

# Running a Static Web Site and APIs for the Cheap

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# Hosting something in Azure?

- Virtual Machine
- Kubernetes (AKS)
- Docker / Containers (ACI)
- App Service Plans
- Cloud Services
- Anything else left out there?



# What you really need for a SPA?

- Static file hosting
- Some APIs?



# What you really need for a SPA?

- Static file hosting > **Azure Storage**
- Maybe some APIs? > **Serverless Sauce (Azure Functions)**
- Combination of the two > **Azure Static Web Apps** PREVIEW




DEMO

Let's get some storage!

 Search (Ctrl+)

 Overview

 Activity log

 Access control (IAM)


 Tags


 Diagnose and solve problems

 Events

 Storage Explorer (preview)


### Settings

 Access keys

 Geo-replication

 CORS


 Configuration

 Encryption

 Shared access signature

 Firewalls and virtual networks

 Advanced Threat Protection ...

 **Static website**


 Properties

 Locks

 Save  Discard

Configuring the blob service for static website hosting enables you to host sta

Static website

Index document name 

index.html

Error document path 

404.html



Save



Discard

Configuring the blob service for static website hosting enables you to host static content in your s

Static website

Disabled

Enabled

An Azure Storage container has been created to host your static website.

[\\$web](#)

Primary endpoint ⓘ

<https://myspa.z6.web.core.windows.net/>

Index document name ⓘ

index.html

Error document path ⓘ

404.html

## EXPLORER



Collapse All

Refresh All

Quick Access

- Local & Attached
- Microsoft Azure Sponsorship
- MSDN-MVP

## Storage Accounts

- 
- 
- 
- 
- 
- 

## myspa

## Blob Containers

\$logs

\$web

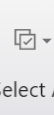
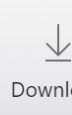
## File Shares

## Queues

## Tables

- 
- 
- 
- 
- 

\$web



Active blobs (default)

\$web

Name	Access Tier	Access Tier Last Modified	Last Modified
css			
about.html	Hot		2/18/2019,
blog-single.html	Hot		2/18/2019,
blog.html	Hot		2/18/2019,
contact.html	Hot		2/18/2019,
index.html	Hot		2/18/2019,
prepros-6.config	Hot		2/18/2019,
project.html	Hot		2/18/2019,
services.html	Hot		2/18/2019,
team.html	Hot		2/18/2019,



**Mosaic**

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# Storage Account Limits

Resource	Default	New Limit
Max capacity for standard General Purpose v2 storage accounts and standard Blob Storage accounts	2 PB	5PB (2.5xincrease)
Max TPS/IOPS for standard General Purpose v2 storage accounts and standard Blob Storage accounts	20K	50K (2.5x increase)
Max ingress for standard General Purpose v2 storage accounts and standard Blob Storage accounts	5-20 Gbps (varies by region/ redundancy type)	50Gbps (up to 10x increase)
Max egress for standard General Purpose v2 storage accounts and standard Blob Storage accounts	50 Gbps	50Gbps (up to 5x increase)



DEMO

What about getting some CDN Magic?

# What about adding a CDN?

The screenshot shows the Microsoft Azure portal interface. On the left is a navigation pane with a search bar and a list of services. The 'Azure CDN' option is highlighted, and a red arrow points from it to the 'New endpoint' form on the right. The right pane shows the 'daronstaticsite | Azure CDN' page. It includes a description of the CDN, a 'Learn more' link, and an 'Endpoints' section. The 'Endpoints' section has a 'Hostname' field with a 'Create new CDN endpoints below.' button and a 'Migrate custom domains to CDN' link. Below this is the 'New endpoint' form with the following fields: 'CDN profile' (radio buttons for 'Create new' and 'Use existing'), 'mycdna' in the profile name field, 'Standard Microsoft' in the 'Pricing tier' field, 'mycdnstaticsite' in the 'CDN endpoint name' field, and 'daronstaticsite.z28.web.core.windows.net (Static website)' in the 'Origin hostname' field. A red arrow points from the 'CDN endpoint name' field to the 'Origin hostname' field. At the bottom of the form is a blue 'Create' button.

Microsoft Azure

Home > staticsites > daronstaticsite

daronstaticsite | Azure CDN

Storage account

Search (Ctrl+/)

Private endpoint connections

Security

Static website

Properties

Locks

**Blob service**

Containers

Custom domain

Data protection

Object replication

**Azure CDN**

Add Azure Search

Lifecycle Management

Blob inventory (preview)

**File service**

File shares

Soft delete

**Table service**

Tables

**Queue service**

Queues

Azure Content Delivery Network

The Azure Content Delivery Network (CDN) is designed to send audio, video, images, and other files faster and more reliably to customers using servers that are closest to the users. This dramatically increases speed and availability, resulting in significant user experience improvements.

[Learn more](#)

Endpoints

Click on your endpoint below to manage CDN and configure different features.

Hostname

Create new CDN endpoints below.

[Migrate custom domains to CDN](#)

New endpoint

CDN profile ⓘ

☒ Create new ☐ Use existing

mycdna

Pricing tier ([View full pricing details](#)) \*

Standard Microsoft

CDN endpoint name \*

mycdnstaticsite

Origin hostname ⓘ

daronstaticsite.z28.web.core.windows.net (Static website)

Create

**Mosaic**

**We Love  
Modern Designs**



# Getting a custom domain

Dashboard > myspa - Azure CDN > mycdnforspa - Custom domains

## mycdnforspa - Custom domains

Endpoint

Search (Ctrl+/)

« + Custom domain

### Custom domains

HOSTNAME
There are no custom domains to display

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Settings

Origin

Custom domains

Compression

Caching rules

# Create DNS Record

## TYPE

CNAME



A CNAME or Canonical Name Record points a subdomain to a different domain name (eg. `www.yourdomain.com` points to `www.anotherdomain.com`). Note that a CNAME can't be used at the root of your domain (eg. `yourdomain.com`) [Learn more](#).

## HOSTNAME

spa.yondem.com



## TARGET NAME

mycdnforspa.azureedge.net

## TTL

Default (15 Minutes)



## Add a custom domain



Create a DNS mapping from your custom hostname to the CDN endpoint hostname with your DNS provider. Then type the custom hostname here for verification. [Learn more](#)

## Endpoint hostname

mycdnforspa.azureedge.net



## \* Custom hostname

spa.yondem.com





Save



Discard

## About This Feature

Custom Domain HTTPS feature enables you to deliver content to your users securely over your own domain. This is done by encrypting the data between the CDN and your users' clients (typically web browsers) via [TLS protocol](#) (which is a successor of the SSL protocol) using a certificate. Using our "CDN managed certificate" capability, you can enable this feature with just a few clicks and have Azure CDN completely take care of certificate management tasks such as its renewal. You can also bring your own certificate (stored in [Azure Key vault](#) ) or even purchase a new certificate through Key vault and have Azure CDN use that certificate for securing the content delivery.

[Learn more](#)

## Configure

Custom domain HTTPS ⓘ

On

Off

\* Certificate management type ⓘ



CDN managed



Use my own certificate

*After the domain name is validated,  
it can take up to 6-8 hours for the custom  
domain HTTPS feature to be activated.*























# Premium for more!









- HTTP to HTTPS redirection
- Analytics
- URL Rewrite
- And some more goodies

## Choose your pricing tier

Browse the available plans and their features

The premium pricing tier adds powerful features, advanced analytics, and more. Price varies based on region and data usage. [Learn more](#)

S3 Standard Microsoft	S1 Standard Verizon	S2 Standard Akamai
 Endpoint HTTPS	 Endpoint HTTPS	 Endpoint HTTPS
 Custom domain HTTPS	 Custom domain HTTPS	 Content Purge
 Content Purge	 Content Purge/Load	 Compression
 Compression	 Compression	 Geo-filtering
 Geo-filtering	 Geo-filtering	 Media optimization
 Core analytics	 Core analytics	 Core analytics
	 Dynamic delivery	 Dynamic delivery
<b>0.081</b> MIN USD PER GB UP TO 10TB	<b>0.081</b> MIN USD PER GB UP TO 10TB	<b>0.081</b> MIN USD PER GB UP TO 10TB

P1 Premium Verizon
 All standard features
 Token authentication
 Performance analytics
 Realtime analytics
 Mobile device rules
 Custom rules engine
 Cache/Header settings
 URL redirect/rewrite
<b>0.158</b> MIN USD PER GB UP TO 10TB





## So far....

- Hosting for our static files
- CDN in front of it
- HTTPS Enabled



# API for the Contact Form

- Will use SendGrid to send e-mail.
- Need an endpoint to pass contact form content.
- Need it to be protected against abuse.



# DEMO

## Setting up the Contact Form

Pricing

All

Operating System

All

Publisher

All

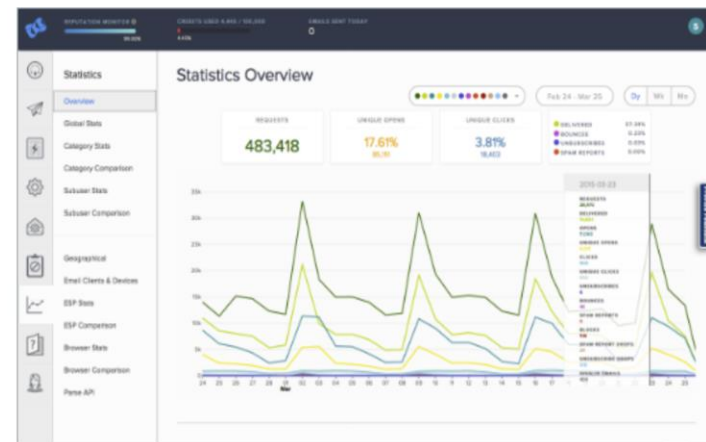
Results

NAME	PUBLISHER	CATEGORY
 SendGrid Email Delivery	SendGrid	Web
 Securely exchange files up to 1 GB	bluehands GmbH & Co.mmu...	Compute
 WorkflowGen Sandbox	Advantys Solutions Ltd	Developer Tools

SendGrid

SendGrid is the world's largest cloud-based service for delivering email that matters. SendGrid's proven platform successfully delivers over 18B transactional and marketing related emails each month for Internet and mobile-based customers like Airbnb, Pandora, Hubspot, Spotify, Uber and FourSquare as well as more traditional enterprises like Walmart, Intuit and Costco.

Azure customers receive up to 25,000 emails per month for free with paid packages starting at only \$9.95 per month. For customers requiring ability to send larger email volumes, SendGrid also offers Silver, Gold, Platinum and Premier packages, which include a dedicated IP as well as additional IP and user management features.

[Save for later](#)

PUBLISHER

SendGrid

Select a software plan

**Free**

25,000 emails per month.

[Create](#)



spamailing

SendGrid Account



Manage



Delete



Change password



Reset Password

Essentials ^



Resource group

SPA-Demo

Status

Running

Location

West Europe

Subscription name

MSDN-MVP

Subscription ID

## Configurations



spamailing

USERNAME

azure\_d0740ee69a96c15974e3c6c0558...




PASSWORD

Your Password

SMTP SERVER

smtp.sendgrid.net



 Daron Yondem ▾

 Dashboard


 Marketing ▾

 Templates ▾

 Stats ▾

 Activity

 Suppressions ▾

 Settings ▾

Account Details

Alert Settings

API Keys

Inbound Parse

IP Access Management

IP Addresses

Mail Settings

Partners

# Hello Daron! He

REQUESTS

0

DELIVERED

N/A  
0

12

13

14

## Important Next Steps

Whitelabels

Templates

# Create API Key

API Key Name •

SPAKey



API Key Permissions • 

## Full Access



Allows the API key to access GET, PATCH, PUT, DELETE, and POST endpoints for all parts of your account, excluding billing.

## Restricted Access



Customize levels of access for all parts of your account, excluding billing.

## Billing Access



Allows the API key to access billing endpoints for the account. (This is especially useful for Enterprise or Partner customers looking for more advanced account management.)

Cancel

Create & View



## Function App

Create



\* App name

Enter a name for your App

.azurewebsites.net

\* Subscription

MSDN-MVP

\* Resource Group



☒ Create new ☐ Use existing

\* OS

Windows Linux (Preview)

\* Hosting Plan



Consumption Plan

\* Location

Central US

\* Runtime Stack

.NET

\* Storage



☒ Create new ☐ Use existing

b0ce



Application Insights


Disabled





Create


Automation options


Azure Functions v2 (.NET Core)


  
Empty


  
Blob trigger


  
Cosmos DB  
Trigger


  
Event Hub  
trigger

  
Http trigger

  
IoT Hub trigger

  
Queue trigger

  
Service Bus

  
Service Bus

Creates an Azure function project with an Http trigger.  
Additional triggers can be added during development

Storage Account (AzureWebJobsStorage)


Storage Emulator


⚠ Some capabilities may require an Azure storage account.


Access rights


Function


Azure Functions v2 (.NET Core)


  
Empty


  
Blob trigger


  
Cosmos DB  
Trigger


  
Event Hub  
trigger

  
Http trigger

  
IoT Hub trigger

  
Queue trigger

  
Service Bus

  
Service Bus

Creates an Azure function project with an Http trigger.  
Additional triggers can be added during development

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Storage Emulator

⚠ Some capabilities may require an Azure storage account.

Access rights

Function

Browse

Installed

Updates

Microsoft.Azure.WebJobs.Extensions.SendGrid



Include prerelease



**Microsoft.Azure.WebJobs.Extensions.SendGrid**  by Microsoft, **115K** downloads

v3.0.0

This package contains SendGrid binding extensions.



# A round of cost estimation

- 7.5MB Site Storage  $\approx$  Free = 0.000006328125 cents
- 50KB/Page > 500.000 Page Views > 24GB Bandwidth = \$0.48
- SendGrid 25.000 E-Mails / Month = Free
- 25.000 E-Mail Function Execution for 1s each = Free



# Homework for you!

- What if someone abused our mailing endpoint?
- Use Azure API Management Consumption Plan for Request Throttling!



# Resources

- **Storage Account Limits:** <https://drn.fyi/2NbC7Um>
- **Increasing Storage Account Limits:** <https://drn.fyi/2NdO8Zp>
- **Custom Domain Mapping for CDN:** <https://drn.fyi/2GQ1D0c>
- **Advanced request throttling with Azure API Management:** <https://drn.fyi/2Xbphdr>

# Thanks

<http://daron.me> | [@daronyondem](#)

**Download slides here;**

<http://daron.me/decks>