Microsoft

Jakarta EE Developers are First-Class Citizens on Azure

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Principal Architect
Java on Azure

Professional Biography

- Client
  - NCSA Mosaic (1994)
  - SGI Cosmo Web Authoring
  - Sun Netscape 6 OJI

Server

J2EE JSF (2002)

Oracle Java EE

Servlet, JSF, Bean Validation, etc.

Microsoft Azure Cloud (2019)

Books

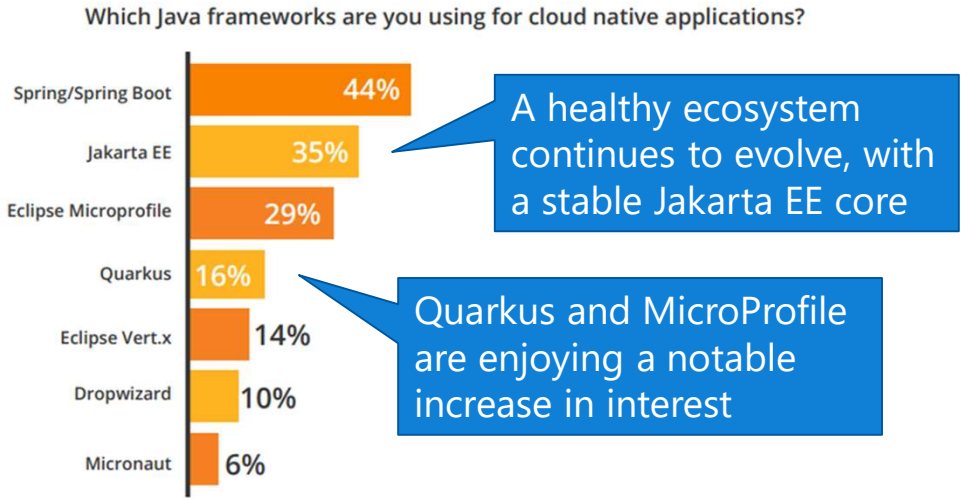
Agenda

- Jakarta EE ecosystem context
- Jakarta EE on Azure current capabilities and work
- Jakarta EE on Azure future work

Ecosystem

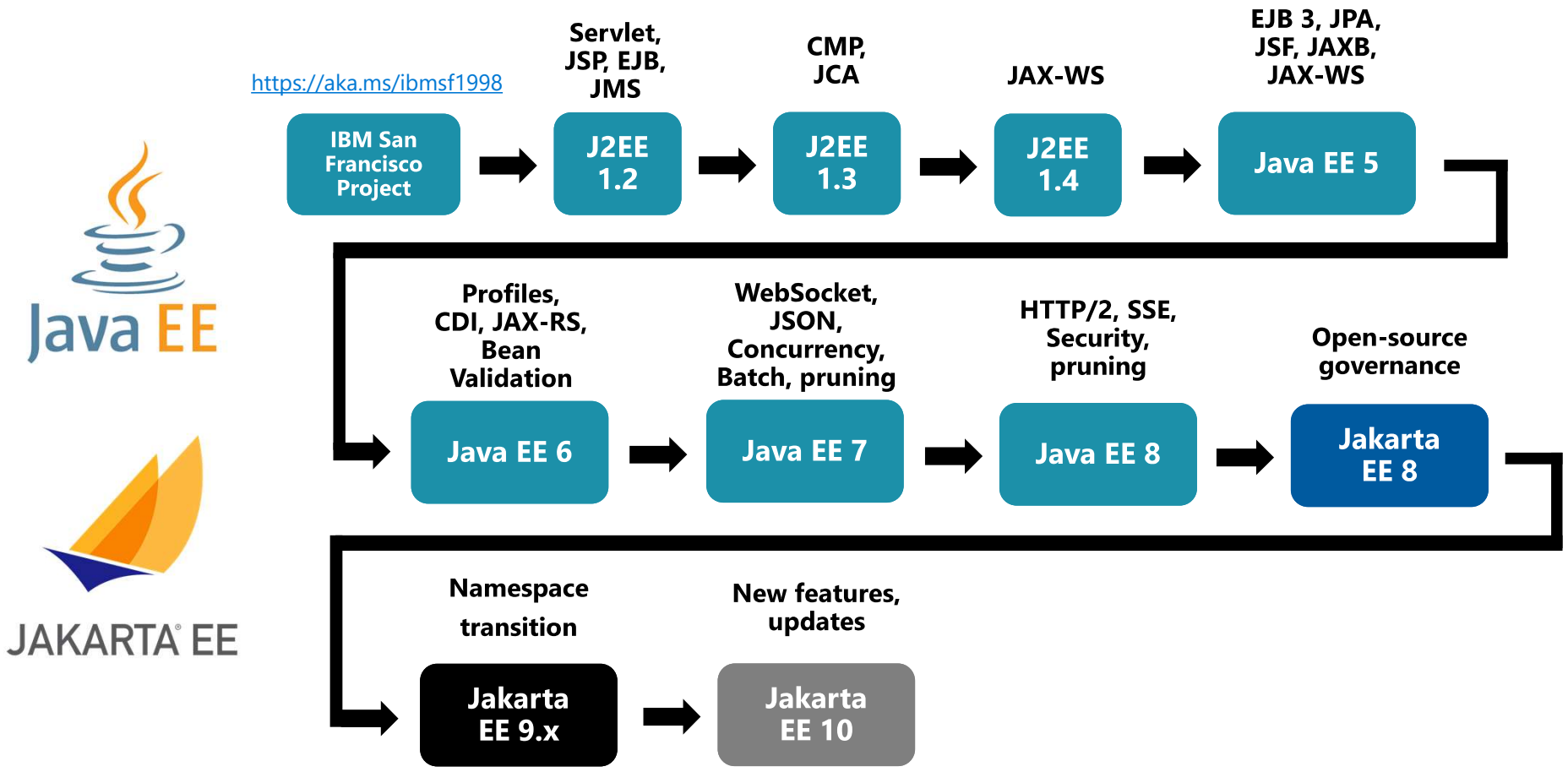
The Importance of Jakarta EE

- Jakarta EE is an important part of Java ecosystem and cloud
- 25-35% of new and existing Java applications run on Jakarta EE application servers
  - WebLogic, WebSphere/Liberty, JBoss EAP, WildFly, Payara
- 70-80% of Java applications depend on at least one or more Jakarta EE APIs
  - Tomcat, Hibernate, ActiveMQ, Jetty, Jersey, CXF, Quarkus, MicroProfile
- Many of these applications are moving to the cloud now and the near future

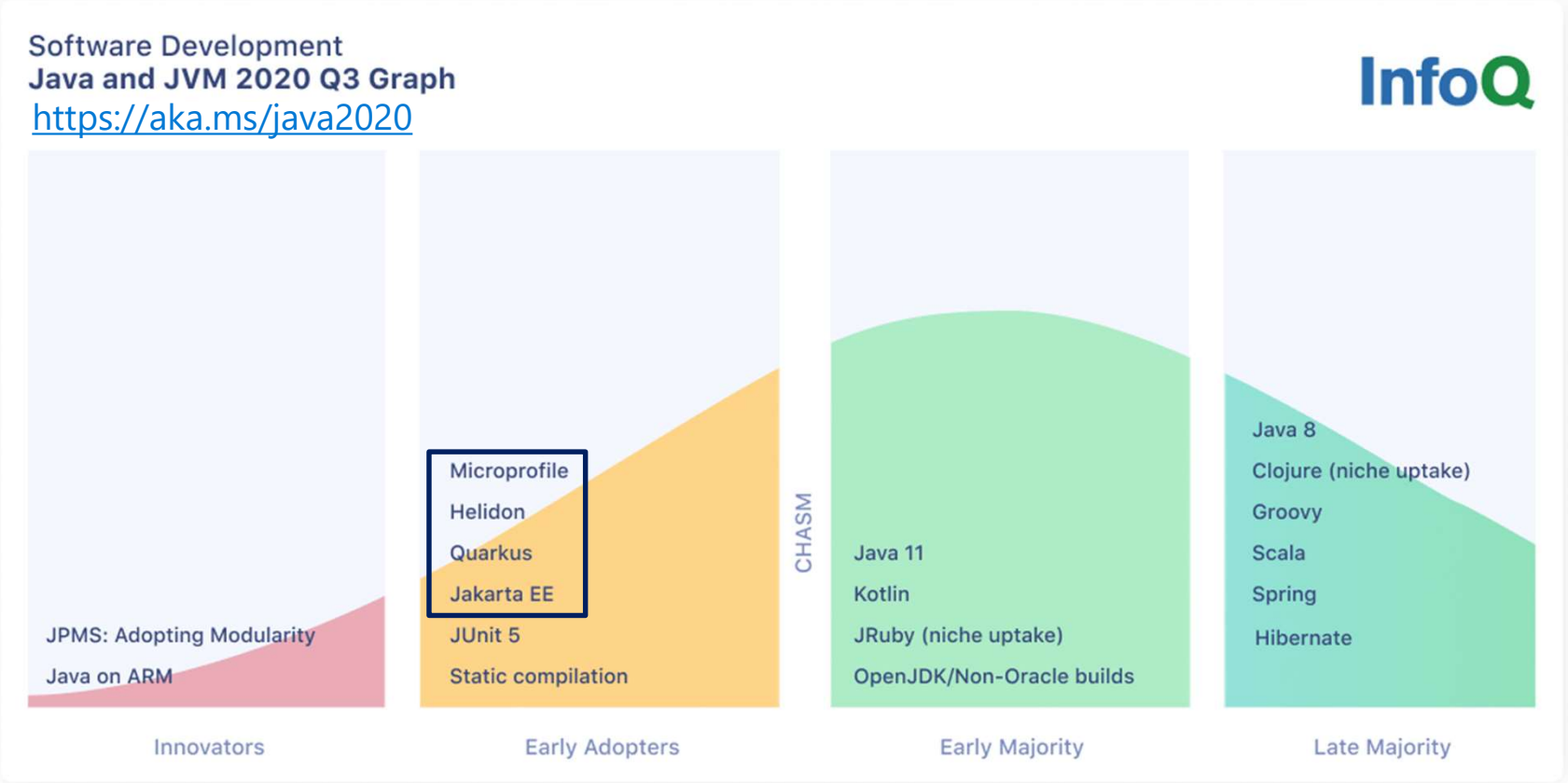


2020 Jakarta EE Developer Survey: https://outreach.jakartaee.org/2020-developer-survey-report

The Jakarta EE Transition

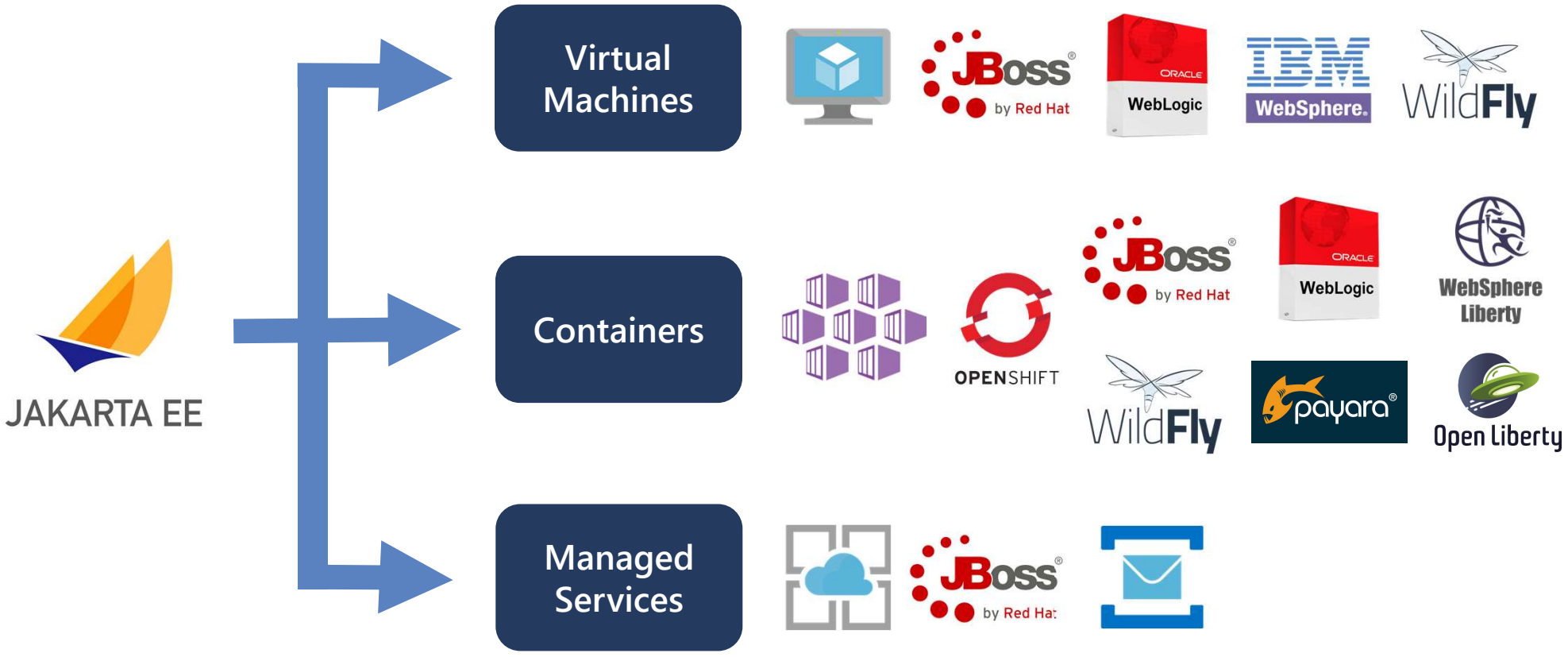


An Evolving Ecosystem



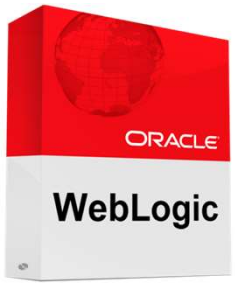
Current State

Mapping the Pathways



Virtual Machines

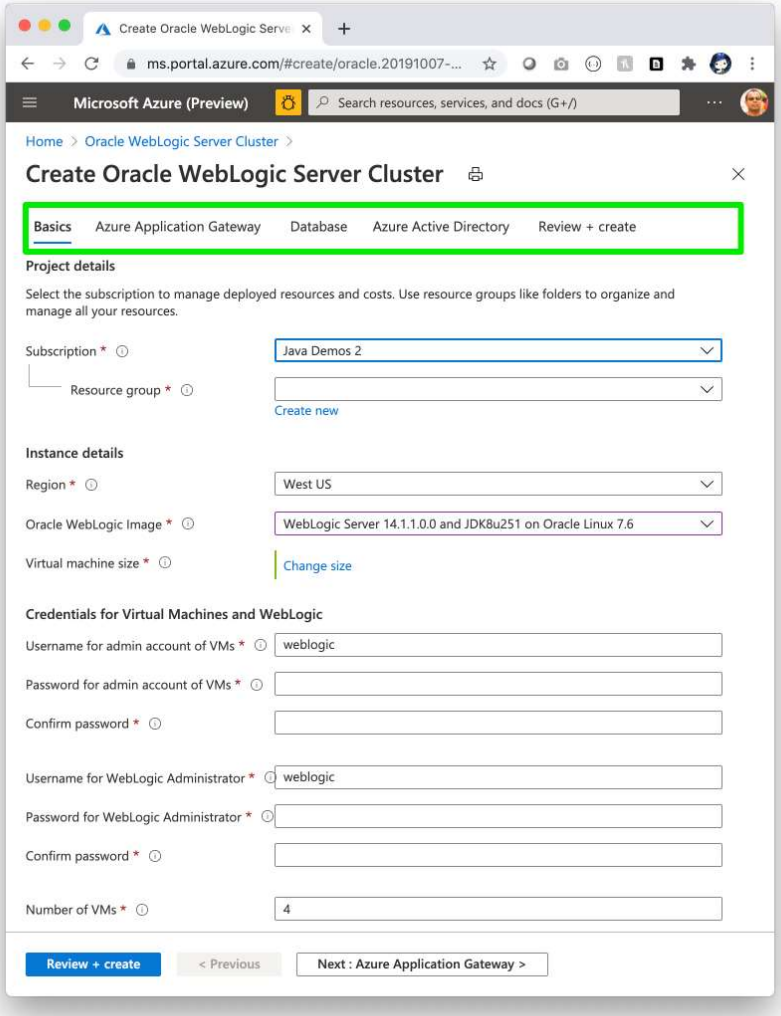
- In addition to Windows, Azure has long supported Linux virtual machines essential for Jakarta EE customers
- Azure Marketplace includes Jakarta EE focused virtual machine images and templates
- More will be done to enhance the developer experience



WebLogic on Azure

- Robust, up-to-date Azure Marketplace images and solutions for WebLogic
  - Linux, Oracle JDK, WebLogic
- Jointly published, maintained and supported by Microsoft and Oracle, bring your own license
- Supports common use-cases such as base image, single instance, load-balancing and clustering
- Supports key integrations such as App Gateway, Azure SQL, Azure PostgreSQL, Oracle DB, Azure Active Directory, Oracle Coherence, ELK
- Mature offering, minor releases ongoing
- Similar support for WebLogic on AKS actively in the works

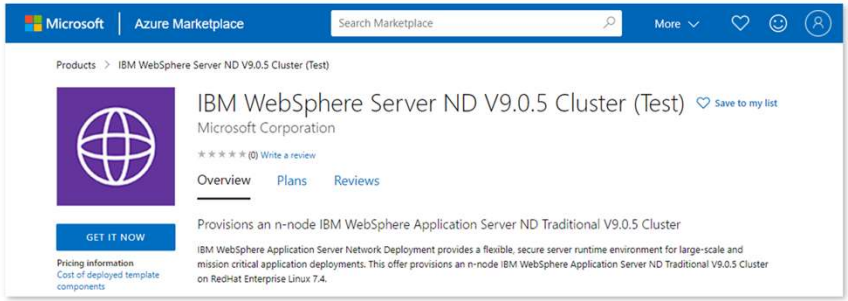
https://aka.ms/weblogic-on-azure

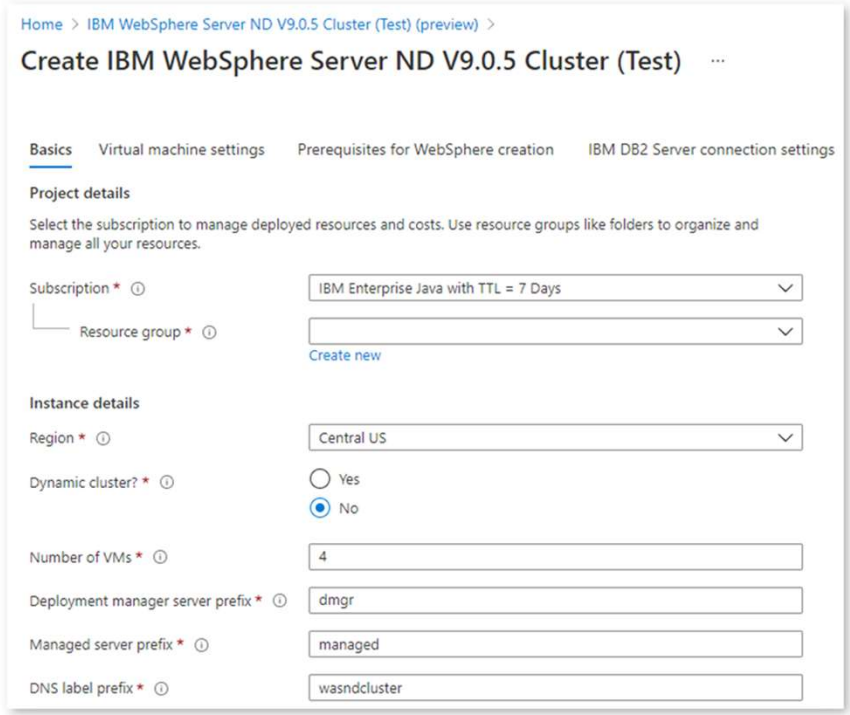


WebSphere on Azure

- Robust, up-to-date Azure Marketplace solutions for WebSphere Traditional
  - Red Hat Linux, IBM J9, WebSphere
- Jointly published, maintained and supported by Microsoft and IBM, bring your own license
- Targets easily deploying a highly available, fully functional WebSphere Network Deployment cluster with Admin Console enabled
- Enables key integrations such as App Gateway, Azure SQL, IBM Db2, Azure Active Directory, ELK
- Initial release available, more releases soon
- Similar support for Open/WebSphere Liberty on AKS/ARO in the works

https://aka.ms/websphere-on-azure

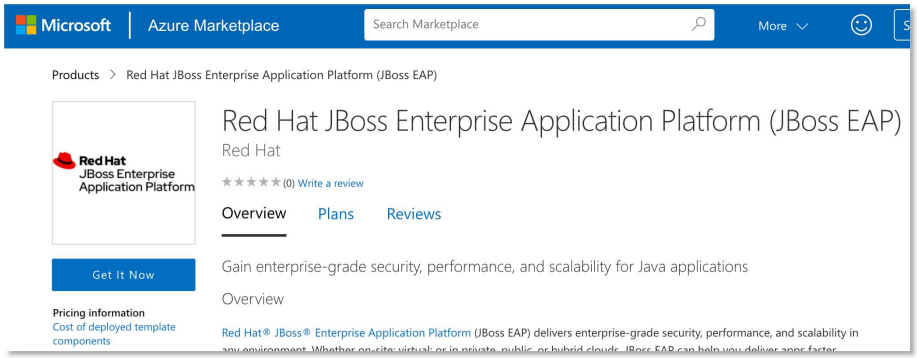


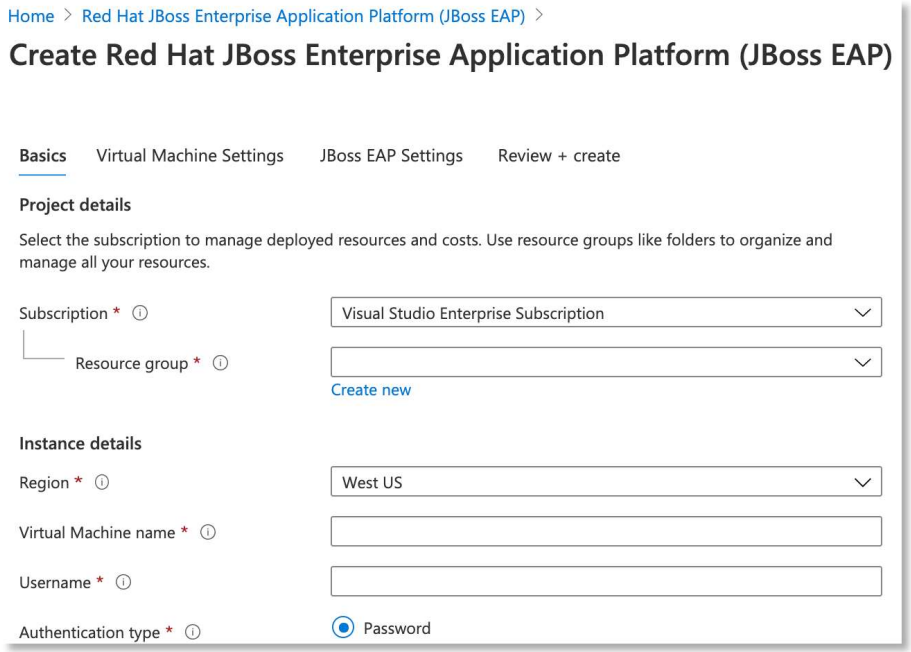


JBoss EAP on Azure

- Robust, up-to-date Azure Marketplace solutions for JBoss EAP
  - Red Hat Linux, OpenJDK, JBoss EAP
- Jointly published, maintained and supported by Microsoft and Red Hat
- Standalone and cluster configuration
- Virtual machines and virtual machine scale sets
- Bring your own license, pay as you go coming soon
- Enables key integrations such as App Gateway, Azure SQL, Azure Active Directory
- Initial release available, more releases soon

https://aka.ms/jboss-on-vms



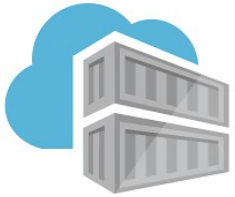


Containers

- Azure provides best of breed support for Docker and Kubernetes through the Azure Kubernetes Service (AKS) and the Azure Container Registry (ACR)
- Another options is App Service for Containers as an easier pathway of using Docker on Azure
- Application server vendors provide Docker images, Helm charts, and Kubernetes Operators
  - WebLogic, WebSphere/Open Liberty, WildFly, Payara
- More will be done to enhance the developer experience

Azure Kubernetes Service

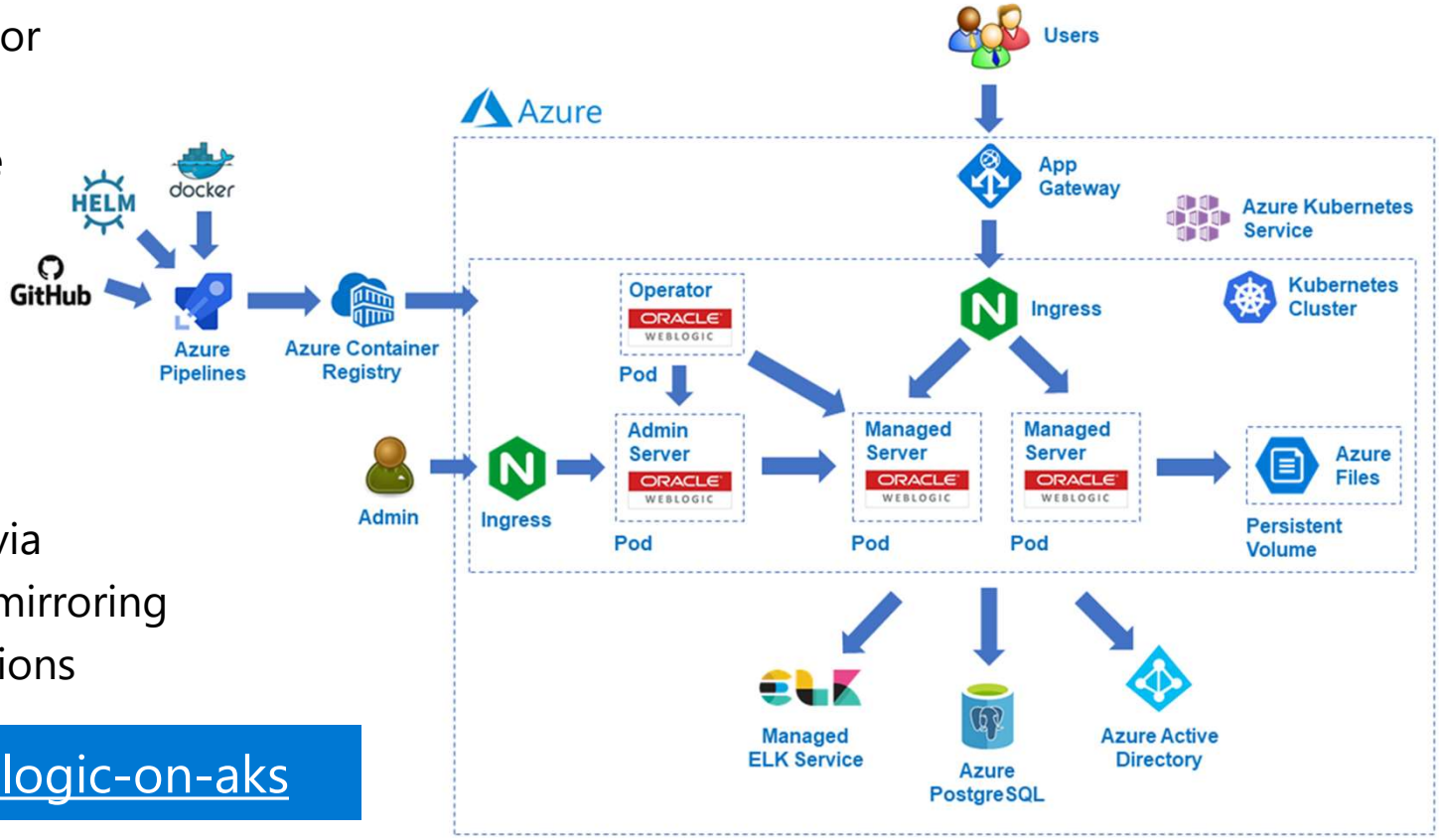
App Service for Containers



Azure Container Registry

WebLogic on AKS

- WebLogic certified by Oracle and Microsoft to run well on AKS via WebLogic Operator
- Detailed guidance, scripts and samples incorporated into WebLogic Operator
- Guidance includes integration with Azure Files as persistence volumes and Azure load balancing
- Further ease-of-use and Azure service integrations possible via Marketplace offering mirroring virtual machines solutions

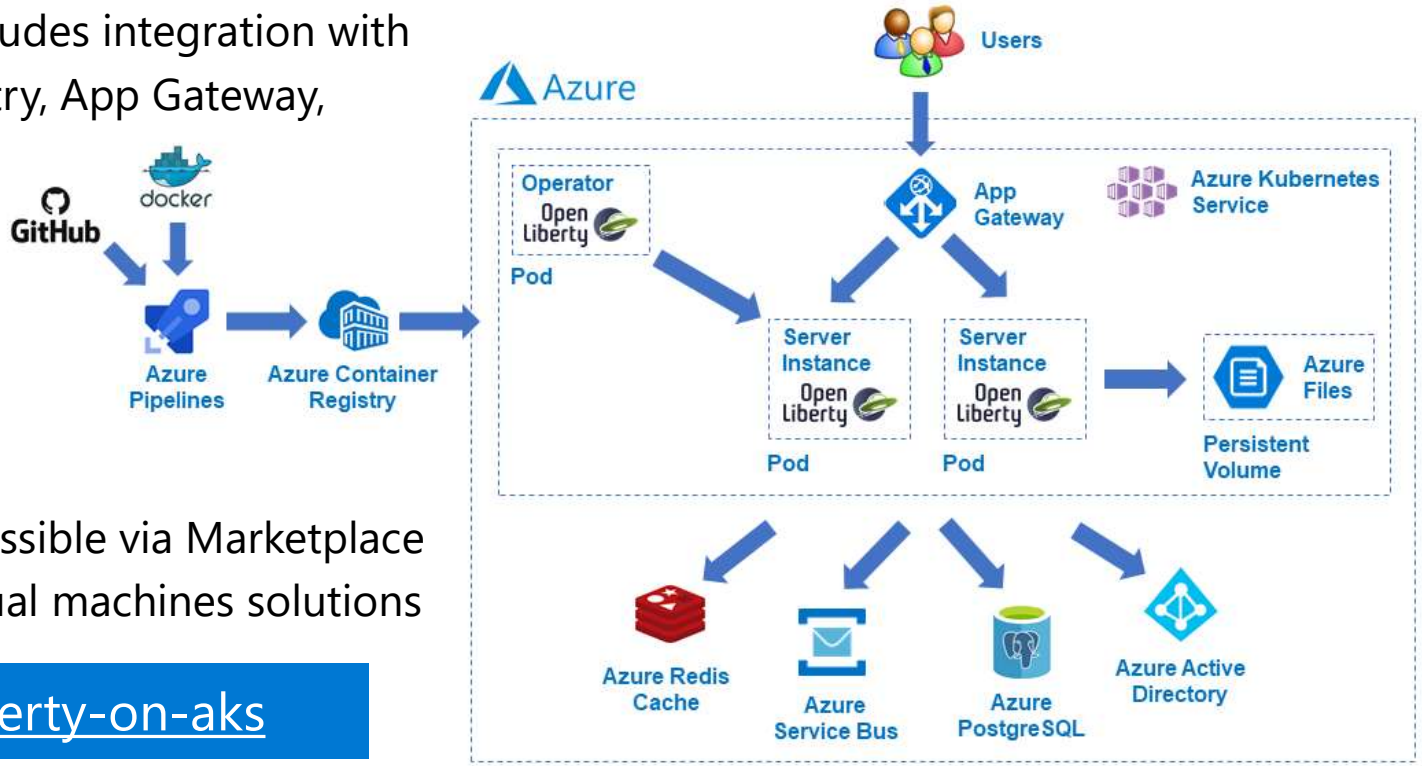


https://aka.ms/weblogic-on-aks

Open/WebSphere Liberty on AKS

- Open/WebSphere Liberty certified by IBM and Microsoft to run well on AKS via Liberty Operator
- Detailed guidance and samples provided and supported jointly
- Guidance portfolio includes integration with
  Azure Container Registry, App Gateway,
  Azure PostgreSQL,
  Azure Files,
  Azure Active Directory,
  Application Insights,
  Azure Key Vault, and
  Azure Redis
- Further ease-of-use possible via Marketplace offering mirroring virtual machines solutions

https://aka.ms/liberty-on-aks



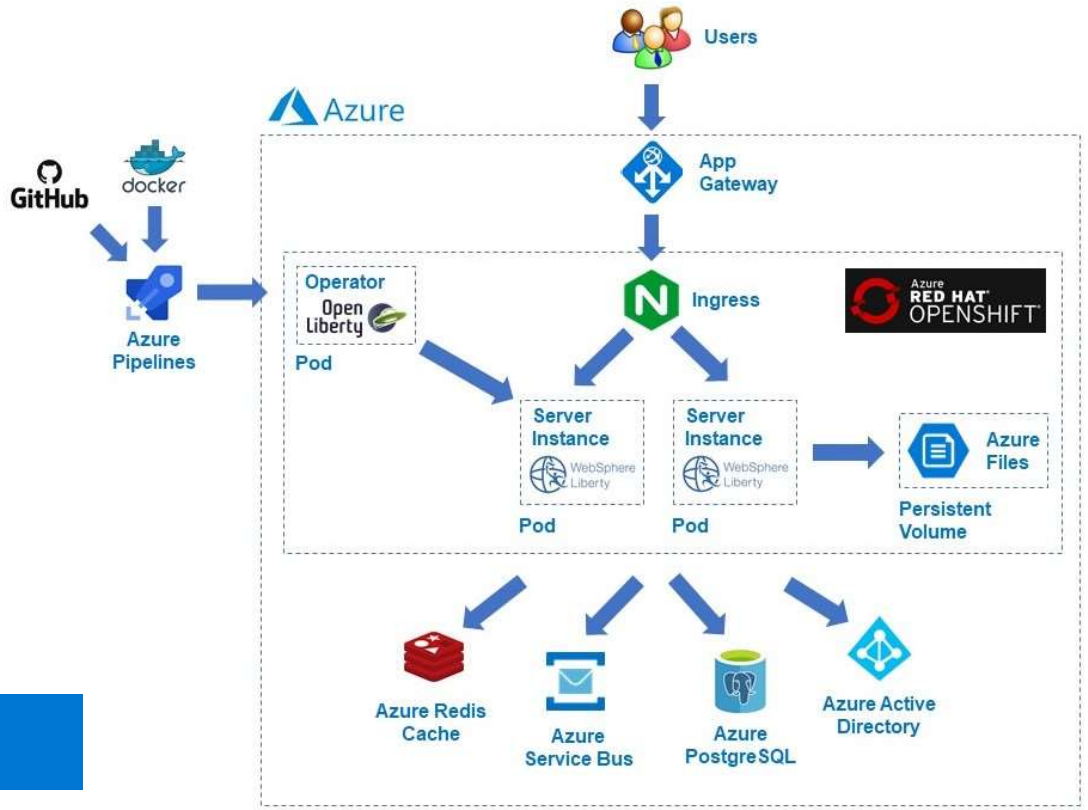
OpenShift

- OpenShift provides uniform higher-level API over Kubernetes that allows using multiple cloud providers, moving between cloud providers, hybrid cloud deployments and moving from on-premise to cloud
- Azure provides managed OpenShift offering through Red Hat partnership
- Application server support for OpenShift generally builds upon Kubernetes support
- More will be done to enhance the developer experience

Open/WebSphere Liberty on ARO

- Open/WebSphere Liberty certified by IBM and Microsoft to run well on Azure Red Hat OpenShift (ARO) via Liberty Operator
- Detailed guidance and samples provided and supported jointly
- Guidance includes integration with OpenShift Container Registry, and Azure Active Directory
- Further ease-of-use possible via Marketplace offering mirroring virtual machines solutions

https://aka.ms/liberty-on-aro



Managed Services

- Azure only top tier public cloud with managed Jakarta EE application server offering
- JBoss EAP on App Service
- Jointly developed and supported by Red Hat and Microsoft (integrated, pay-as-you-go commercial support for JBoss EAP)
- Stateless, load-balanced, auto-deployed, auto-scaled, monitored, secure, update notifications
- Deployment APIs and integrations with Maven, GitHub Actions, and popular IDEs
- Standalone configuration by default, further customization via CLI possible

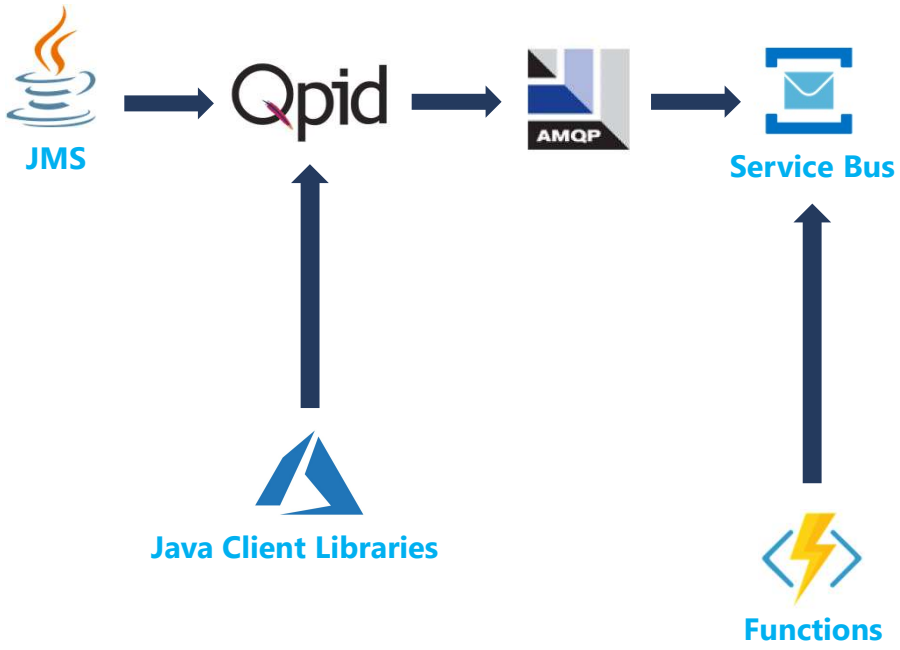
Azure App Service

Red Hat
JBoss Enterprise
Application Platform

https://aka.ms/jboss-eap-app-service-ga-blog

JMS Support in Azure Service Bus

- JMS 2 support in Azure Service Bus via AMQP in public preview
- Partial support has been possible for some time via Apache Qpid JMS, but Azure Service Bus now targeting full JMS 2 compatibility
- Will go GA in a timely fashion
- JCA adapters make it possible to integrate with Java EE application servers
- Wide array of access options that also include full support for AMQP, Java client libraries (non-JMS), Spring/Boot libraries and Azure Functions integrations



https://docs.microsoft.com/en-us/azure/service-bus-messaging/how-to-use-java-message-service-20

GitHub, Inc. [US] | github.com/m-reza-rahman/azure-cafe

README.md

Azure Cafe

This is an end-to-end Azure demo using a Java EE application and various representative Azure services such as managed PostgreSQL, AKS (Azure Kubernetes Service), Azure DevOps Pipelines and Application Insights. The following is how you run the demo.

Setup

- You will need a GitHub account.
- You will need an Azure subscription. If you don't have one, you can get one for free for one year here.
- You need to have a Docker Hub account.
- You need to have an Azure DevOps Project. You can sign up for Azure DevOps for free here. Here are instructions on how to set up an Azure DevOps Project. Make sure you choose Git for source control.

Start Managed PostgreSQL on Azure

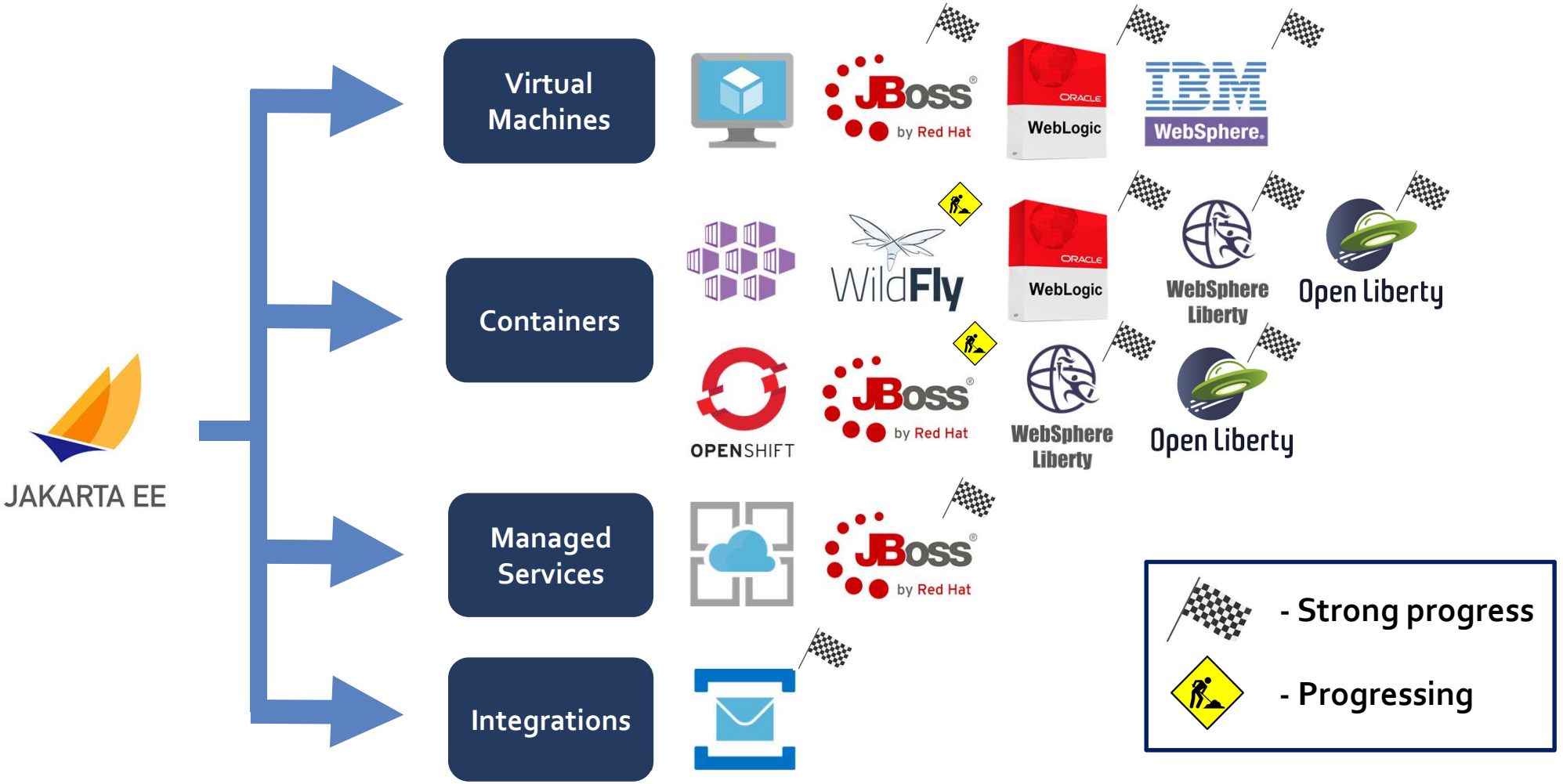
We will be using the fully managed PostgreSQL offering in Azure for this demo. If you have not set it up yet, please do so now.

- Go to the Azure portal.

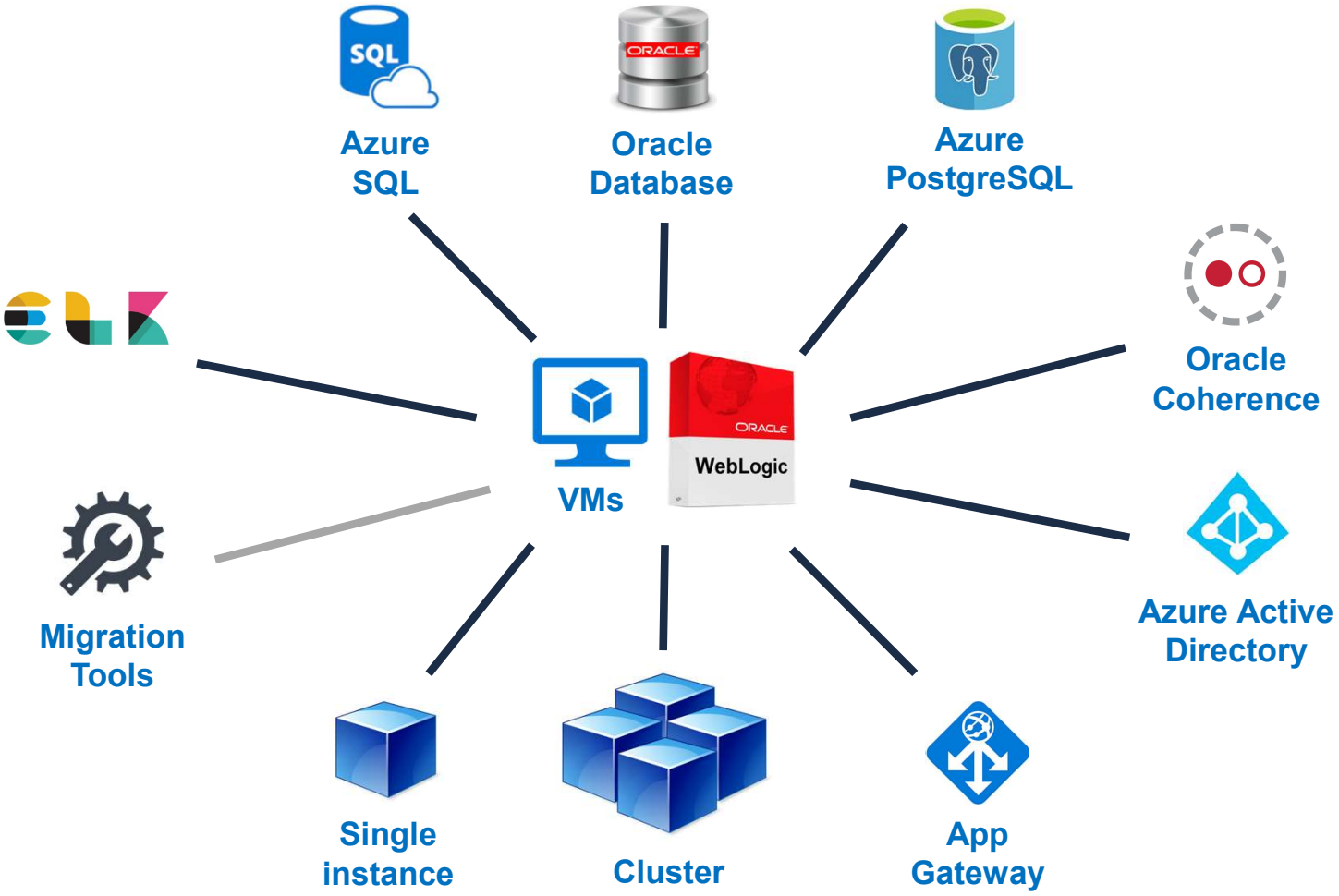
https://github.com/m-reza-rahman/azure-cafe

Roadmap

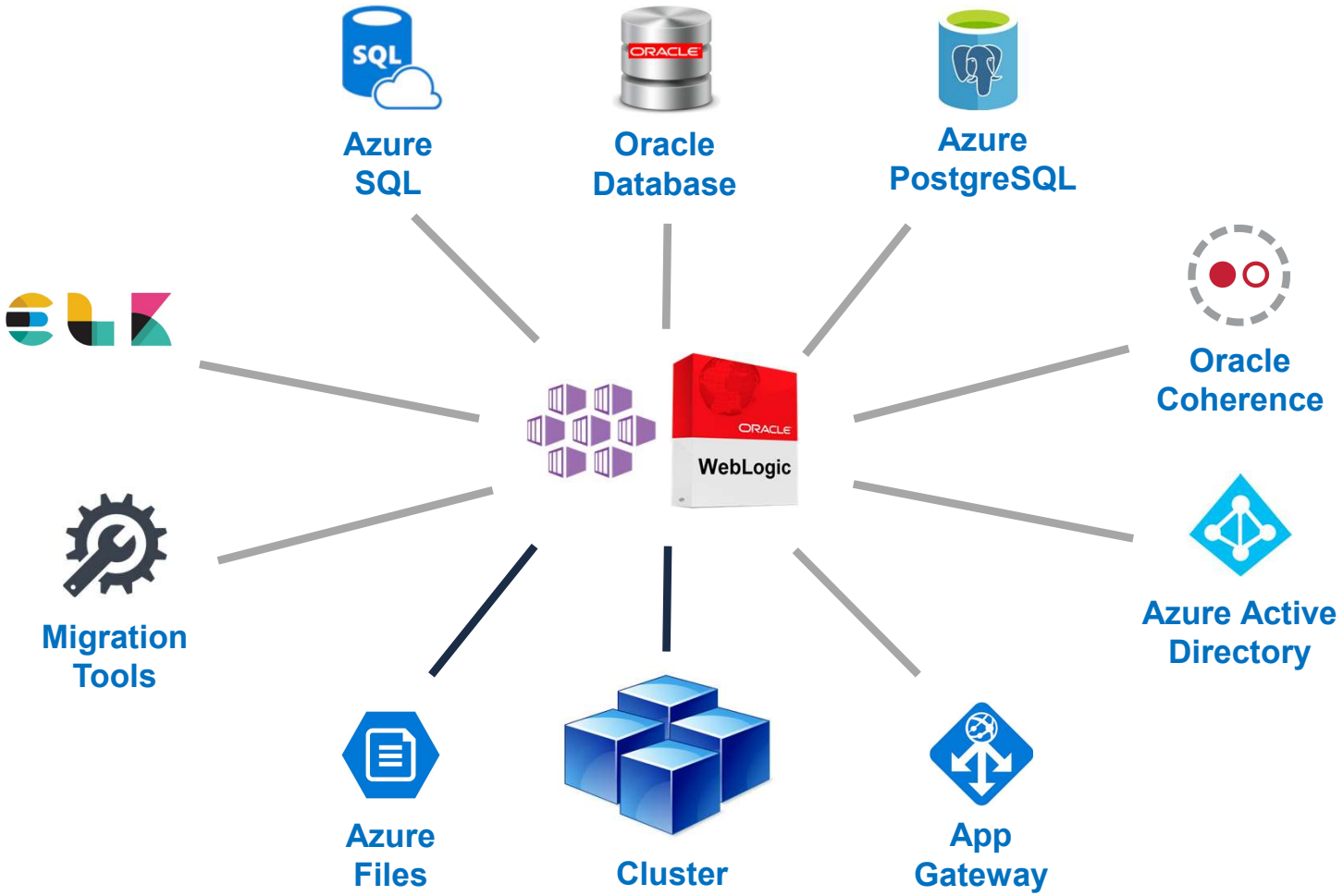
Capabilities and Progress



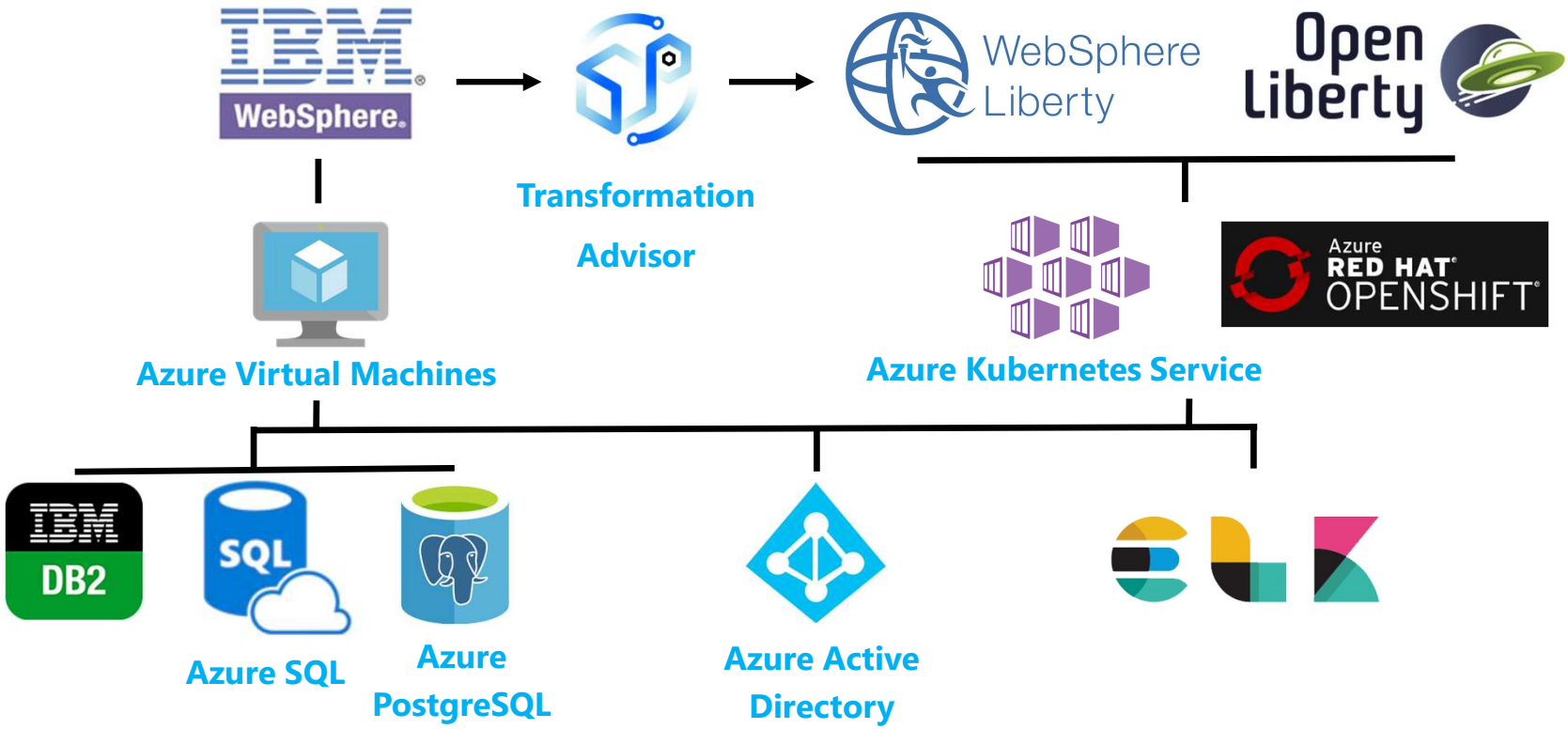
WebLogic on Azure Virtual Machines Roadmap



WebLogic on AKS Roadmap



WebSphere Product Family on Azure



Summary

- There is a team dedicated to Jakarta EE on Azure success
  - We are eager to engage and aid your migration case directly, if desired
- Robust guidance and tooling for migrating Jakarta EE applications to Azure using containers and virtual machines well in the works
  - WebLogic, WebSphere/Liberty, JBoss EAP, WildFly
- Managed Jakarta EE application server on top tier public cloud
  - JBoss EAP on App Service
- Jakarta EE integrations with Azure services will continue to improve
  - Directory server, caching, logging, messaging

Please engage us!

https://aka.ms/migration-survey

Resources

- Announcement of JBoss EAP on Azure Virtual Machines and VM Scale Sets
  - https://techcommunity.microsoft.com/t5/azure-marketplace/announcing-red-hat-jboss-eap-on-azure-virtual-machines-and-vm/ba-p/2374068
- Announcement of WebSphere Application Server on Azure Virtual Machines
  - https://techcommunity.microsoft.com/t5/azure-marketplace/run-websphere-application-server-on-azure-virtual-machines/ba-p/2370219
- Announcement of WebLogic on Azure Virtual Machines
  - https://azure.microsoft.com/en-us/blog/new-solutions-for-oracle-weblogic-on-azure-virtual-machines/
- Announcement for WebLogic on Azure Kubernetes Service
  - https://techcommunity.microsoft.com/t5/apps-on-azure/run-oracle-weblogic-server-on-azure-kubernetes-service/ba-p/1849719
- Announcement for WebSphere/Open Liberty on Azure Kubernetes Service
  - https://techcommunity.microsoft.com/t5/apps-on-azure/run-websphere-liberty-and-open-liberty-on-aks/ba-p/2156486

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