App Services, App Service Plans and App Service Environments Explained

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News Update

Topic Azure App Services, App Service Plans & App Service Environments

• What is an App Service?
• What is an App Service Plan?
• What is an App Service Environment?
• Logic Apps & Function Apps
• How do I scale up & out an App Service
• Pros & Cons of App Services

Tool & Tip of the Week

Questions From the Field
What is an App Service?
Azure App Service

A **cloud app platform** (PaaS offering) for delivering modern enterprise apps across cloud and mobile devices.
App Service Apps Features & Capabilities

All features and capabilities are shared across all of App Service application (Web, Mobile, and API)

Enterprise Grade Apps
Designed for secure mission-critical applications
- Scheduled Backup
- Azure Active Directory Integration
- Site Resiliency, HA, and DR
- Web Jobs
- Role Base Access Control
- Audit / Compliance
- Enterprise Migration
- Client Certs
- Cache
- IP Restrictions/ SSL
- Web Sockets
- SQL, MySQL, DocDB, & Mongo
- Sticky Sessions
- Authorization/ Authentication
- Hybrid Connections / VPN Support

Fully Managed Platform
Optimized for Availability and Automatic scale
- Automated Deployment
- AutoScale
- Built-in Load Balancing
- WW Datacenter Coverage
- End Point Monitoring & Alerts
- App Gallery
- DR Site Support
- WildCard Support
- Dedicated IP address
- HTTP Compression
- CDN Support for Websites
- Premium WordPress
- App Services Environments

Built for DevOps
Agility through Continuous Deployment
- Remote Debugging w/ Visual Studio
- Site Staging Slots
- Testing in Production
- Continuous Integration/Deployment
- Git, Visual Studio Online and GitHub
- App & Site Diagnostics
- OS & Framework Patching
- Site Extensions Gallery
- NET, PHP, Python, Node, Java
- Framework Installer
- Browser-based editing
- Auto-Healing
- Logging and Auditing
- Admin-Site
- Support Site Extension
Azure App Service

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
Easily build and consume APIs in the cloud

Functions
Serverless event based development accelerator
OBJECTIVES
Scalable e-commerce website to sell flights, both through travel agencies and directly to consumers

TACTICS
Built Azure App Service web app using Umbraco and SQL on Azure
Used VNET to connect data from on-premises

RESULTS
Scalable Website with integration for Flight booking and Check In systems
What is an App Service Plan (ASP)
App Service Concepts – App Service Plan

App Service Plan Defines
  Region & Subscription
  Scale Count
  Instance Count
  SKU
Can run multiple apps in a single ASP
Scale Out or Scale Up an ASP
App Service Concepts - SKU

Pricing structure

Resource structure
What is an App Service Environment (ASE)
App Service Environment (ASE)

Deployment of App Service in your VNet

Private location

Supports very large scale

Isolation and secure network access
<table>
<thead>
<tr>
<th>Web apps</th>
<th>Mobile apps</th>
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<tbody>
<tr>
<td>Web apps that scale with your business</td>
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<td>Logic apps</td>
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<td>Automate business processes across SaaS and on-premises</td>
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<tr>
<td>Functions</td>
<td>Will be coming later</td>
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<tr>
<td>Serverless event based development accelerator</td>
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When to use ASE vs App Service

Do you need....

Network Isolation?
Network level control on inbound or outbound traffic

Very large scale?
Can scale up to 50 instance

More powerful workers?
Can leverage P4 VMs: 8 Cores / 14 GB RAM

More disk space?
Can have up to 500GB of storage
Logic Apps = App Integrations & Workflows

Think IFTT for Business 😊
Develop and deliver powerful integration solutions with ease

Create business processes and workflows visually
Deliver integration capabilities in web, mobile, and API apps
Integrate with your SaaS and enterprise applications
Automate EAI, B2B, and business processes
Connect to on-premises data
LOGIC APPS
The grow-up story for Microsoft Flow
Visual designer based on declarative language
Stock library of SaaS and format connectors
Leverage Azure Functions as custom steps
Invoke with a timer and web hooks
Scalable runtime
Logic Apps Demo

Mobile App Text Recognition
Functions Apps aka “Serverless”

Who need’s a VM or Container anyway?
What is Serverless?

- Abstraction of servers
- Event-driven/instant scale
- Sub-second billing
Benefits of Serverless?

- Reduced DevOps
- Focus on Business Logic
- Reduced Time To Market
Azure Functions

Process events with Serverless code.

Make composing Cloud Apps insanely easy
Develop Functions in C#, Node.js, F#, Python, PHP, Batch and more
Easily schedule event-driven tasks across services
Expose Functions as HTTP API endpoints
Scale Functions based on customer demand
Easily integrate with Logic Apps
Functions Programming Model

• Function as a single unit of work
• Functions are executed per trigger
• Functions have inputs and outputs

```csharp
public static async Task<HttpResponseMessage> Run(HttpRequestMessage req, IQueryable<ImageText> inputTable, CloudBlobContainer inputContainer, TraceWriter log)
{
    // read data from input
    var query = from ImageText in inputTable select ImageText;
    foreach (ImageText imageText in query)
    {
        result.Add(new SimpleImageText()
        {
            Text = imageText.Text, Uri = imageText.Uri + st
        });
        log.Info($"{JsonConvert.SerializeObject()}"");
    }
    // return results
    return req.CreateResponse(HttpStatusCode.OK, JsonConvert.SerializeObject(result));
}
```

```
"bindings": [
    {
        "authLevel": "function",
        "name": "req",
        "type": "httpTrigger",
        "direction": "in"
    },
    {
        "name": "res",
        "type": "http",
        "direction": "out"
    },
    {
        "type": "table",
        "name": "inputTable",
        "tableName": "ImageText",
        "partitionKey": "TryFunctions",
        "connection": "AzureWebJobsStorage",
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]
```
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<th>Service</th>
<th>Trigger</th>
<th>Input</th>
<th>Output</th>
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<tr>
<td>Schedule</td>
<td>Azure Functions</td>
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<tr>
<td>HTTP (REST or webhook)</td>
<td>Azure Functions</td>
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<td>✓</td>
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<td>Blob Storage</td>
<td>Azure Storage</td>
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<td>Events</td>
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<td>Queues</td>
<td>Azure Storage</td>
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<td>Azure DocumentDB</td>
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<tr>
<td>Push Notifications</td>
<td>Azure Notification Hubs</td>
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(* - The http out binding requires an http trigger)
Demo Azure Functions
Scaling App Services

• Scaling Up
  • Performance – more cores & more memory & more instances supported
  • Features, for example:
    • Custom SSL needs Basic
    • Cloning needs Premium or App Service Environment
    • Traffic manager needs Standard
    
    Full Feature Comparison Matrix

• Scaling Out
  • Performance – you can increase the # of instances to spread load
    (Assuming your app can scale to multiple instances)
    
    • Scale by Metric – CPU %, Memory %, Http Queue, Disk Queue, Storage Queue, Service Bus Queue, Custom (App Insights)
    • Scale by Instance Count – often combined with a schedule, i.e. high volume 9 – 5 OR high volume over the weekend, etc...

KEEP IN MIND: Every instances is a multiple of the App Service Plan. Think of an instance as a new assigned VM/container.
The Stack

• App Service Plan (a performance and feature billing choice)
  • Instance (each plan comes with 1 instance initially)
    • App Service (each instance can host multiple App Services, an App Service can be a web app, api app, mobile app, functions, etc.)

• ModernAppsLab Plan App Service Plan (US East 2, Standard Small)
  • Instance (1)
    • Web App - 70532 Samples
    • Web App – Azure Thursdays
    • Web App – MADPTSContactManager
      • Staging Slot - MADPTSContactManager
    • Web App – Orionbow

Live Example
Summarizing App Services Pros & Cons

• Pros
  • No OS maintenance
  • No framework patching & updates
  • No storage or networking planning/maintenance
  • Configurations are uniform across solution
  • Lots of services to leverage – web apps, api apps, functions, logic apps, mobile apps, etc.

• Cons
  • lack of control of the framework & OS version
  • lack of direct host, vm or container control
  • limited side application integration (Sidecar Apps)
  • Not all development stacks supported/implemented
  • Lack of control over networking stack in detail
Tool of the Week & Tip of Week

• Tool = Visual Studio Code [https://code.visualstudio.com/](https://code.visualstudio.com/)
  • It's free!
  • Designed to be the ultimate text editor for developers
  • Understands/formats a ton of languages
  • Has a growing community of plugins (my favorite: vim command support)

  • Build WAF functionality right into your Azure Web App
  • Simple to Deploy
  • YMMV
Questions Heard In The Field

• Can I get direct access to the boot console of a VM?
  • No, We do provide boot diagnostics that will provide screen captures (images) of Windows consoles to a storage account OR if a Linux VM this will capture console output as a log to a storage account

• Why is the Connect button in the Azure Portal for my VM greyed out, why can’t I RDP?
  • In order to use the Connect button a VM must expose a Public IP. If you have only configured your VM with private IPs you will not be able to use that feature. You can still RDP to the machine if you have a network path to it’s private IP. (VPN, etc.)

• What if we need static public IP addresses?
  • You can use reserved public IPs. There is no charge for the first 5 of these in your subscription.
Questions Heard In The Field

• Is there a service like Recovery Vault to backup blobs?
  • No, unlike backup support that is available for VMs and disks, at this point there is no managed service from Azure to backup blobs. With that being said, you can build a custom solution by taking **Snapshot(s)** of a blob.