collaboration



External URL: <http://datascience.ibm.com>  
Internal ZACS Page: <https://ibm.biz/BdrDv5>

# Data Science Experience - in 3 flavors

## ▪ **datascience.ibm.com in the Bluemix Public Cloud**

- [Easy to get started](#) with a *Bluemix* account – no installation needed. Pay as you go for the resources you use. Work with IBM Bluemix Spark-as-a-service for compute and use Bluemix Object store for storage
- Get access to RStudio, Jupyter notebooks and collaborate in the cloud
- Integrate with data sources in Bluemix and organize data assets into a Catalog (Beta)

## ▪ **DSX Desktop (Beta)**

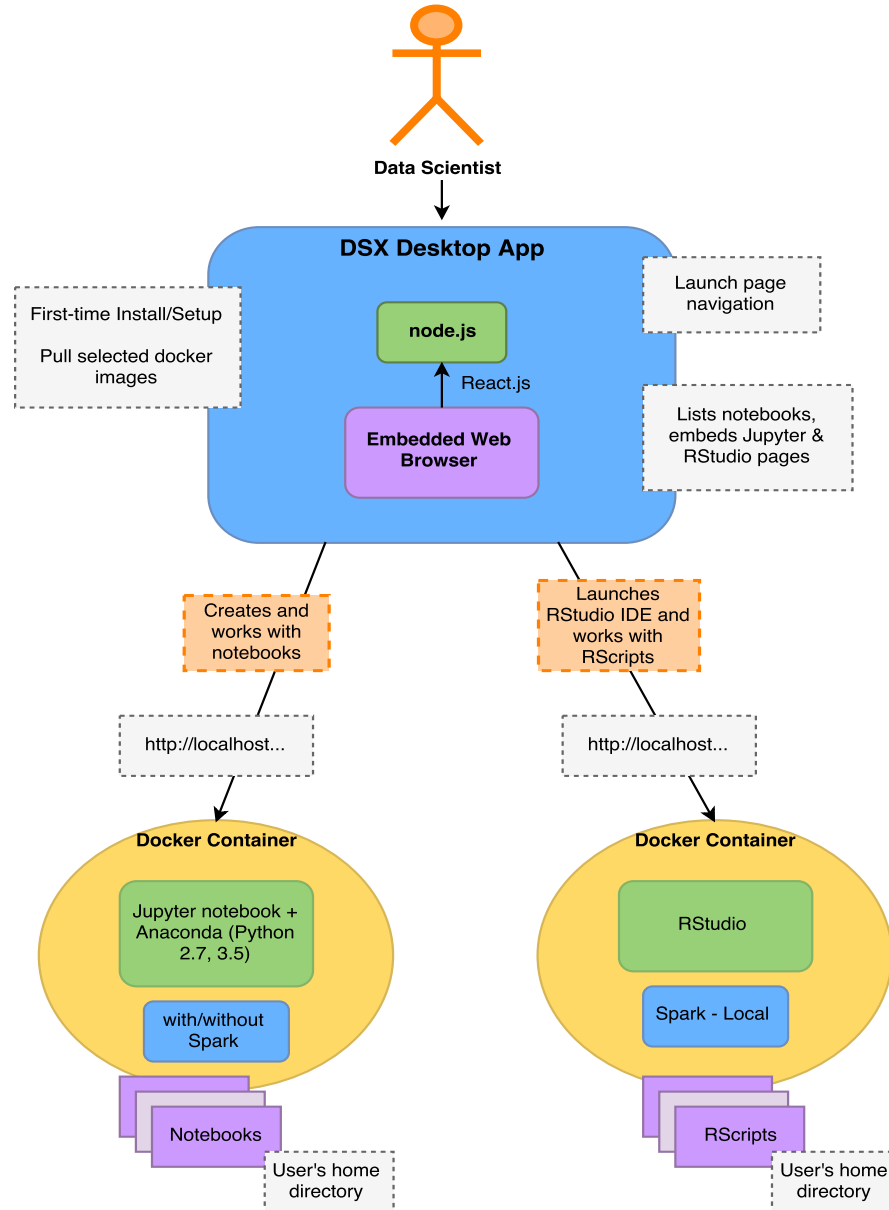
- Easy install [on your laptop](#). Restricted to the horse power of your laptop (cannot be scaled)
- Get access to RStudio, Jupyter notebooks and work with a [small](#), local single Spark worker.
- Access csv files for Data Frames in your Jupyter notebooks and R Studio

## ▪ **DSX Local (Private Cloud)**

- Scalable cluster deployed in your own data center on-prem [behind your firewall](#) or in a private cloud.
- Manage user access (LDAP) and work with RStudio, Jupyter notebooks and collaborate with other users in your enterprise. Includes embedded object store for csv files and Connections capability to work with on-prem data sources.
- Leverage the out-of-the-box Spark cluster and grow compute resources as needed.

# What is DSX Desktop?

- **DSX Desktop is a desktop platform which provides simple access to complex analytics**
- **DSX Desktop is similar to the public and private cloud versions of DSX**
  - It provides access to commonly used tools for data scientists such as
    - Jupyter notebooks
    - RStudio
  - It includes numerous analytics libraries and functions
- **DSX Desktop runs on the user's laptop**
  - Support for Windows, Mac, and Linux
- **DSX Desktop comes with all the software it needs to run**



# IBM Data Science Experience

## ALL YOUR TOOLS IN ONE PLACE

IBM Data Science Experience is an environment that brings together everything that a Data Scientist needs. It includes the most popular Open Source tools and IBM unique value-add functionalities with community and social features, integrated as a first class citizen to make Data Scientists more successful.



# Core Attributes of the Data Science Experience Desktop



IBM Data Science Experience

## Community

- Find sample notebooks

## Open Source

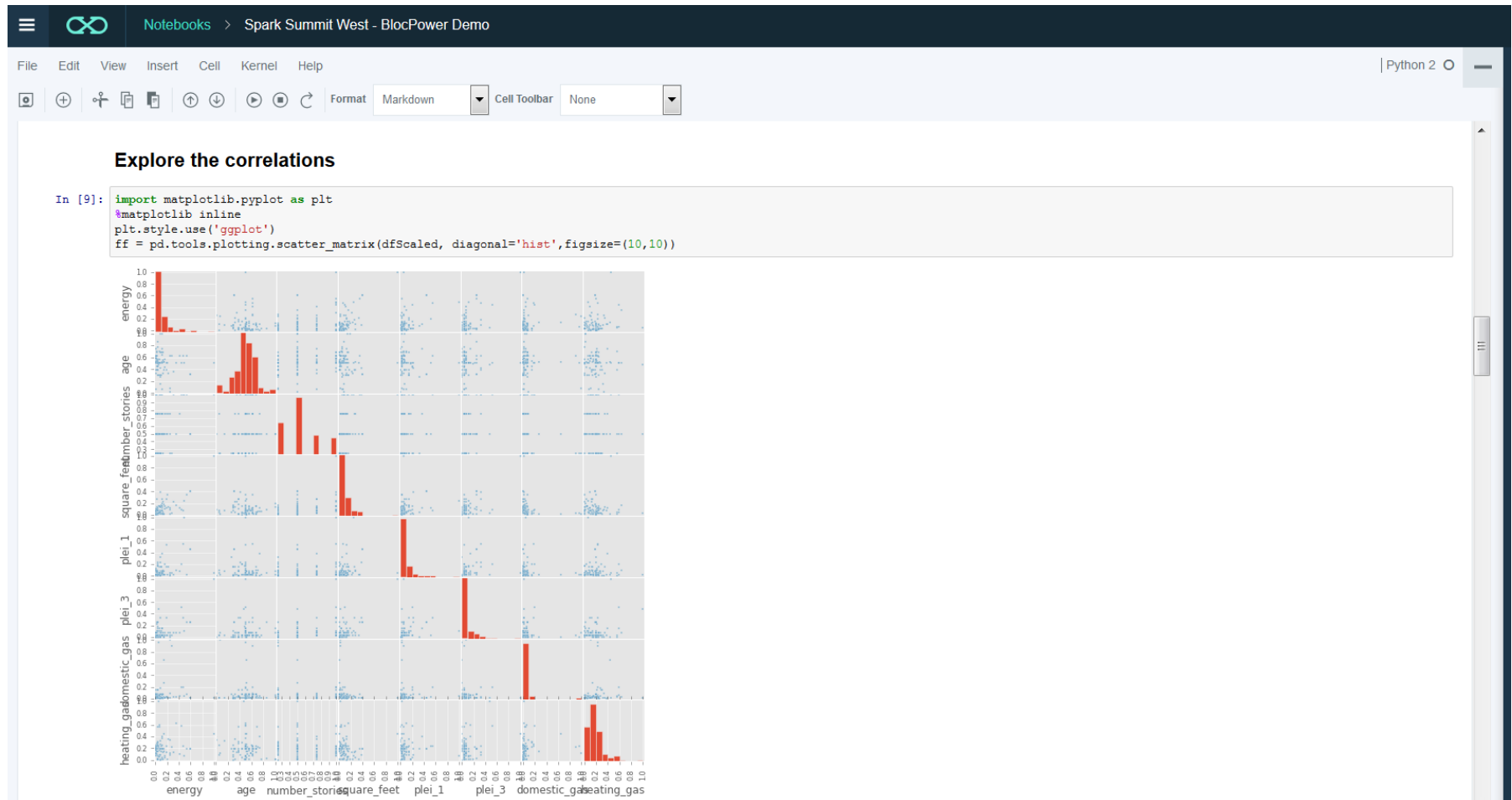
- Code in Scala/Python/R/SQL
- Jupyter Notebooks
- RStudio IDE and Shiny
- Apache Spark
- Your favorite libraries

## IBM Added Value

- Prescriptive Analytics – Docplex

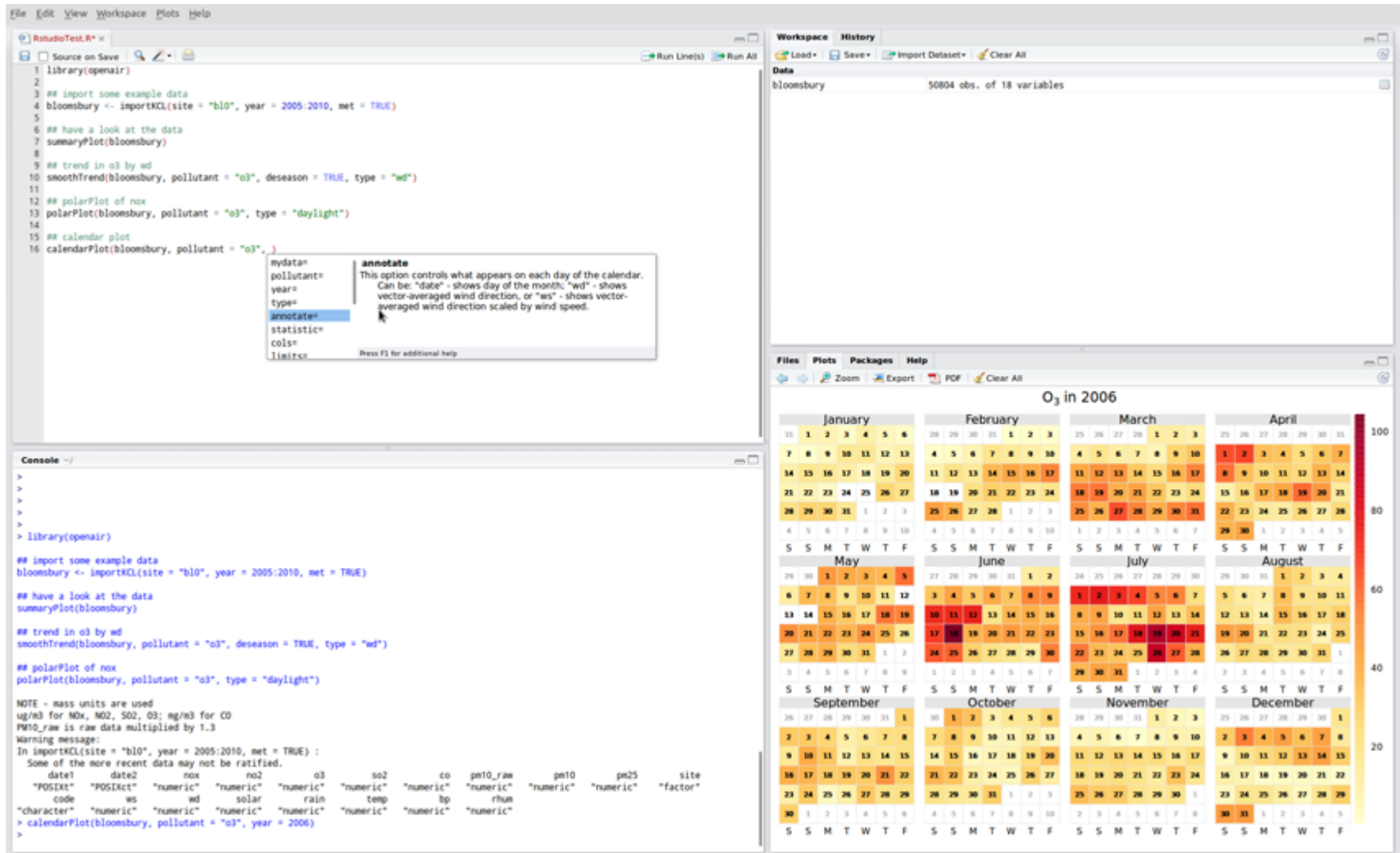
Powered by IBM **Watson Data Platform**

# Integrated Jupyter Notebooks for interactive and collaborative development - seamless execution on Spark

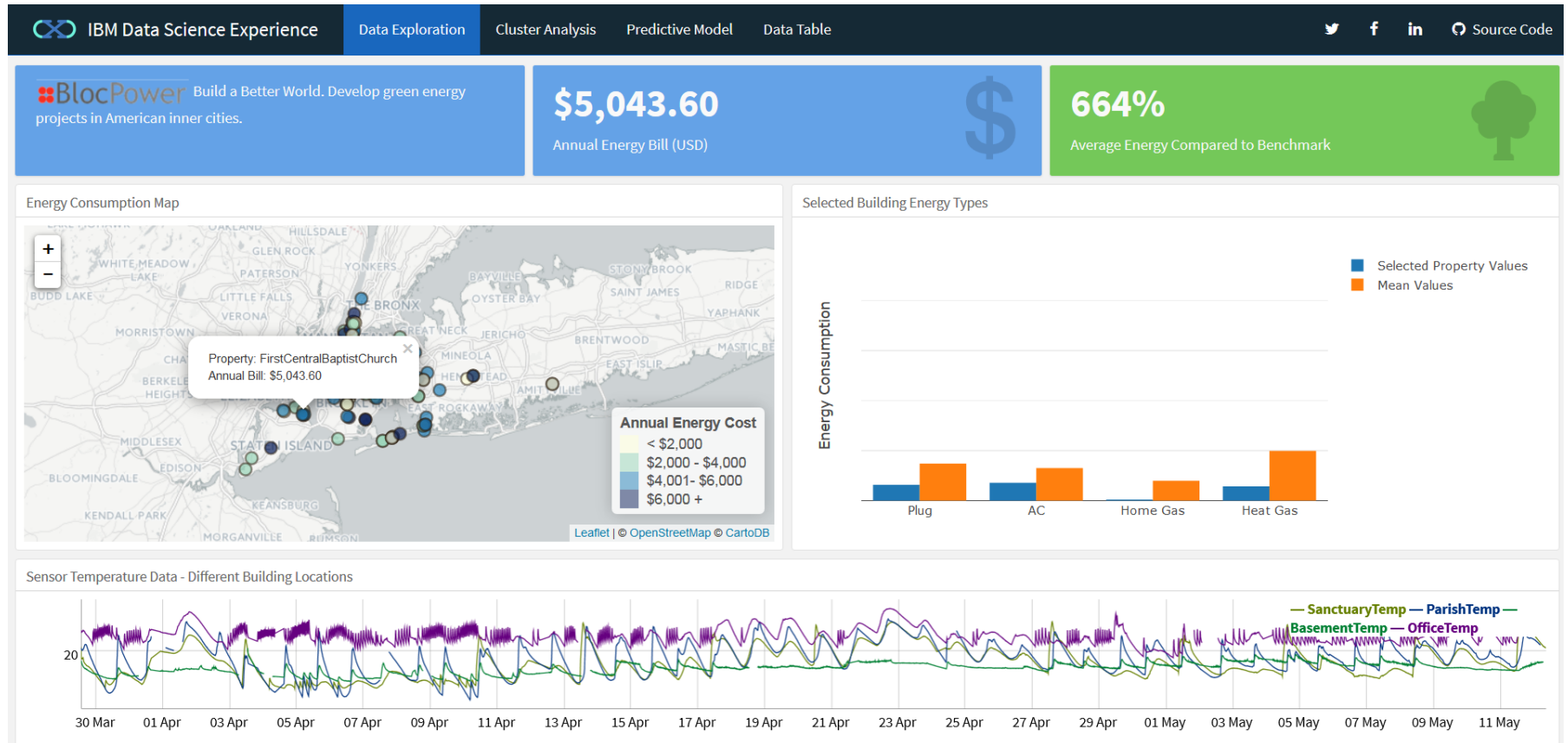




# DSX has RStudio built into the experience thanks to our strategic partnership



# With RStudio you can create Shiny web applications to make your analysis accessible to the business



# IBM Decision Optimization for DSX via API calls to DOcplex

Bank Marketing Campaign. - IE x

https://apsportal.ibm.com/analytics/notebooks/1ef3b1b9-5d97-4c6e-89ee-3efb53210d07

Notebooks > Bank Marketing Campaign. Marketing Campaign Planning demo

File Edit View Insert Cell Kernel Help

Python 2

Let's create the optimization model to select the best ways to contact customers and stay within the limited budget.

**Step 1: Set up the prescriptive engine**

- Subscribe to the Decision Optimization on Cloud solve service [here](#).
- Get the service URL and your personal API key and enter your credentials here:

First import *docplex* and set the credentials to solve the model using IBM ILOG CPLEX Optimizer on Cloud. *docplex* is already installed.

```
In [12]: import sys
import docplex.mp

In [13]: url = "https://api-oaas.doccloud.ibmcloud.com/job_manager/rest/v1/"
key = "api_f550300e-8e52"
```

**Step 2: Set up the prescriptive model**

Create the model

```
In [14]: from docplex.mp.model import Model

mdl = Model(name="marketing_campaign")
```

Warning: CPLEX DLL not found and model has no DOcloud credentials. Provide credentials at solve time

Define the decision variables

- The integer decision variables *channelVars*, represent whether or not a customer will be made an offer for a particular product via a particular channel.
- The integer decision variable *totalOffers* represents the total number of offers made.
- The continuous variable *budgetSpent* represents the total cost of the offers made.

```
In [15]: offersR = xrange(0, len(offers))
productsR = xrange(0, len(products))
channelsR = xrange(0, len(channels))

channelVars = mdl.binary_var_cube(offersR, productsR, channelsR)
totalOffers = mdl.integer_var()
budgetSpent = mdl.continuous_var()
budgetMax = mdl.integer_var(lb=availableBudget, ub=availableBudget, name="budgetMax")

In [16]: print("we created %d decision variables for this problem" % (len(offersR)*len(productsR)*len(channelsR)+1+1))
```

Decision Optimization on Cloud (DOcplexcloud) credentials used inside DSX

- (1) Purchase DOcplexcloud on IBM Cloud Marketplace
- (2) Receive credentials
- (3) Enter credentials into DSX

Plenty of samples and tutorials available within DSX



thank you!