

Taller de Machine Learning

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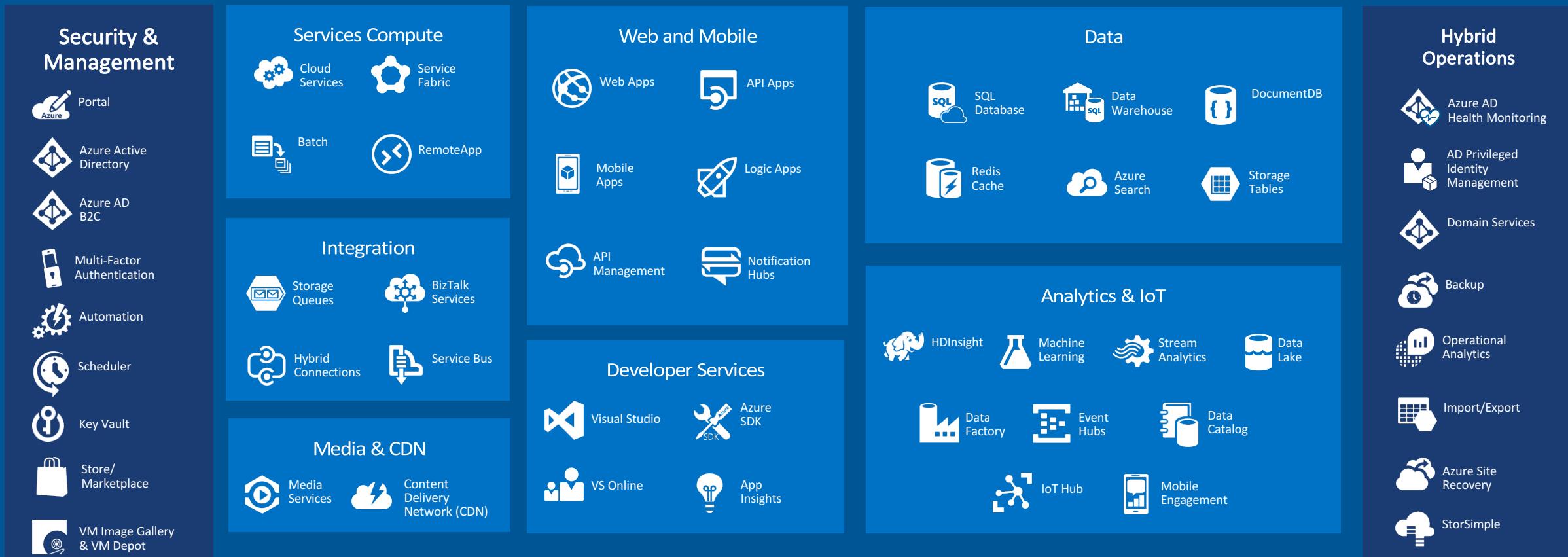


Agenda

- Intro: Cloud + ML
- ML Demo
- ML Workshop
- Intro: Cognitive Services, LUIS, Bots
- Cognitive Workshop
- Q&A

Cloud

Platform Services



Infrastructure Services

OS/Server Compute



Storage



Networking



Datacenter Infrastructure (24 Regions, 22 Online)

Open cloud

DevOps



Clients



Management



Applications



PaaS & DevOps



App Frameworks & Tools



Databases & Middleware



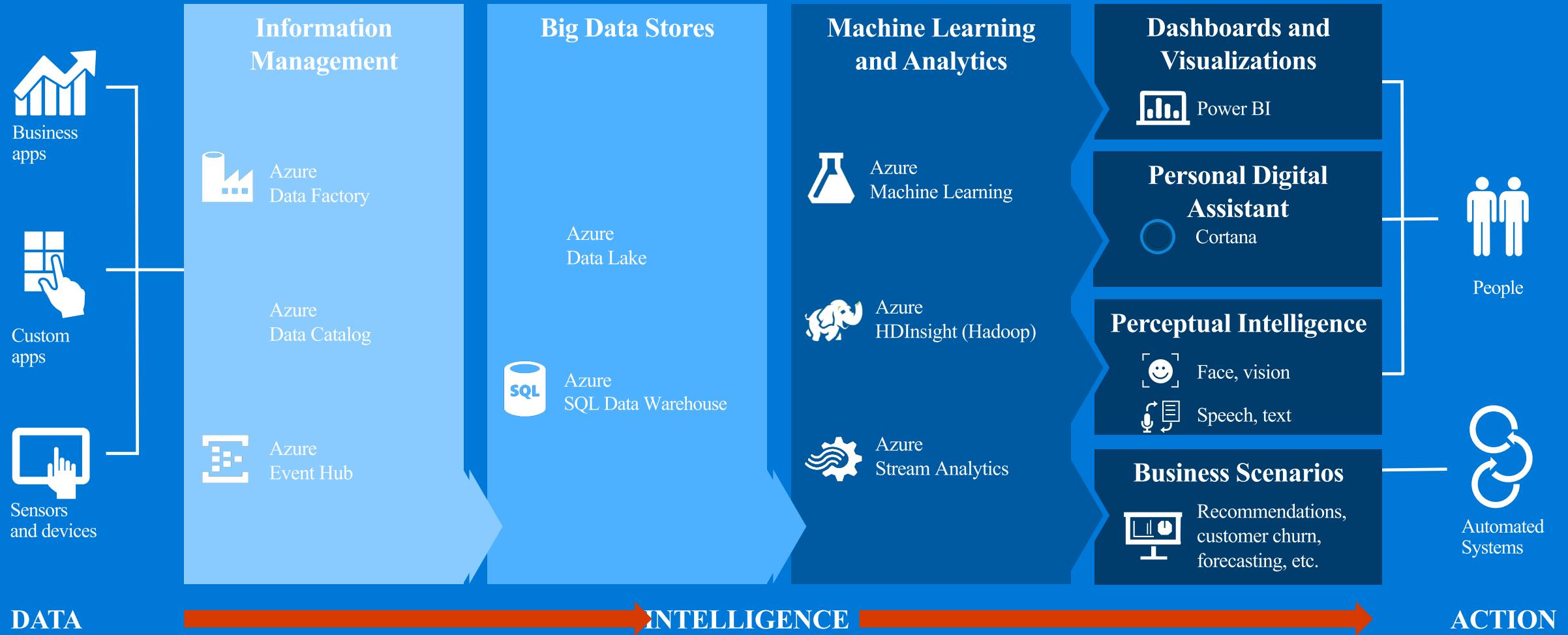
Infrastructure



redhat



Cortana Analytics Suite



Cortana Analytics Suite capabilities

Capabilities	Service
Preconfigured solutions	Business scenarios Recommendations , Forecasting , Churn , etc.
Personal Digital Assistant	Personal Digital Assistant Cortana
Perceptual intelligence	Recognition of human interactions & intent Face , Vision , Speech and Text Analytics
Dashboards and visualizations	Dashboards and visualizations Power BI
Machine learning & analytics	Machine learning Azure Machine Learning Hadoop Azure HDInsight (Hadoop) Complex event processing Azure Stream Analytics
Big Data Stores	Big Data repository Azure Data Lake Elastic data warehouse Azure SQL Data Warehouse
Information management	Data orchestration Azure Data Factory Data catalog Azure Data Catalog Event ingestion Azure Event Hub

referred
referred
referred

¿Qué es Machine Learning?

Sistemas de información que
se vuelven más inteligentes
con experiencia

“Experiencia” =
datos del pasado + input humana

Holstein



Hereford



¿Holstein o Hereford?



Holstein



Hereford



Microsoft & Machine Learning

Respondiendo preguntas con experiencia



“Azure Machine Learning offers a data science experience that is directly accessible to business analysts and domain experts, reducing complexity and broadening participation through better tooling.”

Hans Kristiansen
Capgemini

Machine Learning hoy

Soluciones difíciles de alcanzar

Caro

Costos enormes de set-up, expertise y capacidades de cómputo y almacenamiento son barreras de entrada.

Data en silos

Data aislada que restringe o limita el acceso a la misma.

Herramientas desconectadas

Herramientas complejas y fragmentadas que limitan la colaboración en explorar y armar modelos.

Complejidad de deployment

Muchos modelos nunca alcanzan valor de negocio dada la dificultad de “salir a producción”

Romper las limitaciones de la industria

Drag & Drop + Best in Class Algorithms

ML Studio | Untitled | Enter feedback here | Fraud Detection Workspace | Menu |

To create your experiment, drag and drop datasets and modules here

Drag Items Here

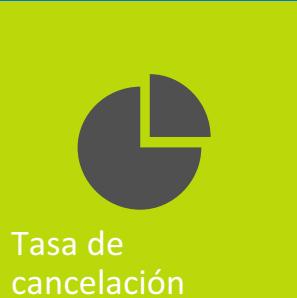
The screenshot shows the ML Studio interface with a search bar and a sidebar containing a tree view of machine learning models under 'Machine Learning' categories: Evaluate, Initialize Model, Classification, Clustering, and Regression. The main workspace displays a flowchart titled 'Untitled'. The flowchart consists of five rectangular boxes connected by dashed arrows. The top box contains a cylinder icon. The second box contains a document icon. The third box contains a document icon. The fourth box contains a flask icon. The fifth box contains a flask icon. A callout bubble points to the first box with the text 'Drag Items Here'.

```
graph TD; A[cylinder] --> B[document]; B --> C[document]; C --> D[flask]; D --> E[flask];
```

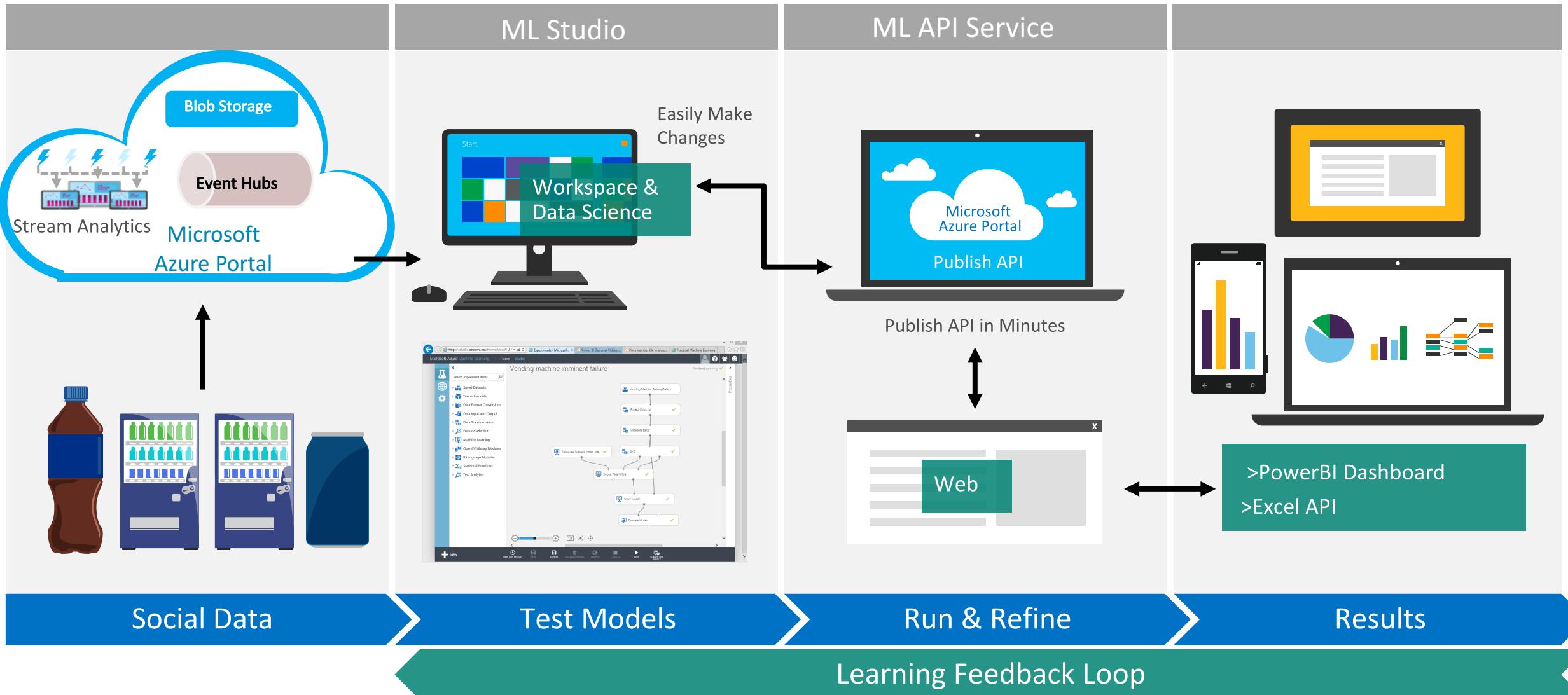
Properties

ML Studio | NEW | VIEW RUN HISTORY | SAVE | SAVE AS | DISCARD CHANGES | REFRESH | CANCEL | RUN | PUBLISH WEB SERVICE | ? | 5

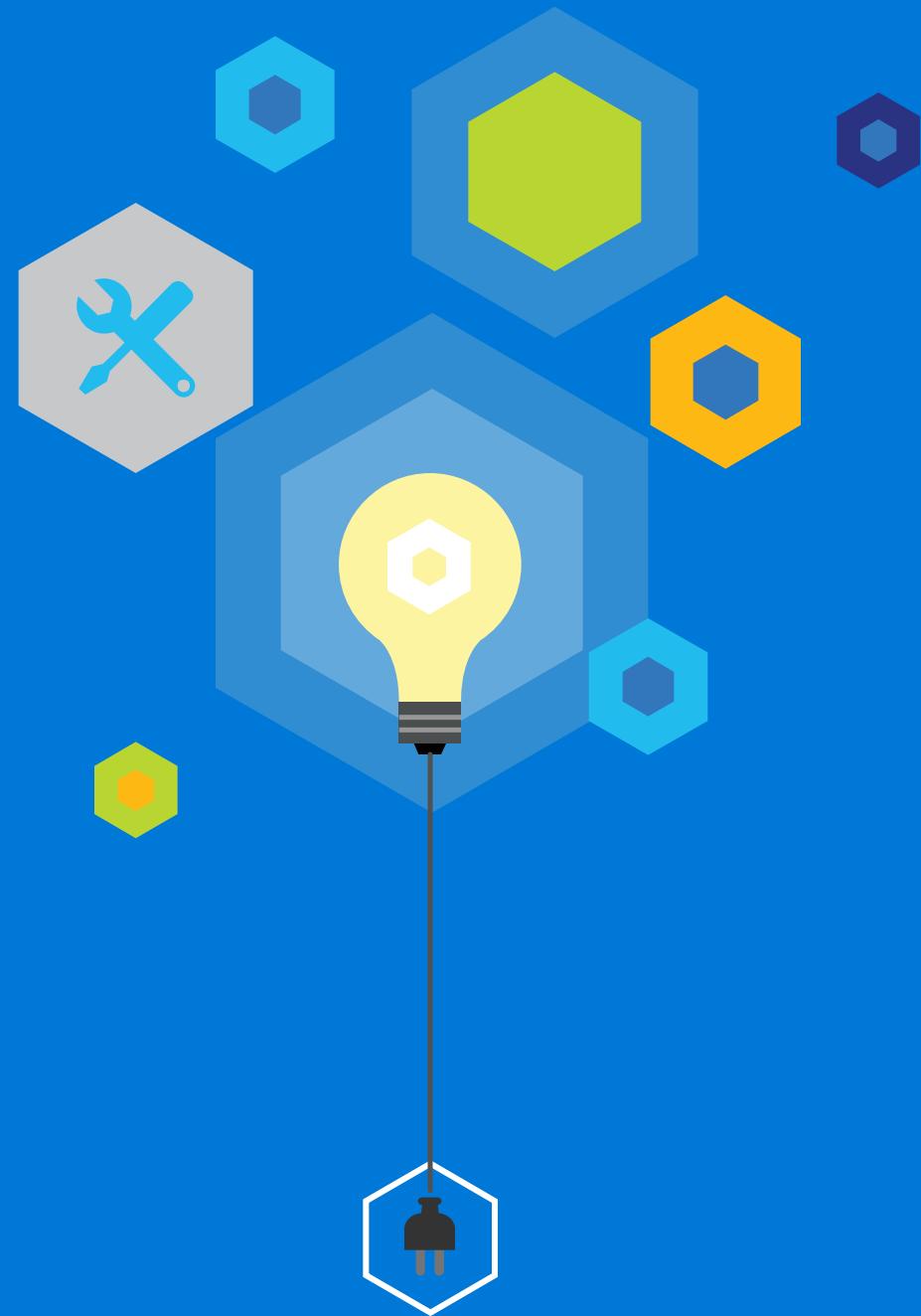
¿Qué puede hacer Azure ML?

	Análisis de telemetría		Buyer propensity		Análisis en redes sociales		Mantenimiento predictivo		Optimización de sitios web
	Tasa de cancelación			Exploración de recursos naturales		Weather forecasting		Diagnósticos médicos	
	Detección de fraude				Investigación en ciencias naturales		Publicidad dirigida		Detección de intrusión

Arquitectura con Azure Machine Learning



Aprendizaje de máquina



Algoritmos de Machine Learning



Clasificación



Regresión

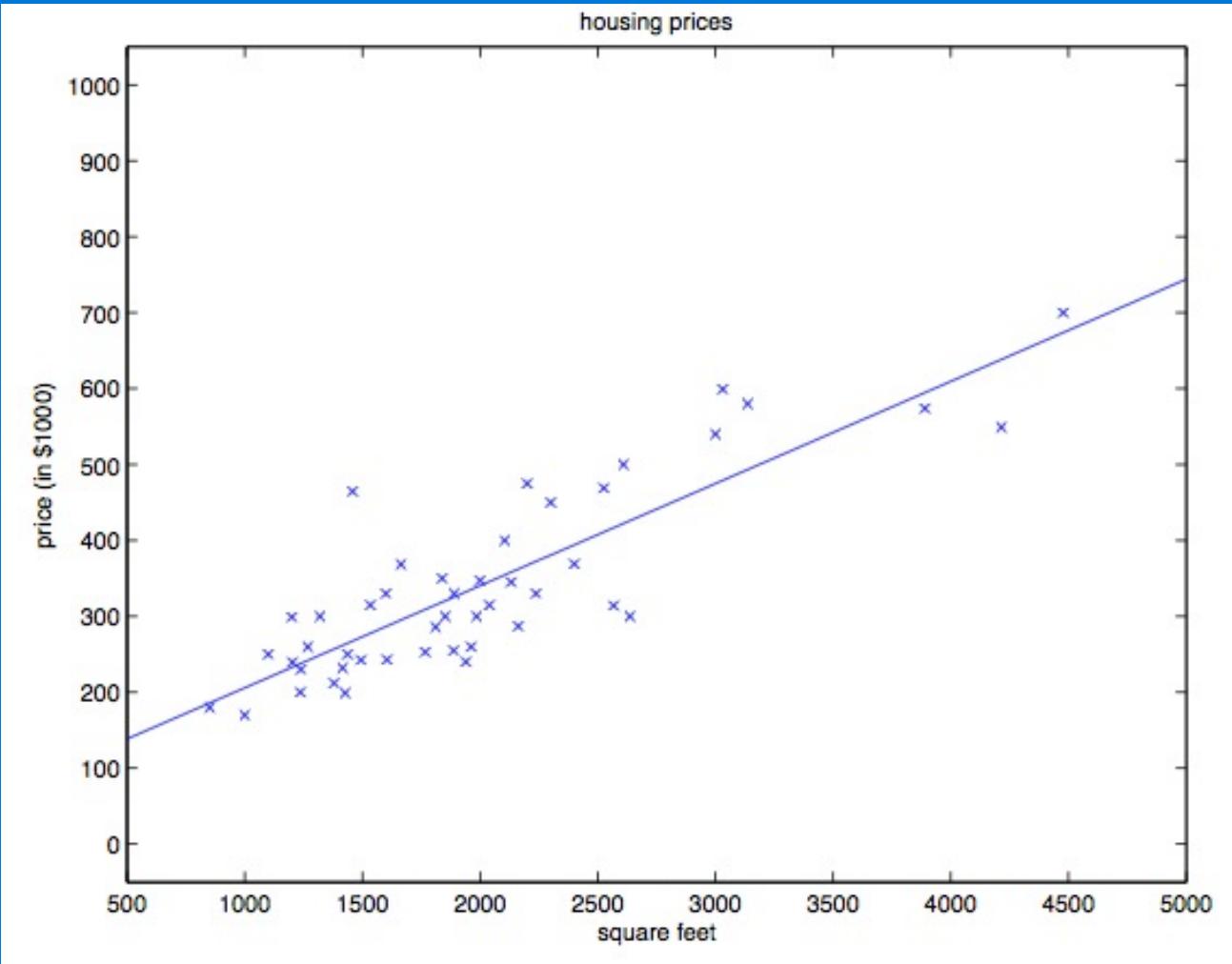


Detección de
anomalías

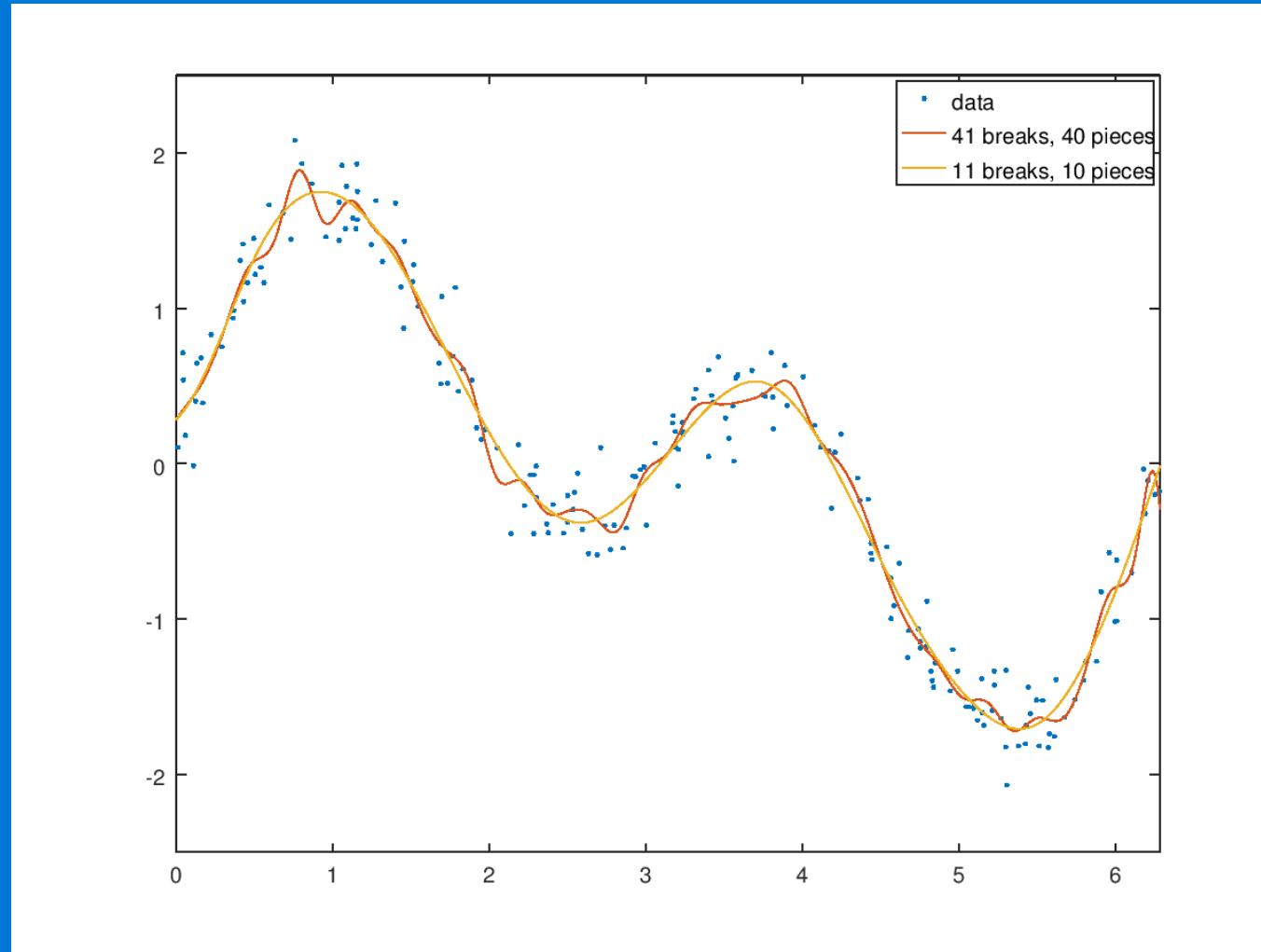


Agrupación

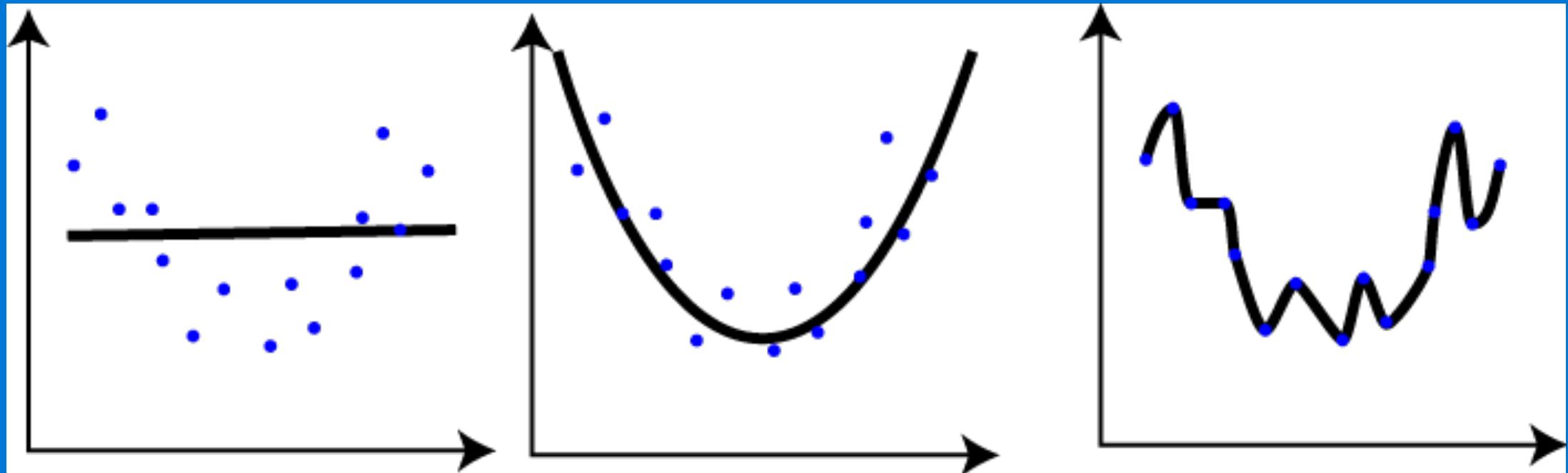
Regression Lineal



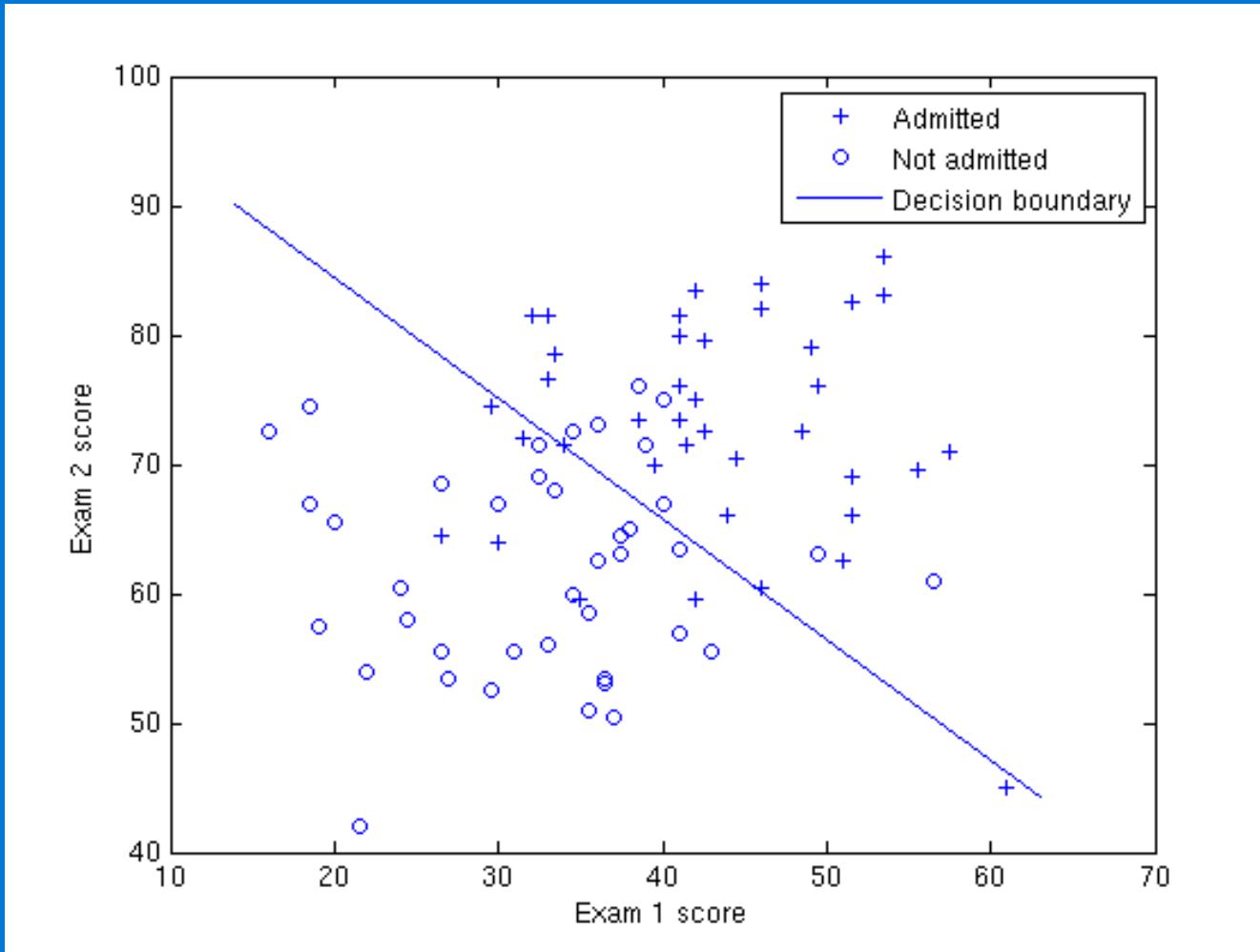
Polynomial Regression



Overfit vs Underfit



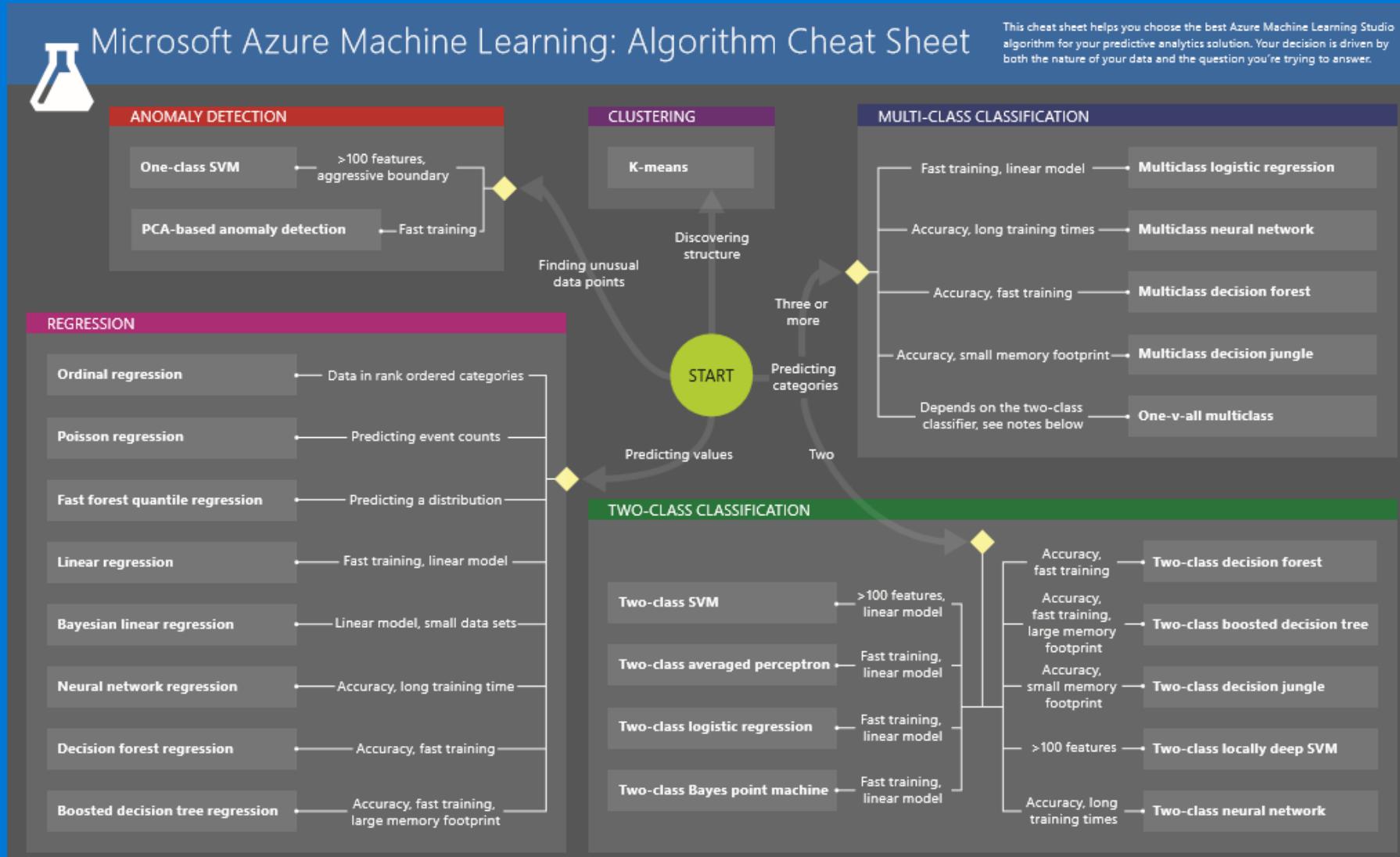
Clasificación Binaria



Data Sets

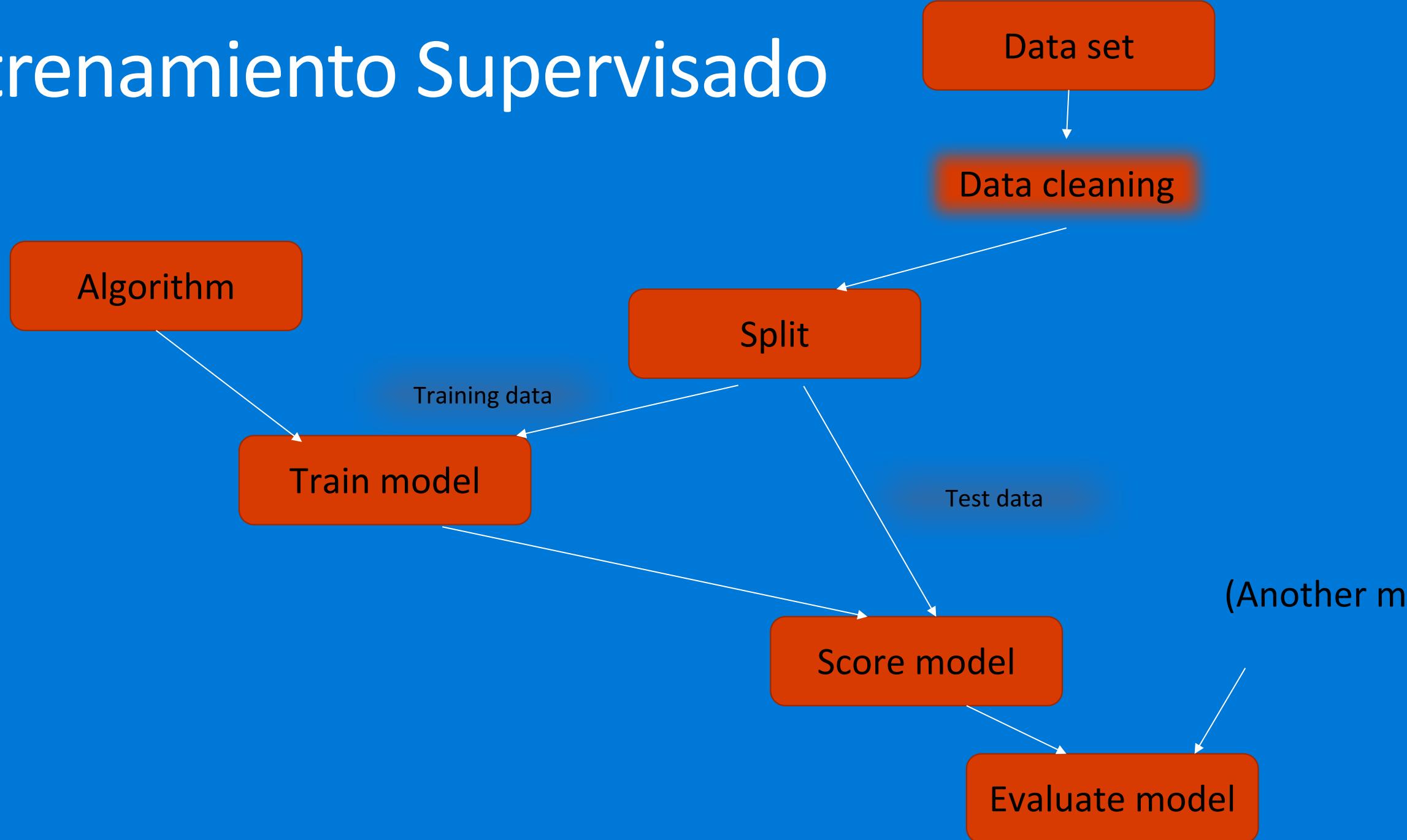
Obs	Store	Dept	Quarter	Sales	Sales Tax
1	101	10	1	110001.50	6600.09
2	101	10	2	113101.20	6786.07
3	101	10	3	111932.15	6715.93
4	101	10	4	99901.10	5994.07
5	101	20	1	110002.36	6600.14
6	101	20	2	99922.39	5995.34
7	101	20	3	98832.98	5929.98
8	101	20	4	110101.70	6606.10
9	121	20	1	121947.10	7316.83
10	121	20	2	119964.69	7197.88
11	121	20	3	122136.28	7328.18
12	121	20	4	120111.11	7206.67
13	121	10	1	127192.92	7631.58
14	121	10	2	125280.13	7516.81
15	121	10	3	128203.56	7692.21
16	121	10	4	123632.29	7417.94
17	109	10	1	120422.77	7225.37
18	109	10	2	123984.32	7439.06
19	109	10	3	121801.29	7308.08
20	109	10	4	122125.66	7327.54
21	109	30	1	98310.13	5898.61
22	109	30	2	97331.25	5839.88
23	109	30	3	96386.28	5783.18
24	109	30	4	98511.90	5910.71
25	109	20	1	115239.09	6914.35
26	109	20	2	113001.98	6780.12
27	109	20	3	114234.32	6854.06
28	109	20	4	114122.65	6847.36

aka.ms/algoritmosML



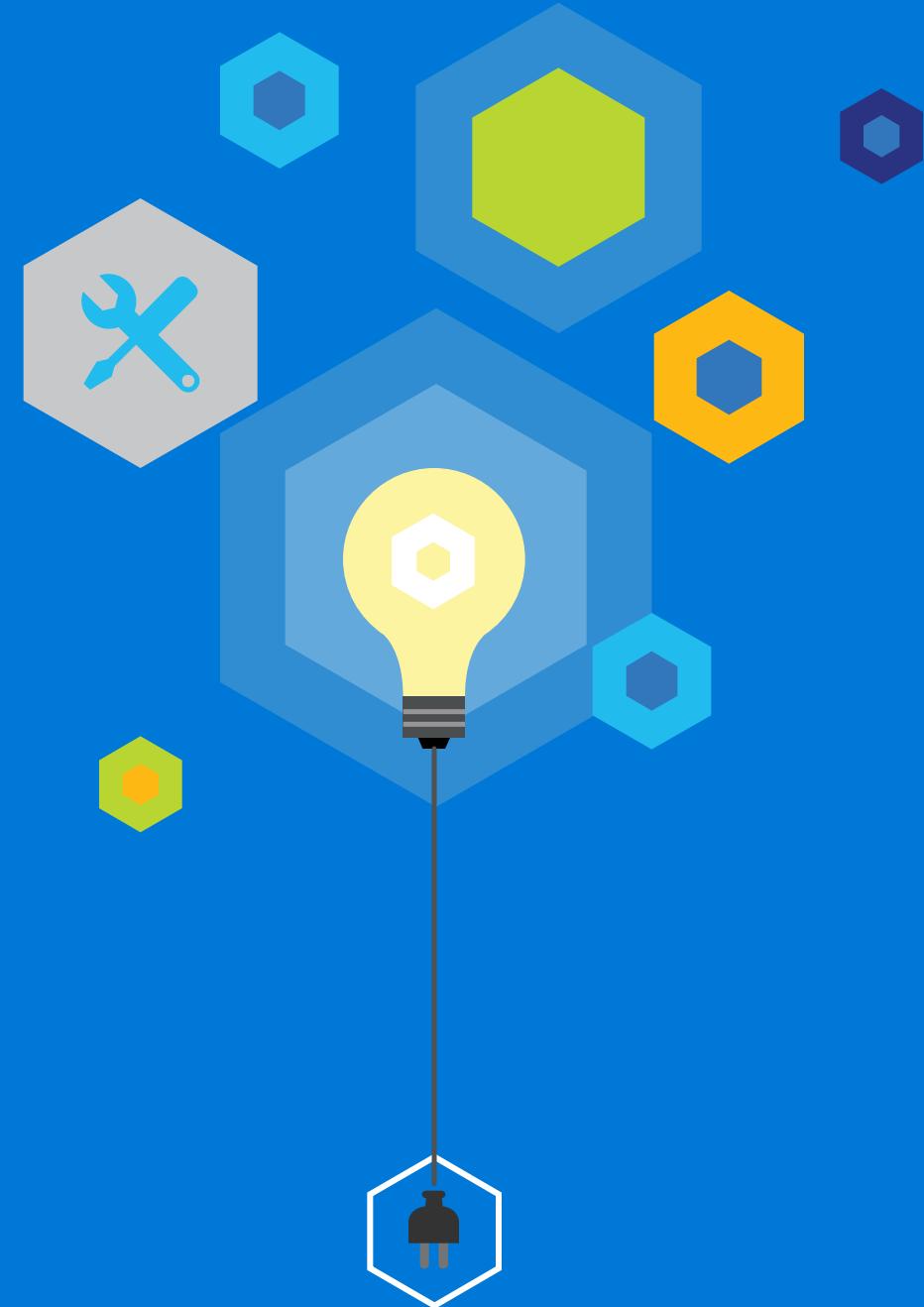
Algoritmos.pdf

Entrenamiento Supervisado



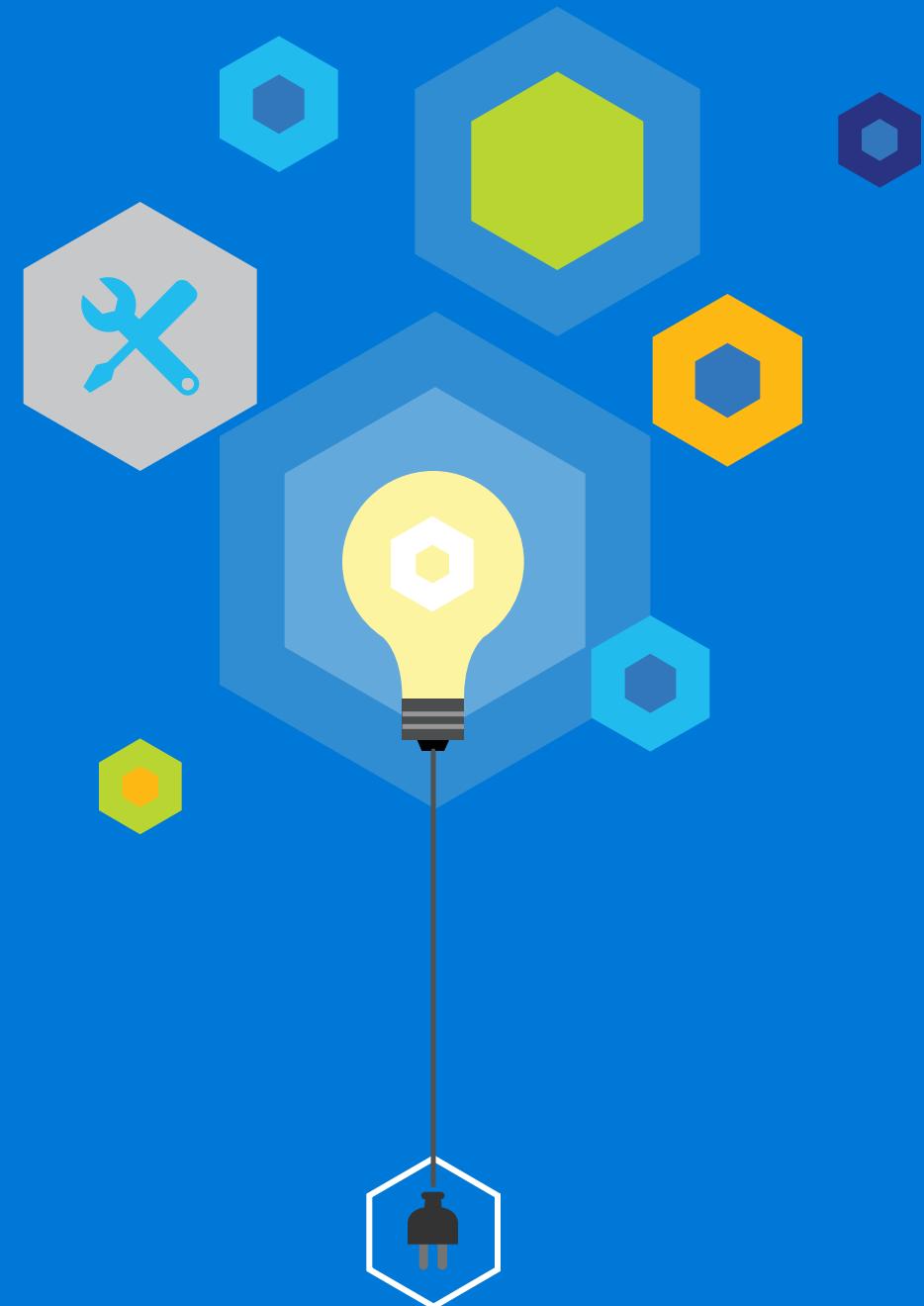
Demo AzureML

Marcelo Felman



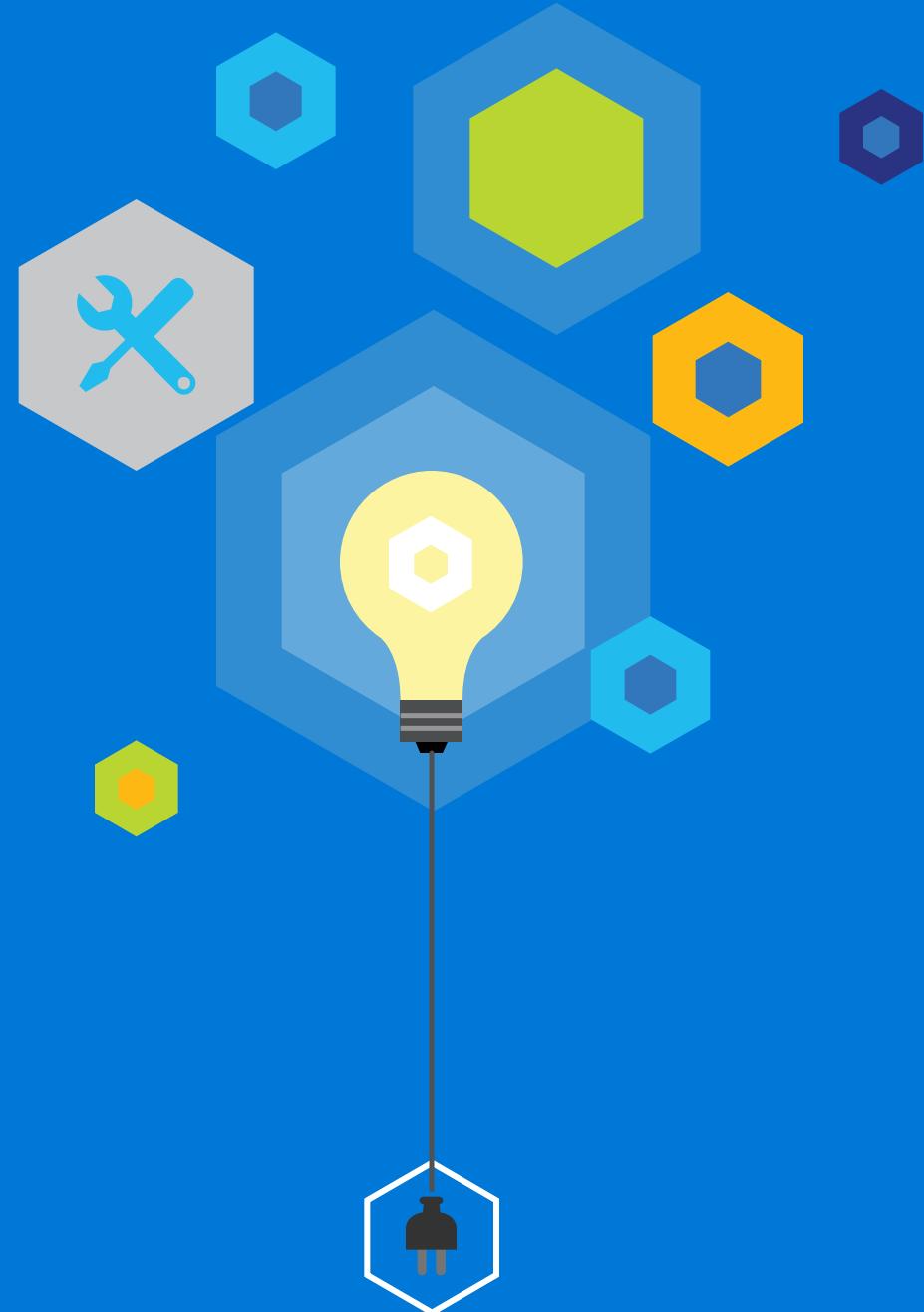
Laboratorio

Marcelo Felman



Cognitive Services

Marcelo Felman



Microsoft Cognitive Services

Give your apps
a human side



Vision

From faces to feelings, allow your apps to understand images and video



Speech

Hear and speak to your users by filtering noise, identifying speakers, and understanding intent



Language

Process text and learn how to recognize what users want



Knowledge

Tap into rich knowledge amassed from the web, academia, or your own data



Search

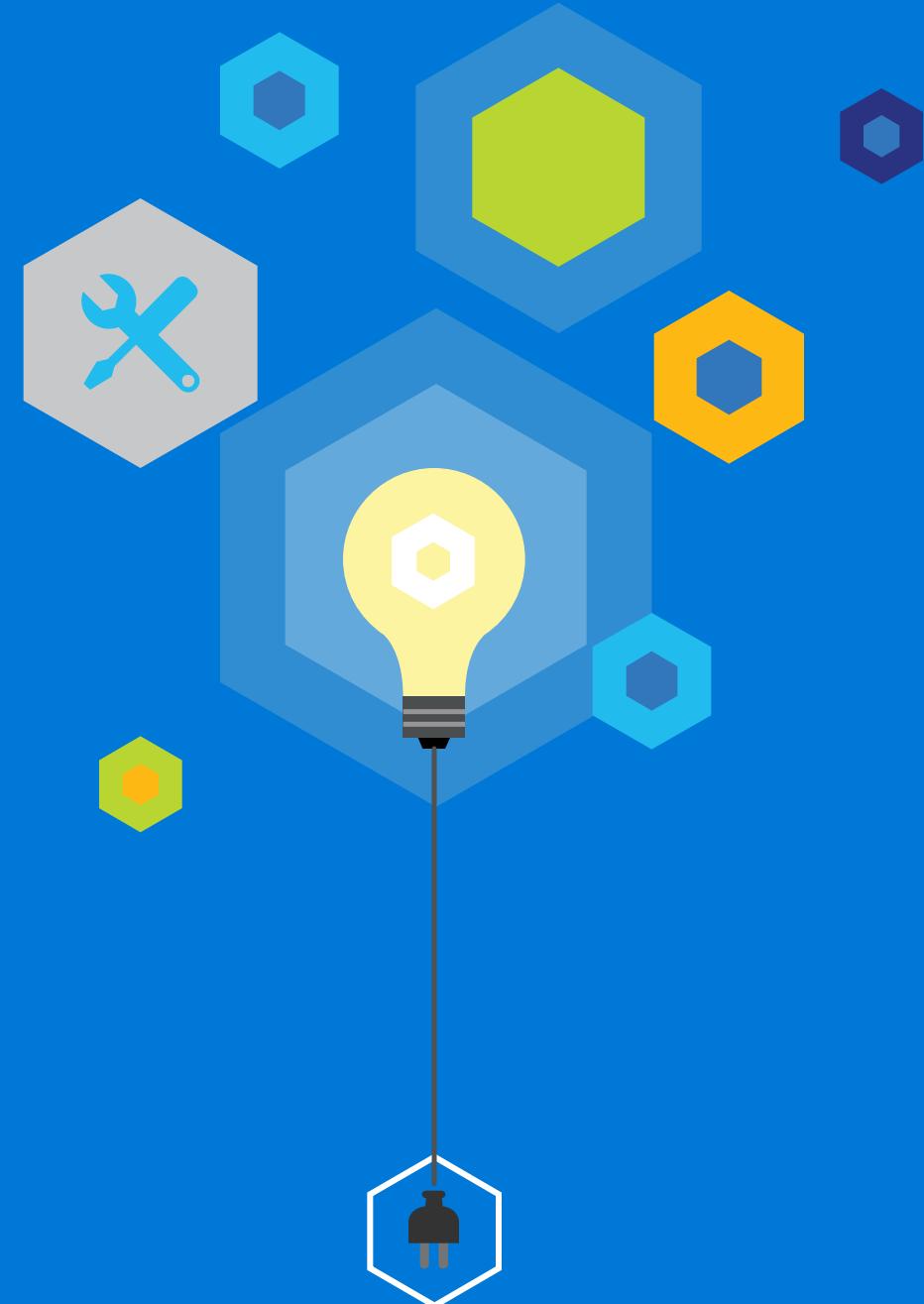
Access billions of web pages, images, videos, and news with the power of Bing APIs

Probar Cognitive Services

microsoft.com/cognitive

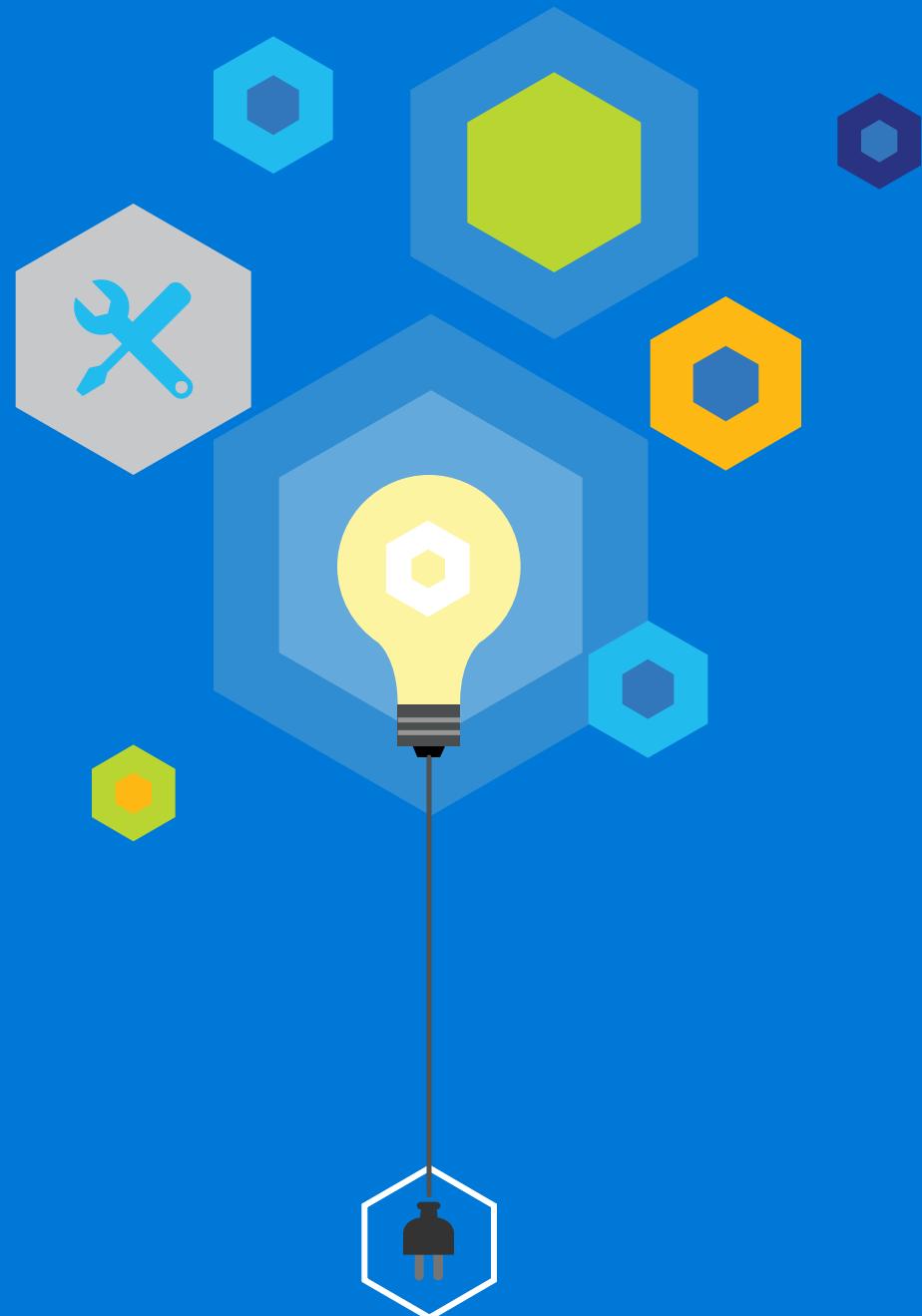
how-old.net

what-dog.net



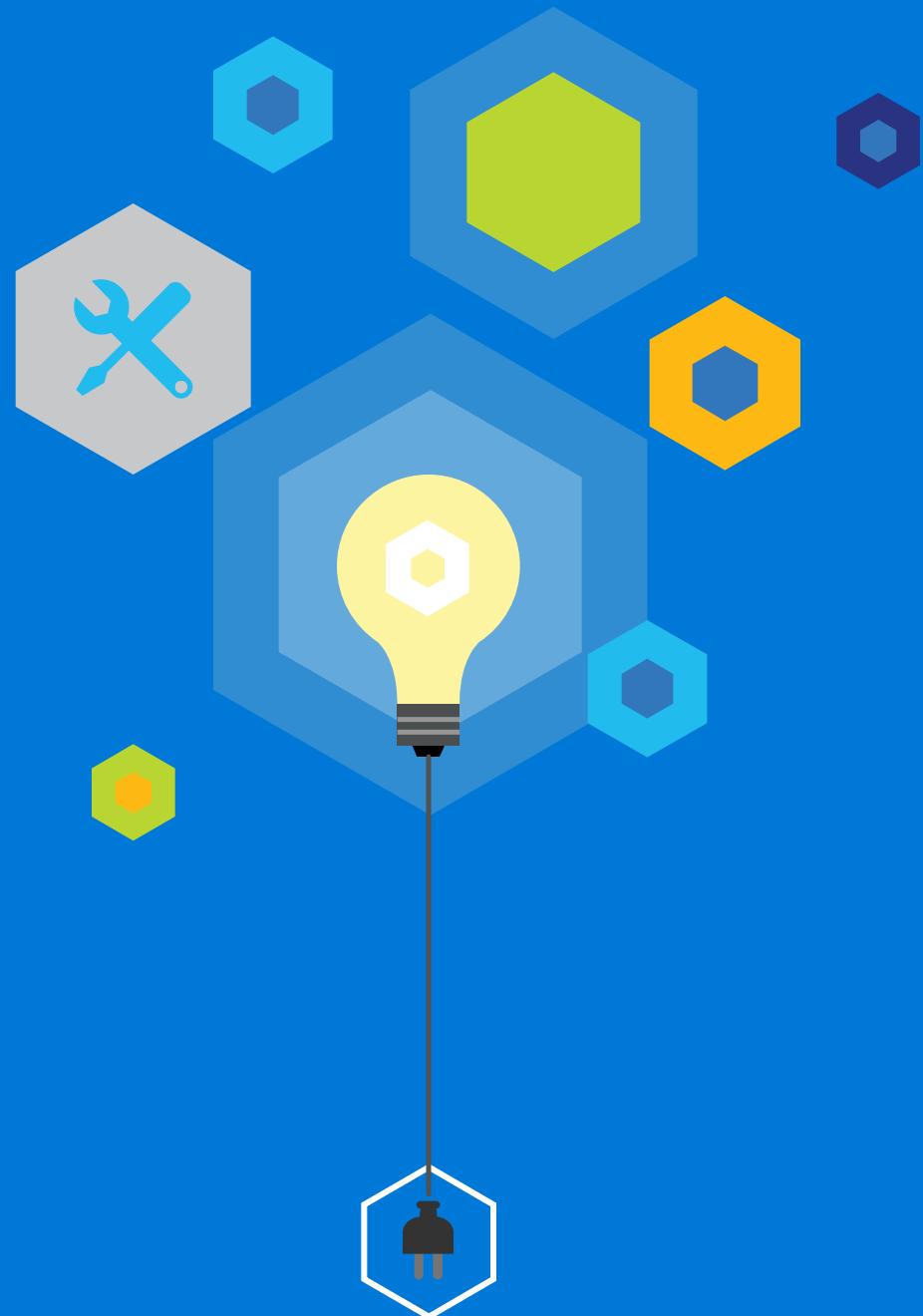
Natural Language Processing

(procesamiento de lenguaje natural)



LUIS

Language
Understanding
Intelligence
Service

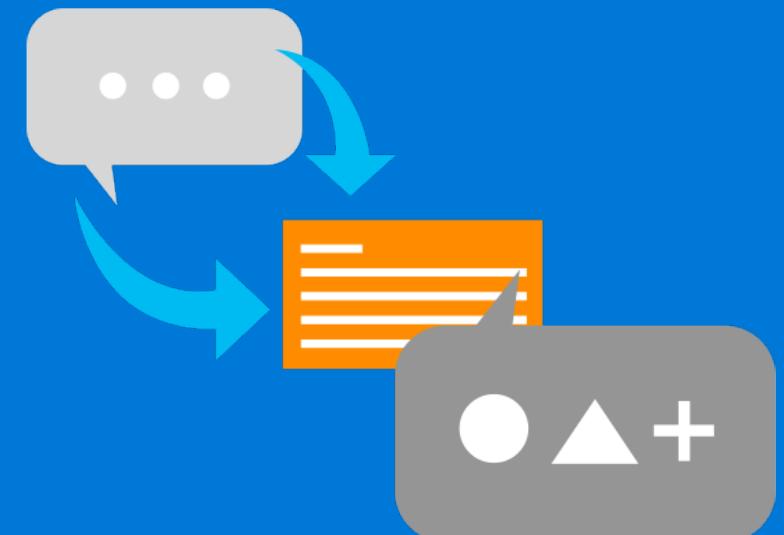


¿Cómo funciona LUIS?

- Detectar intenciones: *abrir cuenta, chequear sembrado, consultar riego*
- Detectar entidades: *vaca, semilla, usuario*
- .. Con un determinado grado de confianza..
- vía REST!

Hola, quiero **sembrar soja** en el **cuadrante 47**. 98%

Plis **poner soya** en el **cuadrante 47**, gracias!!!! 83%

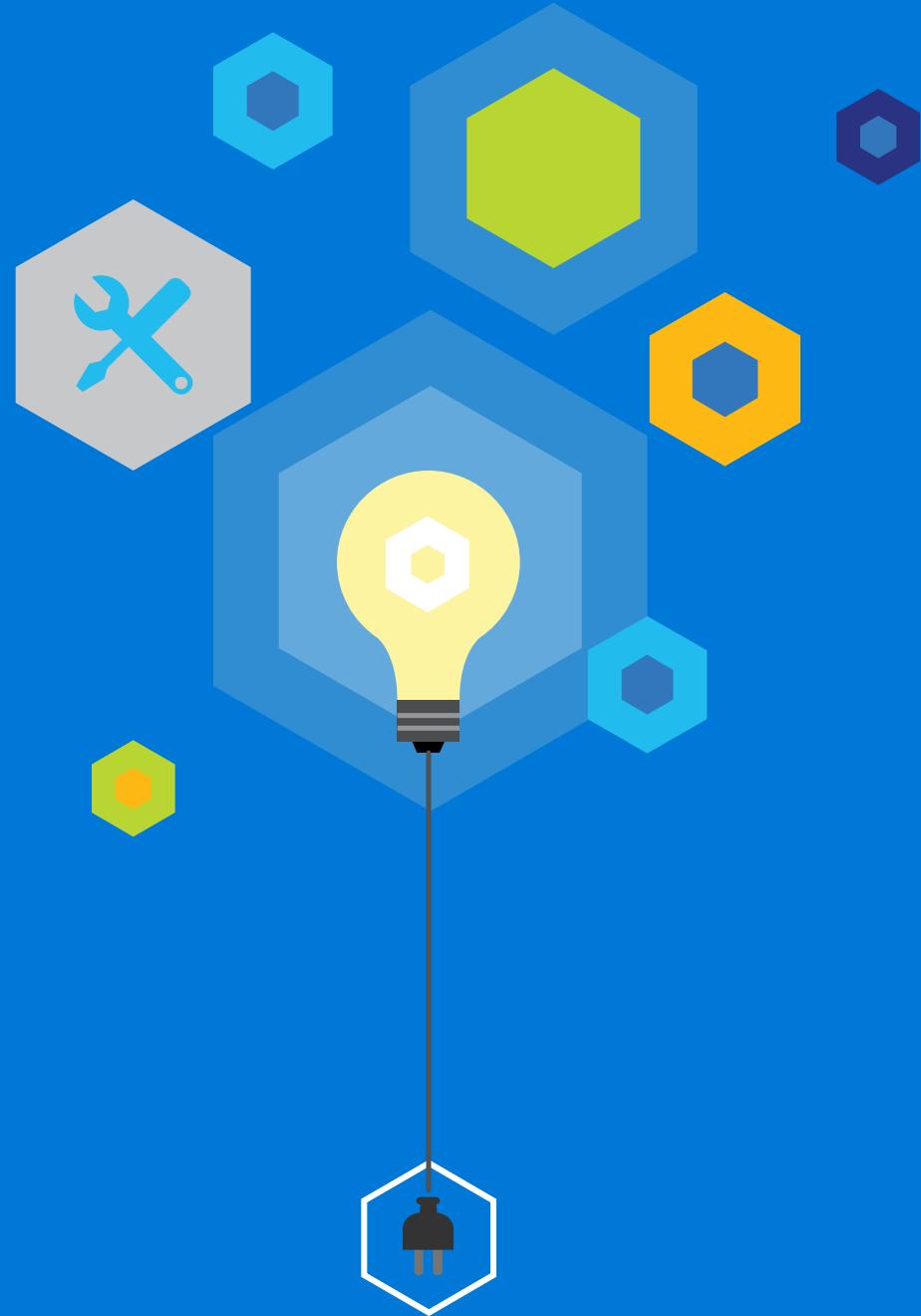


Misma intención y entidad, distinta manera de expresarlo.

Intención, Entidad, Confianza

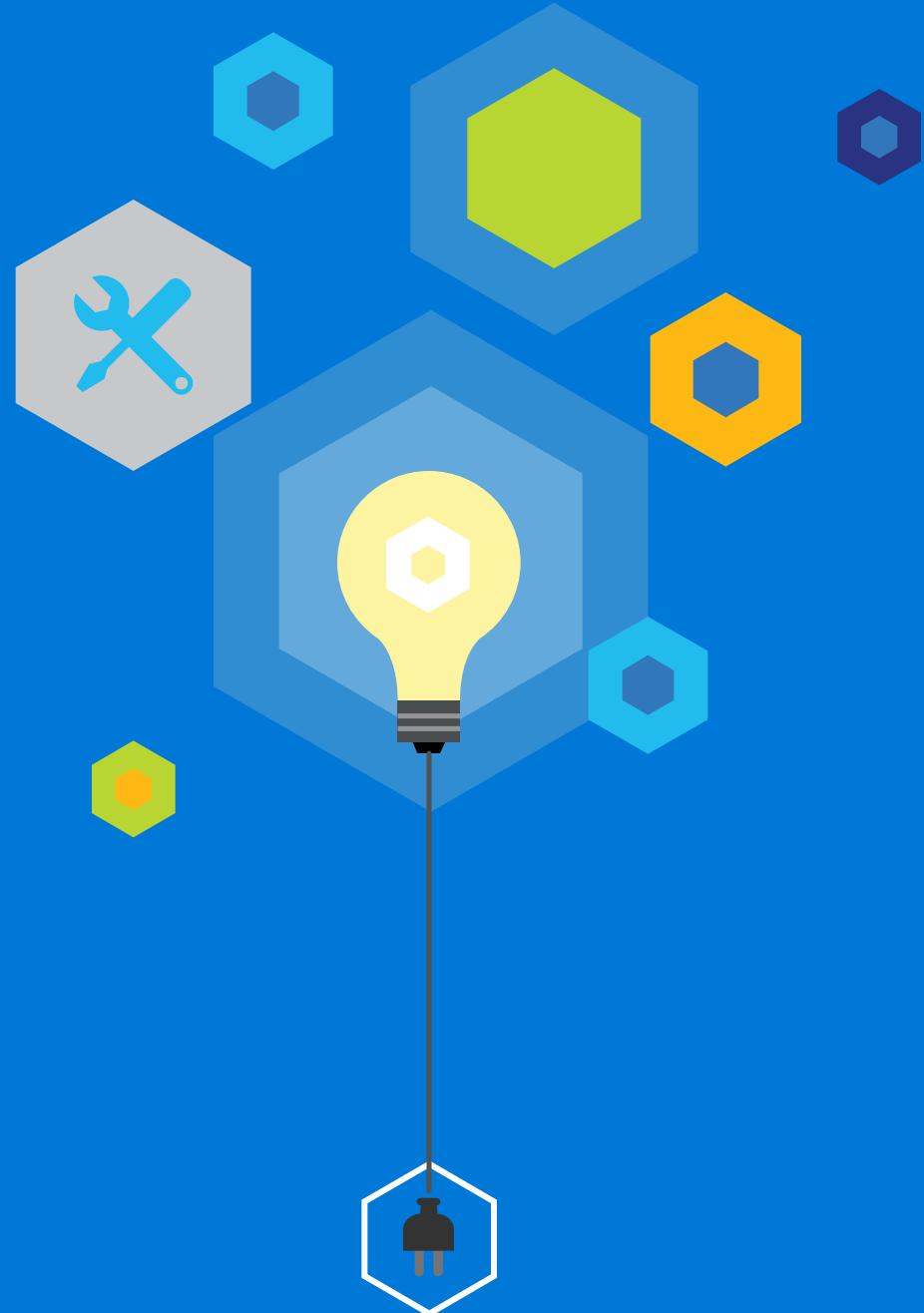
DEMO

LUIS.ai

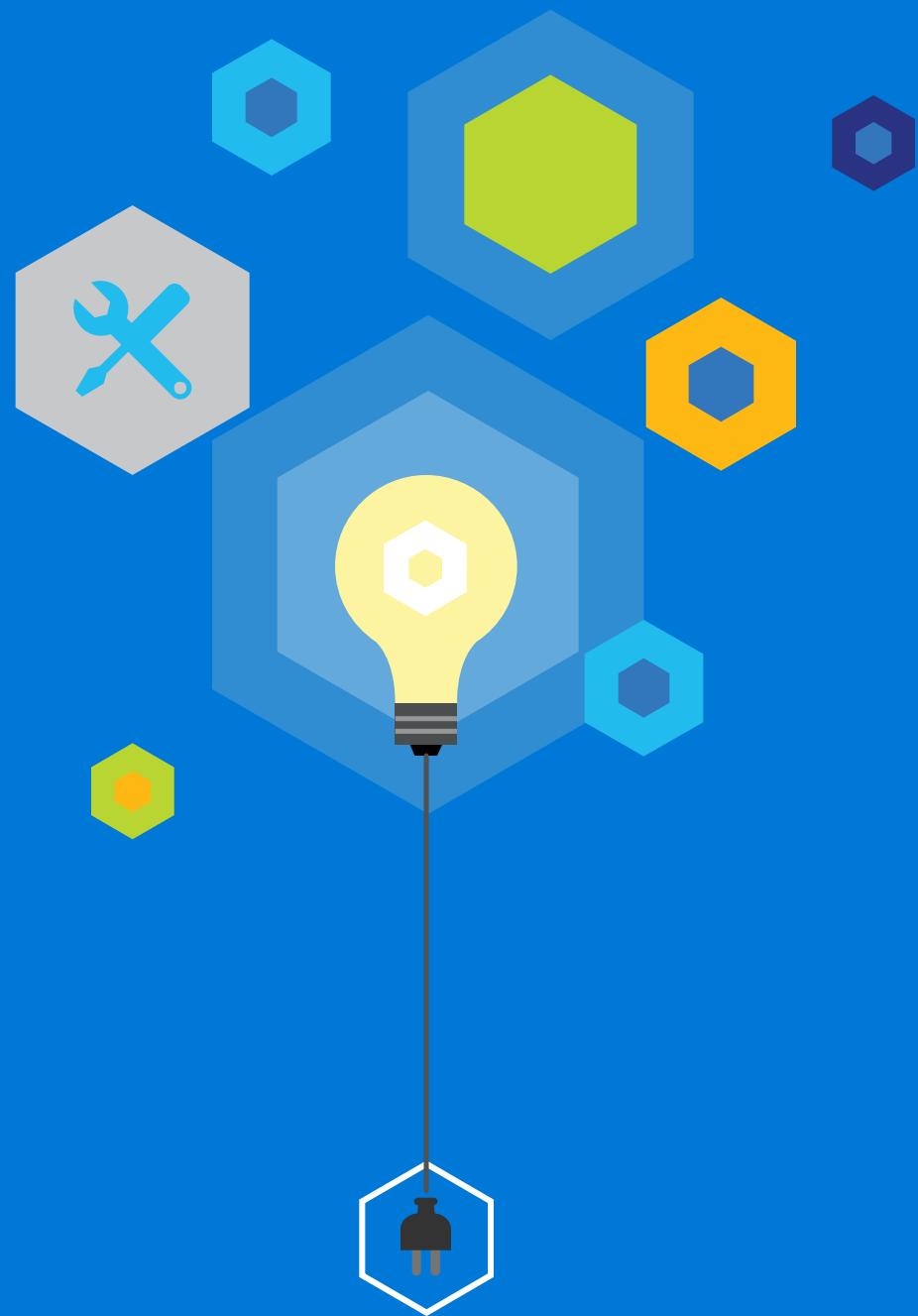


Construí tu propio LUIS

Luis.ai



Bots



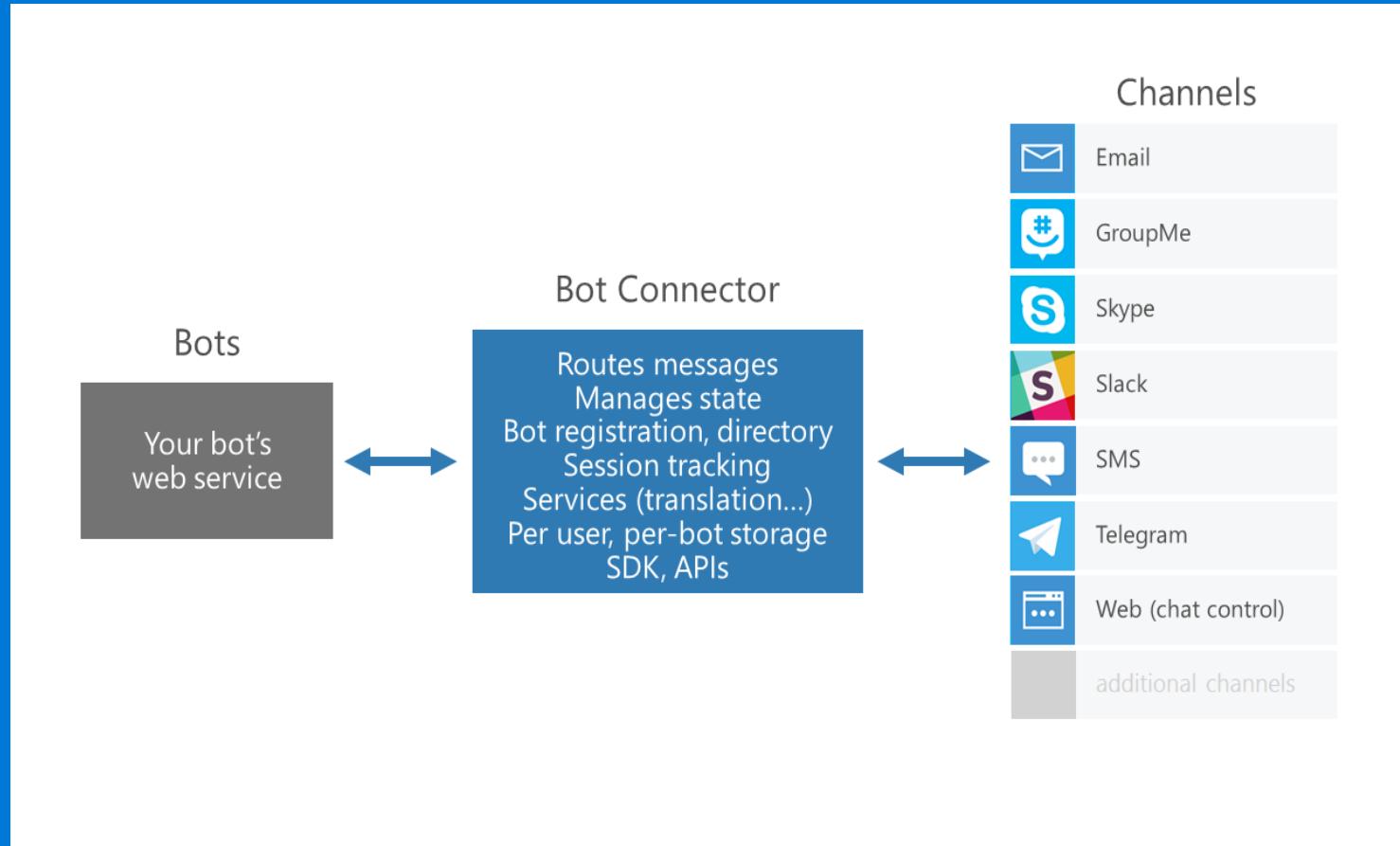
Microsoft Bot Builder

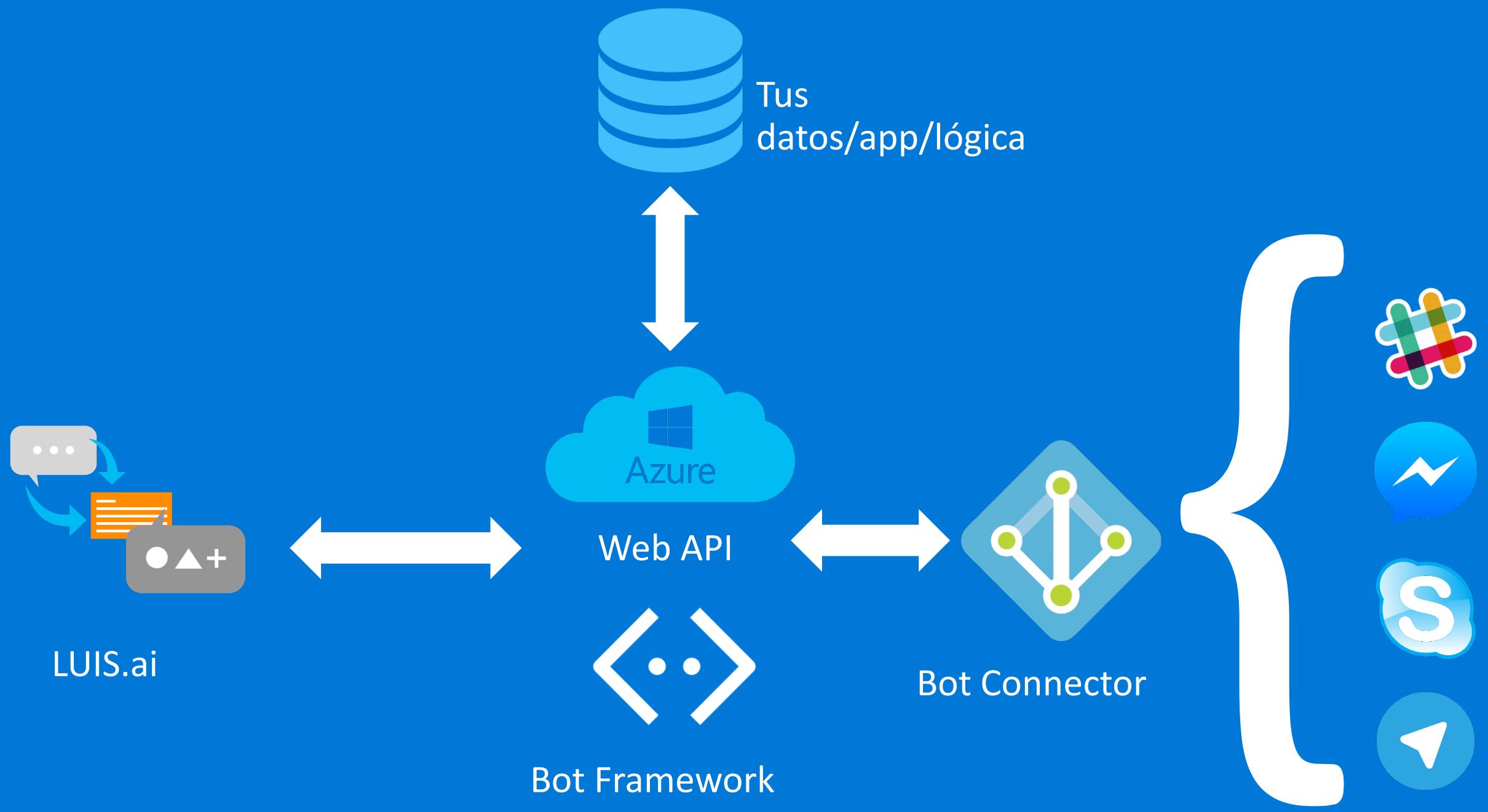
- Desarrollá con C# o Node.js
- Modela tus conversaciones
 - Diálogos reutilizables
 - Conversaciones escalables a multiples máquinas
 - Estado del diálogo almacenado en el conector (per-user, per-session, per- user+session)
- Tipos de diálogos:
 - Mensajes pre-construidos (prompts)
 - Yes/No, String, Number, Choices
 - Procesamiento de lenguaje natural (LUIS)
 - Llenar formularios, completar campos
 - Carga de perfiles (nombre, dirección, etc)

The screenshot shows the Microsoft Bot Framework website with the 'Bot Builder for Node.js' section selected. The left sidebar lists various sections like Overview, FAQ, Support, and specific guides for C# and Node.js. The main content area starts with a heading 'Getting Started' and a sub-section 'What is Bot Builder for Node.js and why should I use it?'. It explains that the framework is targeted at Node.js developers creating new bots from scratch, emphasizing its flexibility across communication platforms. Below this is an 'Install' section with instructions to get the BotBuilder module using npm, followed by a code snippet for installing the module. The next section is 'Build a bot', which includes a sample code snippet for a 'Hello World' bot. The final sections shown are 'Test your bot' (with instructions to use the Bot Framework Emulator) and 'Publish your bot' (with instructions to deploy to Microsoft Azure). At the bottom, there's a code editor window displaying a C# script for handling messages and order status.

```
case OrderStatus.ShowSpecials:
    replyMessage = message.CreateReplyMessage
    (string.Format("We've added {0} new items:{1}",
    Specials.Count(), Specials.GetSpecials()));
    ConvStatus.SetOrderStatus(OrderStatus.GetAddress);
    break;
case OrderStatus.GetAddress:
}
```

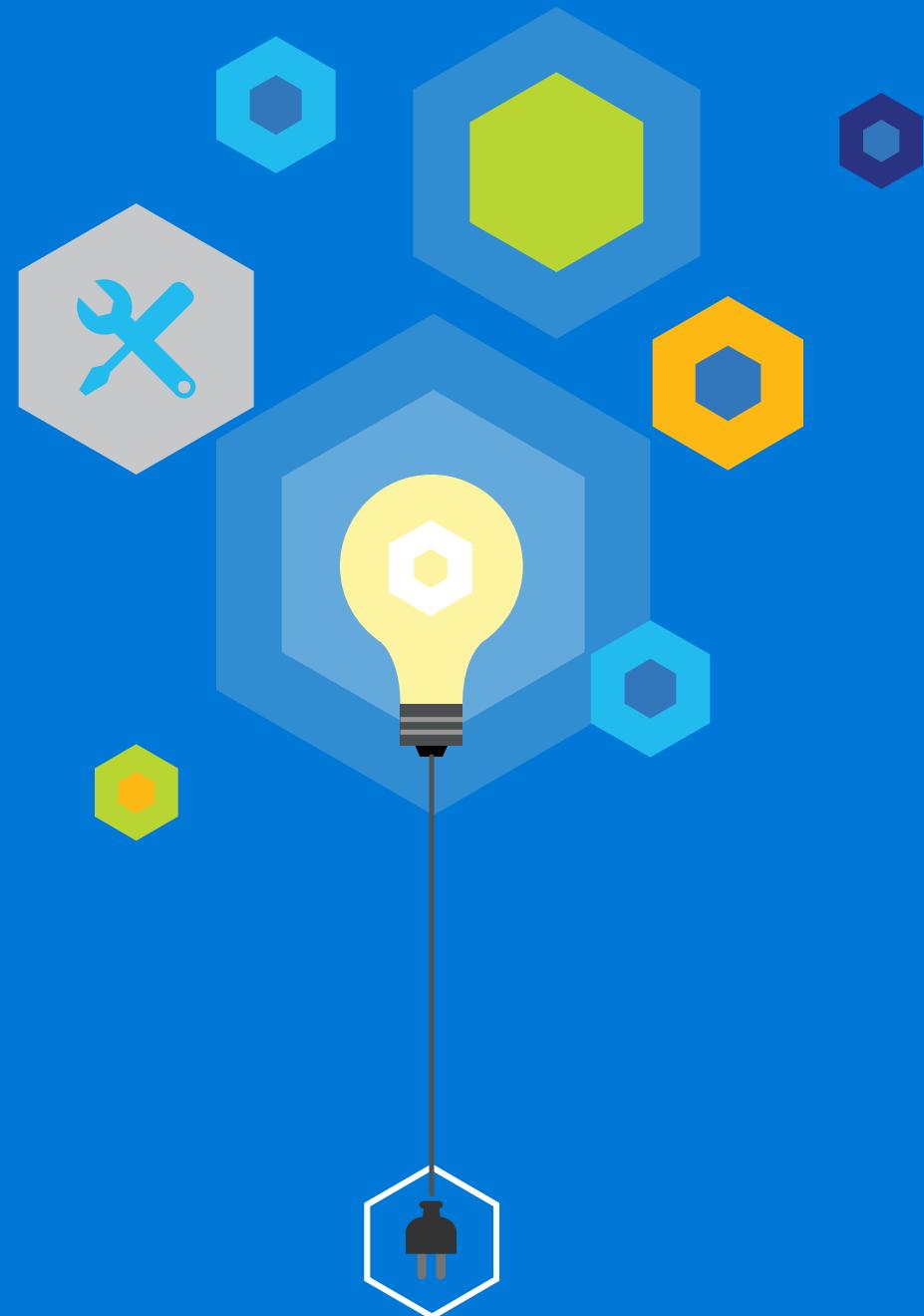
Microsoft Bot Connector





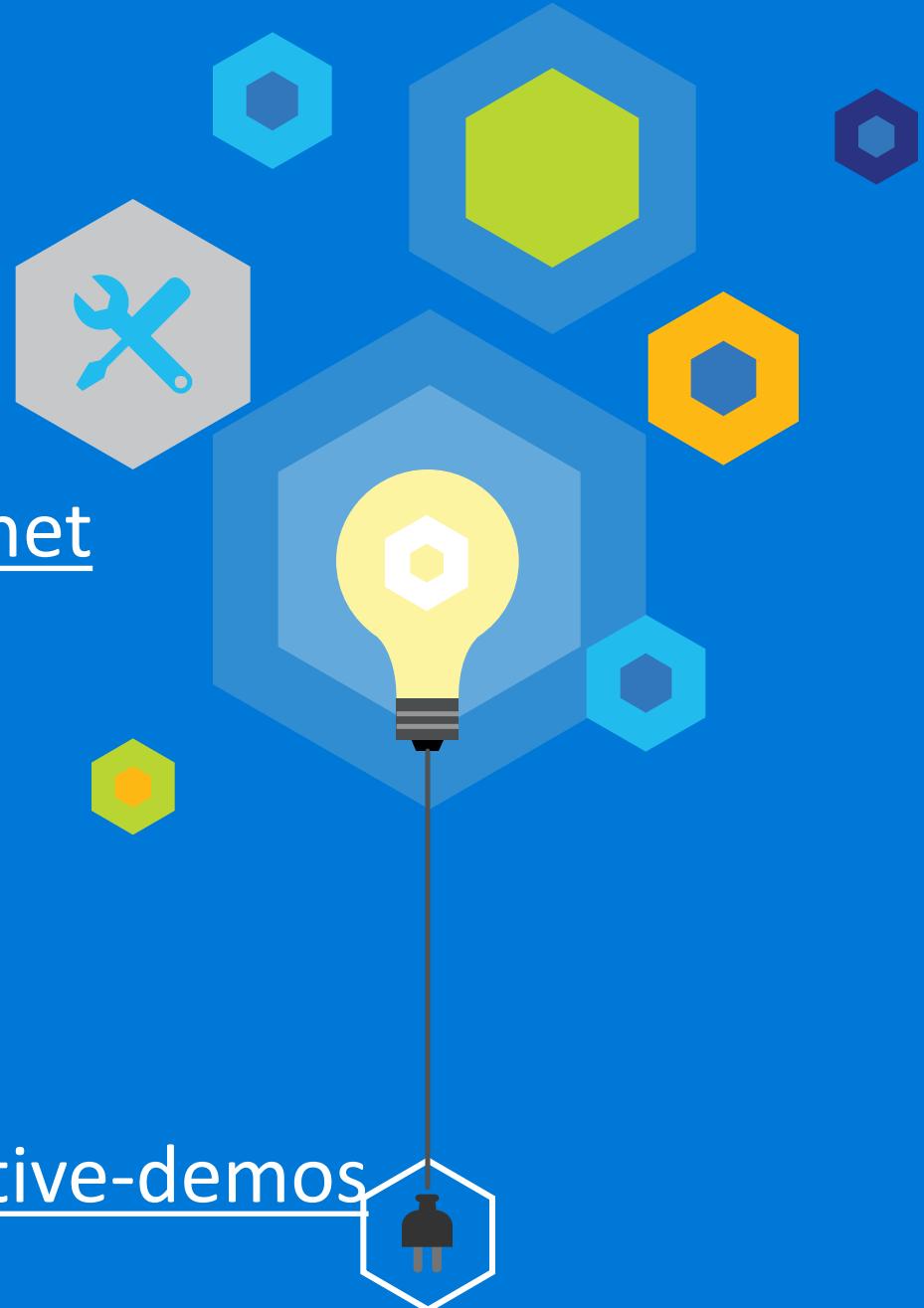
Arma tu bot

dev.botframework.com



Aprender más...

- Azure azure.microsoft.com
- Azure Machine Learning studio.azureml.net
 - Algoritmos: aka.ms/mlalgorithm
- Cognitive microsoft.com/cognitive
- LUIS.ai luis.ai
- Bot Framework dev.botframework.com
- [@mfelman](https://twitter.com/mfelman) en Twitter!
- Code: Github.com/marcelofelman/cognitive-demos





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