

Distributed Systems

Universidad Icesi

daniel.barragan@correo.icesi.edu.co

Distributed Systems

- A distributed system is a collection of entities, each of which is autonomous, programable, asynchronous and failure prone, and which communicate through an unreliable communication medium

Tendencies in distributed systems

- Microservices connected architectures
- Distributed computing architectures

Questions

Which are the building blocks of a distributed system?



Microservices architectures
















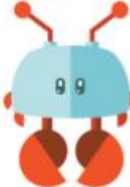


















- DevOps
- Infrastructure as Code
- Version control system (Git)
- CI/CD (Continuous Integration, Delivery & Deployment)
- Service Discovery
- Intercommunication (Publish-Subscribe, Message queues)
- Monitoring

Activity

- Each person or group will be assigned one item from the previous slide. You have to explain why your assigned item might be considered as a building block of a distributed system

DevOps

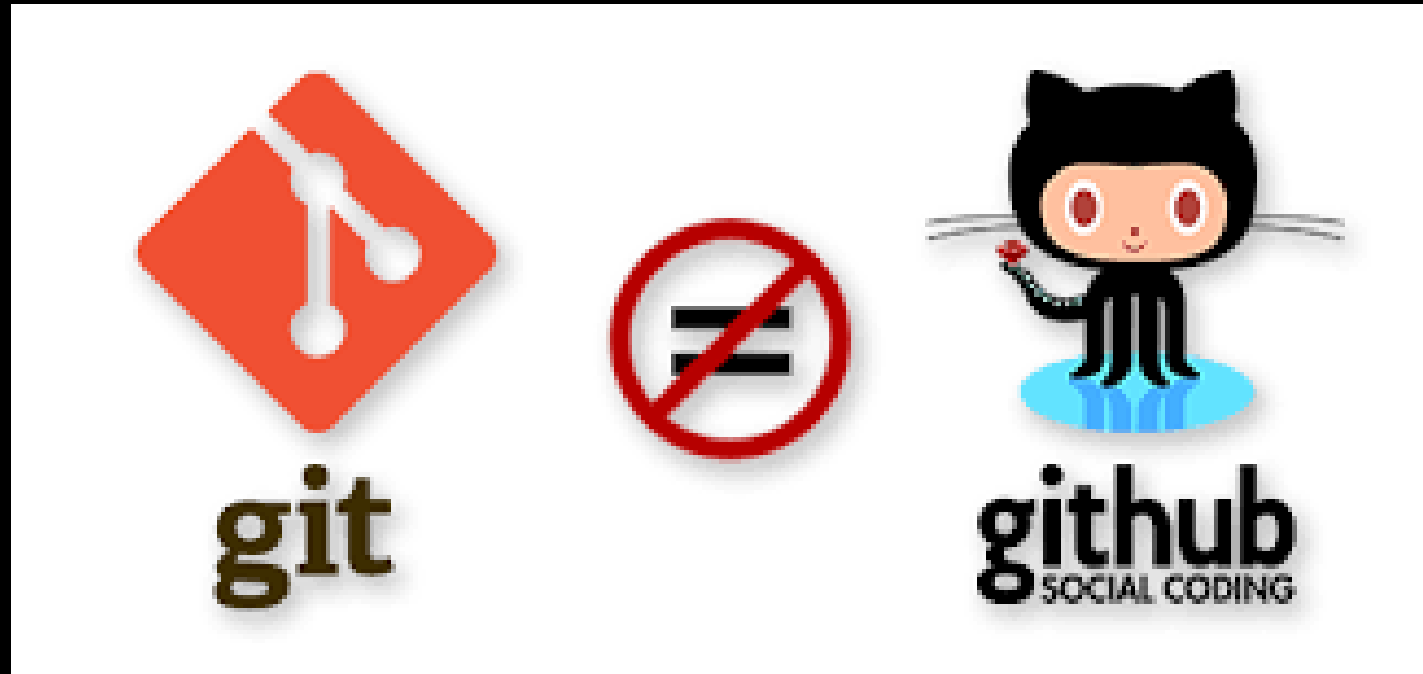
DevOps Enabler Tools v2 (Caution!!!! : Consider only after DevOps mindset is established)

| Infra-as-code | CI/CD | Test Automation | Container | Orchestration | Deployment | Measurement | ChatOps |
|--|--|---|---|---|---|---|--|
|  ANSIBLE |  Jenkins |  Se |  docker |  kubernetes |  XL DEPLOY |  New Relic |  HU-BOT |
|  puppet |  shippable |  Cucumber |  Rocket |  MESOS |  Octopus |  elasticsearch. |  LITA |
|  CHEF™ |  Bamboo |  appium |  unik |  vamp |  logstash |  Kibana |  COG v0.5 |
|  SALTSTACK |  TeamCity |  APACHE JMeter™ |  docker SWARM |  MARATHON |  DBmaestro DevOps for Database |  sumologic | |
| | | | | |  Elastic Beanstalk |  DATADOG |  kloia |

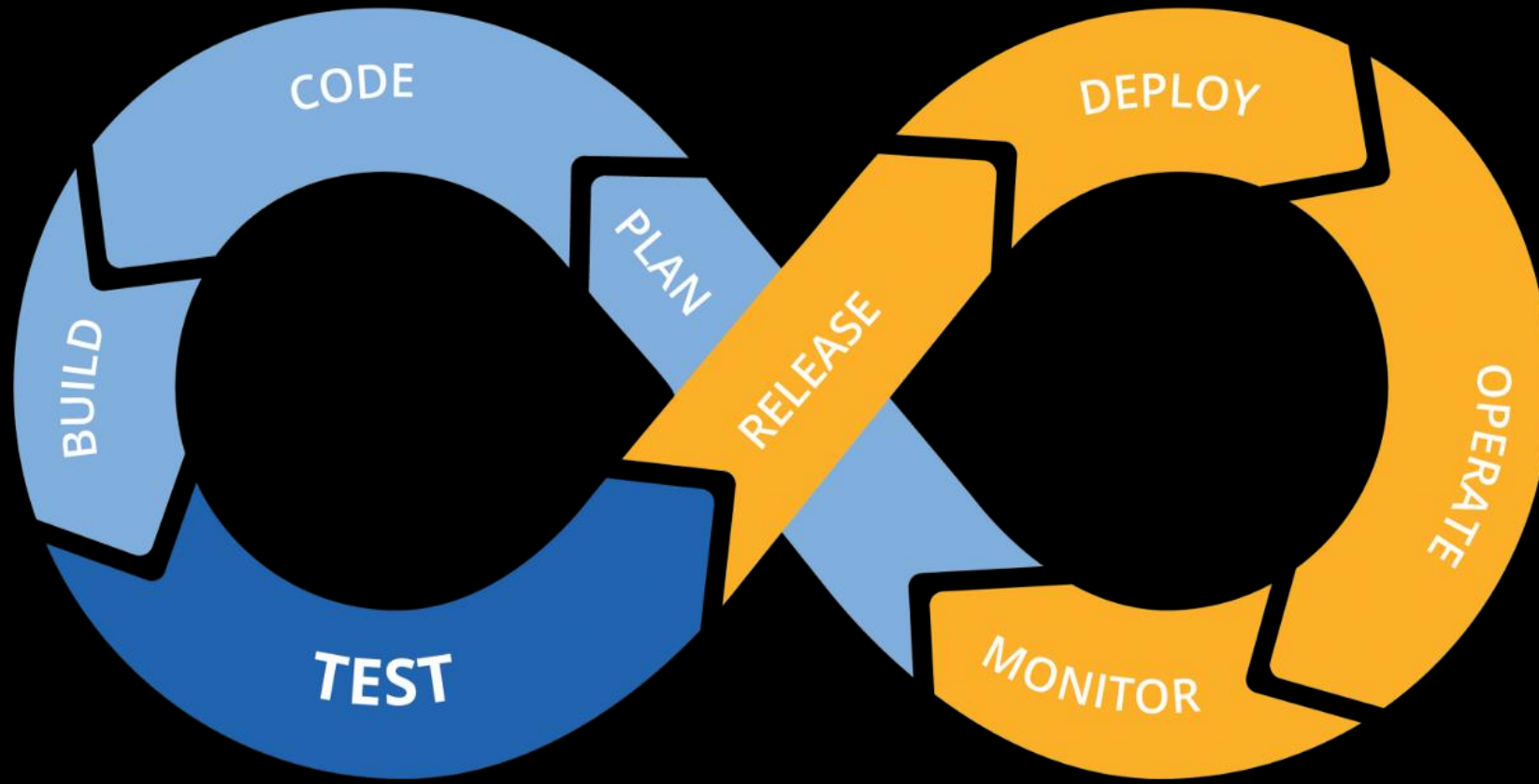
Infrastructure as code



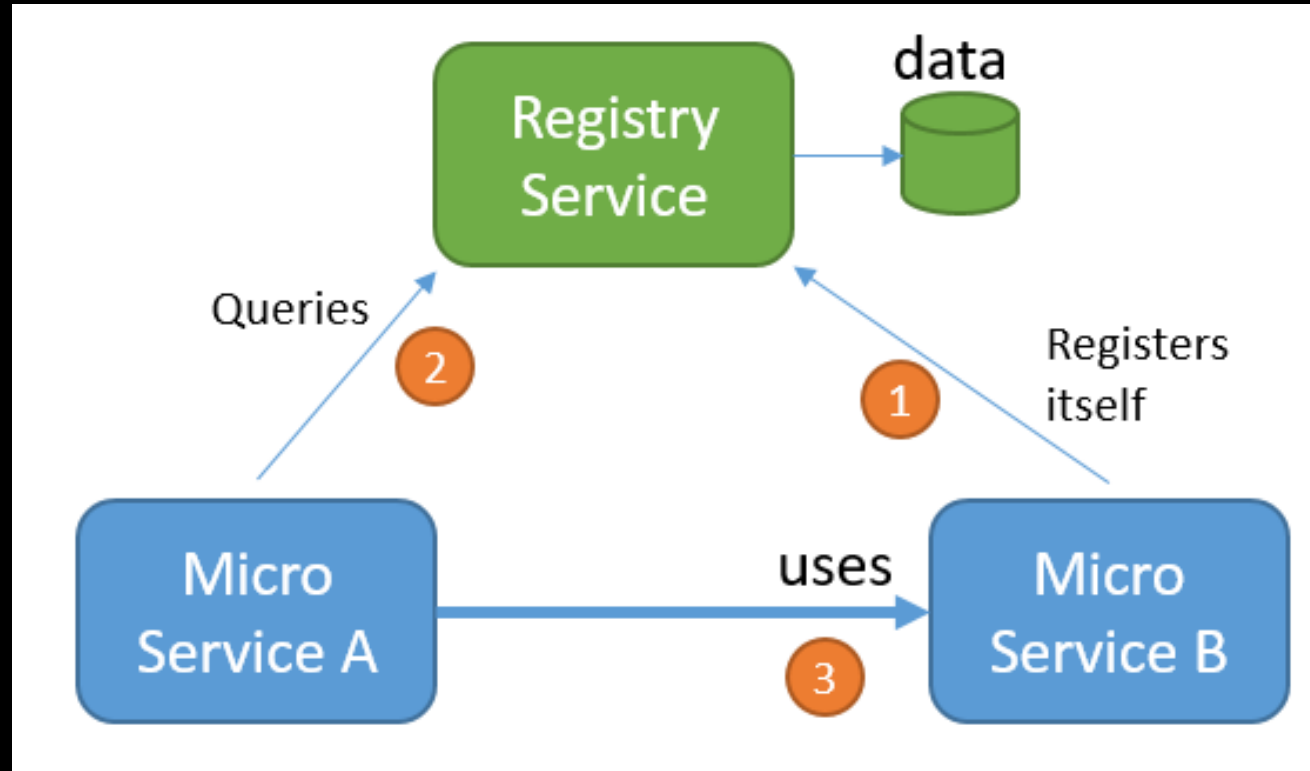
Version control system



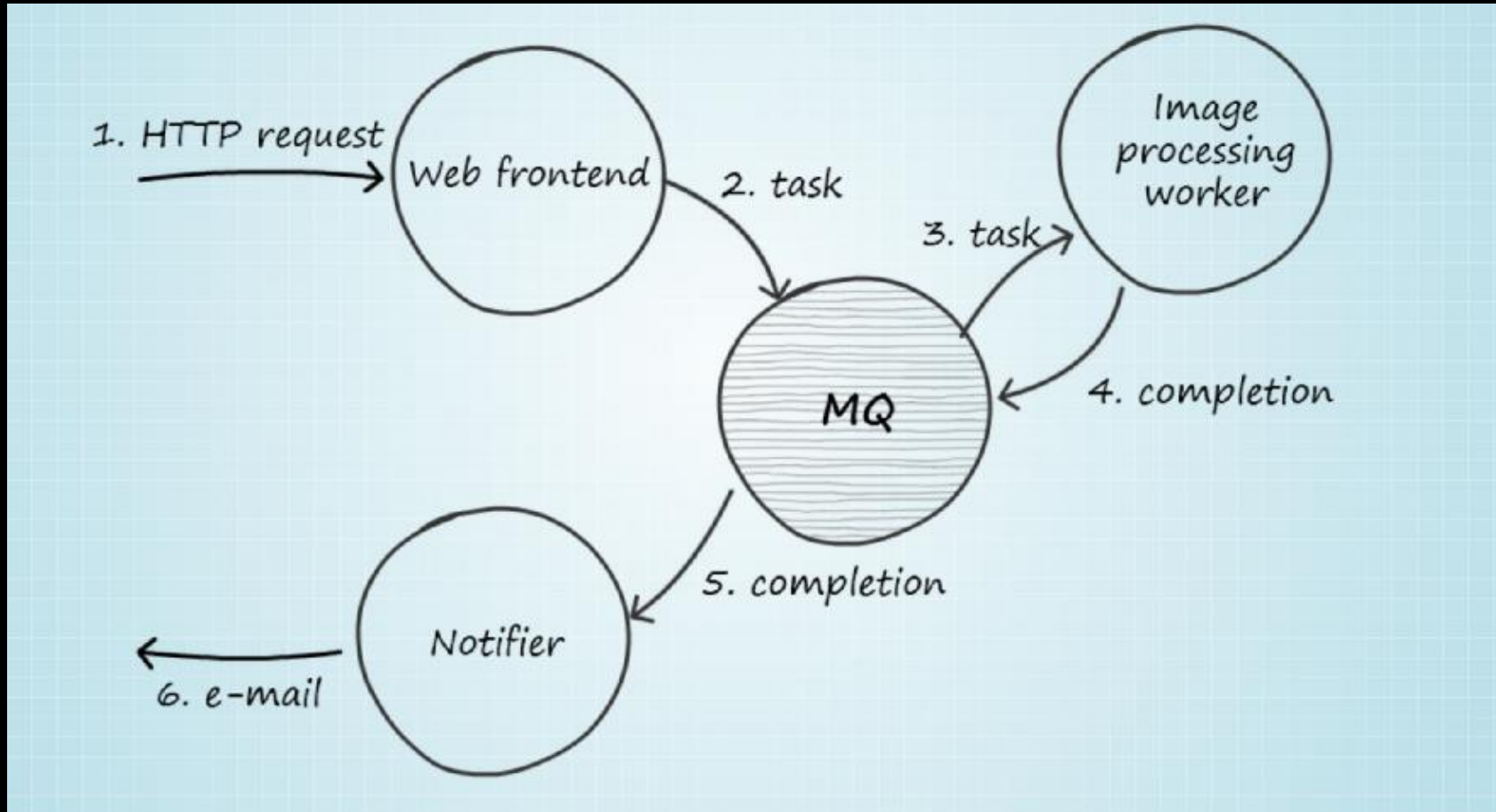
CI/CD



Service Discovery



Intercommunication



Monitoring



Questions

Where is security?



Distributed computing architectures

- Same technologies are needed plus ...
- Paradigms for parallel processing:
 - Special directives
 - Map-Reduce
 - Frameworks for GPU programming

Questions?

daniel.barragan@correo.icesi.edu.co