News Update

Topic: Containers in Azure
- What is a container?
- Using containers
- Container registry
- Azure Container Service
- Azure Service Fabric
- Azure App Service

Tool & Tip of the Week

Questions From the Field
News Update

- ‘Secure Transfer Required’ available in Azure Storage Account.
- **Events Hubs Capture** now GA.
- **Azure Site Recover** now supports Ubuntu.
- **Use Snapshot Debugger** to debug AppService in production; yes production!
- **Text Analytics API** now supports analyzing sentiments in 16 languages.
Evolving Architectures for Applications

Lower Administration Costs
Lower Control

Serverless Compute
Microservices
PaaS Services (built on Containers and/or VMs)
Containers
Virtual Machines
Physical Machines

Pay Per Execution or Processing Time
Rapid Deployment & Scaling

Higher Administration Costs
Higher Control

Slower Deployment & Scaling
Cost Per Machine/VM
So what is a container?
Containers vs. VMs

Containers are isolated, but share OS and, where appropriate, bins/libraries
Azure Compute Platform – Open at all layers

- PaaS
  - Serverless
  - Focused Apps
  - Microservices
- IaaS
  - AutoScale
  - AutoPatch
  - Customization

- Rapid Development
- High Control

- Service Fabric Apps
  - Power Apps
  - Azure Functions
  - Web/Mobile
  - App Service

- Media Services
- Stream Analytics

- Cloud Foundry (general, Pivotal)
- Others: OpenShift, Kubernetes, Jelastic, Apprenda

- Azure Batch
  - DC/OS
  - Swarm
  - K8s
  - Azure Container Service

- VM Scale Sets
- Virtual Machines

- Azure Resource Manager

- VM Extensions
Containers in Azure
Virtual Machine with Docker

- Most control, but most manual effort
- Multiple ways to get set up:
  - Docker-machine utility
  - Azure cli with docker VM extension
  - Manually with apt or yum
Azure Container Service

- Easy to set up
- Container-hosting IaaS configured by template with orchestration options
- Supports 3 major Orchestrators: Docker Swarm, DC/OS (Mesos), Kubernetes
- Link: [https://docs.microsoft.com/en-us/azure/container-service/container-service-intro](https://docs.microsoft.com/en-us/azure/container-service/container-service-intro)
Azure Service Fabric

• Pure PaaS Service – management of compute is handled by Azure
• Service Fabric is the orchestrator
• Able to mix Containers with Guest Executables
• Link: https://docs.microsoft.com/en-us/azure/service-fabric/service-fabric-containers-overview
Azure App Service (on Linux)

• Least amount of management required, pure PaaS
• Allows deployment of popular frameworks (NodeJs, etc) in containerized templates.
• Most limited, but least management required
• Link: https://docs.microsoft.com/en-us/azure/app-service-web/app-service-linux-using-custom-docker-image
What about Windows?
Windows Containers in Azure

- Windows 2016 Server VMs:
  - Windows Server Containers
  - Hyper-V Containers
- Azure Container Service: YES
- Azure Service Fabric: YES
- Azure App Service: NO
Beyond Containers?
• Functions
• Azure Service Fabric
• App Service
• Logic Apps
Resources

**Intro to docker and containers:**

Introduction to Docker

**Ways to do Containers in Azure:**

**Docker Machine:**

**Azure VM extension:**

**Azure Container Service:**
https://docs.microsoft.com/en-us/azure/container-service/container-service-intro

**Azure Service Fabric**

**Azure App Service**

**Orchestrators:**
Tool & Tip

• Tool – migAz (https://github.com/Azure/migAz)
  migAz is an open source tool to help with migrating resources from one Azure subscription to another. It is particularly handy when:
  - Migrating resources from the Service model (ASM) to the Resource Manager model (ARM) and you want to test, validate the steps.
  - Migrating resources between subscriptions when you are moving away from a hosting partner/CSP partner to your own subscription/enrollment.

• Tip – with Custom domains for storage accounts you can go from this:
  http://orionbow.blob.core.windows.net/shared/myfile.pdf
  To:

  (Note: To use SSL you have to enable CDN services in order to support the custom domain on storage accounts through https. [article] )
Questions Heard In The Field

• What is the max # of Site to Site VPN tunnels through a VPN Gateway to a VNet? 30 (recent blog post)

• Where can I get audit reports for compliance XXX?
  We maintain a Service Trust Portal where we post (securely) for customers of Azure (and other cloud services) audit materials including our compliance reports, and independent audit reports of Microsoft cloud services, risk assessments, security best practices, and other such materials.

• How does Azure protect against Denial of Service attacks?
  Azure Network Security blog post – talks about our DDOS systems and the layers of security you can establish (see diagram near bottom)

  “…Azure has a built-in DDoS protection system to shield all Microsoft cloud services. Therefore, all Azure public IPs fall under this protection deployed across all Azure datacenters. Our DDoS system uses dynamic threat detection algorithms to prevent common DDoS volumetric attacks (such as UDP floods, SYN-ACK attacks, or reflection attacks). We monitor hundreds of daily mitigated attack attempts and continually expand our protection.”