

IBM Watson's Visual Recognition & IOT APIs

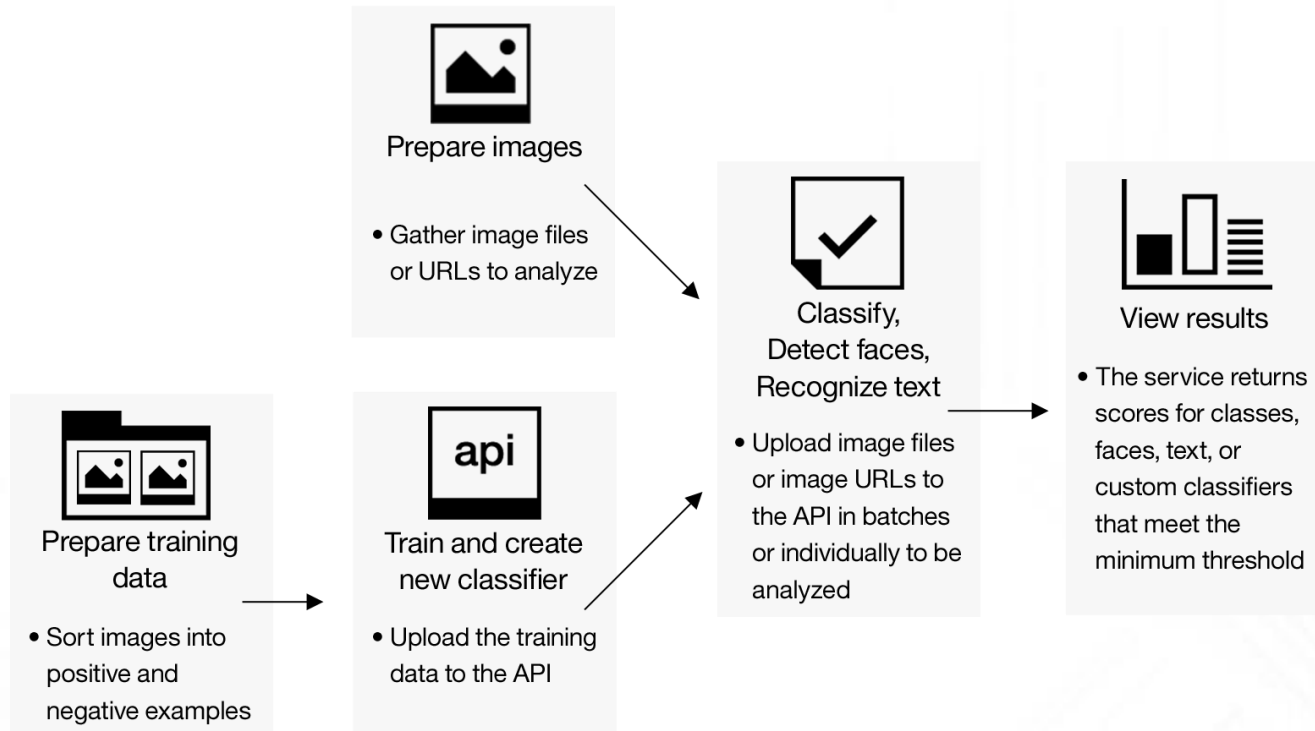


Content:

- **Visual Recognition Main Concept.**
- IOT Main Concept.
- Our Idea.
- Improving the Mute quality of life.
- Healthcare application.
- Educational application.

How it works

Using the Visual Recognition Service



Use Case

The Visual Recognition service can be used for diverse applications and industries, such as:

- ◆ **Manufacturing:** Use images from a manufacturing setting to make sure products are being positioned correctly on an assembly line
- ◆ **Visual Auditing:** Look for visual compliance or deterioration in a fleet of trucks, planes, or windmills out in the field, train custom classifiers to understand what defects look like
- ◆ **Insurance:** Rapidly process claims by using images to classify claims into different categories.
- ◆ **Social listening:** Use images from your product line or your logo to track buzz about your company on social media
- ◆ **Social commerce:** Use an image of a plated dish to find out which restaurant serves it and find reviews, use a travel photo to find vacation suggestions based on similar experiences, use a house image to find similar homes that are for sale
- ◆ **Retail:** Take a photo of a favorite outfit to find stores with those clothes in stock or on sale, use a travel image to find retail suggestions in that area
- ◆ **Education:** Create image-based applications to educate about taxonomies, use pictures to find educational material on similar subjects

Supported languages

- ◆ The Classify an image method supports English (en), Spanish (es), Arabic (ar), and Japanese (ja) for default classes. Custom classifiers returned with this method support only English. Collections methods are language agnostic.
- ◆ All other methods support English only.

Availability

- ◆ On May 20, 2016, the Visual Recognition service released in General Availability (GA). And there is a steps explain how to upgrade from beta to GA.
- ◆ Any custom classifiers that were created while the service was in Beta will not be available in GA and must be recreated in a GA instance of the service. To use the GA features of the Visual Recognition service with a IBM® Bluemix® application that uses a beta instance of the service, complete following steps.

Available Service

- ◆ Classify an image
- ◆ Detect faces
- ◆ Custom classifiers
- ◆ Collections - BETA

Classify an image

- Upload images or URLs to identify classes by default. To identify custom classifiers, include the `classifier_ids` or `owners` parameters. Images must be in .jpeg, or .png format. For each image, the response includes a score for each class within each selected classifier. Scores range from 0 - 1 with a higher score indicating greater likelihood of the class being depicted in the image. The default threshold for reporting scores from a classifier is 0.5. We recommend an image that is a minimum of 224 x 224 pixels for best quality results.

Detect faces

- Analyse faces in images and get data about them, such as estimated age, gender, plus names of celebrities. Images must be in .jpeg, or .png format. This functionality is **not trainable**, and does not support general biometric facial recognition. For each image, the response includes face location, a minimum and maximum estimated age, a gender, and confidence scores. Scores range from 0 - 1 with a higher score indicating greater correlation.

Custom classifiers

- Create a classifierTrain a new multi-faceted classifier on the uploaded image data. A new custom classifier can be trained by several compressed (.zip) files, including files containing positive or negative images (.jpg, or .png). You must supply at least two compressed files, either two positive example files or one positive and one negative example file. Compressed files containing positive examples are used to create "classes" that define what the new classifier is. The prefix that you specify for each positive example parameter is used as the class name within the new classifier. The "_positive_examples" suffix is required. There is no limit on the number of positive example files you can upload in a single call. The compressed file containing negative examples is not used to create a class within the created classifier, but does define what the new classifier is not. Negative example files should contain images that do not depict the subject of any of the positive examples. You can only specify one negative example file in a single call.

Collections - BETA

- Beta. Create a new collection, add images to that collection, and then use Similarity Search to search the collection for similar images.

Data collection

- By default, Bluemix collects data from all requests and uses the data to improve the services. If you do not want to share your data, set a header parameter `X-Watson-Learning-Opt-Out` with the value `true` for all requests. If you do not specify this header in all payload data, data is collected and used to improve the service.

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Watson IoT platform



A cognitive IoT will transform entire industries

IBM Watson IoT

#WatsonIoT

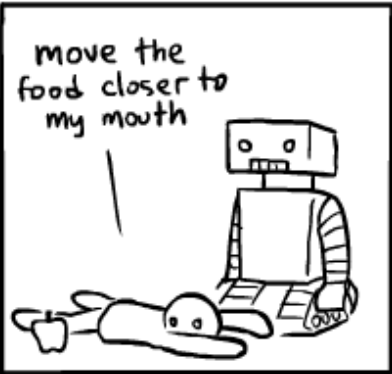
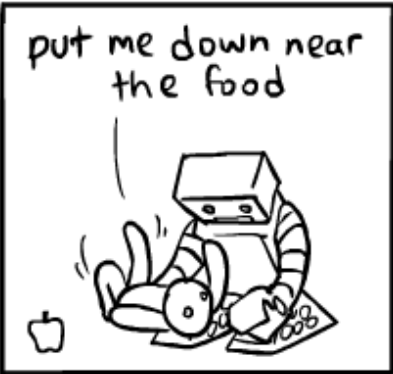
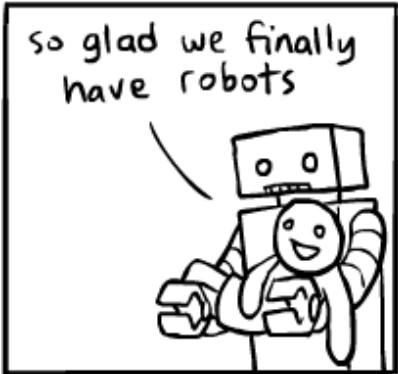
The graphic features a dark blue background with a large red hexagon containing a white sun icon. To the right, there are white line-art icons of an airplane and a satellite. A yellow vertical bar with horizontal lines is positioned above the text, and a teal vertical bar is below it. The overall design is clean and modern, emphasizing technology and connectivity.

IBM Watson™ IoT Platform provides

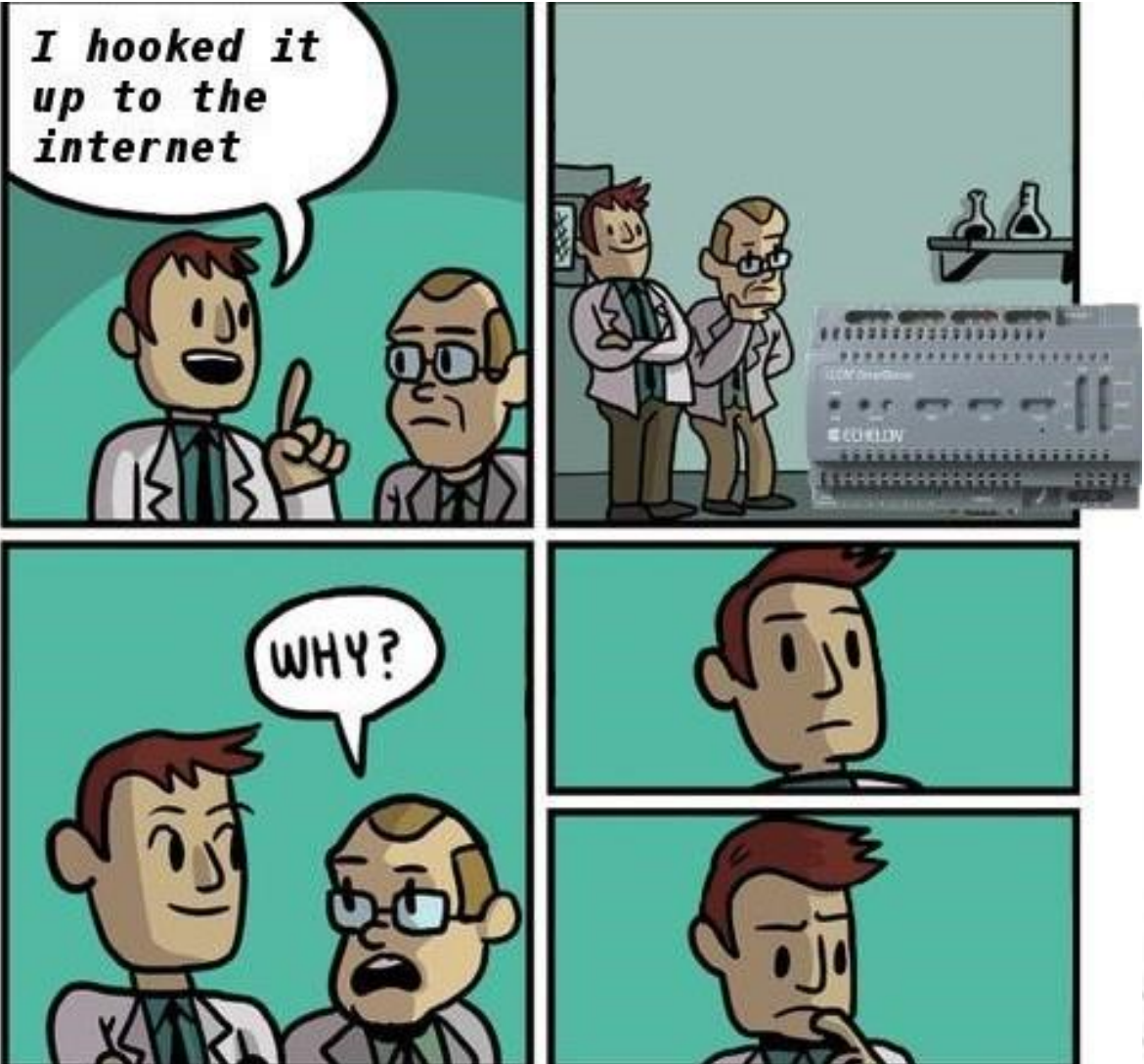
- ❑ Perform powerful device management operations .
- ❑ Store and access device data .
- ❑ Connect a wide variety of devices and gateway devices .
- ❑ Risk Management : Secure communication to and from your devices by using MQTT and TLS .



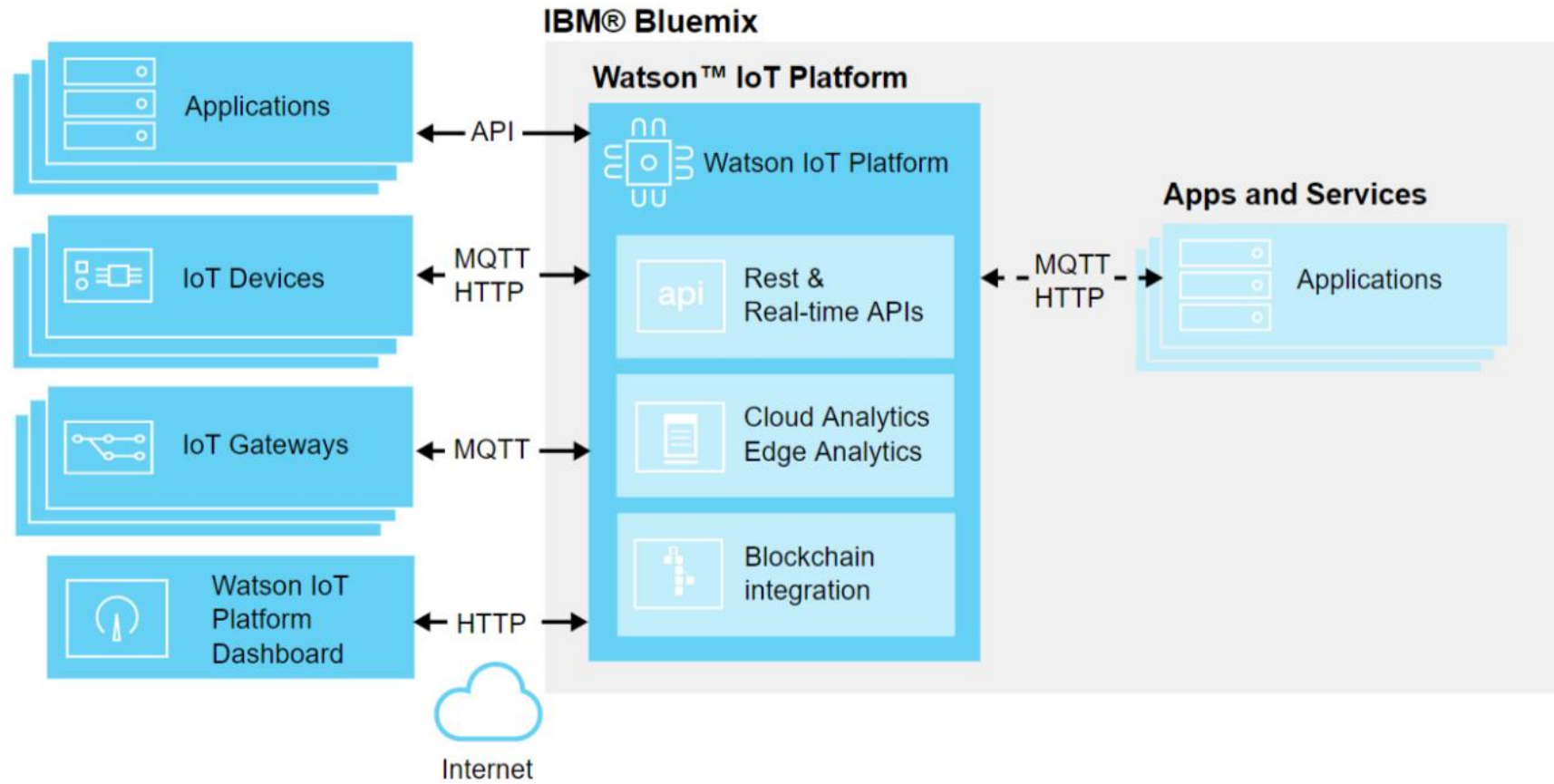
How normal people see IOT combined with artificial intelligence :



WHY !!!



Architecture of the Watson IoT Platform

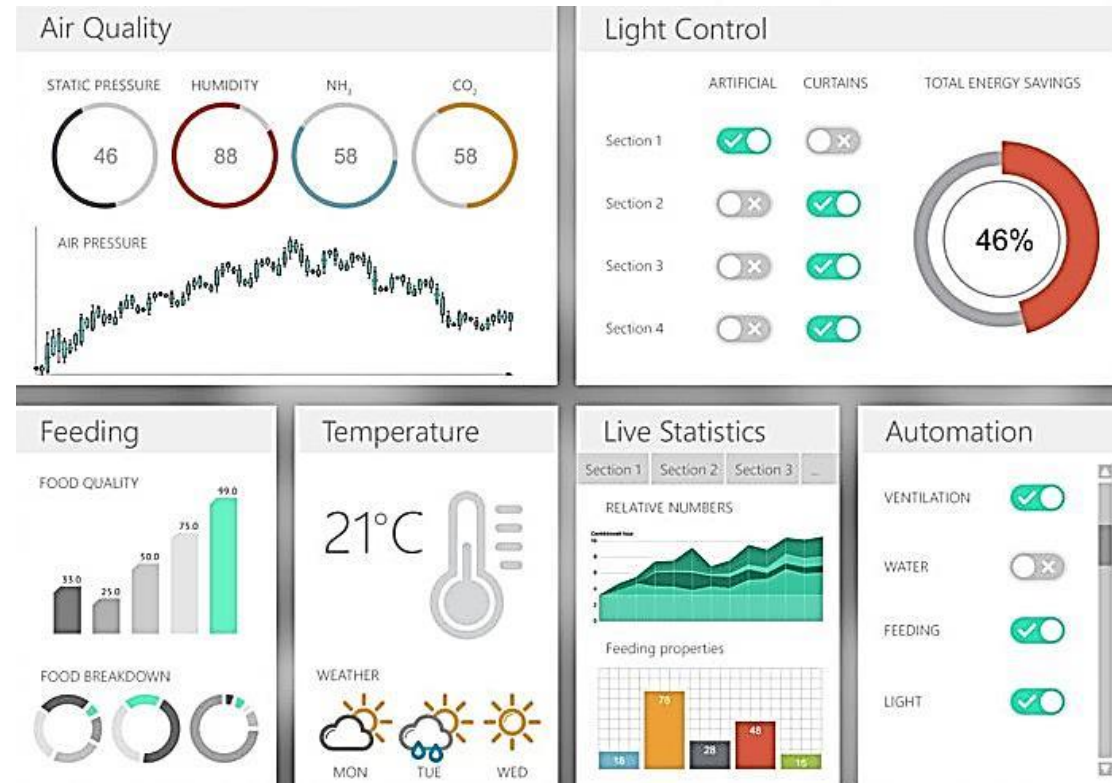


IBM Watson™ IoT Platform Analytics Real-Time Insights service

The Watson IoT Platform communicates with your applications and devices by using the Watson IoT Platform API and the Watson IoT Platform messaging protocol.

The Watson IoT Platform dashboard connects as a front-end user interface to simplify operations within the platform.

Device data can be stored or used with analytics solutions.



Organizations

- When you register you are given an organization ID of a unique six characters for your account .
- Organizations ensure that your data is only accessible by your devices and applications .
- After registration, devices and API keys are bound to a single organization. When an application connects to the service by using an API key .
- For your security, it is impossible for cross-organization communication. The only way to transmit data between two organizations is to create an application within each organization that will communicate with applications in the other organization .

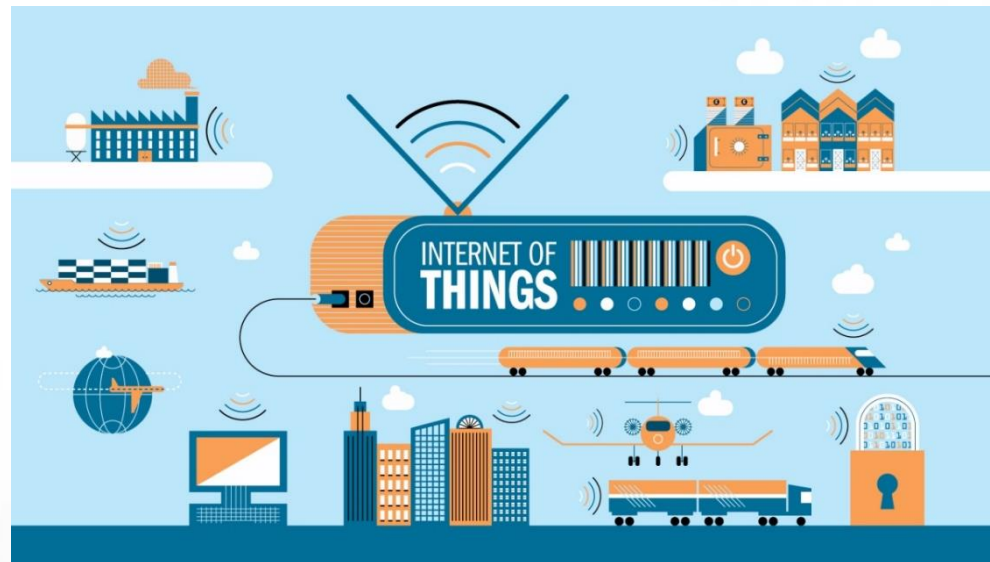
Devices

- The device could be any thing that pushes data to the cloud through internet
- The Device works with application (receive commands / send Events)
- Devices must be registered before they can connect to the Watson IoT Platform

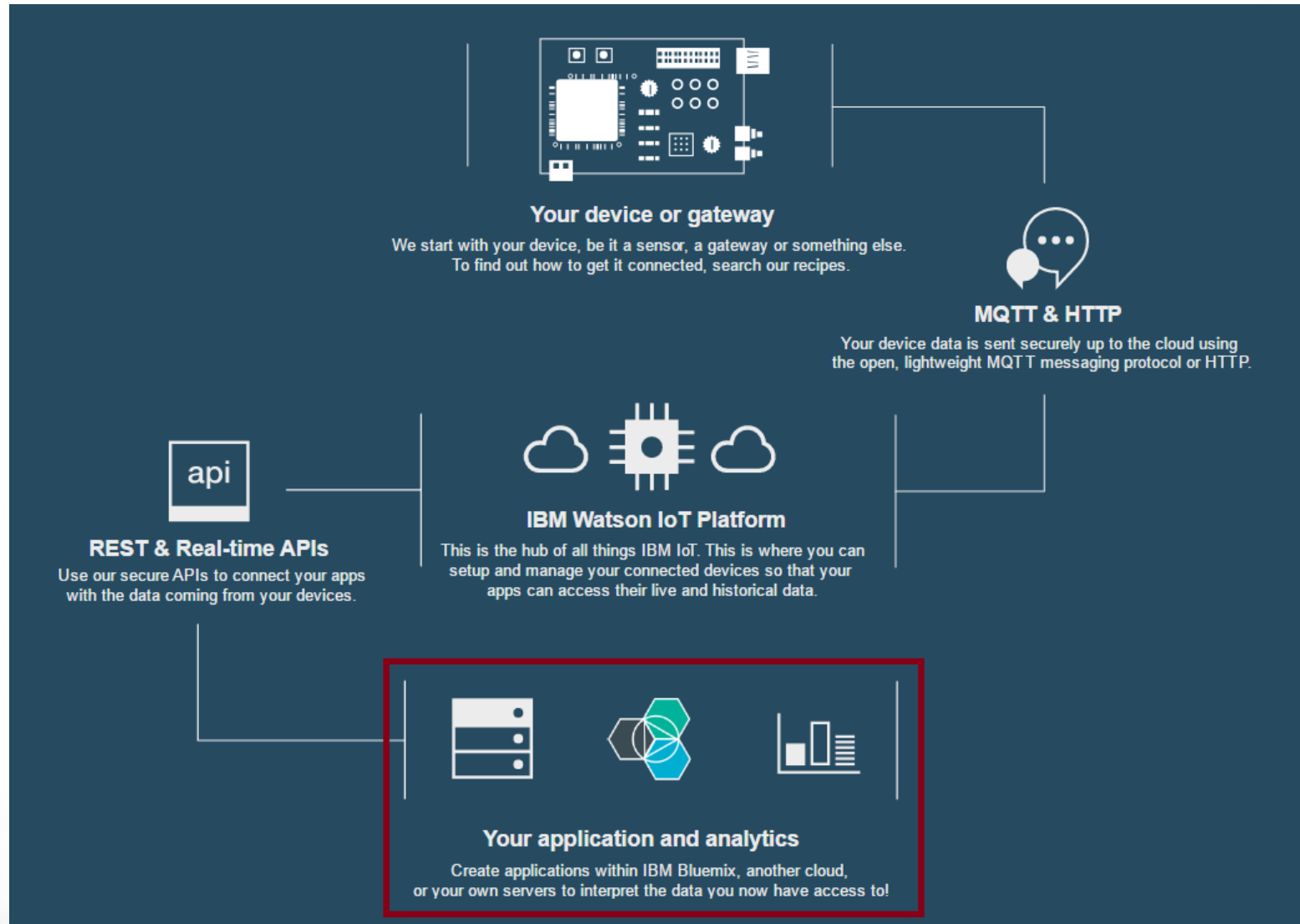
- The Watson IoT Platform recognizes two classes of device
 - managed devices (location updates, firmware updates, reboots, and factory resets)
 - unmanaged devices (don't support device management operations)

Gateways & Applications

- Gateways are specialized devices that grant normal devices which can not connect to the platform directly through the internet.
- Gateways must be registered before they can connect to the service.
- Application has internet access and interacts with data from devices and control the behaviour of those devices.
- Applications identify themselves with the Watson IoT Platform by using an API key and a unique application ID.



Over view



Interactive Sign Language

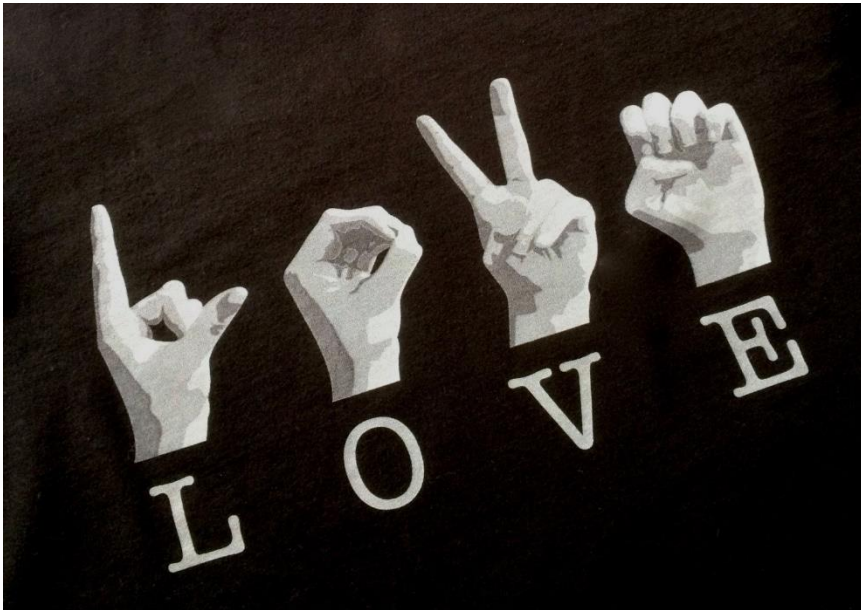
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Our Idea.



Improving the Mute quality of life

Turning your gestures into action.

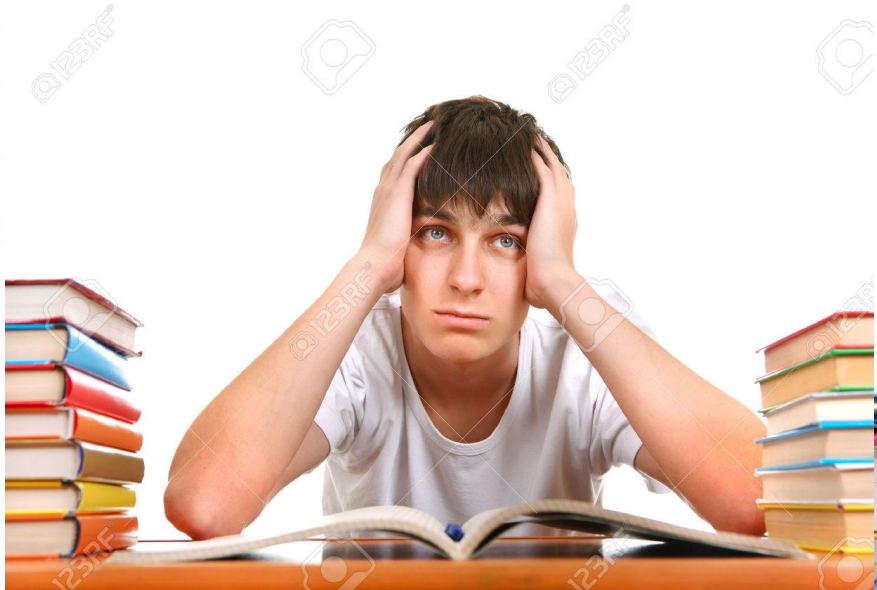


Healthcare application



Educational application

- Improving education quality by visualizing the students body language and taking action.



Educational application

- Yawning excessively is when the act of yawning occurs in close succession. When you yawn, your mouth opens and you take in a deep, long breath.
- Some scientists theorize people yawn because of a lack of oxygen.
- Depending on the class visualization we can take action to turn on the room ventilation system OR inform the professor via earpiece to take action (maybe a 10 minutes break is recommended).
- And many more...

Thank you for your attention

Questions?