

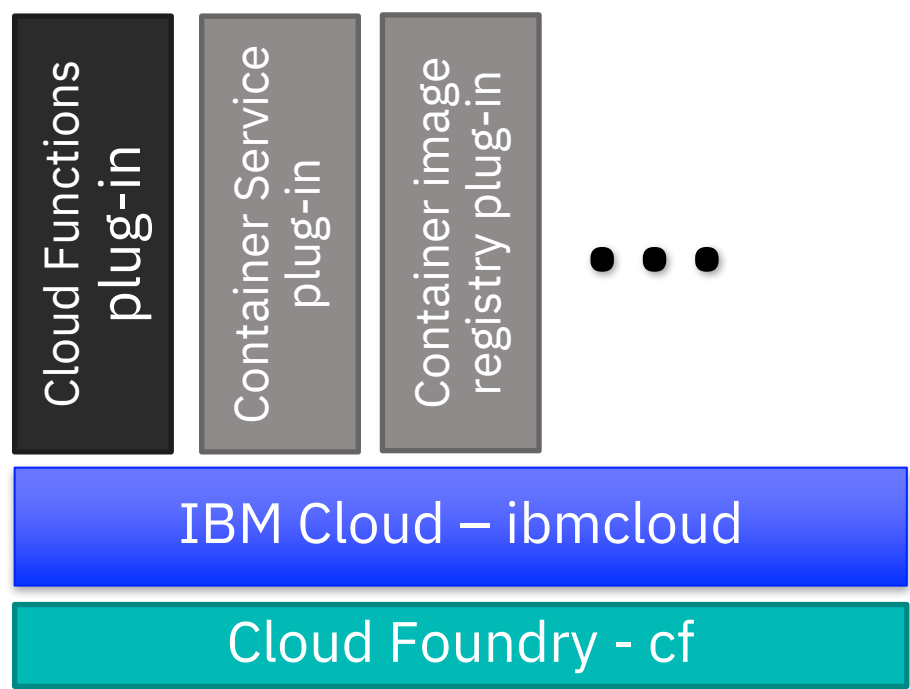
Using the IBM Cloud CLI

and Cloud Foundry application runtimes



IBM Cloud Command Line interface

IBM Cloud CLI - A *modular* command interface that extends Cloud Foundry CLI



sub-command	provides
app	Manage cf apps, app domains, routes, and certificates
service	Manage Bluemix and user-provided services
iam	Manage accounts, orgs, spaces and api keys
plugin	Manage plugins for Bluemix CLI
<plugin name>	Manage features enabled by the plugin
cf	Run provided cf command using current ibmcloud session (login, org, space) context ex: scale

Use at terminal to manage apps or in scripts for CI/CD automation

Using CLI to log in to IBM Cloud

- **Usage**

```
ibmcloud login [-a API_URL] [--apikey API_KEY | @API_KEY_FILE_PATH ]  
[--sso] [-u USERNAME] [-p PASSWORD] [-o ORG] [-s SPACE]
```

- **Arguments:**

- API endpoint: This is [the URL of the Cloud Controller in your Cloud Foundry instance](#).
- API key: Alternative to username, password, and org
- SSO: Needed when using an enterprise ID federated with IBMid
- Username: Your username, such as your email/IBMid
- Password: Your password.
- Org: The organization where you want to deploy your application.
- Space: The space in the organization where you want to deploy your application.

- **Example :** `ibmcloud login -a https://api.ng.bluemix.net -u developer@us.ibm.com -p XXXX -o developer@us.ibm.com -s dev`

The most common IBM Cloud Foundry App commands

- Push application in the current directory to Bluemix, deploy and start the application.
`ibmcloud app push`
- List all applications in the current org and space.
`ibmcloud app list`
- Show health and status of all instances of a specific app.
`ibmcloud app show APP_NAME`
- Show all environment variables associated with a specific app.
`ibmcloud app env APP_NAME`
- Show current log stream for a specific app. The `--recent` flag selects history from buffer.
`ibmcloud app logs APP_NAME[--recent]`
- Application start, stop, and delete
`ibmcloud app start APP_NAME`
`ibmcloud app stop APP_NAME`
`ibmcloud app delete APP_NAME`

The most common IBM Cloud Foundry service related commands

- Provide a list of all catalog services in the marketplace for the logged in user, region and acct.
`ibmcloud service offerings`
- List all provisioned services in the current org and space.
`ibmcloud service list`
- Create a service in the current org and space of a specific type, plan and desired name.
`ibmcloud service create SERVICE PLAN SERVICE_INSTANCE_NAME`
- Bind a provisioned service in the space to a specific app.
`ibmcloud service bind APP_NAME SERVICE_INSTANCE_NAME`
- Remove the service from the space.
`ibmcloud service delete`
- Manage keys (credentials) for a service
`ibmcloud service key-create SERVICE_INSTANCE_NAME SERVICE_KEY`
`ibmcloud service key-show SERVICE_INSTANCE_NAME SERVICE_KEY`
`ibmcloud service key-delete SERVICE_INSTANCE_NAME SERVICE_KEY`

Push an app to IBM Cloud

- **Usage :**

```
ibmcloud app push APP [-b URL] [-c COMMAND] [-d DOMAIN] [-i NUM_INSTANCES] [-m  
MEMORY] [-n HOST] [-p PATH] [-s STACK] [--no-hostname] [--no-route] [--no-start]
```

- **Arguments:**

- b — Custom buildpack by name or GIT URL, for example, **sdk-for-nodejs** or <https://github.com/heroku/heroku-buildpack-play.git>
- c — Start command for the application.
- d — Domain, for example, example.com.
- f — replaces --manifest
- i — Number of instances of the application to run.
- m — Memory limit, for example, 256, 1G, 1024M, and so on.
- n — Hostname, for example, my-subdomain.
- p — Path to application directory or archive.
- s — Stack to use.
- t — Timeout to start in seconds, give your application more time to start, up to 180 secs.
- no-hostname — Map the root domain to this application
- no-manifest — Ignore manifests if they exist.
- no-route — Do not map a route to this application.
- no-start — Do not start the application after pushing.

- **Example:** `ibmcloud app push my-app -c "node my-app.js"`

Application Loggregator

Application logging subsystem of Cloud Foundry

Assembles stdout/stderr from app and also environment components

Loggregator allows users to:

- Tail application logs
- Dump a recent set of application logs from the buffer with `--recent`
- Continually drain their application logs to 3rd party log archive and analysis services.

Usage: `ibmcloud app logs APP_NAME [--recent]`

```
$ bx app logs nodecadc-170310tor --recent | tail -5
2017-04-17T17:50:53.41-0700 [APP/0]      OUT GET / 200 4.091 ms - 2136
2017-04-17T17:50:53.57-0700 [APP/0]      OUT GET / 200 1.147 ms - 2136
2017-04-17T17:50:53.57-0700 [RTR/1]      OUT nodecadc-170310tor.mybluemix.net - [18/04/2017:00:50:53.566 +0000] "GET / HTTP/1.1
" 200 0 2136 "-" "-" 169.54.202.30:39288 x_forwarded_for:"169.45.2.51" x_forwarded_proto:"http" vcap_request_id:1f878414-46b7-4
51e-6153-fbfd3623fbec response_time:0.007527215 app_id:421e89d5-aeaa-4e88-b38e-bf0cd33e5132 x_global_transaction_id:"1075736161
"
2017-04-17T17:50:54.04-0700 [APP/0]      OUT GET / 200 0.947 ms - 2136
2017-04-17T17:50:54.04-0700 [RTR/1]      OUT nodecadc-170310tor.mybluemix.net - [18/04/2017:00:50:54.042 +0000] "GET / HTTP/1.1
" 200 0 2136 "-" "-" 169.54.202.26:44377 x_forwarded_for:"169.50.77.22" x_forwarded_proto:"http" vcap_request_id:0939c81c-33f1-
4011-498d-6104e4de9af2 response_time:0.006653236 app_id:421e89d5-aeaa-4e88-b38e-bf0cd33e5132 x_global_transaction_id:"351576726
3"
$
```

Manage Domains and Routes for applications

All domains are mapped to an Organization

Domains can be **shared** or **private**. Shared domains are registered to multiple orgs while private domains, or **owned** domains, are registered to one org.

To list domains in the target organization - `ibmcloud app domains`

- Commands for managing domains:

- `ibmcloud app domain-create` — Create a domain.
- `ibmcloud app domain-delete` — Delete a domain.
- `ibmcloud app domain domain-cert-add` — Add an ssl certificate to a domain

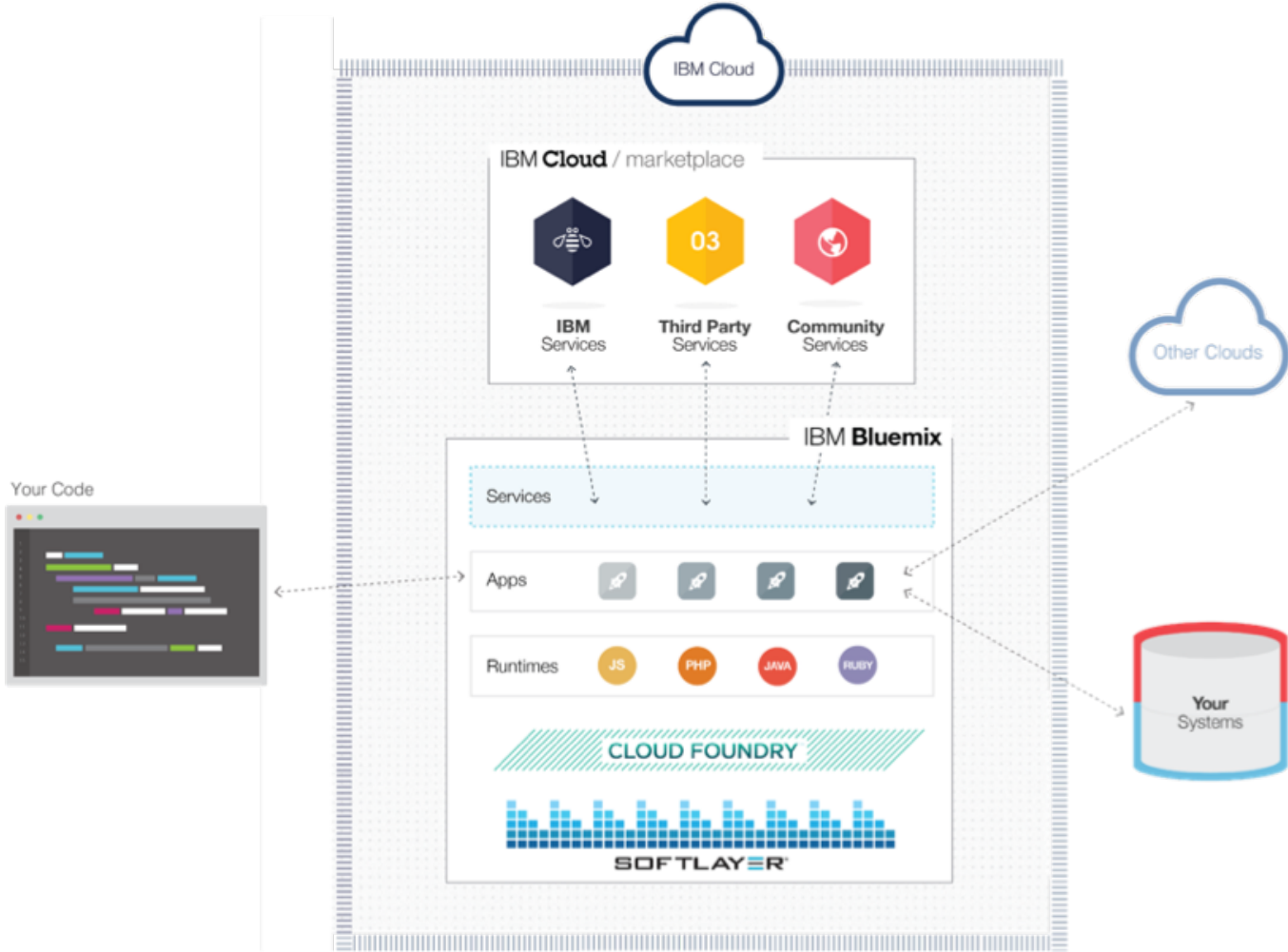
- Commands for managing routes:

- `ibmcloud app route-create` — Create a route.
- `ibmcloud app route-map` — Map a route to an application. If the route does not exist, this command creates it and then maps it.
- `ibmcloud route-unmap` — Remove a route from an application.
- `ibmcloud route-delete` — Delete a route.

```
$ bx app domains
Invoking 'cf domains'...
```

```
Getting domains in org timro IBM as timro@us.ibm.com...
name                status  type
mybluemix.net        shared
bluemix.timro.us     owned
```










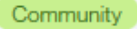

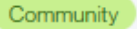
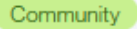
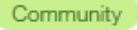

IBM Cloud Foundry application architecture



Application runtimes and buildpacks

Cloud Foundry Buildpacks

- specific runtime
- build framework
- types on IBM Cloud
 - IBM
 - Cloud Foundry Community
 - External (bring your own!)

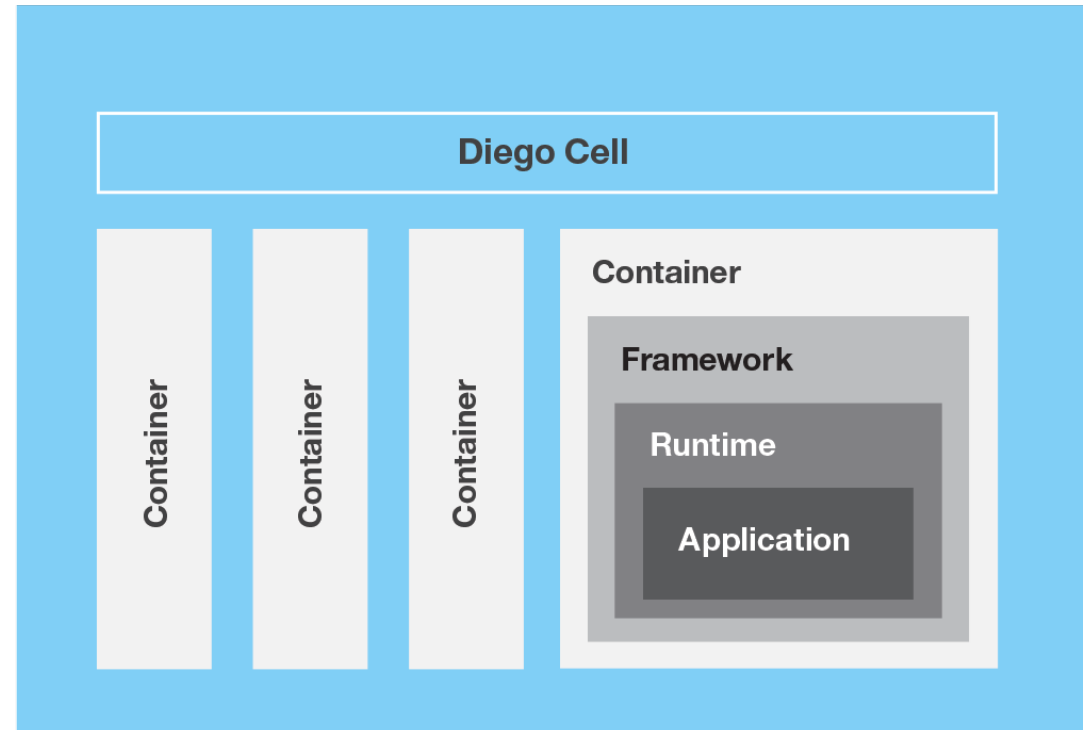
 Liberty for Java™ Develop, deploy, and scale Java web apps with ease. IBM WebSphere 	 SDK for Node.js™ Develop, deploy, and scale server-side JavaScript® apps with ease. 	 ASP.NET Core Develop, deploy, and scale ASP.NET Core web apps with ease. 
 Runtime for Swift A Kitura based server application that you can use as a starting point. 	 XPages Develop, deploy and scale IBM XPages applications with ease. T 	 Go Develop, deploy, and scale Go web apps with ease. 
 PHP Develop, deploy, and scale PHP web apps with ease. 	 Python Develop, deploy, and scale Python web apps with ease. 	 Ruby Develop, deploy, and scale Ruby web apps with ease. 
 Tomcat Develop, deploy, and scale Tomcat web apps with ease. 		

Buildpacks provide support for a language runtime

Buildpack

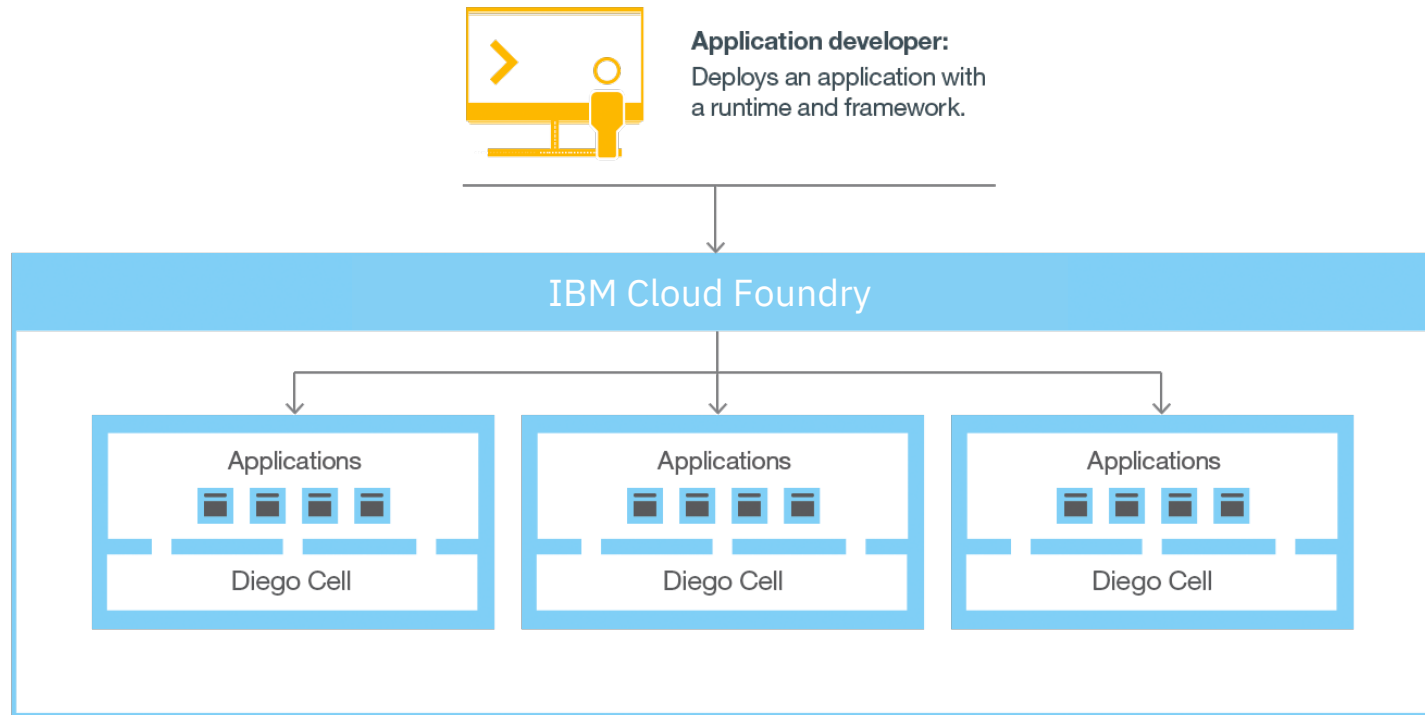
- collection of scripts
- app framework dependencies
- prepares runtime
- packages application into a droplet for deployment

Automatically selected



Simplifies Cloud deployment – just provide your application code

IBM Cloud Foundry Application Lifecycle



1. Upload application components and metadata
2. Create and bind services
3. Stage application
4. Deploy application
5. Manage application health

Application Staging and Deployment

