



FEATURE FLAGS CON MICROSOFT FEATURE MANAGEMENT



GIANNI BOSSINI
SOFTWARE ENGINEER
CODICEPLASTICO
@BOSSINIGIANNI

10 MARZO 2022

#WEBDAY2022

Kudos to Sponsors



managed/designs



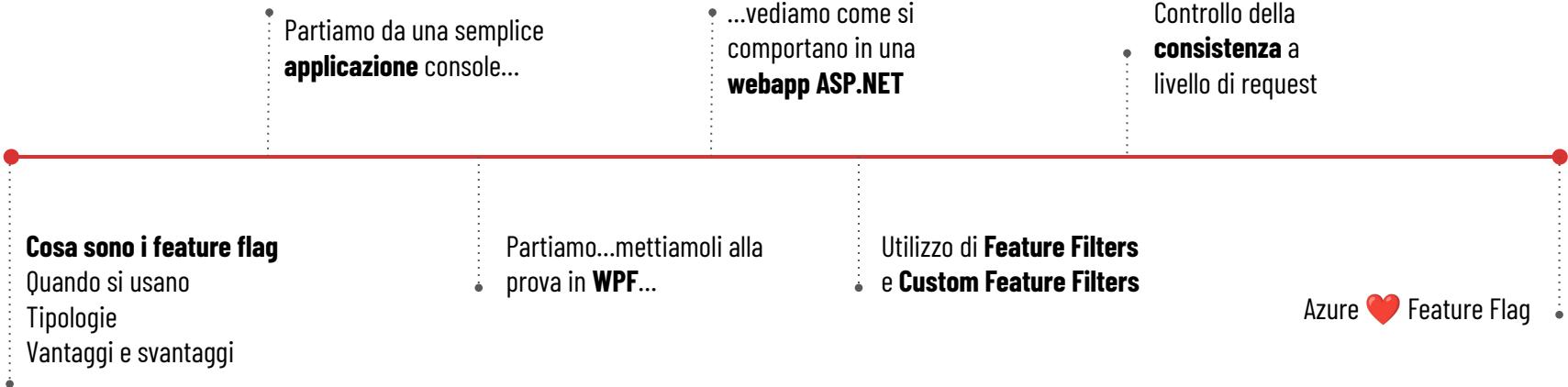
GIANNI BOSSINI

Software Engineer @CodicePlastico
gianni.bossini@codiceplastico.com

😍 Sviluppo Software, architetture e metodologie agili



Di cosa parleremo?



STEVE
MARTIN

CHEVY
CHASE

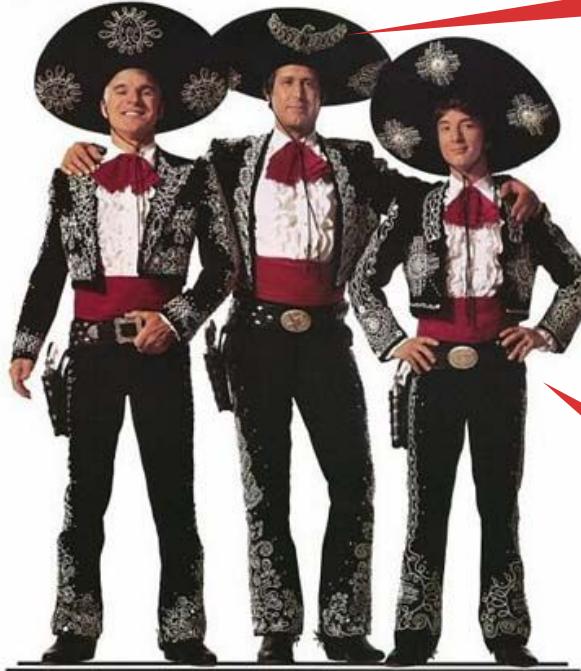
MARTIN
SHORT

¡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 / PROFANITY / DRUG USE / BLOOD / VIOLENCE
© 1986 Orion Pictures Corporation. An Association With HOME BOX OFFICE.
DOLBY STEREO

```
File Edit View Search Terminal Help  
abcbuddy@ubuntu:~/git-demo$ abc buddy@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
```







Graph

Short

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

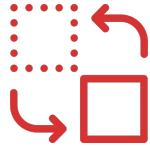
”



Feature Flag - Conosciuti anche con il nome di



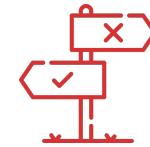
Feature
Toggles



Feature
Switches



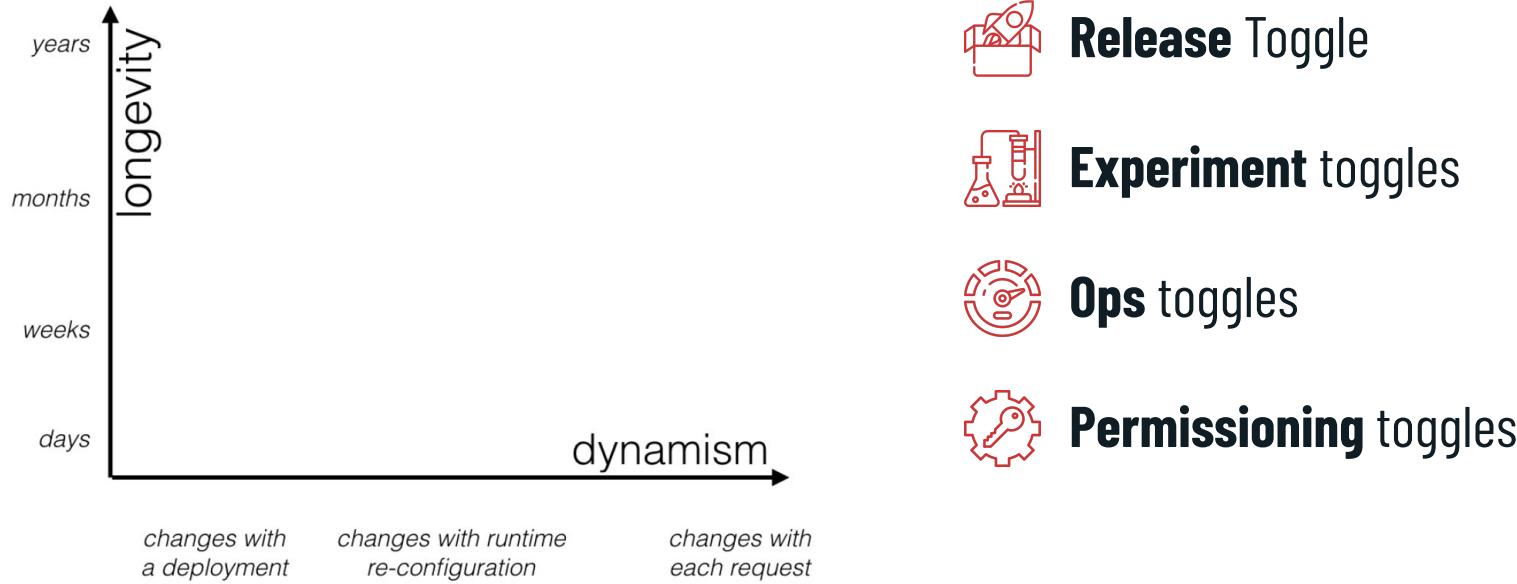
Feature
Flippers



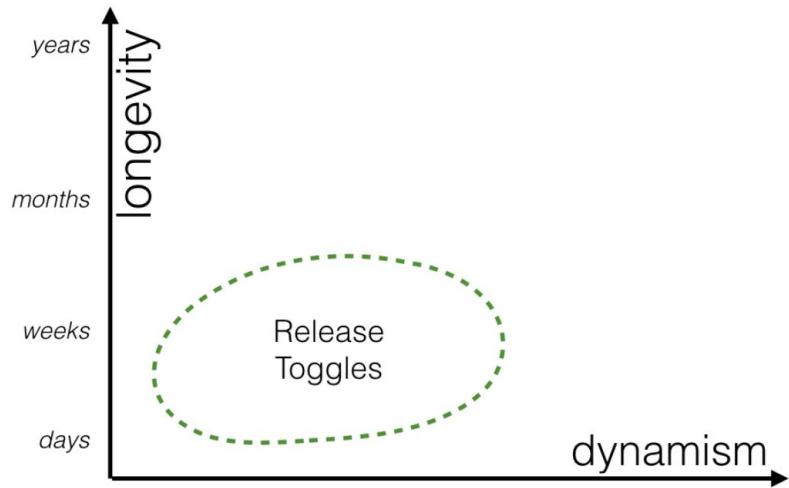
Conditional
Features



Feature Flag - Categorizzazione!



Feature Flag - Categorizzazione!

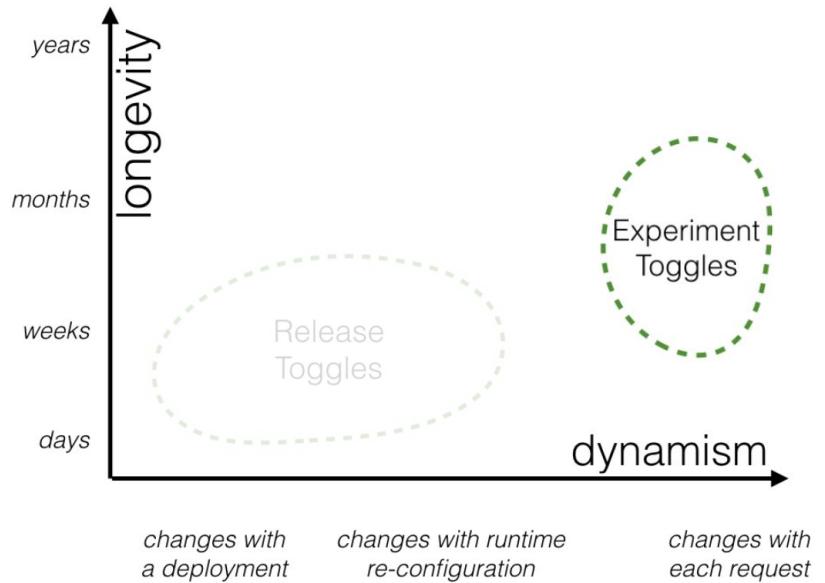


Release Toggle

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



Feature Flag - Categorizzazione!

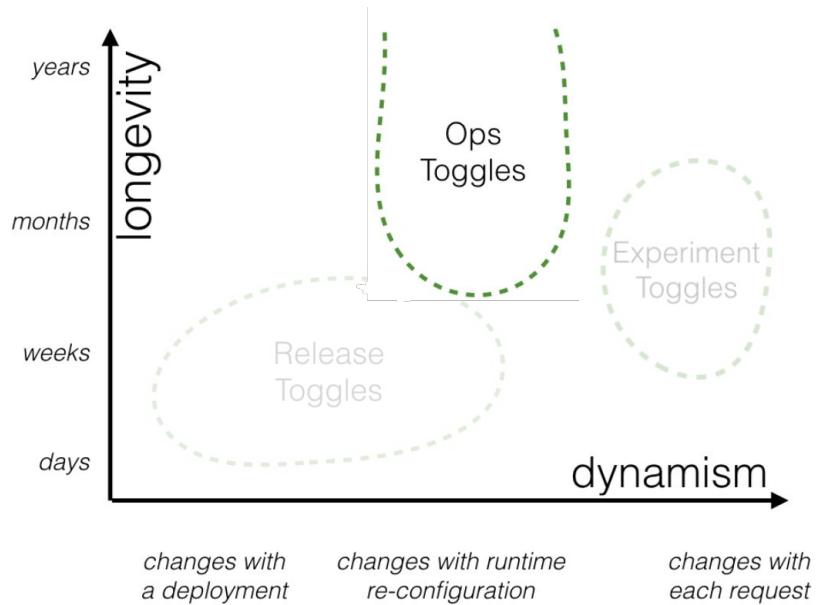


Experiment toggles

- A/B testing



Feature Flag - Categorizzazione!

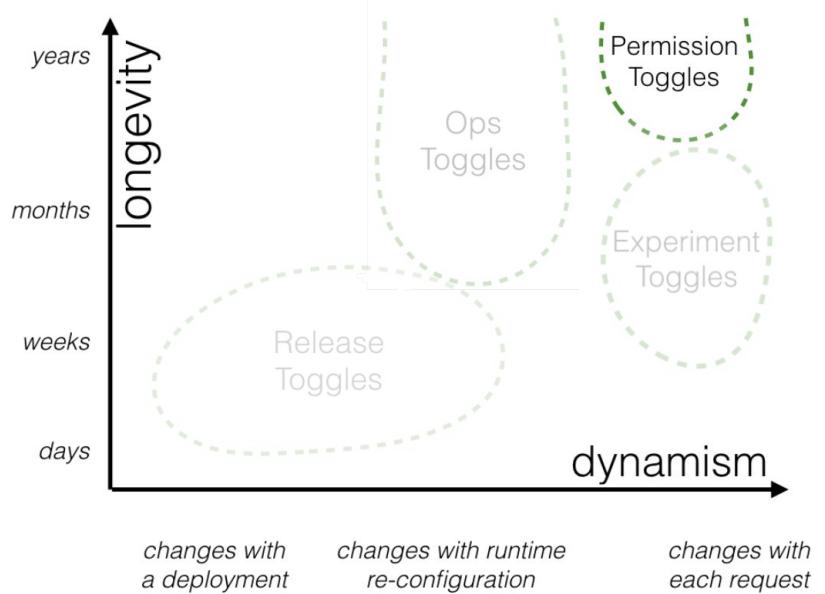


Ops toggles

- 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"



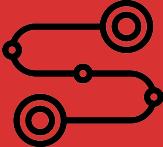
Feature Flag - Vantaggi

- 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





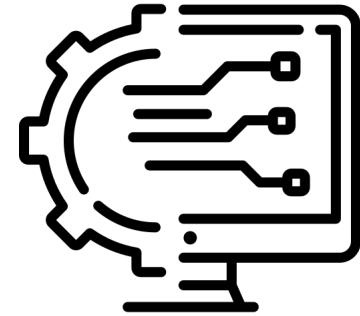
Being able to ship alternative codepaths within one deployable unit and choose between them at runtime.

<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 2.4.0 Prefix Reserved

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

```
<PackageReference Include="Microsoft.FeatureManagement" Version="2.4.0" />
```

For projects that support PackageReference, copy this XML node into the project file to reference the package.

README Dependencies Used By **Versions** Release Notes

Version	Downloads	Last updated
2.4.0	668.741	5 months ago
2.3.0	1.725.583	15/04/2021
2.2.0	2.430.810	16/09/2020
2.2.0-preview	31.122	10/07/2020
2.1.0-preview	18.838	22/04/2020
2.0.0	1.857.650	27/02/2020
2.0.0-preview-010610001-1263	171.493	27/11/2019
1.0.0-preview-009000001-1251	365.169	20/06/2019
1.0.0-preview-008560001-910	408.337	06/05/2019



Microsoft.FeatureManagement.AspNetCore



Microsoft.FeatureManagement.AspNetCore 2.4.0

Prefix Reserved

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

```
<PackageReference Include="Microsoft.FeatureManagement.AspNetCore" Version="2.4.0" />
```

ⓘ For projects that support `PackageReference`, copy this XML node into the project file to reference the package.

README Dependencies Used By **Versions** Release Notes

Version	Downloads	Last updated
2.4.0	382,365	5 months ago
2.3.0	973,547	10 months ago
2.2.0	1,555,711	16/09/2020
2.2.0-preview	27,283	10/07/2020
2.1.0-preview	4,892	22/04/2020
2.0.0	1,156,476	27/02/2020
2.0.0-preview-010610001-1263	118,792	27/11/2019
1.0.0-preview-009000001-1251	154,660	20/06/2019
1.0.0-preview-008560001-910	382,440	06/05/2019



Feature Flag - ON / OFF



Feature Flag

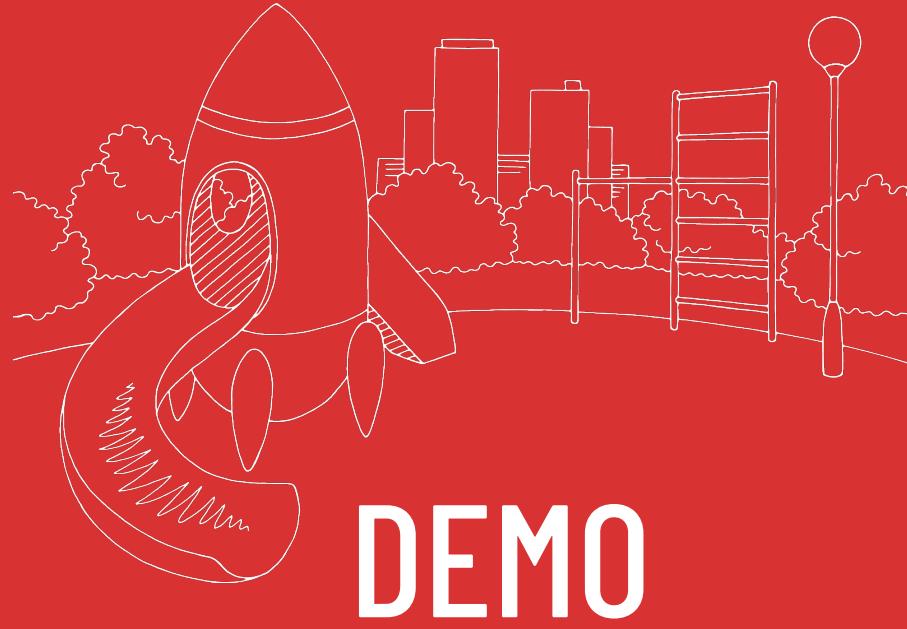
```
builder.Services.AddFeatureManagement();
```

Program.cs

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

appsettings.
json

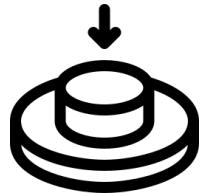




Feature Filters



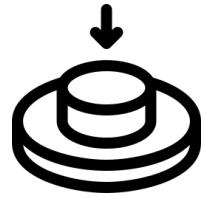
Feature Filters



Non solo un bottone



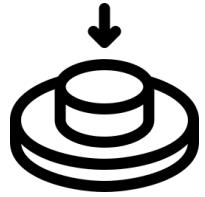
Feature Filters



Non solo un bottone



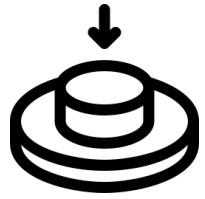
Feature Filters



Non solo un bottone



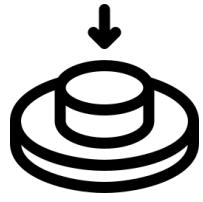
Feature Filters



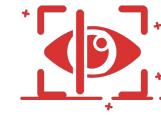
Non solo un bottone



Feature Filters



Non solo un bottone



Feature Filters

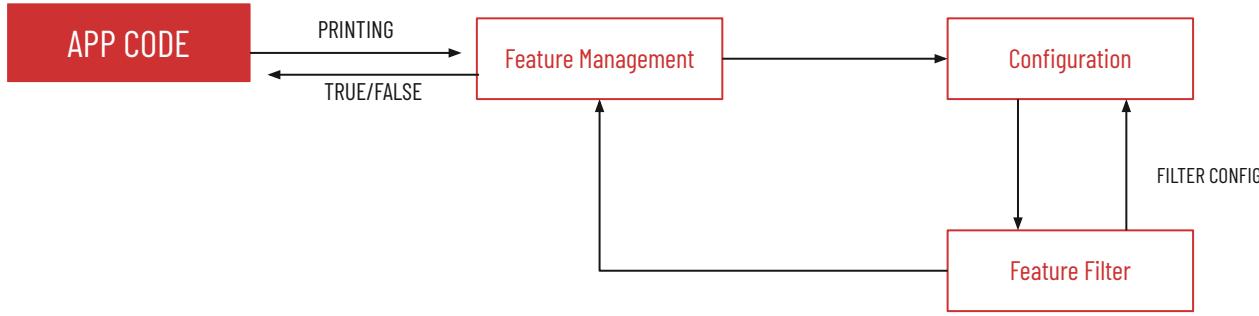
“

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<BrowsersFeatureFilter>();
```

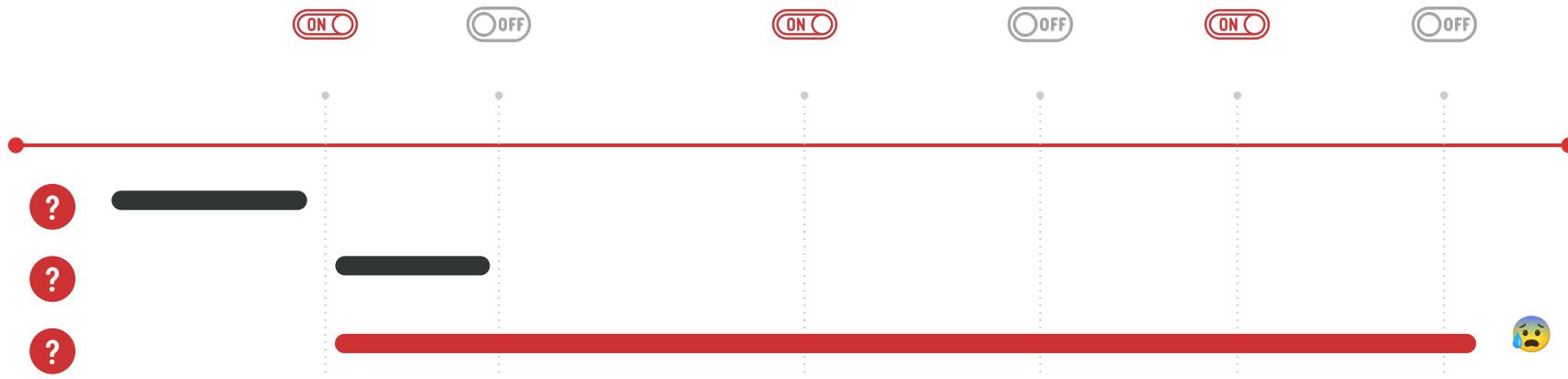
Program.cs

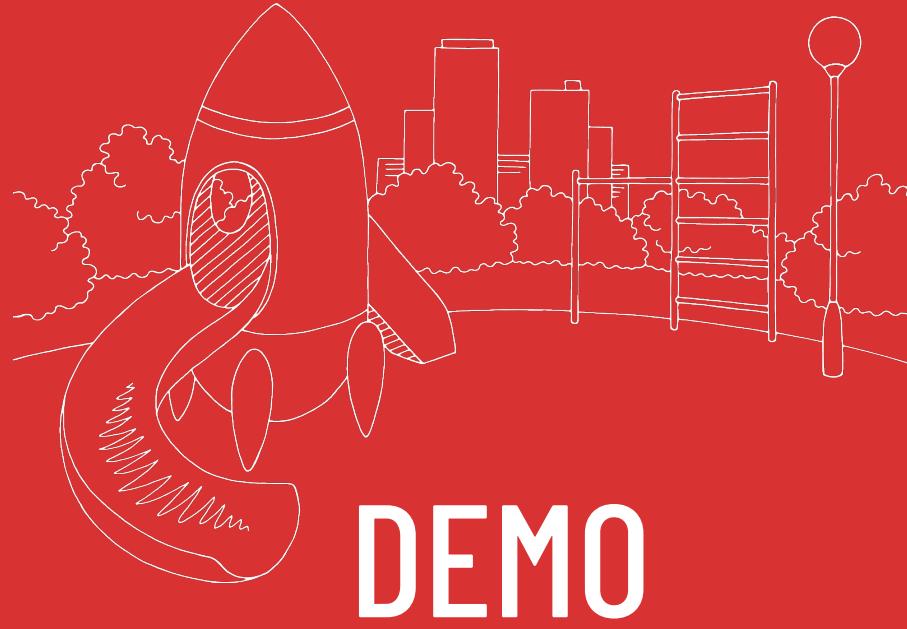
```
"FeatureManagement": {  
    "BrowsersAllowed": {  
        "EnabledFor": [  
            {  
                "Name": "BrowsersFilter",  
                "Parameters": {  
                    "Browsers": [ "Chrome" ]  
                }  
            }  
        ]  
    }  
}
```

appsettings.json



E se nel tempo i flag cambiano stato?







❤️ Feature Flags!



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

Search 

Docs Support Contact Sales Sign in

[Home](#) / [Products](#) / App Configuration

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
resourceApp
Configuration

App Services



SQL databases

SQL managed
instancesAzure
Managed...Resource
groups

All resources

Static Web
Apps

All services

Recent resources

Name	Type	Last Viewed
WebDays2022-WebApp-WebAppCompleteForAzure-Config	App Configuration	23 hours ago



WebDays2022-WebApp-WebAppCompleteForAzure-Config | 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

Import/export

Monitoring

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		2/28/2022, 11:55:33appconfig.featureflag>ShowTime
ShowTimeAvailability	(No label)	<input checked="" type="checkbox"/>	⚠ Time window		2/28/2022, 11:49:09appconfig.featureflag>ShowTimeAvailability
ShowTimeBrowsersAllo...	(No label)	<input checked="" type="checkbox"/>	Custom		2/28/2022, 11:49:13appconfig.featureflag>ShowTimeBrowsersAllo...



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



Home > WebDays2022-WebApp-WebAppCompleteForAzure-Config

WebDays2022-WebApp-WebAppCompleteForAzure-Config | Access keys

App Configuration

Search (Ctrl + /)

Values

Access keys

Read-write keys Read-only keys

Endpoint
https://webdays2022-webapp-webappcompleteforazure-config.azureconfig.io

Primary key

Regenerate

Id (credential)
.....

Secret
.....

Connection string
.....

Secondary key

Regenerate

Id (credential)
.....

Secret
.....

Connection string
.....

Settings

Access keys

Scale up

Identity

Encryption

Networking

Properties

Locks

Operations

Configuration explorer

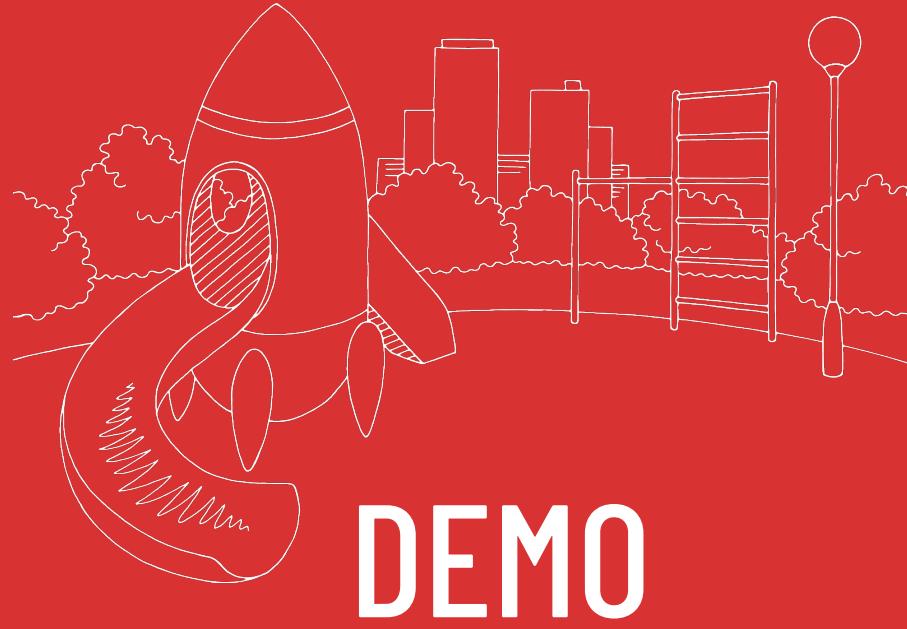
Feature manager

Restore

Compare

Import/export





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

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

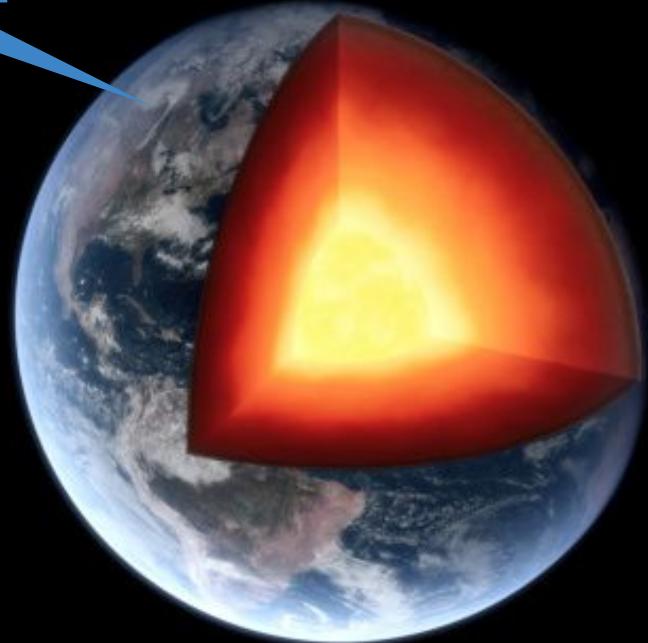
TRASF.
DATI

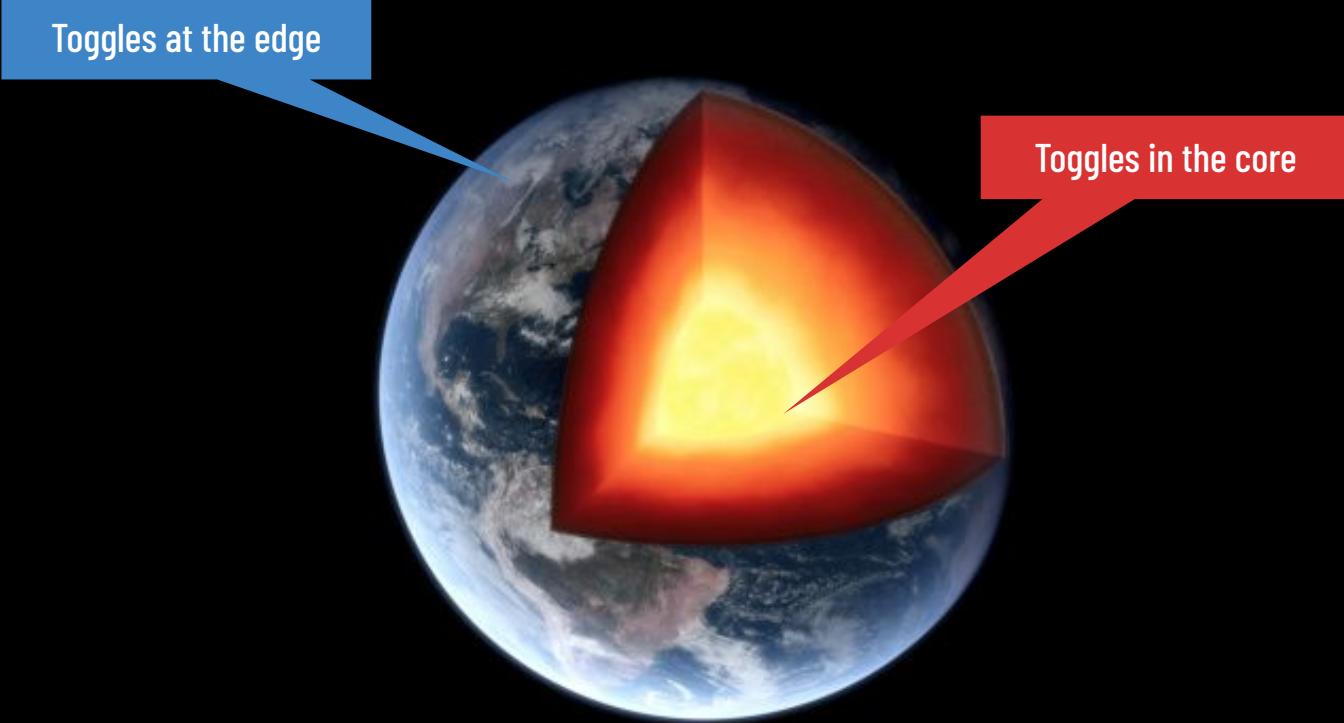
AUTO-SELFIE

15:30



Toggles at the edge





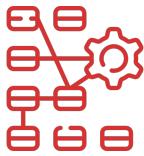
Toggles at the edge

Toggles in the core





Considerazioni

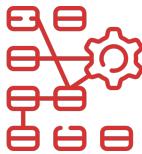


Incrementano **Complessità**
e **dipendenze** del progetto

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

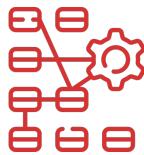
I feature flags devono
essere rimossi in futuro



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

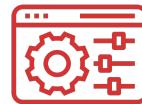


Incrementano **Complessità** e **dipendenze** del progetto

I feature flags devono essere rimossi in futuro



Testing dell'applicazione più **complesso**

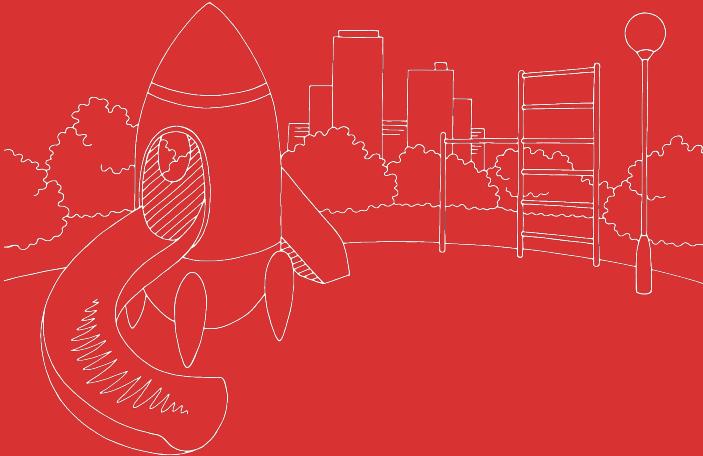


Gestione della **configurazione**



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





**[https://github.com/GianniBortoloBossini/
webdays2022-microsoft-feature-management/](https://github.com/GianniBortoloBossini/webdays2022-microsoft-feature-management/)**



Materiale



- Feature management overview,
<https://docs.microsoft.com/en-us/azure/azure-app-configuration/concept-feature-management>
- Feature flags,
<https://docs.microsoft.com/en-us/dotnet/architecture/cloud-native/feature-flags>
- Manage feature flags in Azure App Configuration,
<https://docs.microsoft.com/en-us/azure/azure-app-configuration/manage-feature-flags>
- ASP.NET Core Feature Flags,
<https://github.com/microsoft/FeatureManagement-Dotnet>
- Feature Flag Fundamentals with Microsoft Feature Management,
<https://www.pluralsight.com/courses/feature-flag-fundamentals-microsoft-feature-management>
- **Series:** Adding feature flags to an ASP.NET Core app,
<https://andrewlock.net/series/adding-feature-flags-to-an-asp-net-core-app/>
- The definitive guide to feature management,
<https://launchdarkly.com/the-definitive-guide-to-feature-management/>
- Feature Toggles (aka Feature Flags),
<https://www.martinfowler.com/articles/feature-toggles.html>



Materiale



- How to use feature flags without technical debt (launchdarkly.com),
<https://news.ycombinator.com/item?id=11715916>
- Microsoft Feature Management – Feature Flags in ASP.NET Core C# – Detailed Guide
<https://procodeguide.com/programming/feature-flags-in-aspnet-core>
- Feature Flags: A Gentle Introduction
<https://semaphoreci.com/blog/feature-flags>
- Implement custom filters in your ASP.NET Core feature flags
<https://www.daveabrock.com/2020/06/07/custom-filters-in-core-flags/>
- A Professional ASP.NET Core API - Feature Management
<https://hamedfathi.me/a-professional-asp.net-core-api-feature-management/>





Per altri articoli nerd (e non solo)
<https://blog.codiceplastico.com>





Grazie!

FOLLOW US

