

Scaling and High Availability



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Overview

What you need to think about to be successful

Availability sets

- Azure SLA

Scale Sets

Load balancers

- Internal
- External



Exercise Files

What do you want to learn?

Timothy

Getting Started with Azure Machine Learning

by Jerry Kurata

Machine learning helps predict the weather, route you around traffic jams, and display personalized ads on your web pages. In this course, you will learn how to use Azure machine learning in order to create, deploy, and maintain predictive solutions.

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Table of contents Description **Exercise files** Discussion Recommended

These exercise files are intended to provide you with the assets you need to create a video-based hands-on experience. With the exercise files, you can follow along with the author and re-create the same solution on your computer. We find this to be even more effective than written lab exercises.

[Download exercise files](#)

Course author

Jerry Kurata

Jerry Kurata is a Solutions Architect at InStep Technologies.

Course info

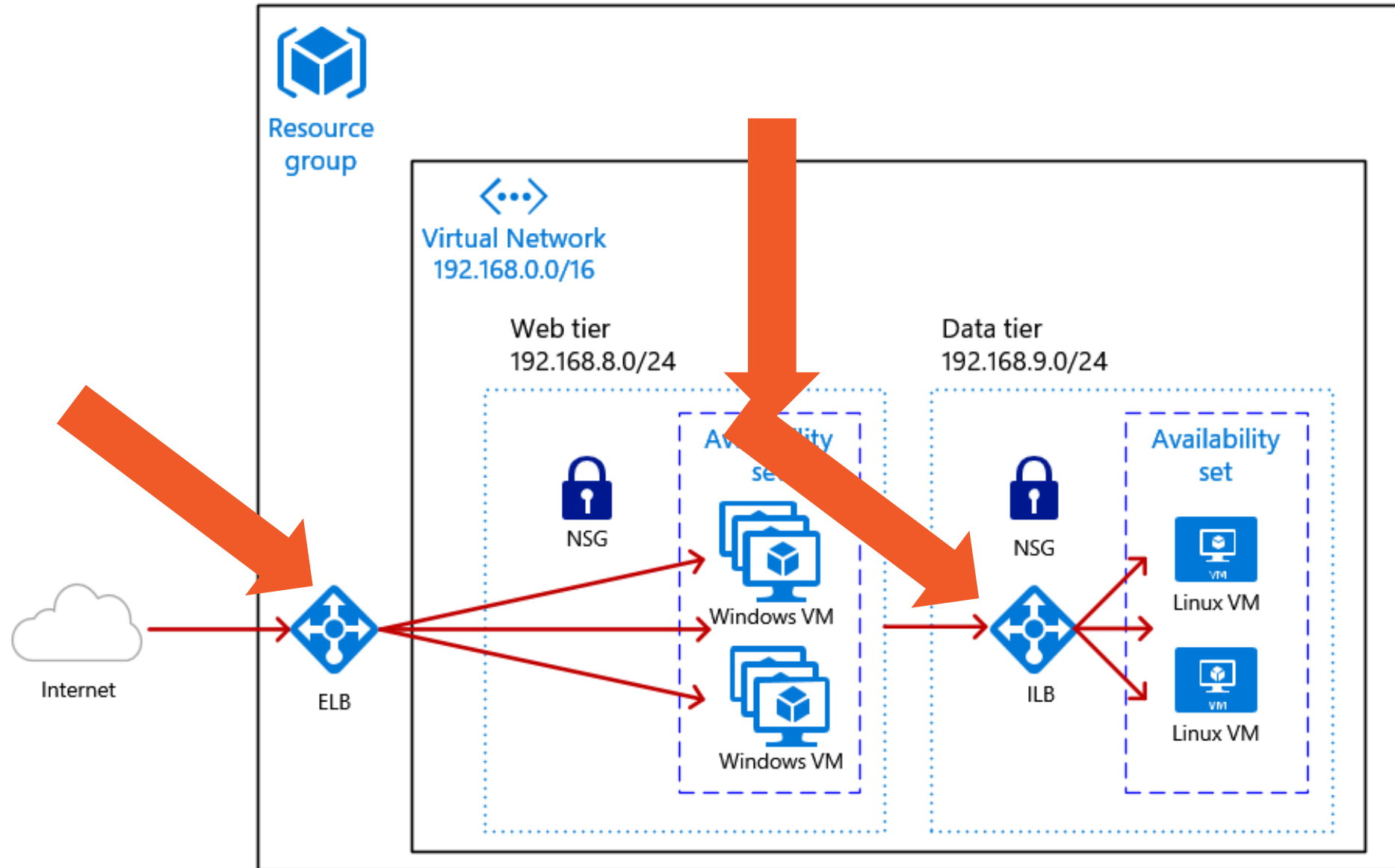
Level	Beginner
Rating	★★★★★
My rating	★★★★★
Duration	2h 14m
Released	2 Nov 2016

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Our Solution



What You Need to Think About to Be Successful



Things to Keep in Mind Regarding Scaling and High Availability

**Group related VMs
into availability
sets**

**Use separate
storage accounts
for each AS**

**Know that AS and
SS both incur
runtime charges**

**Combine a load
balancer with
availability sets**

**Consider Scale
Sets for bigger
compute jobs**

**Premium storage
supports single-
instance SLA**



Availability Sets



Azure Maintenance Events

Planned

The Azure team gives you
advance notification

Unplanned

Rack- or datacenter-level
failures

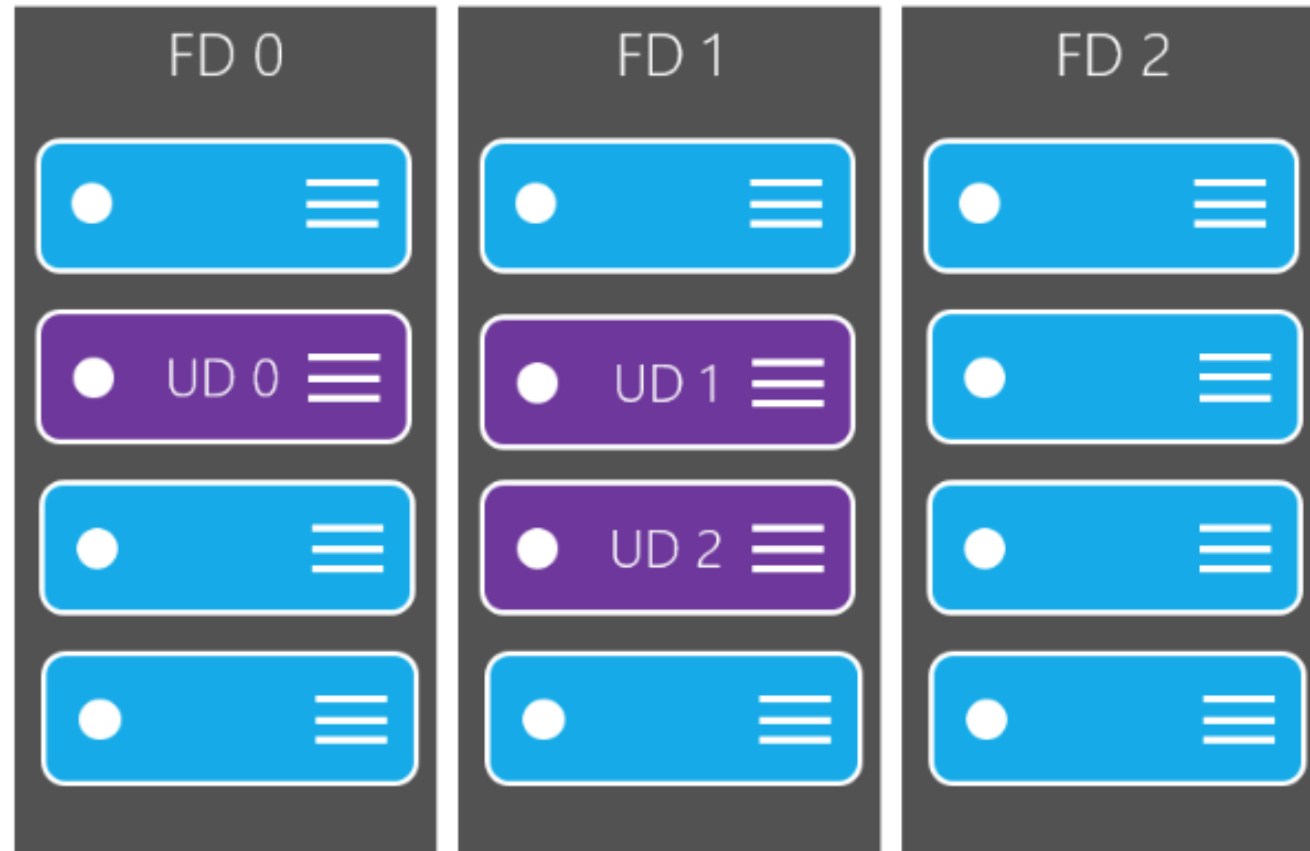


Fault and Update Domains

99.95% SLA

Fault domains are VMs that share the same power source and switch

3 fault domains available



Update domains are VMs that share the same hardware host

5-20 update domains available

Place VMs of each app tier into their own availability sets



Demo



1

Stick to the portal

Create 1 set for web servers

Another set for database servers

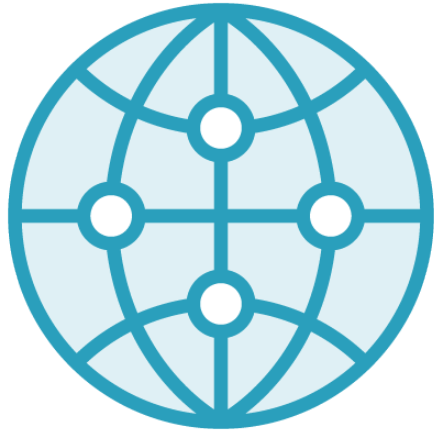
View properties to show FD, UD



Scale Sets

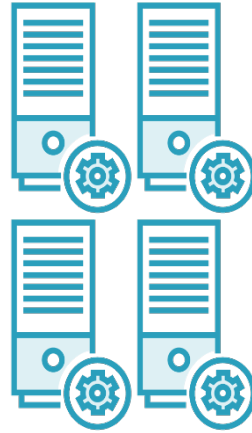


Virtual Machine Scale Sets



**Platform-independent
PaaS**

Azure App Service is
known for elastic
autoscaling



Method for:
Deploying and
managing Azure VMs
as a set

**Scalable compute
platform**



Integrated with:
Azure Load Balancer
Azure Autoscale



Scale Set Use Cases

**Hyperscale
workloads**

**Stateless
web front
ends**

**Container
orchestration**

**Microservices
clusters**



Demo



2

Show portal

Examine instances using Resource Explorer

Show Quickstart Template:

Show visualizer

Show launch in azure button

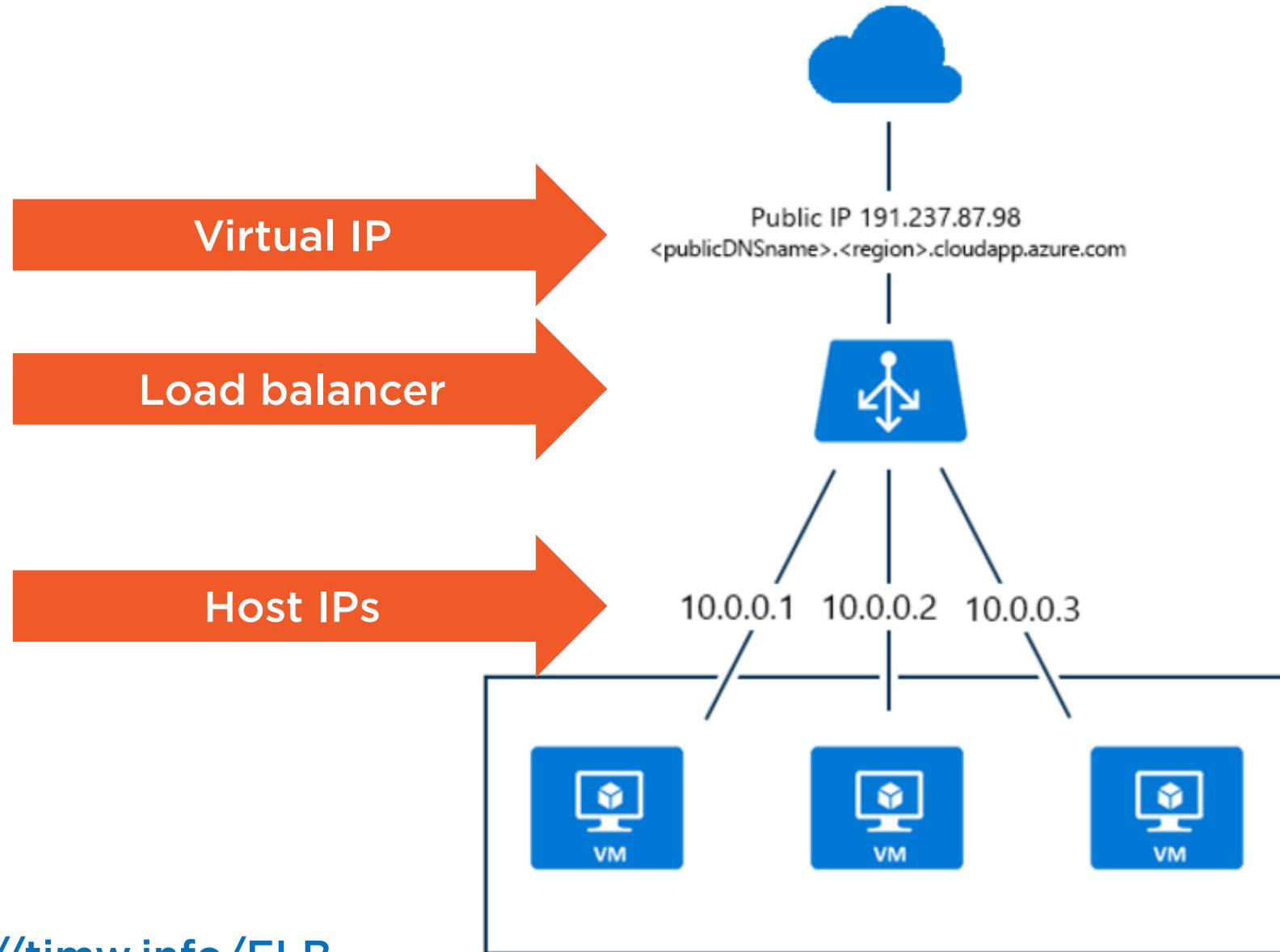
Put jumpbox on same virtual network and show how you can connect to the instances



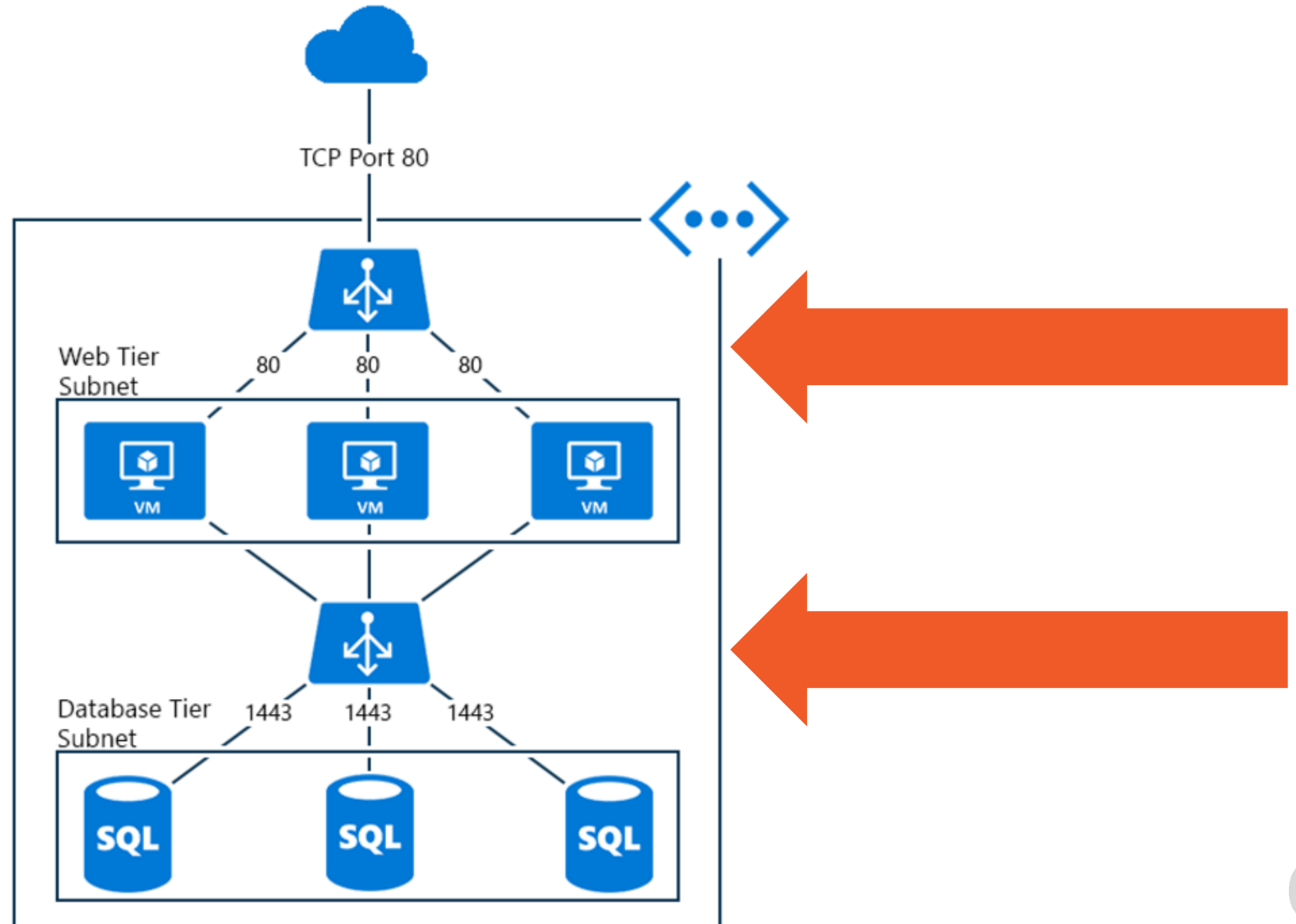
Load Balancers



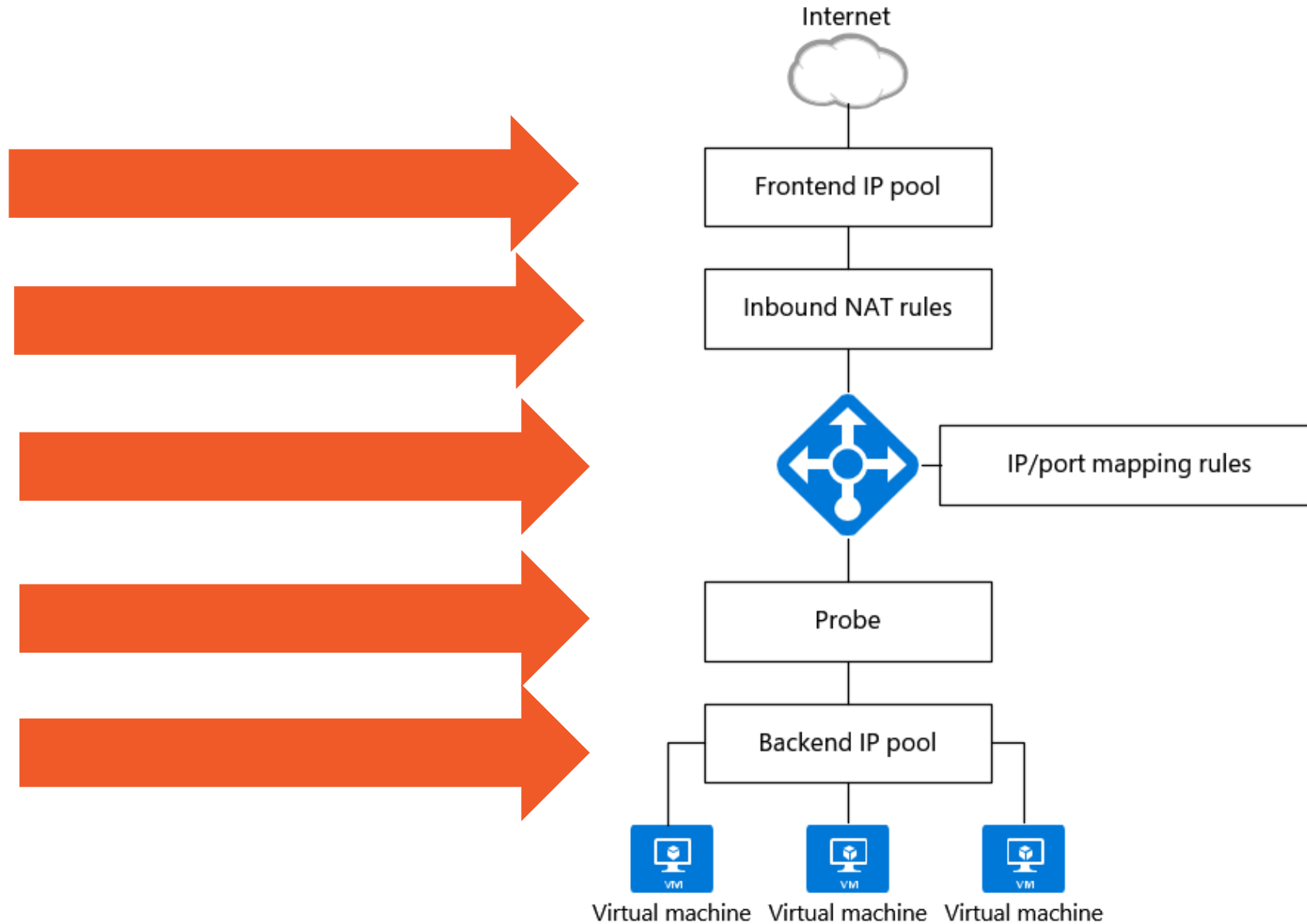
Azure External Load Balancer



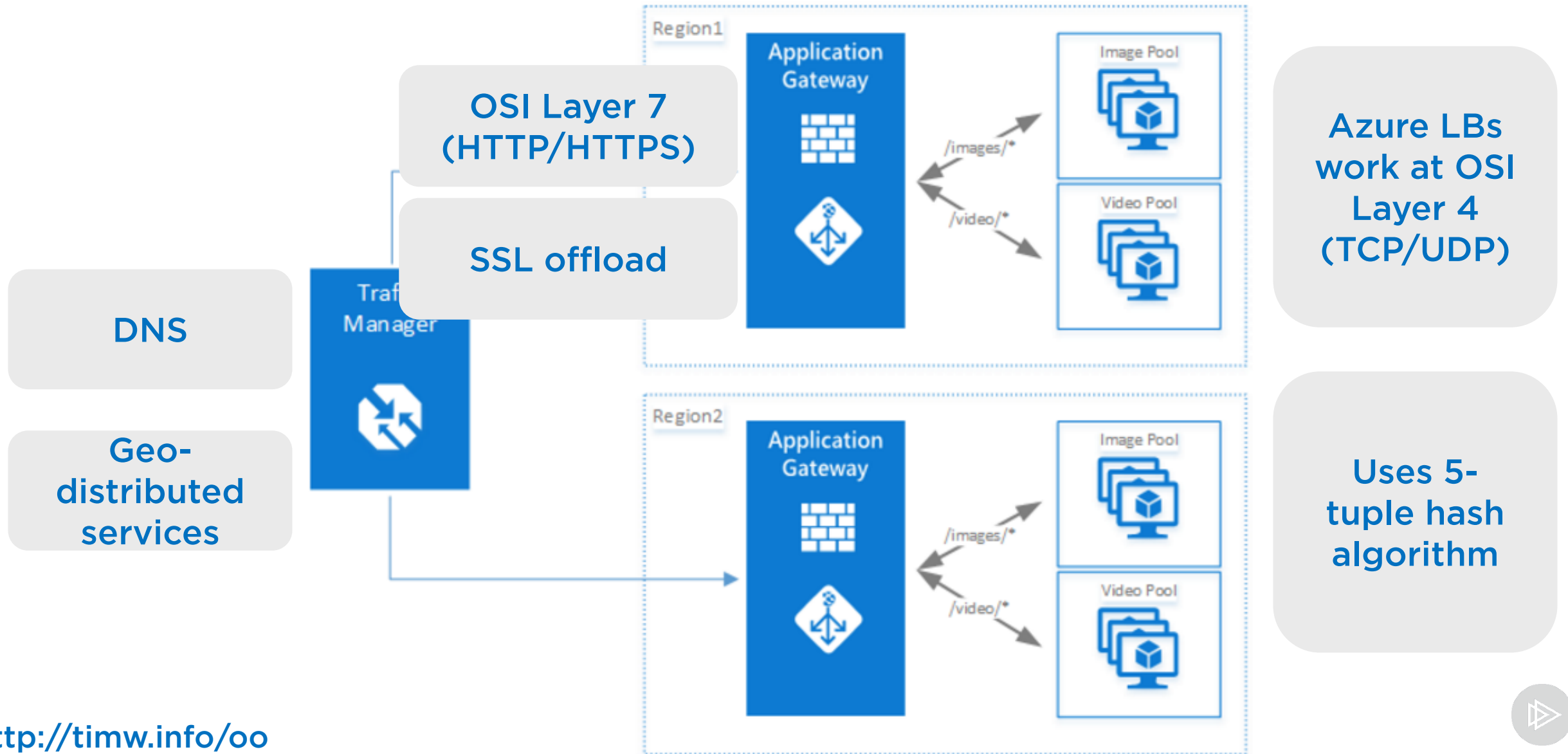
Azure Internal Load Balancer



Azure Load Balancer Resources



Other Load Balancing Options



Demo



3

Deploy external load balancer

- port 80 for VMs
- random port mapping to 3389

Deploy internal load balancer

- port TCP 3306



For Further Learning

Architecting and Implementing Azure Networking
(John Savill)

See the module "Enabling External Access with Load Balancers and Public IPs"

SQL Server on Microsoft Azure IaaS - Optimizations & High Availability (Mike McKeown)

Uses ASM, but the underlying principles are current



O'REILLY®



Infrastructure as Code

MANAGING SERVERS IN THE CLOUD

Kief Morris

Book Reference

Published June 2016

Great jump start into DevOps
and administrative automation
(ARM templates)

See Chapter 7, "Patterns for
Managing Server Templates"



Summary



High availability is a great example of the "shared responsibility model" of cloud computing

Remember that Azure is an unmanaged cloud service provider

- Don't be afraid to reach out for architectural guidance

Next module: **Networking**

