



Microsoft Azure Training Day: Developing Cloud Native Applications



Options for Building and Running Your App in the Cloud

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Software Technical Director

Welcome to the APPS Learning Path



Building Applications for the Cloud

APPS10 - Options for Building and Running Your App in the Cloud

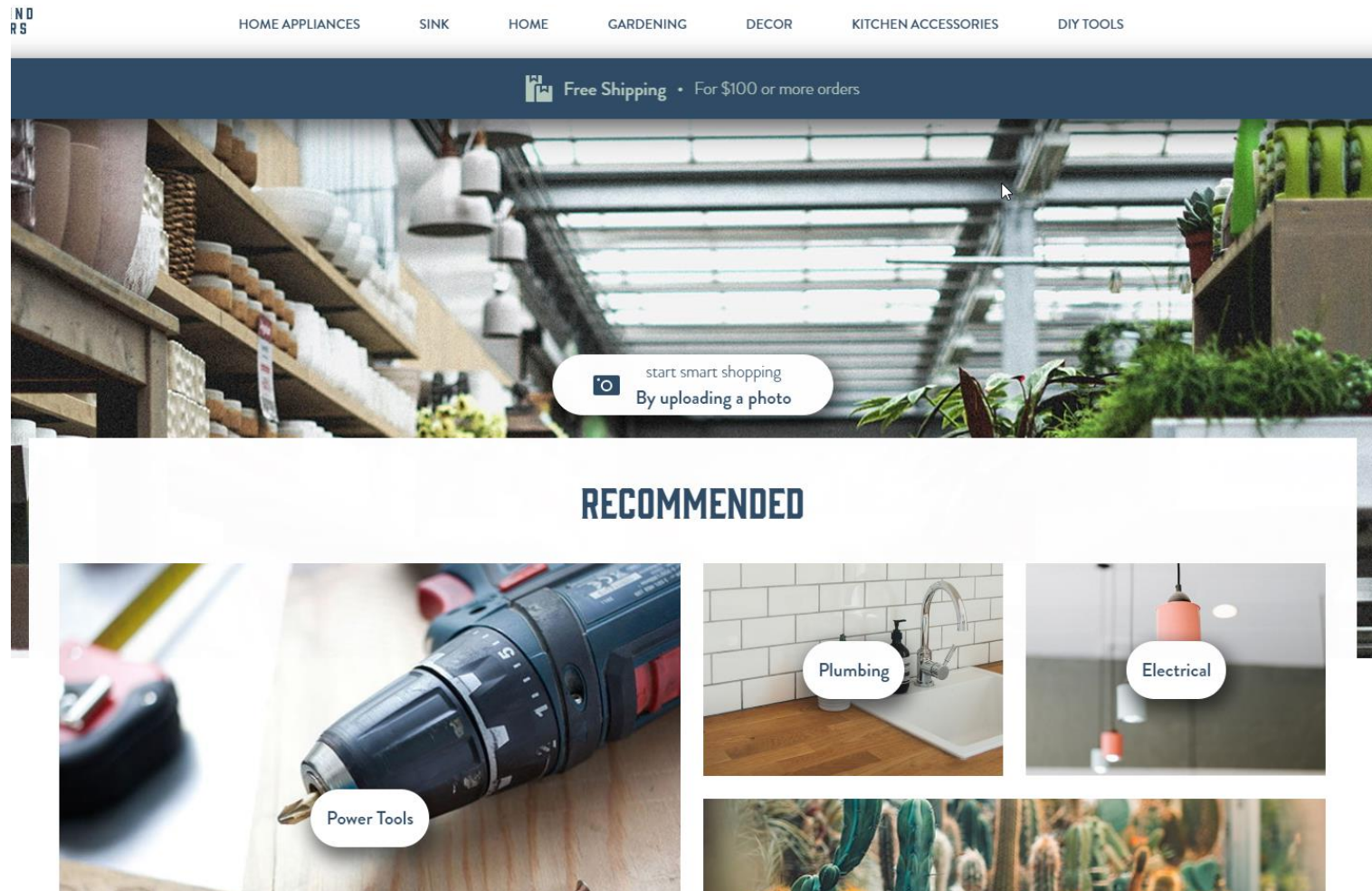
APPS20 - Options for Data in the Cloud

APPS30 - Modernizing Your Application with Containers

APPS40 - Consolidating Infrastructure with Azure Kubernetes Service

APPS50 - Taking Your App to the Next Level with Monitoring,
Performance and Scaling

Tailwind Traders



Tons of options,
no bad choices



In this Session



Deployment Tools



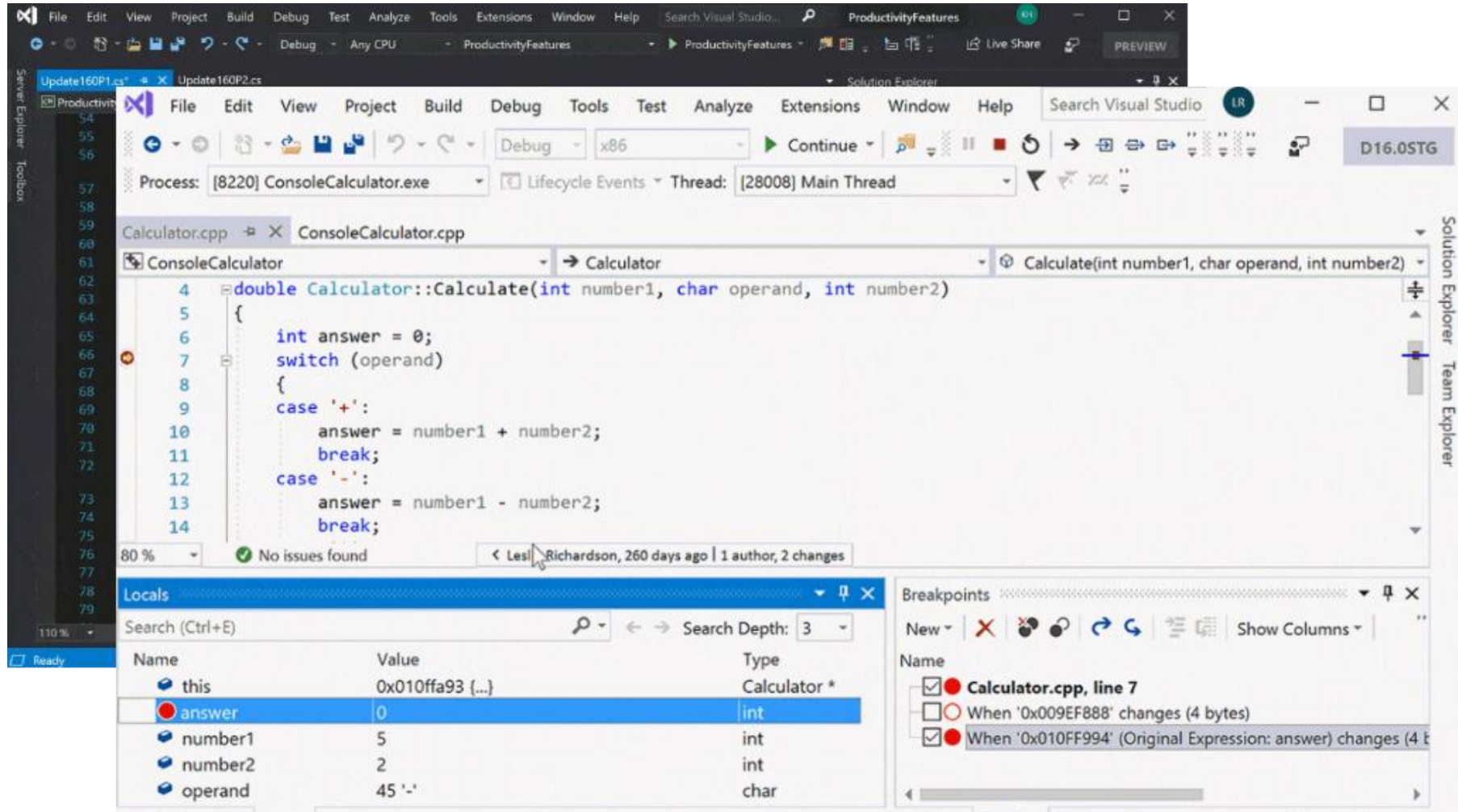
Deployment Options



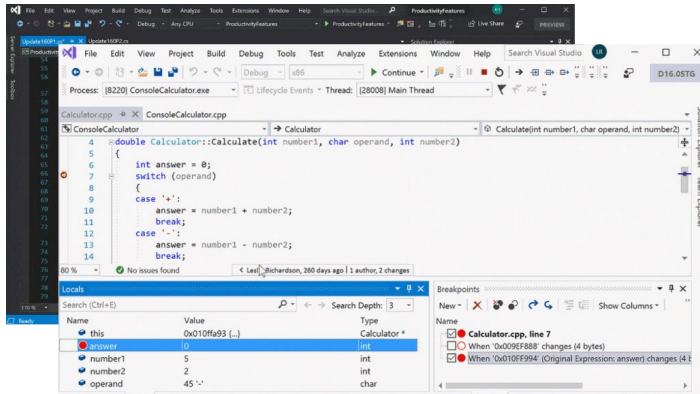
Basic Security Features

Tools for Cloud Deployment

Visual Studio



Visual Studio



Multi platform (Windows & Mac)

Customizable workloads

Multi-language

Tons of extensions

Live Share!

Visual Studio Code



Git commands built-in



Extensible and customizable



Full support on ALL platforms

Terminal & CLI

```
C:\Program Files\PowerShell\6\pwsh.exe × frank@Gotham: /mnt/c/WINDOWS/system32 × francois@Azure: ~ + - □ ×
```

```
francois@Azure:~$ az
```

Welcome to Azure CLI!

Use `az -h` to see available commands or go to <https://aka.ms/cli>.

Telemetry

The Azure CLI collects usage data in order to improve your experience.
The data is anonymous and does not include commandline argument values.
The data is collected by Microsoft.

You can change your telemetry settings with `az configure`.

```

  /\
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```

Welcome to the cool new Azure CLI!

Use `az --version` to display the current version.

Here are the base commands:

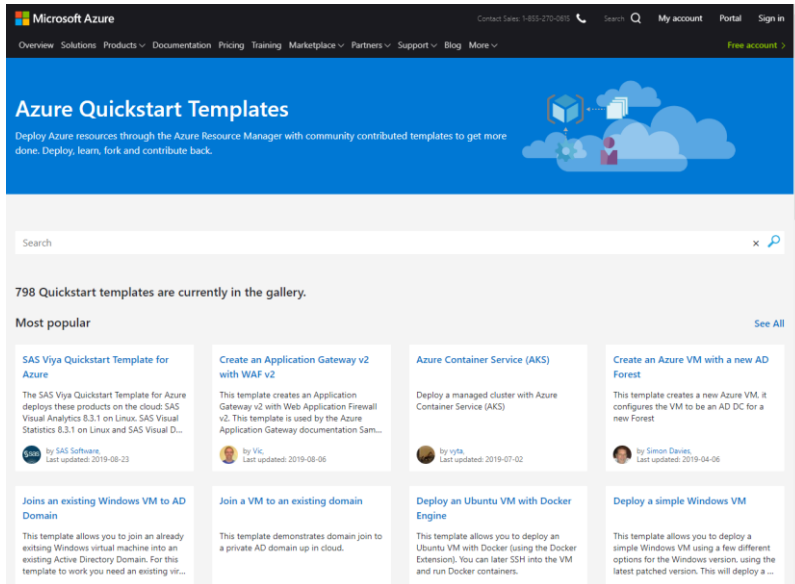
Cloud Shell

Azure CLI

Azure PowerShell

ARM Template

Azure Resource Manager Template



aka.ms/quickARM

deployAzure.json


```
{
  "$schema": "https://schema.management.azure.com/schema",
  "contentVersion": "1.0.0.0",
  "parameters": {},
  "variables": {},
  "resources": [
    {
      "apiVersion": "2015-08-01",
      "type": "Microsoft.Web/sites",
      "name": "[variables('funcAppName')]",
      "location": "[resourceGroup().location]",
      "kind": "functionapp",
      "dependsOn": [],

      ...
    }
  ],
  "outputs": {}
}
```


/Docs alert

Explore overviews, tutorials, samples, and more.

aka.ms/azArm



Microsoft Azure

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Azure / Resource Manager

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 - Create templates - portal
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 - > Samples
 - > Concepts
 - > How to
 - > Reference
 - Template file structure**
 - Template reference
 - > Template functions
 - Complete mode deletion
 - Resource instance limit
 - Resource providers by service
 - REST - Resource Manager
 - REST - Deployment Manager
 - Azure PowerShell
 - Azure CLI

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Understand the structure and syntax of Azure Resource Manager templates

08/28/2019 • 11 minutes to read • 6

This article describes the structure of an Azure Resource Manager template. It presents the different sections of a template and the properties that are available in those sections.

This article is intended for users who have some familiarity with Resource Manager templates. It provides detailed information about the structure of the template. If you want an introduction to creating a template, see [Azure Resource Manager templates](#).

Template format

In its simplest structure, a template has the following elements:

```
JSON
```

```
{
  "$schema": "https://schema.management.azure.com/schemas/2015-01-01/deploymentTemplate.json#",
  "contentVersion": "1.0.0",
  "apiProfile": "AzureRM",
  "parameters": {
    "storageAccountName": {
      "type": "string",
      "defaultValue": "storageaccountname",
      "metadata": {
        "description": "Storage account name"
      }
    },
    "location": {
      "type": "string",
      "defaultValue": "[location]",
      "metadata": {
        "description": "Location"
      }
    }
  },
  "variables": {
    "storageAccountType": "Standard_LRS"
  },
  "functions": [
    "concat"
  ],
  "resources": [
    {
      "type": "Microsoft.Storage/storageAccounts",
      "name": "[concat('storageaccount', storageAccountName)]",
      "apiVersion": "2016-04-01",
      "location": "[location]",
      "tags": {
        "displayName": "Storage account"
      },
      "properties": {
        "sku": {
          "name": "[variables('storageAccountType')]"
        },
        "kind": "Storage"
      }
    }
  ],
  "outputs": {
    "storageAccountName": {
      "type": "string",
      "value": "[resourceId('Microsoft.Storage/storageAccounts', storageAccountName)]"
    }
  }
}
```

Copy

Is this page helpful?
Yes No

In this article

- Template format**
- Parameters
- Variables
- Functions
- Resources
- Outputs
- Comments and metadata
- Next steps

Deployment Options

Azure Blob Static Websites

1

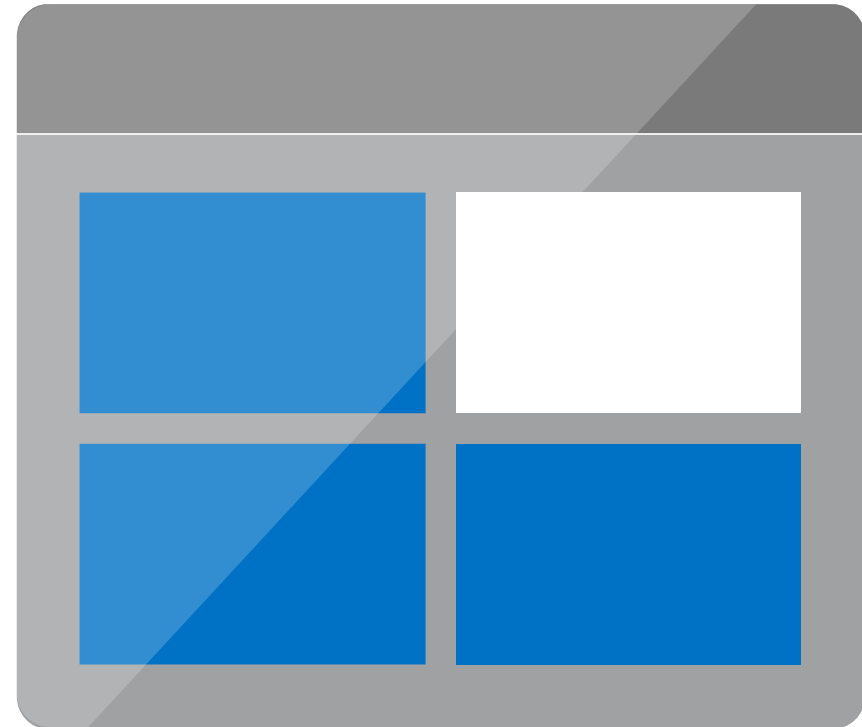
Very low-cost

2

Extremely fast

3

Static but...



Web Apps (PaaS)



Client side & server side

All PaaS features

Windows & Linux

Containers

Azure Container Instance (ACI)

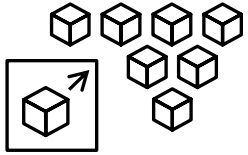


Azure Kubernetes Services (AKS)



Top scenarios for Containers on Azure

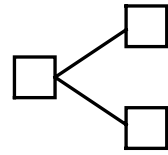
Lift and shift
to containers



Cost saving

without refactoring
your app

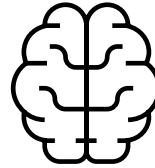
Microservices



Agility

Faster application
development

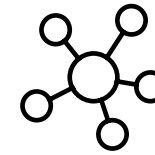
Machine
learning



Performance

Low latency
processing

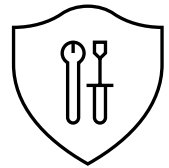
IoT



Portability

Build once,
run anywhere

Secure DevOps



Automation

Deliver code faster
and securely at scale



Virtual Machine

1

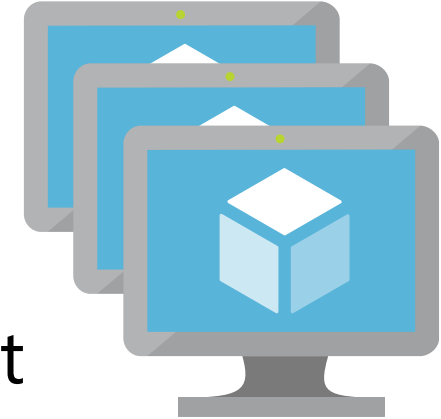
Well known technology

2

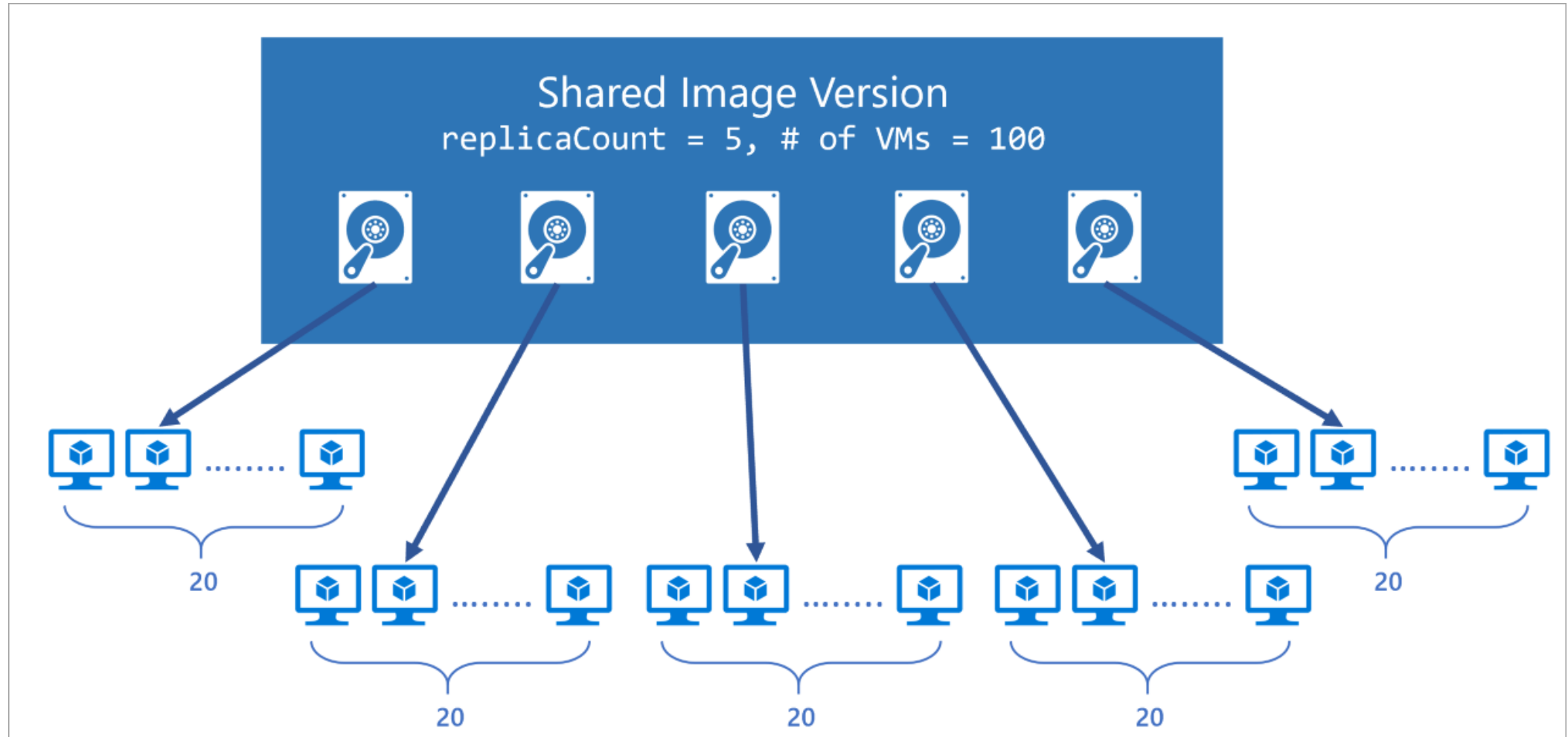
Supports most technologies

3

Very flexible when deployed in a Scale Set



Shared Image Gallery

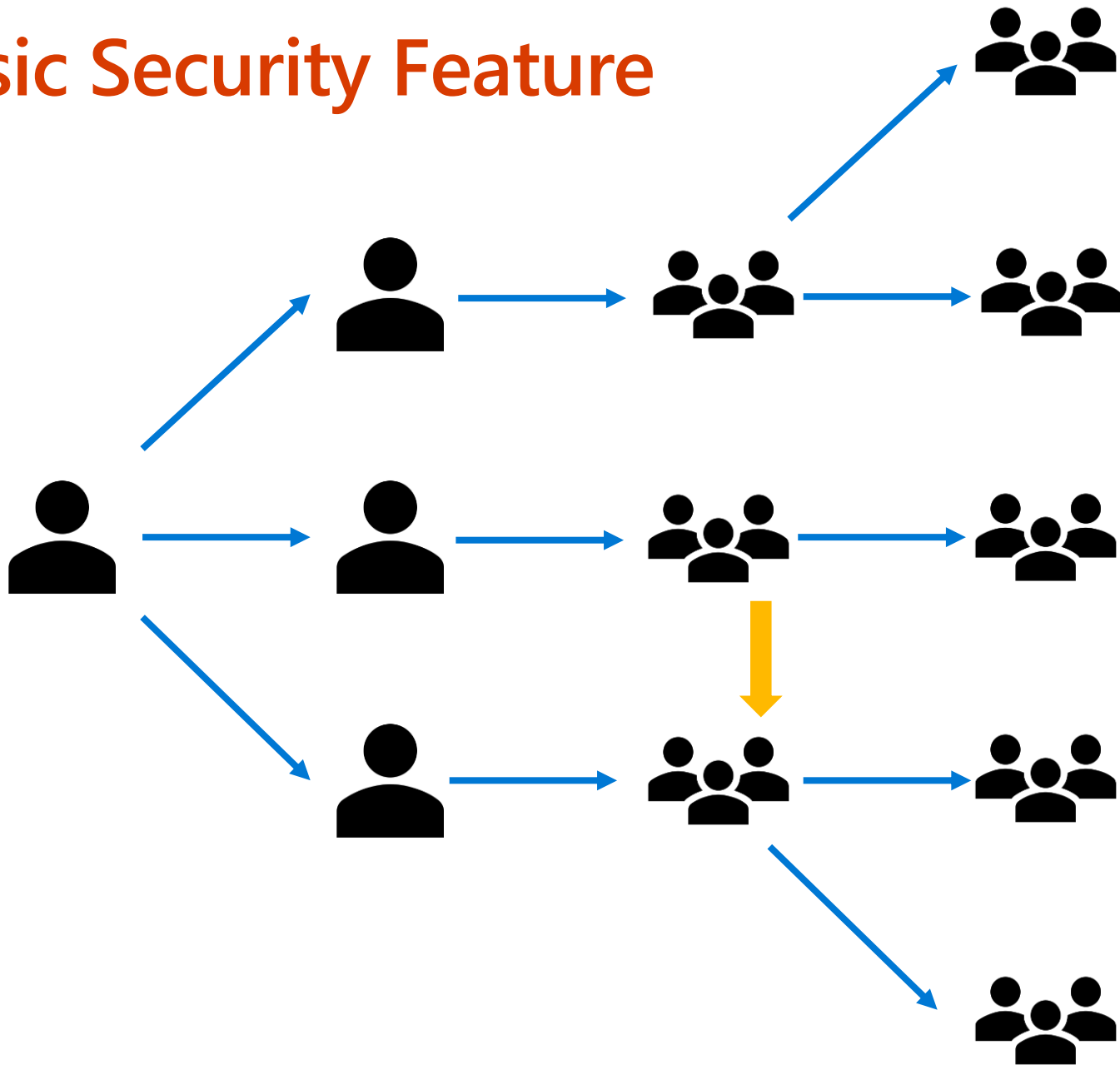


Demo

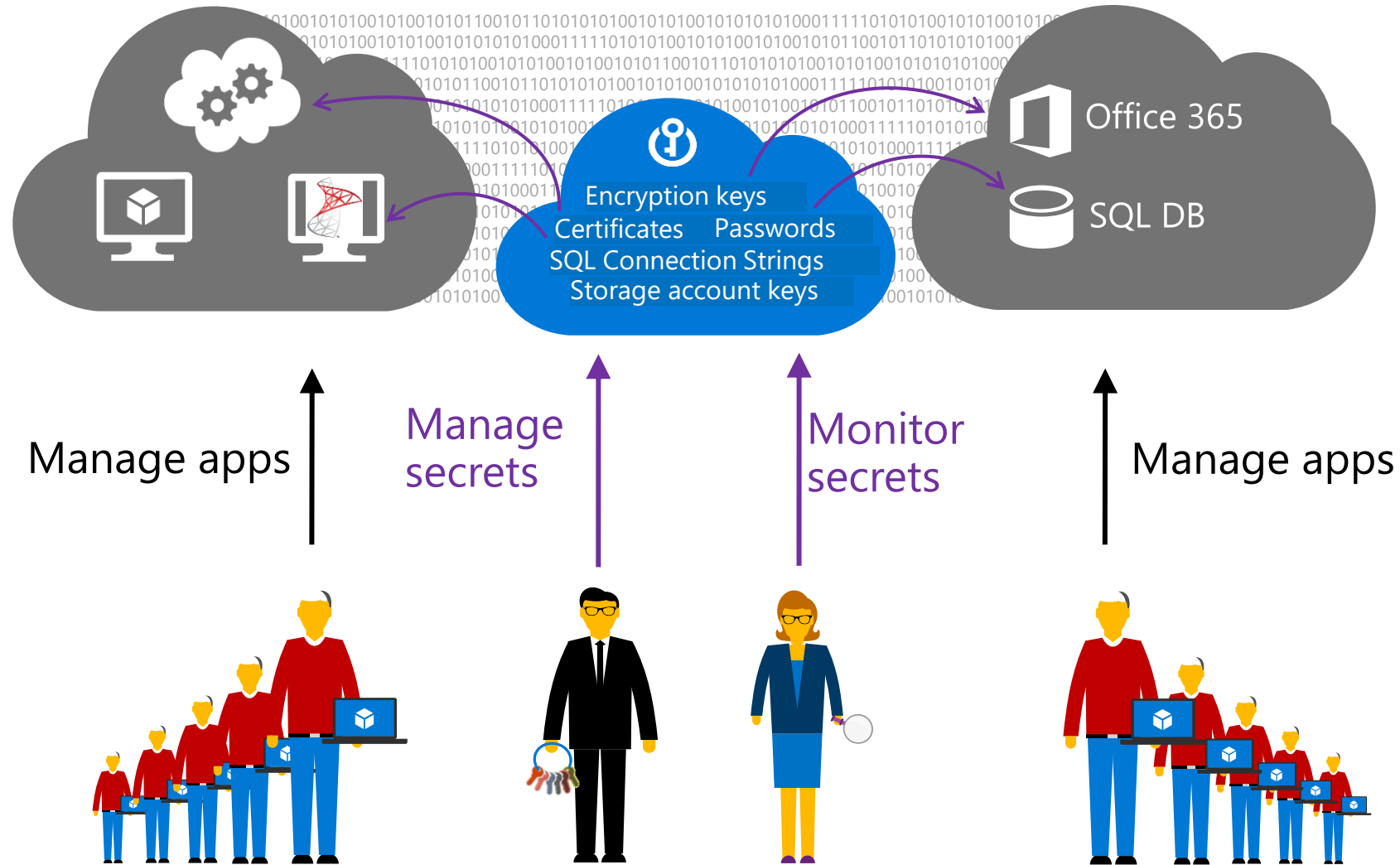
Let's Create a VM

Plan B: PaaS - WebApp

Basic Security Feature



Key Vault keeps you in control



Azure Key Vault

Secure!

All in one place

Enable and disable

Version control

Easy to integrate



Azure Key Vault compliance certifications



ISO 27001



SOC 1 Type 2



SOC 2 Type 2



SOC3



Cloud Controls
Matrix



ISO 27018



PCI DSS Level 1



FedRAMP
High



HIPAA/
HITECH



FIPS 140-2



21 CFR
Part 11



DISA Level 4



CJIS



IRS 1075



Section
508 VPAT



European
Union Model
Clauses



United Kingdom
G-Cloud



Spain
ENS



China
GB 18030



Singapore
MTCS Level 3



Australia
Signals
Directorate



New
Zealand
GCIO



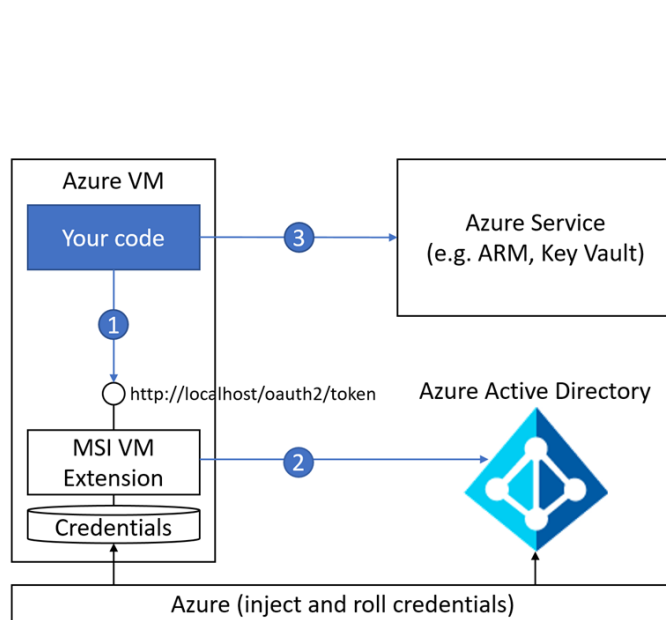
Japan
Financial
Services

Demo

Securing the app with Azure Key Vault

Don't you need credentials to access
Key Vault?

Managed Service Identity (MSI)



Your VM, App Service, or Function is registered with Azure Active Directory

Key Vault will provide credentials automatically

/Docs alert

Explore overviews, tutorials, samples, and more.

aka.ms/docAAD



The screenshot shows the Microsoft Azure documentation page for Active Directory. The top navigation bar includes the Microsoft Azure logo, a search bar, and links for Contact Sales, Portal, and a 'Free account' button. The main header is blue with the title 'Azure Active Directory documentation' and a brief description: 'Azure Active Directory (Azure AD) is a multi-tenant, cloud-based identity and access management service.' Below the header, there are six tiles arranged in a 2x3 grid. The first row contains: 'OVERVIEW: What is Azure AD?' (with a document icon), 'WHAT'S NEW: What's new in Azure AD?' (with a megaphone icon), and 'HOW TO GUIDE: Assign roles to users' (with a document icon). The second row contains: 'HOW TO GUIDE: Create a group and add members' (with a document icon), 'CONCEPT: Azure AD deployment checklist' (with a document icon), and 'HOW TO GUIDE: Add a subscription to your tenant' (with a document icon). At the bottom, there are four larger tiles for specific topics: 'Application management' (listing SSO, provisioning, and proxy), 'Authentication' (listing MFA, password reset, and password protection), 'Business-to-Business (B2B)' (listing B2B and Office 365 sharing), and 'Business-to-Customer (B2C)' (listing B2C tenant creation and custom policies). Each of these bottom tiles has a 'See more' link with a right-pointing arrow.

Microsoft Azure

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Azure / Active Directory

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Azure Active Directory documentation

Azure Active Directory (Azure AD) is a multi-tenant, cloud-based identity and access management service.

OVERVIEW

What is Azure AD?

WHAT'S NEW

What's new in Azure AD?

HOW TO GUIDE

Assign roles to users

HOW TO GUIDE

Create a group and add members

CONCEPT

Azure AD deployment checklist

HOW TO GUIDE

Add a subscription to your tenant

Application management

- What is single sign-on (SSO)?
- Automatic user provisioning
- Application Proxy for on-premises apps

See more >

Authentication

- How it works: Azure MFA
- Azure AD self-service password reset
- Azure AD password protection

See more >

Business-to-Business (B2B)

- What is Azure AD B2B?
- Add guest users in the portal
- B2B and Office 365 sharing

See more >

Business-to-Customer (B2C)

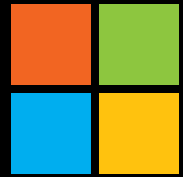
- What is Azure AD B2C?
- Create an Azure AD B2C tenant
- Custom policies in Azure AD B2C

See more >

What if it's not ALL in the cloud?

- Azure can interact with your on prem stack
- Mobile Application





Microsoft Azure

Invent with purpose.