



Feature Flags con Microsoft Feature Management





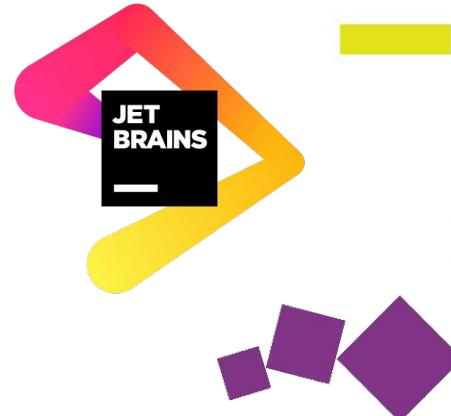
UNIVERSITÀ DEGLI STUDI DI PARMA



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a applica

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malvisi
COMMUNICATION



Sponsor & Org

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IT'S EASY WITH US

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iSolutions
SOFTWARE ENGINEERING

STEVE
MARTIN

CHEVY
CHASE

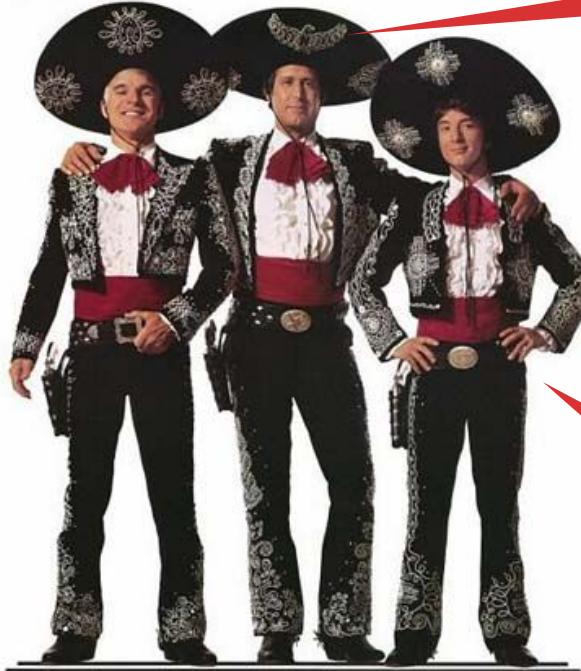
MARTIN
SHORT

¡THREE AMIGOS!

PM

DEV

DEVOP



An L.A. FILMS/LORNE MICHAELS Production A LANDIS/FOLSEY Film ¡THREE AMIGOS!
ALFONSO ARAU TONY PLANA PATRICE MARTINEZ Songs by RANDY NEWMAN Score by ELMER BERNSTEIN
Executive Producer STEVE MARTIN Written by STEVE MARTIN • LORNE MICHAELS • RANDY NEWMAN
Produced by LORNE MICHAELS and GEORGE FOLSEY, JR. Directed by JOHN LANDIS

PG-13 / PARENTAL ADVISORY: LEWD NUDITY / LANGUAGE / VIOLENCE / DRUG USE
SEE THE WHOLE FILM PREVIOUSLY ON HOME BOX OFFICE AND NOW ON DIRECTV
ON ORION HOME BOX OFFICE An Association With HOME BOX OFFICE

abcbuddy@ubuntu: ~/git-demo

File Edit View Search Terminal Help

```
abcbuddy@ubuntu:~$ mkdir git-demo  
abcbuddy@ubuntu:~$ cd git-demo  
abcbuddy@ubuntu:~/git-demo$ git init
```

Initialized empty Git repository in /home/abcbuddy/git-demo/.git/

```
abcbuddy@ubuntu:~/git-demo$ dir
```

```
abcbuddy@ubuntu:~/git-demo$ git add .
```

```
abcbuddy@ubuntu:~/git-demo$ git commit -m "First Commit"
```

On branch master

Initial commit

nothing to commit



Architetture

Tecnologie

Linguaggi

Analisi

Frameworks

Documentazione



Bugfix

Tecnologie

Linguaggi

Documentazione

Cambio Requisiti

Analisi

Architetture

Frameworks

Pensavamo che

Non vali

Cambio di requisiti!

Bugfix

Tecnologie

Linguaggi

Bugfix! Documentazione

Cambio Requisiti

Analisi



Architetture

E' lento!

Frameworks

Pensavamo che

Non va!

Non va!

Mergiamo?





Graph

Short

Merg
Merg
Merg
re#27
re#27
origin
re #2
Merg
Revel
re #2
re #2
Squa
updat
adde
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Merg
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mergi
mergi
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Merg
Mergi
comm
adde
clean
Squa
Squa
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Merg







Grazie per la foto a Roberto Graziali



Feature Flag - Definizione

“

A technique that allow the **modification** of a **deployed application's behaviour**,
without changing code or **deploy** a **new version** of the application

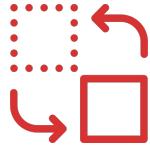
”



Feature Flag - Conosciuti anche con il nome di



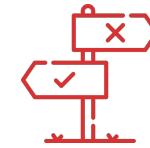
Feature
Toggles



Feature
Switches



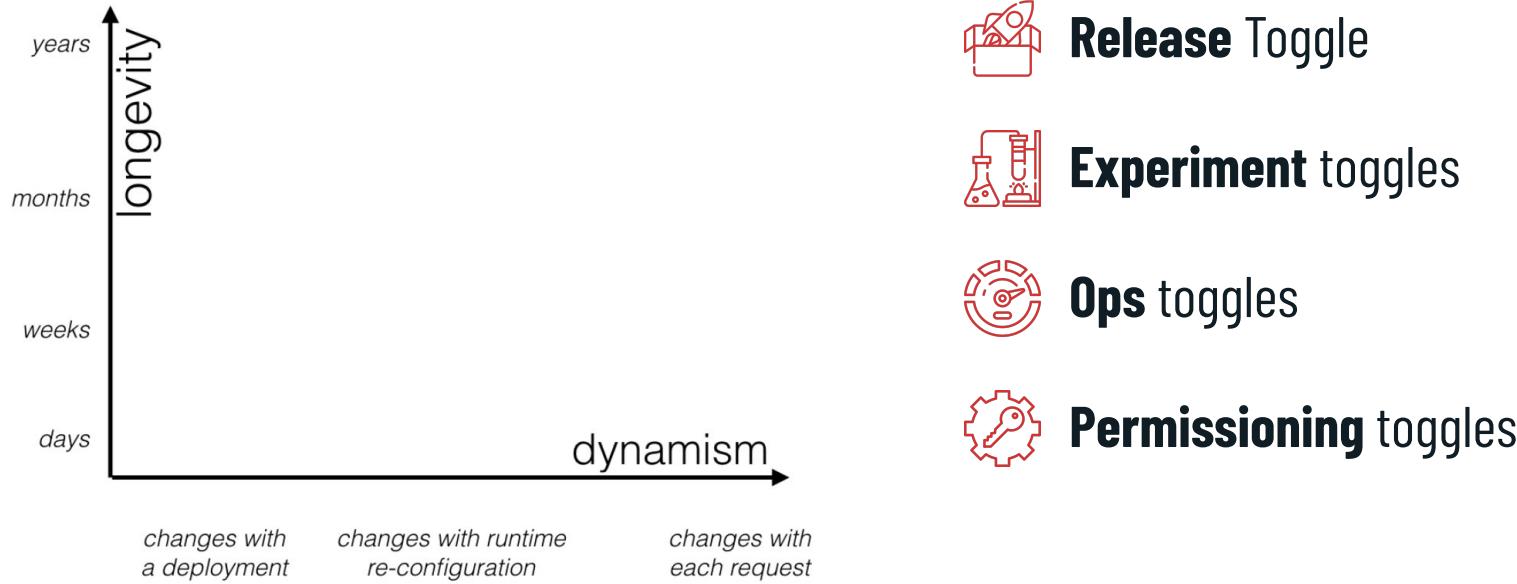
Feature
Flippers



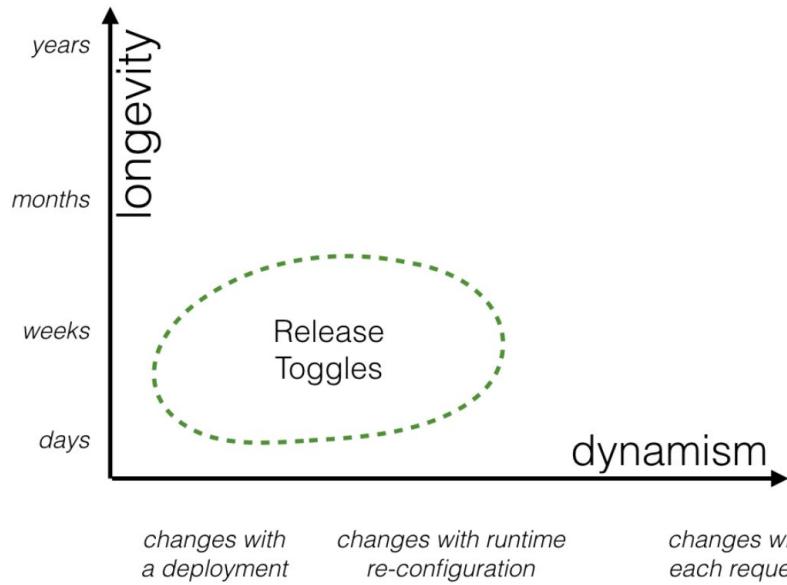
Conditional
Features



Feature Flag - Categorizzazione!



Feature Flag - Categorizzazione!

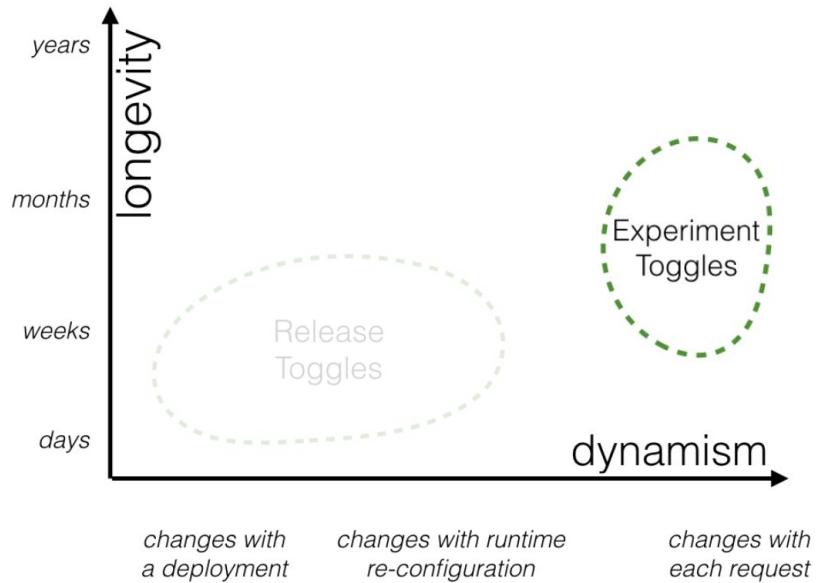


Release Toggle

- trunk-based development
- separating [feature] release from [code] deployment.



Feature Flag - Categorizzazione!

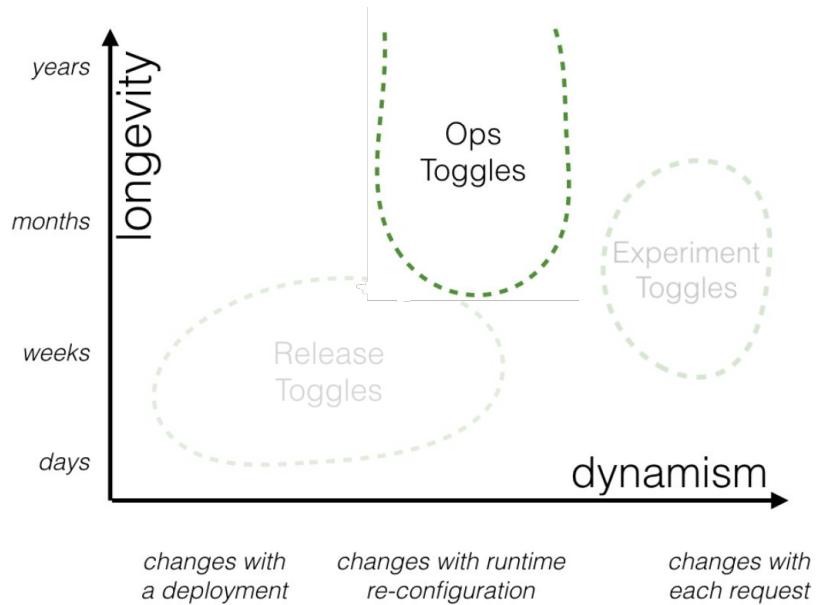


Experiment toggles

- A/B testing



Feature Flag - Categorizzazione!

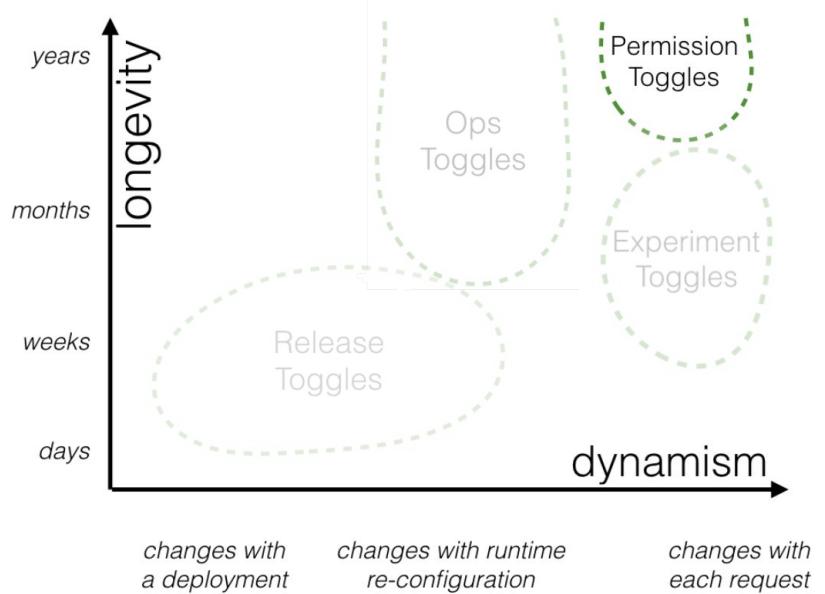


Ops toggles

- rolling out a new feature which has unclear performance implications
- "Kill Switches"



Feature Flag - Categorizzazione!



Permissioning toggles

- change the features or product experience that certain users receive
- "Champagne Brunch"



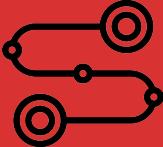
Feature Flag - Vantaggi

- Abilitare e disabilitare features a **runtime**
- Fare il revert parziale di un rilascio, **evitando** costosi **rollback**
- Nascondere “istantaneamente” una **feature non** adeguatamente **testata**
- Effettuare **A/B testing** in produzione
- Rilascio **graduale** di funzioni
- Attivazione **selettiva delle feature** in base a logiche (ad es, al browser)
- Consentire l'accesso a **features in beta a gruppi** ed utenti
- **Ridurre la complessità della codebase** evitando pesanti merge tra branches



Feature release \neq Code deployment





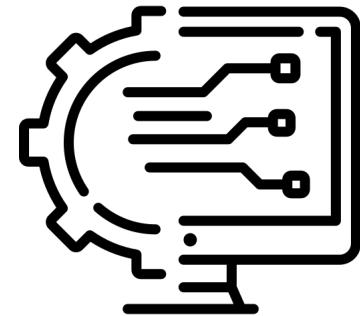
**Being able to ship alternative codepaths within one
deployable unit and choose between them at runtime.**

<https://www.martinfowler.com/articles/feature-toggles.html>



Feature Flag - Gestione della configurazione

- **Hardcoded** Toggle Configuration
- **Parameterized** Toggle Configuration
- Toggle Configuration **File**
- Toggle Configuration in **App DB**
- **Distributed** Toggle Configuration



Microsoft ❤️ Linux

...ma anche i Feature Flags!



Microsoft.FeatureManagement



 Microsoft.FeatureManagement 2.5.1

Prefix Reserved

.NET 5.0 .NET Core 3.1 .NET Standard 2.0

ⓘ There is a newer prerelease version of this package available.
 See the version list below for details.

Package Manager **.NET CLI** PackageReference Paket CLI Script & Interactive Cake

> dotnet add package Microsoft.FeatureManagement --version 2.5.1

 README  Frameworks  Dependencies  Used By **Versions**  Release Notes

Version	Downloads	Last updated
3.0.0-preview	35.387	4 months ago
2.5.1	1.911.438	6 months ago
2.5.0	45.181	6 months ago
2.4.0	3.364.042	24/09/2021
2.3.0	2.882.990	15/04/2021
2.2.0	3.345.978	16/09/2020
2.2.0-preview	35.741	10/07/2020
2.1.0-preview	19.173	22/04/2020
2.0.0	2.306.655	27/02/2020

Downloads

Full stats →

Total 15.0M

Current version 1.9M

Per day average 12.0K

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Azure-App-Configuration

Microsoft

FeatureManagement

FeatureFlags

AzureAppConfiguration

Microsoft.FeatureManagement.AspNetCore



Microsoft.FeatureManagement.AspNetCore 2.5.1

Prefix Reserved

.NET 5.0 .NET Core 3.1 .NET Standard 2.0

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README Frameworks Dependencies Used By Versions Release Notes

Version	Downloads	Last updated
3.0.0-preview	26.032	4 months ago
2.5.1	1.061.609	6 months ago
2.5.0	28.109	6 months ago
2.4.0	2.019.532	24/09/2021
2.3.0	1.633.574	16/04/2021
2.2.0	2.110.495	16/09/2020
2.2.0-preview	31.344	10/07/2020
2.1.0-preview	5.211	22/04/2020
2.0.0	1.457.904	27/02/2020
2.0.0-preview-010610001-1263	134.557	27/11/2019

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Azure-App-Configuration

Microsoft

FeatureManagement

FeatureFlags

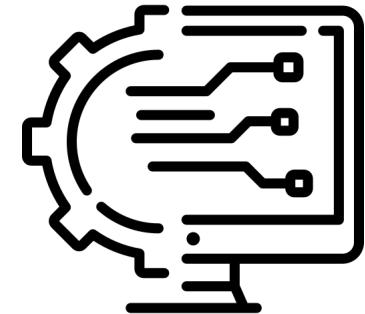
AzureAppConfiguration

aspnetcore

Microsoft.FeatureManagement - Benefits

[1]

- A **common convention** for feature management
- Low barrier-to-entry
 - Built on **IConfiguration**
 - Supports JSON file feature flag setup
- Feature flag lifetime management
 - **Configuration values can change in real-time**, feature flags can be consistent across the entire request
- Simple to complex scenarios covered



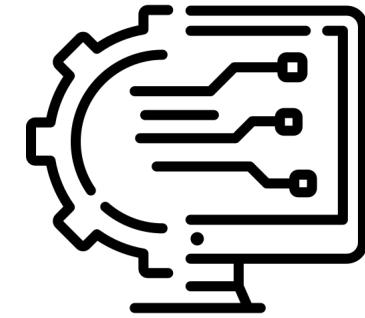
source: <https://github.com/microsoft/FeatureManagement-Dotnet>



Microsoft.FeatureManagement - Benefits

[2]

- Toggle on/off features through declarative configuration file
- Use different variants of a feature in different circumstances
- API extensions for ASP.NET Core and MVC framework
 - Routing
 - Filters
 - Action Attributes



source: <https://github.com/microsoft/FeatureManagement-Dotnet>



Feature Flag - ON / OFF



Feature Flag

```
builder.Services.AddFeatureManagement();
```

Program.cs

```
"FeatureManagement": {  
    "LogTime": false  
}
```

appsettings.
json



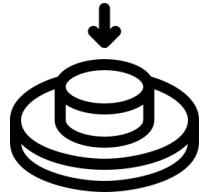


DEMO

Feature Filters



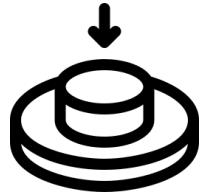
Feature Filters



Non solo un bottone



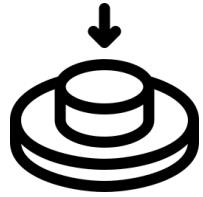
Feature Filters



Non solo un bottone



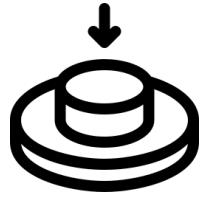
Feature Filters



Non solo un bottone



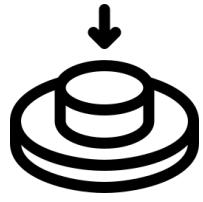
Feature Filters



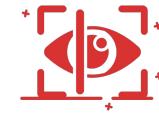
Non solo un bottone



Feature Filters



Non solo un bottone



Feature Filters

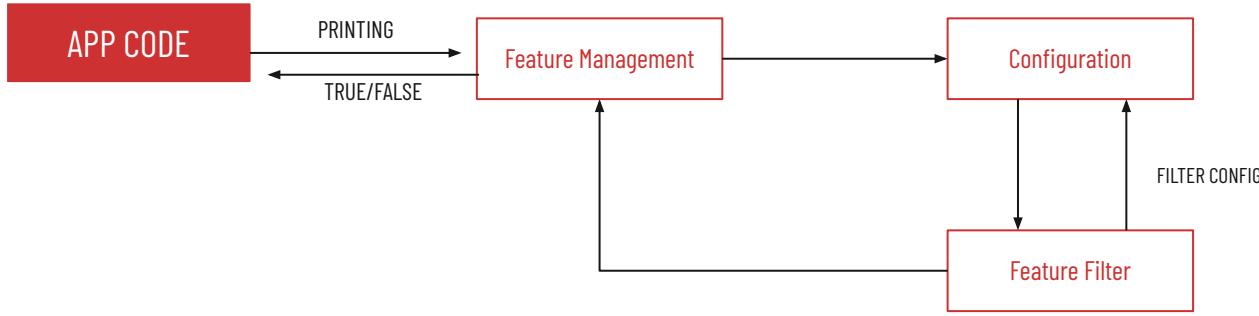
“

A mechanism for determining if a **feature** should be **enabled**, based on something **more than a simple true/false** configuration value

”



Feature Filters



- Devono essere registrati
- Possono richiedere configurazioni aggiuntive
- Alcuni sono built-in
- ...altri custom



Built-In Feature Filters - Percentage Filter

```
builder.Services.AddFeatureManagement()  
    .AddFeatureFilter<PercentageFilter>();
```

Program.cs

```
"FeatureManagement": {  
    "SlowEnabled": {  
        "EnabledFor": [ {  
            "Name": "Microsoft.Percentage",  
            "Parameters": {  
                "Value": 50  
            }  
        } ]  
    }  
}
```

appsettings.
json



Built-In Feature Filters - Time Window

```
builder.Services.AddFeatureManagement()
    .AddFeatureFilter<TimeWindowFilter>();
```

Program.cs

```
"FeatureManagement": {
    "SlowEnabled": {
        "EnabledFor": [
            {
                "Name": "Microsoft.TimeWindow",
                "Parameters": {
                    "Start": "2022-01-26T09:00:00+00:00",
                    "End": "2022-01-26T18:00:00+00:00"
                }
            }
        ]
    }
}
```

appsettings.json



Built-In Feature Filters - Targeting

```
builder.Services.AddFeatureManagement()
    .AddFeatureFilter<TargetingFilter>();
```

Program.cs

```
"FeatureManagement": {
    "GiannisPage": {
        "EnabledFor": [
            {
                "Name": "Microsoft.Targeting",
                "Parameters": {
                    "Audience": {
                        "DefaultRolloutPercentage": 100,
                        "Users": [ "gianni.bossini@codiceplastico.com" ],
                        "Groups": []
                    }
                }
            }
        ]
    }
}
```

appsettings.json



Built-In Feature Filters - Custom

```
builder.Services.AddFeatureManagement()  
    .AddFeatureFilter<BrowserFeatureFilter>();
```

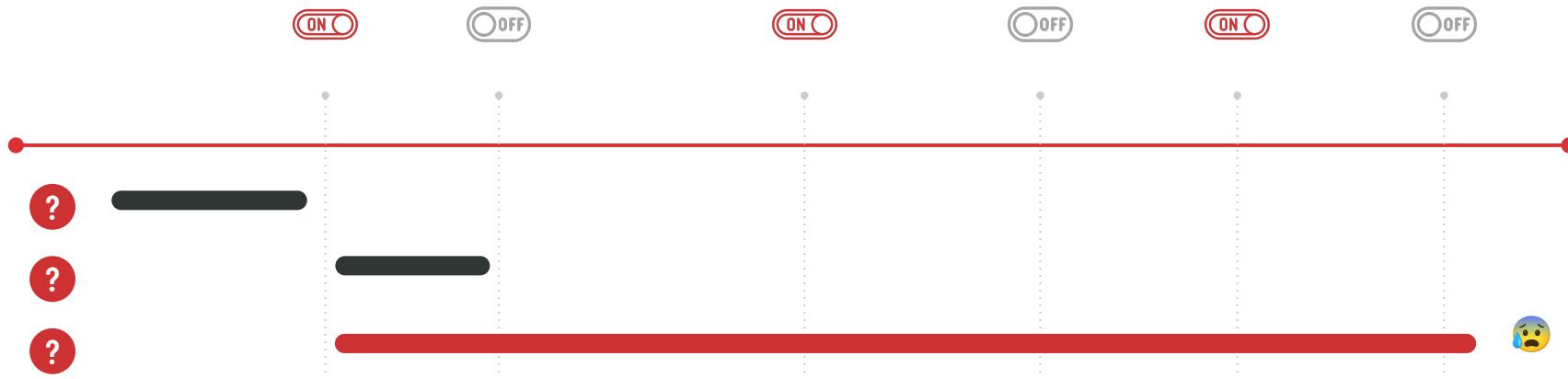
Program.cs

```
"FeatureManagement": {  
    "BrowsersAllowed": {  
        "EnabledFor": [  
            {  
                "Name": "BrowsersFilter",  
                "Parameters": {  
                    "Browsers": [ "Chrome" ]  
                }  
            }  
        ]  
    }  
}
```

appsettings.json



E se nel tempo i flag cambiano stato?





DEMO



❤️ Feature Flags!



 Azure Explore v Products v Solutions v Pricing v Partners v Resources v [Free account](#)

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App Configuration

Fast, scalable parameter storage for app configuration

[Start free](#)

[Product overview](#) [Features](#) [Security](#) [Pricing](#) [Getting started](#) [FAQs](#)

Configure, store, and retrieve parameters and settings

Store configuration for all your Azure apps in a universal, hosted location. Manage configurations effectively and reliably, in real time, without affecting customers by avoiding time-consuming redeployments. Azure App Configuration is built for speed, scalability, and security.



Azure services



Create a
resource



App
Configuration



Function App



Resource
groups



App
registrations



Subscriptions



Tenant
properties



Azure Active
Directory



More services

Resources

Recent

Favorite

Name

DistributedConfiguration

Type

App Configuration

Last Viewed

20 minutes ago

See all



DistributedConfiguration | Access keys

App Configuration

Search (Ctrl+ /)

Values

Feedback

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Quick start

Events

Settings

Access keys

Scale up

Identity

Encryption

Networking

Properties

Locks

Operations

Configuration explorer

Feature manager

Restore

Compare

Access keys

Read-write keys

Read-only keys

Endpoint

https://distributedconfiguration.azconfig.io



Primary key

Regenerate

Id (credential)



Secret

Regenerate

Connection string



Secondary key

Regenerate

Id (credential)



Secret

Regenerate

Connection string



DistributedConfiguration | Feature manager

App Configuration

Search (Ctrl+ /)

Add Edit Columns Refresh Feedback

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Quick start

Events

Settings

Access keys

Scale up

Identity

Encryption

Networking

Properties

Locks

Operations

Configuration explorer

Feature manager

Restore

Compare

Authentication method: Access keys (Switch to Azure AD) ⓘ

3 feature flags loaded

Name	Label	Enabled	Feature filter	Description	Last modified	Key	...
ShowTime	(No label)	<input checked="" type="checkbox"/>	None		6/23/2022, 5:15:27 PM	.appconfig.featureflag>ShowTime	...
ShowTimeAvailability	(No label)	<input type="checkbox"/>	 Time window		6/23/2022, 5:27:01 PM	.appconfig.featureflag>ShowTimeAvailability	...
ShowTimeBrowsersAllowed	(No label)	<input type="checkbox"/>	Custom		6/23/2022, 5:06:07 PM	.appconfig.featureflag>ShowTimeBrowsersAllowed	...



ShowTimeAvailability | Edit

Edit feature flag

Feature filters

A Feature filter consistently evaluates the state of a feature flag. Our feature management library supports three types of built-in filters: Targeting, TimeWindow, and Percentage. Custom filters can also be created based on different factors, such as device used, browser types, geographic location, etc. [Learn more](#)

Use feature filter



- Targeting
- Time window
- Custom

Time window filter is a built-in filter that enables features based on a specific period of time. This filter is useful if you create a filter but do not want it to take effect immediately, or you have a specific date when you want it to finish.

 Your time window filter has expired

Start date

- On
- Custom

02/28/2022



10:00:00 PM

(UTC+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna



Expiry date

- Never
- Custom

02/28/2022



11:00:00 PM

(UTC+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna



Azure CLI

```
az appconfig feature
```

Comando

Group

```
az appconfig feature : Manage feature flags stored in an App Configuration.
```

Subgroups:

```
filter [Preview] : Manage filters associated with feature flags stored in an App Configuration.
```

Commands:

delete	: Delete feature flag.
disable	: Disable a feature flag to turn it OFF for use.
enable	: Enable a feature flag to turn it ON for use.
list	: List feature flags.
lock	: Lock a feature flag to prohibit write operations.
set	: Set a feature flag.
show	: Show all attributes of a feature flag.
unlock	: Unlock a feature to gain write operations.

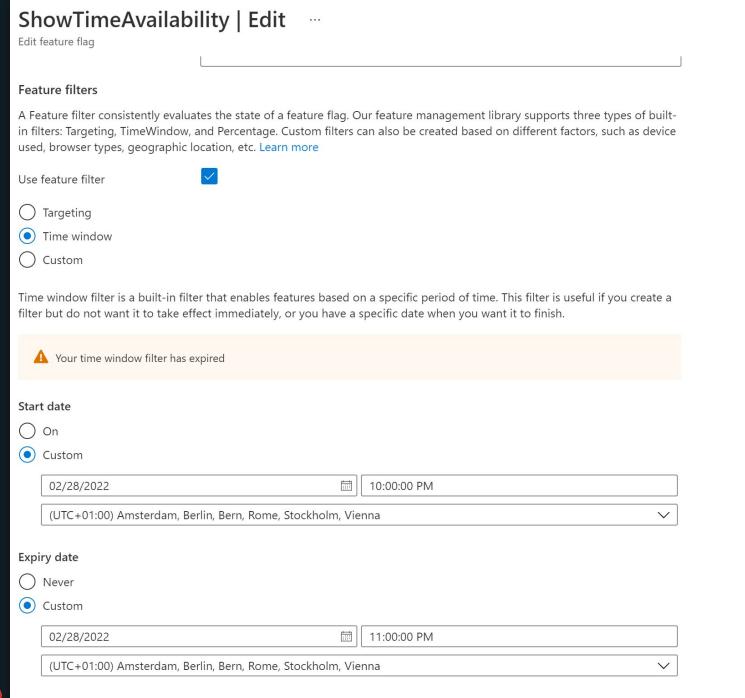


Azure CLI

```
az appconfig feature show --name DistributedConfiguration  
--key .appconfig.featureflag>ShowTimeAvailability
```

Comando

```
{  
  "conditions": {  
    "client_filters": [  
      {  
        "name": "Microsoft.TimeWindow",  
        "parameters": {  
          "End": "Fri, 24 Jun 2022 18:00:00 GMT",  
          "Start": "Fri, 24 Jun 2022 06:00:00 GMT"  
        }  
      }  
    ]  
  },  
  "description": "",  
  "key": ".appconfig.featureflag>ShowTimeAvailability",  
  "label": null,  
  "lastModified": "2022-06-23T15:27:01+00:00",  
  "locked": false,  
  "name": "ShowTimeAvailability",  
  "state": "off"  
}
```





DEMO

VAMENTO
ESSIONE
ERCIATA

CONTROLLO
LUNGHEZZA
BAFFI

MODALITA'
NEGOZIO

RILEVAMENTO
PRESSIONE
ESERCITATA

RILEVAMENTO
STRESS

ACQUISIZIONE
TOPOLOGIA

FUNZIONE
MASSAGGIO

CONTROLLO
CURVATURA
VISO

CONTROLLO
SFUMATURA
BARBA

CONTROLLO
LUNGHEZZA
BAFFI

CONTROLLO
SIMMETRIA
BARBA

RILEVAMENTO
TEMPERATURA
INTERNA

RILEVAMENTO
TEMPERATURA
ESTERNA

RILEVAMENTO
TEMPERATURA
INTERNA

RILEVAMENTO
STRESS

ACQUISIZIONE
TOPOLOGIA

FUNZIONE
MASSAGGIO

FUNZIONE
PEELING

TRASF.
DATI

AUTO-Selfie

BRUSHING



QUANDO AVETE FINITO I TEST
ANDIAMO IN PRODUZIONE!



QUANDO AVETE FINITO I TEST
ANDIAMO IN PRODUZIONE!

VAMENTO
ESSIONE
ERCITATA

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LUNGHEZZA
BAFFI

MODALITA'
NEGOZIO

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FUNZIONE
MASSAGGIO

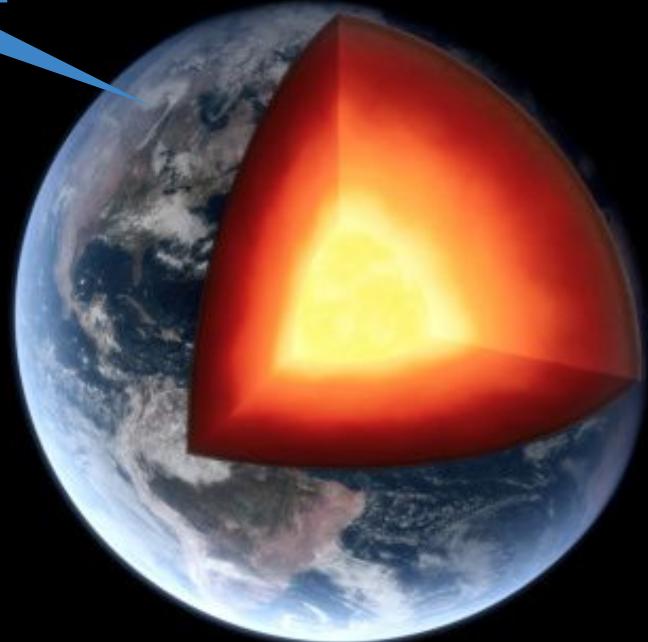
FUNZIONE
PEELING

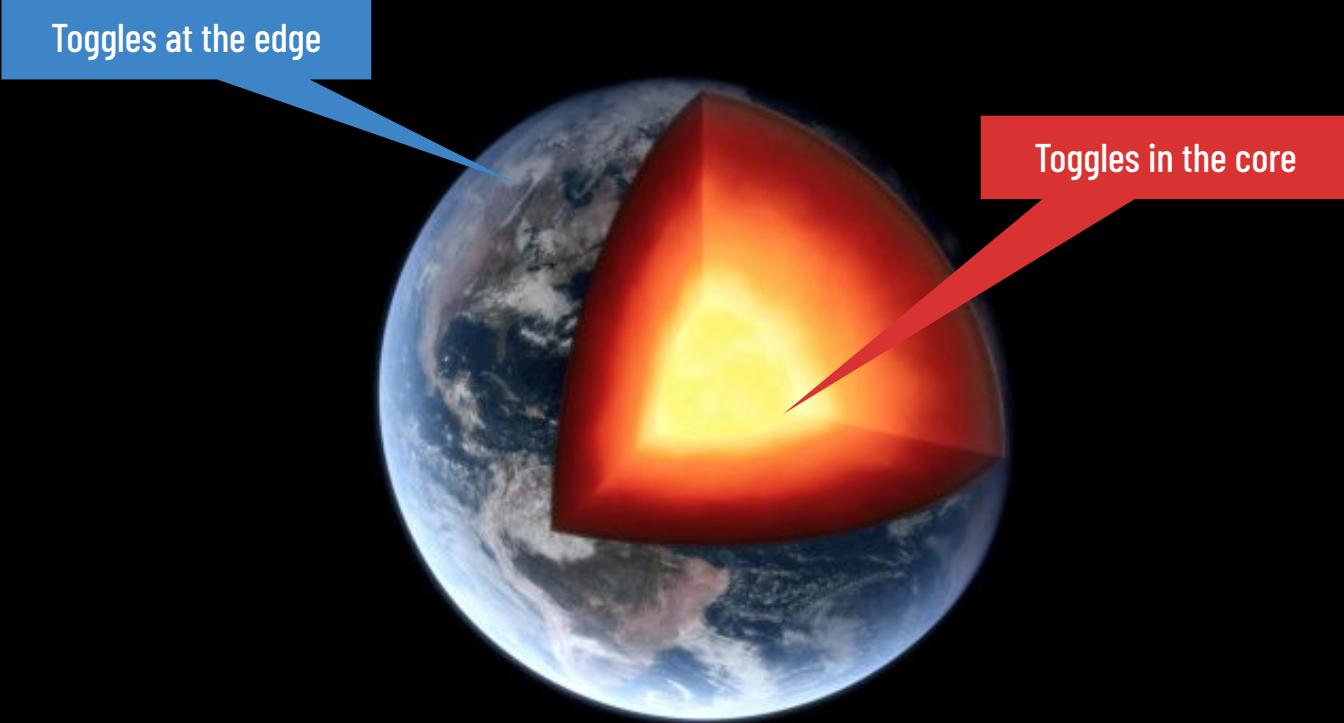
TRASF.
DATI

AUTO-SELFIE



Toggles at the edge





Toggles at the edge

Toggles in the core





Considerazioni

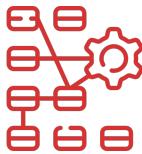


Incrementano **Complessità**
e **dipendenze** del progetto

I feature flags devono
essere rimossi in futuro



Considerazioni



Incrementano **Complessità**
e **dipendenze** del progetto

I feature flags devono
essere rimossi in futuro

“

The first symptom of **complexity** is that a seemingly simple change requires code modification in **many different** places

John Ousterhout, A philosophy of software design

”



Considerazioni



Incrementano **Complessità**
e **dipendenze** del progetto

I feature flags devono
essere rimossi in futuro



Testing dell'applicazione
più **complesso**



Considerazioni



Incrementano **Complessità**
e **dipendenze** del progetto

I feature flags devono
essere rimossi in futuro



Testing dell'applicazione
più **complesso**



Gestione della
configurazione



Considerazioni

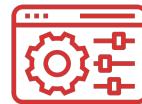


Incrementano **Complessità** e **dipendenze** del progetto

I feature flags devono essere rimossi in futuro



Testing dell'applicazione più **complesso**

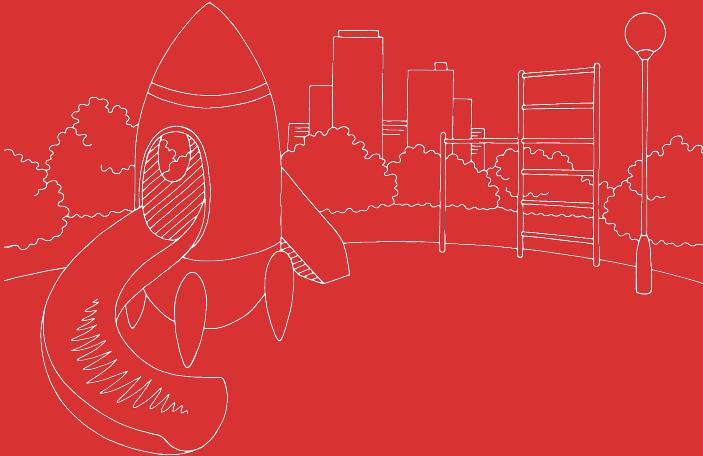


Gestione della **configurazione**



Non **riutilizzare** o ri-brandizzare feature flag esistenti





**[https://github.com/GianniBortoloBossini/
doh2022-microsoft-feature-management](https://github.com/GianniBortoloBossini/doh2022-microsoft-feature-management)**



Materiale



- Feature management overview,
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Per altri articoli nerd (e non solo)
<https://blog.codiceplastico.com>





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Grazie!!!



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