



Deploy a Function App without a headache – access control mechanisms and usage examples

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00
01
02
03
04
05
06
07



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- 00 Intro
- 01 The challenge: securing Function Apps without complexity
- 02 Access control in Azure Functions: what are the options
- 03 Function keys: when and how to use them
- 04 Firewall: restricting access with network rules
- 05 Easy Auth: simplifying authentication with Entra ID
- 06 Demo: implementing access control in action
- 07 Bonus insights: the reality of serverless – how serverless is my function?

The challenge: securing Function Apps without complexity

↳ APIM

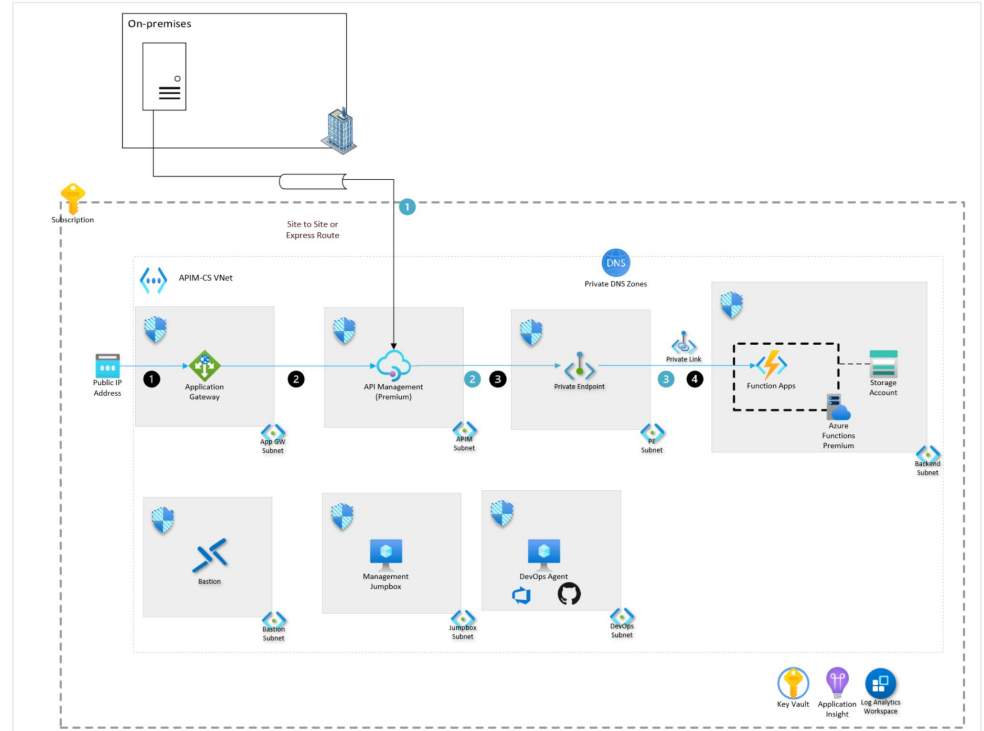
↳ App Gateway

↳ Private endpoint

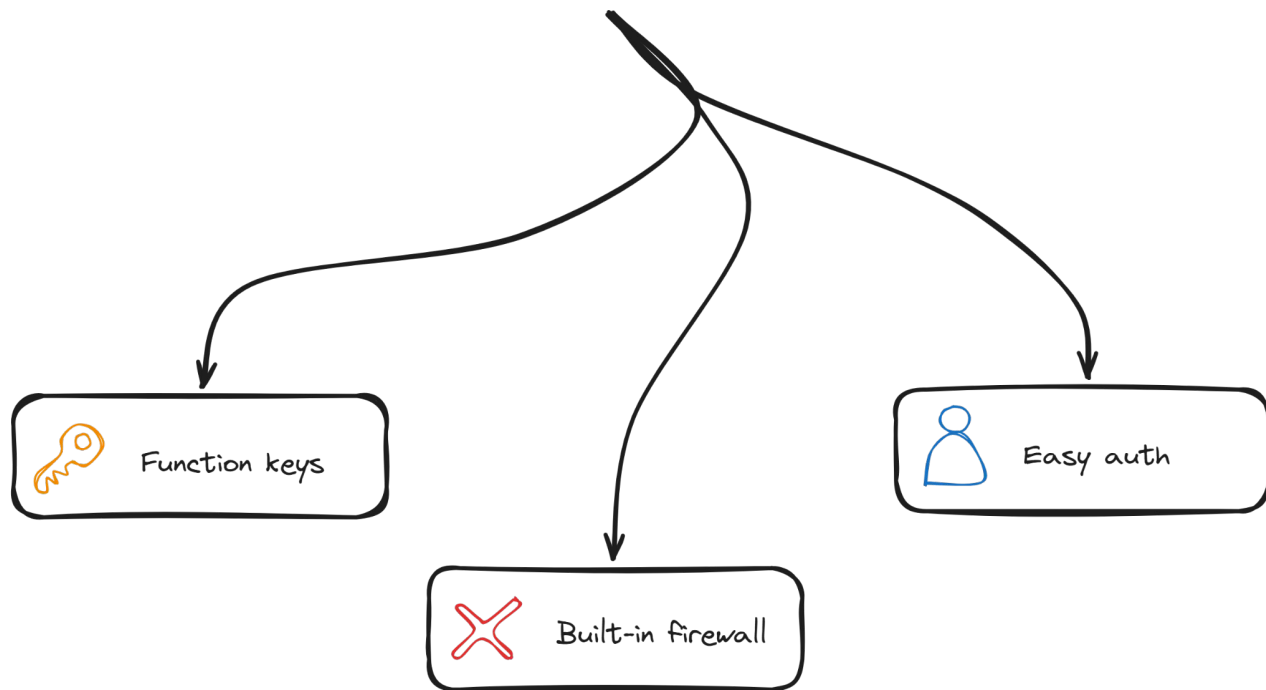
↳ VNet integration

↳ ASE

↳ etc., etc...



Access control in Azure Functions: what are the options





Function keys: when and how to use them

function.json file

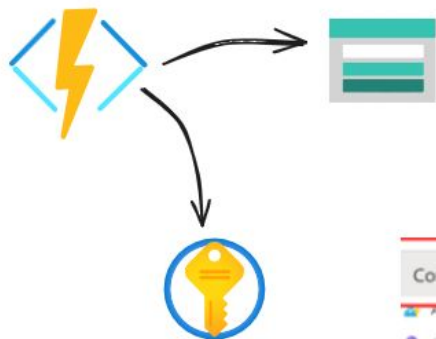
```
{
  "bindings": [
    {
      "authLevel": "function",
      "type": "httpTrigger",
      "direction": "in",
      "name": "Request",
      "methods": [
        "post"
      ]
    },
    {
      "type": "http",
      "direction": "out",
      "name": "Response"
    }
  ]
}
```

anonymous
function
admin
system
user

key type	key name
function	default (or user defined)
host	default (or user defined)
master	__master
system	depends on the extension

Function keys: when and how to use them

Where are my keys stored???



Configuration

- Authentication
- Application Insights
- Identity
- Backups
- Custom domains
- Certificates
- Networking
- Scale up (App S
- Scale out
- Push
- Properties

Configuration settings table:

Name	Value
APPINSIGHTS_INSTRUMENTATIONKEY	Hidden value. Click to show value
APPLICATIONINSIGHTS_CONNECTION_STRING	Hidden value. Click to show value
AzureWebJobsSecretStorageKeyVaultUri	https://keyvaultkeyskv.vault.azure.net/
AzureWebJobsSecretStorageSas	Hidden value. Click to show value
AzureWebJobsSecretStorageType	keyvault
AzureWebJobsStorage	Hidden value. Click to show value
FUNCTIONS_EXTENSION_VERSION	Hidden value. Click to show value
FUNCTIONS_WORKER_RUNTIME	Hidden value. Click to show value



+ managed identity



Firewall: restricting access with network rules

Microsoft Azure

Search resources, services, and docs (G+)

Home > fn-bdAug2025-gwc-dev | Networking >

Access Restrictions

Save Refresh

App access

Public access is applied to both main site and advanced tool site. Deny public network access will block all incoming traffic except that comes from private endpoints. [Learn more](#)

Public network access ☐ Enabled from all networks (This will clear all current access restrictions)
☐ Enabled from select virtual networks and IP addresses
☐ Disabled

Source settings

Type

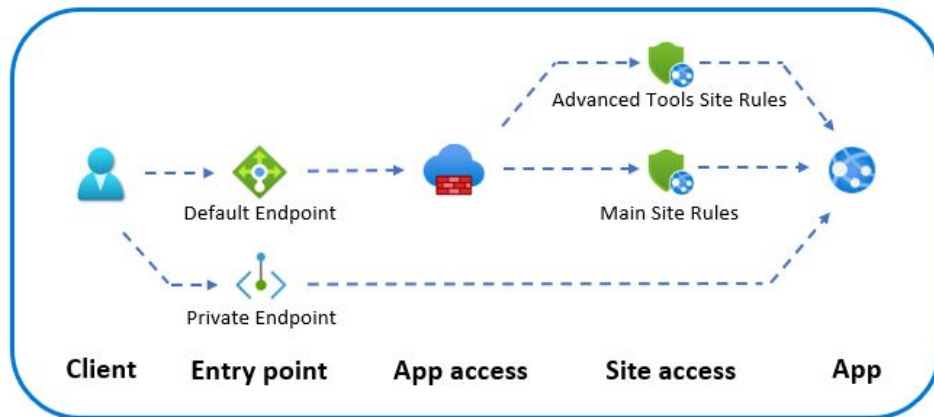
IPv4

IPv4

IPv6

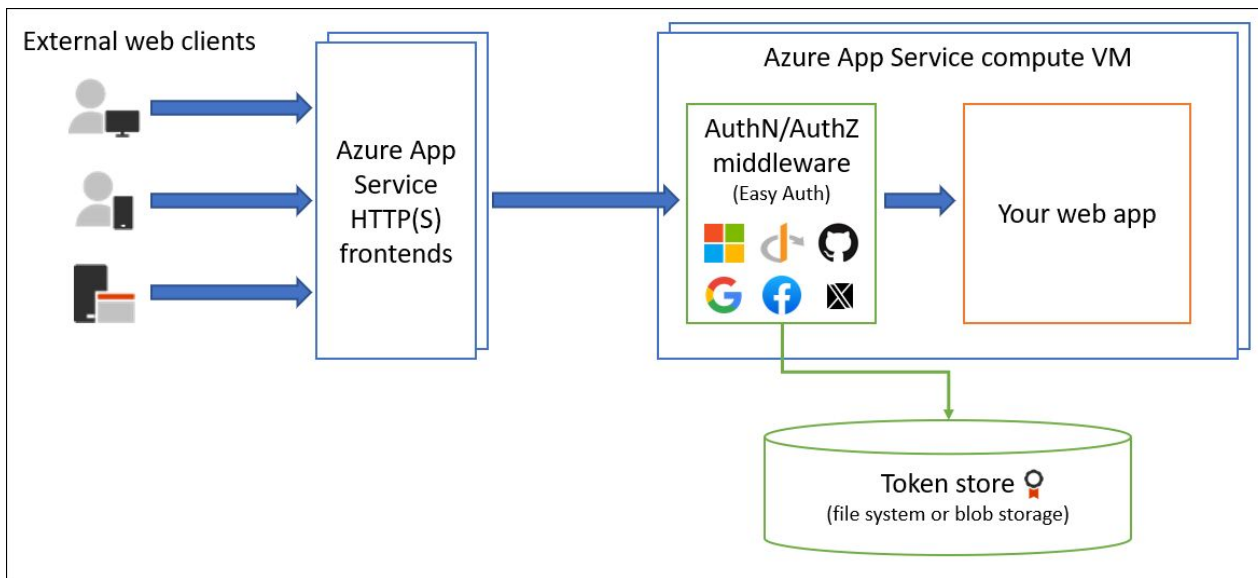
Virtual Network

Service Tag

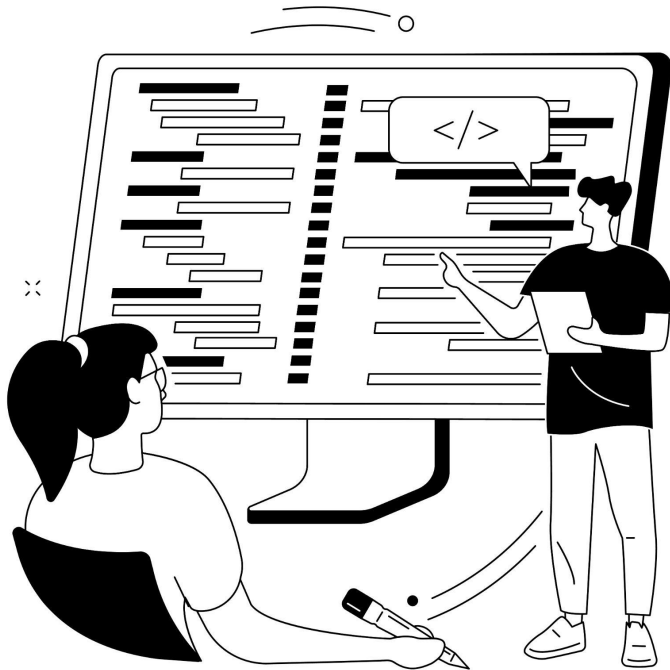




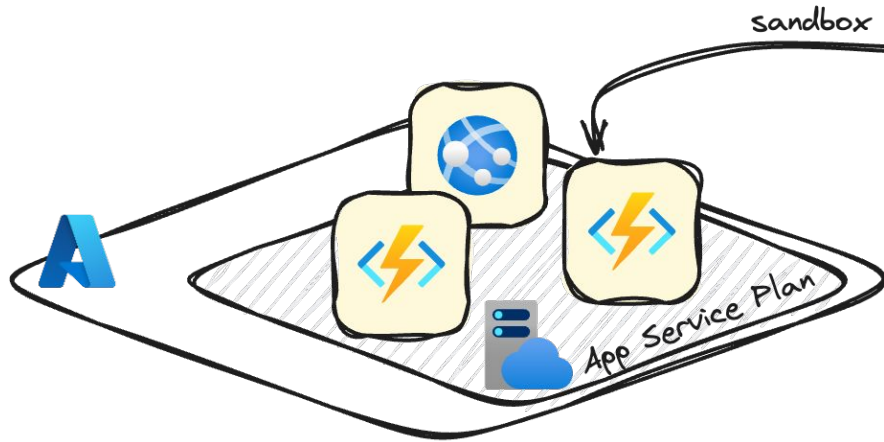
Easy Auth: simplifying authentication with Entra ID



Demo: implementing access control in action



The reality of serverless – how serverless is my function (and how much should I care?)



There is no 'serverless'
it's just someone else's fully managed
execution environment that I only pay a fraction
of a cent for whenever my function is run



Resources

Reference architecture (Azure Architecture Center):

<https://learn.microsoft.com/en-us/azure/architecture/example-scenario/integration/app-gateway-internal-api-management-function>

'User' auth type:

<https://github.com/Azure/azure-functions-host/issues/3857#issuecomment-460741067>

Decrypting Azure Function AppKeys:

<https://www.netspi.com/blog/technical-blog/cloud-pentesting/what-the-function-decrypting-azure-function-app-keys/>

Privilege Escalation via storage accounts:

<https://rogierdijkman.medium.com/privilege-escalation-via-storage-accounts-bca24373cc2e>

Secrets in key vault:

<https://dev.to/massimobonanni/azure-functions-tips-how-to-store-the-functions-app-keys-into-keyvault-4nij>

Azure App Service access restrictions:

<https://learn.microsoft.com/en-us/azure/app-service/overview-access-restrictions>

Work with user identities in Azure App Service authentication:

<https://learn.microsoft.com/en-us/azure/app-service/configure-authentication-user-identities>

Use your Azure Function securely:

<https://nicodecleyre.com/2023/06/30/use-your-azure-function-securely/>

Azure Web App Sandbox:

<https://github.com/projectkudu/kudu/wiki/azure-web-app-sandbox>



questionnaire

