

Serverless powered web forms with Slack

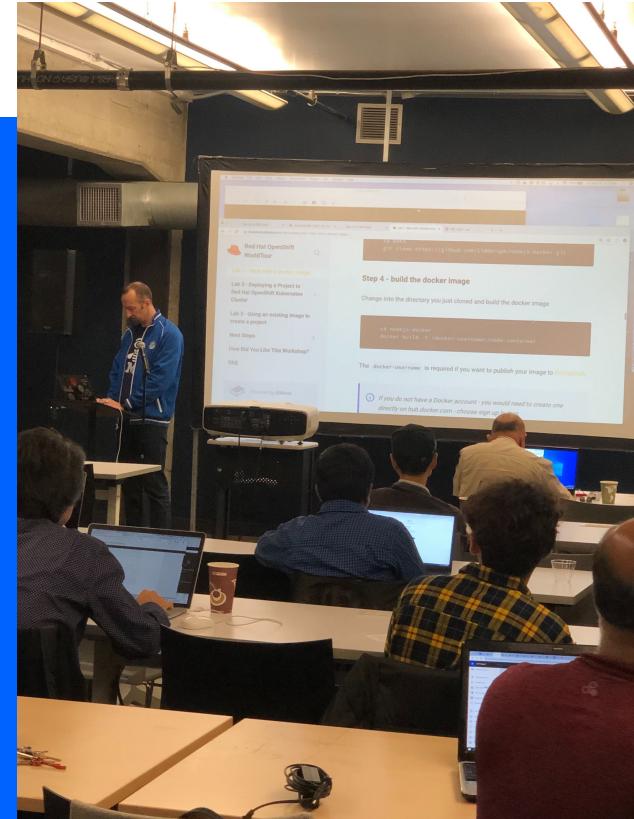
Marek Sadowski

Developer Advocate, IBM

- Serverless
- Containers
- AI
- Edge Computing

V1 2020 08 31

<http://ibm.biz/202008-serverless>



Introduction

The Cloud is a key component of today's startup market in Silicon Valley and beyond.

Some of the leading clouds are AWS, Azure, IBM Cloud, Alibaba and TenCent and others.

IBM Cloud accounts:

IBM Free Lite account:

Doesn't require a credit card and offers free access to over 40 IBM Cloud services including IBM Watson®.

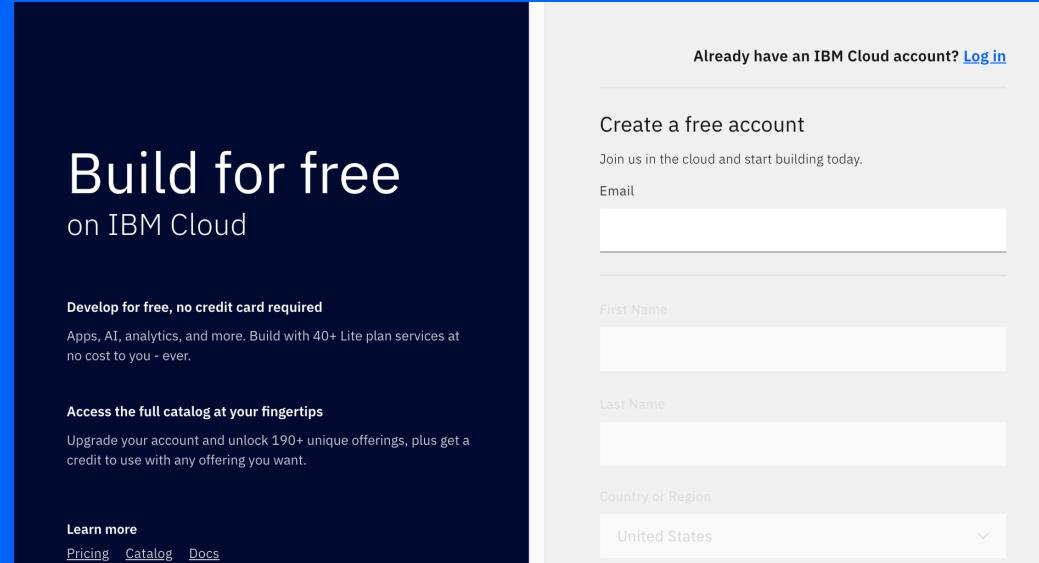
Pay-as-you-go account:

You are only billed for the resources that you use without the hassle of commitments

<https://www.ibm.com/cloud/pricing>

Signup to the IBM cloud

<http://ibm.biz/202008-serverless>



The image shows the IBM Cloud sign-up landing page. The left side features a dark blue background with white text. It says "Build for free" in large font, followed by "on IBM Cloud". Below that are two sections: "Develop for free, no credit card required" and "Access the full catalog at your fingertips". The right side has a light gray background with form fields for "Email", "First Name", "Last Name", and "Country or Region". There is also a dropdown menu set to "United States". At the top right, there is a link to "Log in".

Already have an IBM Cloud account? [Log in](#)

Create a free account

Join us in the cloud and start building today.

Email

First Name

Last Name

Country or Region United States

Build for free
on IBM Cloud

Develop for free, no credit card required

Apps, AI, analytics, and more. Build with 40+ Lite plan services at no cost to you - ever.

Access the full catalog at your fingertips

Upgrade your account and unlock 190+ unique offerings, plus get a credit to use with any offering you want.

[Learn more](#)

[Pricing](#) [Catalog](#) [Docs](#)

IBM Cloud Catalog

<https://cloud.ibm.com/catalog>

The screenshot shows the IBM Cloud Catalog interface. At the top, there's a navigation bar with links for Catalog, Docs, Log in, and Sign up. Below the navigation is a search bar labeled "Search the catalog...". A sidebar on the left contains a "Services" tab (which is highlighted in blue) and a "Software" tab. Under the "Services" tab, a dropdown menu is open, showing "All Categories" and a list of service categories: VPC Infrastructure, Compute, Containers, Networking, Storage, AI, Analytics, Databases, Developer Tools, Integration, Internet of Things, and Security and Identity. To the right of the sidebar, the main content area has a heading "Services" and a sub-section titled "Featured". The "Featured" section highlights the "Kubernetes Service", which is described as "Deploy secure, highly available apps in a native Kubernetes experience." It includes icons for the service, its category (Compute > Containers), and a note about it being free and IAM-enabled. On the far right edge of the main content area, there are "FEEDBACK" and "HELP" buttons.

Backend as a Service progression

IaaS	CaaS	PaaS	FaaS/Serverless
Functions	Functions	Functions	Functions
Applications	Application	Applications	Applications
Runtimes	Runtimes	Runtimes	Runtimes
Operating Systems	Operating Systems	Operating Systems	Operating Systems
Infrastructure	Infrastructure	Infrastructure	Infrastructure

Provided by
Developer

Virtualization
Provided by Cloud



What is Serverless Computing?

Requires no management and operation of infrastructure, enabling developers to focus more narrowly on code/custom business logic.

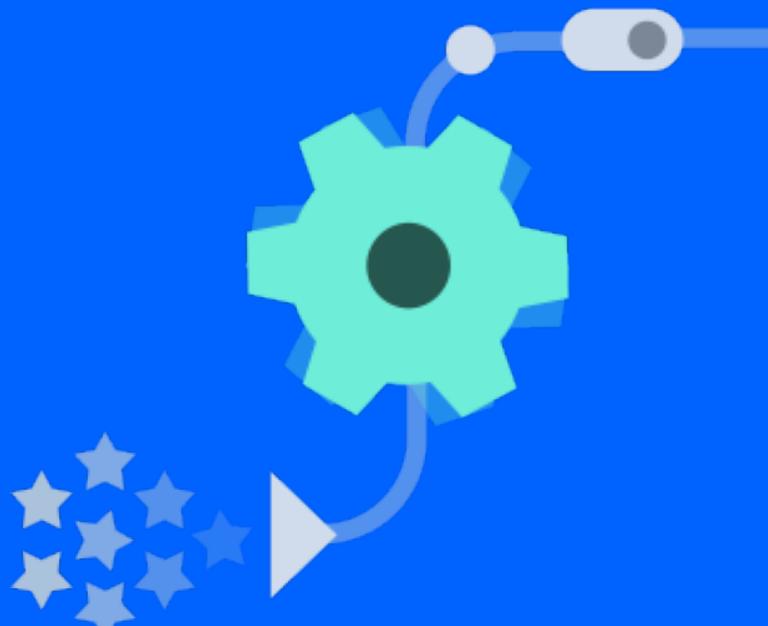
Runs code only on-demand on a per-request basis, scaling transparently with the number of requests being served.

Enables end users to pay only for resources being used, never paying for idle capacity.

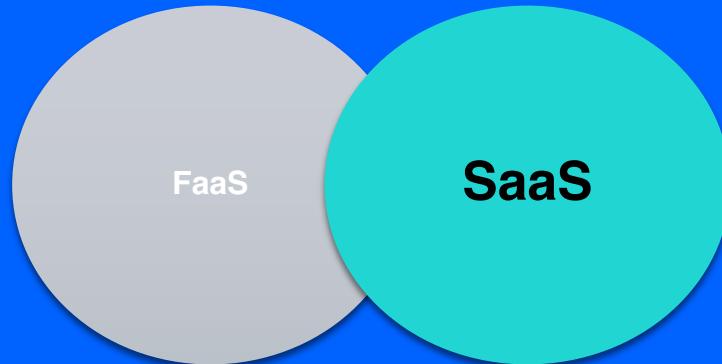
When did Serverless Computing start?

- AWS Lambda is an event-driven, serverless computing platform
- provided by Amazon as a part of Amazon Web Services.
- It is a computing service that runs code in response to events
- and automatically manages the computing resources required
- by that code.
- It was introduced in November 2014

Serverless computer providers



Serverless and SaaS



IBM Cloud Functions

<https://cloud.ibm.com/functions/>

IBM Cloud Functions

Functions-as-a-Service (FaaS) platform based on Apache OpenWhisk

Run your application code without servers, scale it automatically, and pay nothing when it's not in use.

[Start Creating](#) [Download CLI](#)

Developer Advocacy_Cloud Developer ...
Dallas (CF-Based)



Create

Let's write Hello World!

Single entities



Action

Actions contain code performing the work and can be invoked directly (REST API) or by Triggers.



Trigger

Triggers receive events from outside IBM Cloud Functions and invoke all connected Actions.



Sequence

Sequences invoke Actions in a linear order, passing parameters from one to the next.



Starters



Quickstart Templates

Choose from a number of available use cases, from a hello world action to invoking functions from Cloudant or Event Streams.



Installable Packages

Installable packages contain pre-made actions you can use to quick start your project. You are able to delete or edit them afterwards.



1. Action
2. Trigger
3. Sequence
4. Quickstart Templates
5. Installable Packages

Quickstart Templates

Get started quickly using one of the Templates. A number of use cases are available, from a hello world action to invoking functions from Cloudant or Event Streams.

Hello World

This action will accept a single parameter, which must be a JSON object.

Cloudant Events

When a Cloudant DB has a document edited or added, log the change in the console.

Event Streams

When an Event Streams topic has new data added, log the change in the console.

Get HTTP Resource

A web action that is invoked in response to a HTTP event.

Periodic Slack

Reminder

An action that will post to slack based on a periodic trigger.

[Previous](#)

[Cancel](#)

Let's write Hello World!

Deploy Template

Hello World

This action will accept a single parameter, which must be a JSON object.

This Template creates:
 Action helloworld

 Add to a Package

Create a Package to place your Template Actions in. Packages act like folders, and contain only Actions and/or Sequences.

Package Name

A package by this name already exists.

Action helloworld

Actions are stateless code snippets that run in response to events. They can be invoked manually, via a Trigger, or API calls.

Choose runtime for the actions you will own.

Node.js 10

```
1- /**
2 * 
3 * main() will be invoked when you Run This Action.
4 * 
5 * @param Cloud Functions actions accept a single parameter,
6 *      which must be a JSON object.
7 * 
8 * In this case, the params variable will look like:
9 *      { "name": "xxxx" }
10 * 
11 * @return which must be a JSON object.
12 *      It will be the output of this action.
13 * 
14 */
15- function main(params) {
16-   if (params.name) {
17-     return { greeting: `Hello ${params.name}` };
18-   } else {
19-     return { greeting: 'Hello stranger!' };
20-   }
21- }
22- exports.main = main;
23-
```

[Cancel](#)

[Previous](#)

[Deploy](#)



Let's write Hello World!

Code ⓘ Node.js 10 View mode - press Enter to edit Change Input ↛ Invoke ⓘ

```
1  /**
2  *
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21
22 exports.main = main;
23
```



Let's write Hello World!

Activations	Collapse ↗	Clear ✎
▼ ✓ helloworld	81 ms	1/12/2020, 08:16:31
Activation ID: cfe5eb9c8d0f4189a5eb9c8d0f018990		
Results: <pre>{ "greeting": "Hello stranger!" }</pre>		
Logs: []		

Hands-on

Sign up to the IBM Cloud: <http://ibm.biz/202008-serverless>

- gitbook:

<http://ibm.biz/2020-cloudnative-lab1>

Welcome to the workshop!

Build your business on IBM Cloud or "how to build your business on IBM Cloud". Please follow the next section.

Start lean

Let us start by imagining us as a brand new two-person startup with seed funding of \$1.1 million from a friendly Venture Capitalist. What cloud should we use and what version? There are quite a few clouds to choose between; AWS, Azure, the IBM Cloud, the Google Cloud and others.

Let's select the IBM Cloud. To read up on the IBM Cloud let's check here:

<https://www.ibm.com/cloud>

Let's then check what benefits IBM may give us as a startup company.

Startup with IBM - Build with free IBM Cloud credits and grow your business

Startup with IBM. Build. Scale. Win. With \$120,000 in free IBM Cloud



Watson AI Services

AI

 Watson Assistant IBM • AI	 Watson Studio IBM • AI	 Annotator for Clinical Data IBM • AI	 Compare and Comply IBM • AI	 Discovery IBM • AI	 Insights for Medical Literature IBM • AI
Watson Assistant lets you build conversational interfaces into any application device or channel	Embed AI and machine learning into your business. Create custom models using your own data	Analyze text to extract medical codes and concepts such as diseases, lab values, medications	Process governing documents to convert, identify, classify, and compare important elements	Add a cognitive search and content analytics engine to applications.	Search a medical literature corpus and discover insights.
Lite • Free • IAM-enabled	Lite • Free • IAM-enabled	Lite • Free • IAM-enabled	Lite • Free • IAM-enabled	Lite • Free • IAM-enabled	Lite • Free • IAM-enabled
 Knowledge Catalog IBM • AI	 Knowledge Studio IBM • AI	 Language Translator IBM • AI	 Machine Learning IBM • AI	 Natural Language Classifier IBM • AI	 Natural Language Understanding IBM • AI
Discover, catalog, and securely share enterprise data.	Teach Watson the language of your domain.	Translate text, documents, and websites from one language to another. Create industry or region-specific models.	IBM Watson Machine Learning - make smarter decisions, solve tough problems, and improve user experience.	Natural Language Classifier uses advanced natural language processing and machine learning	Analyze text to extract meta-data from content such as concepts, entities, emotion relations
Lite • Free • IAM-enabled	Lite • Free • IAM-enabled	Lite • Free • IAM-enabled	Lite • Free • IAM-enabled	Free • IAM-enabled	Lite • Free • IAM-enabled
 Personality Insights IBM • AI	 PowerAI Third party • AI	 Speech to Text IBM • AI	 Text to Speech IBM • AI	 Tone Analyzer IBM • AI	 Visual Recognition IBM • AI
The Watson Personality Insights service derives insights from transactional and social media data to identify personality traits.	The accelerated deep learning platform for enterprise. Built on the TRM PowerAI platform, powered by Watson.	Low-latency, streaming transcription	Synthesizes natural-sounding speech from text.	Tone Analyzer uses linguistic analysis to detect three types of tones from communications.	Find meaning in visual content! Analyze images for scenes, objects, and other content. Choose a default model.
Lite • Free • IAM-enabled	IAM-enabled	Lite • Free • IAM-enabled	Lite • Free • IAM-enabled	Lite • Free • IAM-enabled	Lite • Free • IAM-enabled
 Watson OpenScale IBM • AI					
IBM Watson OpenScale is an enterprise-grade environment for AI infused applications that provides automated monitoring, governance, and explainability.					
Lite • Free • IAM-enabled					

<https://cloud.ibm.com/catalog?category=ai>

Watson Visual Recognition



Author: IBM • Date of last update: 03/13/2020 • [Docs](#) • [API docs](#)

Create

About

Select a region

Select a region

Dallas

Select a pricing plan

Displayed prices do not include tax. More

Plan

Lite

Features:

Custom Models



Pre Trained Models



Watson has pre-trained models that are category-specific to enable you to analyze images for scenes, objects, colors, food, and other content. Click on an image on the right to see how Watson analyzes each image, or upload your own image. You can also see the results against the Food and Explicit Models.

By using this application, you agree to the [Terms of Use](#)

Configure your resource

Service name:

Visual Recognition-64



Paste an image URL here...

General Model

Quickly understand objects, actions, scenes, and colors within an image.

fabric **0.96**

gray color **0.95**

Harris Tweed (jacket) **0.87**

clothing **0.80**

tweed **0.79**

garment **0.52**

overgarment **0.52**

coat **0.51**

Norfolk jacket **0.50**

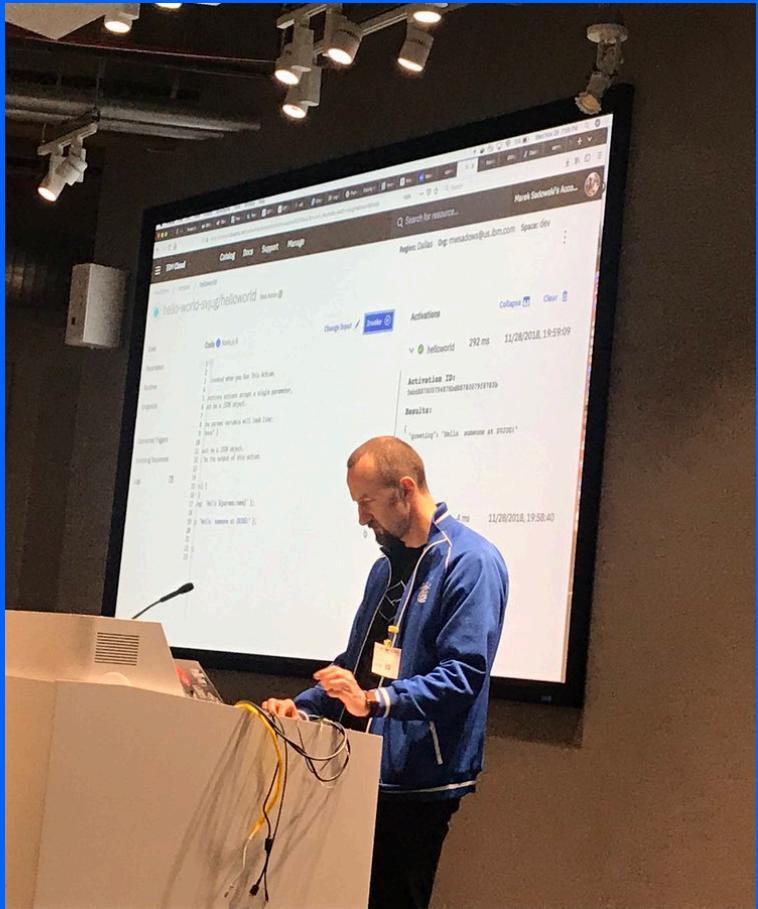
Food Model



Explicit Model



Hands-on



Sign up to the IBM Cloud: <http://ibm.biz/202006-cloudnative-1>

- gitbook:

<http://ibm.biz/2020-cloudnative-lab1>

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Startup with IBM - Build with free IBM Cloud credits and grow your business

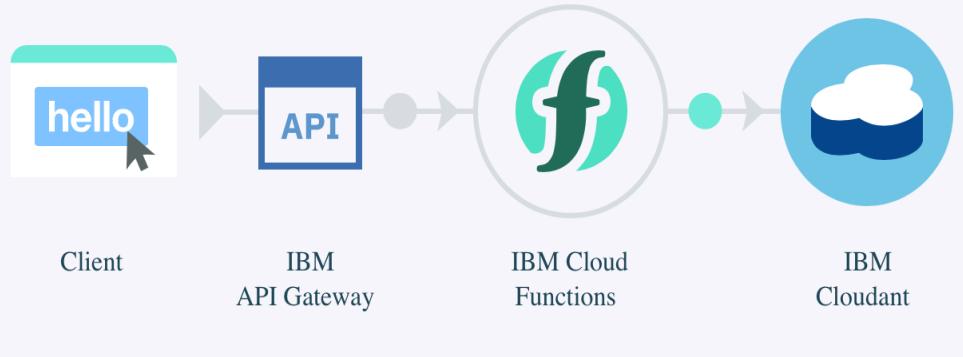
Startup with IBM. Build. Scale. Win. With \$120,000 in free IBM Cloud



What can I use Cloud functions for ?

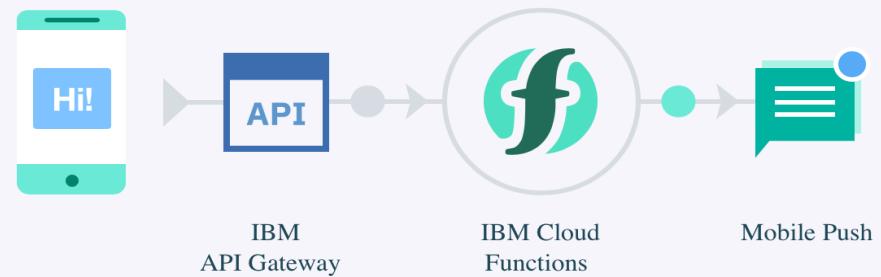
Serverless Backends

Expose application logic by implementing serverless microservices. Simply map your functions to well-defined API endpoints any client can call by making use of Web Actions or our latest API Gateway integration.



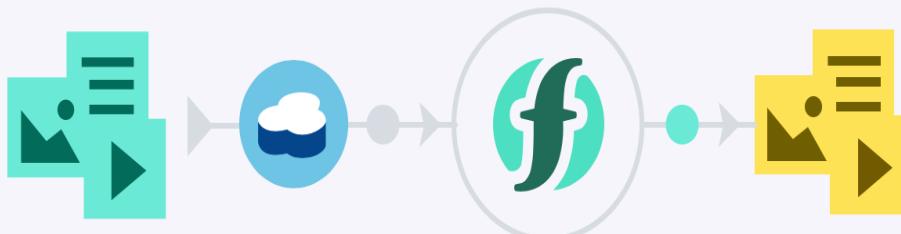
Mobile Backend

Allow mobile developers to easily access server-side logic and to outsource compute-intensive tasks to a scalable cloud platform. Let them implement functions in languages like Swift and easily consume server-side functions using our iOS SDK.



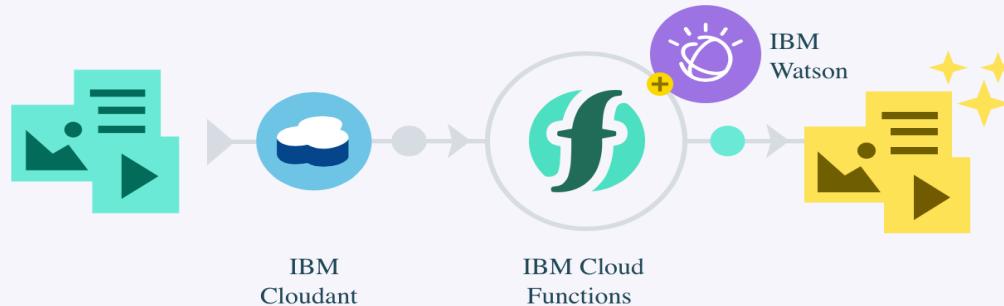
Data Processing

Execute code whenever data is updated in your datastore. Easily automate processes like audio normalization, image rotation, sharpening, noise reduction, thumbnail generation, or video transcoding.



Cognitive Data Processing

Analyze data as soon as it becomes available. Let your function make use of powerful cognitive services like IBM Watson to detect objects or people appearing in images or videos.



Case-Study: With Skylink, a drone is continuously taking and analyzing pictures while flying using an IBM Watson service.

IoT Ready

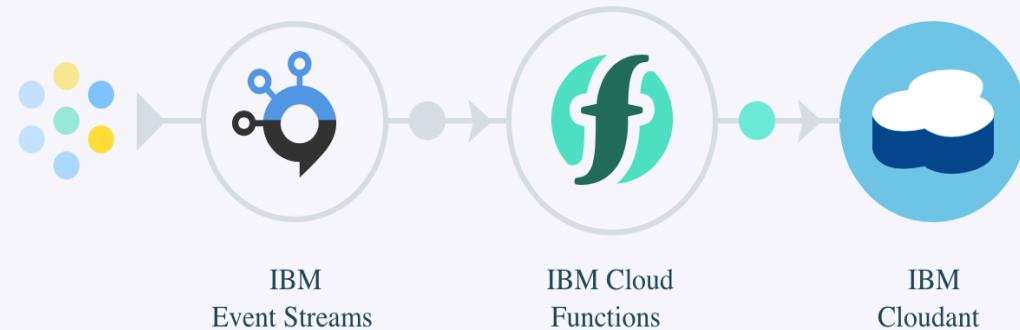
React to and process IoT sensor data. Let any IoT device send data to our IBM Watson IoT platform and define cloud rules to call your functions and execute custom application logic.



Case-Study: GreenQ: Cloud Functions for a Smart City Data Application.

Event Stream Processing

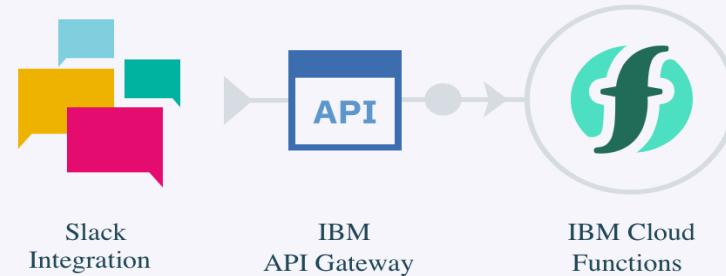
Process data in-motion and make your functions react to incoming messages. Benefit from our IBM Event Streams—an IBM Cloud managed Apache Kafka—integration.



Conversational Scenarios

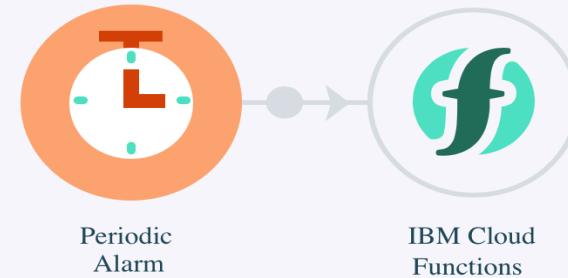
Implement serverless conversational applications, like chatbots, by passing chat messages to your functions for further processing.

[Go to tutorial](#)



Scheduled Tasks

Execute your functions periodically. Define schedules following a cron-like syntax to specify when actions are supposed to be executed.



IBM Cloud Functions

Functions-as-a-Service (FaaS) platform based on Apache OpenWhisk

Develop your functions directly in one of the [natively supported languages](#), or run code in any other language (including compiled Go, C, etc. binaries) by providing us with a Docker container.

Developer Advocacy_Cloud Developer ...
Dallas (CF-Based)



Python



.NET



Ruby



Any language
(via Docker)

Event Providers

Benefit from an ecosystem of event consumers and emitters from different areas like analytics, cognitive, data, IoT, mobile, and more. Using our open event-provider interface, [you can enable](#) any service you would like to use.



Github



Cloudant



Event
Streams



Mobile Push

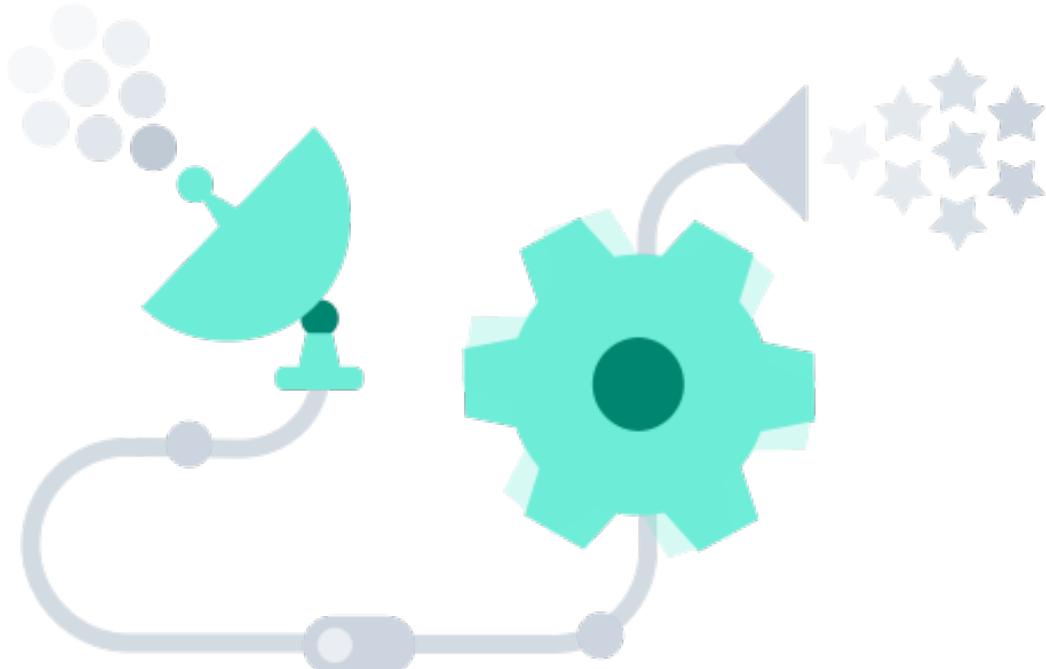


Periodic
Alarm

What is IBM Cloud Functions (Apache OpenWhisk)?

Serverless platform to execute code in response to events

Developed as
open source software
via Apache Foundation
openwhisk.org

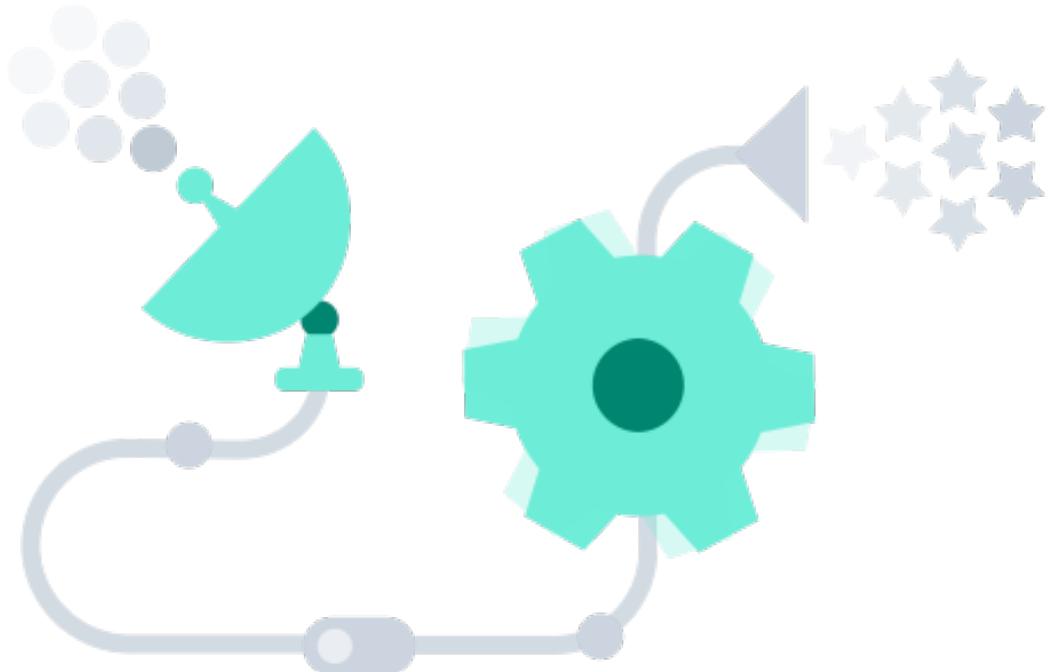


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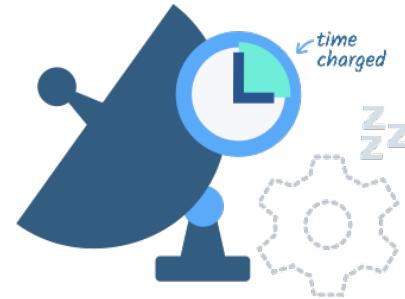


Managed service on
IBM Cloud
cloud.ibm.com/functions



Granular pricing

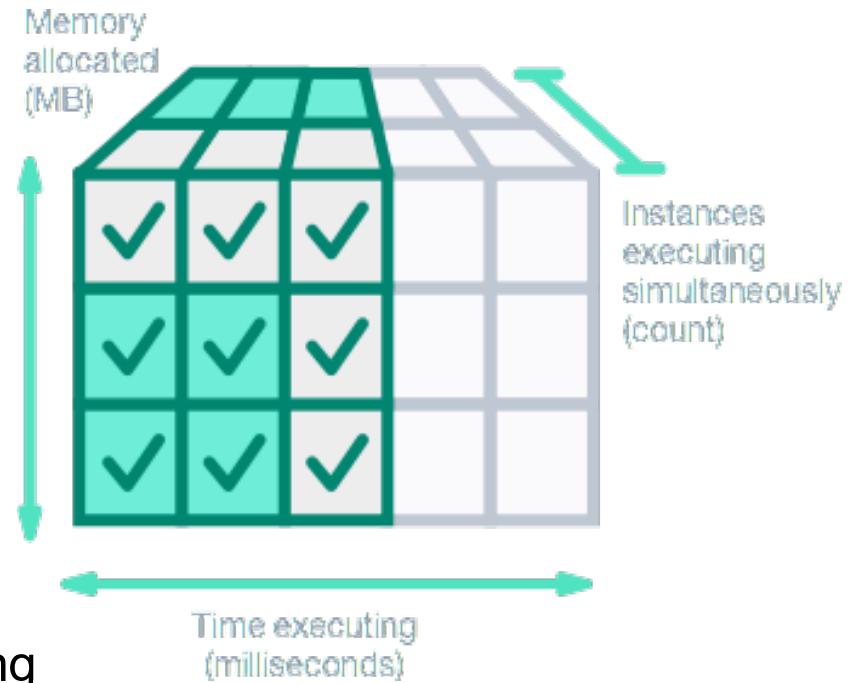
Pay only for the exact time your actions run. When an action is not invoked, it's not in memory, so you don't pay anything.



Pricing model

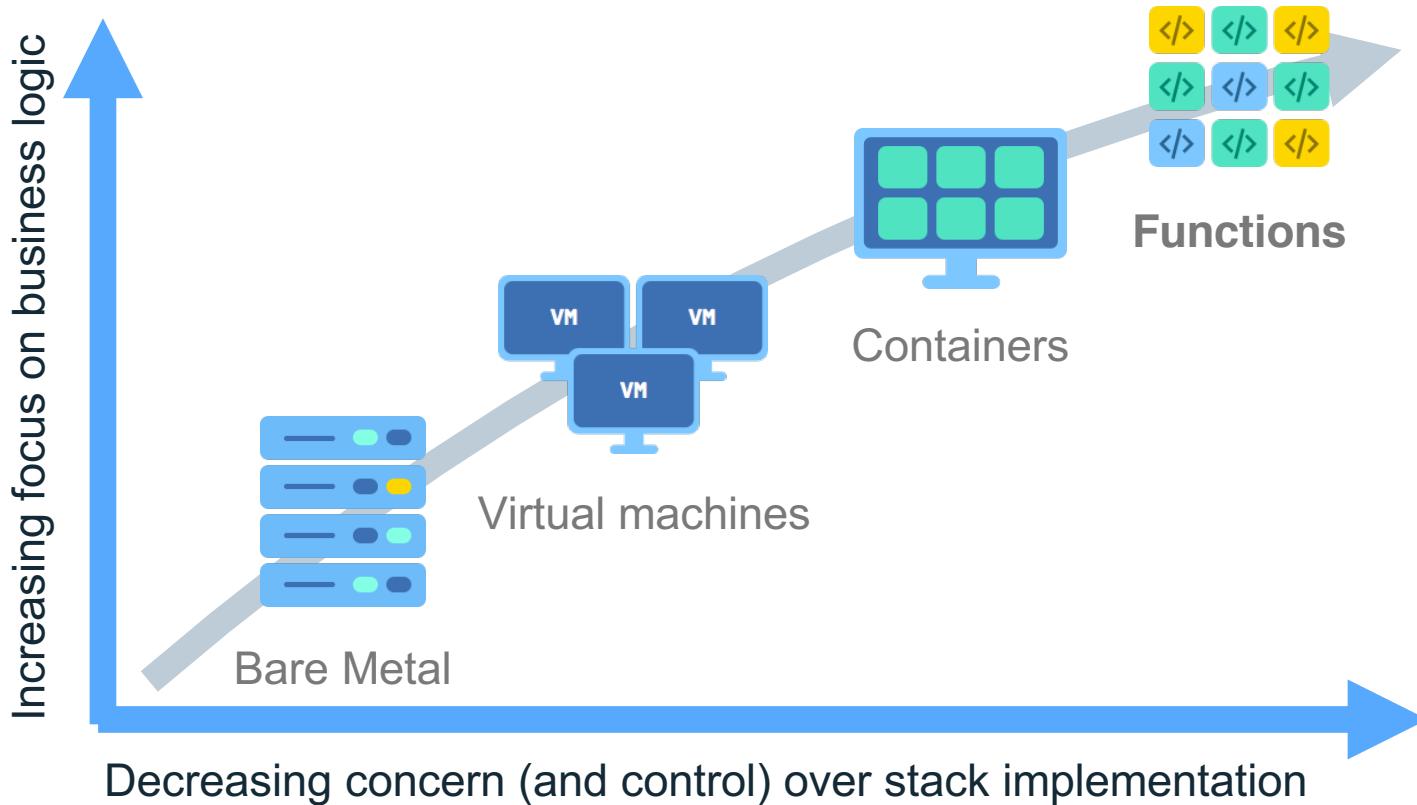
Time an action was running *
memory allocated to action

\$0.000017 per GBs
Free tier: 400,000 GBs



<https://cloud.ibm.com/functions/learn/pricing>

What is Serverless computing (Functions-as-a-Service)?



IBM Developer SF

<https://www.meetup.com/IBM-Developer-SF-Bay-Area-Meetup>



Part of **IBM Developer** – 44 groups [?](#)

IBM Developer SF Bay Area

San Francisco, CA

8,754 members · Public group [?](#)

Organized by Angie K. and 6 others

IBM Developer

IBM

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Thank you!

Marek Sadowski

Developer Advocate



