

Guided Deployments

Power Platform sotto controllo con Azure DevOps

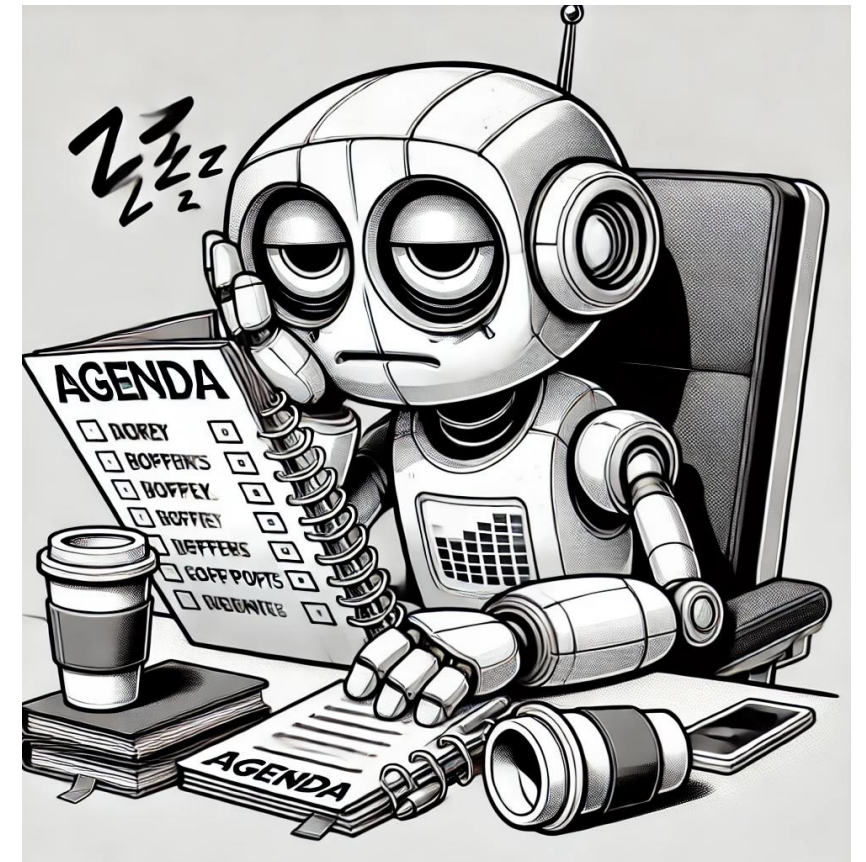
Francesco Belacca



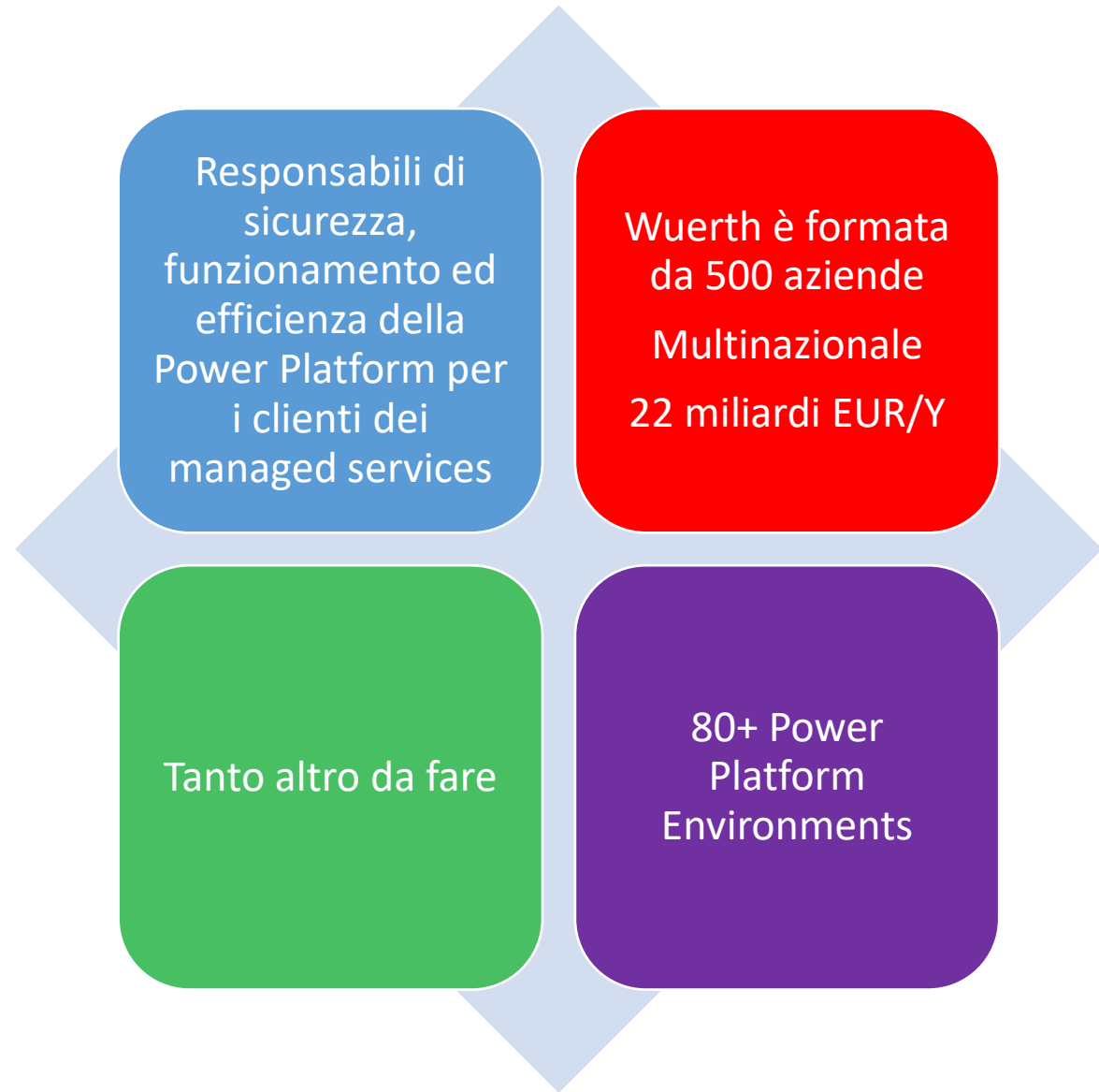


Agenda

- Contesto
- Perché la power platform
- Sfide
- Architettura soluzione realizzata oggi
- Focus Custom Extension
- Focus Autoscaled Agents (se ho tempo lol)
- Conclusioni
- QnA



Il Contesto



Power Apps



FEATURES

Build professional solutions

AI-powered development AI-infused applications Enterprise-grade governance **Custom code development** Connected, secure data Robust mobile apps

Use trusted tools ▾

Extend app capabilities ^

Create an app for any device to design a tailored user experience and optimize for specific tasks and roles.

Work with code when needed ▾

Use low-code language ▾

A screenshot of the Power Apps development environment. It shows a mobile app interface on the left and a web app interface on the right. The mobile app is titled "ProseWare Systems" and the web app is titled "ProseWare, Inc". The web app interface includes a header with the company name, a main content area with a list of items, and a sidebar with navigation options. The mobile app interface shows a similar list of items. The background of the screenshot is a gradient of blue and purple.

Power Automate



OVERVIEW AND FEATURES

Automate and optimize business processes

Overview

AI features

Desktop flows (RPA)

Cloud flows (DPA)

Task and process mining

Orchestration

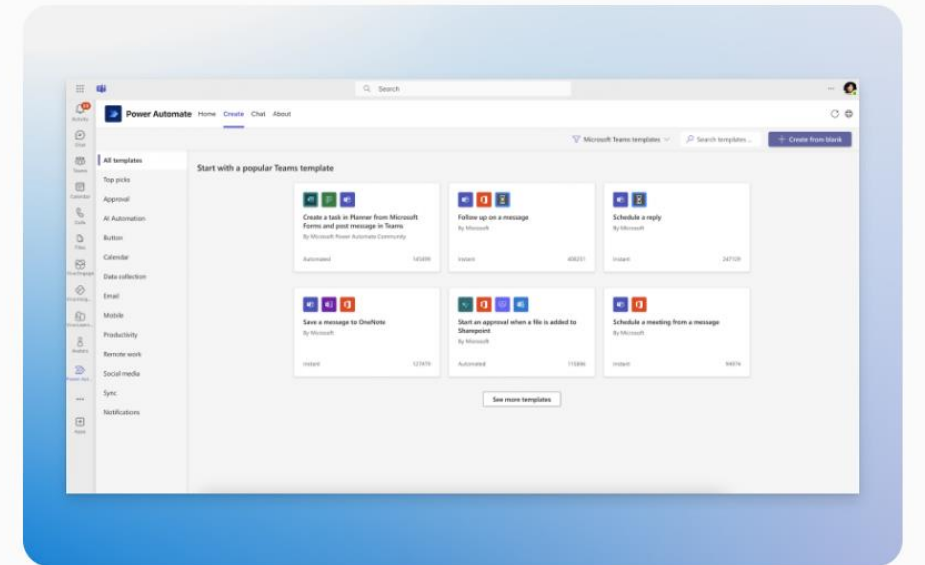
Automation in the cloud ▾

Customized building ▾

API connectors ▾

Better together ^

Native experiences in Microsoft 365, such as Microsoft Teams, Excel, and SharePoint, help you do more in your favorite apps.



Le Sfide Operative

- Efficienza: Necessità di ridurre i costi e muoversi rapidamente
- Tracciabilità: Ogni cambiamento deve essere monitorato (chi, cosa, quando)
- Sicurezza: Incrementare gradualmente la security posture, in conformità con le policy tenant (es. one-tenant, scadenze client-secret, MFA attivi)
- Scalabilità: Soluzione adatta sia a clienti piccoli che a team di sviluppo più grandi, con almeno 3 ambienti per cliente
- Frequenza: Deployment giornalieri senza preavviso, di nostra responsabilità
- Non sempre managed environments



Inizio: Deployment manuali

- Screenshot per visibilita' ai clienti di cosa va bene o male
- Possibilita' di errori e differenze nel processo
- Deployment lunghi, max parallelismo 2 per persona
- Gestione Errori/Warning dovuti alle solution problematica
- No self-service
- Nessuna validazione automatica della richiesta



Requisiti della Soluzione

- Automazione e riutilizzo del codice: Self-service per deployment guidati che seguano però i canoni e le modalità dettate da noi
- Bassa frizione: Funzionalità per utenti con diversi livelli di skill (interni ed esterni)
- Sicurezza elevata: Rispetto delle policy del tenant Wuerth, evitando l'uso di service account a causa dei costi e delle complicazioni di autenticazione (es. ROPC)
- Basso costo operativo: i clienti pagano già' per le licenze e per i servizi gestiti, quindi non vogliono proprio sentire parlare di ulteriori costi



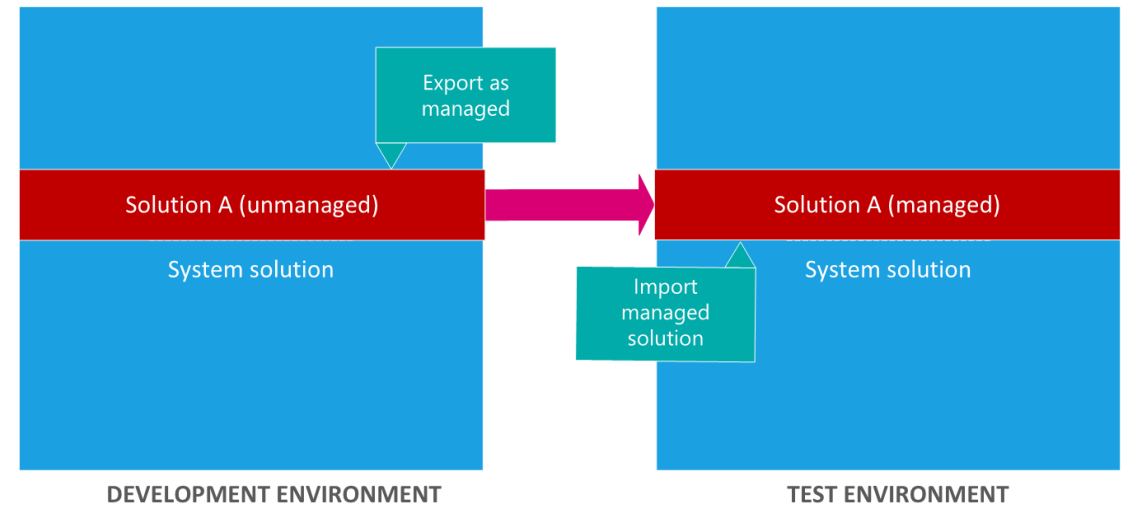
Power Platform ALM

- **Soluzioni Unmanaged:**

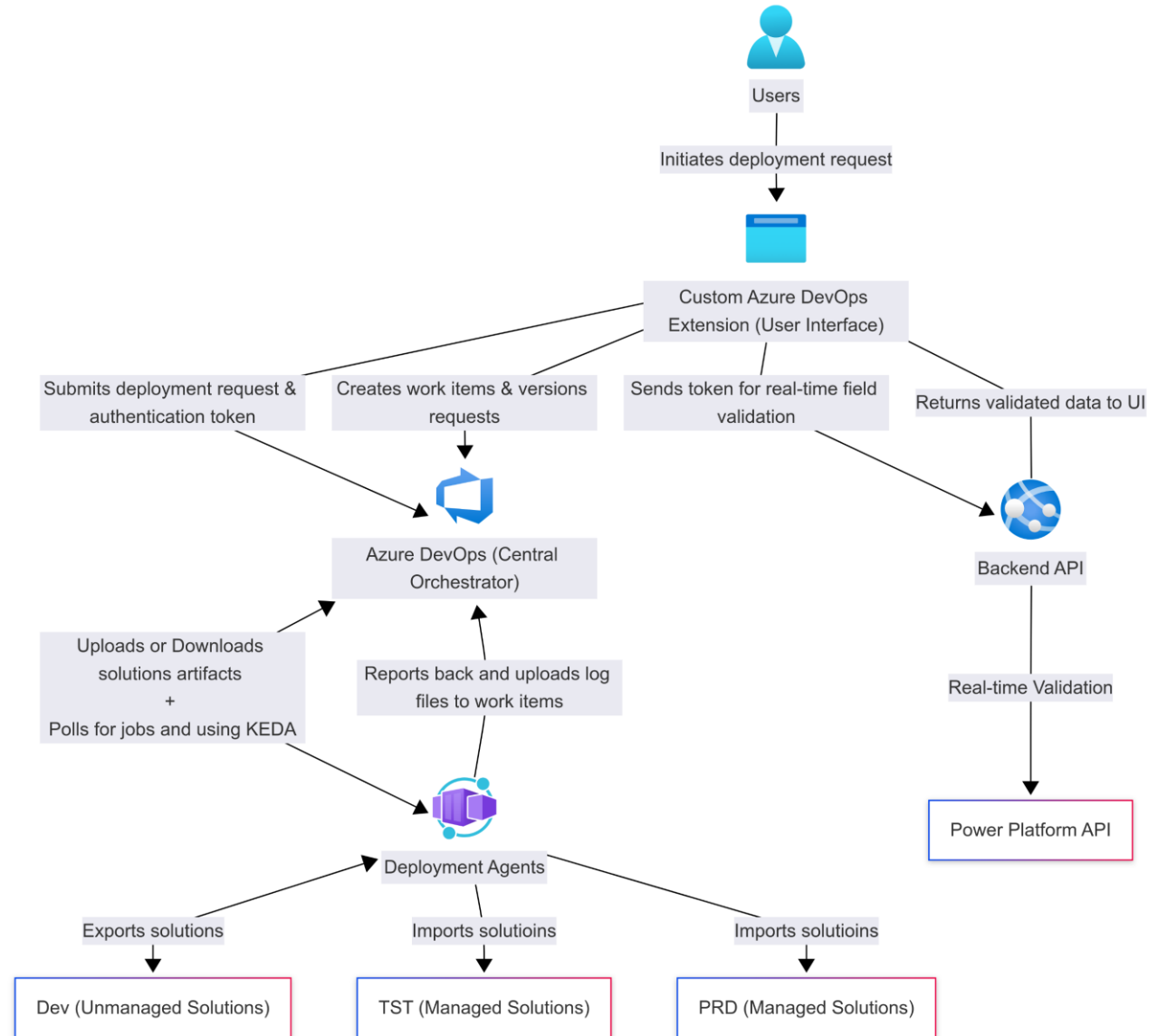
- Utilizzate in ambienti di sviluppo per modifiche e customizzazioni.
- Costituiscono la "fonte" degli asset (modificabili e tracciabili in source control).

- **Soluzioni Managed:**

- Impiegate in ambienti di test, UAT, e produzione.
- Non modificabili direttamente; garantiscono integrità e facilitano la gestione delle versioni.



Architettura



V1 (Live)

- Work item description
- 0 Setup
- Error prone
- Manual involvement
- Regex necessarie per parsing (☹)

The screenshot shows a work item in the Dynamics 365 DevOps interface. The title is '25 TestDeployment for artifacts testing' by Francesco Belacca. The state is 'Active' with a reason of 'Work started'. The area and iteration are both 'SI-DEVELOPMENT'. The description contains details about source and target environments, solutions to deploy, and environmental variables. The right sidebar shows the 'Effort (Hours)' section with a remaining estimate of 2 hours, and the 'Implementation' section showing build integration status. A 'Development' section on the right lists build steps with their success or failure status.

TASK 25

25 TestDeployment for artifacts testing

Francesco Belacca 0 Comments Add Tag

Save Follow Settings Refresh Undo

Updated by [redacted] Monday

Details 17 21

State: Active Reason: Work started Area: SI-DEVELOPMENT Iteration: SI-DEVELOPMENT

SOURCE ENVIRONMENT:
0000 Dynamics 365 D03

TARGET ENVIRONMENTS:
0000 Dynamics 365 D02,
3956 Dynamics 365 TST

SOLUTIONS TO DEPLOY:
testSolution=1.0.0.0,
testSolution2=1.0.0.0

ENVIRONMENTAL VARIABLES:
0000 Dynamics 365 D02:
wpx_testEnvVar1=value1d02,
wpx_testEnvVar3=https://asd.asd?ciaone=,token,
wpx_testEnvVar2={"mycustomfie,ldd02": "mycustomfieldvalued02="}

3956 Dynamics 365 TST:
wpx_testEnvVar1=value1tst,
wpx_testEnvVar2={"mycust,omfieldtst": "mycustomfieldvaluetst=="}

OPERATION TYPE:
ExportImport,
Managed,
Upgrade

Effort (Hours)

Priority: 2

Activity

Original Estimate

Remaining

Completed

Implementation

Integrated in Build

Development

Add link

Integrated in build

Integrated in build DynamicDeploy_Dy...
Updated Monday Succeeded

Integrated in build Prepare Artifacts fro...
Updated Monday Succeeded

Integrated in build DynamicDeploy_Dy...
Updated Feb 11 Succeeded

Integrated in build Prepare Artifacts fro...
Updated Feb 11 Succeeded

Integrated in build DynamicDeploy_Dy...
Updated Feb 11 Failed

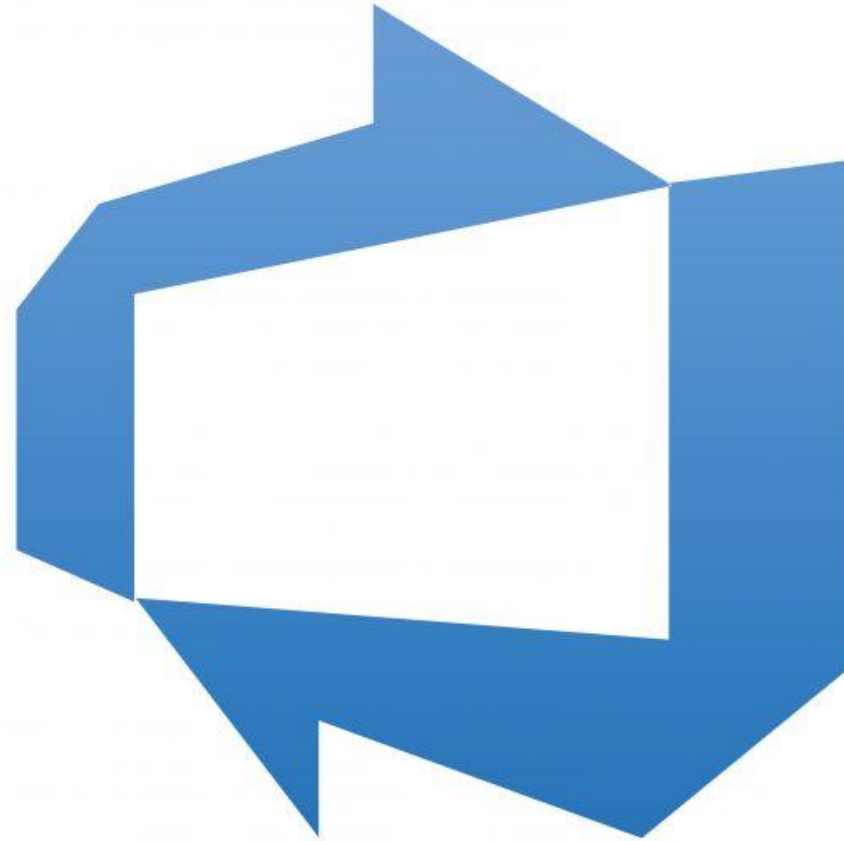
Custom Azure DevOps Extension

- Free Authentication
- Free Hosting
- Free License - Può essere usata da Stakeholders
- Generazione ordinata dei work items
- Setup semplice
- Collaborazione semplificata per chi non è tecnico
- Comunicazione sicura tramite token firmato
- Portabilità elevata



Azure DevOps SDK

- Disponibile repo OS: [microsoft/azure-devops-extension-sdk](https://github.com/microsoft/azure-devops-extension-sdk)
- SDK.getAppToken() da usare per ottenere token firmato con chiave privata della ext.
- SDK.getAccessToken() da usare per le Azure Devops API
- Webpack & React 16? :O



Framework wars

- **Blazor WASM**
 - Pro: Integrazione nativa con l'ecosistema .NET
 - Contro: no wsl native debug, jsinterop, debug wasm non ideale anche su windows
- **React 18(con ViteJS)**
 - Pro: Ecosistema maturo, grande flessibilità, easy & fast debug
 - Contro: non e' Blazor 😞

Blazor vince per il nostro specifico team



V1.9

The screenshot shows the Azure DevOps web interface. The browser tab is 'Summary - Overview' and the URL is 'https://dev.azure.com/francesco-belacca/Contoso'. The left sidebar contains a navigation menu with the following items: Contoso (selected), Overview, Summary, Dashboards, Wiki, Boards, Repos, Pipelines, Test Plans, Artifacts, and two build artifacts: 'Hello World! from TSX DEV loca...' and 'Hello World! from TSX'. The main content area displays the 'Contoso' project header and a card titled 'About this project' with the text 'Prova per Microsoft Learning.' and a 'Like 0' button. Two green arrows point to the build artifact entries in the sidebar.

Personal Summary - Overview

https://dev.azure.com/francesco-belacca/Contoso

Azure DevOps francesco-belacca / Contoso / Overview / Summary

Contoso

Overview

Summary

Dashboards

Wiki

Boards

Repos

Pipelines

Test Plans

Artifacts

Hello World! from TSX DEV loca...

Hello World! from TSX

Project settings

Contoso

About this project

Like 0

Prova per Microsoft Learning.

V1.9

Personal | Hello World! from TSX - Hello W... x +

https://dev.azure.com/francesco-belacca/Contoso/_apps/hub/Wuerth-Phoenix.azure-devops-extension-tsx.default-hub

francesco-belacca / Contoso / Hello World! from TSX

Dynamics 365 Deployment Configuration

Configuration Form | JSON Preview

Source Environment

Select source environment

Target Environments

Add Target Environment

Select target environment

Environment Variables

Select variable name

Variable value

Add Variable

Add Target

Configured Target Environments

No target environments configured

Solutions

Cloud Flows

Operation Settings

Post Deployment

Submit Deployment Configuration

Personal | Hello World! from TSX - Hello W... x +

https://dev.azure.com/francesco-belacca/Contoso/_apps/hub/Wuerth-Phoenix.azure-devops-extension-tsx.default-hub

francesco-belacca / Contoso / Hello World! from TSX

Dynamics 365 Deployment Configuration

Configuration Form | JSON Preview

Source Environment

Select source environment

0000 Dynamics 365 D03

3956 Dynamics 365 TST

0000 Dynamics 365 D02

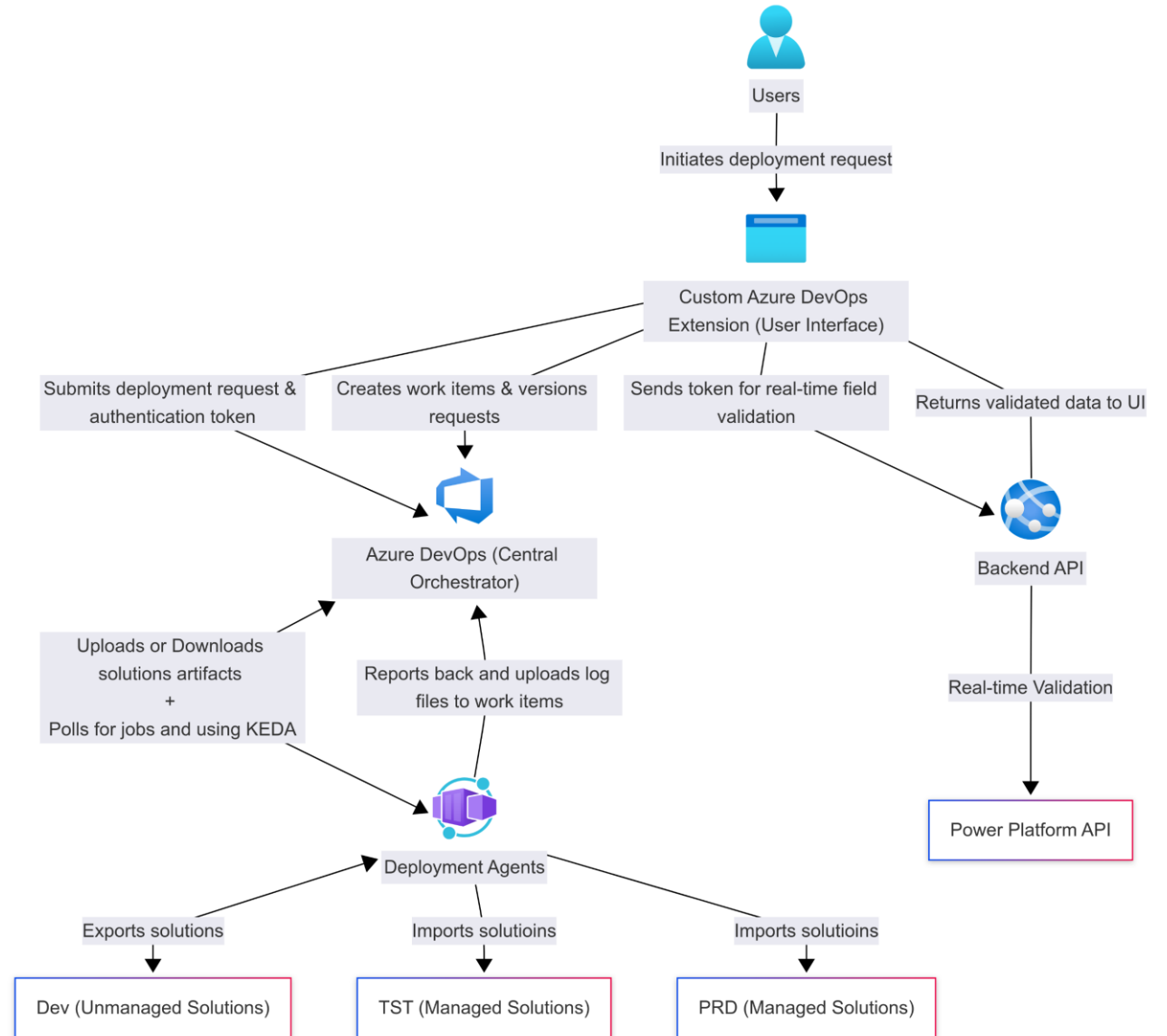
3956 Dynamics 365 PRD

Operation Settings

Post Deployment

Submit Deployment Configuration

Architettura



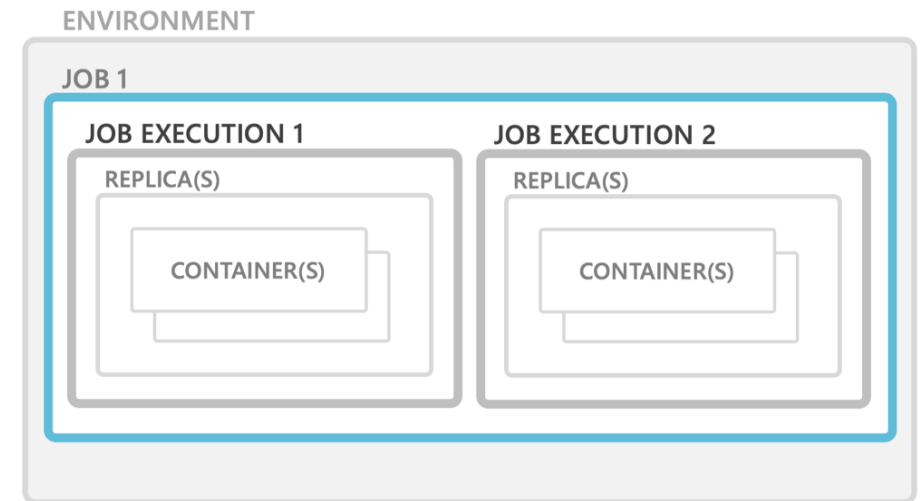
Autoscaled Agents

- Tramite KEDA viene creato un container che esegue la pipeline solo quando necessario
- Scale to 0
- No dependency installation needed
- 1 free as long as you pay for infra
- Mix of Powershell core, pac CLI and m365 pnp or APIs



A **job** defines its configuration, such as trigger type and container.

A **job execution** is a running instance of a job.



Conclusioni

- La custom Azure DevOps Extension ha semplificato e reso più sicuro il deployment
- Integrazione completa nelle pipeline CI/CD per garantire controllo e tracciabilità
- Prossimi passi:
 - Eliminare l'utilizzo di client secrets tramite
 - Sperimentare con differenti tecnologie UI
 - Estendere il sistema per scenari cross-organization



Grazie mille per l'attenzione!

Q&A



<https://www.linkedin.com/in/francesco-belacca-dev>

[Jobs](#)

[Würth Phoenix](#)



[macel94/AzDevOpsFB-Sample-Extension](#)

✓ #Prepare Artifacts from WorkItem ID_25_20250224.1

🏠 Prepare Artifacts from WorkItem ID

Run new



📘 This run is being retained as one of 50 recent runs by main (Branch).

View retention leases

Summary Extensions Code Coverage

Manually run by  Francesco Belacca

View 5 changes

Repository and version

🔗 Automations

🌐 main 📌 b82e0461

Time started and elapsed

📅 Mon at 8:18 AM

🕒 2m 13s

Related

📁 0 work items

📁 1 published

Tests and coverage

🔗 Get started

Stages Jobs

✓ PrepareArtifacts



1 job completed

1m 25s

📁 1 artifact

✓ TriggerDynamicDepl...



1 job completed

11s

Summary Extensions Code Coverage

```
- stage: 3956 Dynamics_365_TST
  condition: succeeded()
  jobs:
  - job: VerifyWorkflows
    timeoutInMinutes: 480
    displayName: 'Verify Workflows Are in the desired state'
    steps:
    - task: 6d15af64-176c-496d-b583-fd2ae21d4df4@1
      inputs:
        repository: self
        clean: true
    - task: DownloadBuildArtifacts@1
      displayName: 'Download Artifact'
      inputs:
        buildType: 'specific'
        project: '$(System.TeamProjectId)'
        pipeline: 5
        buildVersionToDownload: 'specific'
        buildId: 311
        downloadType: 'specific'
        artifactName: 'Prepare Artifacts from WorkItem ID_25_20250224.1'
        downloadPath: '$(System.ArtifactsDirectory)'
    - task: CopyFiles@2
      inputs:
        SourceFolder: '$(System.ArtifactsDirectory)/Prepare Artifacts from WorkItem ID_25_20250224.1/solutions'
        Contents: '**'
        TargetFolder: '$(Build.SourcesDirectory)/solutions'
    - task: PowerShell@2
      displayName: 'Run FlowsCrossPlatformOrchestrator'
      inputs:
        filePath: './src/scripts/flows/FlowsCrossPlatformOrchestrator.ps1'
        failOnStderr: true
        showWarnings: true
        pwsh: true
      env:
        pat: $(pat)
        secret: $(secret)
        password: $(password)
        FORCE_TARGET_ENVIRONMENT: 3956 Dynamics_365_TST
```

[Consumer Pipeline Run](#)

✓ #Prepare Artifacts from WorkItem ID_25_20250224.1

📁 Prepare Artifacts from WorkItem ID

Run new



🕒 This run is being retained as one of 50 recent runs by main (Branch).

View retention leases

Summary Extensions Code Coverage

CONSUMER_COMPILED_YAML

```
name: $(Build.DefinitionName)_25_$(Date:yyyyMMdd)$(Rev:.r)
appendCommitMessageToRunName: false
parameters:
- name: artifactName
  type: string
  default: ''
- name: artifactFilePath
  type: string
  default: 'solutions'
- name: sourceBuildId
  type: string
  default: ''
- name: sourceBuildDefinitionId
  type: string
  default: ''
- name: environmentsList
  type: object
- name: workItemId
  type: string
  default: ''
- name: jsonFileToReadParametersFrom
  type: string
  default: "none"
variables:
- group: "automations"
```


Run pipeline

×

Select parameters below and manually run the pipeline

Branch/tag

main

▼

Select the branch, commit, or tag

workItemId

Required

33

jsonFileToReadParametersFrom

none

Advanced options

Variables

This pipeline has no defined variables

>

Stages to run

Run as configured

>

Resources

Use latest version of all resources

>

☐ Enable system diagnostics

Cancel

Run

Run pipeline

×

Select parameters below and manually run the pipeline

main

▼

Select the branch, commit, or tag

artifactName

Required

Prepare Artifacts from WorkItem ID_33_20250224.1

artifactFilePath

solutions

sourceBuildId

Required

310

sourceBuildDefinitionId

Required

5

environmentsList

Required

[[{"displayName":"0000 Dynamics 365 D02","name":"0000_Dynamics_365_D02"},{"displayName":"3956 Dynamics 365 TST","name":"3956_Dynamics_365_TST","dependsOn":"0000_Dynamics_365_D02"}]]

workItemId

Required

33

☐ Enable system diagnostics

Cancel


Run

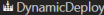
```


- ${ each stage in parameters.environmentsList }:
- stage: stage_${ stage.name }
  displayName: 'Deploy to ${ stage.displayName }'
  ${ if ne(stage.dependsOn, '') }:
    dependsOn: workflows_${ stage.dependsOn }
    condition: succeeded()
  jobs:
  - deployment: deploy_${ stage.name }
    timeoutInMinutes: 480
    displayName: 'Deploy solutions to ${ stage.displayName }'
    environment: ${ stage.displayName }
    strategy:
      runOnce:
        deploy:
          steps:
            - checkout: self
              clean: true

            - task: DownloadBuildArtifacts@1
              displayName: 'Download Artifact'
              inputs:
                buildType: 'specific'
                project: '${System.TeamProjectId}'

```


#DynamicDeploy_25_20250224.1
Run new


DynamicDeploy

 This run is being retained as one of 50 recent runs by main (Branch).
View retention leases

Summary
Environments
Extensions
Code Coverage

Triggered_By

Build Artifacts Pipeline Run