Workshop: Module 11

Tooling & Cloud Infrastructure

Agenda

1000   **Welcome and Register**

                 Part 1: A Cloud Comparison
                 • Recap (25 mins)
                 • Exercise Part 1 (90 mins)

1200   **Lunch Break (1 hour)**
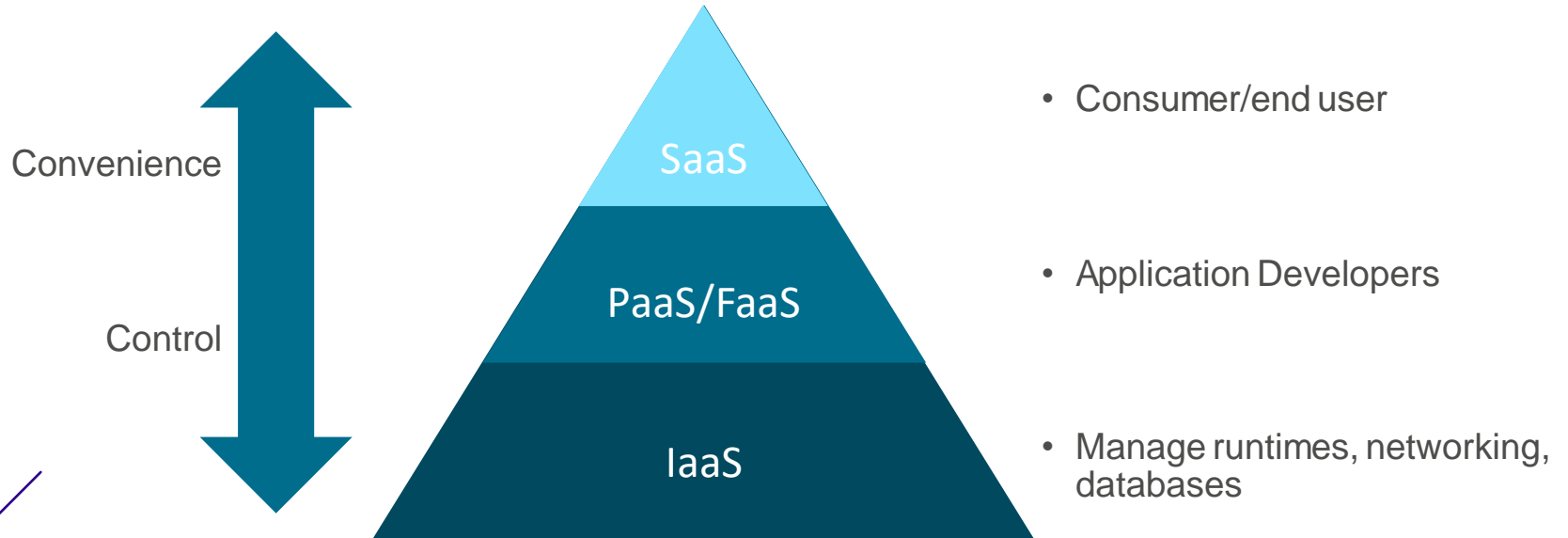
1300   **Part 2: More Azure stuff**
                 • Recap (15 mins)
                 • Exercise Part 2 (165 mins)

Part 1

A Cloud Comparison

Recap

Cloud services

Convenience

Control

SaaS

PaaS/FaaS

IaaS

- Consumer/end user

- Application Developers

- Manage runtimes, networking, databases

Recap

Infrastructure as a Service (IaaS)

Often forms the backbone of Cloud Platform offerings

- Compute Services: AWS EC2, Azure VMs, GCP Compute

- Storage Services:
  - Types: Databases, Blob, Block/Disk, File, Archive Storage
  - Some Examples:
    - Azure Disk Storage, Azure Files, AWS S3, AWS Glacier

- Load Balancers & Networking: VPCs, Security Groups, Regions, Availability Zones.

Recap

Serverless Environments (FaaS)

- Instead of running on a server, computing resources are allocated as and when needed
  - Can be efficient/cheap
  - Elastic
  - No infrastructure to worry about

- Possible downsides:
  - Extra complexity
  - Vendor lock-in

- Examples:
  - AWS Lambda
  - Azure Functions
  - Google Cloud Functions

New Stuff

Load testing

- Simulate the highest load you might need to support and measure its impact on performance

- Usually focused on response time. Other important metrics: availability, concurrency, throughput

- Scheduled or part of the CI/CD pipeline

- *Slightly* different focus from "performance testing" or "stress testing"

- Make sure to:
    - Create an accurate workload model
    - Have enough monitoring to make use of the results
    - Randomise data
    - Emulate realistic network speeds
    - Notice trends between test runs, e.g. steadily increasing delays

Exercise

Migrating to Serverless architecture

Clone this repository and follow the instructions:

https://github.com/CorndelWithSoftwire/DevOps-Course-Workshop-Module-11-Learners

Part 2

More Azure stuff

Recap

Message Queues

- Asynchronous messaging between services
  - Removes temporal coupling
- The ordering may or may not be guaranteed
  - First In First Out (FIFO)
- Benefits:
  - Can support multiple instances of producers and consumers
  - Mitigates surges in demand if requests can be handled later
- Examples:
  - AWS Simple Queue Service (SQS)
  - Azure Storage Queues
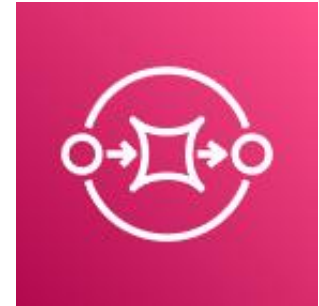
New Stuff

Azure Cognitive Services

A collection of AI based services for handling processing for data.

Example use cases:
- Language Translation
- Speech to Text Conversion
- Image Recognition
- Content Moderation

Services are deployed as API instances that users create on demand.

Exercise

Continue with this morning's instructions

https://github.com/CorndelWithSoftwire/DevOps-Course-Workshop-Module-11-Learners

Thank You!