Serverless and Containers in Cloud Age – part one

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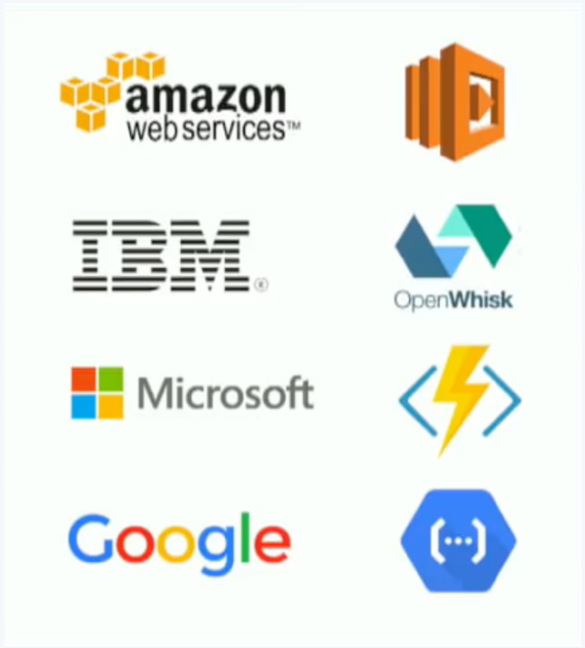
IBM CODE

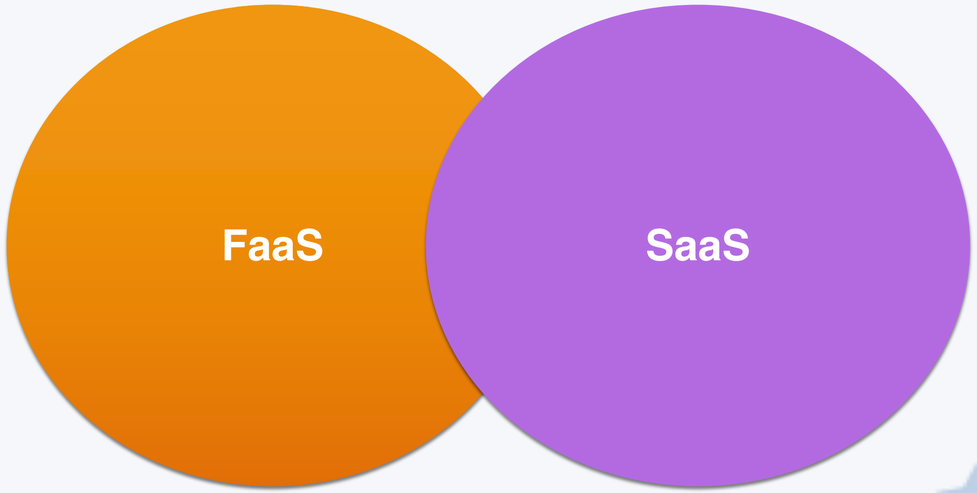
Raffle: http://ibm.biz/svcc2018

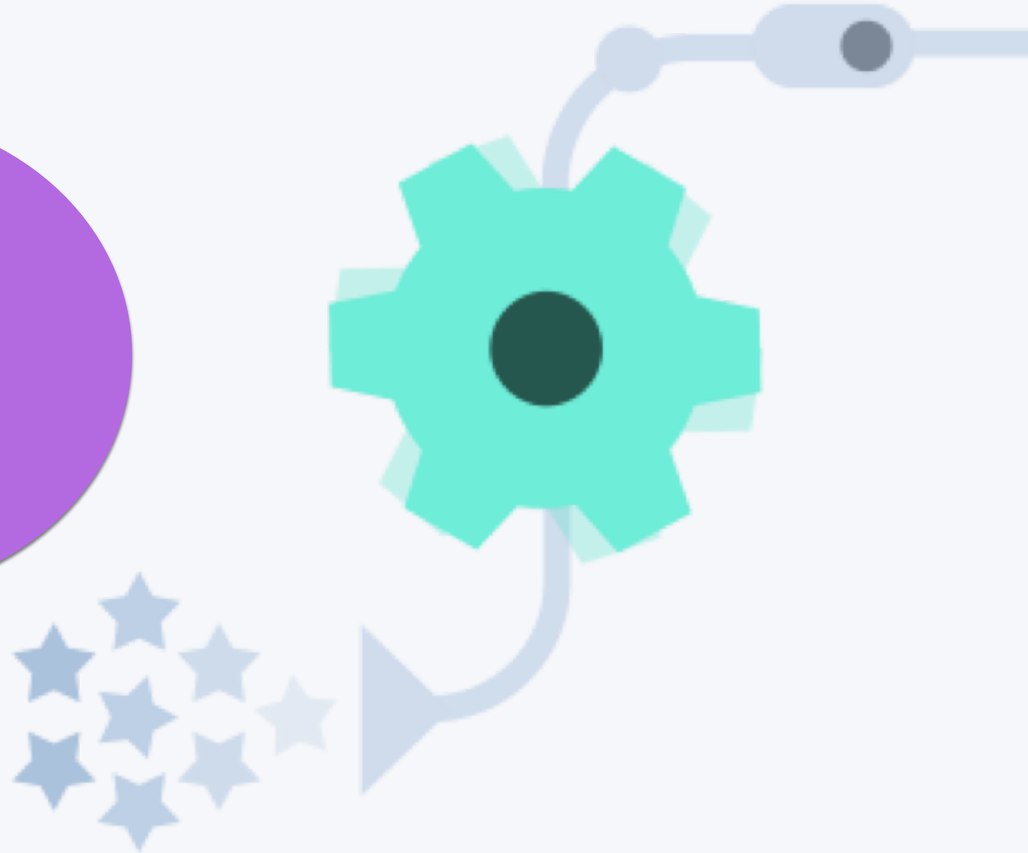
3 examples:

- Check out my github: https://github.com/blumareks/svcc2018
- **Serverless**: https://console.bluemix.net/docs/openwhisk/openwhisk_actions.html#openwhisk_actions
  - https://console.bluemix.net/docs/openwhisk/deploy_templates.html#hello-world-template
- **PaaS**: JAVA Open Liberty ToDo (there are other languages as well)
- **Containers**: https://console.bluemix.net/docs/tutorials/scalable-webapp-kubernetes.html#scalable-web-application-on-kubernetes

Serverless







Runs code **only** on-demand on a per-request basis

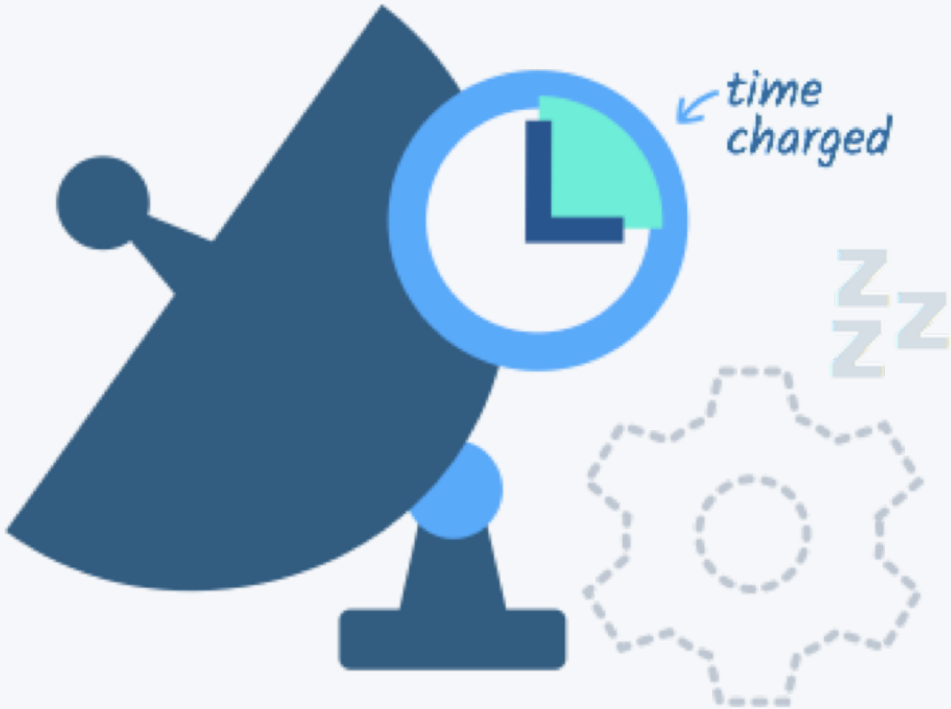
Serverless deployment & operations model

No servers

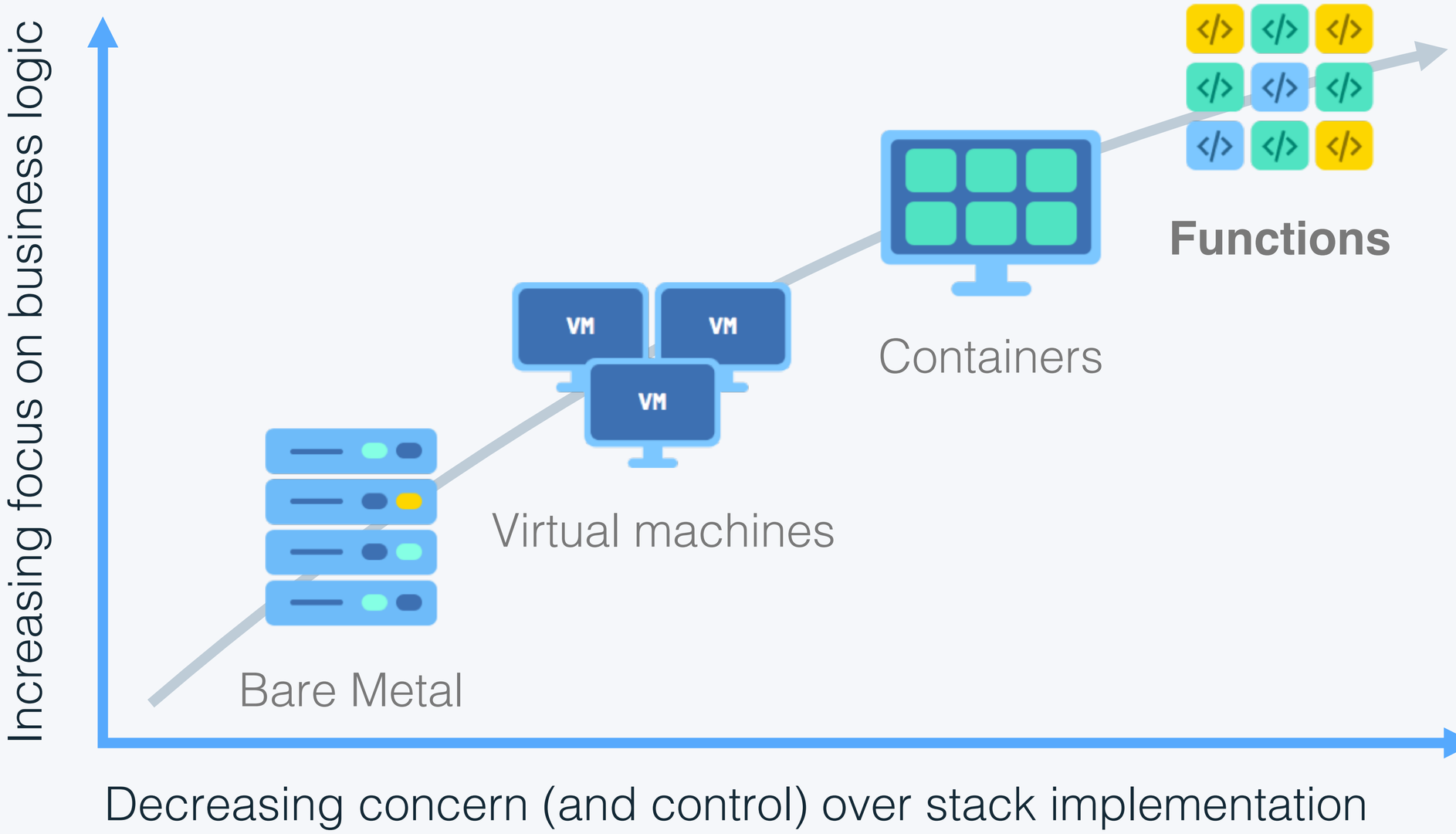
Just code

Runs code **only** on-demand on a per-request basis

Optimal utilization & granular pricing



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



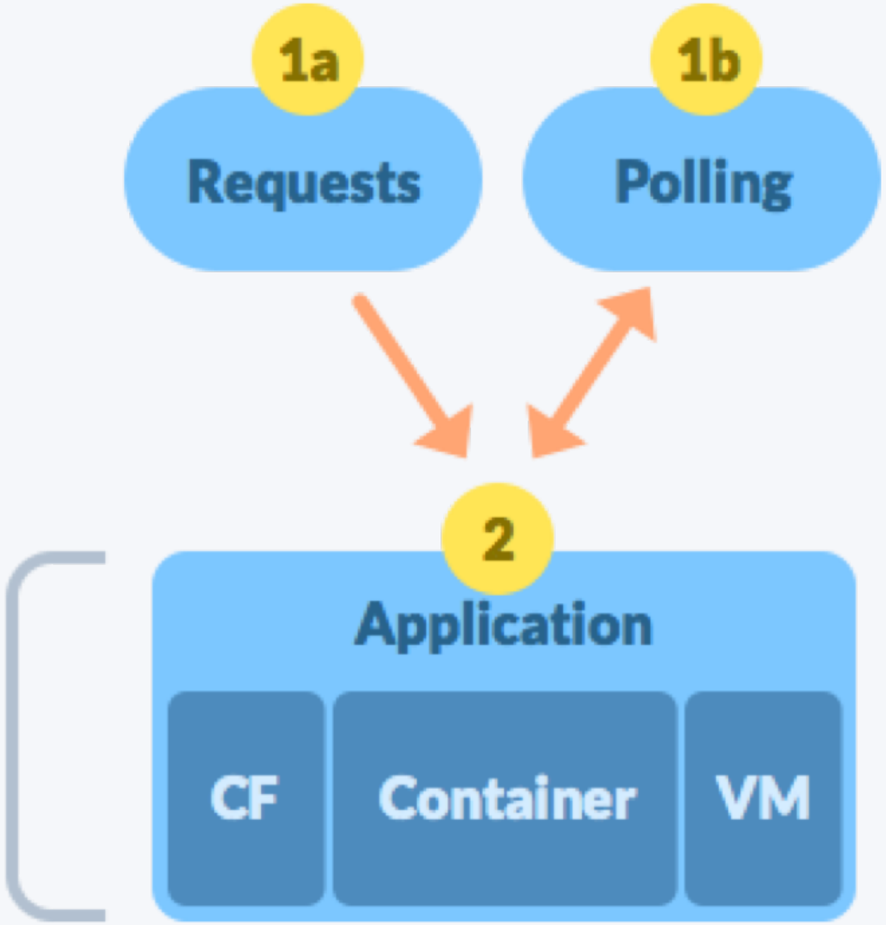
Traditional model

Worry about scaling
- When to scale? (mem-, cpu-, response time-, etc. driven?)
- How fast can you scale?

Worry about resiliency & cost
- At least 2 processes for HA
- Keep them running & healthy
- Deployment in multiple regions

Charged even when idling / not 100% utilized

Continuous polling due to missing event programming model



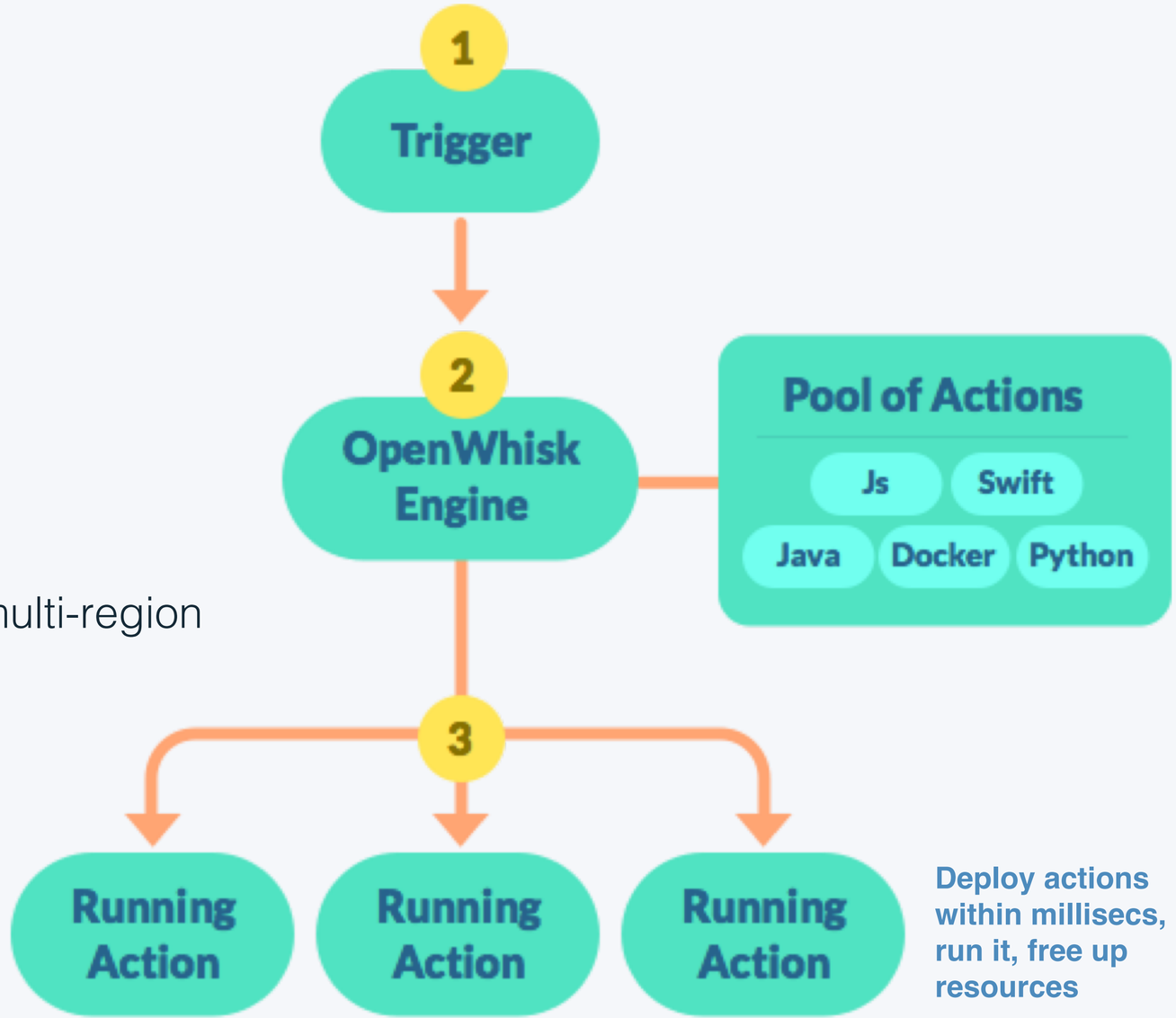
Serverless model

Scales inherently
- One process per request

No cost overhead for resiliency
- No long running process to be made HA / multi-region

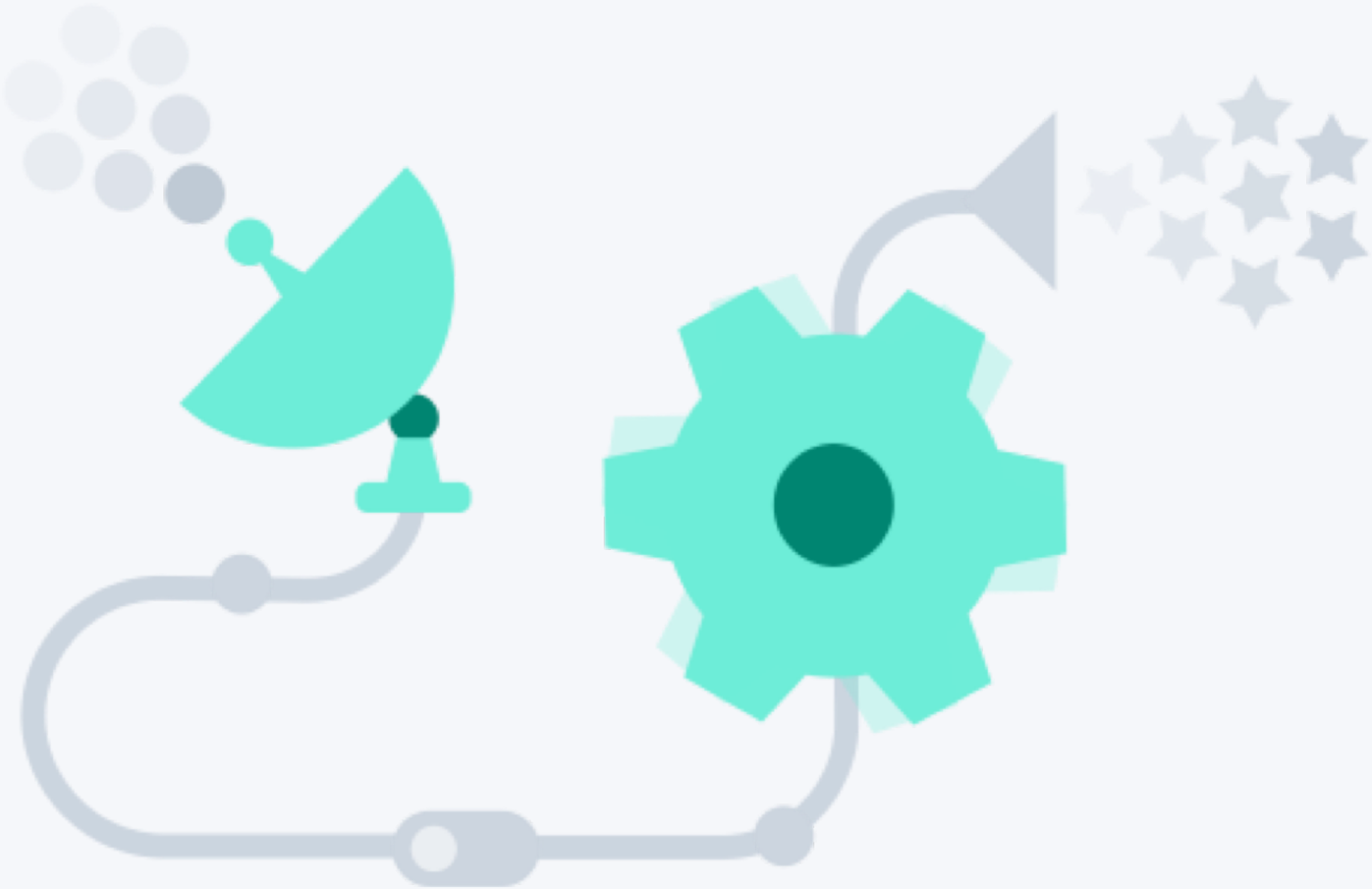
Introduces event programming model

Charges only for what is used
- Only worry about code
  higher dev velocity, lower operational costs



Deploy actions within millisecs, run it, free up resources

Serverless platform to execute code in response to events



What is IBM Cloud Functions (Apache OpenWhisk)?

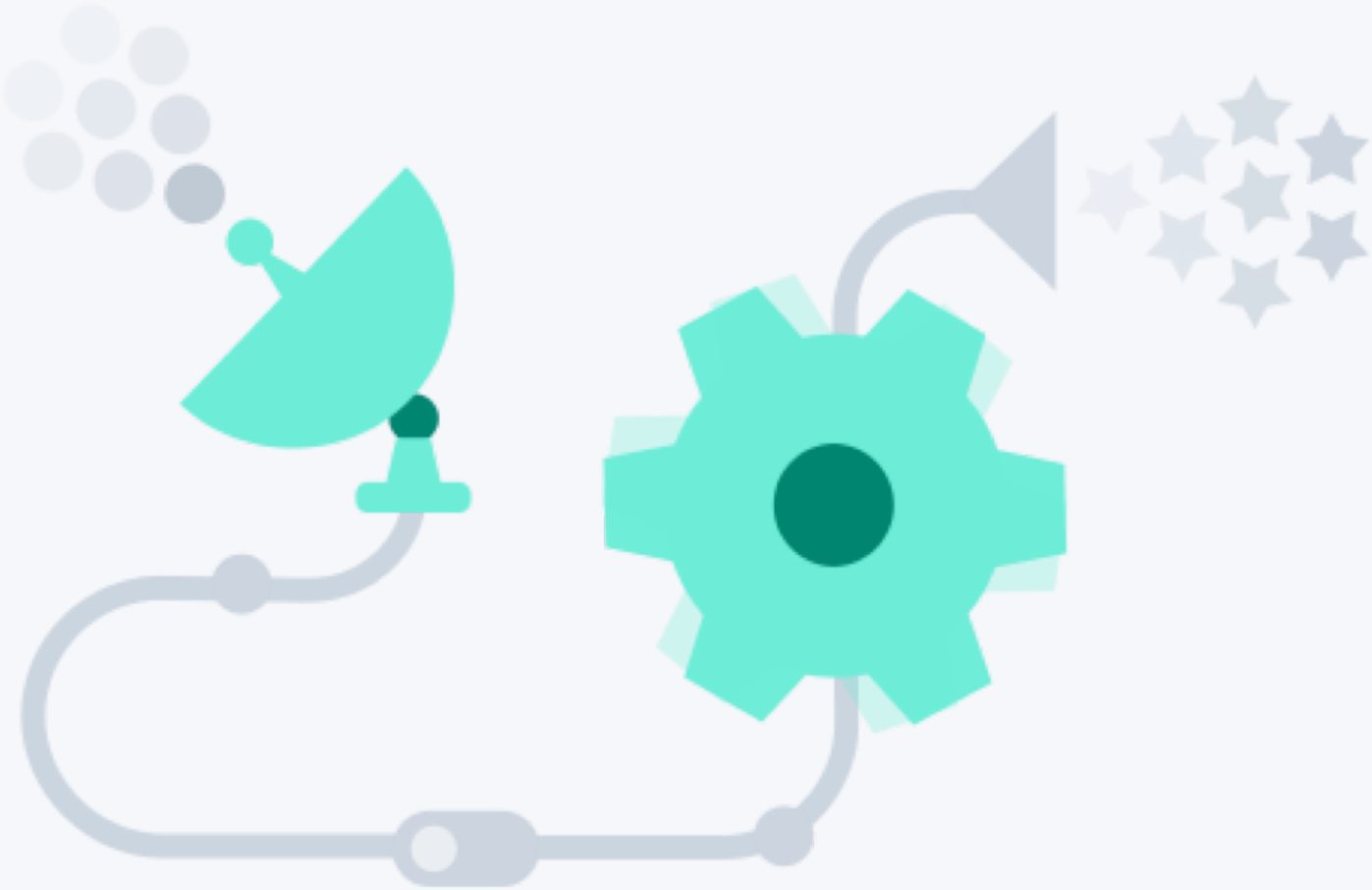
Serverless platform to execute code in response to events

Developed as

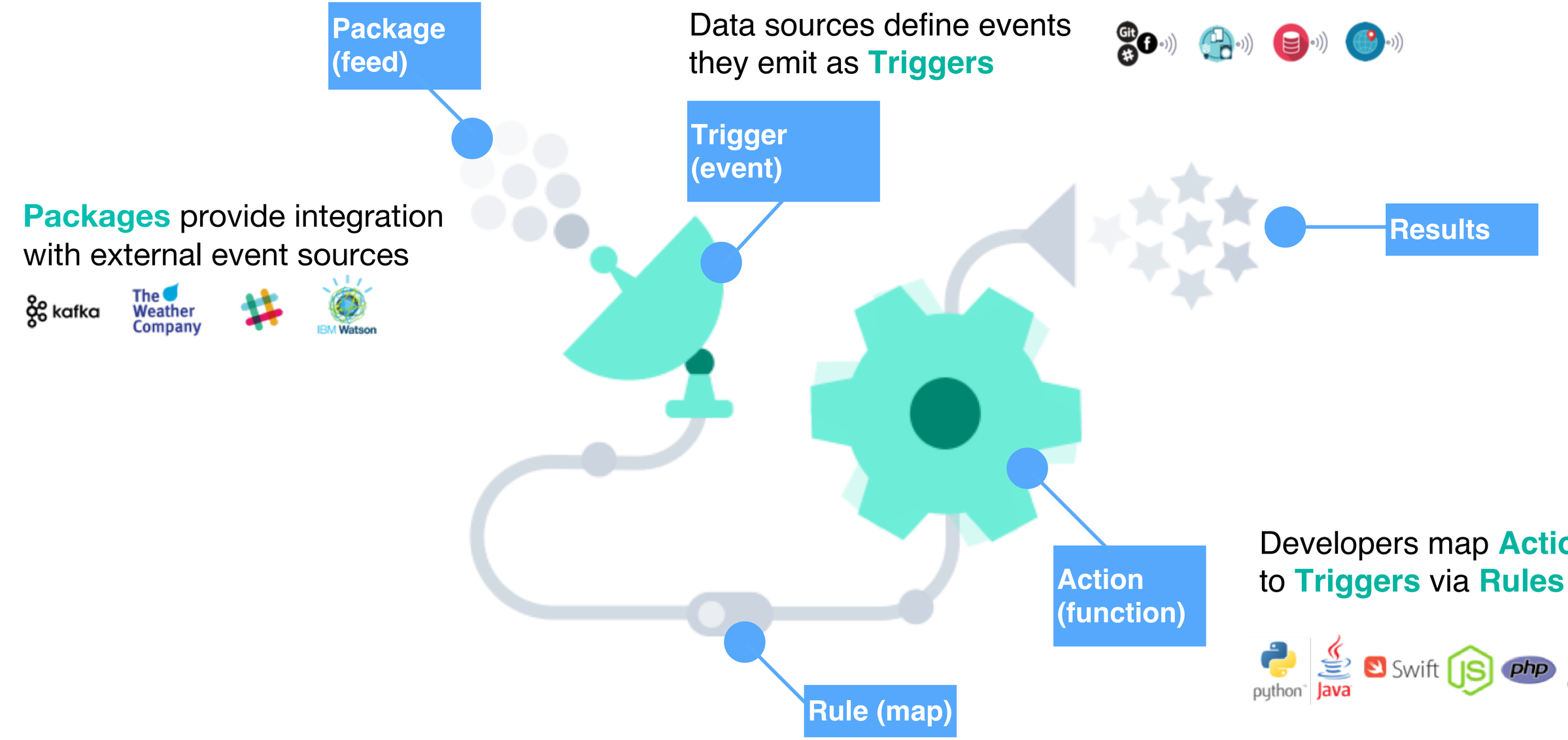
open source software

via Apache Foundation

openwhisk.org



What is IBM Cloud Functions (Apache OpenWhisk)?



Supported Languages

Multi-language Support

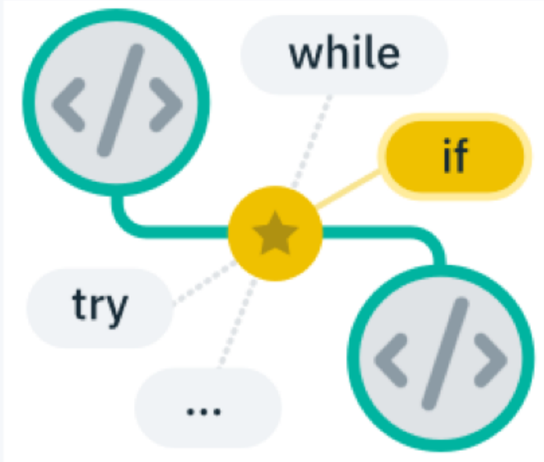
- JS/NodeJS 8
- Swift 4
- Java
- Docker
- Python 3
- PHP 7

Community Efforts

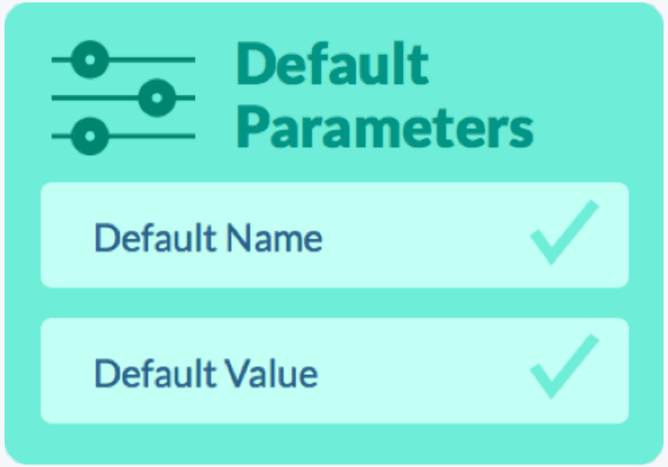
- Haskell
- Scala
- ...

… and more to come

Supports higher-level programming constructs

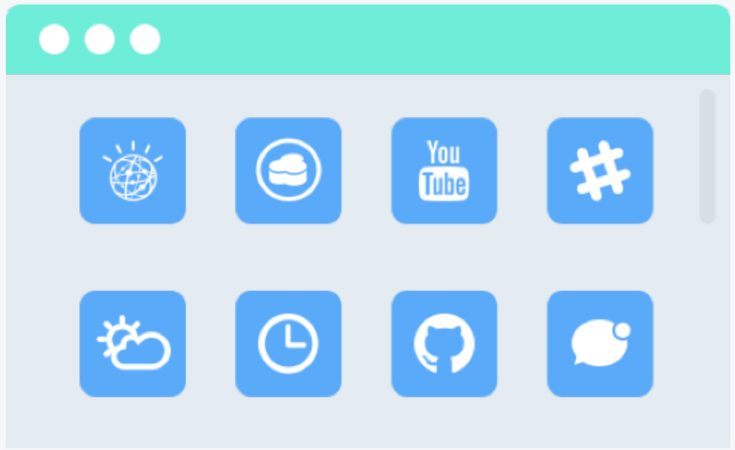


Sequencing
Conditionals
Loops
Error handling



Parameter binding

Event Provider



Open event emitter
(consumer ecosystem)

Open interface
for event emitters

Event Provider

Periodic

IBM Cloudant

IBM Message Hub

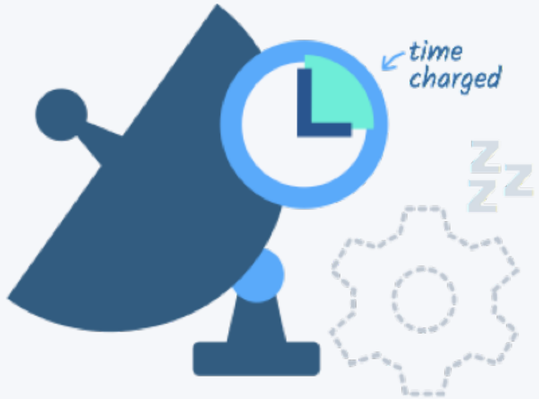
Mobile Push

Github

IBM App Connect

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.



How does IBM Cloud Functions fit into our cloud ecosystem?

Speed

IBM Cloud Functions

"Serverless" / "Event Driven" Apps

Cloud Foundry

Open PaaS Environment

Portability

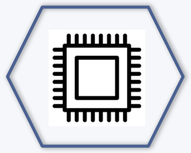
Container

Maximum Portability

Virtual Server
or VMware

Leverage Existing Images & Tools

Performance & Control

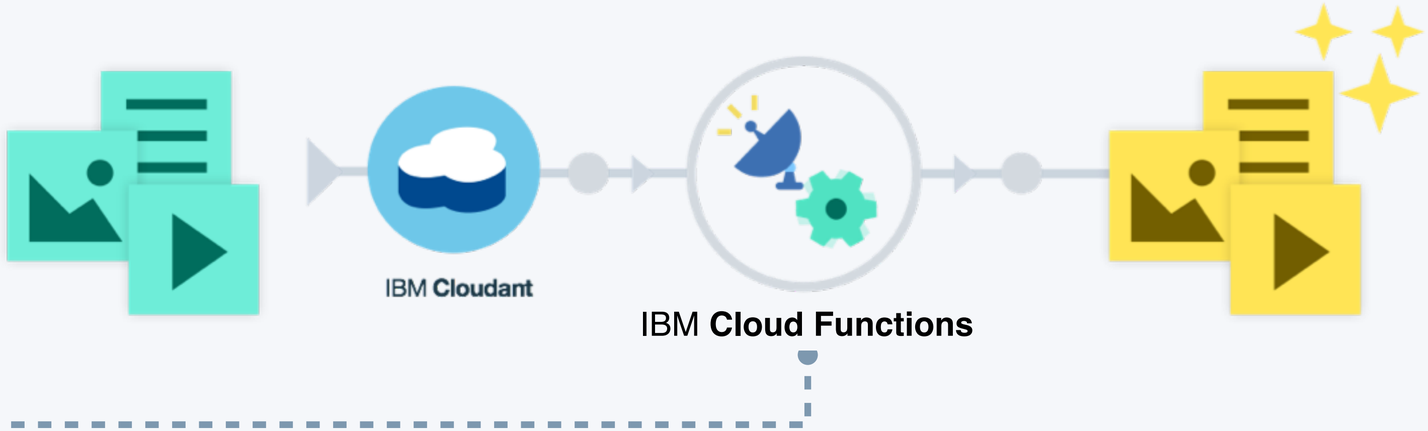


Bare Metal

Maximum Performance & Control

Language/
Framework

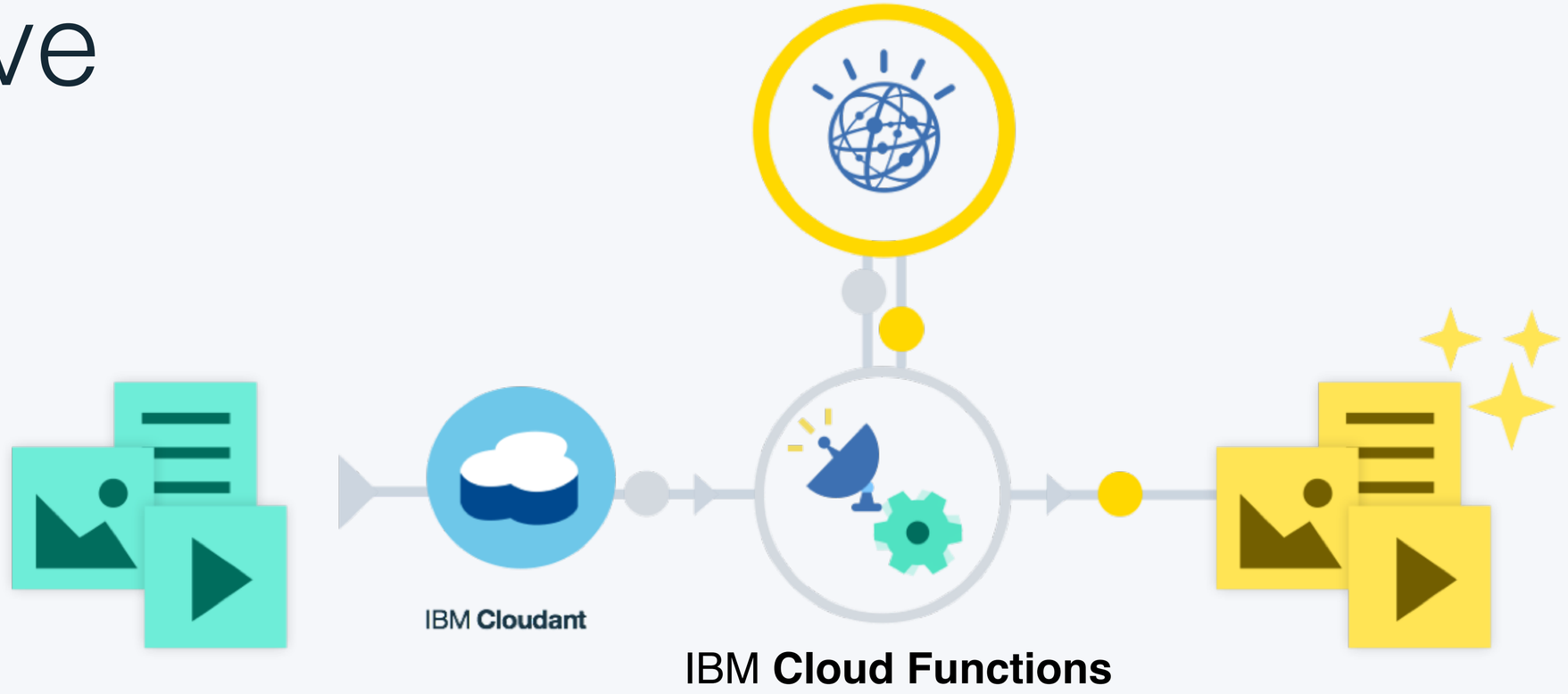
Data processing



Ideally suited for working with multimedia data like audio, image and video data:

Audio normalization
Image rotation, sharpening, noise reduction or
Thumbnail generation
Image OCR'ing
Video transcoding

Cognitive



Get the code

https://github.com/IBM-Bluemix/openwhisk-darkvisionapp

Contributions welcome to perform audio analysis (speech to text, tone and sentiment analysis)