
ESPC
Amsterdam23

Build apps for Teams with Teams Toolkit for Visual Studio Code

Garry Trinder

Cloud Developer Advocate, Microsoft

About me

- Based in the UK
- Cloud Developer Advocate for Microsoft 365
- Focused on Microsoft Teams and Microsoft Graph
- Previously developer/consultant/architect/
- Former Office Development MVP
- PnP Team Member – Maintainer of CLI for Microsoft 365
- LinkedInGitHub and X -> @garrytrinder

Get ready to code!

- We learn best by doing, so this will be hands on!
- Play around, go beyond the exercises
- Want to code all day, go for it!
- Need to drop for a meeting, no problem!
- Please be mindful of others

Order of the day

- Start – 09:00
- Setup and intro to Teams Toolkit
- Break - 10:30 – 11:00
- Message extensions / Bots
- Lunch - 12:30 – 13:30
- Bots / Tabs
- Break - 15:00 – 15:30
- Deploy / Use your own Stack
- End - 17:00

What you will learn

- Understand the basics of Teams development
- Understand how Teams Toolkit helps developers
- Understand how Teams Toolkit works
- Understand how to build a message extension
- Understand how to build a bot
- Understand how to build a tab
- Understand how to use Teams JS library
- Understand how to authenticate and call Microsoft Graph
- Understand how to provision, deploy and publish apps
- Understand how to use Teams Toolkit with your own stack

What we will build

- Three apps
- Product support SharePoint site
- Authentication to retrieve data using Microsoft Graph

GitHub

- https://github.com/garrytrinder/espc-workshop

- Wiki
  - Setup
  - Exercises
- Apps
  - Message extension
  - Bot
  - Tab
- Base
  - Template apps

Setup

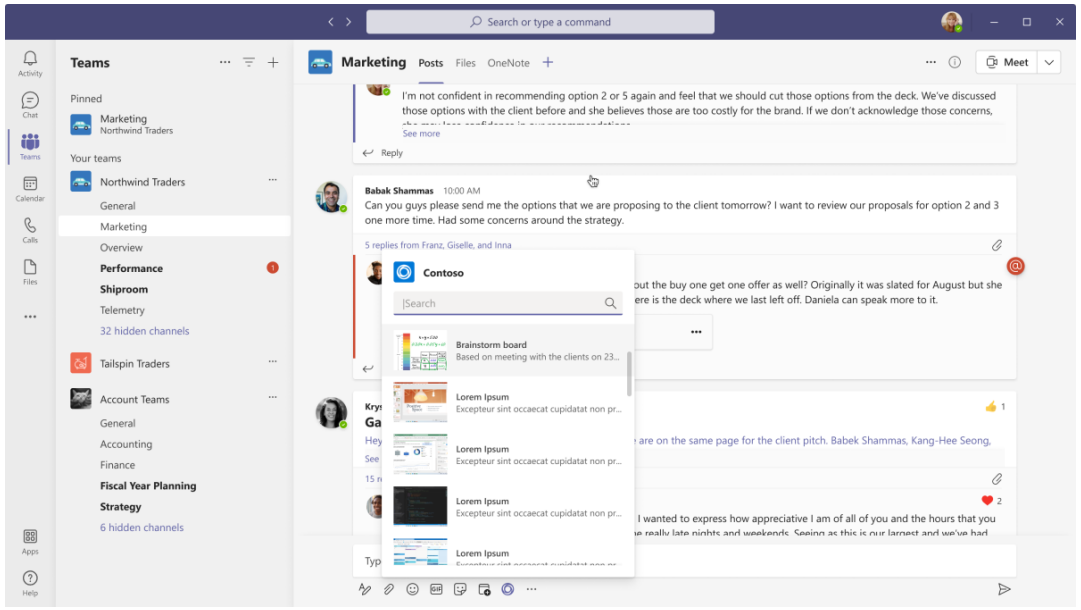
Why build apps for Teams?

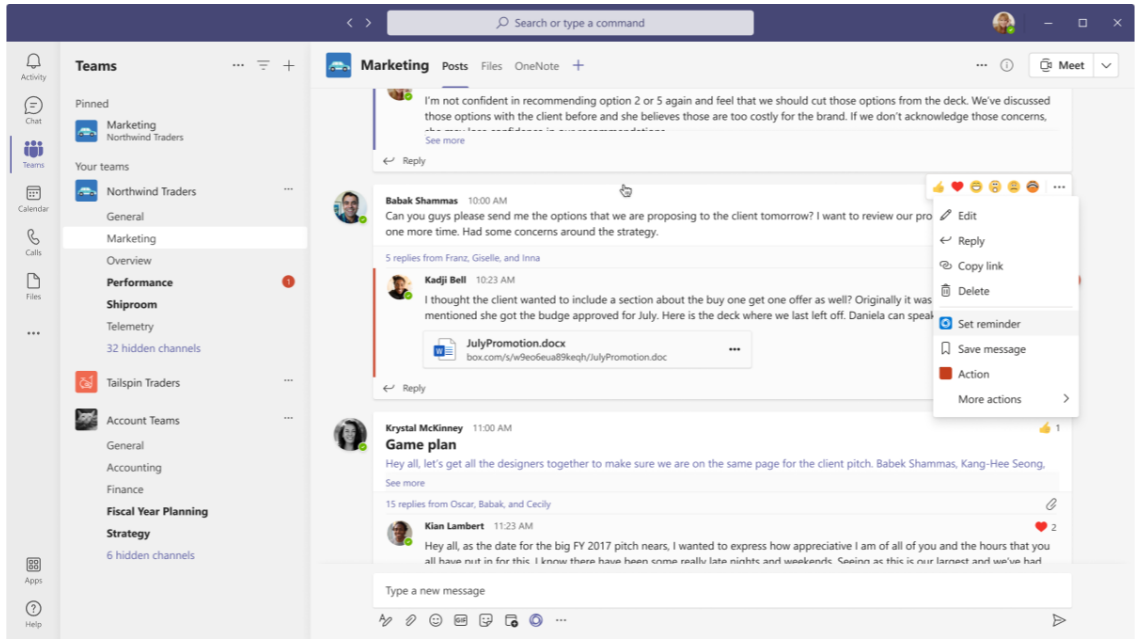
- Simplify a common business process
- Enhance social interactions
- Surface existing apps
- Bring data to users where they work

What is a Teams app?

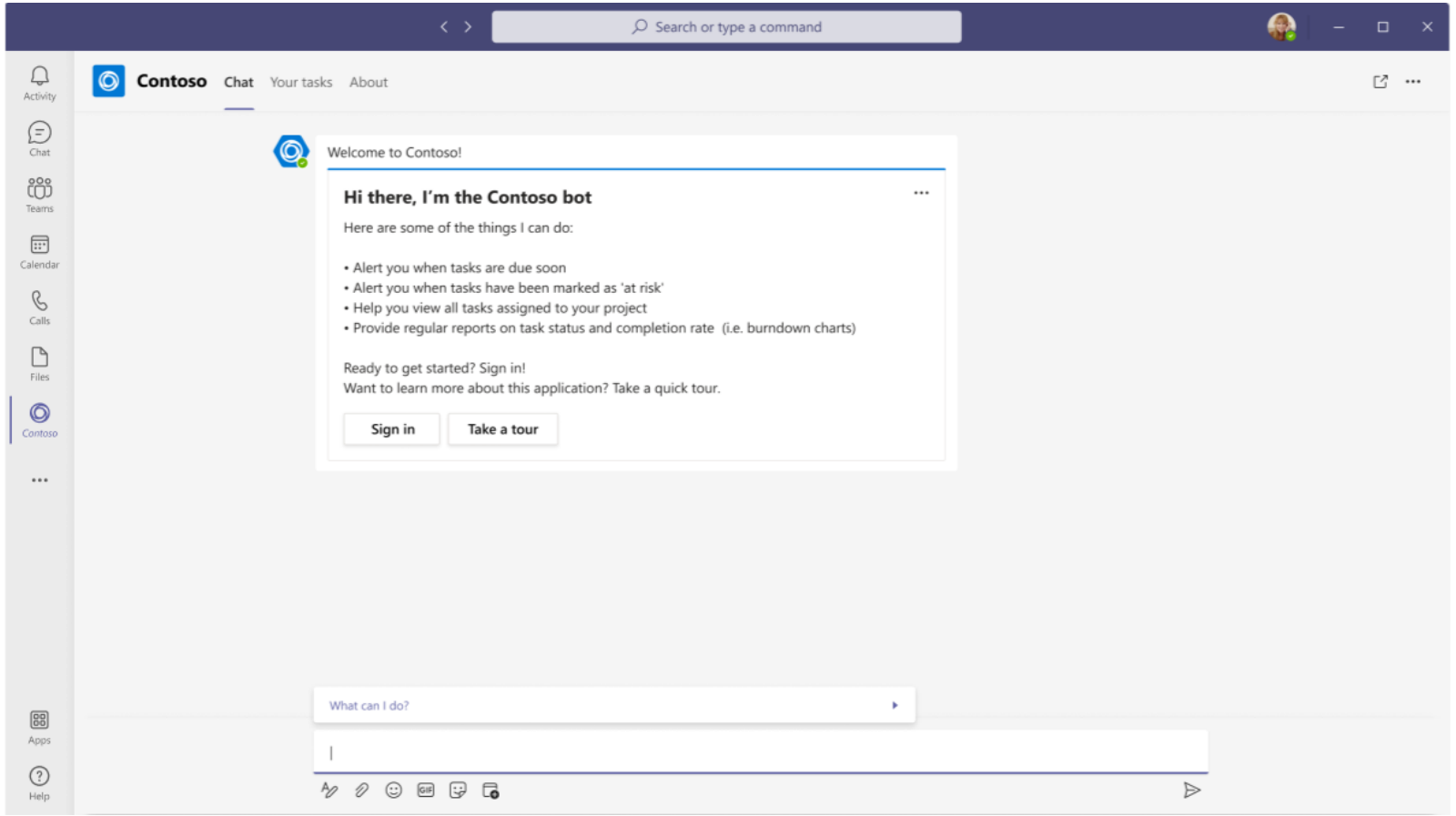
- ZIP file
  - Manifest
  - Icons
- Manifest
  - Describes the apps features
- Web resources

Message Extensions

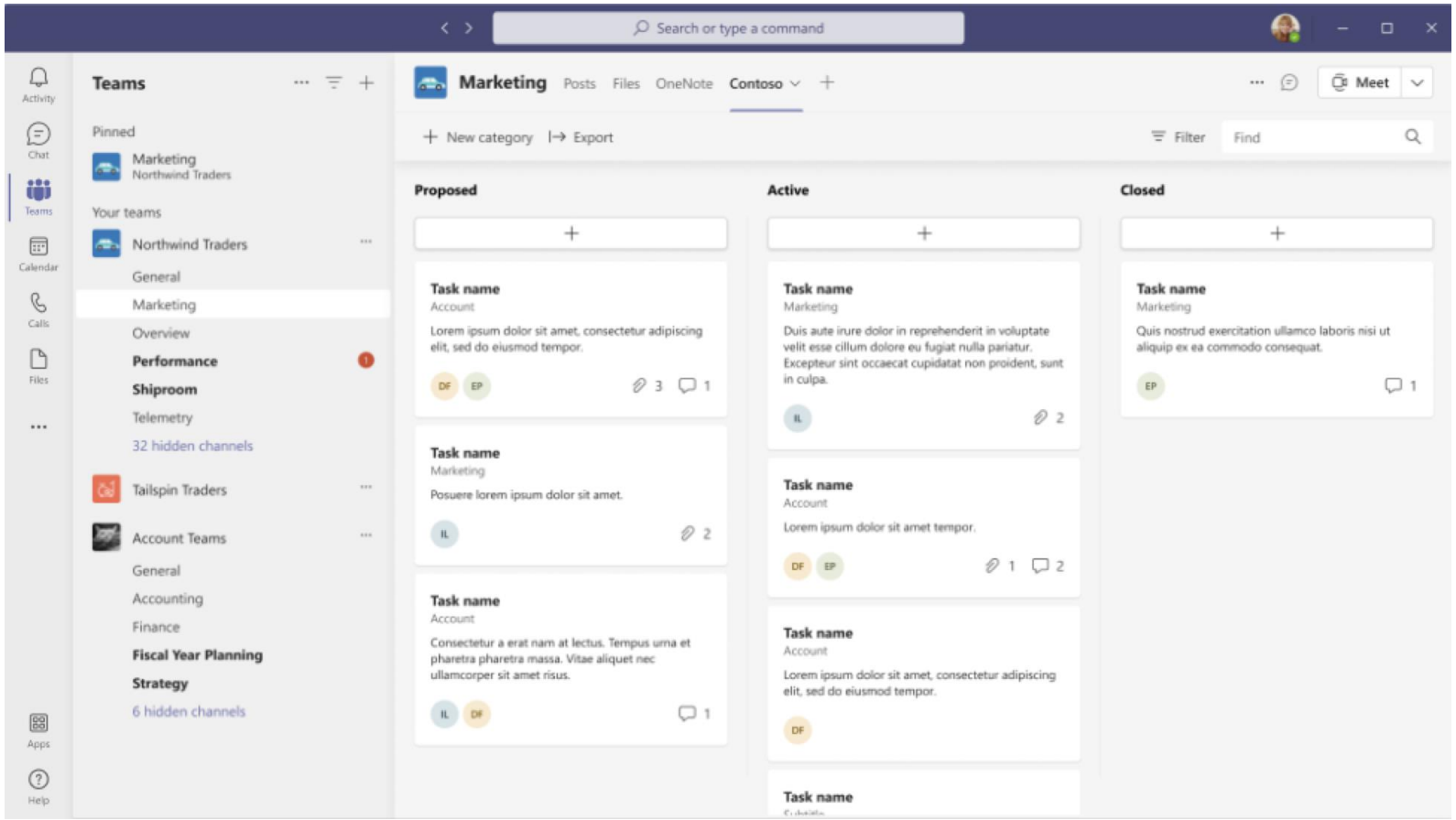




Bots


Search or type a command
Activity
Chat
Teams
Calendar
Calls
Files
Contoso
Apps
Help
Contoso
Chat
Your tasks
About
Welcome to Contoso!
Hi there, I'm the Contoso bot
Here are some of the things I can do:
• Alert you when tasks are due soon
• Alert you when tasks have been marked as 'at risk'
• Help you view all tasks assigned to your project
• Provide regular reports on task status and completion rate (i.e. burndown charts)
Ready to get started? Sign in!
Want to learn more about this application? Take a quick tour.
Sign in
Take a tour
What can I do?

Tabs


Search or type a command
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Northwind Traders
Your teams
Northwind Traders
General
Marketing
Overview
Performance
Shiproom
Telemetry
32 hidden channels
Tailspin Traders
Account Teams
General
Accounting
Finance
Fiscal Year Planning
Strategy
6 hidden channels
Marketing
Posts
Files
OneNote
Contoso
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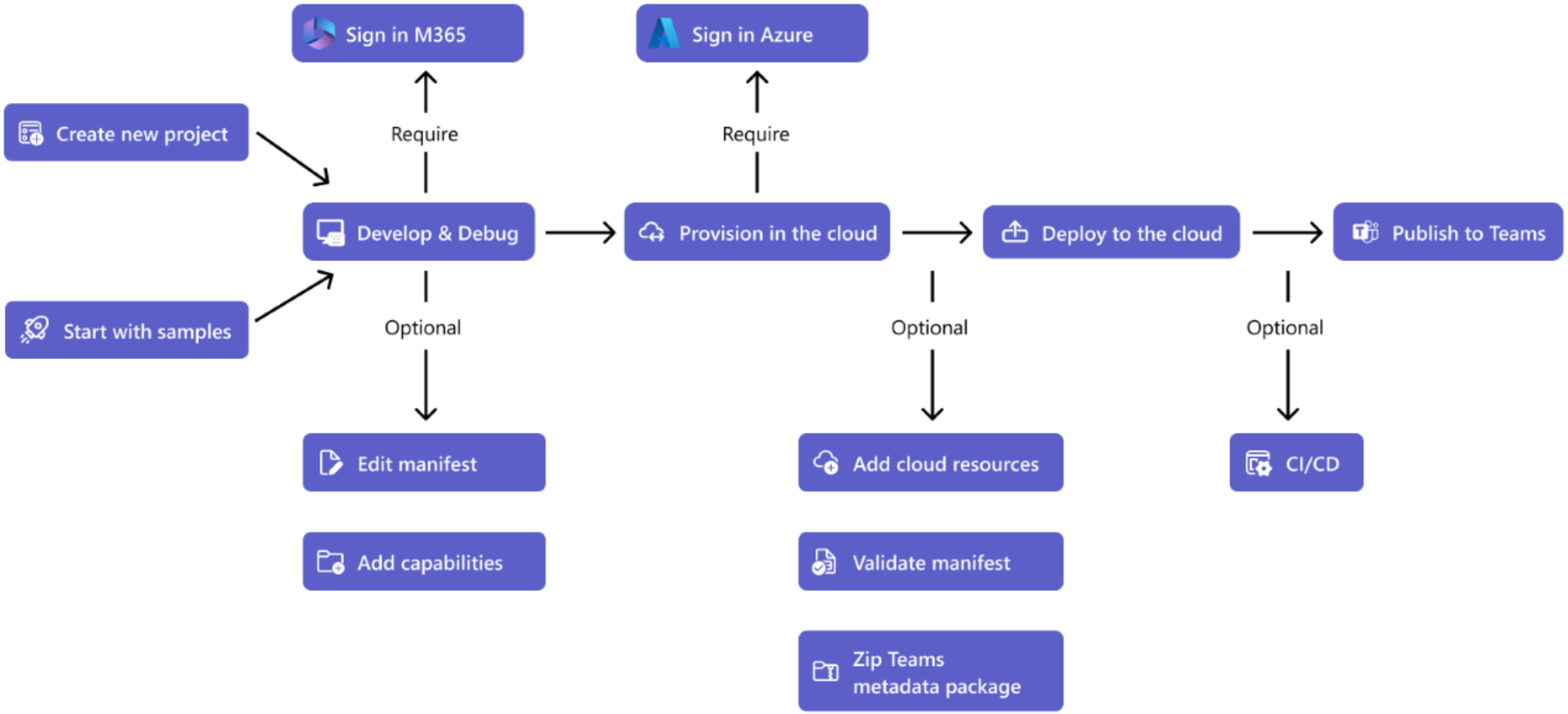
How to build them

- Teams Developer Portal
- yo teams
- Teams Toolkit for Visual Studio
- Teams Toolkit for Visual Studio Code
- And…
  - SharePoint Framework (Tabs)
  - Bot Framework Yeoman Generator (Bots)

Build an app with Teams Developer Portal

Teams Toolkit for Visual Studio Code

- VS Code extension from Microsoft
- “Build Teams apps, fast”
- Reduces development complexity
- Scenario project templates
- Optimised for local and remote dev/test environments
- Supports Windows, macOS and Linux (WSL)
- https://github.com/OfficeDev/TeamsFx


Sign in M365
Sign in Azure
Create new project
Require
Require
Develop & Debug
Provision in the cloud
Deploy to the cloud
Publish to Teams
Start with samples
Optional
Optional
Optional
Edit manifest
Add cloud resources
CI/CD
Add capabilities
Validate manifest
Zip Teams metadata package

Build an app with Teams Toolkit

A Teams Toolkit project

- Debug tasks
  - .vscode\launch.json
  - .vscode\tasks.json
- App package files
  - appPackage\manifest.json
- Infrastructure files
  - infra\azure.bicep
  - Infra\azure.parameters.json
- Environment files
  - env\.env.<env>
  - env\.env.<env>.user
- Project files
  - teamsapp.yml
  - teamsapp.<env>.yml

TeamsFx

- @microsoft/teamsfx
- Abstractions to make Teams development easier
- Bot Framework and authentication helpers

Explore Teams Toolkit

Message extensions

Bot Framework

- Used to build bots and message extensions
- SDKs
  - JavaScript
  - .NET C#
  - Python
- Add functionality by overriding TeamsActivityHandler

What do I need to develop a bot?

Web server

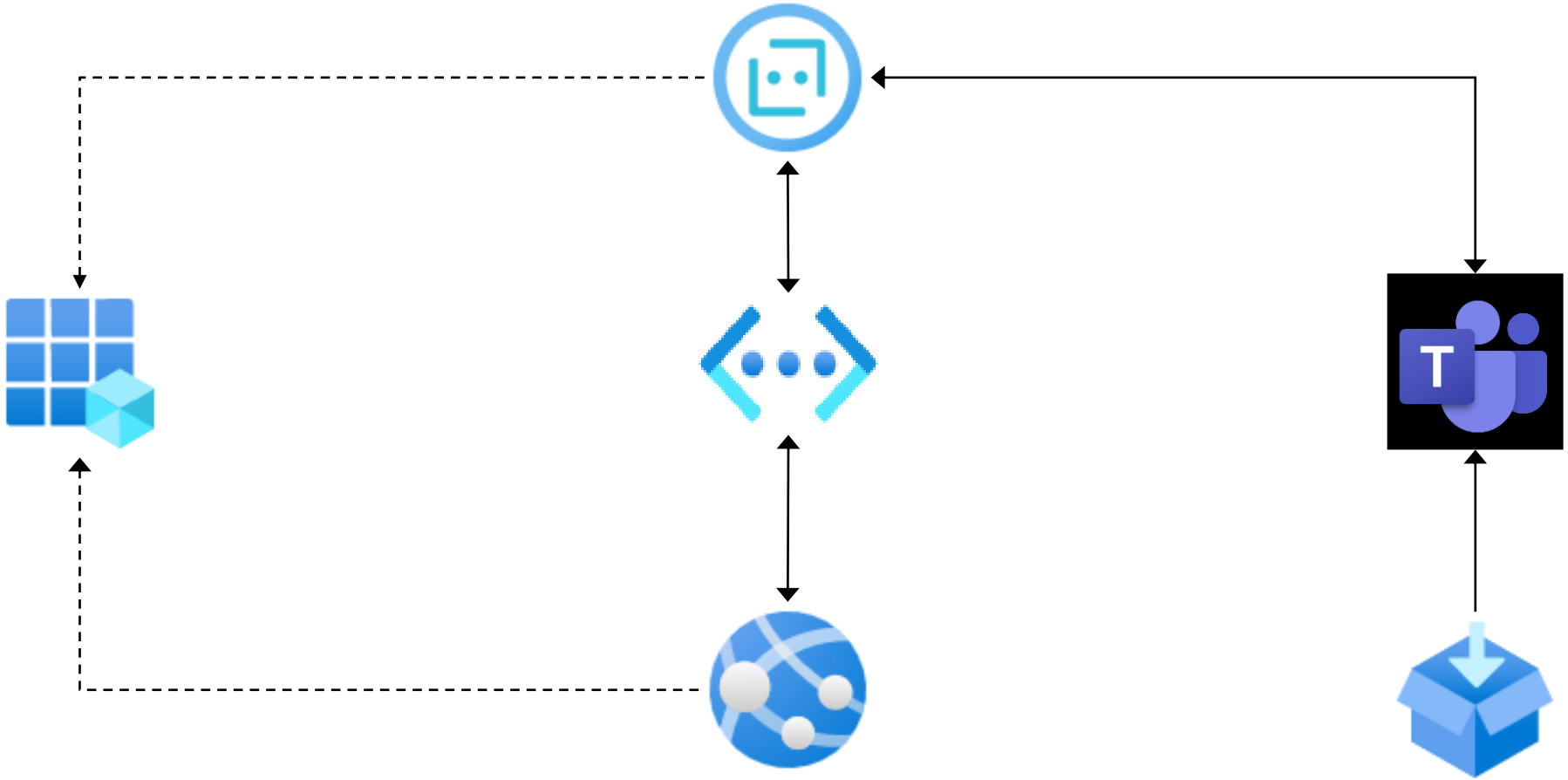
Azure Bot Service

Microsoft Entra ID app registration

HTTP tunnel

Microsoft Teams app package

How do the components interact?



Dev Tunnels

- Integrated into TeamsFx
- Uses your logged in account
- Defaults to using temporary public tunnels

Types of message extensions

- Link unfurling
  - Render links as rich interactive cards
- Action-based
  - Act on Teams messages and emails (preview) and interact with external systems
- Search-based
  - Search external systems and embed content into Microsoft Teams message or Outlook email

Templates

- 1. Link unfurling
- 2. Custom Search Results (search-based)
- 3. Collect Form Input and Process Data (action-based)

Exercise - Product support ME

Search and embed product information and embed in Teams messages and Outlook emails

- 1. Create project
- 2. Update app
- 3. Implement SSO
- 4. Implement search

Copilot for Microsoft 365 Plugins

- Re-use your Microsoft Teams extensions in Copilot
- Access external systems in real time
- Provide actionable responses
- Supports multi parameters
- Good descriptions
- https://github.com/officedev/Copilot-for-M365-Plugins-Samples

Bots

Templates

1. Basic Bot
2. Chat Notification Message
3. Chat Command
4. Sequential Workflow in Chat
5. AI Chat Bot

Teams AI library

- Announced at since Build ’23 as public preview
- Simplified API for building bots and message extensions
- Integrates prompting and conversation state
- Supports Open AI and Azure Open AI Service
- Checkout Andrew Connell’s session
  - Supercharge Microsoft Teams Apps with AI: Building Intelligent Bots & Messaging Extensions - Wednesday

Exercise - Product support Bot

Streamline Product support team customer support process

1. Create project
2. Update app
3. Implement notification
4. Implement workflow
5. Implement call to Graph
6. Implement command

Tabs

Templates

1. Basic Tab
2. React with Fluent UI
3. Dashboard
4. SharePoint Framework

Teams JS library

- @microsoft/teams-js
  - Client-side library with APIs for interacting with Teams
- Functionality exposed as capabilities
  - App
  - Mail
  - Sharing
  - Pages
  - And more…

Teams JS library

```
import { app } from “@microsoft/teams-js”;

// initialize Teams JS library
await app.initialize();

// get context
const context = await app.getContext();

// check if capability can be used
mail.isSupported()
```

TeamsFx Context Azure Function Binding

- Authorization for HTTP Trigger
  - The client id of which should be in the list of ALLOWED_APP_IDS or equals to M365_CLIENT_ID setting.
- Refresh user access token in request header if it's about to expire.
- Provide user access token in TeamsFxContext as Azure Functions input binding

Exercise - Product support Tab

Display and share customer scripts from Teams

1. Create project
2. Update app
3. Build static tab
4. Implement sharing feature using Teams JS Library

Deploy apps with Teams Toolkit

Provision, deploy and publish

- Provision
  - Azure resources
- Deploy
  - Code
- Publish
  - Organization Store

CI\CD

- Templates
  - https://github.com/OfficeDev/TeamsFx/blob/main/docs/cicd
- GitHub
  - TeamsFx GitHub Action
    - https://github.com/OfficeDev/teamsfx-cli-action
  - CI template
    - https://github.com/OfficeDev/TeamsFx/blob/main/docs/cicd/github-ci-template.yml
  - CD template
    - https://github.com/OfficeDev/TeamsFx/blob/main/docs/cicd/github-cd-template.yml
- Azure DevOps
- Jenkins
- Generic CI\CD

Use your own stack

Don’t accept the defaults

- Make your own choices
- Use Teams Toolkit with new projects
- Use Teams Toolkit with existing projects
- Customise with your own tasks and custom scripts

- Graph Connector Sample
  - https://github.com/pnp/graph-connectors-samples/tree/main/samples/nodejs-typescript-food-catalog

Exercise – With TTK

Use your own stack with Teams Toolkit

1. Create project
2. Create project files
3. Download app package
4. Create environments
5. Update manifest
6. Create VS Code tasks
7. Write runtime environment variables

Recap

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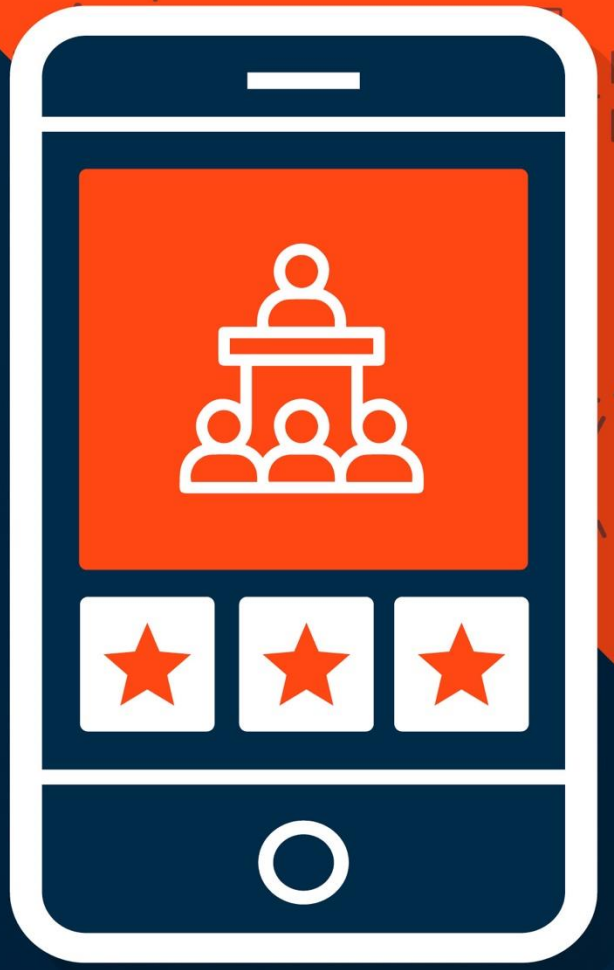
Feedback on Teams Toolkit

- Come and speak to me ☺

Please rate this session on the app



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