A Mastering the Marketplace Workshop

Mastering Azure Managed Applications

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Engagement

- Put questions into chat at any time

- Speakers and TAs will monitor chat as we go

- Links on slides will be posted to chat

- Today's workshop will be recorded and made available here.

aka.ms/MasteringTheMarketplace

Today's Topics

Azure Managed Applications

Partner Center

Deployment package

Integrating VM Offers

Purchasing and administering
Managed Apps

Publisher administration

Deployment webhook

Metered billing

SLAs

Advanced deployment scenarios

Managed identities

Prerequisites

- An Azure account that can create resources

- Visual Studio Code or other text editor

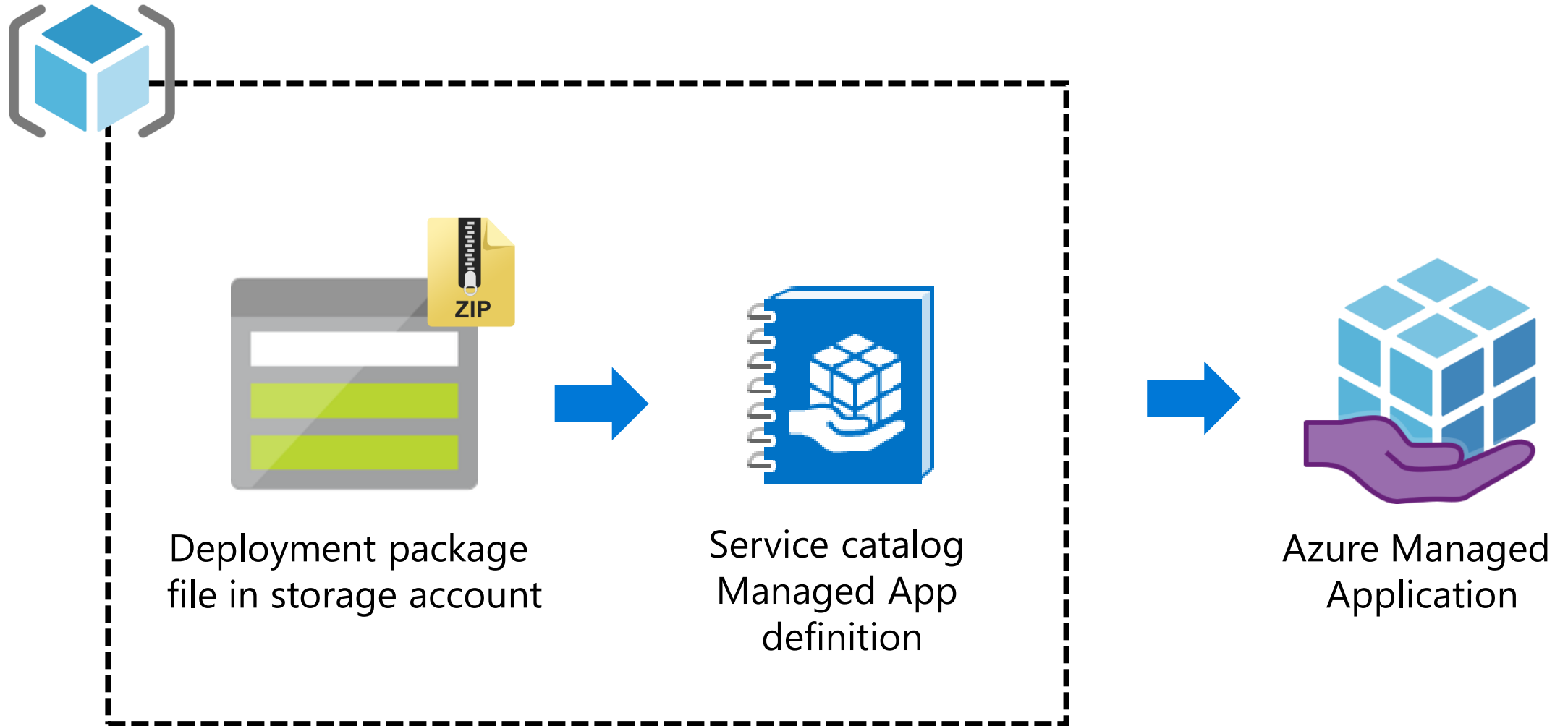- Partner Center account

- Git

Start of class survey

https://aka.ms/AMAWS1

Please help us make today as valuable as possible

Service Catalog Deployment

Deployment package file in storage account

Service catalog Managed App definition

Azure Managed Application

Managed Applications Deployment Models

Internal

Used for enterprise deployments

Deployed via Service Catalog

External

Used for public offers

Deployed via the Azure Marketplace

Azure Applications

An offer type in the Azure Marketplace

Installed via ARM template

Custom installation UX for customer

Two Types of Azure Applications

Solution Template Application

Deploys into customer subscription

Customer owns and maintains it

Customer limited by permissions

Not transactable

Managed Application

Deploys to customer subscription
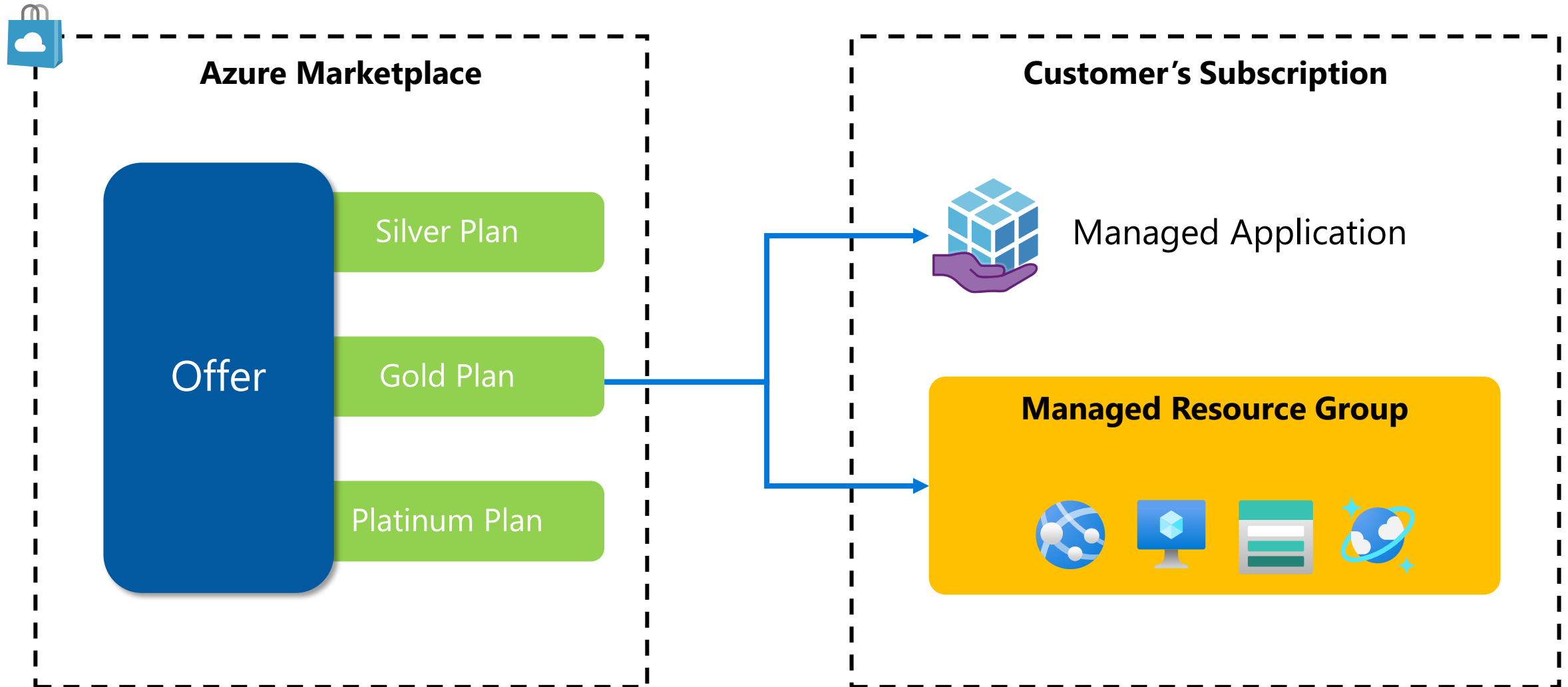
Publisher owns and maintains it

Publisher controls customer's permissions in the application

Transactable

Mastering the Marketplace

Azure Managed Applications Overview

Plan-based Deployment Model

Azure Marketplace

Offer
- Silver Plan
- Gold Plan
- Platinum Plan

Customer's Subscription

Managed Application

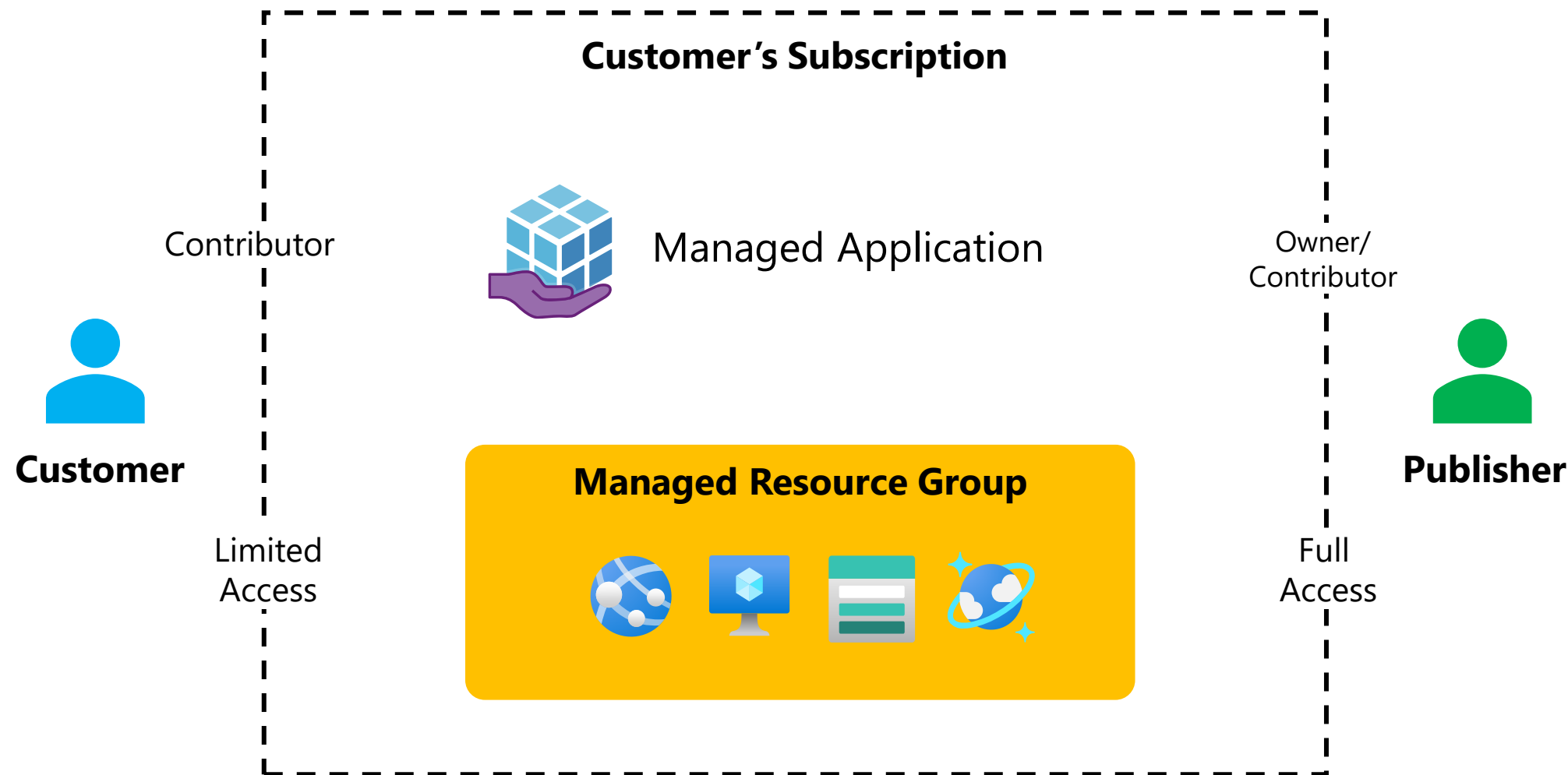**Managed Resource Group**

Changing Plan Pricing

A plan's price is immutable

To "upgrade" one must purchase a different plan

There is not currently a path to "upgrade" a plan

Permissions

Why to Use a Managed Application

- Protect IP

- Control environment updates

- Manage customer permissions

- Different deployments for different plans

- Billing through Microsoft

The Partner Center Portal
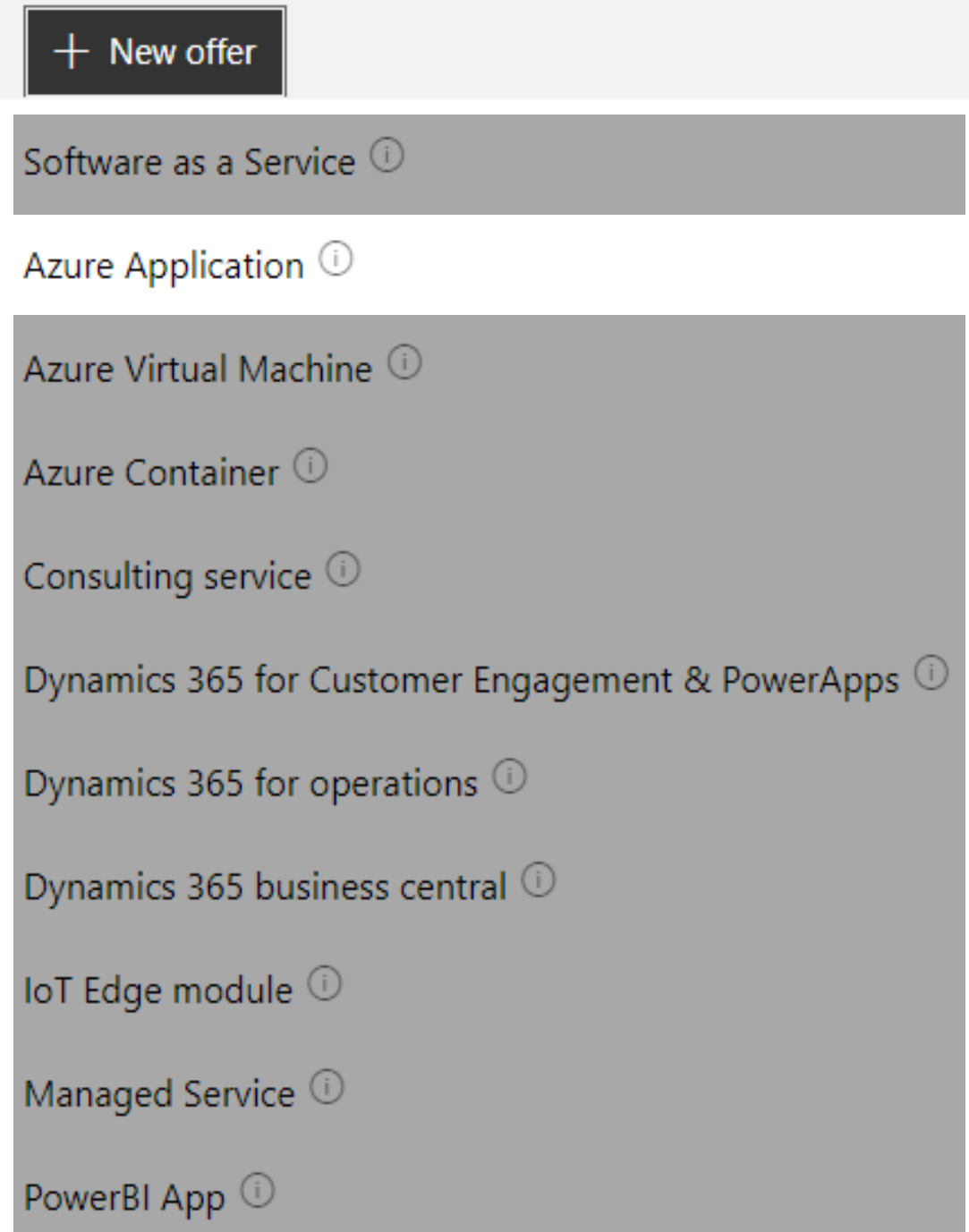
Publisher portal

Configure marketplace presence

Holds information about your organization

Publish solution offers
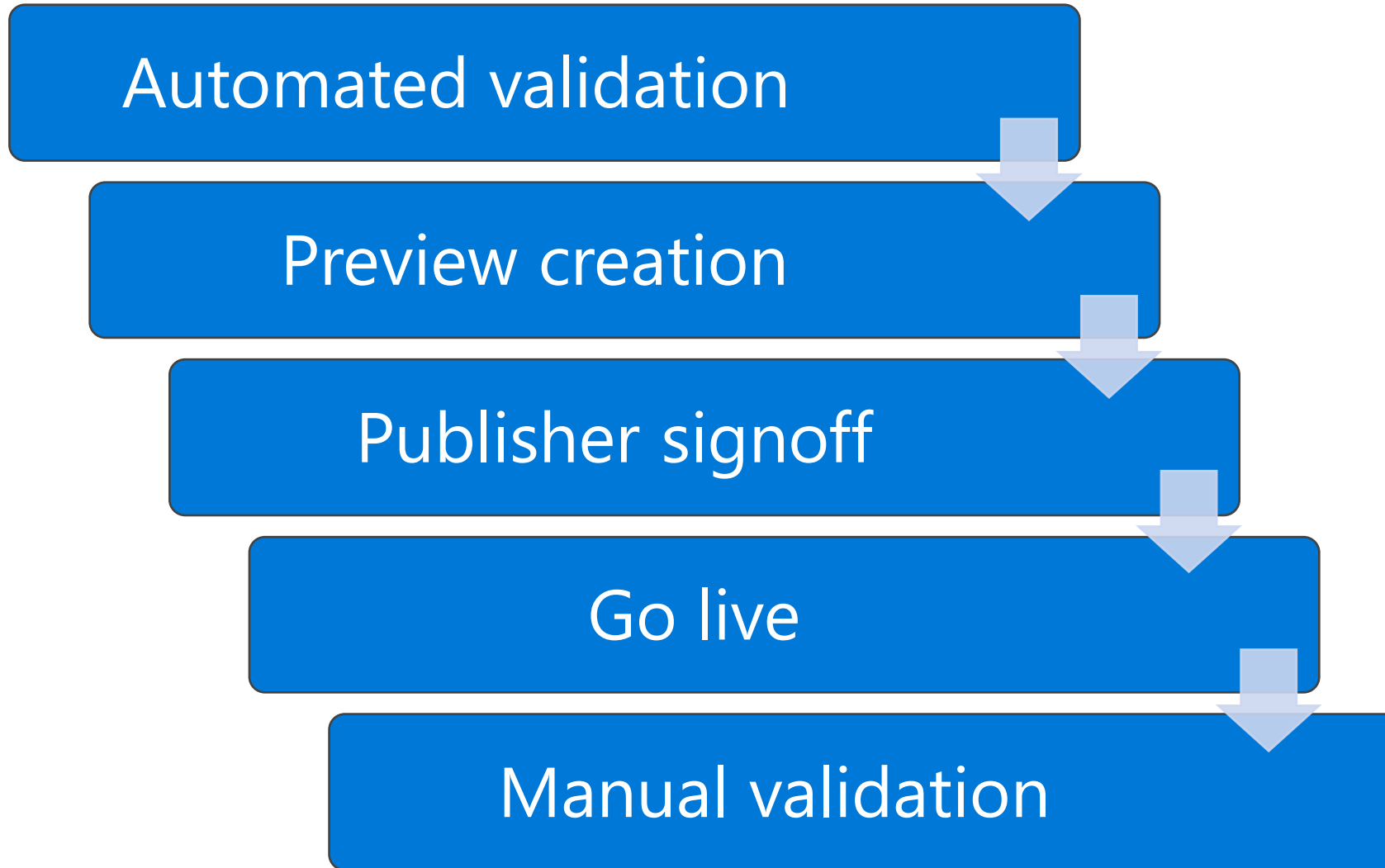
Sell different offer types

Analytics and insights on sales

+ New offer

Software as a Service ⓘ

Azure Application ⓘ

Azure Virtual Machine ⓘ

Azure Container ⓘ

Consulting service ⓘ

Dynamics 365 for Customer Engagement & PowerApps ⓘ

Dynamics 365 for operations ⓘ

Dynamics 365 business central ⓘ

IoT Edge module ⓘ

Managed Service ⓘ

PowerBI App ⓘ

Offer Publishing Lifecycle

Automated validation

Preview creation

Publisher signoff

Go live

Manual validation

Azure Marketplace Offers and Assets Publisher Guide

Offer Types	Marketing Assets	Lead Management	Legal Documents	Publishing TaT	Support Information	Technical Assets	Technical Requirements
Virtual Machines				24 Hours		Virtual Hard Disk (VHD)	Virtual Machine VHD
Azure Apps (Solution Template)				7 Days			ARM Template UI Definition File
Azure Apps (Managed Apps)	Offer Images/Icons Offer Description Offer Category/SEO Offer Documentation (Videos and Docs.)	Define how do you want to manage the offer leads: Table Storage Dynamics CRM Online HTTPS endpoint Marketo Salesforce	Privacy Policy Terms of Use		Engineering Contacts Customer Support Support URLs	ARM Template UI Definition File Resources (libraries, scripts, runtimes, etc…)	ARM Template UI Definition File Security Principal to Manage the Offer
Azure Apps (HDInsight)							ARM Template UI Definition File
SaaS Apps				12 Hours		Free/Trial: None Transact: Billing API	Integration with Azure Active Directory
Containers				48 Hours		Container	Container Image Azure Container Registry (ACR) Credentials
IoT Edge Modules				48 Hours		Container	Container Image Azure Container Registry (ACR) Credentials

TaT – Turn Around Time

Getting Publisher Support

http://aka.ms/MarketplacePublisherSupport

Demo

Publishing an Offer in Partner Center

Publishing an Azure Managed Application Offer in Partner Center

Lab 1

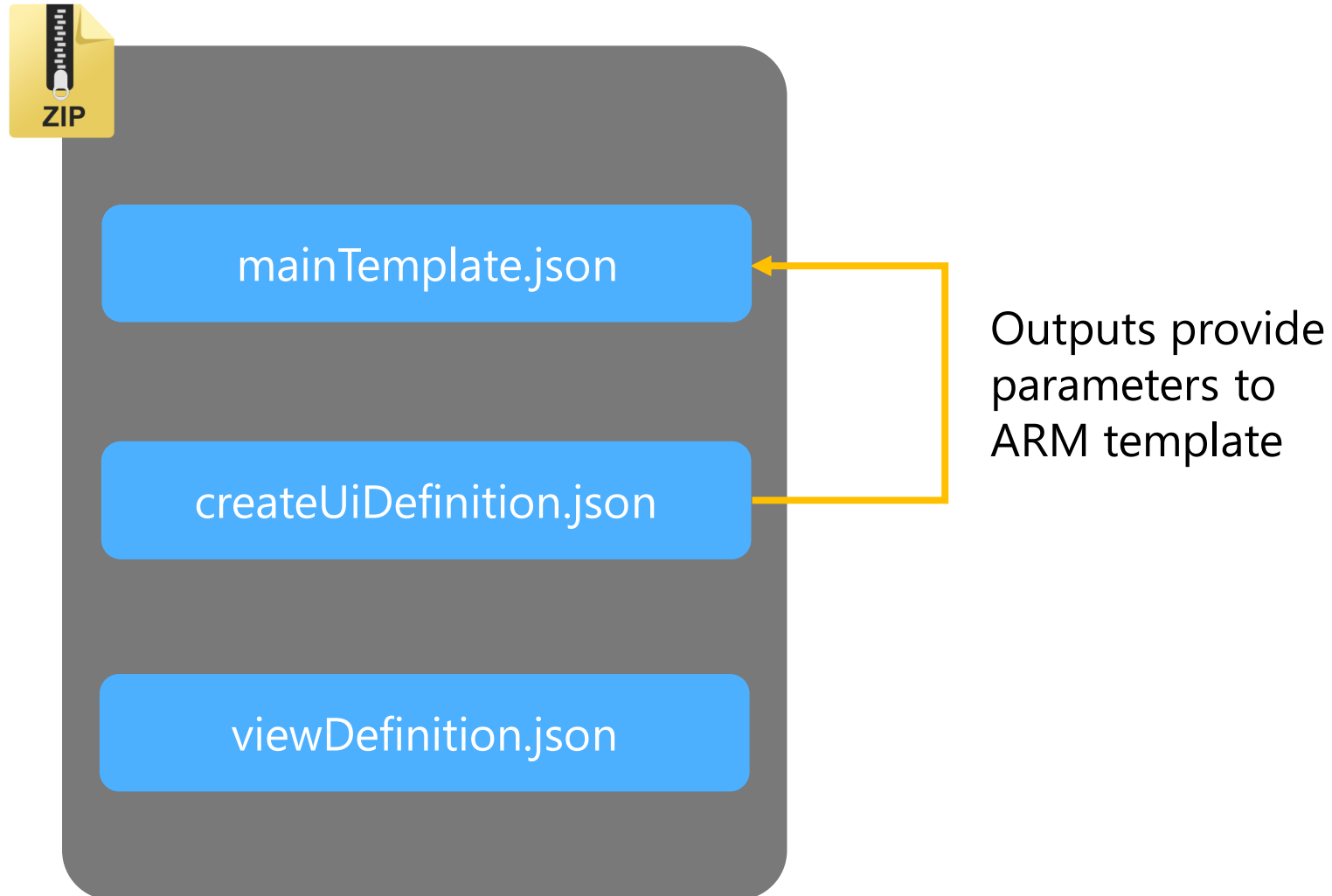## 60m + 10m break

aka.ms/AMAWorkshopLabs

10-minute break

The Deployment Package

Deployment Package Contents

mainTemplate.json

createUiDefinition.json

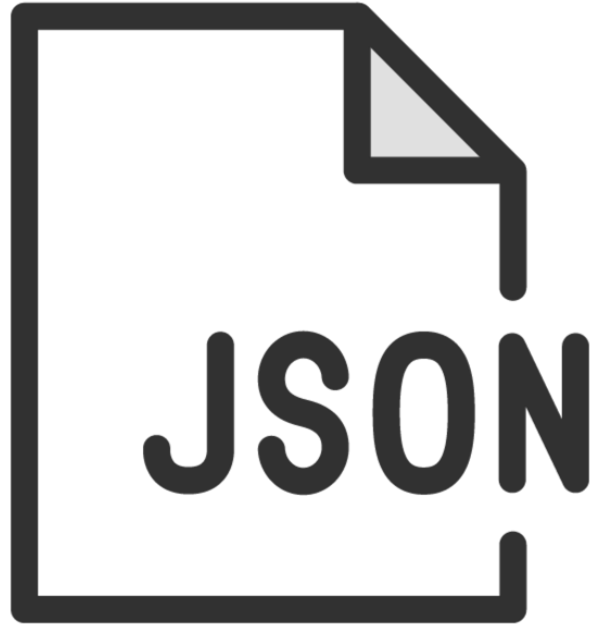viewDefinition.json

Outputs provide parameters to ARM template

mainTemplate.json
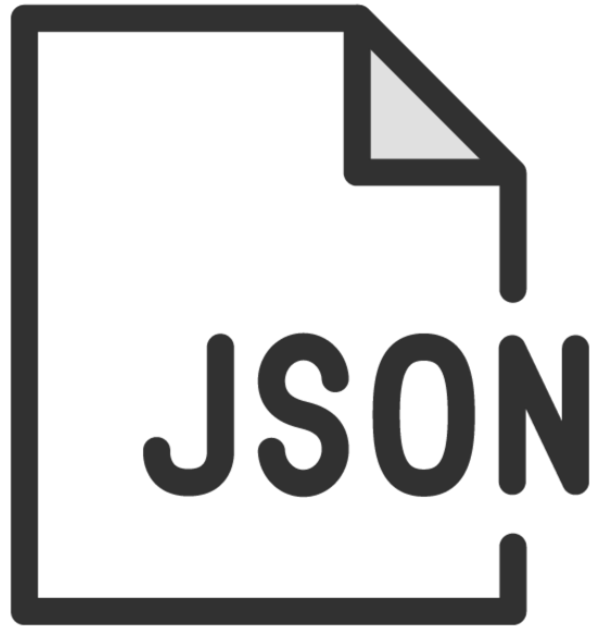
Is an ARM template

Deploy Azure resources

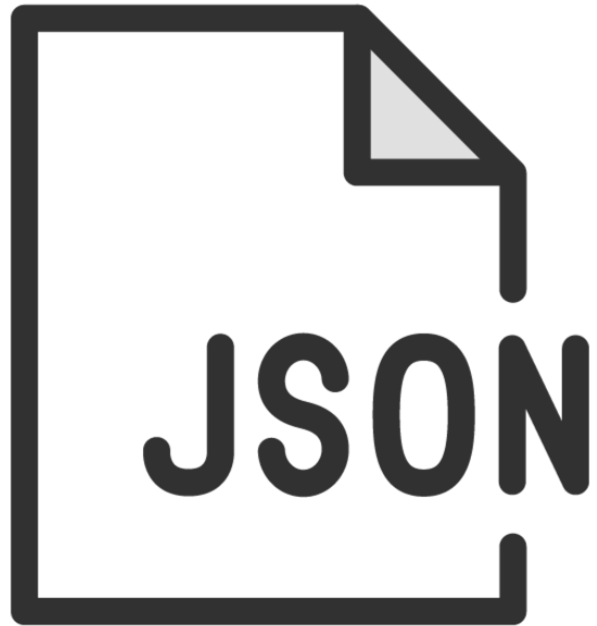Infrastructure as code

Can manage in version control

createUIDefinition.json

Defines the installation experience for the customer

Creates a "wizard" for installing the Managed Application
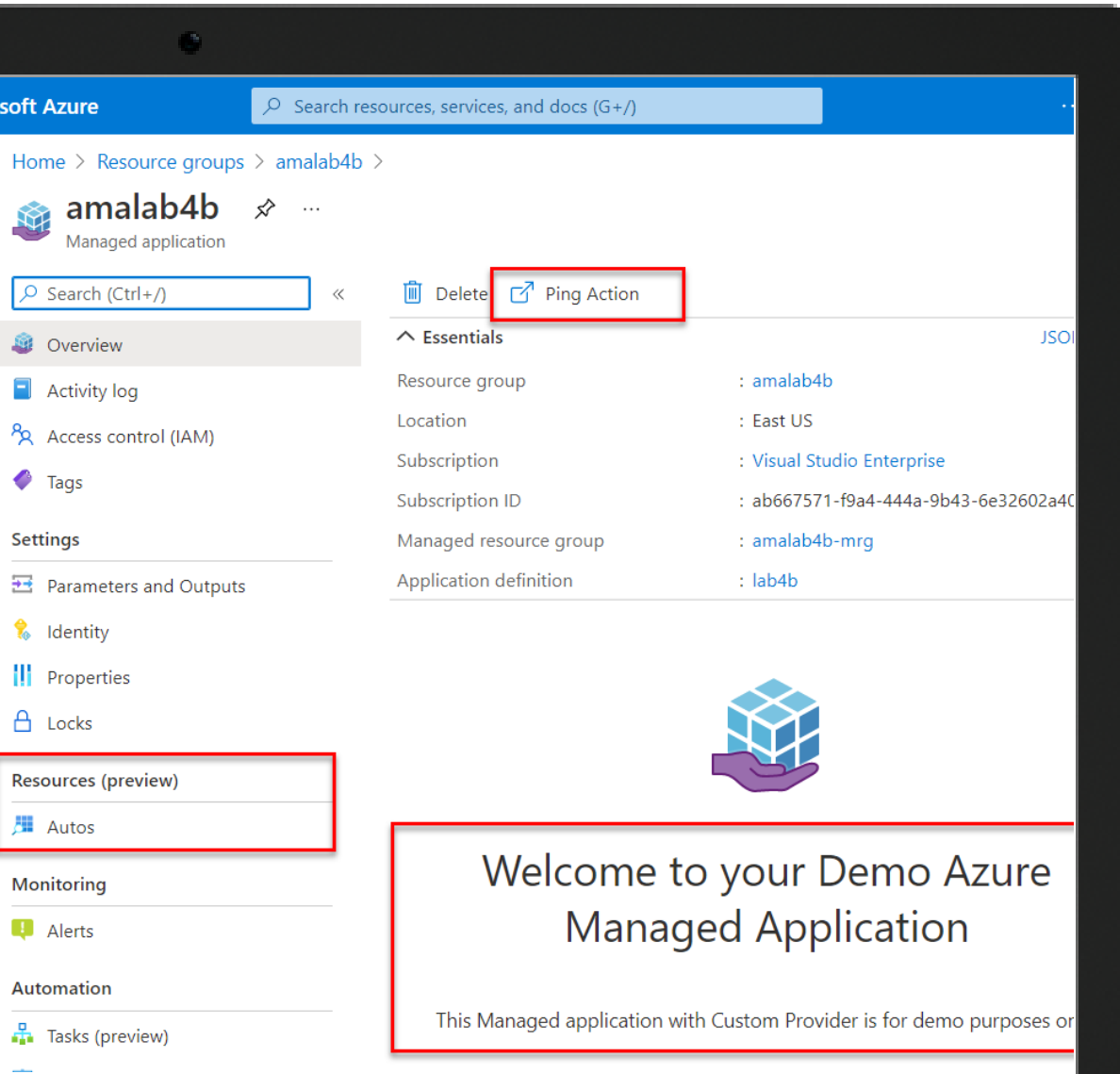
Choose from many components to build the experience

viewDefinition.json

Customize the Managed Application itself

Add functionality to the Managed Application

Customize the Managed Application

Actions

Resources

Main page

Metrics

Demo

Working with a Managed Application Deployment Package

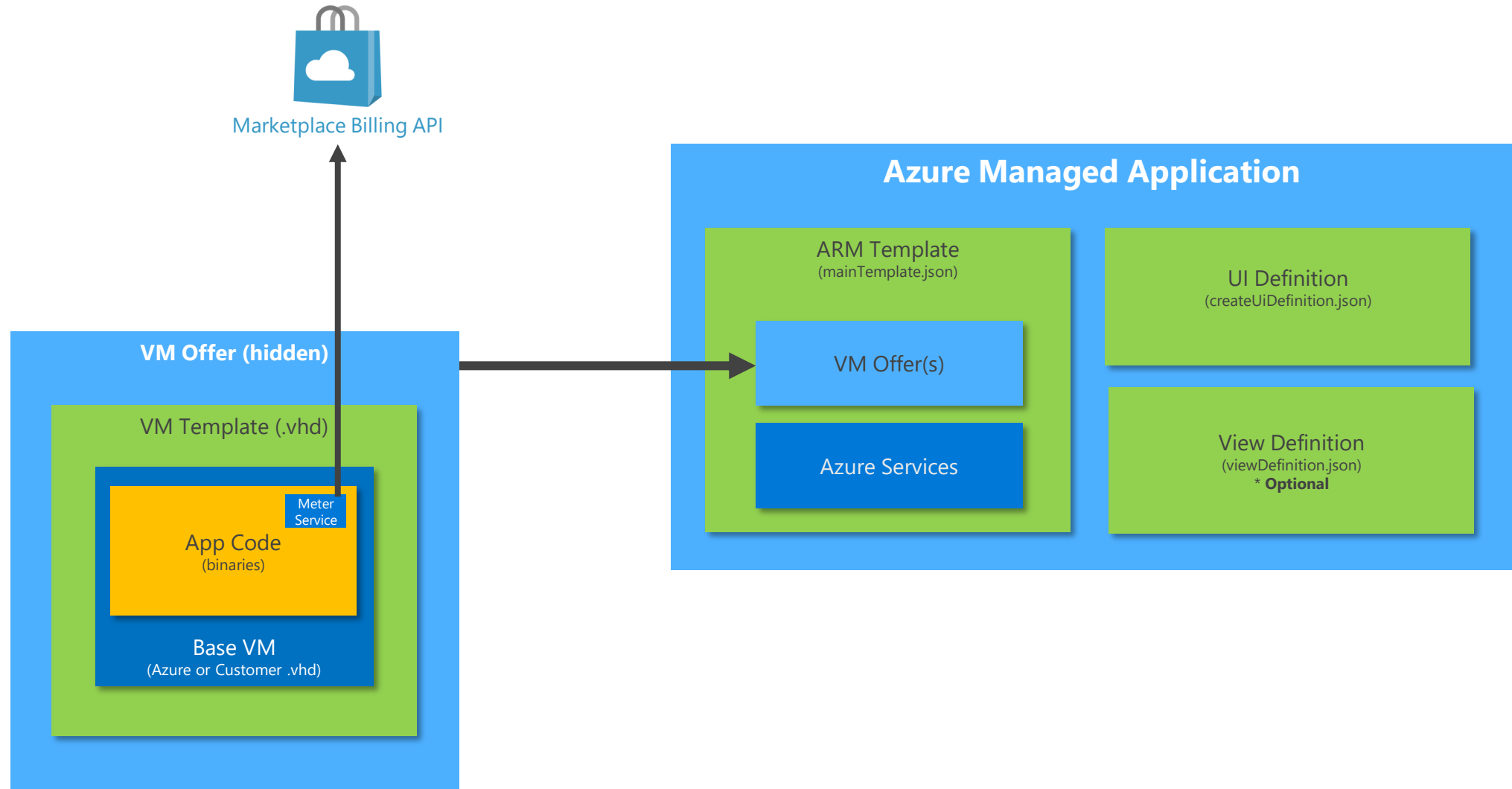**The Managed Application Deployment Package**

Lab 2

40 minutes

aka.ms/AMAWorkshopLabs

Mastering the Marketplace

Integrating Virtual Machine Offers

Integrated VM Model

Marketplace Billing API

Azure Managed Application

VM Offer (hidden)

VM Template (.vhd)

App Code
(binaries)

Meter
Service

Base VM
(Azure or Customer .vhd)

ARM Template
(mainTemplate.json)

VM Offer(s)

Azure Services

UI Definition
(createUiDefinition.json)

View Definition
(viewDefinition.json)
* Optional

Creating the VM Technical Assets

Building the VM Image
Build the VM Image that will be used as a base for the Offer. You can use an MS Stock image or build your own custom image

Open Ports
Define the Open Ports you want to have in the Offer

(Optional) Data Disk Images
For each VM, you can attach up to fifteen (15) Data disks

JSON Sections

"**plan**"

"**imageReference**"

Monetization

	Virtual Machine	Azure Apps (Multi-VM)
Billing Cycle	Monthly *	Monthly *
Pricing Model	Consumption per core/per hour	Managed Apps: optional flat rate Both: Leverage VM pricing
Trial Options	1-month or 3-months	Leverages VM pricing

Lunch Break
30 minutes

Mastering the Marketplace

Purchasing a Managed Application

Purchasing a Managed App

https://azuremarketplace.microsoft.com/

https://portal.azure.com/
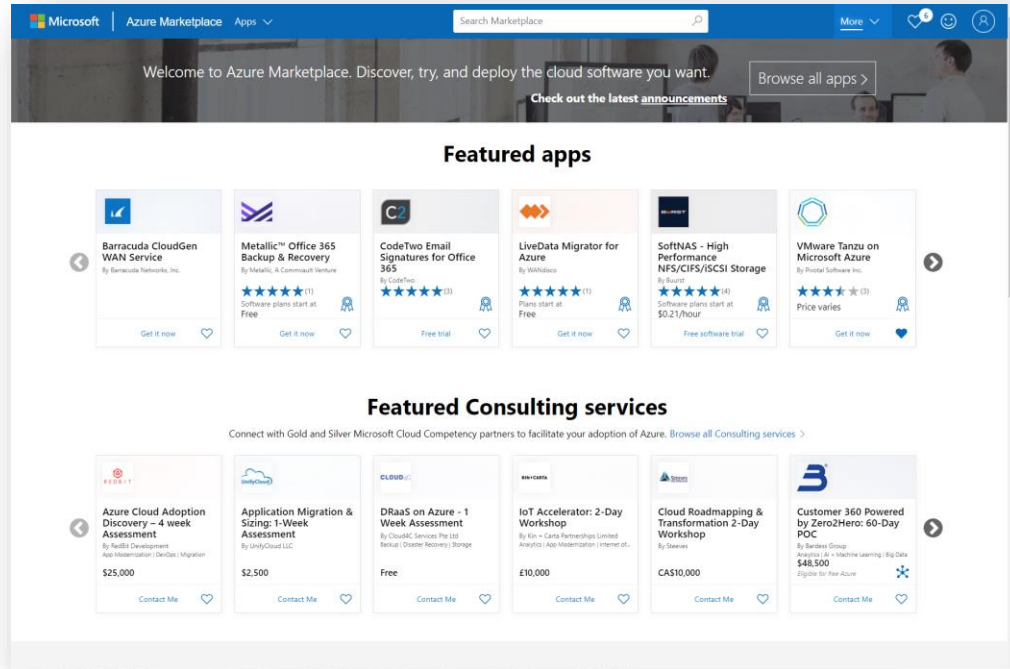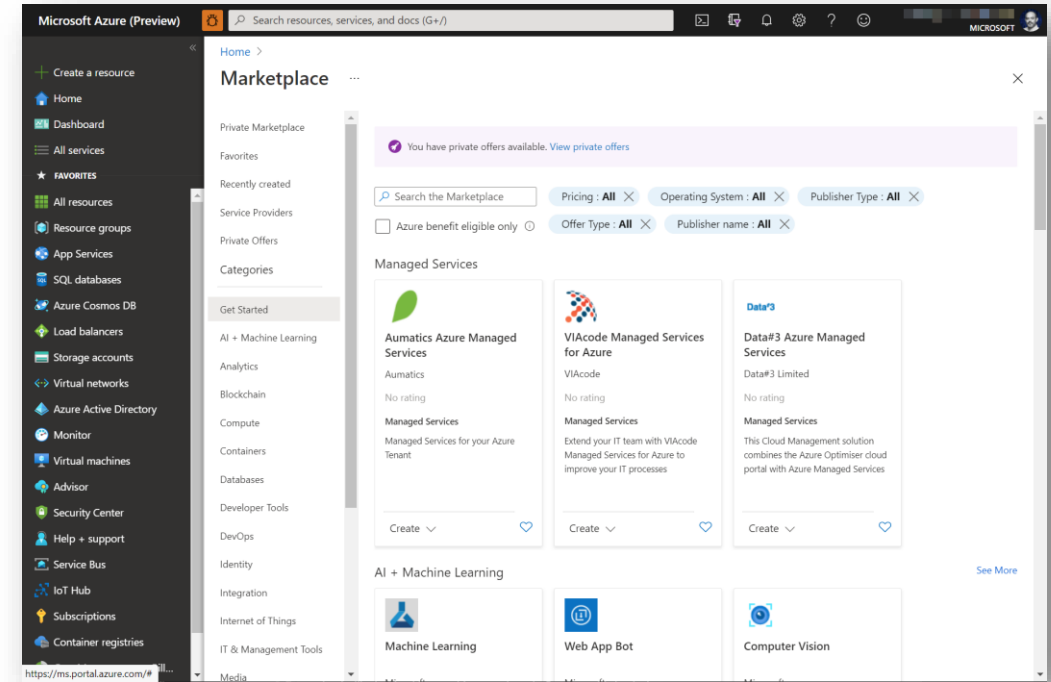
Demo

Purchasing a Managed Application

Customer policy may interrupt deployment

Purchasing an Azure Managed Application
Lab 3

30 minutes

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Mastering the Marketplace

Administering Your Purchased Managed Applications

Demo

Your Managed Applications in the Azure Portal

Administering Your Azure Managed Applications
Lab 4

10 minutes

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Mastering the Marketplace

Administering Your Customer's Managed Applications

Publishers' View

After deployment

Managed applications center | Marketplace applications
Preview

Search (Ctrl+/)

Overview

Browse

Marketplace applications

Service Catalog applications

All applications

Publish

Marketplace application offer

Service Catalog application defin...

Service

Marketplace applications

Service Catalog applications

+ Add   ↻ Refresh

Product(s)

3

out of 3

Learn more
About Managed application

Search		Product name : **All**	Publisher : **All**	Subscription Name : **2 selected**

Product name ↑↓	Publisher ↑↓	Deployed application count ↑↓	Alert Count ↑↓
(contoso_managed_app-preview)	(testtestindustryexperiencestest)	5	•••
(amaaks-ama)	(df-portal-user)	2	•••
(test-blob-volumes-preview)	(elegantcodecom1583941477217)	1	•••

Allowing Just In Time (JIT) Access

- Currently in preview

- Give consumers greater control over access to managed resources

- Publisher sends a request for access to troubleshoot or update the managed resources

- JIT is configured per plan

Demo

Managed Application Center

Administering Your Customer's Managed Applications
Lab 5

15 minutes

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Mastering the Marketplace

Metered Billing

What are Azure Marketplace Meters?

- **Consumable**
- **Meter ID**
- **Unit of Measure**
- **Quantity**
- POST
  - 1 per hour
  - 1 per day (batch)

m_parking

$1/hour

2 units

2 hours

$2

m_charger
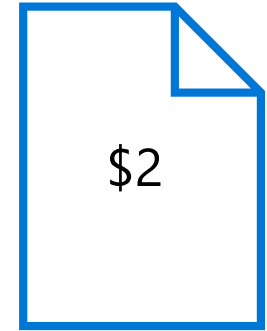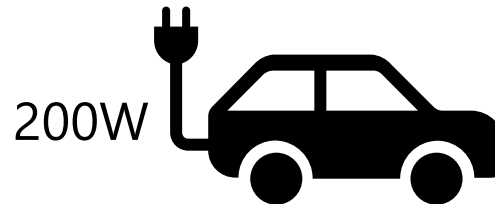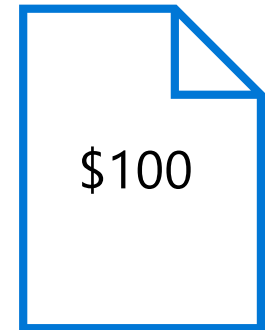
100W incl + $1/W extra

100 units

200W

$100

Pricing and availability

Meter Pricing ⇄

Plan setup

Plan listing

Pricing and availability

Technical configuration

Plan ID: meterpricing

Pricing

Prices input in USD are converted to market-specific currencies using current exchange rates when saved. You can also use price export and import to review and set market specific prices. Prices cannot be changed once the offer is published. Learn more

Price* ⓘ

10	USD per month

Marketplace Metering Service dimensions

Define the dimensions that your service will use to emit usage events to charge customers who exceed the included quantity. Once published, dimensions for a plan cannot be changed. All dimension details except for prices and included quantities are shared across all plans. Learn more

Enabled	ID*	Display Name*	Unit of Measure*	Price per unit in USD*	Monthly quantity included in base*	ⓘ	
☑	meter_g	GB Sent	GB/Hour	0.12	0	☐ ∞	Remove
☑	meter_m	Num of Messages	Message/Hour	0.10	0	☐ ∞	Remove
☑	meter_t	Transaction	Transaction	1.00	100	☐ ∞	Remove

+ Add another Dimension (Max 30)

↓ Export pricing data   ↑ Import pricing data

Select your markets and save your pricing changes to enable export of pricing data.

AMA offer Pricing Options: Metered

Pricing Option	Description	Example Plans for an Offer
Variable	Consumption based on variable usage.	• Plan A - Number of Transactions $0.12/transaction
Fix + Variable	Consumption based on a fix amount, plus variable usage.	• Plan B - Basic $25/Month (2000 transactions included) + $0.10/transaction

Multi-Dimension	Consumption based on multiple dimensions.	• Plan C – Basic (Picture Send/Picture Received/ Bandwidth(Mb))
		  • D1 – Picture Send $0.10/unit
		  • D2 – Picture Received $0.12/unit
		  • D3 – Per Megabit Send $0.25/unit

Multi-Dimension Fix + Variable	Combination of a fixed price and multi-dimension based consumption	• Plan D – Basic $10/Month (1000 Pictures Send, 1000 Received and 100 Megabits)
		  + Picture Send/Picture Received/ Bandwidth(Mb)
		  • D1 – Picture Send $0.10/unit
		  • D2 – Picture Received $0.12/unit
		  • D3 – Per Megabit Send $0.25/unit

Metering Billing from the MRG

Customer's Subscription

Managed Application

Emit billing meter

Managed Resource Group

Marketplace Billing API

Call once per hour maximum

Call once per day minimum

Call only after included units are consumed
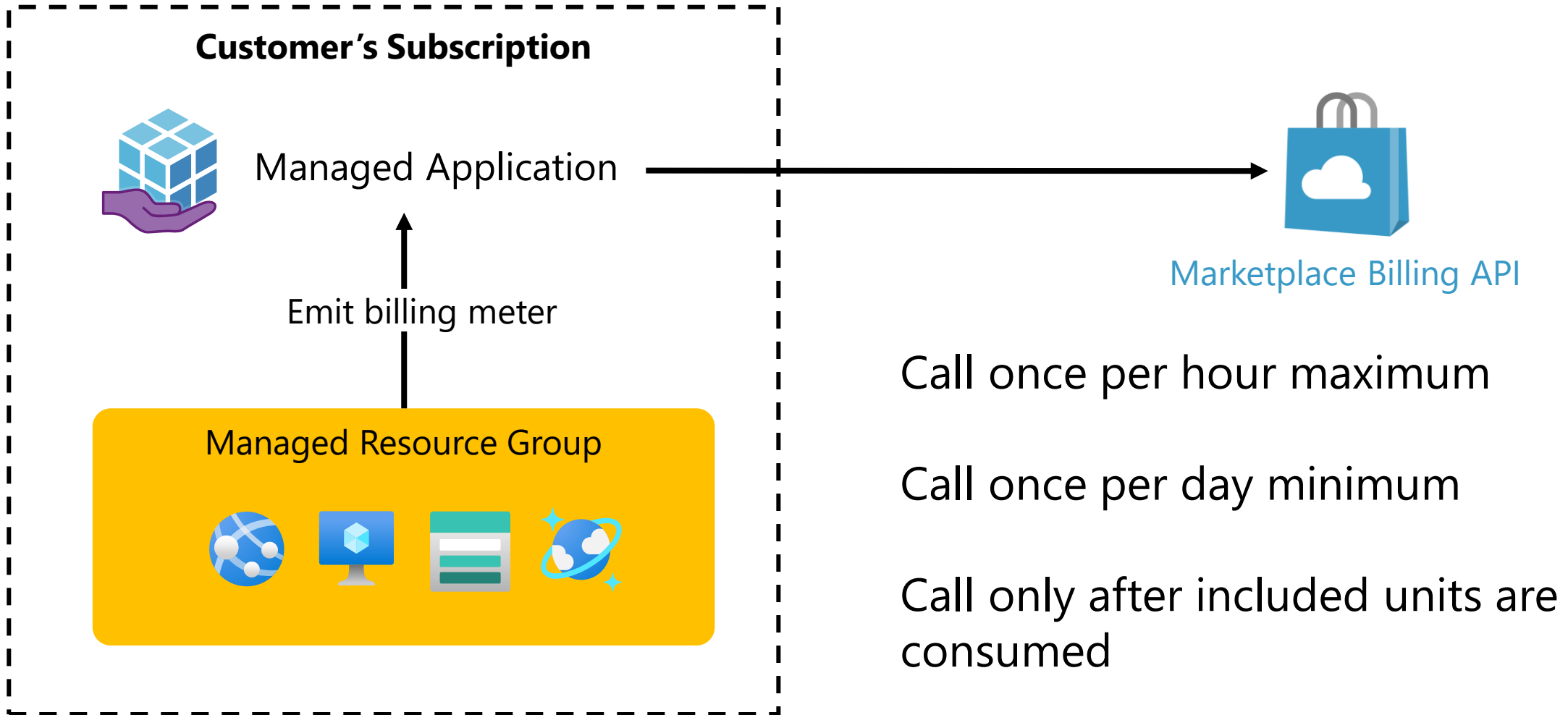
Metered Billing External to the MRG
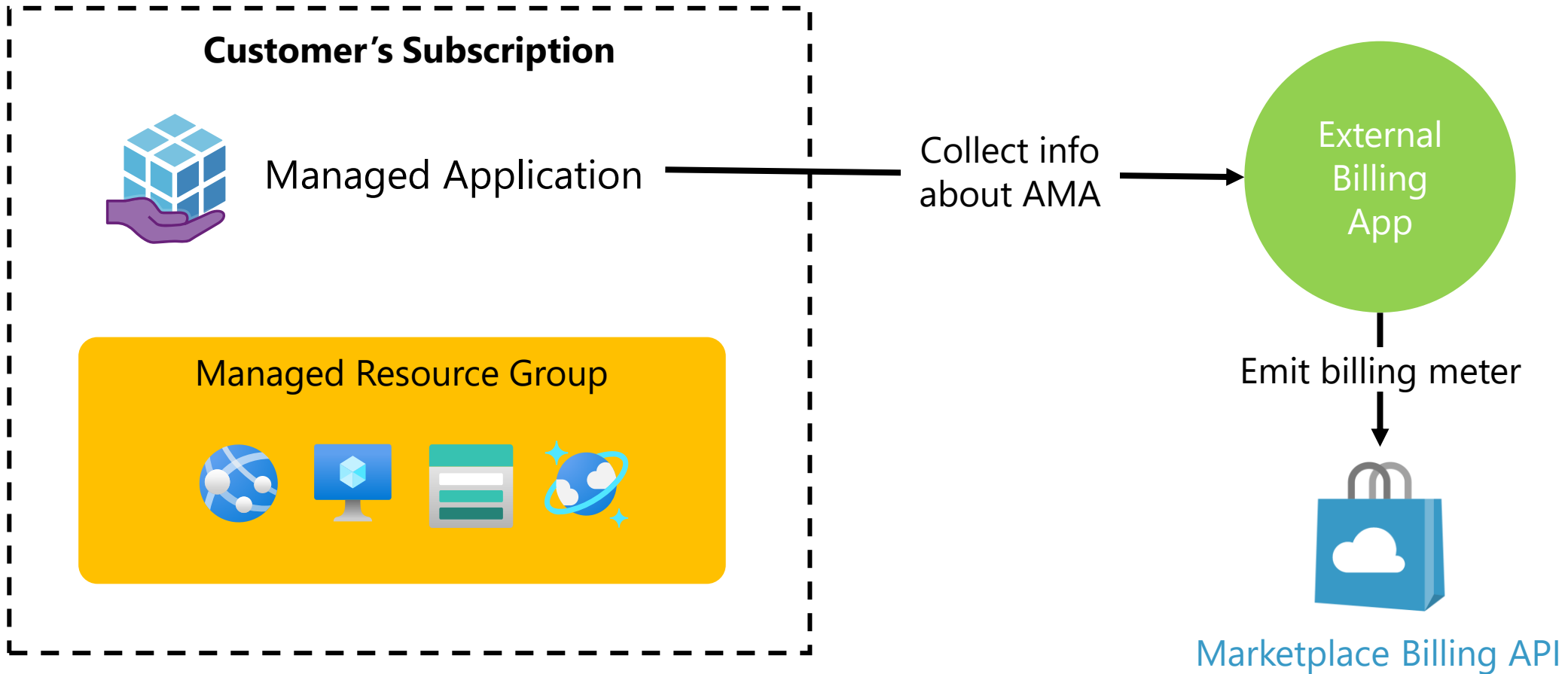
Detailed Invoice with metered data

	K	S	T	U	V	W	X	Y	AC	AK	AL	AQ	AR	AT	AU	AV	AW	AX
1	Date	MeterName	Quantity	EffectivePrice	Cost	UnitPrice	BillingC	ResourceLo	ResourceName	UnitOfMeasur	ResourceGroup	OfferId	IsAzure	PublisherName	PlanName	ChargeType	Frequency	PublisherType
27	12/6/2019		24	0	0	0	USD	CENTRALUS	matomo	1 Hour	MATOMO	MS-AZR-0003P		Bitnami		Usage	Recurring	Marketplace
28	12/5/2019		23.966686	0	0	0	USD	CENTRALUS	matomo	1 Hour	MATOMO	MS-AZR-0003P		Bitnami		Usage	Recurring	Marketplace
29	12/4/2019		24	0	0	0	USD	CENTRALUS	matomo	1 Hour	MATOMO	MS-AZR-0003P		Bitnami		Usage	Recurring	Marketplace
30	12/3/2019		24	0	0	0	USD	CENTRALUS	matomo	1 Hour	MATOMO	MS-AZR-0003P		Bitnami		Usage	Recurring	Marketplace
31	12/2/2019		24	0	0	0	USD	CENTRALUS	matomo	1 Hour	MATOMO	MS-AZR-0003P		Bitnami		Usage	Recurring	Marketplace
32	12/1/2019		0.866684	0	0	0	USD	CENTRALUS	matomo	1 Hour	matomo	MS-AZR-0003P		Bitnami		Usage	Recurring	Marketplace
33	12/1/2019		1.633346	0	0	0	USD	CENTRALUS	matomo	1 Hour	MATOMO	MS-AZR-0003P		Bitnami		Usage	Recurring	Marketplace
34																		

Fields

- MeterName
- Quantity
- Effective Price

- Cost
- UnitPrice
- Billing Currency

- Unit of Measurement
- OfferId
- PlanName

- ChargeType
- Frequency

Metering Usage

```
POST https://marketplaceapi.microsoft.com/api/usageEvent?api-version={{ApiVersion}}
Content-Type: application/json
Authorization: Bearer {{access_token}}

{
  "resourceId": "Identifier of the resource against which usage is emitted",
  "quantity": 5.0,
  "dimension": "Dimension identifier",
  "effectiveStartTime": "Time in UTC when the usage event occurred",
  "planId": "Plan associated with the purchased offer"
}

200 Response

{
  "usageEventId": "Unique identifier associated with the usage event",
  "status": "Accepted",
  "messageTime": "Time this message was created in UTC",
  "resourceId": "Identifier of the resource against which usage is emitted",
  "quantity": 5.0,
  "dimension": "Dimension identifier",
  "effectiveStartTime": "Time in UTC when the usage event occurred",
  "planId": "Plan associated with the purchased offer"
}
```

Metering Batch Usage

```
POST https://marketplaceapi.microsoft.com/api/batchUsageEvent?api-version={{ApiVersion}}
Content-Type: application/json
Authorization: Bearer {{access_token}}

200 Response

{
  "count": 2,
  "result": [
    {
      "usageEventId": "Unique identifier associated with the usage event",
      "status": "Accepted|Expired|Duplicate|Error|ResourceNotFound|ResourceNotAuthorized|InvalidDimension|BadArgument",
      "messageTime": "Time this message was created in UTC",
      "resourceId": "Identifier of the resource against which usage is emitted",
      "quantity": 5.0,
      "dimension": "Dimension identifier",
      "effectiveStartTime": "Time in UTC when the usage event occurred",
      "planId": "Plan associated with the purchased offer",
      "error": "Error object (optional)"
    },

    …
  ]
}
```
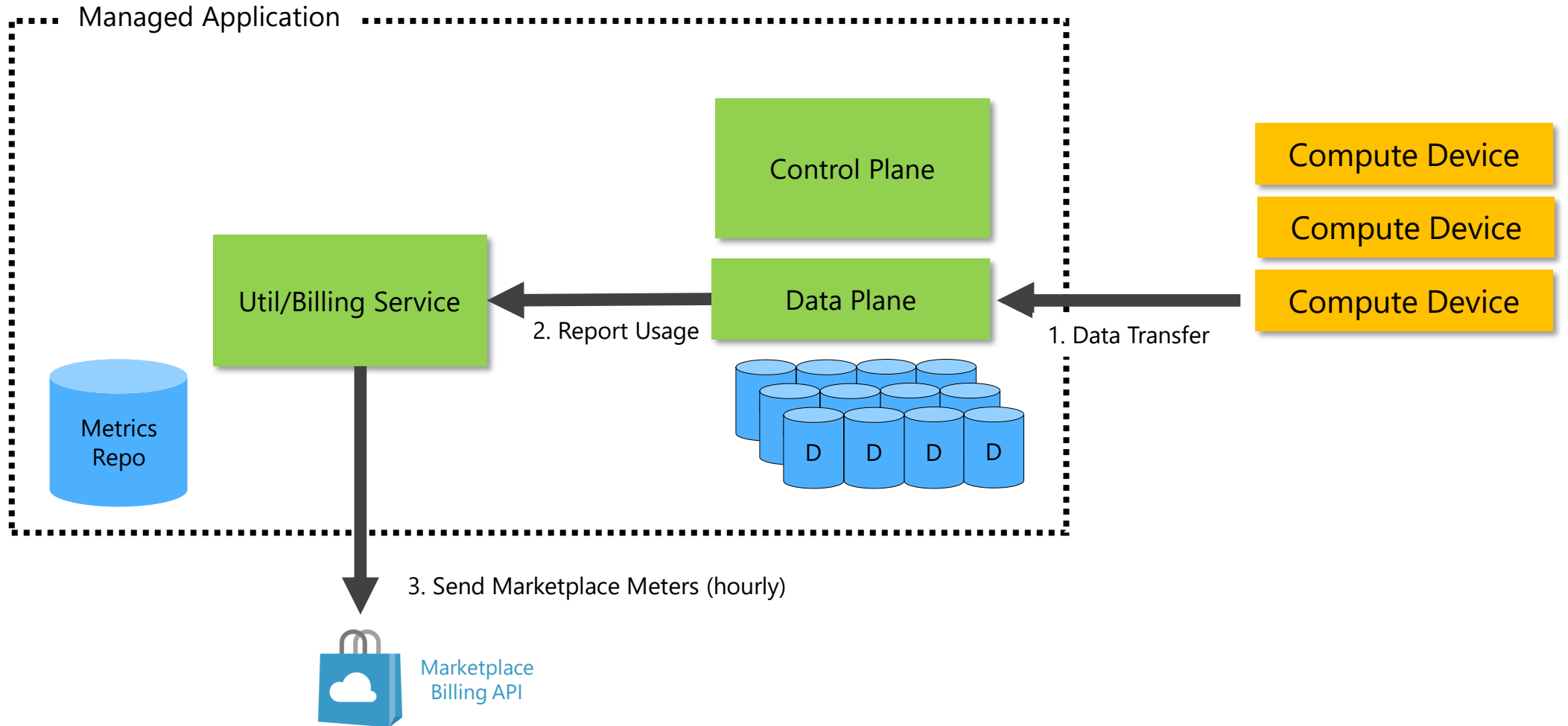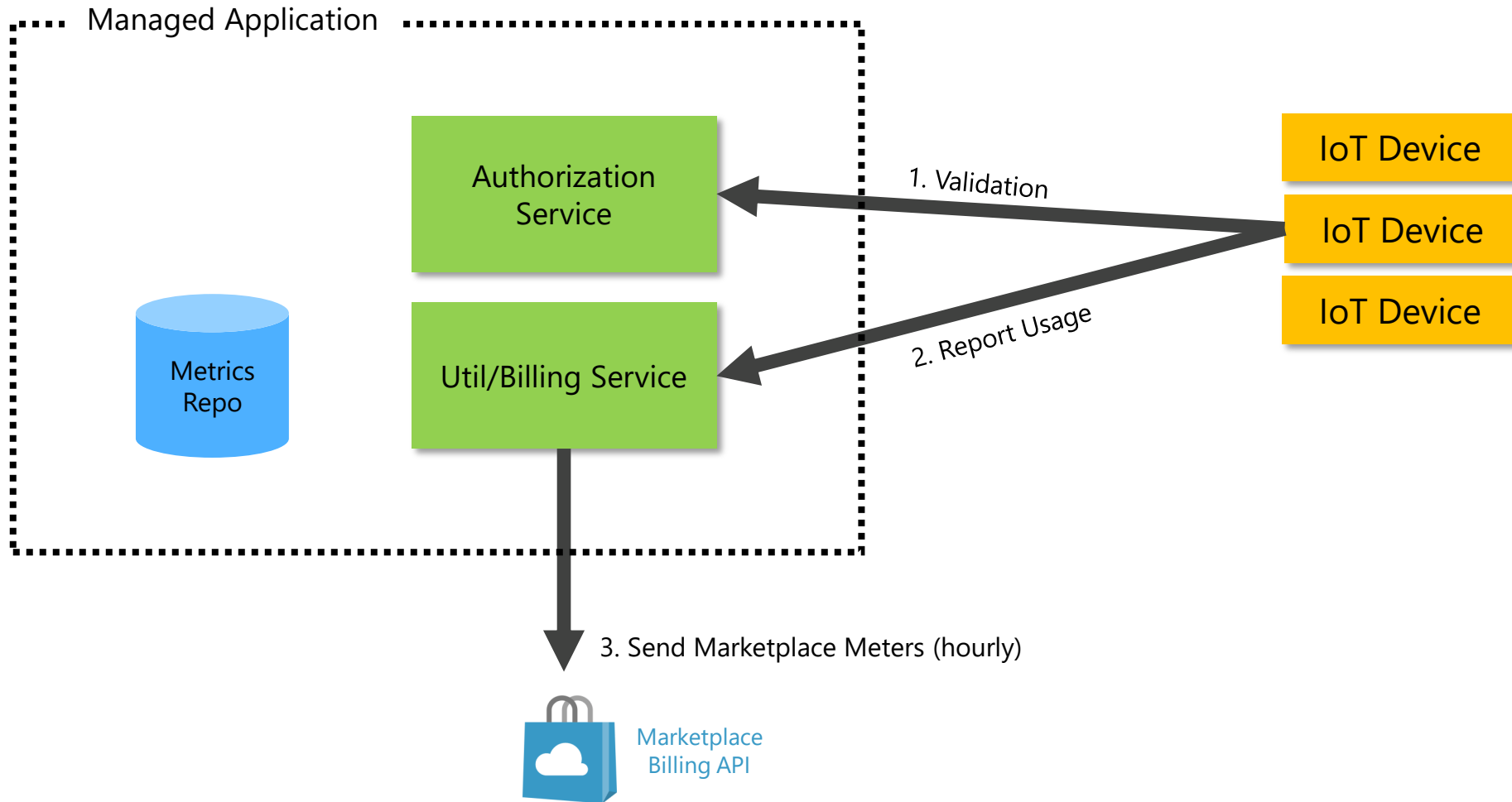
Demo

Call the Metered Billing API

Mastering the Marketplace

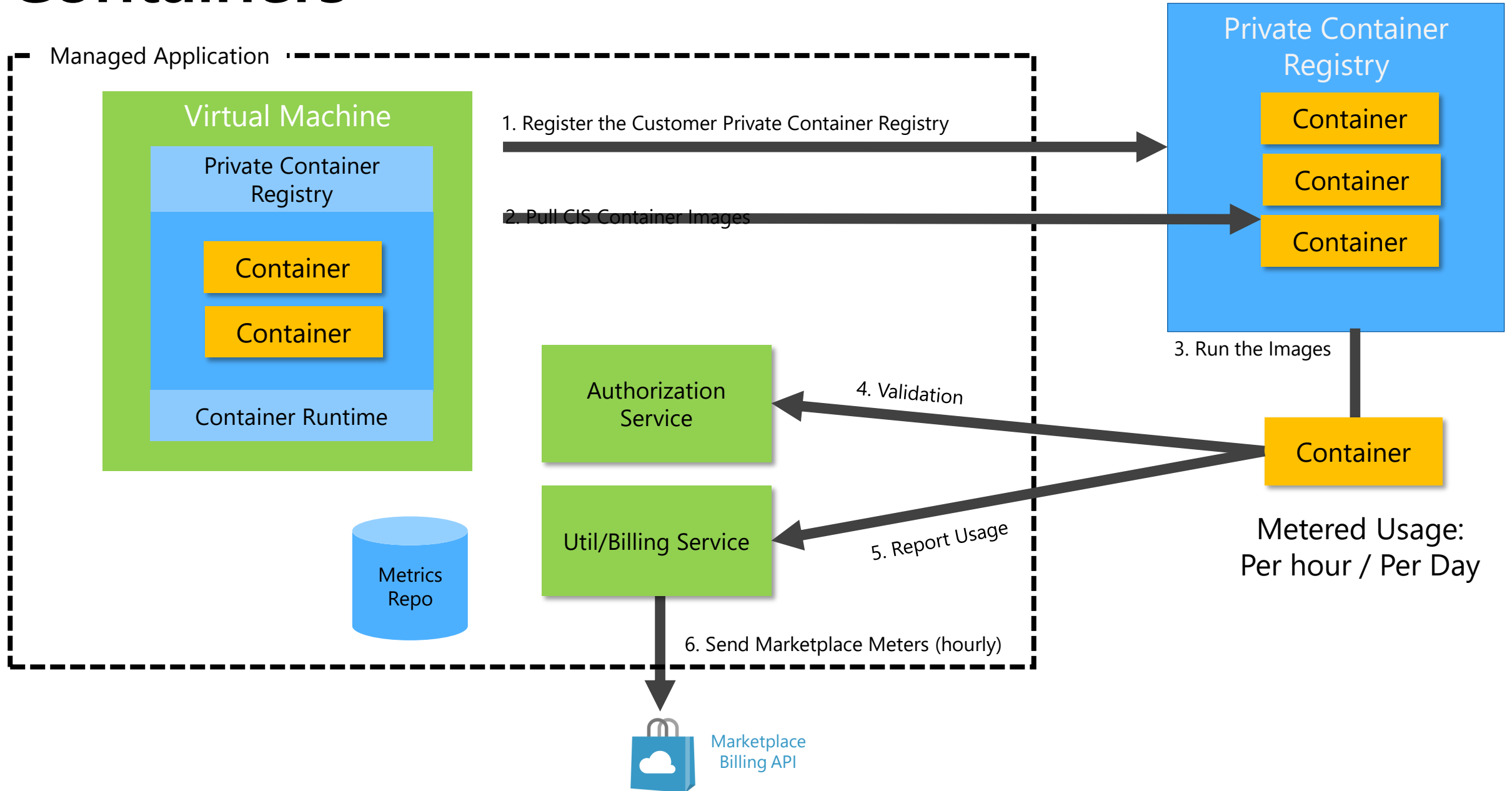# Advanced Deployment Scenarios

Storage Provider

Delegated Manage Identities

```json
{
    "type": "Microsoft.Authorization/roleAssignments",
    "apiVersion": "2014-10-01-preview",
    "name": "[guid(resourceGroup().id)]",
    "dependsOn": [
        "[concat('Microsoft.ManagedIdentity/userAssignedIdentities/', variables('vm_name'))]"
    ],
    "properties": {
        "roleDefinitionId": "[variables(parameters('roleType'))]",
        "delegatedManagedIdentityResourceId": "[resourceId('Microsoft.ManagedIdentity/userAssignedIdentities', variables('vm_name'))]",
        "principalId": "[reference(concat('Microsoft.ManagedIdentity/userAssignedIdentities/',variables('msi_name'))).principalId]",
        "scope": "[variables('scope')]"
    }
}
```

Containers

Managed Application

Virtual Machine

- Private Container Registry
- Container
- Container
- Container Runtime

Private Container Registry
- Container
- Container
- Container

1. Register the Customer Private Container Registry

2. Pull CIS Container Images

3. Run the Images

Authorization Service

Util/Billing Service

Metrics Repo

4. Validation

5. Report Usage

Container

Metered Usage:
Per hour / Per Day

6. Send Marketplace Meters (hourly)

Marketplace Billing API

Mastering the Marketplace

Resources and Closing

End of class survey

https://aka.ms/AMAWS2

⏱ 2 minutes

Please help us improve

Resource	Links
Marketplace Samples and Resources - Client libraries - Sample projects and repositories - Pointers to educational resources	aka.ms/MarketplaceSamples
Mastering the Marketplace Learning Library	aka.ms/MasteringTheMarketplace
Marketplace Webinars business and technical live sessions and recordings	aka.ms/MarketplaceOfficeHours
Marketplace on Microsoft Learn	aka.ms/LearnMarketplace
SaaS Accelerator	aka.ms/SaaSAccelerator
Azure for Executives Podcast	https://aka.ms/AzureForExecs
Stackoverflow	https://stackoverflow.com/questions/tagged/azure-managedapps

Marketplace Sample Code and Examples

https://aka.ms/marketplacesamples

Thank you!

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