Day 2 Intro To Azure DevOps

- What is Cloud Computing ?
  - All the services that are present in your laptop.
  - Storage, Networking,CPU,GPU etc - when provided over the internet as a service - This is cloud computing.

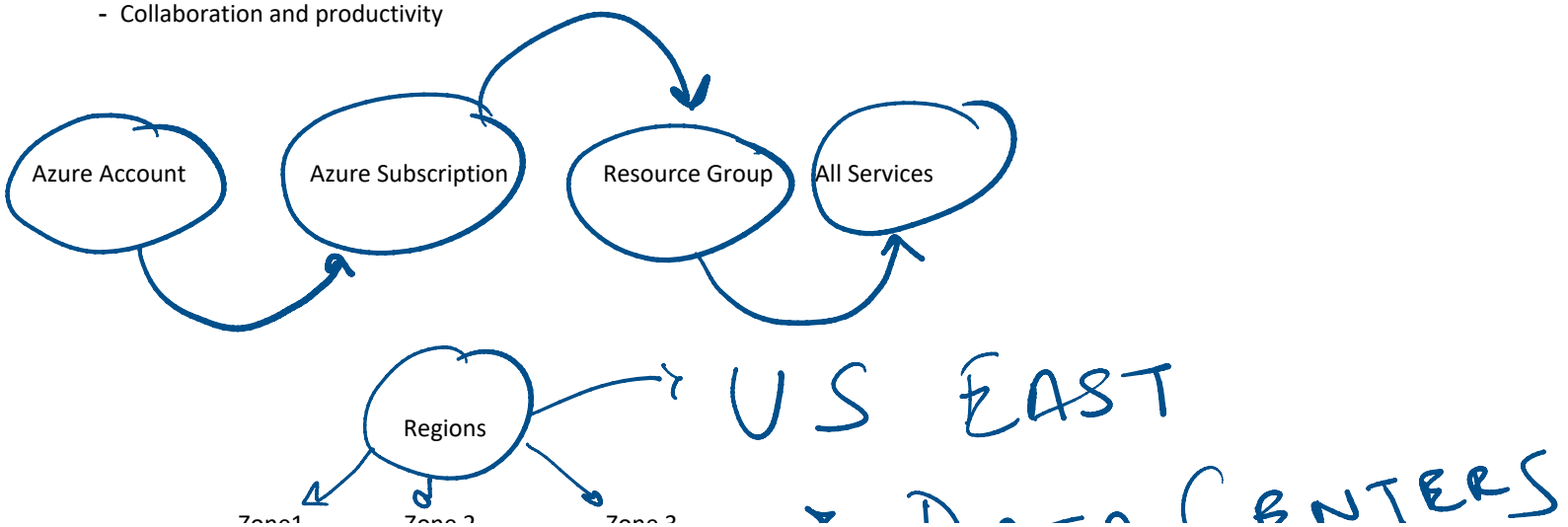
- Benefits:
  - On demand self service
  - Pay as you go
  - Rapid elasticity
  - Broad Network Access
  - Wider Geographic Coverage

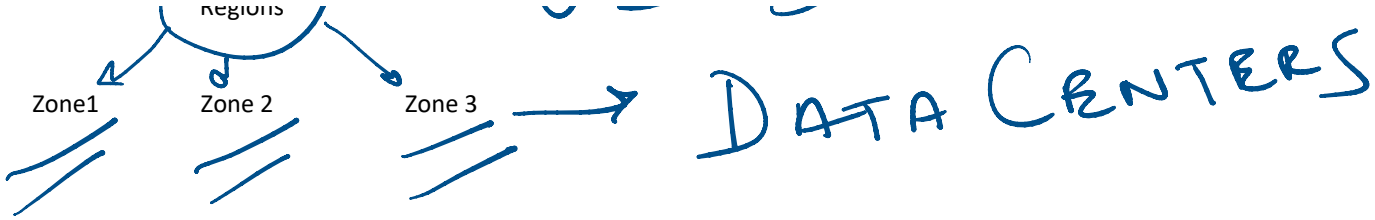
- Service Models
  - IAAS - You build on this service. Eg - Create your own server and bring your code and run on it. **You maintain the server from security/update prospect.**
    Compute
  - PAAS - I have a code and I just want to run that code on a infra **without worrying about maintaining operations aspect.**
    - Azure - WebApps - To host websites
    - GCP - App Engine
  - SAAS - You simply start using the service !
    - Eg - Gmail, Youtube, Facebook, Most of the time it is available in the marketplace.
      - Workday
      - Teams

- Deployment Models
  - Public Cloud - AWS, Azure, GCP
  - Private Cloud - Defense, NASA, ISRO
  - Hybrid Cloud - TCS, IBM, Airtel
  - Multi Cloud - AWS [Security] GCP [Storage] Azure [WebApp ENgine]

What is Azure ?

- Public cloud from Microsoft
- Benefits of Azure
  - Scalability
  - Cost effective
  - Cloud based solutions
  - Security and Compliance
  - Disaster recovery
  - Collaboration and productivity





What is Devops ?

- When People, Process and Product come together to deliver to the end user we call it Devops.
- Development + Operations = DevOps.

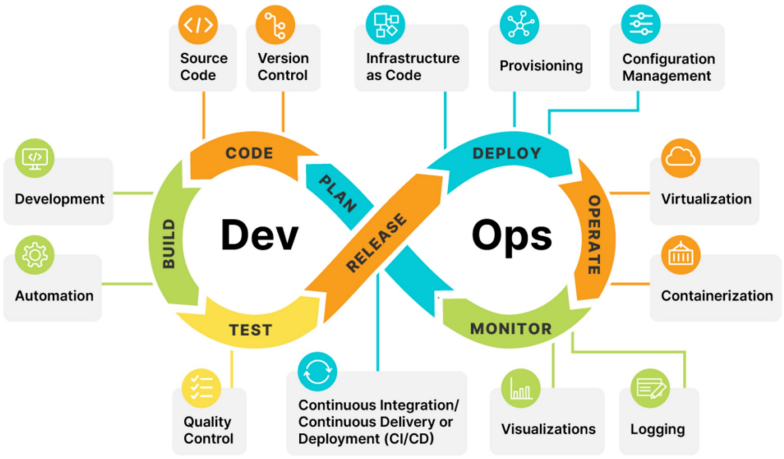
Development Team
- Write a code in C.
- 3 Developers in the team.
- Create a car racing game.
- Developers started working on the game.
- **It was very difficult for these developers to collaborate.**
- **They were not having a central repository to store their code and manage versions of their code.**
- **They create the game Bingo !**
- They game the game code [solution file] to the operations team to run on the company's server.

Operations Team
- 2 Members
- 1 - Infrastructure [servers/storage] | 1 - My network engineer
- The operations team was clueless on where to run this code ? - 2012 Server or 2016 ?
- What CPU ?
- What GPU ?
- What Network bandwidth?
- How should I run this code ?

Testers Team
- Found a bug.
- They reported the bug to Dev team.

To address all these challenges we came up with a practice called - DEVOPS.

Benefits
- Continuous Integration - Adding new feature, fixing a bug in the code
- Continuous Delivery - Providing the update software version to the end user.
- Testing, feedback and monitoring is improved because of this devops practice.



Example of CI/CD in Devops

Android Version on 2 Feb - 4.2.1

↓

During this time developer improved their code + added security patches and then pushed it on your android phones.

↓

Android Version on 7 Feb - 4.2.2

Stages of Devops Lifecycle

PLAN

- As the name says you PLAN your entire product/project lifecycle.
- Key stakeholders - Customer + Your Engineering Team + Finance Team come together to discuss technical + financial aspects of the project/product.
- Resource allocation.
- Project timeline
- Team structures
- Tech stack
- Risks

CODE

- Identify the best solution.
- You write down the actual code for your application.
- You want to use microservices [You decide it here - Docker/K8]
- Versions Controls [Git]

BUILD

- My code is written. During the build phase I need to now BUILD a SOLUTION for that code.
- To have BUILD ARTIFACT.

TEST

- Here your quality of software is checked.
  - Unit testing
  - System testing
  - Integration testing

RELEASE+DEPLOY

- Deploy the software to specific bunch of users.
  - Staging Environment [Pre prod environment. You have limited prod users.]

    - UAT Environment [Not all orgs follow this]
    - Production Environment

Operate

- Management of the software in the prod environment.
- Monitoring tools.

Feedback

- Ops team creates a feedback loop by sending operational data to the Dev team.

Azure Devops

- SAAS from Microsoft that provides tools for software development and deployment.

Azure DevOps Lifecycle Tools

- Plan - Azure Boards
- Code/Develop - Github Integrations + Azure Repos
    - Docker
    - Kubernetes
    - Azure Kubernetes
- Build - Azure Pipelines
- Test - Azure Test Plans
- Release - Azure Webapps or Azure Servers
- Monitor - Azure Monitor

You first create a Azure account
Use the same Azure account to create your Azure devops account.

Azure Devops

1. Azure devops account
2. Create your Devops organization
3. Create you devops project