



Moscow, Nov 20th 2019

IBM Watson AI Overview

Everything you need for Enterprise Data Science, on any cloud



Jean-Luc Collet

Analytics & Cognitive Solutions Architect

IBM Thought Leader Certified IT/Specialist

Member of the IBM Academy of Technology Leadership Team

<https://www.linkedin.com/in/jean-luc-collet>



Agenda

- **Welcome and Introductions (10:00)**
- 1. **Overview of IBM AI Ladder & Watson AI family products (10:30)**
 - Overview of Watson Studio, Watson Machine Learning, Watson OpenScale, Watson Applications & Services
 - Lab 0 : Getting Started with IBM Cloud

BREAK

- 2. **Watson AI for AI, optimization & Designing with Watson Studio**
 - Overview (AutoAI & AutoML)
 - Lab 1 : Data Science end to end pipeline automated (AutoAI)
 - AutoML with IBM NeuNets
 - Lab 2 : NeuNets (Neural Network Synthesis for Classification in clicks)
- **Lunch break (13:00-14:00)**

- 3. **AI Governance with IBM Watson OpenScale**
 - Overview (Fairness, Explanability, Bias mitigation)
 - Lab 3 : Loan Credit risk analysis
 - Lab 3 bis : Multi-Class Image Explainability

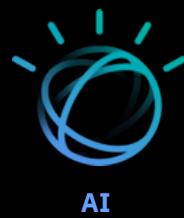
BREAK

- 4. **AI robustness & security with Watson Studio & IBM Research ART**
 - Security of AI : Challenges & Solutions (Data Poisoning, Evasion Attacks & Defenses, BlackBox Attacks,.. How to protect your Models from Adversarial attacks)
 - Lab 4 : Deep Learning Adversarial attacks & defenses with IBM ART (Adversarial Robustness Toolbox) toolbox
- **Wrap Up for Day 1 (17h)**



The AI Ladder

A prescriptive, proven approach to accelerating the journey to AI



AI

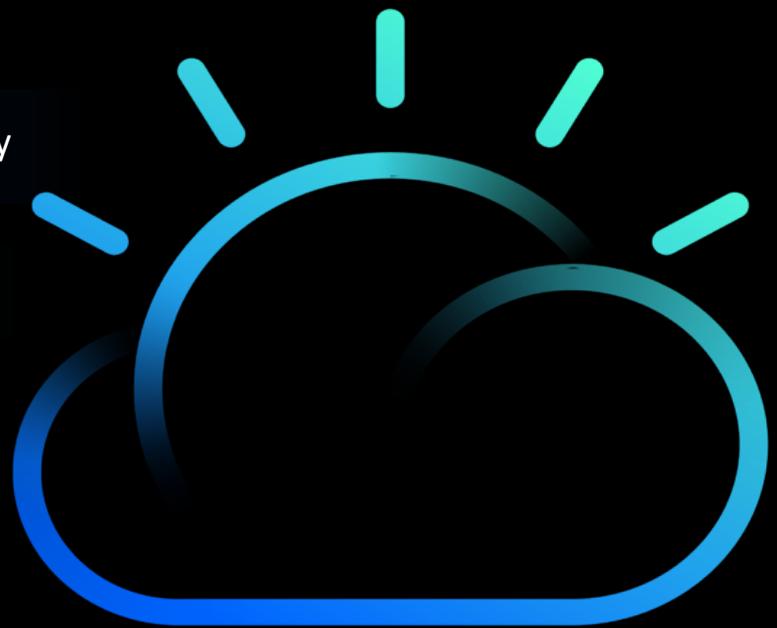
INFUSE – Operationalize AI with trust and transparency

ANALYZE - Scale insights with AI everywhere

ORGANIZE - Create a trusted analytics foundation

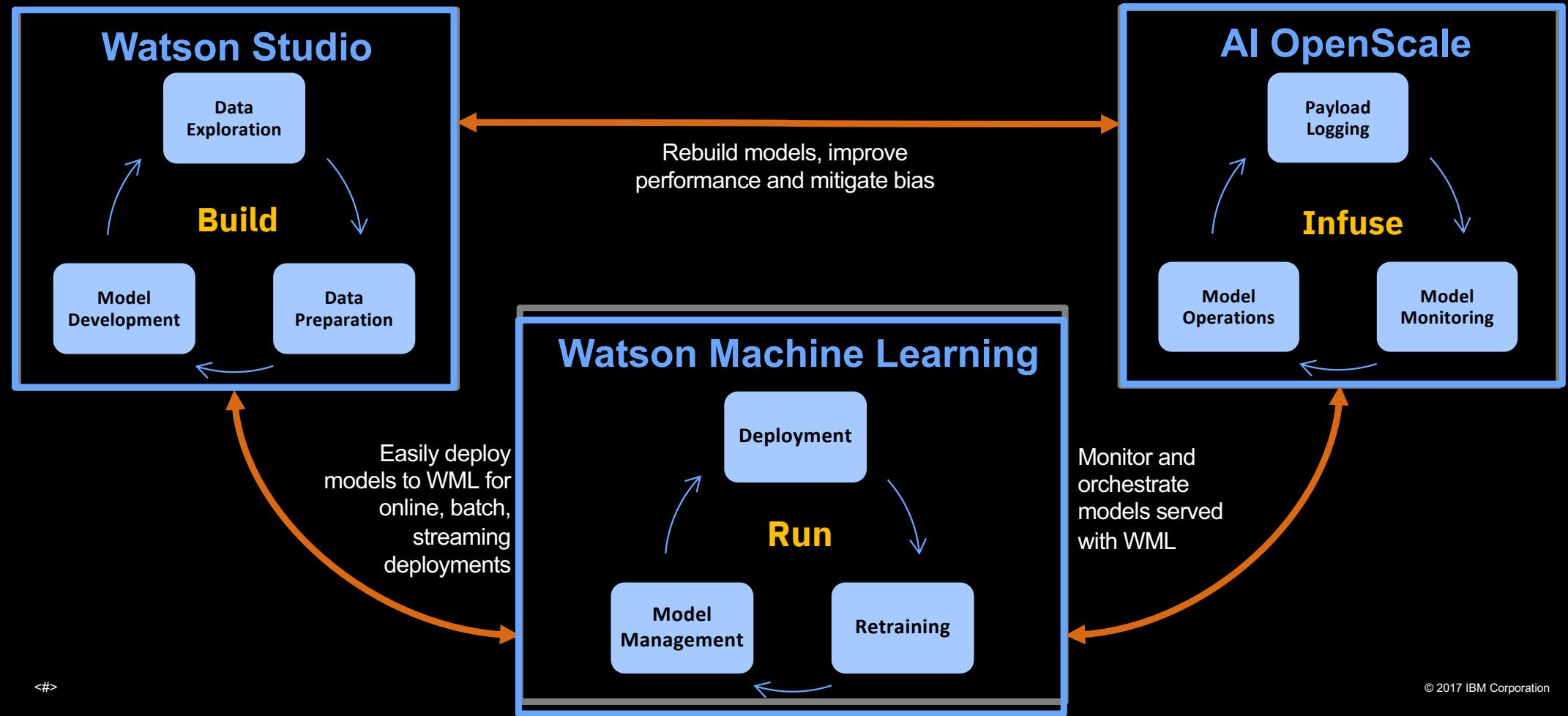
COLLECT - Make data simple and accessible

Data of every type,
regardless of where it lives



MODERNIZE
your data estate for an
AI and multicloud world

Build, Operationalize and Infuse AI/ML/DL with trust



IBM Watson Studio

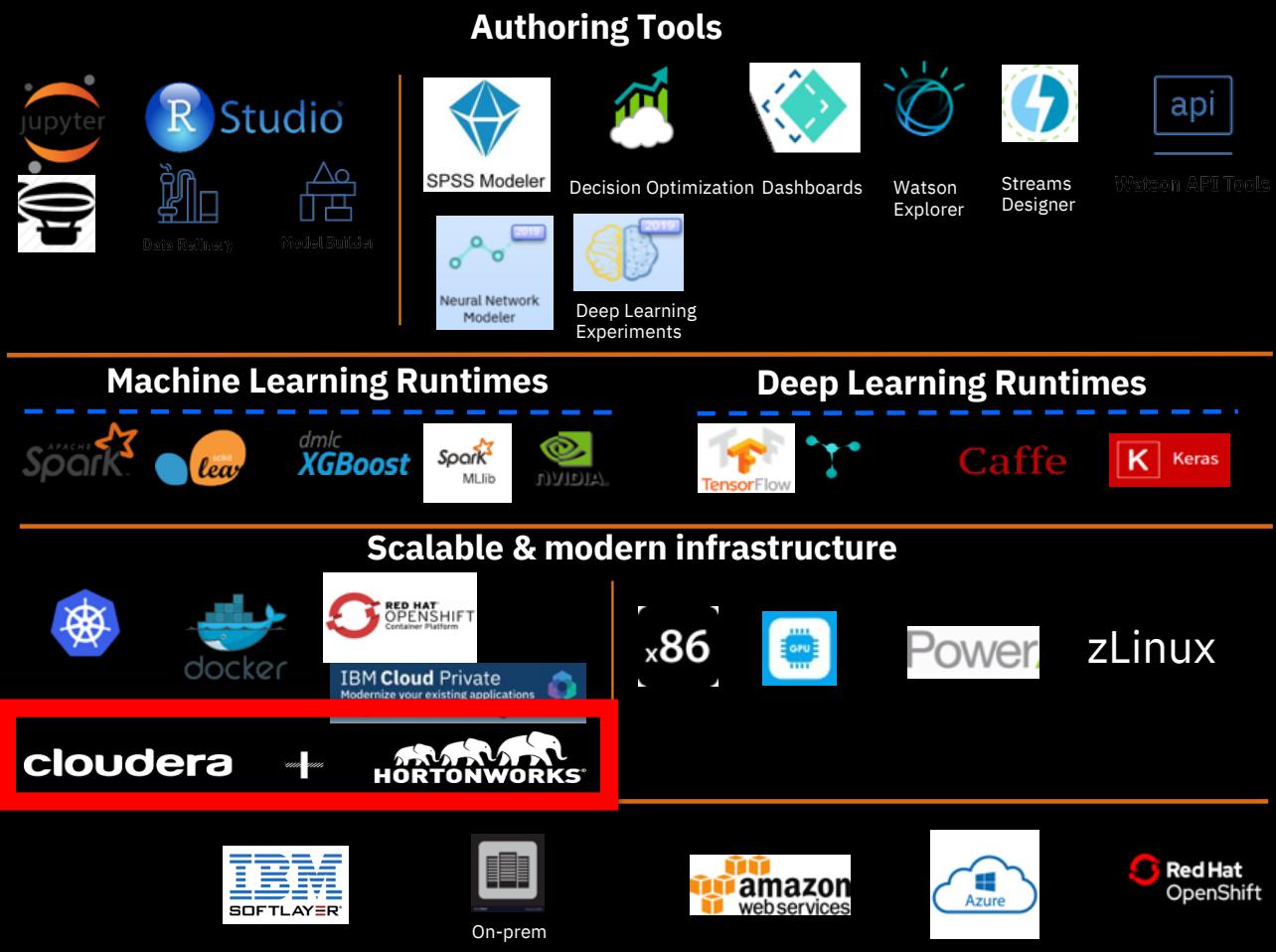
Accelerate time to value for data science discovery

- Create, collaborate, govern and integrate
- Open source & IBM tools
- Code (R, Python or Scala) and no-code/visual modeling tools

- Most popular open source frameworks
- IBM best-in-class frameworks
- Workflow driven data science

- Container-based resource management
- Elastic pay as you go cpu/gpu power
- Run on x86, Power, zLinux
- Integrate with Cloudera and HDP using Hadoop Integration service

- Train and deploy where your data lives
 - As a Fully managed Service
 - In your Data center
 - On AWS, Azure, IBM Soft layer



Watson Studio Community

- **Get started with Notebooks, Data Sets, and Tutorials that you can try in your Watson Studio project**
- Use filters and search to find what you are interested in
- Add Notebooks from the Community directly to your Project ready to run
- Give feedback
- If you want to contribute assets let us know

The screenshot shows the Watson Studio Community interface. At the top, there's a navigation bar with links for IBM Watson Studio, Projects, Catalog, Community, Services, Docs, Support, and Manage. On the right, it shows a user profile (1716985 - Thomas Sch...), a notification bell, and a 'Create new' button.

On the left, a sidebar contains 'All filters' and 'Reset filters' buttons. Under 'Format', 'Notebook' is selected. Other filter categories include Language (Python, R, Scala) and Technology (Data Exploration, Data Science, Data Shaping, Decision Optimization, Deep Learning).

The main area displays 'Search results (90)' with a 'Sort by: Most Related' dropdown. The results are organized into four columns of four notebooks each. Each notebook card includes a thumbnail, title, author, date, topic, and a 'View' button.

Below the search results is a workspace titled 'IBM Watson Studio'. It shows two code snippets in 'In [5]' and 'In [6]'. The first snippet visualizes price vs. accommodates and nightly rental price. The second snippet groups data by neighborhood and calculates average prices. Below the code are two plots: a scatter plot of 'Nightly Price vs. Persons Accommodated' and a density plot of 'Price Density by Room Type'.

Work with Projects

- Browse or search for existing projects under *My Projects*

The screenshot shows the 'My Projects' section of the IBM Watson Studio interface. At the top, there's a search bar labeled 'Find project by name' and a dropdown menu set to 'All projects'. Below is a table with columns: NAME, ROLE, STORAGE, COLLABORATORS, CREATOR, DATE CREATED, and ACTIONS. The table lists various projects such as 'Test 2932388', 'Data Engineering', 'Notebook Project', etc., each with details like creator (Thomas Schaeck), date created (3 Dec 2018), and storage (COS).

NAME	ROLE	STORAGE	COLLABORATORS	CREATOR	DATE CREATED	ACTIONS
Test 2932388	Admin	COS	Thomas Schaeck	3 Dec 2018		
Data Engineering	Admin	COS	Thomas Schaeck	22 Nov 2018		
Notebook Project	Admin	COS	Thomas Schaeck	22 Nov 2018		
Test Standard Project	Admin	COS	Thomas Schaeck	22 Nov 2018		
T 12345	Admin	COS	Thomas Schaeck	11 Sep 2018		
AI Sphere - ECM	Admin	COS	Jiyoung Kim	29 Jun 2018		
AI ECM Demo	Editor	COS	Ryan Davis	26 Jun 2018		
Thomas Test Fest Basic Project	Admin	COS	Thomas Schaeck	14 Jun 2018		
Test289328937	Admin	COS	Thomas Schaeck	24 Apr 2018		
Test 219370193	Admin	COS	Thomas Schaeck	9 Apr 2018		
Product Team Watson Demo Sandbox	Admin	COS	WatsonDemo	24 Mar 2018		
Visual Recognition Project 3	Admin	COS	Thomas Schaeck	18 Mar 2018		
Test NLU Project 232323	Admin	COS	Thomas Schaeck	16 Mar 2018		
Test224	Admin	COS	Thomas Schaeck	1 Mar 2018		
Test 2932893	Admin	COS	Thomas Schaeck	1 Mar 2018		
Test233	Admin	COS	Thomas Schaeck	26 Feb 2018		

- Create new Projects based on project starters

You are now the administrator of your new project

Regardless of based on which project starter type you created your project, you can always switch on more capabilities in your project

The screenshot shows the 'Create a project' page. At the top, there's a back button and a title 'Create a project'. Below is a note: 'Choose the project starter for your work. Required services with Lite plans are provisioned automatically. You can add other assets and services later.' There are several project starter cards:

- Standard**: Work with any type of asset. Add services for analytical assets as you need them.
ASSETS: All
[Create Project](#)
- Data Science**: Analyze data to discover insights and share your findings with others.
ASSETS: Data • Notebooks
- Visual Recognition**: Tag and classify visual content using the Watson Visual Recognition service.
ASSETS: Data • Visual recognition model
- Deep Learning**: Build neural networks and deploy deep learning models.
ASSETS: Data • Modeler flow • Model • Experiment
- Modeler**: Build modeler flows to train SPSS models or design deep neural networks.
ASSETS: Data • Modeler flow • Model • Experiment
- Business Analytics**: Create visual dashboards from your data to gain insights faster.
ASSETS: Data • Dashboard
- Data Engineering**: Combine, cleanse, analyze, and shape data using Data Refinery.
ASSETS: Data • Data Refinery flow
- Streams Flow**: Ingest and analyze streaming data using the Streaming Analytics service.
ASSETS: Data • Streams flow

Manage Project Members

- After creating a project you see the Overview Page
 - Summary about Assets and Members
 - Recent Activity
 - Readme Info
- **Add members**, e.g. data scientists, business analysts, domain experts, stakeholders, ... whom you want to collaborate in your project
- **Members** can have one of the following roles
 - **Admin** – all rights incl deleting project
 - **Editor** – can add and edit assets and run things
 - **Viewer** – can only view assets but not change anything
- Project members can collaboratively add and work with assets and tools in the project

The image contains two screenshots of the IBM Watson Studio interface. The top screenshot shows the 'Overview' page for a project titled 'Auto Insurance Claims'. It displays basic project statistics: 352 Assets, 1 Bookmarks, and 93 Collaborators. Below these stats, there are sections for 'Recent activity' (listing recent logins and additions), 'Collaborators' (listing Sean Tabbert, Patrick Coughlin, and Erel Sharf), and 'Bookmarks' (listing one item). The bottom screenshot shows the 'Access Control' page for the same project. It lists all members with their names, emails, and current permission levels (Admin, Viewer, Editor). The 'Admin' permission level is highlighted with a blue border, indicating it is the selected role for a new member.

Name	Email	Permission	Status	Actions
Adam J. Massachi	adam.massachi@ibm.com	Admin	Active	⋮
Angishuman Roy	aroy@us.ibm.com	Viewer	Active	⋮
Anthony Casaleotto	acasaleotto@uk.ibm.com	Editor	Active	⋮
Armand Ruiz Gabernet	armand.ruz@us.ibm.com	Admin	Active	⋮
Arron La	arrona@us.ibm.com	Admin	Active	⋮
Awaiting Acceptance	john.e.popham@us.ibm.com	Editor	Pending	⋮
Awaiting Acceptance	jorgen.lindeman@ibm.com	Admin	Pending	⋮
Brandon Mackenzie	brandonn@ca.ibm.com	Admin	Active	⋮
Brandon Swink	swink@us.ibm.com	Admin	Active	⋮
Brent Walsh	walshbr@us.ibm.com	Admin	Active	⋮
Brock Coughlin	brock.coughlin@us.ibm.com	Admin	Active	⋮
Campbell Robertson	cir@ca.ibm.com	Admin	Active	⋮

Collaborate on Assets & Tools

- Overview tab shows project stats and recent activity
- **Assets** that can exist in a project
 - Data
 - Data Assets
 - Connections
 - Flows
 - Modeller Flows
 - Data Flows
 - Neural Network Flows
 - Notebooks
 - Scripts
 - Models
 - Watson Machine Learning Models
 - Decision Optimization Models (Add-On)
 - Visual Recognition Models (cloud only)
 - Natural Language Classification Models (cloud only)
 - Dashboards (Add-On)
 - Watson Explorer Collections (WSL Add-On)

The image displays two screenshots of the IBM Watson Studio interface, illustrating the management of assets and models within a project.

Top Screenshot (Assets Tab):

This screenshot shows the "Assets" tab in the Watson Studio interface. The left sidebar lists "Data assets" and "Models". The main area displays a table of assets, including:

Name	Type	Created By	Last Modified	Actions
airports.csv	Data Asset	Miri Choi	18 Dec 2018, 9:55:42 am	...
Customer Orders with PII.csv	Data Asset	OLENA WOOLF	17 Dec 2018, 9:32:15 pm	...
New COS connection for NN_test_121218	Connection	Rohan Vaidyanathan	14 Dec 2018, 2:36:01 am	...
Test2 from Projects	Data Asset	OLENA WOOLF	3 Dec 2018, 9:07:42 pm	...
Cloudant NoSQL DB-rq for Project	Connection	OLENA WOOLF	3 Dec 2018, 9:07:35 pm	...
BM_COS_EDITOR_Oct 31th	Connection	OLENA WOOLF	3 Dec 2018, 9:07:35 pm	...
Prospect copy.csv	Data Asset	OLENA WOOLF	1 Nov 2018, 3:22:58 pm	...
Auto Insurance Claims CSV	Data Asset	OLENA WOOLF	22 Oct 2018, 9:52:12 pm	...
Sales Forecast Data	Data Asset	Thomas Schaeck	18 Oct 2018, 9:42:32 am	...
Db2 Warehouse-fq	Connection	GARRETT ROWE	17 Sep 2018, 10:21:19 pm	...

Bottom Screenshot (Models Tab):

This screenshot shows the "Models" tab in the Watson Studio interface. The left sidebar lists "Watson Machine Learning models", "Functions", and "Notebooks". The main area displays a table of models, including:

Name	Status	Type	Runtime	Last Modified	Actions
Test	untrained	model builder	spark-2.3	7 Dec 2018	...
Notebook Telco Churn Prediction Model	trained	mllib-2.3	spark-2.3	4 Dec 2018	...
Notebook Telco Churn Prediction Model	trained	mllib-2.3	spark-2.3	4 Dec 2018	...
Automation	untrained	model builder	spark-2.3	19 Nov 2018	...
Demo Test Model_11_15	untrained	model builder	spark-2.3	19 Nov 2018	...
Auto Modeling Demonstration	untrained	model builder	spark-2.3	14 Nov 2018	...
Test Model 1	trained	mllib-2.1	spark-2.1	18 Oct 2018	...
DPS Predictive Model	trained	wml-1.1	spark-2.1	27 Sep 2018	...
Ciber Demo Model	untrained	model builder	spark-2.1	20 Sep 2018	...
car evaluation	trained	wml-1.1	spark-2.1	17 Sep 2018	...

Connect to Data on IBM Cloud, On Prem, or on 3rd Party Clouds

IBM Watson Studio Projects ▾ Catalog ▾ Community Services ▾ Docs Support ▾ Manage ▾ 1716985 - Thomas Sch... ▾  

New connection

IBM services

 BigInsights HDFS	 Cloud Object Storage	 Cloud Object Storage (infrastructure)	 Cloudant
 Compose for MySQL	 Compose for PostgreSQL	 Db2	 Db2 Big SQL
 Db2 for i	 Db2 for z/OS	 Db2 Hosted	 Db2 on Cloud
 Db2 Warehouse	 Informix	 Object Storage OpenStack Swift	 Object Storage OpenStack Swift (infrastructure)
 PureData for Analytics	 Watson Analytics		

Third-party services

 Amazon Redshift	 Amazon S3	 Apache Hive	 Cloudera Impala
 Dropbox	 FTP	 Google BigQuery	 Hortonworks HDFS
 Looker	 Microsoft Azure Data Lake Store	 Microsoft Azure SQL Database	 Microsoft SQL Server
 MySQL	 Oracle	 Pivotal Greenplum	 PostgreSQL
 Salesforce.com	 Sybase	 Sybase IQ	 Tableau
 Teradata			

Connect Data, add Data Assets

- **Add *Connections* to your project**
 - Add Connections from Watson Knowledge Catalog
 - Create new Connections to your data sources
- **Discover data**
 - Browse Connections using the data asset browser
 - Search for data assets in Knowledge Catalog
 - Find relevant data or subsets of data
- **Add as *Data Asset* to the project**

The image consists of two screenshots of the IBM Watson Studio interface, illustrating the steps to add a data asset from a connection.

Screenshot 1: Select connection source

This screenshot shows the "Select connection source" dialog. It has three tabs: "Connections (15)", "Schemas (17)", and "Tables (25)". The "Tables (25)" tab is selected, showing a list of tables under the "GOSALES" schema. One table, "CONVERSION_RATE", is highlighted with a gray background. At the bottom right of the dialog are "Cancel" and "Select" buttons.

Auto Insurance Claims	Db2 Warehouse	GOSALES
Connections (15)	Schemas (17)	Tables (25)
Insurance Claims App Db	> AIOS	> BRANCH
Greg Test Cat_DataCatalog	> AUDIT	> CONVERSION_RATE
BM_COS_EDITOR_Oct 31st	> AUTO_INSURANCE	> COUNTRY
Data Warehouse on Cloud	> BLUADMIN	> CURRENCY_LOOKUP
Db2 Warehouse	> DTE_INSURANCE_DEMO	> EURO_CONVERSION
New COS connection for NN...	> GOSALES	> INVENTORY_LEVELS
Db2 Warehouse on Cloud-z7	> GOSALESDW	> ORDER_DETAILS
WDP HOL Db2 Warehouse o...	> GOSALESHR	> ORDER_HEADER
Db2 Warehouse-WatsonDe...	> GOSALESMR	> ORDER_METHOD
Think Demo_DataCatalog	> GOSALESRTR	> PRODUCT
AWS Warehouse	> IBM_RTMON_DATA	> PRODUCT_BRAND
BM_COS_EDITOR_Enterprl...	> JROY	> PRODUCT_COLOR_LOOKUP
BM_COS_EDITOR_Fs18s	> NULLD01	> PRODUCT_FORECAST
Db2 Warehouse-fq	> NULLD0RA	> PRODUCT_LINE
Cloudant NoSQL DB-rq for ...	> PUBLIC	> PRODUCT_NAME_LOOKUP
	> SAMPLES	> PRODUCT_SIZE_LOOKUP
	> ST_INFORMTN_SCHEMA	> PRODUCT_TYPE
		RETURNINFO_ITFM

Screenshot 2: Add asset from connection

This screenshot shows the "Add asset from connection" dialog. It includes fields for "Source" (set to "Db2 Warehouse : /GOSALES/CONVERSION_RATE"), "Name*" (set to "Sales Data"), and a "Description" text area containing the placeholder text "This data set contains sales data ...". At the bottom right are "Cancel" and "Create" buttons. The number "263" is visible at the bottom center of the dialog.

Preview and refine Data

- **Preview and visualize Data**

- Table View
- Profile
- Visualizations

The screenshot shows the IBM Watson Studio interface with the 'Auto Insurance Claims' project selected. In the center, there's a preview of the 'Auto Insurance Claims CSV' dataset. The schema is listed as having 5 columns and over 5000 rows. A sample of the data is shown in a table:

CUSTOMER	CLAIM_AMOUNT	RESPONSE	CLAIM_REASON	TOTAL_CLAIM_AMOUNT
Not classified	Quantity	Boolean	Code	Quantity
BU79786	276.3519279	No	Collision	384.811147
QZ44356	697.9535903	No	Scratch/Dent	1131.464935
A149188	1288.743165	No	Collision	566.472247
WW63253	764.5861827	No	Collision	529.881344
HB64268	281.3692575	No	Collision	138.130879
OC83172	825.62978	Yes	Hail	159.383042
XZ87318	538.0898636	Yes	Collision	321.6
CF85061	721.6100311	No	Collision	363.02968
DY87989	2412.750402	Yes	Collision	511.2
BQ94931	738.8178085	No	Hail	425.527834
SX51350	473.8992022	No	Collision	482.4
VQ65197	819.7197078	No	Hail	528
DP39365	879.8797003	No	Hail	472.029737
S395423	881.9018934	Yes	Hail	528
IL6569	538.4431665	No	Other	307.139132
BW63560	746.3139377	No	Hail	42.920271

- **Refine data** to prepare for analysis or ML
 - Filter or anonymize, change column types, combine data, based on sample, resulting in a *Data Flow*
 - Run the Data Flow to generate result data set by processing the full data
 - Data Flow remains available in project to re-run later if needed
- **Lineage** tracks actions

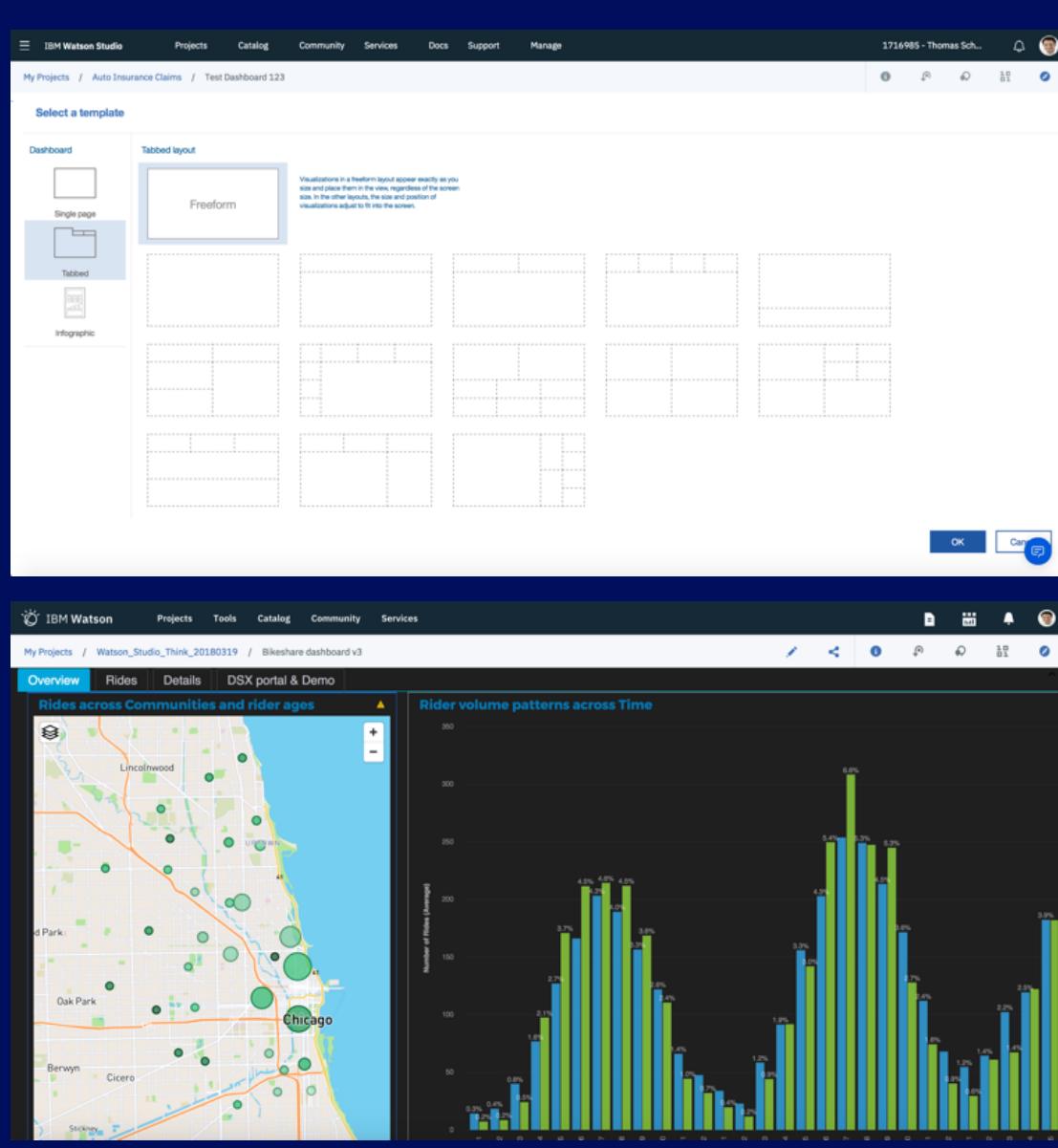
The screenshot shows the IBM Watson Studio interface with the 'Auto Insurance Claims' project selected. On the left, there's a 'Data Refinery' panel where an operation is being defined to 'cleanse and shape your data'. The steps listed are:

- Remove empty rows
- Replace missing values
- Replace substring
- Organize
- Aggregate
- Concatenate
- Conditional replace
- Join
- Sample
- Split column
- NATURAL LANGUAGE
- Remove stop words
- Tokenize

On the right, there are sections for 'DATA REFINERY FLOW DETAILS' (Location: Auto Insurance Claims, Name: Auto Insurance Claims CSV.fl...), 'STEPS' (0), and 'DATA REFINERY FLOW OUTPUT' (Location: Auto Insurance Claims/Data assets, Sample Size: First 1000 rows). At the bottom, it says 'SOURCE FILE: Auto Insurance Claims CSV' and 'SAMPLE SIZE: First 1000 rows'.

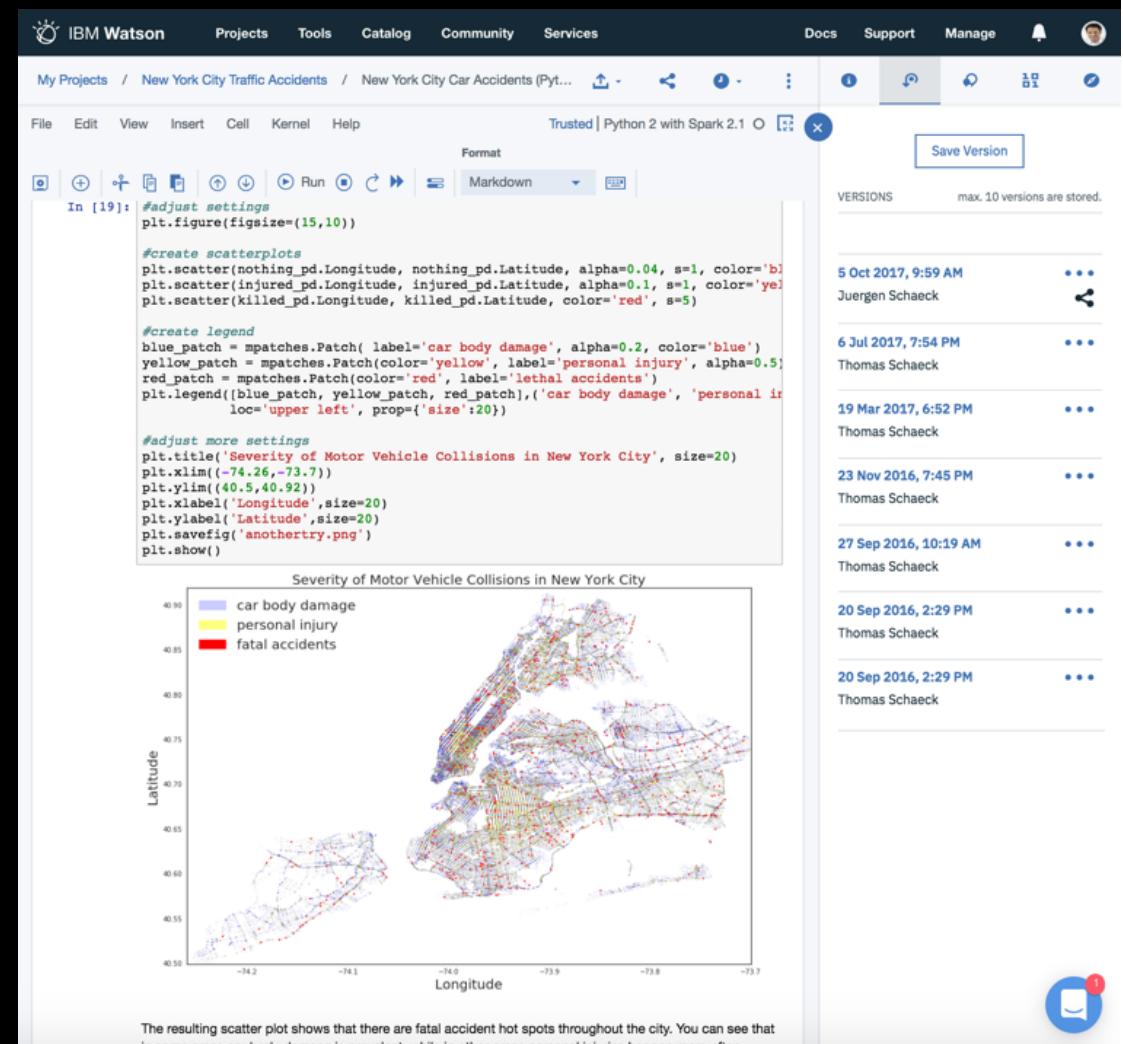
Visualize and Analyze Data

- **Create Dashboard** and connect to data in the project
 - Uploaded CSV files
 - Db2 Warehouse connection or data asset
 - Postgres connection or data asset
- **Pick data** from connection or subset of data asset
- **Compose** dashboards visualizing data leveraging a broad range of widgets and visualizations
- **Share** Dashboard with other project members or optionally get view-only link to share with anyone
- **Export** useful Dashboards as file (.json) for re-use in other Projects
- **Import** dashboard file to your project and re-link to data in your project
- **Publish** dashboard files from project to Watson Knowledge Catalog, add from catalog to your project
- **Soon: Community** Dashboard samples



Jupyter Notebooks

- Active Documents that contain insights and code to get them
 - *Text to explain what the Notebook does and document insights*
 - *Code cells for accessing, processing, and analyzing data*
 - *Result cells with output and visualizations*
- **Jupyter** <http://jupyter.org> is the most popular open source Notebook project and de facto standard
 - *Allows to create, run, edit notebooks in web browsers*
 - *Can run with Python, R, Scala, and many other kernels*
 - *Notebooks are stored as .ipynb JSON objects*
- Popular for publishing interactive tutorials & demos with runnable code inside, and reproducible research
- **IBM Value Add in Watson Studio**
 - *Versions and Comments*
 - *Schedule a Notebook version to regularly run*
 - *Publish as URL to view most recent Notebook run*
 - *Insert-to-Code to connect to data*
 - *Share to Git repo*



Environments

Built-in compute environments

- Python / R
- Python / R + Spark
- Python / R + GPUs
 - Existing function on Watson Studio Local
 - New on Watson Studio Cloud – Open Beta

Notebooks can optionally use Spark from

- IBM Analytics Engine or AWS EMR (WS Cloud)
- Hortonworks or Cloudera Clusters (WS Local)

The screenshot shows the IBM Watson Studio interface. At the top, there's a navigation bar with links for Projects, Tools, Catalog, Community, Services, and user-specific options like Docs, Support, Manage, and a profile icon. Below the navigation is a breadcrumb trail: My Projects / Test Project. A prominent search bar at the top right contains the placeholder text "Which environment are you looking for?".

The main content area is titled "Environments" and includes a brief description: "Define the hardware size and software configuration for the runtime associated with Watson Studio tools such as notebooks." It features two large numerical displays: "0.0" and "41.5". The "0.0" is associated with "Total project capacity unit hours used this month", and the "41.5" is associated with "Remaining account capacity unit hours included in plan".

Below these metrics is a section titled "Active environment runtimes" which currently displays the message "You currently have no active environment runtimes".

The final section is titled "Environment definitions" and lists five pre-defined environments:

NAME	TOOL	HARDWARE CONFIGURATION	LAST MODIFIED	ACTIONS
Default R 3.4 S	Notebook	4 vCPU and 16 GB RAM	19 Feb 2018	⋮
Default R 3.4 XS	Notebook	2 vCPU and 8 GB RAM	19 Feb 2018	⋮
Default Python 3.5 Free	Notebook	1 vCPU and 4 GB RAM	16 Feb 2018	⋮
Default Python 3.5 S	Notebook	4 vCPU and 16 GB RAM	16 Feb 2018	⋮
Default Python 3.5 XS	Notebook	2 vCPU and 8 GB RAM	16 Feb 2018	⋮

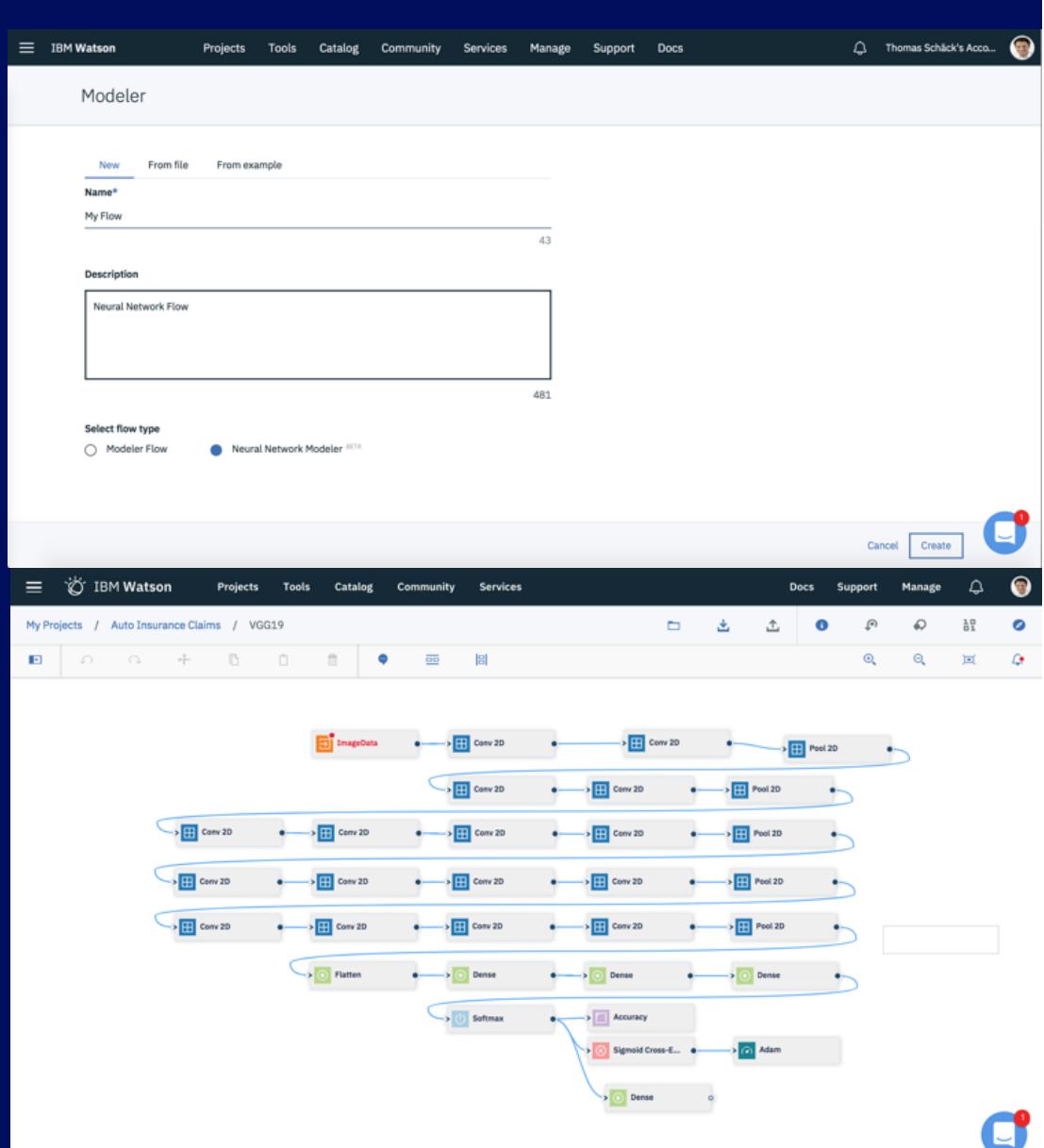
Creating & training ML Models

- **Create Model** from Project Assets tab
 - Automatic – prepare data and create model
 - Manual – user prepares data and selects model
 - Modeller Flow – create and train model using a flow
 - Notebook – create and train model through code
- **Deploy model** to WML
 - the model becomes available through REST API
 - get URL and code snippets from Implementation tab
 - try model with different values in test tab
- **Invoke model** from any client
 - Notebooks in Watson Studio or elsewhere
 - Apps on IBM Cloud
 - Other apps or other clients
- **Alternatively: Export model** and run where needed
 - Own container images
 - Mobile apps

The top screenshot shows the 'New model' creation page in IBM Watson Studio. It includes fields for 'Name' (New Model), 'Description' (New Model), and 'Machine Learning Service' (Machine Learning-WatsonDemoEnv). It also features a 'Select model type' section with 'Model builder' selected, and options for 'From file' and 'From sample'. The bottom screenshot shows the 'Churn Model 1' overview page, displaying deployment details such as Name (Churn Model 1), Type (Web Service), Deployment ID (db51b2bb-7d61-4b63-bf8e-735865213333), Status (DEPLOY_SUCCESS), Machine learning service (Machine Learning-WatsonDemoEnv), Created (02 May 2018 04:57pm), and Last modified (04 Jul 2018 01:47pm). It also shows model details like Name (Churn Model1) and Model ID (7b24546b-f75a-4826-9b65-a7d64a7d8b85).

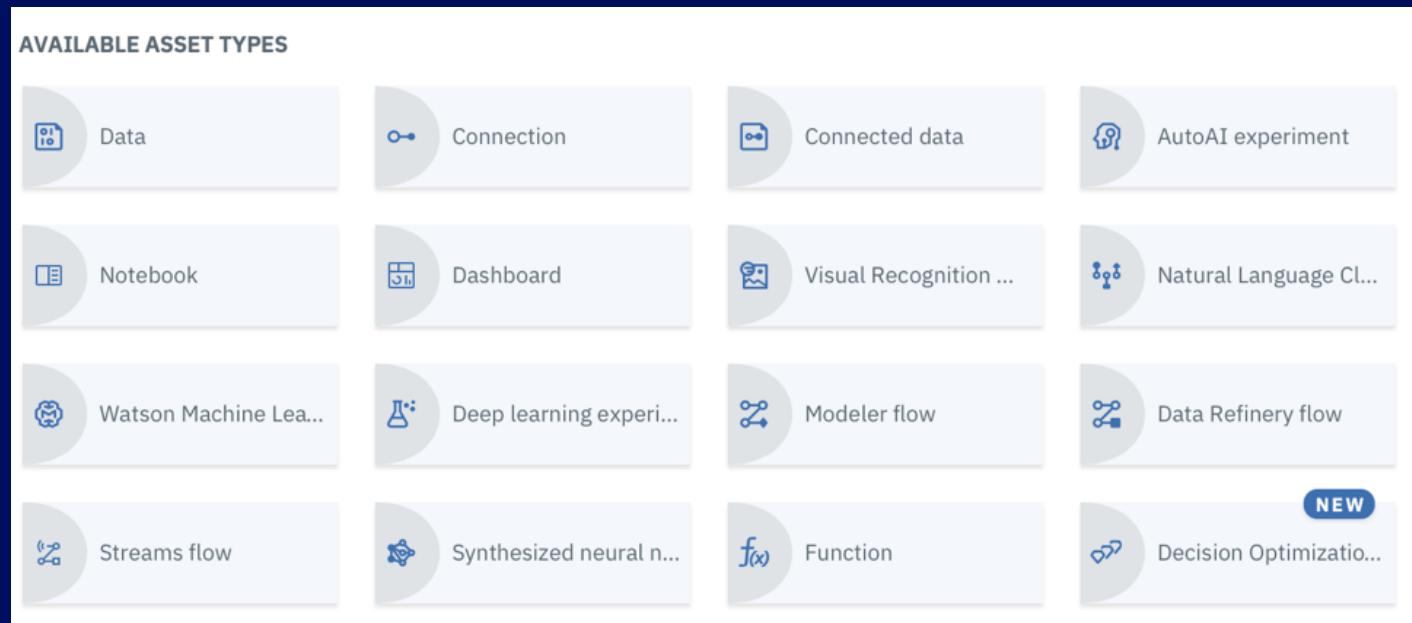
Flows

- Create new Flow in the project
 - Modeller Flow
 - Neural Network Flow
- Modeller flows can be
 - SPSS
 - Spark
- Download Neural Network Flow as
 - Flow file
 - TensorFlow, Keras, PyTorch, or Caffe model



New to experiment..

- Transfert Learning
 - AI to accelerate your AI
 - Visual Recognition
 - NLC (Natural Language Classifier)
- AutoAI
 - AI to Optimize, automate your AI end to end workflow
- NeuNetS
 - AI to design AI
 - Neural Network synthetisis



Cloud Paks – Enterprise-ready containerized software

A faster, more secure way to move your core business applications to any cloud through enterprise-ready containerized software solutions

The diagram illustrates the components of Cloud Pak. It features a central white box with a blue border containing three sections: 'IBM containerized software' (with a description and an icon of three shipping containers), 'Container platform and operational services' (with a description and the 'Red Hat OpenShift' logo), and a blue vertical bar on the right labeled 'Complete yet simple' and 'IBM certified'. Below this central box is a horizontal row of seven icons representing different deployment environments: IBM Cloud, AWS, Azure, Google Cloud, Edge, Private, and Systems.

IBM containerized software
Packaged with Open Source components, pre-integrated with the common operational services, and secure by design

Container platform and operational services
Logging, monitoring, security, identity access management

Red Hat OpenShift

Complete yet simple

Application, data and AI services, fully modular and easy to consume

IBM certified

Full software stack support, and ongoing security, compliance and version compatibility

Run anywhere

On-premises, on private and public clouds, and in pre-integrated systems



Google Cloud



Edge



Private

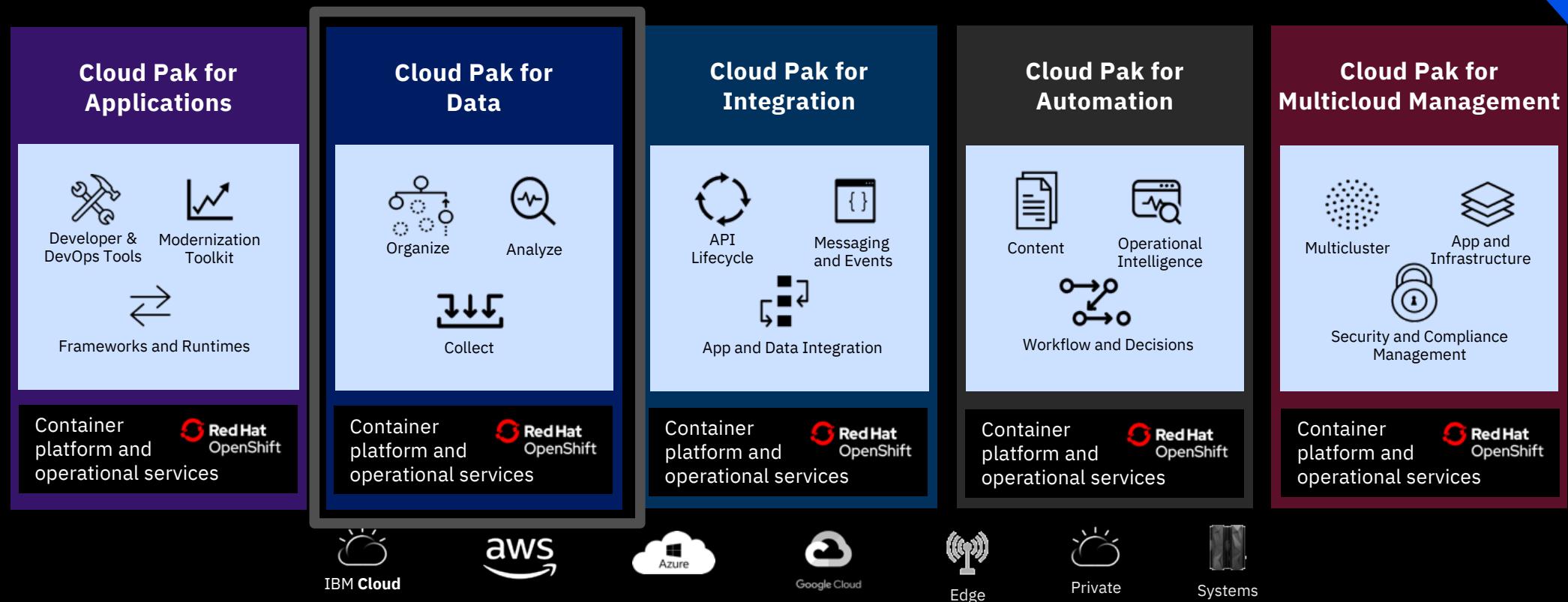


Systems

Cloud Paks – Pre-integrated for cloud use cases

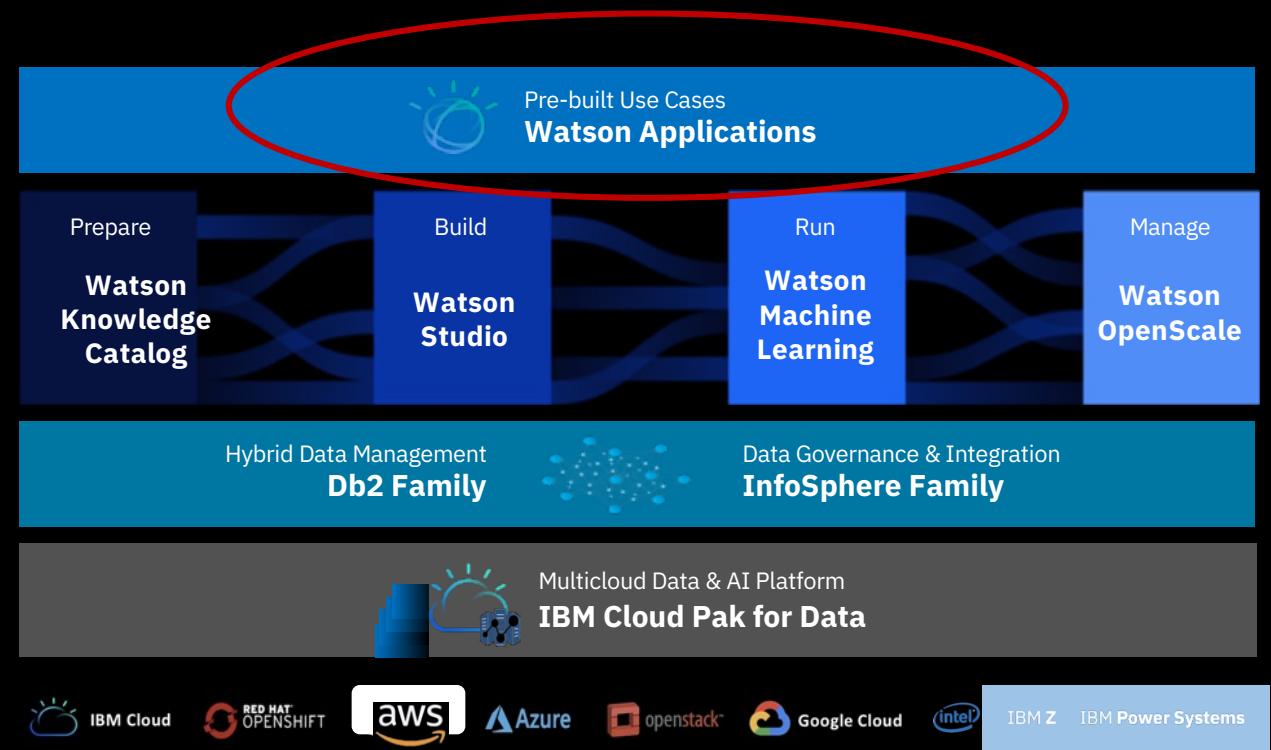
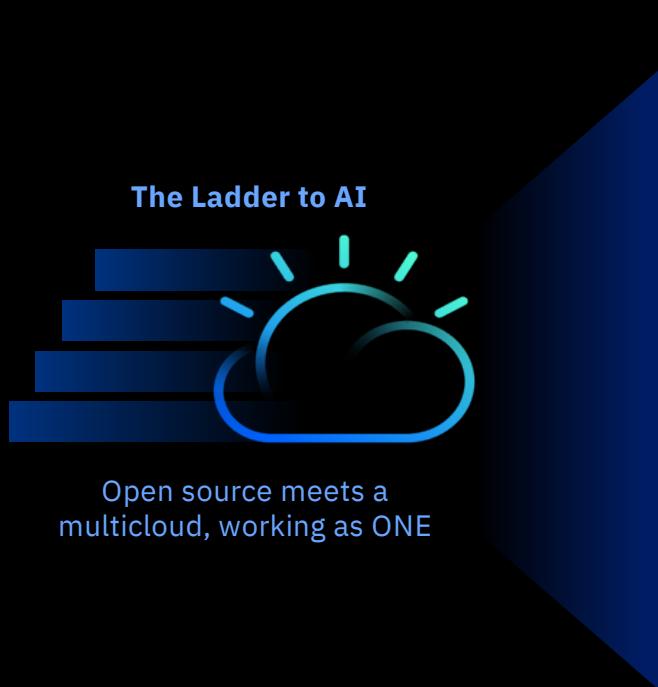
Today, IBM offers clients the first five Cloud Paks...

Available today



IBM Data and AI Portfolio

Everything you need for Enterprise AI, on any cloud



IBM Watson services & Applications

Speech



Text To Speech



Speech To Text

Language

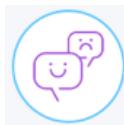


Language
Translator

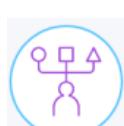


Natural
Language
Classifier

Empathy



Tone
Analyzer



Personality
Insights

AI Assistant



Watson
Assistant

Vision



Visual
Recognition

Knowledge



Discovery



Natural
Language
Understanding

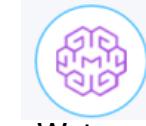


Knowledge
Studio

Data



Watson
Studio



Watson
Machine
Learning



AI
OpenScale

Ignition of Watson Studio 😊



LAB 0

<https://cloud.ibm.com>

Go to the IBM Cloud create an instance of Watson Studio

<https://ibm.box.com/v/WatsonAI4CSI>

Watson Studio Quick Walk Through

Try it on IBM Cloud <https://www.ibm.com/cloud>

The screenshot shows the Watson Studio interface. At the top, there's a navigation bar with links for IBM Watson Studio, Projects, Catalog, Community, Services, Docs, Support, and Manage. On the right side of the header, there's a user profile for '1716985 - Thomas Sch...' and a 'Get started' button.

The main area features a large blue banner with the text "Welcome Thomas!" and "Watson Studio • Watson Knowledge Catalog". Below the banner, there are two main action buttons: "Create a project" and "Search a catalog". A descriptive text next to these buttons says: "A project is how you organize your resources to work with data and collaborate with team members".

On the right side of the main area, there's a circular graphic illustrating a workflow or analysis process involving a computer monitor, a magnifying glass, and some data points.

At the bottom, there's a section titled "Recently updated projects" with a "View all (90)" link and a "New project" button. This section lists three recent projects:

NAME	ROLE	COLLABORATORS	DATE CREATED	LAST UPDATED
Watson_Studio_Think_20180319	Admin	31	Feb 07, 2018	Dec 19, 2018
Project-lib_for_V1projects	Admin	2	Nov 09, 2017	Dec 17, 2018
Natural Language Classifier Project	Admin	1	Dec 13, 2018	Dec 13, 2018