



Visual Studio **LIVE!** | San Diego  
EXPERT SOLUTIONS FOR .NET DEVELOPERS

# Building Modern Web Apps with Azure

**Eric D. Boyd**  
Founder & CEO  
responsiveX

Level: Introductory-Intermediate

Code Again for the First Time!

Visual Studio 25 YEARS OF CODING INNOVATION

## About Me



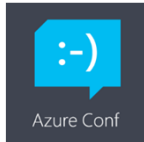
responsiveX

[eric.boyd@responsiveX.com](mailto:eric.boyd@responsiveX.com)

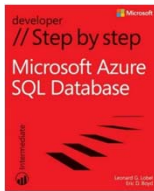


I...

SPEAK AT LOTS OF CONFERENCES



WRITE OCCASIONALLY

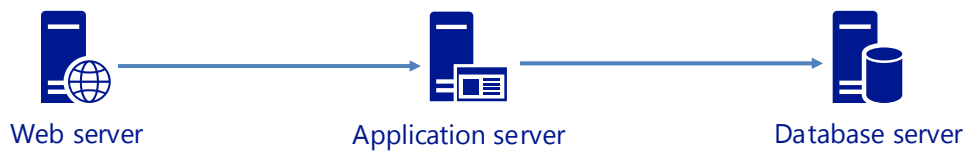


TRY TO BE SOCIAL ON TWITTER

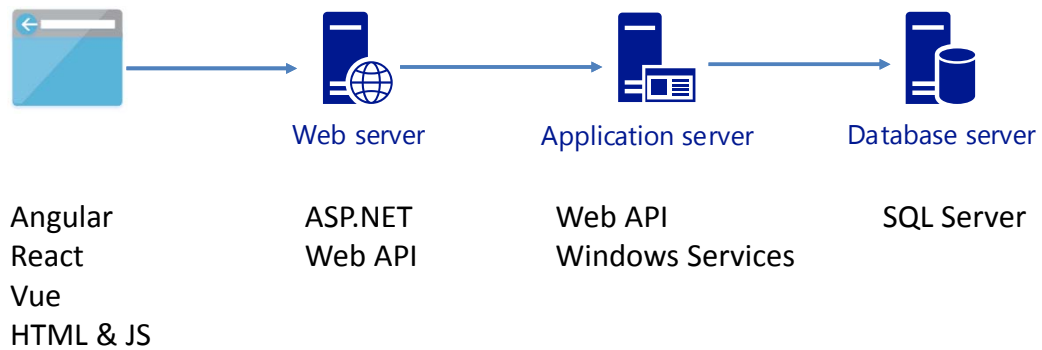
@EricDBoyd



## Typical Application



## Typical Application



Demo

## CONTACT MANAGER



# The Microsoft Cloud

 Office 365

Dynamics 365

Azure

## Breaking down Azure



# Breaking down Azure

## ADVANCED ANALYTICS

Cognitive Services, Machine Learning, Databricks

## INTERNET OF THINGS

IoT Hub, IoT Edge, Sphere

## DATA

Storage, SQL DB, Cosmos DB, Search

## SERVERLESS

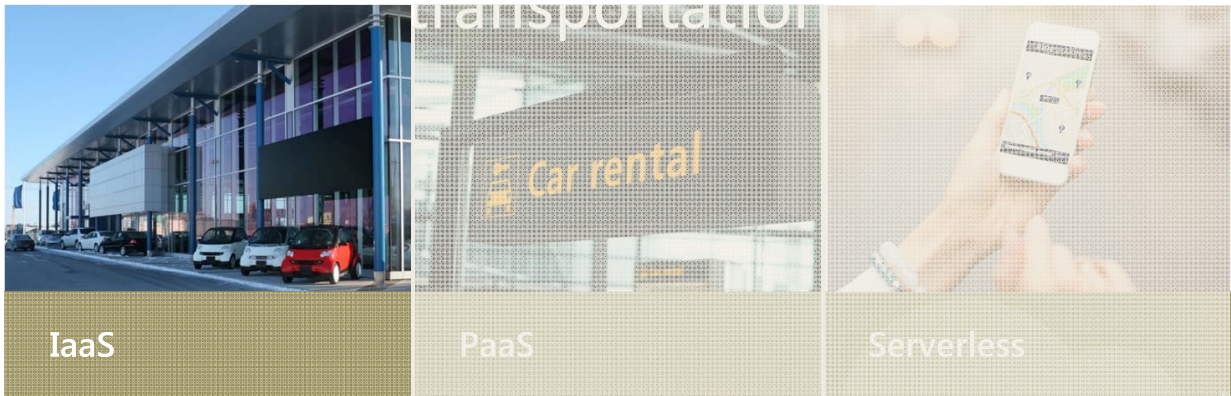
Functions, Logic Apps, Event Grid

## APP PLATFORM

App Service, Service Fabric, Kubernetes Service

## CLOUD INFRASTRUCTURE



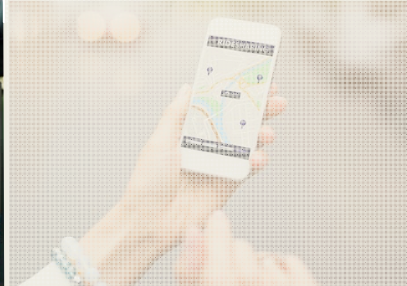
Virtual Machines, Virtual Networks







...you can lease a car and  
take care of maintenance






transportation		
		
IaaS	PaaS	Serverless
...you can lease a car and take care of maintenance	...you can rent a car and pay for having it around even when you are not driving	



transportation		
		
IaaS	PaaS	Serverless
...you can lease a car and take care of maintenance	...you can rent a car and pay for having it around even when you are not driving	...you can use a ride sharing app pay only for transportation





# Azure Virtual Machines



Web server

Application server

Database server

Angular  
React  
Vue  
HTML & JS

ASP.NET  
Web API

Web API  
Windows Services

SQL Server



Demo

## AZURE VIRTUAL MACHINES



# Where Should I Store Data?



Virtual Machine



SQL Database



Storage  
Blobs & Files



Cosmos DB



Redis Cache



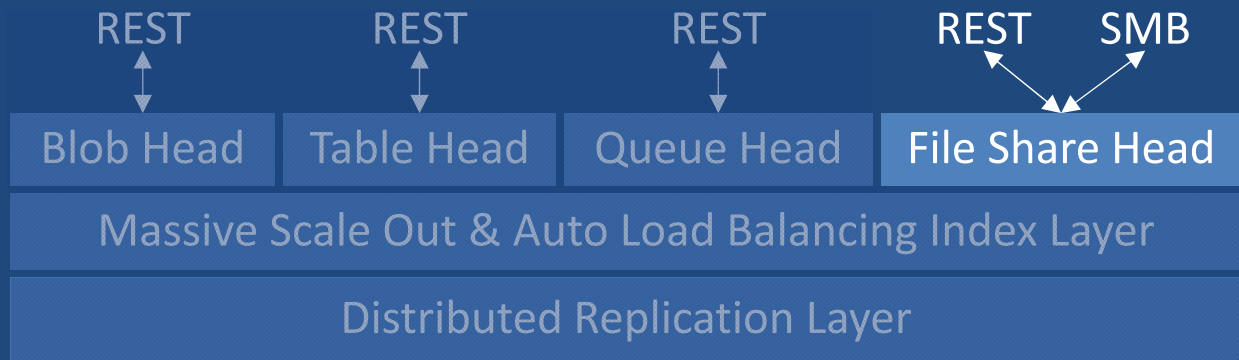
Demo

## AZURE SQL DB





# Azure Storage Architecture



Demo

## AZURE STORAGE

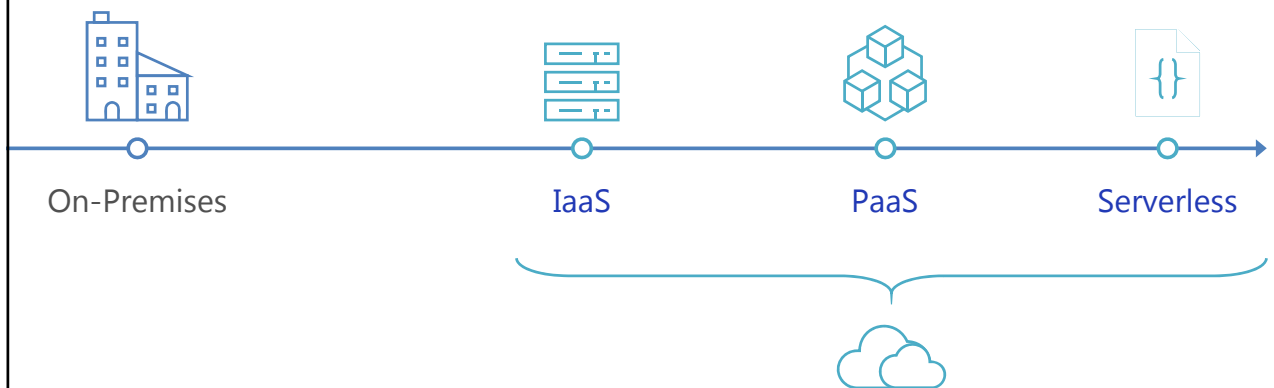


Demo

## AZURE COSMOS DB



## The evolution of application platforms





## Azure Virtual Machines

- Pros
  - Simple to migrate
  - Same model as your data center
  - Outsourced hardware
  - Virtualization and abstraction over specific hardware
- Cons
  - Not a huge value, other than outsourced hardware
  - Still have to patch, still have to manage HA
  - Still have to configure OS and App Servers



## Where Should My App Run?

IaaS



Virtual Machine

PaaS



App Service  
Web App



App Service  
Web Job

IaaS + PaaS



Containers

Serverless  
FaaS



Functions



Demo

## **AZURE APP SERVICE**



Demo

## **AZURE APP SERVICE WEBJOBS**



Demo

# AZURE FUNCTIONS



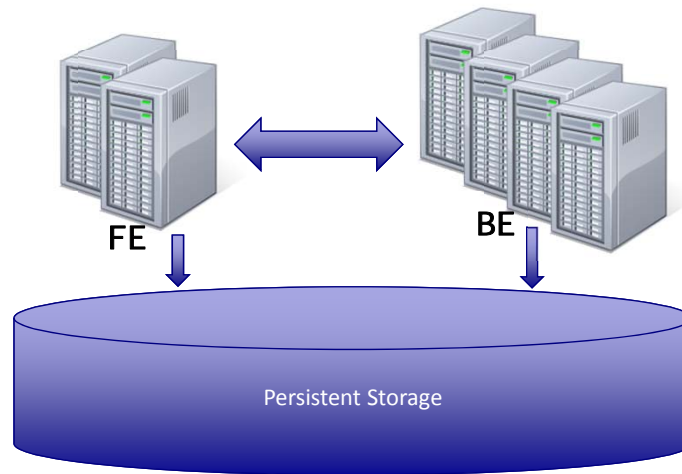
Kubernetes  
Service (AKS)



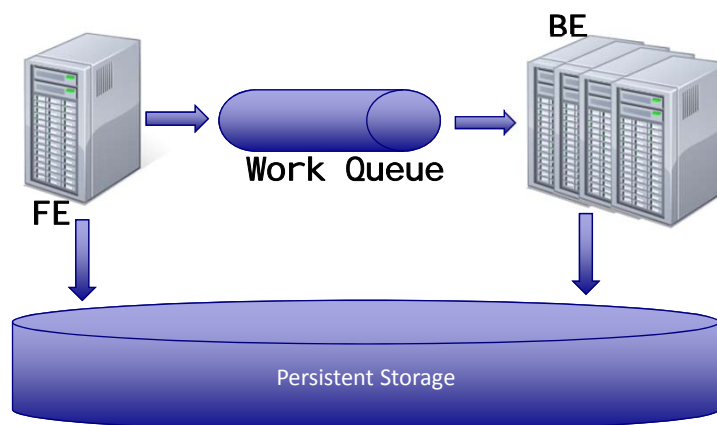
Service Fabric

## Containers in Azure

## Front-End (FE) + Back-End (BE) Model



## Worker-Queue Model



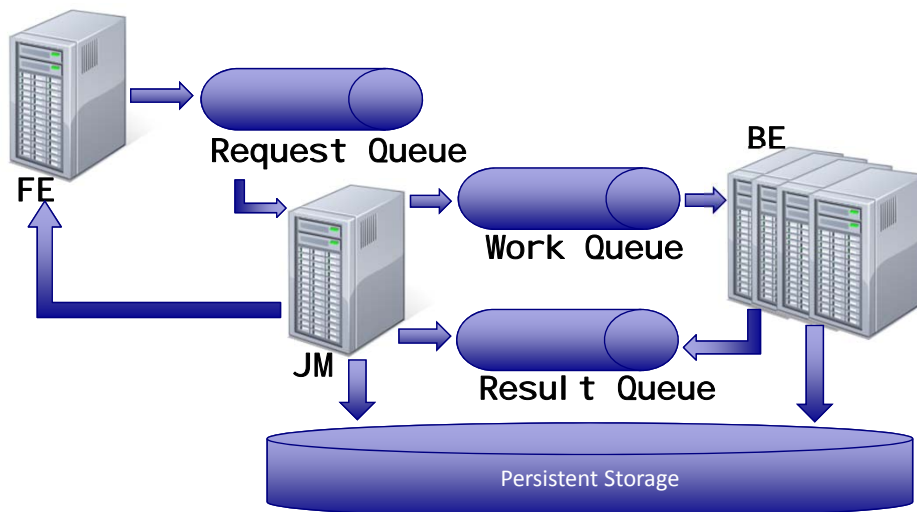


Demo

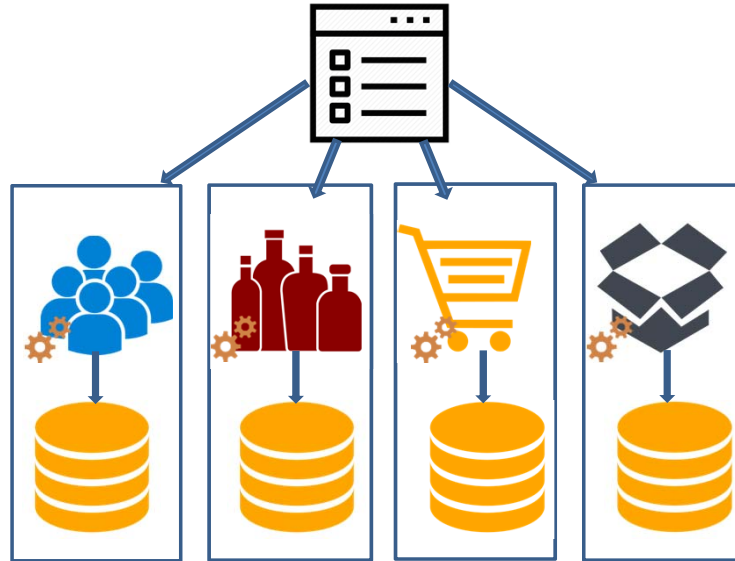
## AZURE QUEUES



### Job Manager-Worker-Queue Model



# Microservices Architecture

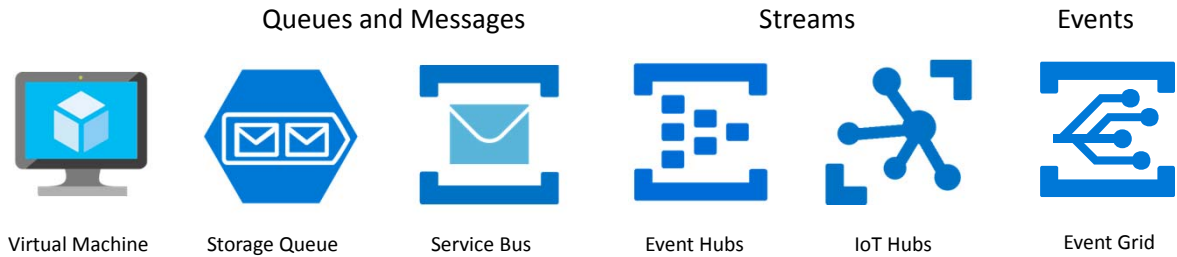


Demo

## AZURE SERVICE BUS



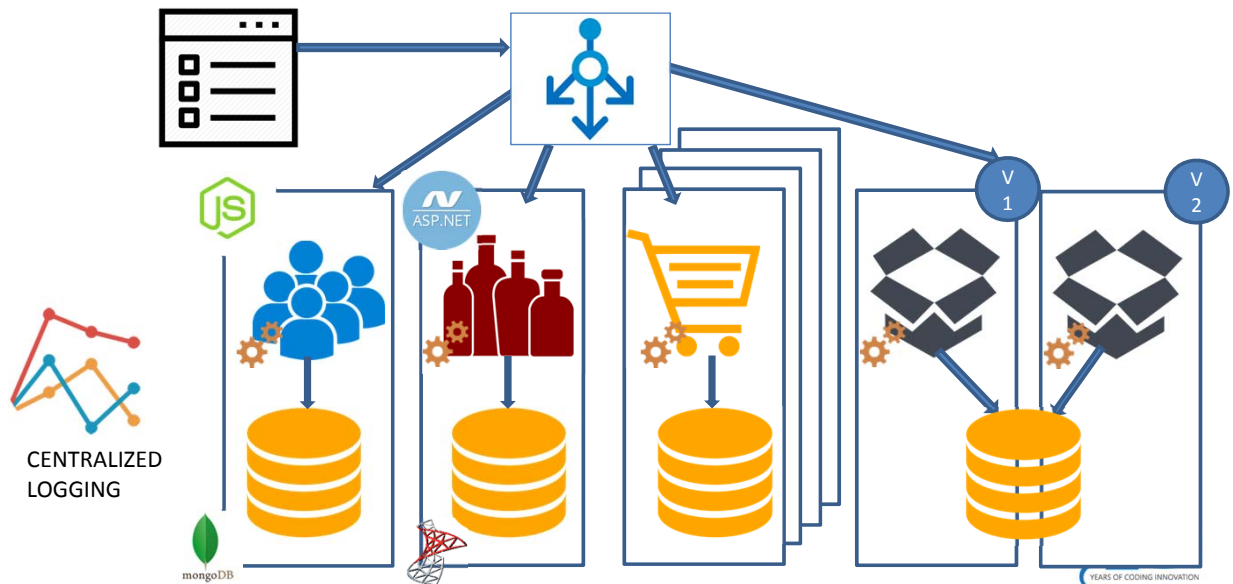
# How Should I Message?



<https://docs.microsoft.com/en-us/azure/event-grid/compare-messaging-services>



# Microservices Architecture



Demo

## AZURE API MANAGEMENT



## Summary

- Take advantage of the massive set of resources at your fingertips. Don't just VM it.
- Design your apps with performance, scalability and maintainability in-mind.
- Use the right tool, for the right job.



# Questions



eric.boyd@responsiveX.com

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