Cloud Native

IBM Tech TV

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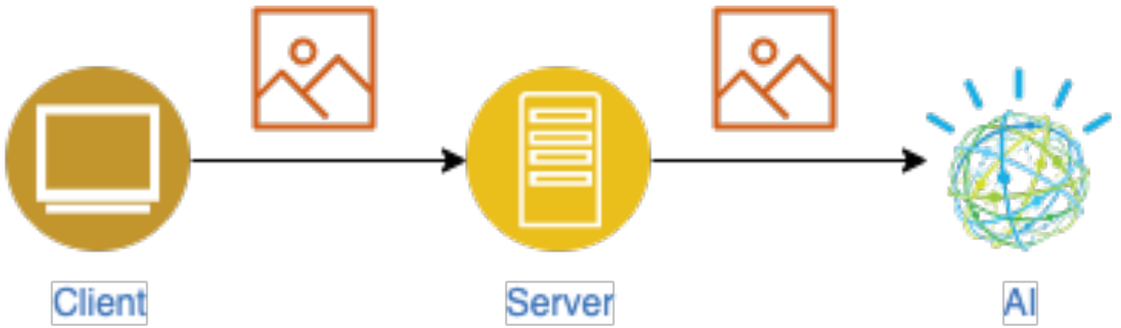
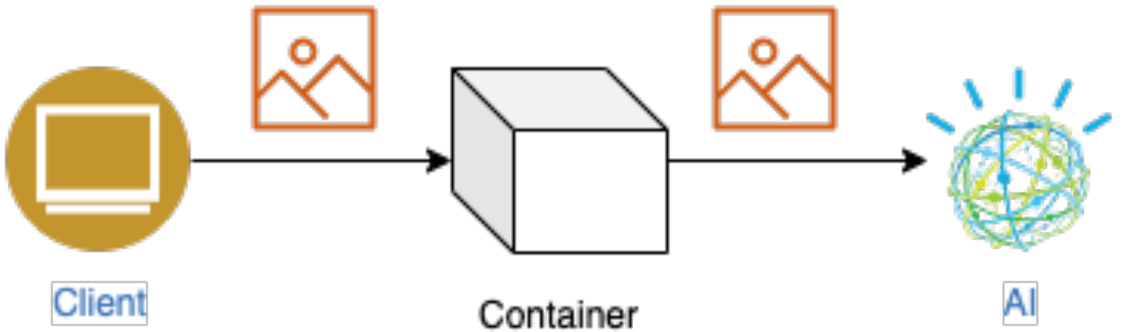
Cloud Native Principles

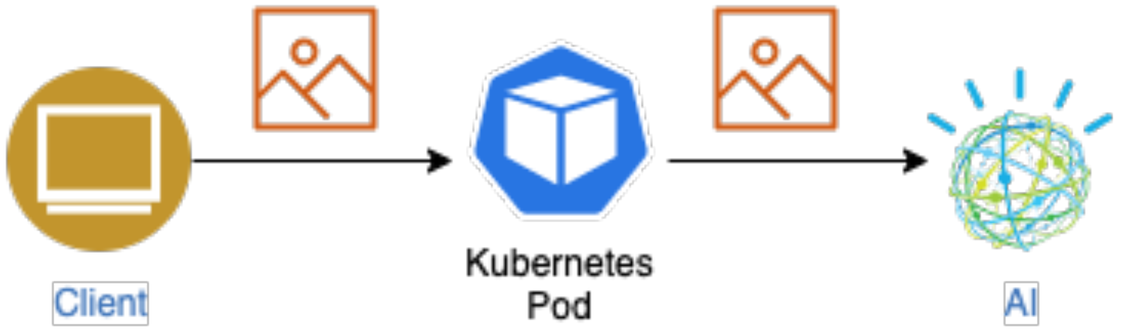
https://www.ibm.com/cloud/architecture/architecture/practices/cloud-native-principles

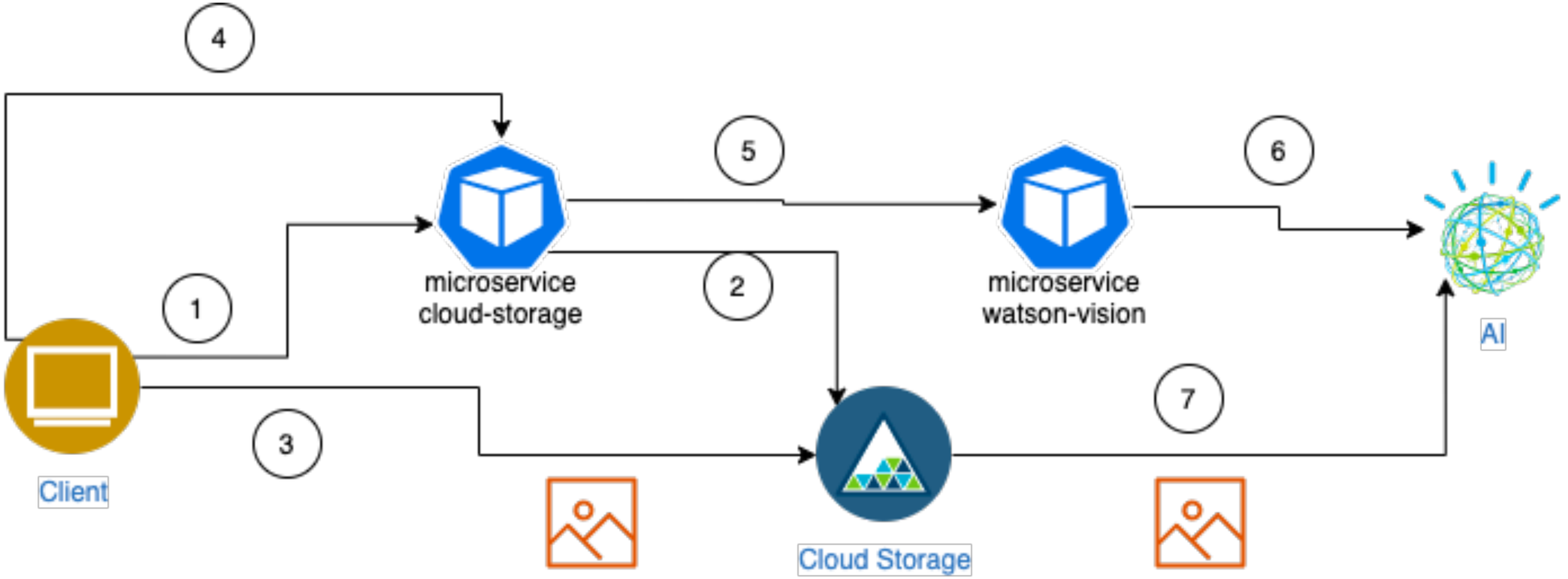
Cloud Native

- Single Concern
- High Observability
- Lifecycle conformance
- Image immutability
- Process disposability
- Self-containment
- Runtime confinement


Client
Server
AI


Client
Container
AI


Client
Kubernetes
Pod
AI


4
5
6
microservice
cloud-storage
microservice
watson-vision
AI
1
2
Client
3
7
Cloud Storage

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Observability (n)

- The ability to navigate **from effect to cause**
  - For example....
    - Spike in errors -> misconfiguration
    - Increased latency -> new customer behavior
    - User complaints -> upstream service deployed

USE
Method

- Use stands for Utilization, Saturation, Errors for every Resource
- Resources
  - (CPUs, disks, memory, etc)
- Utilization
  - (average time that resource was busy)
- Saturation
  - (the degree to which resource has extra work, often queued)
- Error
  - (the count of error events)

Red
Method

- Microservices-Oriented Monitoring
- RED focuses on the consistent terminology RATE, ERROR, Duration whose goals are to be environment/stack agnostic
- A valid approach is to incorporate both USE and RED (which turns out to be the Golden Signals)

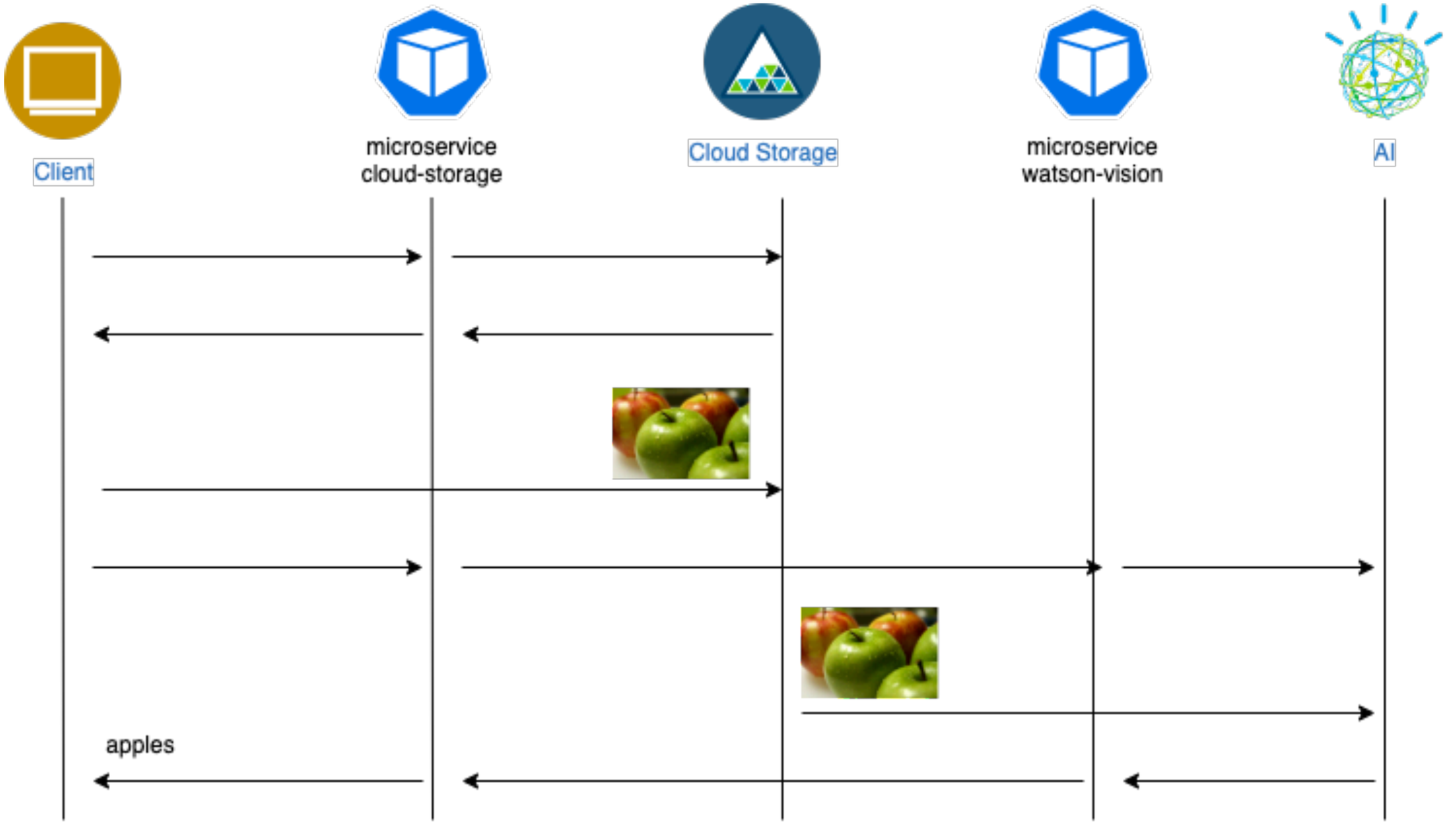
The Golden Signals

- Exactly the same as RED but includes “Saturation”
  - Latency (time taken to service a request)
  - Traffic (service demand or throughput)
  - Errors (rate of requests which are failing)
  - Saturation (how “full” your service is)

Service Level

- SLO (Service Level Objectives)
  - The SLO is the customer's service reliability target level. To be effective, the SLO must be achievable and reflect the technical reality of your organization.
- SLI (Service Level Indicators)
  - SLIs are metrics that represent your service level from your customer's point of view.
- The process to define your SLO and SLI is iterative. SLOs are driven by business requirements, whereas SLIs are driven by the available measurement

https://www.ibm.com/garage/method/practices/manage/service-level-objective


Client
microservice
cloud-storage
Cloud Storage
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AI
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