



AZR101

Introduction to Azure

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Xamarin University

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Objectives

1. Introduce Azure
2. Create an Azure account
3. Create an Azure resource



Introduce Azure

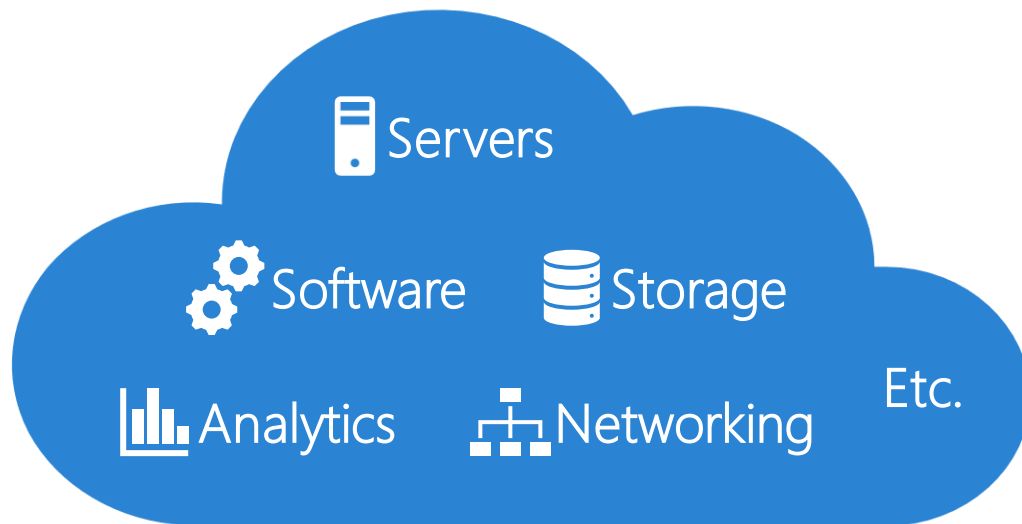
Tasks

1. Decide if Microsoft Azure will meet your needs
2. Introduce Azure App Service



What is cloud computing?

- ❖ *Cloud computing* is the delivery of computing services over the Internet, a VPN, or other network



Cloud computing characteristics

- ❖ Cloud computing platforms share five characteristics in the way they implement and expose their services



Broad
network
access



On demand



Resource
pooling



Rapid
elasticity and
expansion



Measured
service

Cloud computing advantages

- ❖ Cloud computing has many benefits over operating an in-house datacenter



Cost

No expense for hardware or software, no facilities cost



Speed

Can scale up/down quickly in response to demand



Global scale

Resources in the right geographic location



Productivity

No hardware setup, software patching, or IT management tasks



Performance

Hardware kept up-to-date



Reliability

Can mirror data at multiple sites to simplify backup and disaster recovery

Cloud providers

- ❖ Cloud computing is a large and growing industry with many big players
 - some provide comprehensive services and some are more specialized



What is Azure?

- ❖ Azure is Microsoft's subscription-model cloud-computing platform
 - Processing
 - Storage
 - Networking
 - API services

The graphic features a bright blue sky with a large, stylized sun on the left and two white clouds. Below the sky is a dark blue silhouette of a city skyline. On the right side of the skyline, there are two overlapping circles, one green and one blue.

Microsoft Azure

The cloud for modern business.

Azure momentum

>120k

NEW AZURE CUSTOMER
SUBSCRIPTIONS/MONTH

>1.4Million

SQL DATABASES IN AZURE

2Trillion

MESSAGES PER WEEK
PROCESSED BY AZURE IOT

5Million

ORGANIZATIONS USING
AZURE ACTIVE DIRECTORY

>4Million

DEVELOPER REGISTERED WITH
VISUAL STUDIO TEAM SERVICES

>40%

REVENUE FROM
START-UPS AND ISVS

Azure datacenters

- ❖ Azure has regional data centers all over the world which supports your infrastructure needs such as placing your services near your customers



See: <https://azure.microsoft.com/en-us/regions/#services> for current list

Why use Azure?

❖ There are several key benefits to moving your systems to Azure



Maintenance is
reduced



Better security



Supports hybrid
deployment







99.9% uptime SLA





Azure services

❖ Azure offers a comprehensive set of services – this shows only a small selection of what is available

Compute

-  Virtual Machine
-  Service Fabric
-  Batch
-  Containers

Networking

-  Virtual Network
-  Load Balancer
-  VPN Gateway
-  DNS





Storage

-  BLOB Storage
-  File Storage
-  Backup
-  Site Recovery




Web + Mobile

-  Web Apps
-  Mobile Apps
-  Notification Hubs

Databases

-  SQL Database
-  SQL Data Warehouse
-  Redis Cache
-  DocumentDB




Intelligence + Analytics

-  HDInsight
-  Machine Learning
-  Stream Analytics


Internet of Things

-  IoT Hub
-  Event Hubs




Enterprise Integration

-  Biztalk Services
-  Service Bus
-  Data Factory




Security + Identity

-  Key Vault
-  Active Directory
-  Multi-Factor Auth

Developer Tools

-  VS Team Services
-  API Management
-  HockeyApp

Monitoring + Management

-  Portal
-  Automation
-  Application Insights

Service categories

❖ Cloud services can be grouped into three categories



SaaS (Software-as-a-service)
"use it"

Replaces traditional on-device software with web-based alternatives (E.g. Gmail, Google Docs, GoToMeeting, DropBox)



PaaS (Platform-as-a-service)
"build on it"

Entire platform is cloud-based: OS, database, web server host, etc. (E.g. Google App Engine and AWS)



IaaS (Infrastructure-as-a-service)
"host on it"

Lower-level components like VMs, file storage, networking/load balancing, firewalls, etc. (E.g. EC2, Azure, Rackspace)

Services provided by Azure

❖ Azure services can be placed into the three cloud computing categories



SaaS (Software-as-a-service)
"use it"

Office 365
Microsoft Dynamics
Power BI ...



PaaS (Platform-as-a-service)
"build on it"

Cloud services
Machine Learning
Media services ...



IaaS (Infrastructure-as-a-service)
"host on it"

Virtual Machines
BLOB storage
Load Balancer ...

Azure App Service

- ❖ *Azure App Service* groups together several Azure services that support the development of several common app types



Web Apps

Web apps that scale with your business



Mobile Apps

Build mobile apps for any device



Logic Apps

Automate business processes across SaaS and on-premises



API Apps

Build and consume APIs in the cloud



Functions

Listen and react to events across your stack

Client SDKs

- ❖ Microsoft provides client-side SDKs for most common technologies (available from <https://azure.microsoft.com/downloads/>)



Developer builds their client app with the SDK that matches their preferred language



The SDK gives programmatic access to Azure services

Summary

1. Decide if Microsoft Azure will meet your needs
2. Introduce Azure App Service





Create an Azure account



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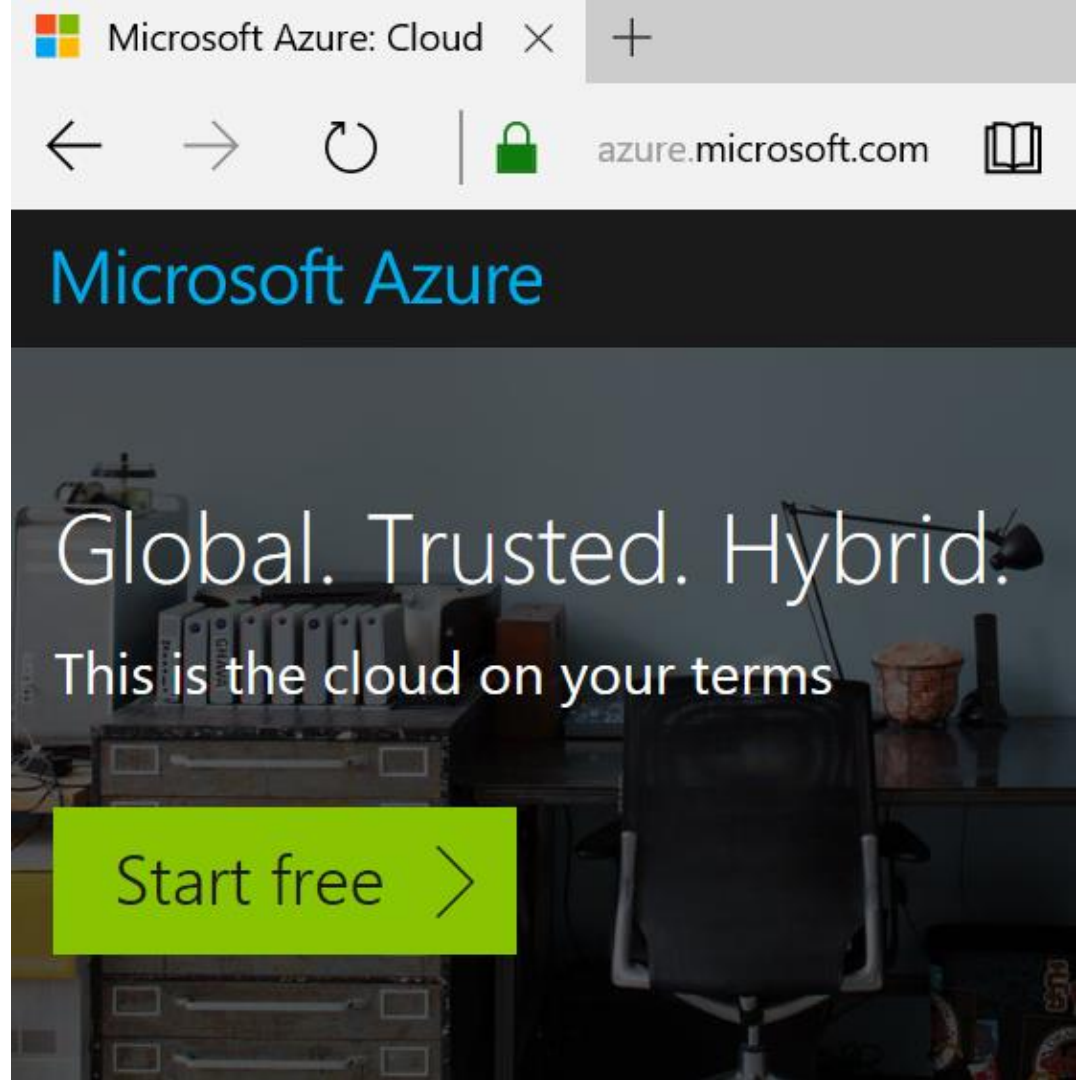
Tasks

1. Create a new Azure account
2. Predict your monthly costs



Azure account

- ❖ Create a free Azure account at azure.microsoft.com



Pricing structure

- ❖ Azure charges only for the services you use – billing is calculated per-minute (see <https://azure.microsoft.com/pricing/> for details)



App Services

Free to ~\$1,800/month*



Virtual Machines

~\$13 to ~\$1,400/month*



SQL database

~\$5 to ~\$7,000/month*

Subscriber benefits

- ❖ MSDN, BizSpark, and DreamSpark subscribers get monthly Azure credits



Currently up to \$150 per month
based on your subscription level

Predicting costs

❖ The online Azure pricing calculator estimates your monthly costs

Modules

Popular

Compute

Web & Mobile

Data & Storage

Intelligence

Analytics

Internet of Things

Networking

Media & CDN

Hybrid Integration

Identity & Access Management

Developer Services

Management



App Service

Create web and mobile apps for any platform and any device



DocumentDB

Managed NoSQL document database-as-a-service



HDInsight

Provision cloud Hadoop, Spark, R Server, HBase, and Storm clusters



SQL Database

Managed relational SQL Database-as-a-service



Storage

Durable, highly available, and massively scalable cloud storage



Virtual Machines

Provision Windows and Linux virtual machines in minutes



App Service

REGION: South Central US

TIER: Standard

INSTANCE SIZE:

S1

1 cores

1.75 GB RAM

50 GB Storage

\$0.100/hr

2
Instances

744
Hours

= \$148.80/MO

SSL Connections

Sub-total \$148.80/MO

Your estimate

US Dollar (\$)

App Service	\$148.80
SQL Database	\$15.03
Machine Learnin..	\$171.98
Notification Hubs	\$200.00
App Service	\$55.80
Support Options	\$0.00

\$591.61

Estimated monthly cost

See <https://azure.microsoft.com/en-us/pricing/calculator/>



Demonstration

Explore the Azure pricing calculator



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Summary

1. Create a new Azure account
2. Predict your monthly costs

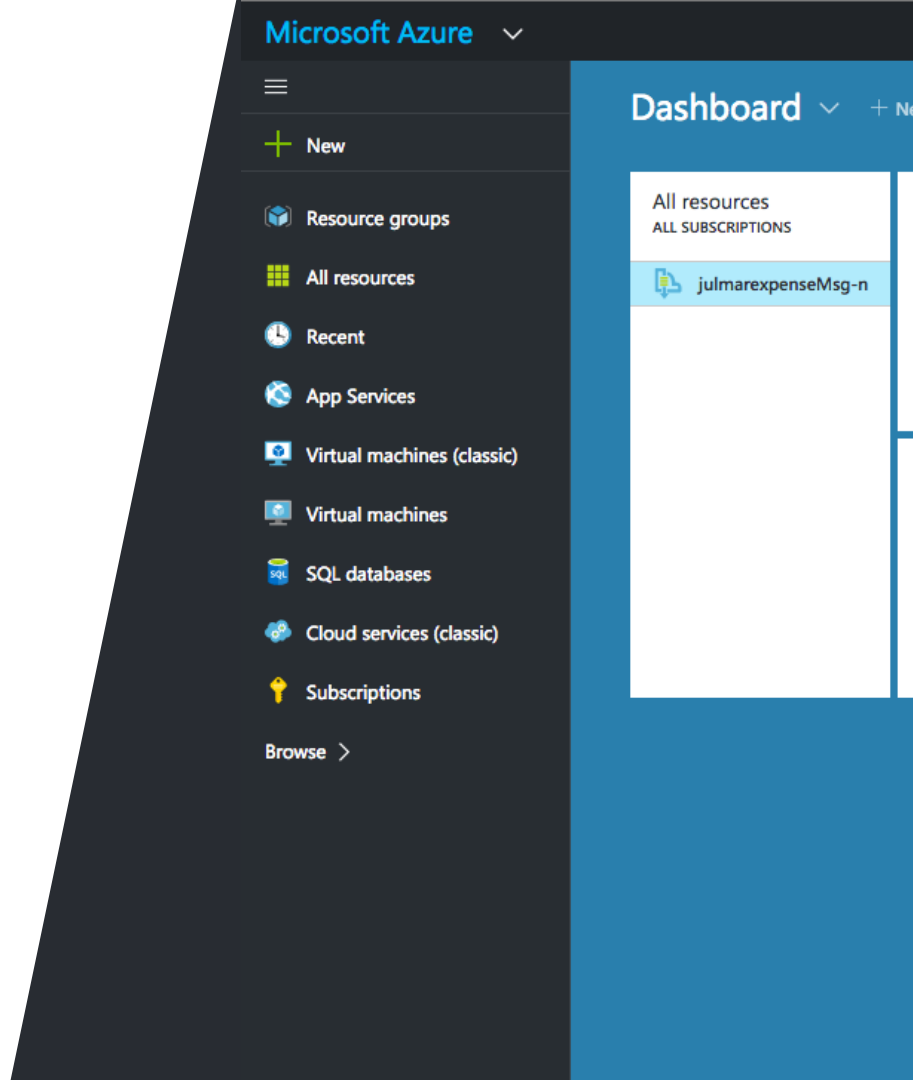




Create an Azure Resource

Tasks

1. Login to the Azure portal
2. Tour the Azure portal
3. Create a Virtual Machine



Azure access options

- ❖ You can manage your Azure services interactively or programmatically

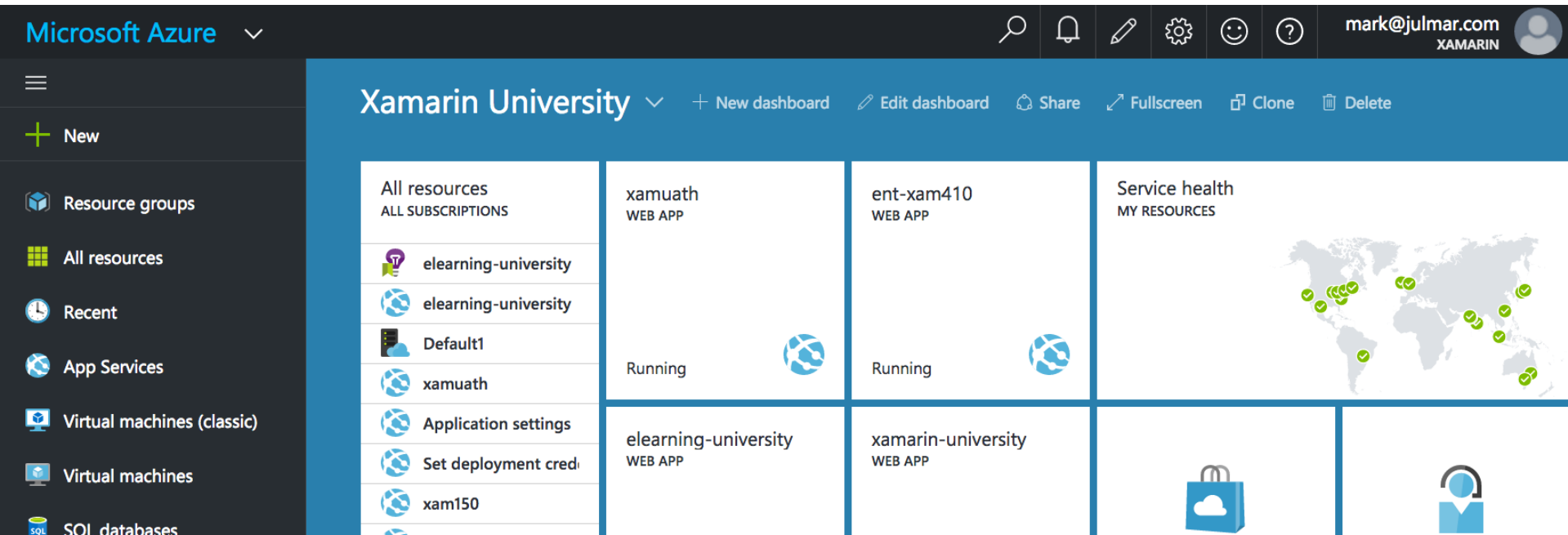
Azure Management
Portal

Azure Command
Line Interface

Service
Management API

Management portal

- ❖ The Azure Management Portal provides a web interface to let you manage all your services (portal.azure.com)



The screenshot displays the Microsoft Azure Management Portal interface. The top navigation bar includes the "Microsoft Azure" logo, a search icon, a notification bell, a pencil icon for editing, a gear icon for settings, a smiley face icon for user profile, and a question mark icon for help. The user's email "mark@julmar.com" and the "XAMARIN" logo are visible on the right.

The main dashboard area is titled "Xamarin University" and includes a dropdown menu, a "+ New dashboard" button, and links for "Edit dashboard", "Share", "Fullscreen", "Clone", and "Delete".

The dashboard is organized into a grid of tiles:

- All resources (ALL SUBSCRIPTIONS):** A list of resources including "elearning-university" (two entries), "Default1", "xamuath", "Application settings", "Set deployment credi", and "xam150".
- xamuath WEB APP:** A tile showing the "xamuath" web app in a "Running" state, accompanied by a globe icon.
- ent-xam410 WEB APP:** A tile showing the "ent-xam410" web app in a "Running" state, accompanied by a globe icon.
- Service health MY RESOURCES:** A tile displaying a world map with green checkmarks indicating service health across various regions.
- elearning-university WEB APP:** A tile showing the "elearning-university" web app in a "Running" state, accompanied by a globe icon.
- xamarin-university WEB APP:** A tile showing the "xamarin-university" web app in a "Running" state, accompanied by a globe icon.
- Shopping bag icon:** A blue shopping bag icon with a cloud inside, located at the bottom right of the dashboard.
- Support icon:** A blue icon representing customer support, located at the bottom right of the dashboard.

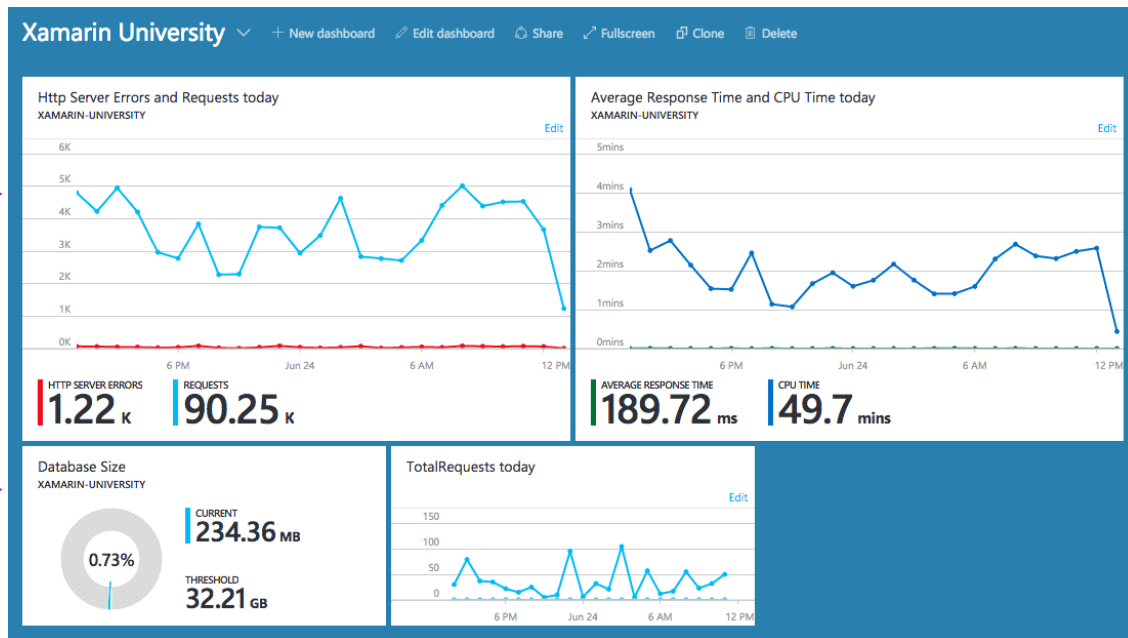
The left sidebar contains navigation options: "Resource groups", "All resources", "Recent", "App Services", "Virtual machines (classic)", "Virtual machines", and "SQL databases".

What is a dashboard?

- ❖ An Azure portal *dashboard* provides configurable DevOps view of your services

Example dashboard shows the Xamarin University website infrastructure hosted on Azure

You choose the tiles that appear in your dashboard



Dashboard options

- ❖ The *dashboard menu* lets you create new dashboards, modify existing dashboards, and remove them when they are no longer needed

Xamarin University ▾

+ New dashboard

✎ Edit dashboard

🔗 Share

⌕ Fullscreen

📄 Clone

🗑 Delete

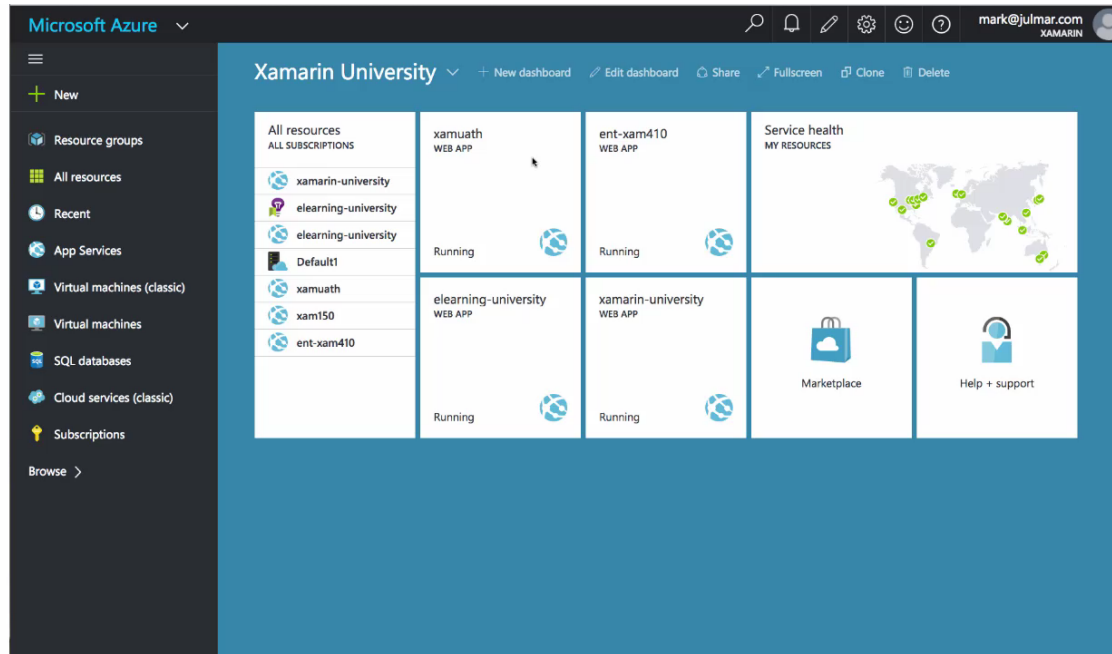
Shows the name of the current dashboard and lets you switch to a different one

Add/remove tiles from the current dashboard

Let other team members access this dashboard, user roles are configurable

Dashboard customization

- ❖ Dashboards let you move tiles, add new tiles, and pin your most commonly accessed services for quick access

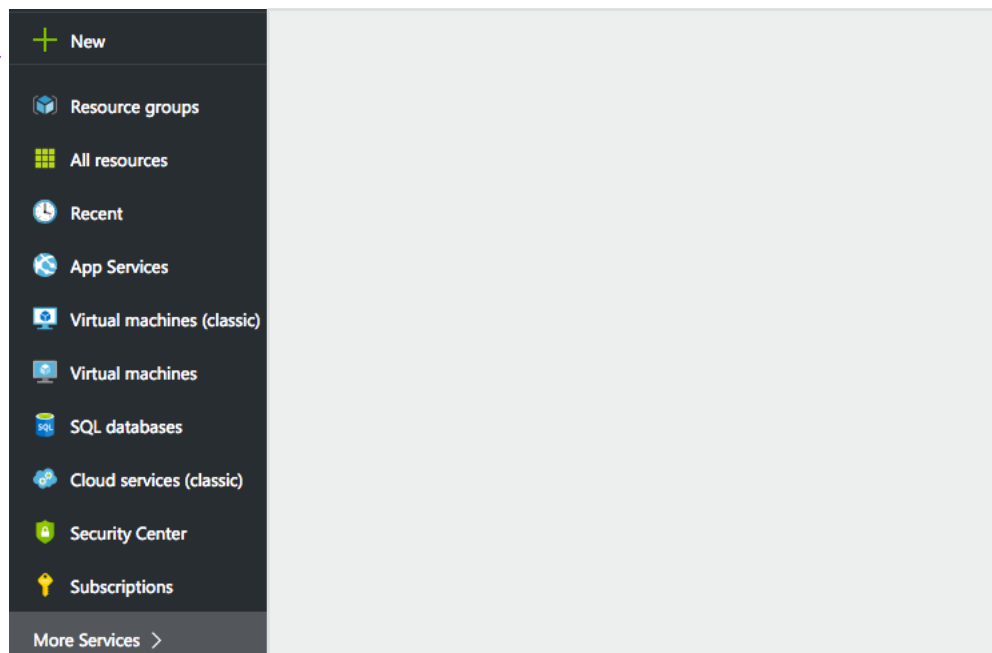


Portal sidebar

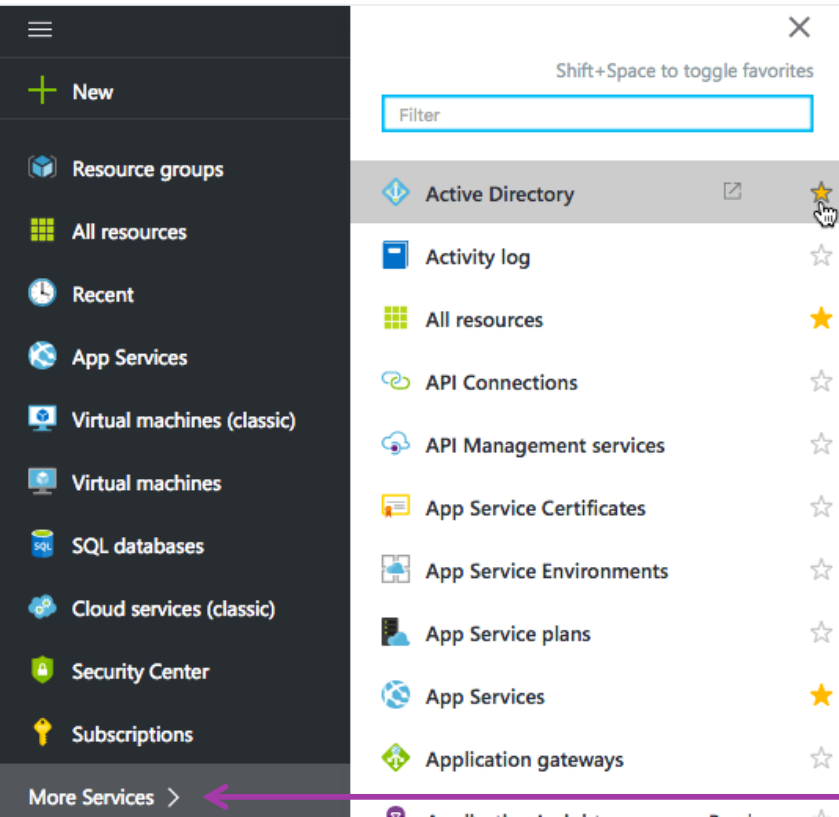
- ❖ The *sidebar* is an always-visible area of the portal that lets you manage your services

Create, configure, and
deploy a new service

Access your
existing services



Sidebar customization

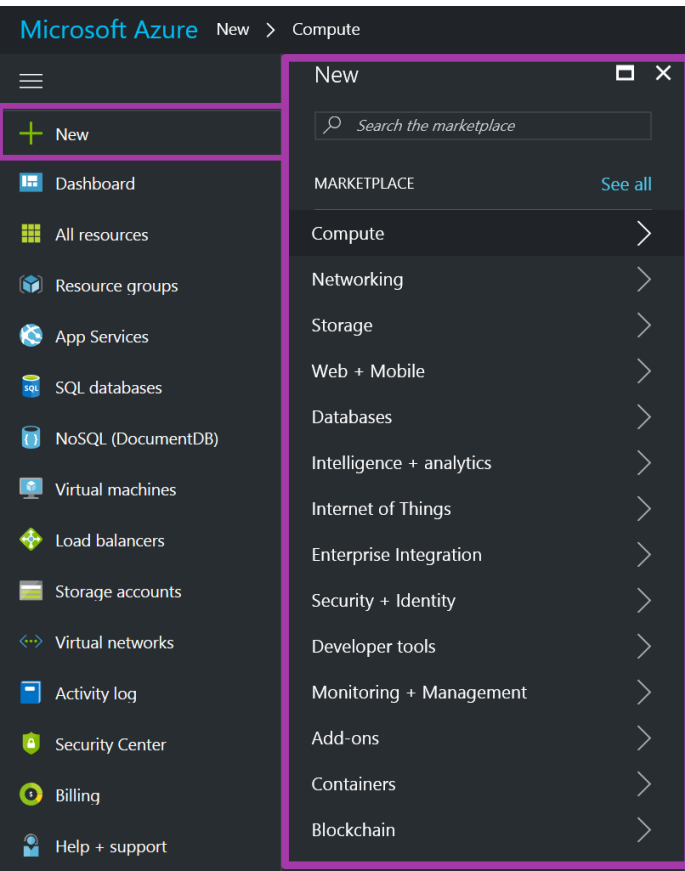


❖ Can choose the items shown in the sidebar

2. Choose your favorites

1. Select "More Services"

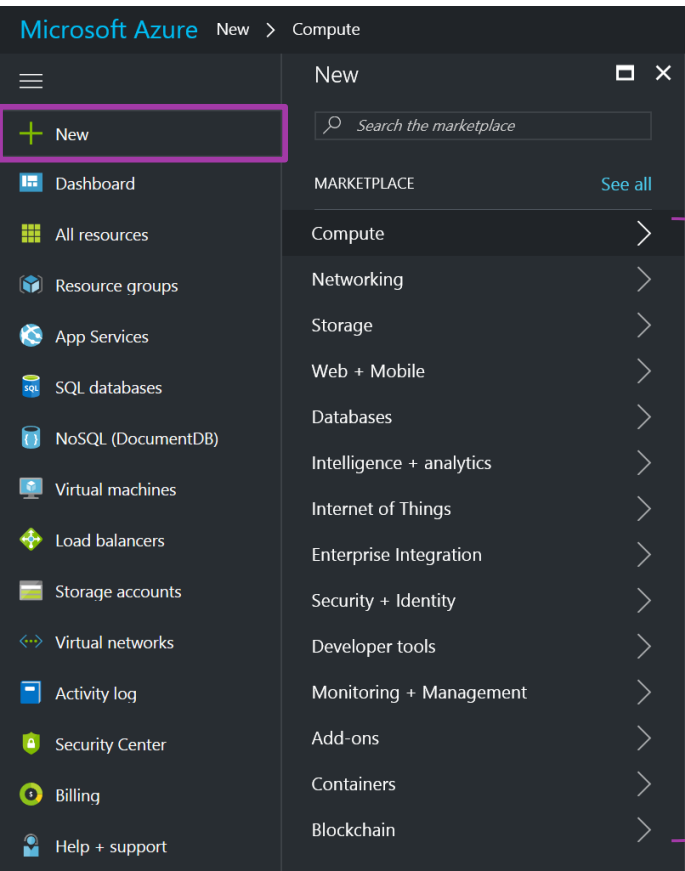
What is a blade?



- ❖ A *blade* is a slide-out pane that displays more information about a selected topic or item

← The "New Resource" blade

How to create a resource

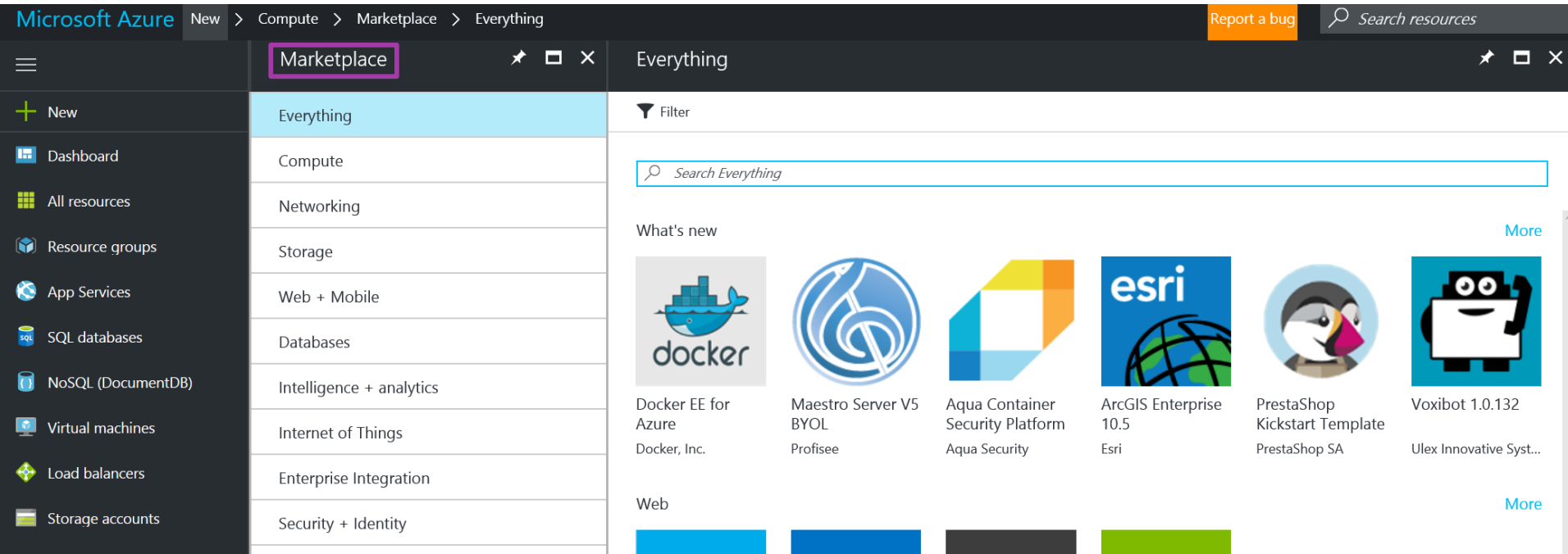


❖ Use the "New Resource" blade to add and configure new resources

Select the resource you want to create from the various categories

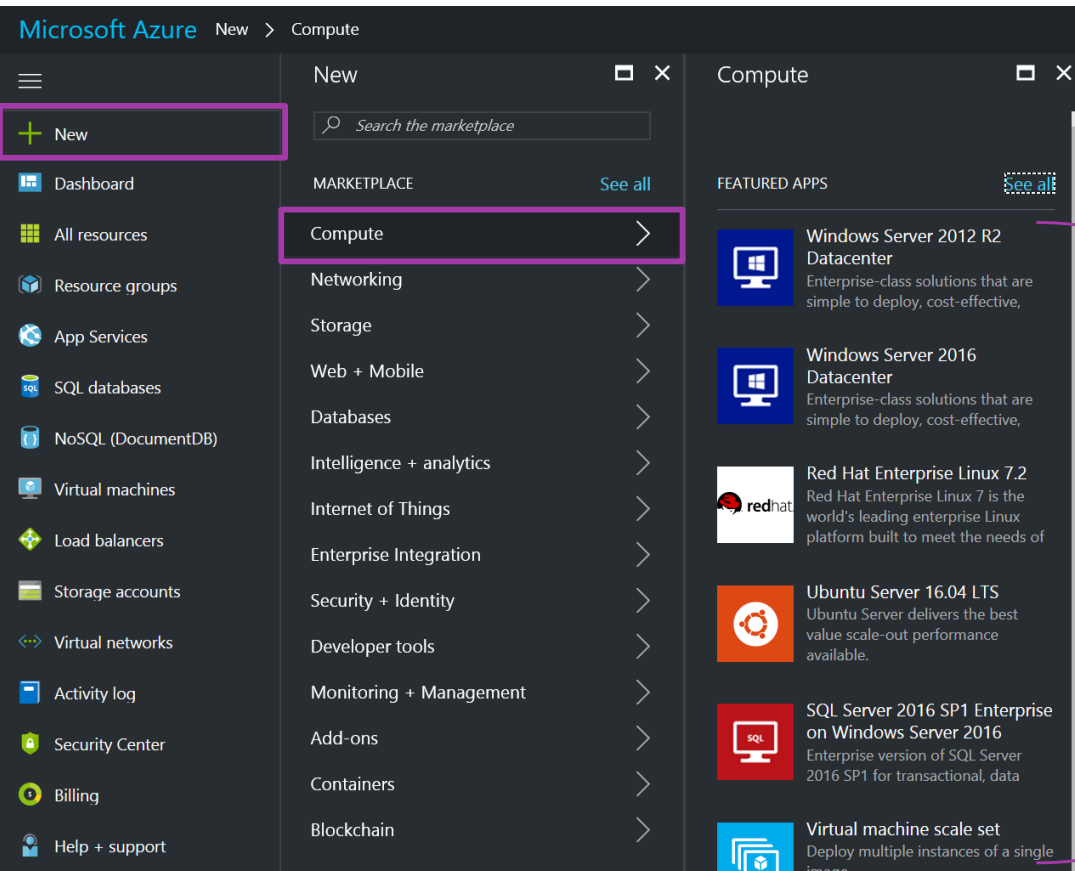
What is the Azure Marketplace?

- ❖ The Azure Marketplace is an online store offering free and paid templates for applications and services such as VMs, APIs, Apps, etc.



The screenshot displays the Microsoft Azure portal's Marketplace section. The top navigation bar includes 'Microsoft Azure', a 'New' button, and a breadcrumb trail: 'Compute > Marketplace > Everything'. On the right of the top bar are links for 'Report a bug' and 'Search resources'. A left-hand sidebar lists various Azure services: New, Dashboard, All resources, Resource groups, App Services, SQL databases, NoSQL (DocumentDB), Virtual machines, Load balancers, and Storage accounts. The central pane is titled 'Marketplace' and shows a list of categories: Everything, Compute, Networking, Storage, Web + Mobile, Databases, Intelligence + analytics, Internet of Things, Enterprise Integration, and Security + Identity. The right-hand pane, titled 'Everything', features a search bar labeled 'Search Everything' and a 'Filter' icon. Below the search bar, a 'What's new' section displays six featured offerings with their logos and names: Docker EE for Azure (by Docker, Inc.), Maestro Server V5 BYOL (by Profisee), Aqua Container Security Platform (by Aqua Security), ArcGIS Enterprise 10.5 (by Esri), PrestaShop Kickstart Template (by PrestaShop SA), and Voxibot 1.0.132 (by Ulex Innovative Syst...). A 'Web' section is partially visible at the bottom.

Using the Marketplace

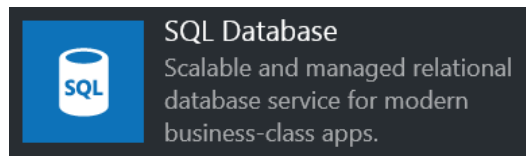


❖ Marketplace templates are integrated into the Portal resource menus

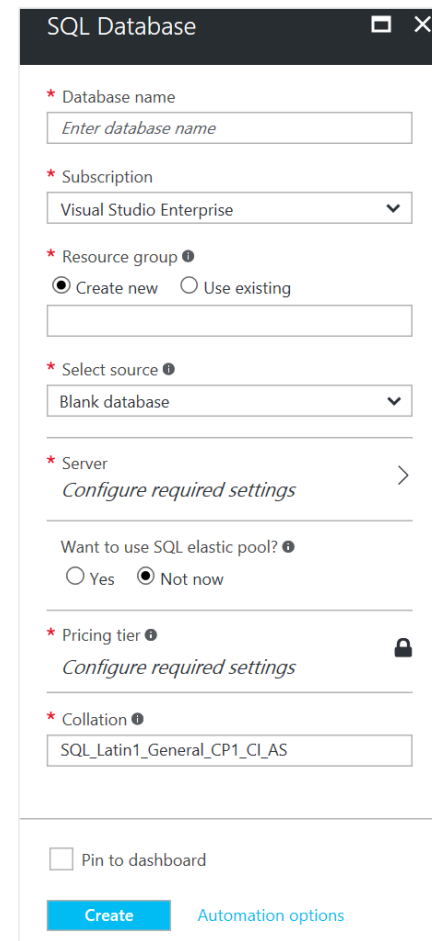
E.g. VM templates

Using a template

- ❖ Each template has a configuration blade to uniquely setup that resource



1. Select a template
2. A configuration blade appears for that resource



The image shows a configuration blade titled 'SQL Database'. It contains the following fields and options:

- * Database name:** A text input field with the placeholder 'Enter database name'.
- * Subscription:** A dropdown menu showing 'Visual Studio Enterprise'.
- * Resource group:** Radio buttons for 'Create new' (selected) and 'Use existing', followed by an empty text input field.
- * Select source:** A dropdown menu showing 'Blank database'.
- * Server:** A section header with a right arrow, followed by the text 'Configure required settings'.
- Want to use SQL elastic pool?:** Radio buttons for 'Yes' and 'Not now' (selected).
- * Pricing tier:** A section header with a right arrow and a lock icon, followed by the text 'Configure required settings'.
- * Collation:** A text input field showing 'SQL_Latin1_General_CP1_CI_AS'.
- Pin to dashboard:** A checkbox that is currently unchecked.
- Create:** A blue button.
- Automation options:** A link in blue text.



Demonstration

Using the Azure Management Portal to setup a resource



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Command line

- ❖ Azure supports a command-line interface (Azure CLI) which can be installed on Linux, macOS, Windows (bash) or Docker

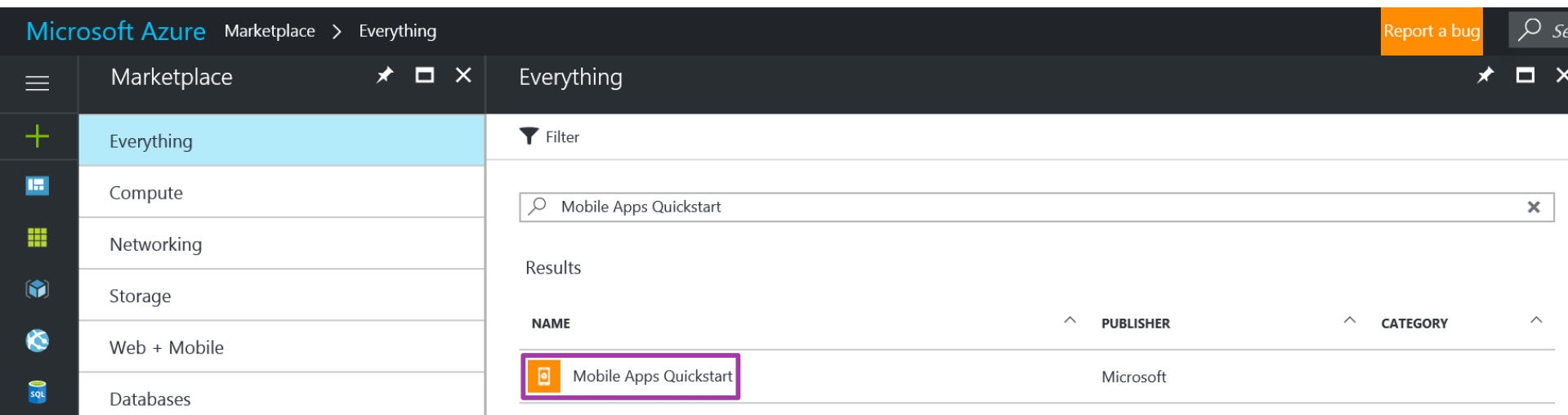
Install → `~ sudo npm install -g azure-cli`

Use →


```
~ azure login
~ azure account list
info:      Executing command account list
data:      Name                Id      Current  State
data:      -----
data:      Visual Studio Enterprise  xxxxx  true     Enabled
info:      account list command OK
```







Mobile Apps Quickstart


- ❖ Azure Marketplace includes **Mobile Apps Quickstart** which creates an example "Todo" mobile app + SQLite database with simplified dashboard





The screenshot shows the Microsoft Azure Marketplace interface. The top navigation bar includes the Microsoft Azure logo, the text 'Marketplace > Everything', a 'Report a bug' button, and a search icon. The left sidebar contains a menu with icons for various services: Compute, Networking, Storage, Web + Mobile, and Databases. The main content area displays the search results for 'Mobile Apps Quickstart'. A search bar at the top of the results section contains the text 'Mobile Apps Quickstart'. Below the search bar, the word 'Results' is displayed. A table of results follows, with columns for NAME, PUBLISHER, and CATEGORY. The first result is 'Mobile Apps Quickstart' by Microsoft, which is highlighted with a purple border.


Microsoft Azure Marketplace > Everything [Report a bug](#) 


Marketplace    Everything   


 Everything


 Compute



 Networking

 Storage


 Web + Mobile

 Databases

 Filter

 Mobile Apps Quickstart 

Results

NAME	PUBLISHER	CATEGORY
 Mobile Apps Quickstart	Microsoft	

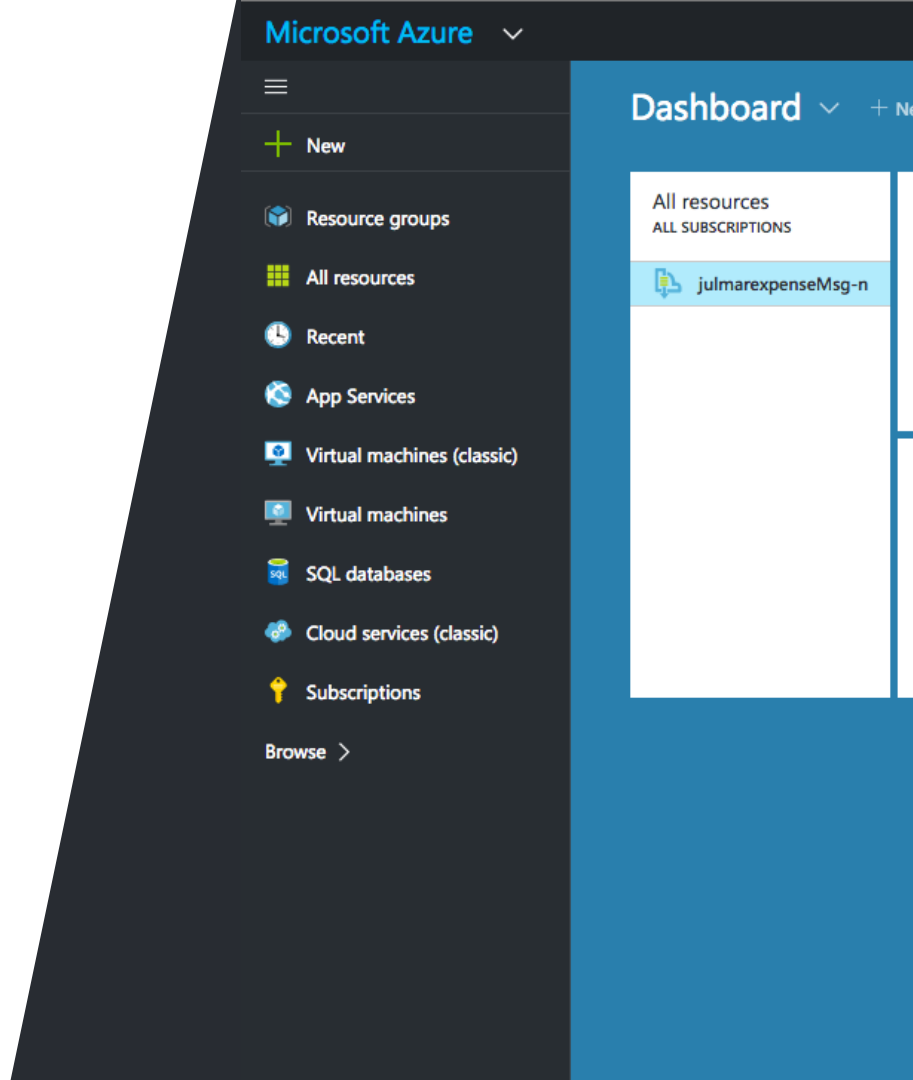
Demonstration

Use the Mobile Apps Quickstart to create a mobile app



Summary

1. Login to the Azure portal
2. Tour the Azure portal
3. Create a Virtual Machine



Next Steps

- ❖ This class has provided a high-level introduction to the services in Microsoft Azure
- ❖ Next, we will dive into each of these service categories and show you how to take advantage of them in your mobile applications!

What's
NEXT

The word 'NEXT' is rendered in a large, bold, dark blue sans-serif font. A thick purple arrow starts at the top of the 'N', goes up and to the right, then turns down and to the right, ending at the top of the 'T'. The word 'What's' is written in a blue, italicized sans-serif font above the 'N'.

Thank You!

Please complete the class survey in your profile:
university.xamarin.com/profile