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Bootcamp Overview

- + Session 1: Infrastructure as Code
- + Session 2: Azure Compute Services
- + Session 3: Azure Network Services
- + Session 4: Azure High Availability & Fault Tolerance
- + Session 5: Azure Storage Services
- + Session 6: Identity and Access Management



Session 1 Agenda

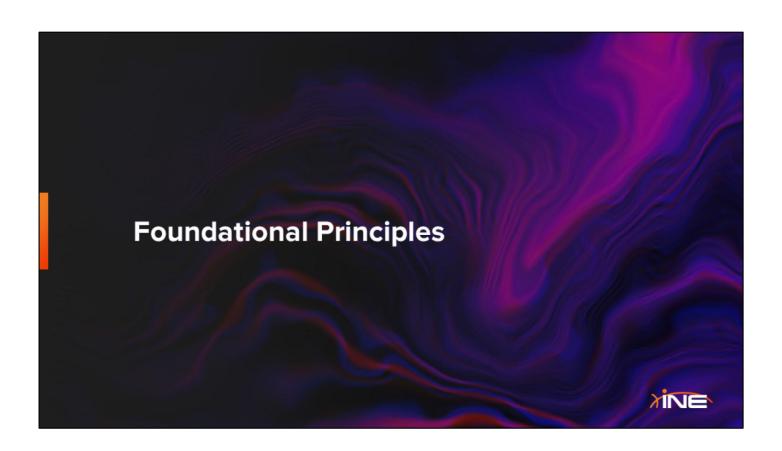
- + Foundational principles
- + Git version control
- + Microsoft Azure infrastructure as code
- + Deploy infrastructure with CI/CD pipelines



Course Materials

timw.info/inebootcamp

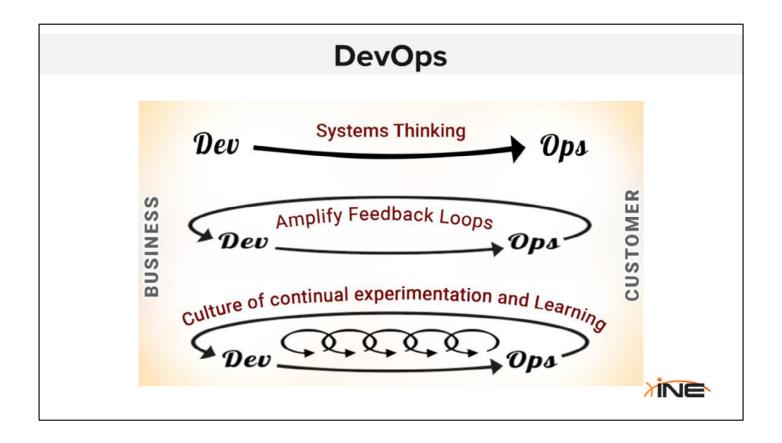




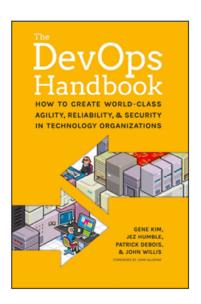
Why IaC?

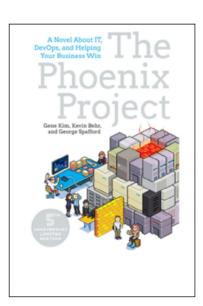
- + Consistency (avoiding human error)
- + Efficiency (much faster than manually deploying single instances)
- + Traceability (helps with compliance tracking)
- Collaboration (all changes are tracked by all developers; DevOps culture)
- + Maintainability (Easier to update and see lifecycle)

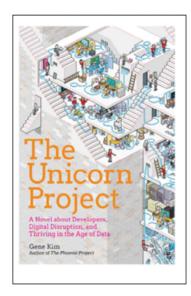


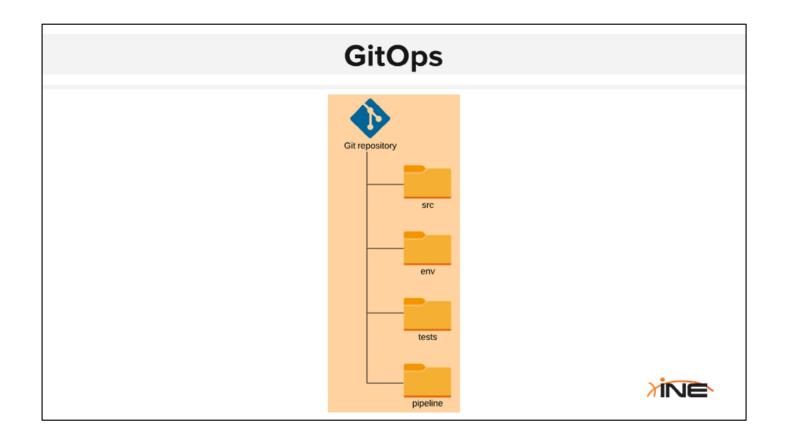


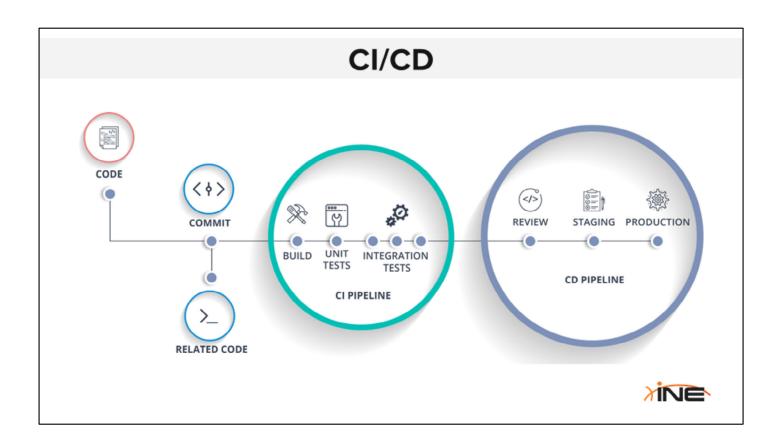
DevOps Reading List











JavaScript Object Notation (JSON)

```
·-"$schema":·"https://schema.management.azure.com/schemas/2019-04-01/
deploymentTemplate.json#", d
."contentVersion": "1.0.0.0", d
··"metadata":·{↔
...."_generator": -{+
....."name": -"bicep", +
...."version": "0.4.613.9944",
····"templateHash": ·"17386612715415396913"↓
....34
..},4
 Select or create a parameter file...
··"parameters": ·{+
··· "vnetName": · { +
...."type": "string", #
····"defaultValue": ·"VNet1", ₽
····"allowedValues":·[↵
....."VNet1",
....."VNet2"
.....].
...."metadata":-{-
....."description":-"VNet-name"-
.....34
....},0
...."vnetAddressPrefix": -{4
...."type": •"string", ط
...."defaultValue": ."10.0.0.0/16", 4
۰۰۰۰۰"metadata": ﴿
·····"description": · "Address · prefix"
```







Git

- + Created by Linus Torvalds in 2005
- + Open-source, decentralized source code management (SCM) solution
- + Every developer has full local copy of the repository
- + Supports collaborative development





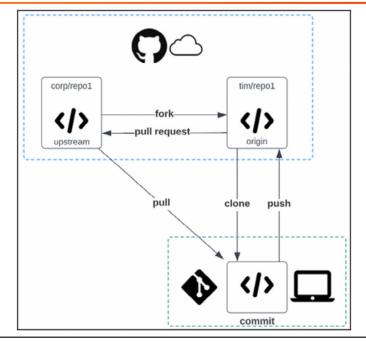
GitHub

- + Cloud-based DevOps solution
- + Acquired by Microsoft in 2018
- + Allows Git to scale
- + Gradually gaining parity with Azure DevOps
 - + Microsoft is doing their innovation at GitHub

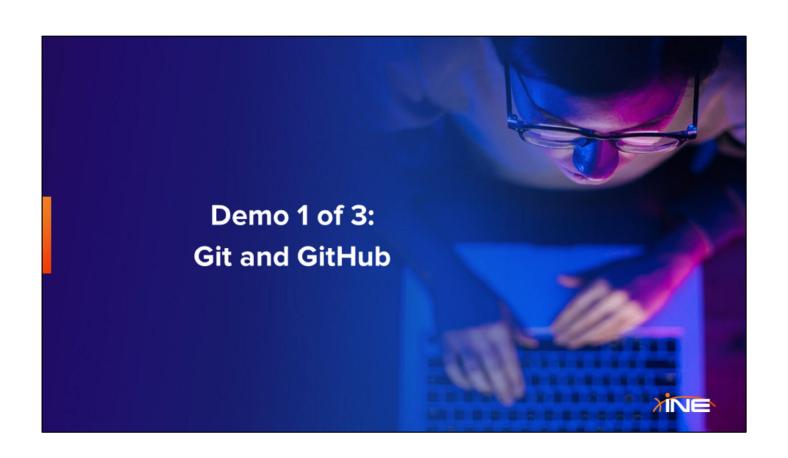


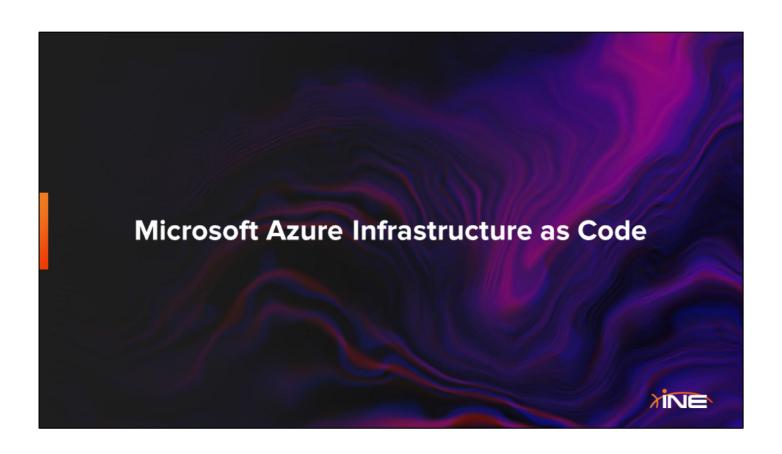


Git/GitHub Flow









ARM JSON Deployment Templates

- + Azure Resource Manager is a REST API
 - Create, Read, Update, Delete (CRUD) operations over HTTP
 - + Data payload is JSON
- More readable, more lightweight data format than XML



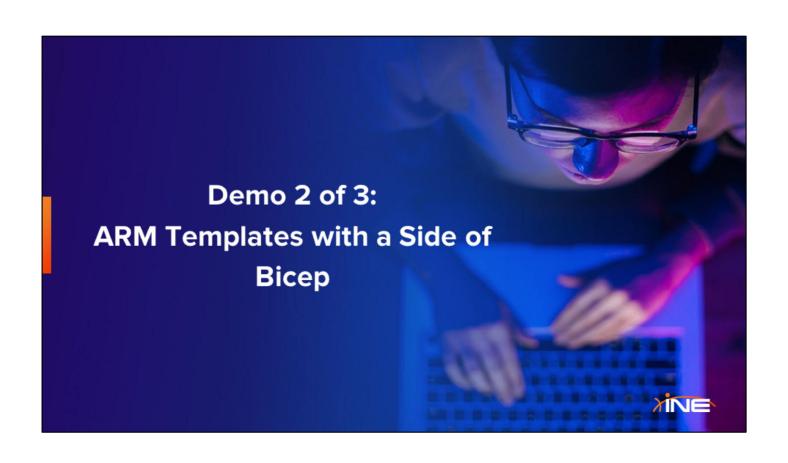


Azure Bicep

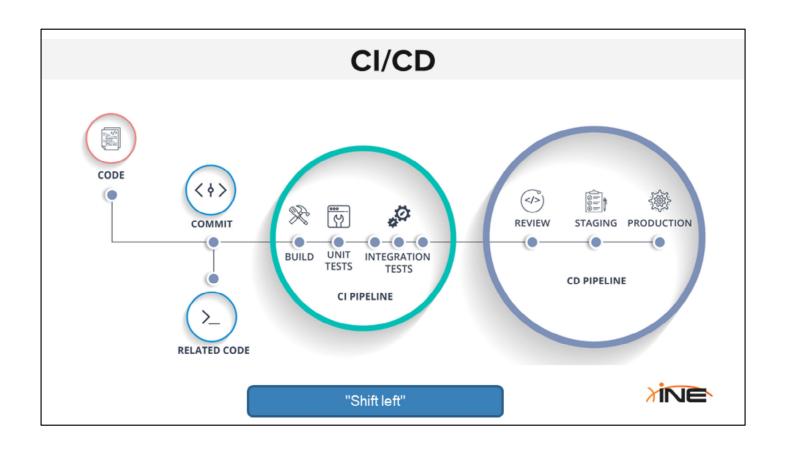
Domain-Specific Language (DSL)











CI/CD Platforms

- Azure DevOps
 - + Azure Pipelines
 - + Classic/YAML editors
- + GitHub
 - + Actions
 - + YAML editor





Pipeline Schema

- Pipeline
 - Stage A
 - o Job 1
 - o Step 1.1
 - o Step 1.2
 - o ...
 - o Job 2
 - o Step 2.1
 - o Step 2.2
 - o ...
 - o Stage B
 - o ...





YAML New doc doe: "a deer, a female deer" ray: "a drop of golden sun" xmas: true calling-birds: No tabs - dewey xmas-fifth-day: calling-birds: four Whitespace counts! golden-rings: 5 partridges: location: "a pear tree" XINE



Coming up...

- + Session 2: Azure Compute Services
 - + Virtual machines
 - + App Service
 - + Functions
 - + AKS

