



Developing Java applications with the support of Microsoft Azure platform

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Agenda

- Microsoft Azure and Java
- Infrastructure options for Java apps on Microsoft Azure
- Azure App services
- Useful components from Azure
- Tooling and SDK
- Demo

Microsoft and Java

- Rocky start in 90's and early 2000s
- Microsoft was primarily associated with .NET, C#, VB, SQL Server... not Java
- 2015s and after Microsoft is switching more to the open source and adopting Java more and more
- Today is using a lot of Java as it runs more than 2 millions of JVMs in production internally
- Microsoft is now contributor of OpenJDK, part of Adoptium and even has its own [Microsoft Build of OpenJDK](#)

Microsoft Azure

- Cloud computing service operated by Microsoft
- Provides **IaaS**, **PaaS** and **SaaS**
- Supports for many different programming languages, framework and tools (Microsoft and non-Microsoft related)
- Distributed all around the world through data centers arranged into regions

Microsoft Azure

- Azure portal demo...

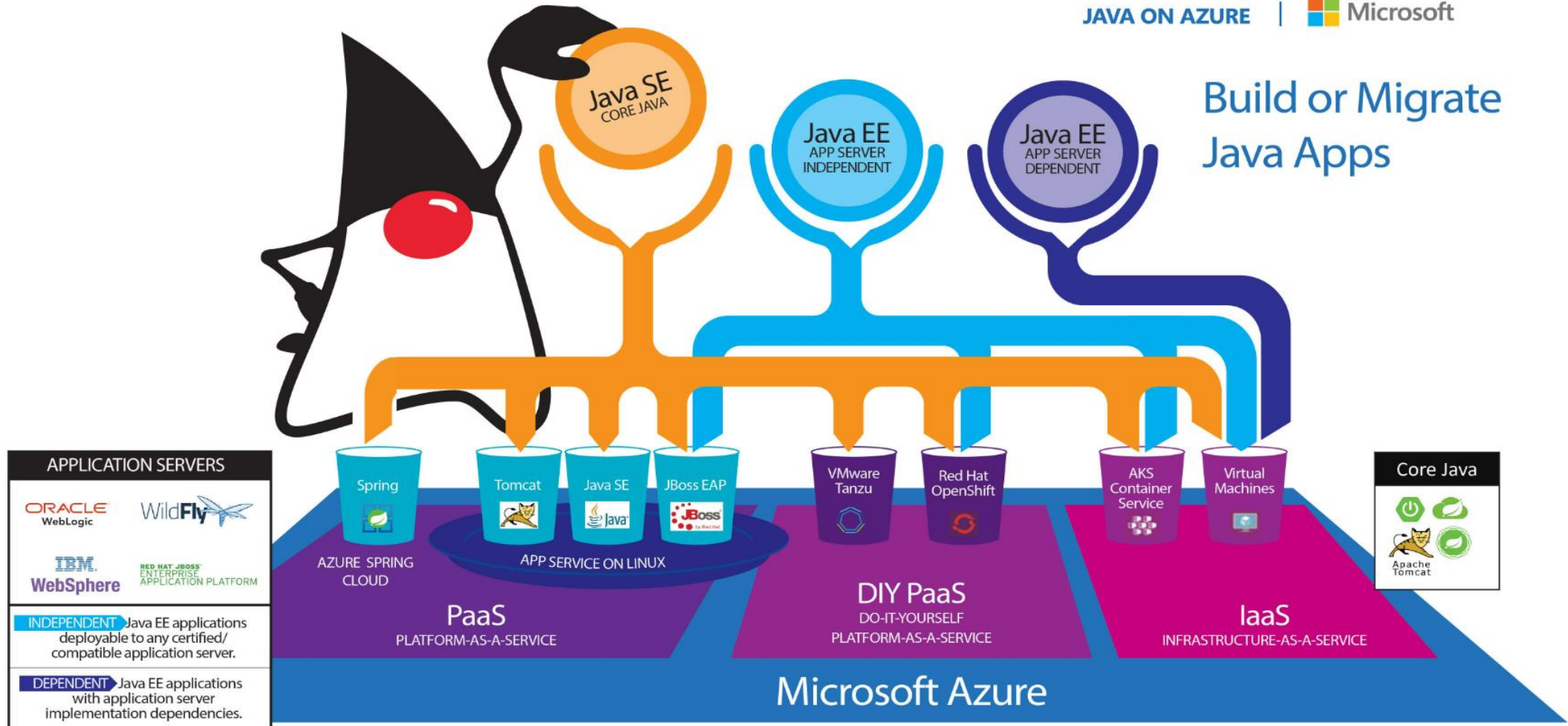
Infrastructure options

- Infrastructure As A Service
 - Virtual machines
 - Azure Kubernetes services (AKS)
- Platform As A Service
 - Azure App Service
 - Azure Spring Apps/Cloud
 - Functions

Infrastructure options

JAVA ON AZURE | Microsoft

Build or Migrate
Java Apps



Azure App Service

- Managed production environment
 - Windows, Linux and Docker support
- Support for multiple languages and frameworks
 - Java (8, 11, 17), .Net (Core), NodeJS, Ruby, PHP, Python
- Built in DevOps optimizations
 - CI/CD integration with Azure DevOps, GitHub, BitBucket, DockerHub, Azure Container Registry...
 - Deployment slots
 - Implemented instant scale up and out
 - Built in monitoring and log streaming
- Security and compliance
 - ISO, SOC and PCI compliant
 - Authentication via Azure Active Directory, Google, Facebook, Twitter
 - HTTPS, networking filtering, custom domains...

Azure App Service - deployment

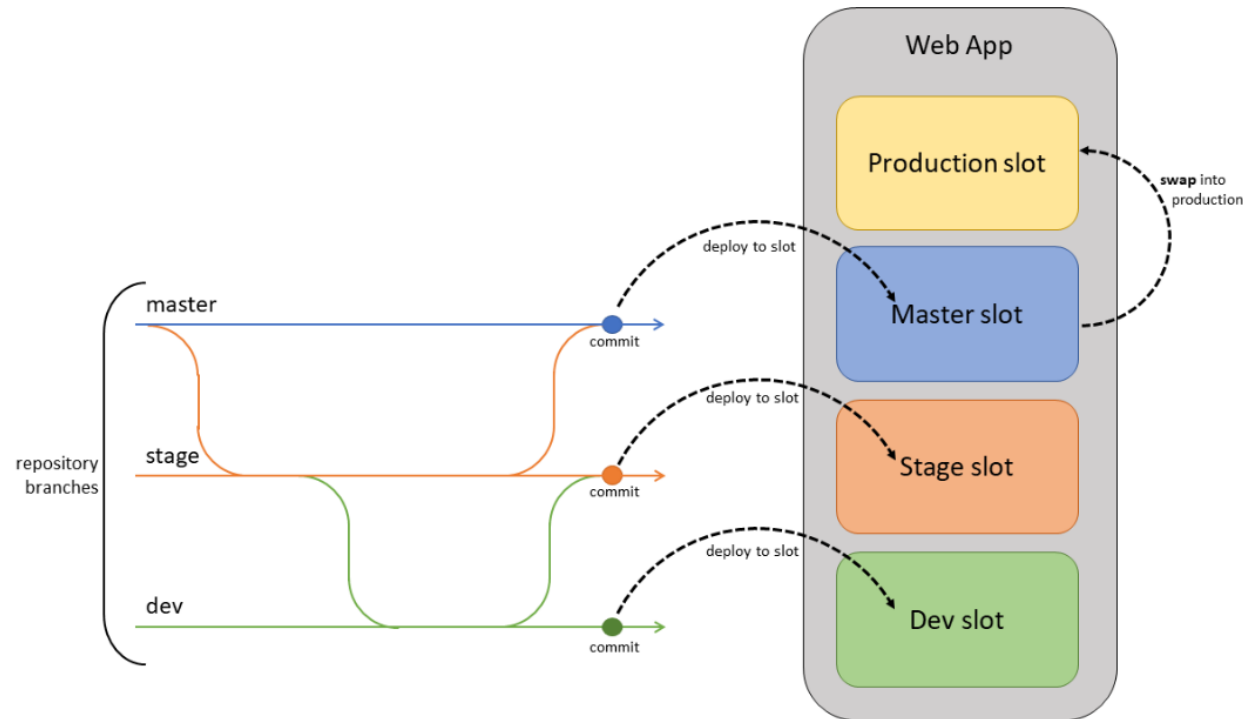
- Manual deployment
 - CLI
 - Git
 - Deploy via portal (drag and drop)
 - Zipdeploy (WAR, JAR, EAR)
 - FTPS
- Automated deployments
 - Integrated support for
 - Azure DevOps
 - Github
 - Bitbucket

Azure App Service – deployment

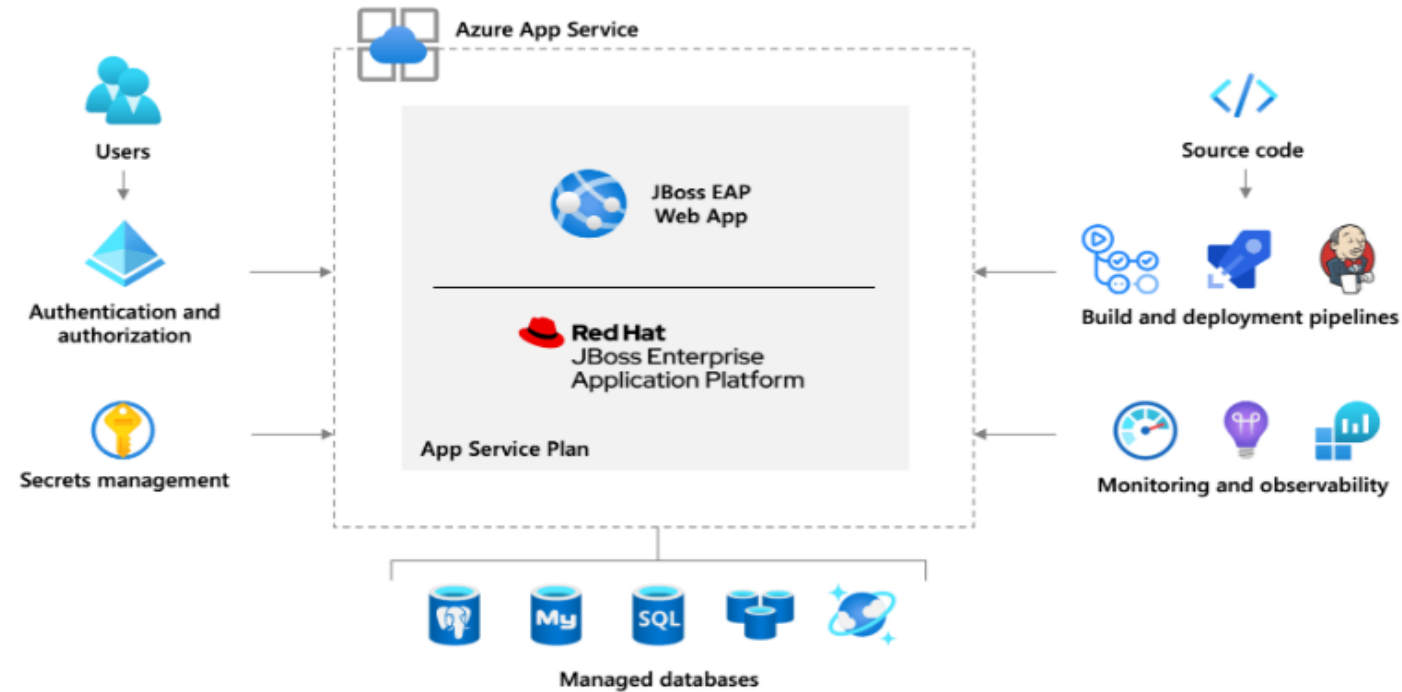
- app deployment location: */home/site/wwwroot*
 - Java SE – location of .jar
 - Tomcat – location of Tomcat folder
- Provided endpoints for your custom CI/CD process:
 - */api/publish/* - JavaSE
 - */api/wardeploy/* - Tomcat

Azure App Service – deployment

- Deployment slots



Azure app Service



Database options

- Azure SQL
- Azure Database for PostgreSQL
- Azure Database for MySQL
- Azure Database for MariaDB
- Azure Cosmos DB (NoSQL)

Other notable mentions

- Azure Storage
- Azure Active Directory
- Azure Cache for Redis
- Azure Cognitive services
 - Speech to text, Computer vision, Face API...

Face API



```
curl --location --request POST 'https://  
[redacted]-faceapi.  
cognitiveservices.azure.com/face/v1.0/  
detect?returnFaceId=true&  
returnFaceLandmarks=false&  
returnFaceAttributes=accessories,age,  
facialhair,gender,glasses,hair,makeup,  
occlusion,smile&  
recognitionModel=recognition_04&  
detectionModel=detection_01&  
faceIdTimeToLive=86400' \  
--header 'Content-Type: application/json' \  
\  
--header 'Ocp-Apim-Subscription-Key:   
[redacted]' \  
--data-raw '{  
  "url": "https://2022autumn.javacro.hr/  
var/ezdemo_site/storage/images/  
autumn-javacro-22/predavaci/  
marinkalapac/761589-2-cro-HR/  
Kalapac-Marin_lecturerportrait.  
jpg"  
}'
```



```
{  
  "faceId": "4f84081f-cc00-4f13-a933-920c826c7a11",  
  "faceRectangle": {  
    "top": 49,  
    "left": 55,  
    "width": 64,  
    "height": 64  
  },  
  "faceAttributes": {  
    "smile": 0.67,  
    "gender": "male",  
    "age": 36.0,  
    "facialHair": {  
      "moustache": 0.1,  
      "beard": 0.1,  
      "sideburns": 0.1  
    },  
    "glasses": "NoGlasses",  
    "makeup": {  
      "eyeMakeup": false,  
      "lipMakeup": false  
    },  
    "accessories": [],  
    "occlusion": {  
      "foreheadOccluded": false,  
      "eyeOccluded": false,  
      "mouthOccluded": false  
    },  
    "hair": {  
      "bald": 0.21,  
      "invisible": false,  
      "hairColor": [  
        {  
          "color": "black",  
          "confidence": 0.99  
        },  
        {  
          "color": "brown",  
          "confidence": 0.94  
        },  
        {  
          "color": "gray",  
          "confidence": 0.45  
        },  
        {  
          "color": "blond",  
          "confidence": 0.17  
        },  
        {  
          "color": "other",  
          "confidence": 0.15  
        },  
        {  
          "color": "red",  
          "confidence": 0.02  
        },  
        {  
          "color": "white",  
          "confidence": 0.0  
        }  
      ]  
    }  
  }  
}
```

Tooling and SDK

- Azure portal (with Cloud shell)
- Your own shell/cmd
- Azure Java Toolkit for IDE (inteliJ and Eclipse)
- Maven
- Java SDK
 - Management libraries – for managing Azure resources
 - Client libraries – for using Azure resources
 - Mostly build on top of Azure REST API

Demo time

- Deploying small Spring Boot app (famous Pet clinic) to Azure
- Scenario
 - You have application that you want to deploy to Azure App Service
 - You have working subscription and created a resource group called Javacro-demo

Useful resources

- [Get Started](#) - Azure
- [Microsoft Learn – Get started with Java on Azure](#)
- [Java page on official Microsoft Azure site](#)
- [Pricing](#)

Questions?

- Thank you!
- Contact: marin.kalapac@trilix.eu