

IBM Watson

# IBM Cloud Overview

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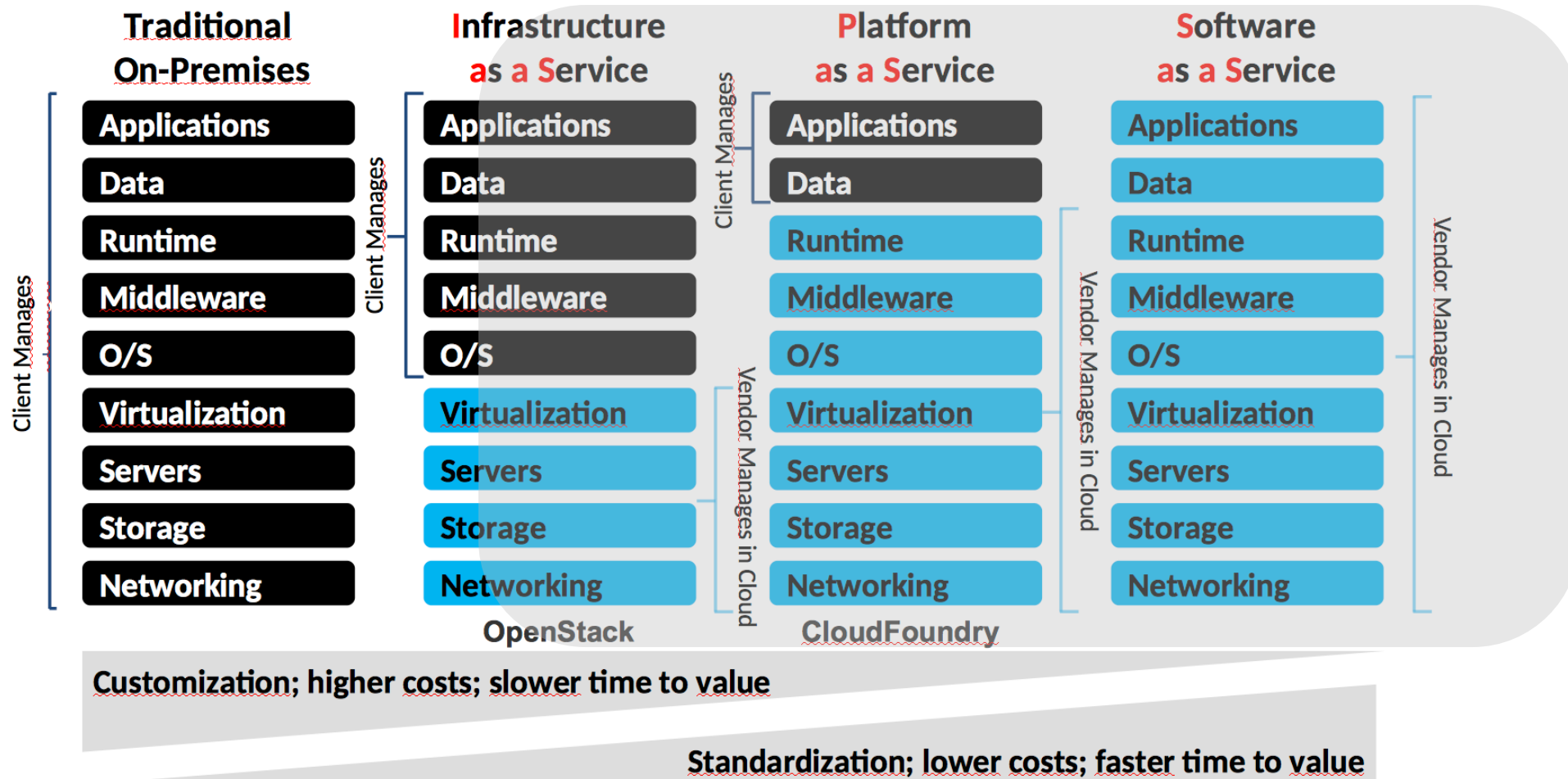


# Cloud Computing

- An estimated 85% of new software is being built for cloud deployment
- Cloud Computing is a broad term that describes a range of services
- Infrastructure as a Service (IaaS)
  - Hardware / software - servers, storage, networks, operating systems
- Platform as a Service (PaaS)
  - Set of tools and services designed for application development
- Software as a Service (SaaS)
  - Designed for end users, delivered over the web



# IBM Cloud



# Platform as a Service

- A computing platform that allows the creation of web applications quickly and easily without the complexity of buying and maintaining the underlying infrastructure and middleware
- Characteristics
  - Services to develop, test, deploy, host and maintain applications
  - Web based user interface creation tools
  - Multi-tenant architecture
  - Built in scalability
  - *And more!*



# Pricing

- Build apps and try IBM services FREE for 30 days
  - Pay-As-You-Go, or discounted subscriptions
  - Price and configure your own scenario [here](#)
- 
- Charges vary depending on resources used
    - Compute resources are charged by GB-hours
      - GB-hour (num instances) (memory per instance) (running hours)
    - Charges for services
      - Many have free monthly allowances and/or tiered charges



# Cloud Dashboard

- Allows you to create, view and manage your apps and services
- Manage organizations and spaces
  - Organization: grouping methodology for IBM Cloud users
  - Space: a sub-group where you can assign permissions

Dashboard [Customize](#)

[Create resource](#)

### Resource summary

[View resources](#)

Cloud Foundry Apps	5	1
Cloud Foundry Services		11
Services		20
Storage	1	1
Apps	1	1
Developer Tools		1

[Add more resources](#)

### Classic infrastructure

- Device list
- Support cases
- User list
- Subnets
- Network monitoring
- Block Storage
- Compliance reports
- [Learn about classic infrastructure](#)

### Planned maintenance

[View events](#)

**Next event: Sat, Jul 20, 2019 4:00 PM**  
Planned Commercial Infrastructure Management System (IMS) Mai...

**Upcoming**

- Deploy service improvements
- Update the TLS certificates (some clusters only)
- Deploy service improvements to some Tokyo data center clusters

### Location status

[View status](#)

Asia Pacific	✓
Europe	✓
North America	✓
South America	✓

### Apps

[View apps](#)

demoApp

[Create an app](#)

### Support cases

[View support](#)

**3 Unresolved cases**  
**1 Resolved cases**

**Recent cases**

- CS0371022 Function Deployment failed:Instance creation of size small and type ai-function0.1.368 failed
- CS0357091 Toolchain - Add github.com - prepopulated owner
- CS0357041 Email already taken when I try to access us-south.git.cloud.ibm.com

### User access


[Manage users](#)

Working alone is no fun. With the right permissions, you can see other users when they join this account. [Learn more about users and access.](#)

[Invite users](#)

### Usage

[View usage](#)

 There aren't enough resources or costs to make a chart.

**Estimated total**

**\$0.06**

This is not an invoice. Accuracy is not guaranteed.

### Learn

[View more](#)

- [Extend your resources with tools](#)
- [Manage your account and users](#)
- [Check out our solution tutorials](#)
- [IBM Developer](#)
- [Architecture Center](#)
- [IBM Skills Gateway](#)

### Recommended offerings

[View Catalog](#)

- Virtual Servers**  
Up to 64 vCPU and 512 GB RAM to fit any workload need
- Blockchain**  
Simplify the developmental, governmental, and operational aspects ...
- Watson Assistant**  
Build conversational interfaces into any application, device, or cha...
- Consult with IBM**  
Engage with IBM Experts to build a more meaningful application for ...

# IBM Cloud Catalog — <https://cloud.ibm.com/catalog>

190+ Services available


The screenshot displays the IBM Cloud Catalog interface, organized into several sections:


- Categories:** A sidebar on the left lists categories such as VPC Infrastructure, Compute, Containers, Networking, Storage, AI, Analytics, Database, Developer Tools, Integration, Internet of Things, Security and Identity, Serverless, and Web and Mobile.
- Featured Offerings:** A top row of featured services including Kubernetes Cluster, IBM Log Analytics with LogDNA, VPC Infrastructure, Load Balancer for VPC, Virtual Private Cloud, Virtual Server for VPC, VPC for VPC, and VPCaaS from Rescale.
- Compute:** A section containing services like Bare Metal Server, Cloud Capacity, Power Systems Virtual Server, Virtual Server, and vPCaaS from Rescale.
- Where Virtual Data Centers:** A section highlighting services like IBM Cloud Private, IBM Cloud Private, and IBM Cloud Private.
- Where Virtual Servers:** A section listing services like IBM Cloud Private, IBM Cloud Private, and IBM Cloud Private.
- Where Virtual Networks:** A section listing services like IBM Cloud Private, IBM Cloud Private, and IBM Cloud Private.
- Where Virtual Storage:** A section listing services like IBM Cloud Private, IBM Cloud Private, and IBM Cloud Private.
- Where Virtual Security:** A section listing services like IBM Cloud Private, IBM Cloud Private, and IBM Cloud Private.
- Where Virtual Monitoring:** A section listing services like IBM Cloud Private, IBM Cloud Private, and IBM Cloud Private.
- Where Virtual Analytics:** A section listing services like IBM Cloud Private, IBM Cloud Private, and IBM Cloud Private.
- Where Virtual AI:** A section listing services like IBM Cloud Private, IBM Cloud Private, and IBM Cloud Private.
- Where Virtual Database:** A section listing services like IBM Cloud Private, IBM Cloud Private, and IBM Cloud Private.
- Where Virtual Developer Tools:** A section listing services like IBM Cloud Private, IBM Cloud Private, and IBM Cloud Private.
- Where Virtual Integration:** A section listing services like IBM Cloud Private, IBM Cloud Private, and IBM Cloud Private.
- Where Virtual Internet of Things:** A section listing services like IBM Cloud Private, IBM Cloud Private, and IBM Cloud Private.
- Where Virtual Security and Identity:** A section listing services like IBM Cloud Private, IBM Cloud Private, and IBM Cloud Private.
- Where Virtual Serverless:** A section listing services like IBM Cloud Private, IBM Cloud Private, and IBM Cloud Private.
- Where Virtual Web and Mobile:** A section listing services like IBM Cloud Private, IBM Cloud Private, and IBM Cloud Private.


# Cloud Foundry/Containers/VMware


- Provides a set of resources used to run the application
- Cloud Foundry allows you to get your application up and running with no need to set up and manage hardware, operating systems, or servers


### Cloud Foundry


**Liberty for Java™**  
IBM  
Develop, deploy, and scale Java web apps with ease on IBM Cloud Foundry. IBM WebSphere Liberty Profile is a highly composable, ultra-fast,...


**SDK for Node.js™**  
IBM  
Develop, deploy, and scale server-side JavaScript® apps with ease on IBM Cloud Foundry. The IBM SDK for Node.js™ provides...


**ASP.NET Core**  
IBM  
Develop, deploy, and scale ASP.NET Core web apps with ease on IBM Cloud Foundry.


**Runtime for Swift**  
IBM  
A Kitura based server application that you can use as a starting point to get your own Kitura application up and running quickly on IBM Clou...

**Go**  
Community  
Develop, deploy, and scale Go web apps with ease on IBM Cloud Foundry.


**PHP**  
Community  
Develop, deploy, and scale PHP web apps with ease on IBM Cloud Foundry.


**Python**  
Community  
Develop, deploy, and scale Python web apps with ease on IBM Cloud Foundry.

**Ruby**  
Community  
Develop, deploy, and scale Ruby web apps with ease on IBM Cloud Foundry.


**Tomcat**  
Community  
Develop, deploy, and scale Tomcat web apps with ease on IBM Cloud Foundry.

### Containers and VMs

**Kubernetes Cluster**  
IBM • IAM-enabled  
Deploy native Kubernetes clusters with the latest upstream versions on hardened master and worker nodes.

**OpenShift Cluster**  
IBM • Beta  
Deploy and secure enterprise workloads on native OpenShift with developer focused tools to run highly available apps.

### VMware Virtual Data Centers

**VMware vCenter Server on IBM Cloud**  
IBM • IAM-enabled  
Standardized software-defined data center (SDDC) solution that combines IBM Cloud Bare Metal Servers with VMware vSphere,...



# Services

- Cloud extension that provides ready-for-use functionality
- Can add single or multiple services to any application



## Speech to Text

Lite • IBM • IAM-enabled

Low-latency, streaming transcription



## Cloudant

Lite • IBM • IAM-enabled

A scalable JSON document database for web mobile, IoT, and serverless applications.



## Object Storage

Lite • IBM • IAM-enabled

Provides flexible, cost-effective, and scalable cloud storage for unstructured data.



## Watson Assistant

Lite • IBM • IAM-enabled

Watson Assistant lets you build conversational interfaces into any application, device, or channel.



## Db2

Lite • IBM • IAM-enabled

A next generation SQL database. Formerly dashDB For Transactions.



## Analytics Engine

Lite • IBM • IAM-enabled

Flexible framework to deploy Hadoop and Spark analytics applications.



## Functions

IBM • IAM-enabled

IBM Cloud Functions is a Function-as-a-Service (FaaS) platform which executes functions in response to incoming events.



## API Connect

Lite • IBM

Create, manage, enforce, and run APIs.



## Secure Gateway

IBM

IBM Secure Gateway for IBM Cloud enables users to integrate cloud services with enterprise systems on premises.



## Continuous Delivery

Lite • IBM • IAM-enabled

Develop, build, test and deliver using DevOps best practices.



## Toolchain

Lite • IBM • IAM-enabled

Build, test and deliver using DevOps best practices.




















## Internet of Things Platform

Lite • IBM

This service is the hub of all things IBM IoT, it is where you can set up and manage your connected devices so that your apps can access...

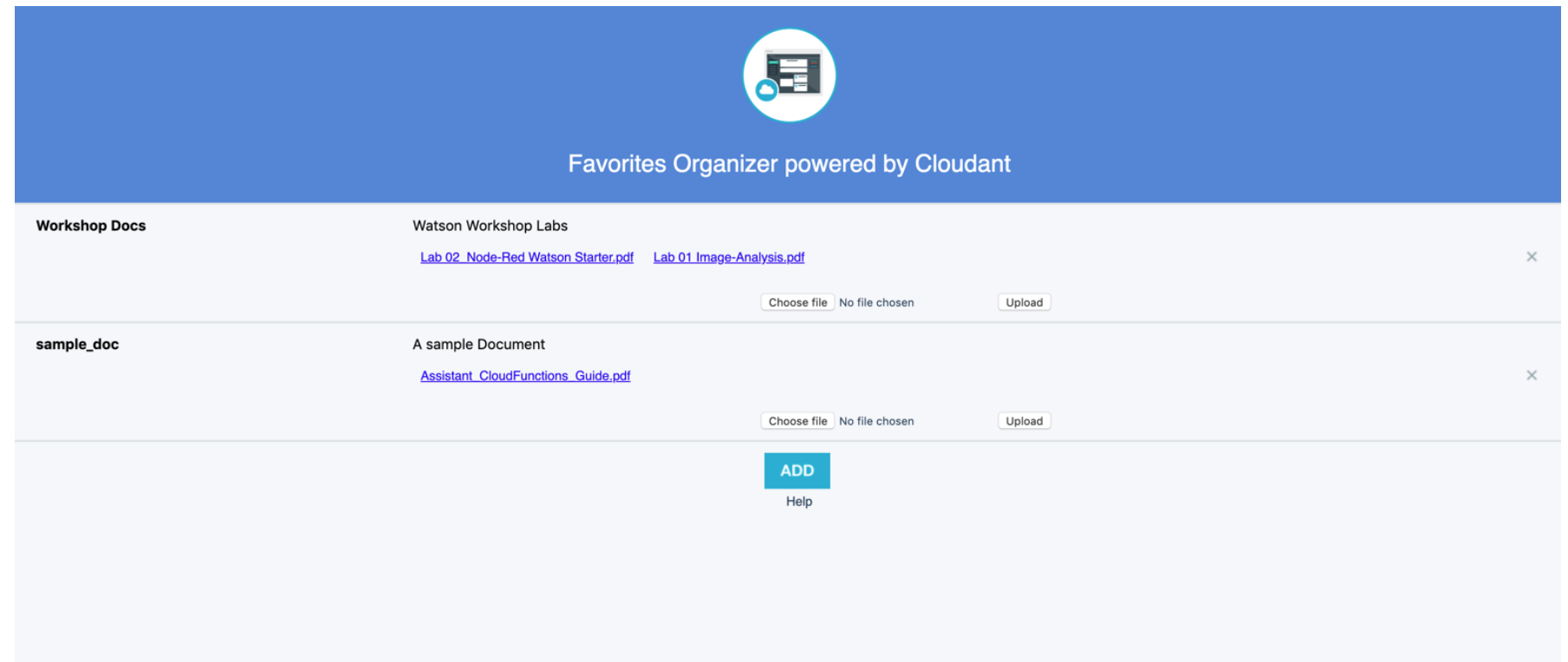
# Starter Kits

- Boilerplates are used to get up and running quickly by generating application templates
  - A sample application
  - The associated runtime environment
  - Any predefined services to accomplish a specific task

 <b>Basic Web for Mendix</b> IBM A starter that provides a basic web serving application using Mendix.	 <b>Custom Vision Model for Core ML with Watson</b> IBM Create Apple Core ML Models using the Watson Visual Recognition service to process and tag images locally.	 <b>Internet of Things Platform Starter</b> Lite • IBM Get started with IBM Watson IoT platform using the Node-RED Node.js sample application. With the Starter, you can quickly simulate an Intern...	 <b>Java MicroProfile / Java EE Basic</b> IBM A starter that provides a basic web serving application in Java, using the MicroProfile / Java EE framework.	 <b>Java Microservice with MicroProfile and Java EE</b> IBM A starter for building a microservice in Java using the MicroProfile / Java EE framework.	 <b>Java Microservice with Spring</b> IBM A starter building a microservice backend in Java, using the Spring framework.
 <b>Java Web App with Spring</b> IBM A starter that provides a basic web serving application in Java, using the Spring framework.	 <b>Mobile Basic</b> IBM A basic Hello World starter with Analytics and Push services.	 <b>Node.js Microservice with Express.js</b> IBM A starter for building a microservice backend in Node.js, using the Express.js framework.	 <b>Node.js Web App with Express.js</b> IBM A starter that provides a basic web serving application in Node.js, using the Express.js framework.	 <b>Python Microservice with Flask</b> IBM A starter for building a microservice backend, using the Flask framework.	 <b>Python Web App with Django</b> IBM A starter that provides a basic web serving application using the Django framework.
 <b>Python Web App with Flask</b> IBM A starter that provides a basic web serving application using the Flask framework.	 <b>Watson Assistant Basic</b> IBM Simple application that demonstrates the Watson Assistant service in a chat interface simulating banking tasks.	 <b>Watson Natural Language Understanding Basic</b> IBM Collection of APIs that can analyze text to help you understand its concepts, entities, keywords, sentiment, and can create a custom model for...	 <b>Watson Visual Recognition Basic</b> IBM Use deep learning algorithms to analyze images that can give you insights into your visual content.	 <b>Node-RED Starter</b> Lite • Community This application demonstrates how to run the Node-RED open-source project within IBM Cloud.	

# Demo

## Node.js and Cloudant Starter Application



IBM Watson

# IBM Cloud Overview

Thank you!


<https://cloud.ibm.com>



Deploy and run your applications without managing servers or clusters with IBM Cloud Foundry


Cloud Foundry automatically transforms source code into containers, scales them on demand, and manages user access and capacity.

## Cloud Foundry in the IBM Cloud

**Public Applications**[Create](#)

Work with the multi-tenant Cloud Foundry environment publicly available in the IBM Cloud.

[Manage](#) your public organizations and spaces.

**Enterprise Environment**[Create](#)

Create your own isolated IBM Cloud Foundry Enterprise Environment on-demand, with one click and within an hour.

[Learn more](#) about IBM Cloud Foundry Enterprise Environment.

## Application Runtimes



## Why Cloud Foundry?



### Access Control

Fine grain assignment/dispensing of compute



### Automatic Placement

Applications are automatically placed across multiple



### Automatic Health Management



### Automatic Routing

Internet reachable routes are automatically created



# Demo Backup 2 – Name, locate, and pricing plan



**.js** Create a Cloud Foundry App

Lite • IBM

## SDK for Node.js™

Develop, deploy, and scale server-side JavaScript® apps with ease on IBM Cloud Foundry. The IBM SDK for Node.js™ provides enhanced performance, security, and serviceability.

[View Docs](#) [Terms](#)

VERSION 3.x  
TYPE Application  
LOCATION Sydney, Frankfurt, London, Washington DC, Dallas

App name:

kpsDemoApp

Host name:

kpsDemoApp

Domain:

mybluemix.net

Choose a region/location to deploy in:

Dallas

Choose an organization:

kp juth

Choose a space:

Wi rm


Tags: 

Examples: env:dev, version-1

## Pricing Plans


Monthly prices shown are for country or region: United States

	PLAN	FEATURES	PRICING
✓	Default	Run one or more apps free for 30 days (375 GB-hours free).	\$0.07 USD/GB-Hour
	This is a service plan for the IBM Bluemix Platform runtime.		

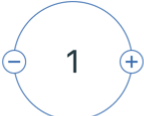
 kpsDemoApp Running [Visit App URL](#)

Org: kp [View Org](#) Path: [View Path](#) Location: Dallas Space: V [View Space](#) [Add Tags](#)


Runtime




**BUILDPACK**  
SDK for Node.js™



**INSTANCES**  
All instances are running  
Health is 100%



**MB MEMORY PER INSTANCE**



**TOTAL MB ALLOCATION**  
511.75 GB still available

Connections

No services are connected to this app  
You can bind a service:  
[Create connection](#)

Runtime cost


**US\$0.00**  
Current charges for billing period

**US\$0.00**  
Estimated total for billing period  
(Jul 1, 2019 - Jul 31, 2019)

Current and estimated cost excludes [connected services](#).  
[View full usage details](#)

Activity feed

Continuous delivery




## Hello World!

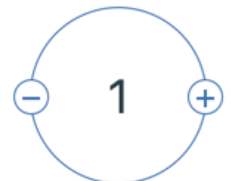
Thanks for creating a [NodeJS Starter Application](#).

© 2019 International Business Machines Corporation

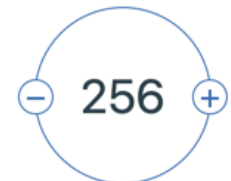
### Runtime




**BUILDPACK**  
SDK for Node.js™



**INSTANCES**




**MB MEMORY PER INSTANCE**



**TOTAL MB ALLOCATION**  
511.75 GB still available

### Connections (1)

 workshopDb

Create connection

### Runtime cost

US\$0.00  
Current charges for billing period

US\$0.00  
Estimated total for billing period  
(Jul 1, 2019 - Jul 31, 2019)

Current and estimated cost excludes connected services.

View full usage details

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[Getting started](#)[Overview](#)[Runtime](#)[Connections](#)[Logs](#)[API Management](#)[Autoscaling](#)[Monitoring](#)**kpsDemoApp** ● Running [Visit App URL](#)

Routes ▾

Org: kps@de.ibm.com\_us-south

Location: Dallas

Space: WatsonDataPlatform

[Add Tags](#)

Memory and instances

Environment variables

SSH

VCAP\_SERVICES

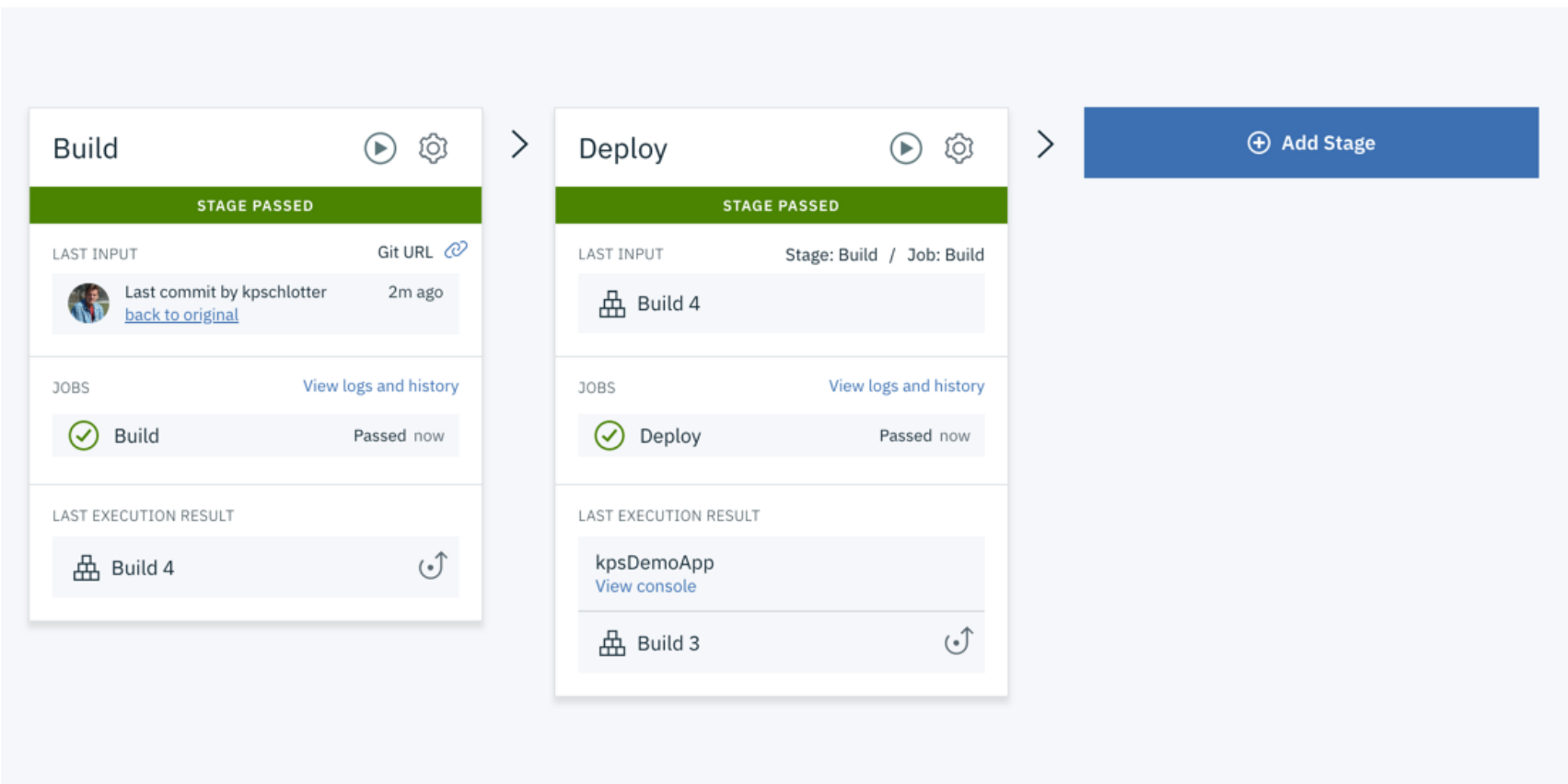
```
tags: [
  "data_management",
  "ibm_created",
  "lite",
  "ibm_dedicated_public",
  "ibmcloud-alias"
],
"instance_name": "workshopDb",
"binding_name": null,
"credentials": {
  "apikey": "tvS-B____Uxp5",
  "host": "a2:____0-bluemix.cloudantnosqldb.appdomain.cloud",
  "iam_apikey_description": "Auto-generated for binding c541099b-59e6-4acb-974d-00bffde2f0df",
  "iam_apikey_name": "workshopDb",
  "iam_role_crn": "crn:v1:bluemix:public:iam::::serviceRole:Manager",
  "iam_serviceid_crn": "crn:v1:bluemix:public:iam-identity::a/fb8a1757c____32-87b6-e28717f77da4",
  "password": "dac____ba91670cce",
  "port": 443,
  "url": "https://a238f1eb-34____5764bfd960821bcba91670cce@a238f1eb-3469-4183-b655-5eb7a906d300-
  bluemix.cloudantnosqldb.appdomain.cloud",
}
```

Export

# Demo Backup 6 – Add a Delivery Pipeline

Toolchains / kpsDemoApp / kpsDemoApp

kpsDemoApp | Delivery Pipeline




```
app.js — nodejs-cloudant
manifest.yml index.html package.json app.js vcap-local.json

EXPLORER
OPEN EDITORS
manifest.yml
index.html views
package.json
x app.js
vcap-local.json
NODEJS-CLOUDANT
node_modules
public
images
scripts
style
uploads
routes
views
index.html
.cfnignore
.gitignore
.jshinttrc
.project
app.js
LICENSE
package-lock.json
package.json
README.md
vcap-local.json
OUTLINE
app.delete('/api/favorites') callback
db.get() callback
db.destroy() callback
id
app.get('/api/favorites') callback
db.list() callback
body.rows.forEach() callback
db.get() callback
attachments
MAVEN PROJECTS

app.js
172 db.get(request.query.id, function(err, existingdoc) {
173
174     var isExistingDoc = false;
175     if (!existingdoc) {
176         id = '-1';
177     } else {
178         id = existingdoc.id;
179         isExistingDoc = true;
180     }
181
182     var name = sanitizeInput(request.query.name);
183     var value = sanitizeInput(request.query.value);
184
185     var file = request.files.file;
186     var newPath = './public/uploads/' + file.name;
187
188     var insertAttachment = function(file, id, rev, name, value, response) {
189
190         fs.readFile(file.path, function(err, data) {
191             if (!err) {
192                 if (file) {
193                     db.attachment.insert(id, file.name, data, file.type, {
194                         rev: rev
195                     }, function(err, document) {
196                         if (!err) {
197                             console.log('Attachment saved successfully.. ');
198                             db.get(document.id, function(err, doc) {
199                                 console.log('Attachments from server --> ' + JSON.stringify(doc._attachments));
200                             }
201                         }
202                     }
203                 }
204             }
205         });
206     };
207 }

TERMINAL
(base) kpsMBP-5:nodejs-cloudant kps$ git remote -v
origin https://github.ibm.com/klaus-peter-schlotter/nodejs-cloudant.git (fetch)
origin https://github.ibm.com/klaus-peter-schlotter/nodejs-cloudant.git (push)
(base) kpsMBP-5:nodejs-cloudant kps$ git add .
(base) kpsMBP-5:nodejs-cloudant kps$ git commit -m "a small change"
[master dfe3d64] a small change
1 file changed, 1 insertion(+), 1 deletion(-)
(base) kpsMBP-5:nodejs-cloudant kps$ git push origin master
Username for 'https://github.ibm.com': ^C
(base) kpsMBP-5:nodejs-cloudant kps$ git add .
(base) kpsMBP-5:nodejs-cloudant kps$ git commit -m "back to original"
[master 8450e2e] back to original
1 file changed, 1 insertion(+), 1 deletion(-)
(base) kpsMBP-5:nodejs-cloudant kps$
```



Favorites Organizer powered by Cloudant

<b>Workshop Docs</b>	Watson Workshop Labs	<a href="#">Lab 02 Node-Red Watson Starter.pdf</a>	<a href="#">Lab 01 Image-Analysis.pdf</a>	×
		Choose file	No file chosen	Upload
<b>sample_doc</b>	A sample Document	<a href="#">Assistant CloudFunctions Guide.pdf</a>		×
		Choose file	No file chosen	Upload
<div>ADD</div> <div>Help</div>				

↕

📈

🗄️

🔍

📊

👤

🚗

📖

kpsdemodb > 15a3f7662bf661be8130f3400c0048f4

✓ Save Changes Cancel

📎 View Attachments ▾ ⬆️ Upload Attachment 🔄 Clone Document 🗑️ Delete

1 {

2    "\_id": "15a3f7662bf661be8130f3400c0048f4",

3    "\_rev": "3-0d7f64594fe3c044be39151b250b3ddd",

4    "name": "Workshop Docs",

5    "value": "Watson Workshop Labs",

6    "\_attachments": {

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8        "content\_type": "application/pdf",

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12       "stub": true

13      },

14      "Lab 01 Image-Analysis.pdf": {

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16        "revpos": 2,

17        "digest": "md5-Vaxknv145ffQDiz6dME1ag==",

18        "length": 2088739,

19        "stub": true

20      }

21    }

22 }

Lab 02\_Node-Red Watson Starter.pdf - application/pdf, 1.3 MB

Lab 01 Image-Analysis.pdf - application/pdf, 2.0 MB



