Microsoft Power Platform

Code apps: make a React app enterprise grade with Power Apps

Austin Laugesen, Ryan Jansen, Jordan Chodak
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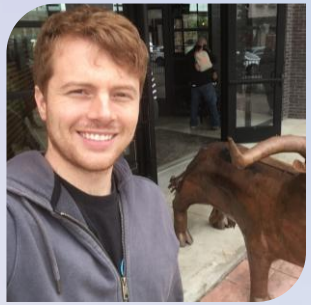
Lummus Technology



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Agenda

- Code in Power Apps, why?
- What are code apps?
- Why code apps vs cloud tech?
- How do they work?
- Customer use case
- Q&A

Code in Power Apps, why?

A landscape of app development

Prompt-based

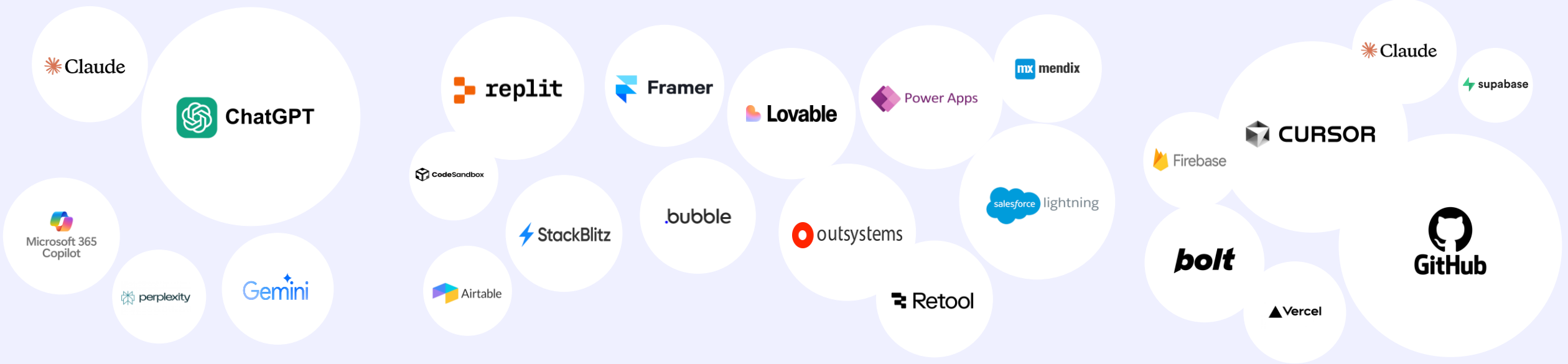
"AI-generated apps"

Fast, lightweight apps with built-in chat for end users

AI-Assisted Full Stack

"Pro-developer platforms"

Dedicated IDE for pro-developers to create enterprise-ready apps

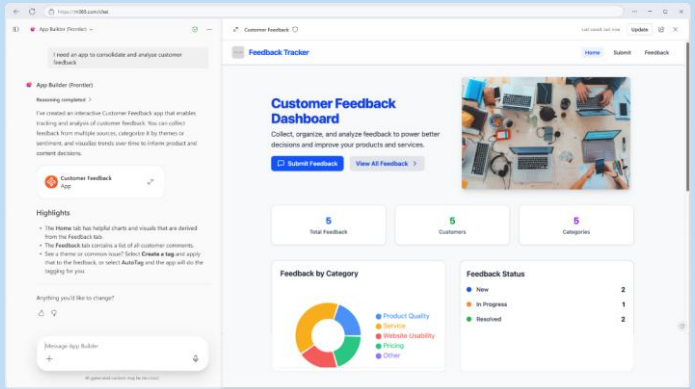


A range of tools for app creation

No code

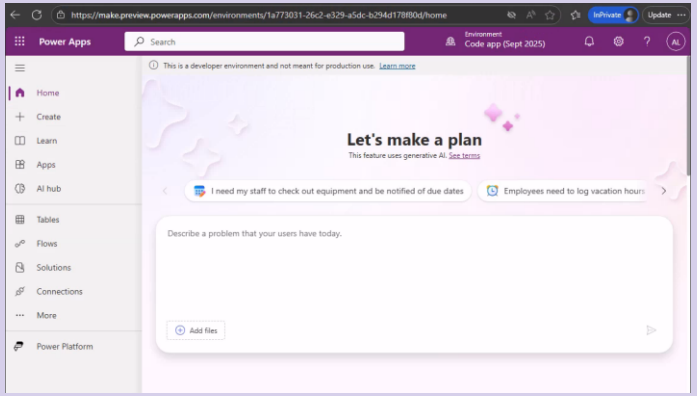
Pro code

For end-users



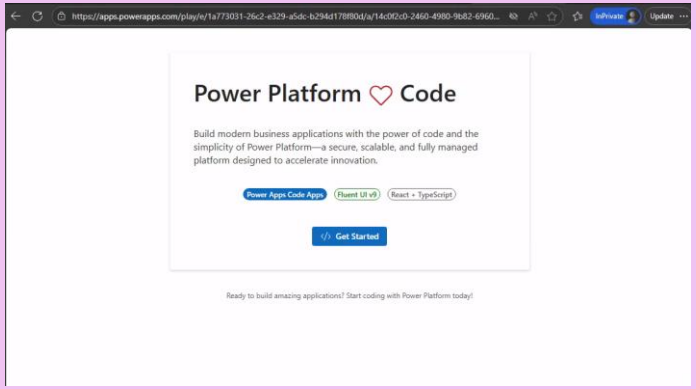
Copilot App Builder

For makers



Power Apps Studio

For developers



Visual Studio Code, Azure, Power Apps code apps

A range of tools for app creation

No code

Pro code

For end-users

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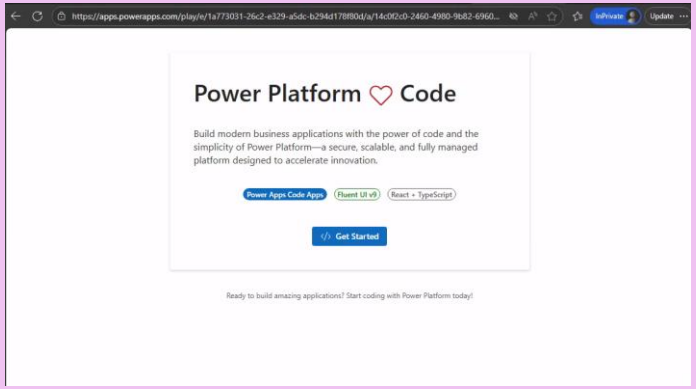


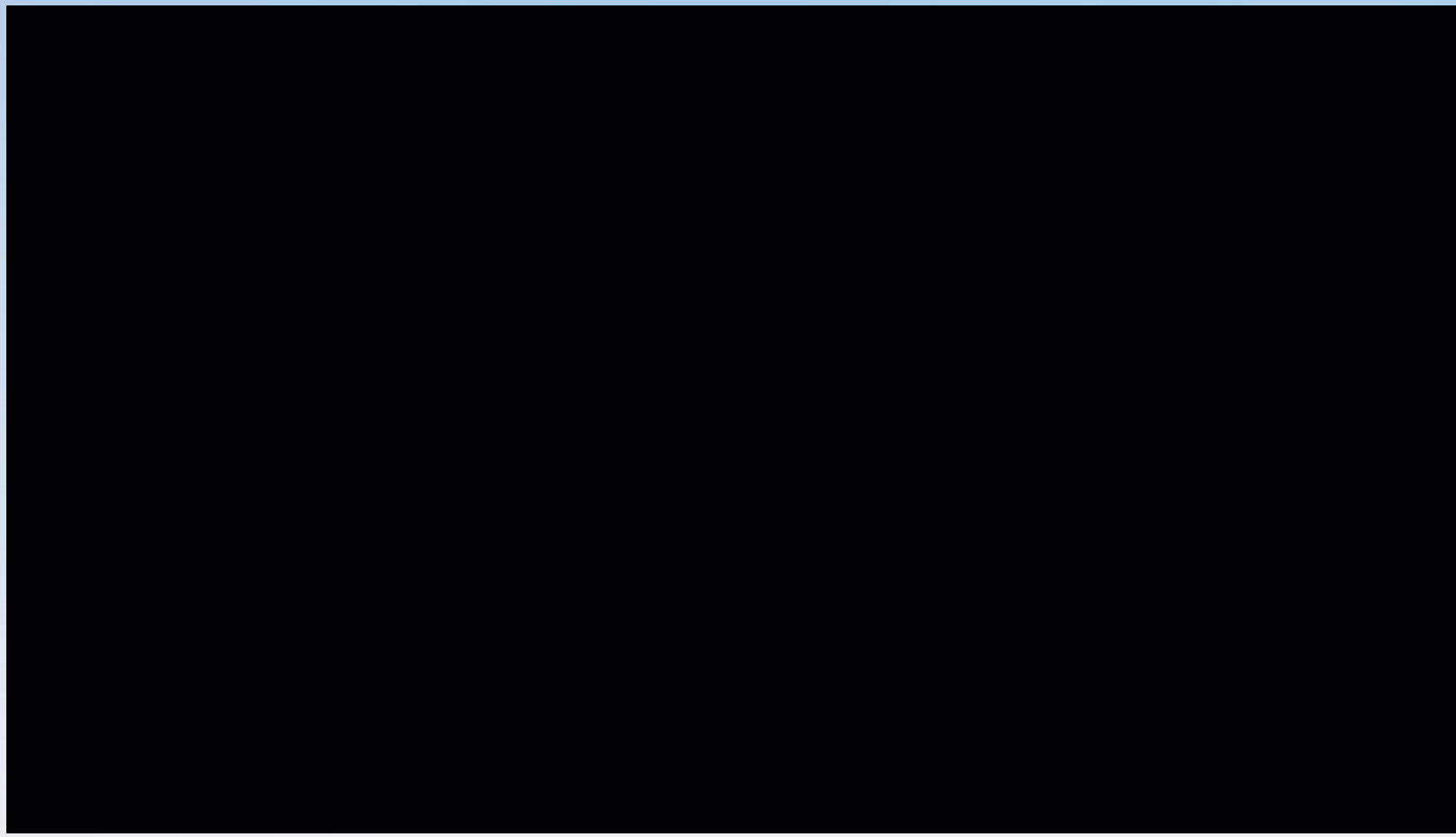
Power Apps code apps

What are code apps?

Code apps: Power Apps for developers

+

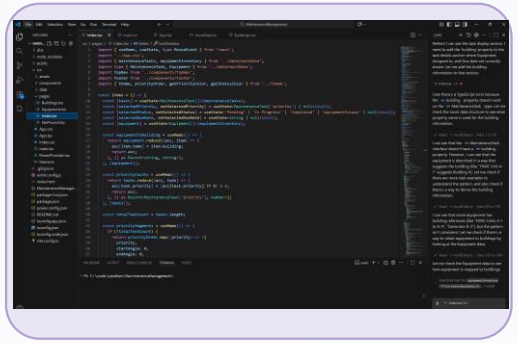
- Code first: JavaScript – SPA
- 1400+ connectors, consistent interface
- Entra auth, no code required
- Generated models, services for data
- Publish to Power Platform cloud service
- Managed Governance, Security, Ops
- Full lifecycle support – ALM, Monitor

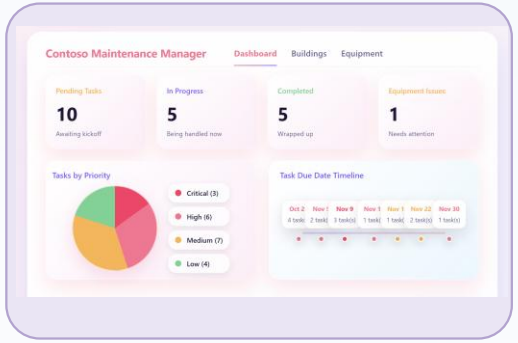


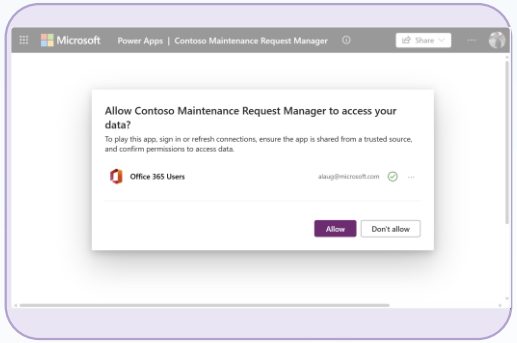
Unbridled development, simplified management

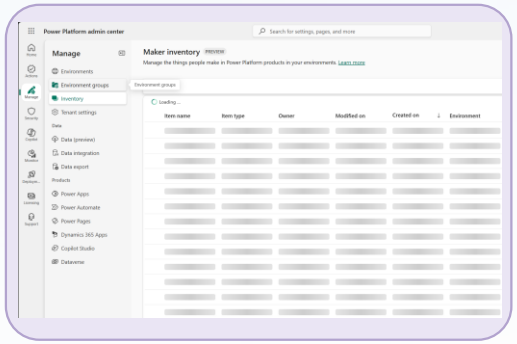
For developers

For IT









Create where desired

Not familiar with canvas or model apps, no problem. Code apps bring Power Apps capabilities to React apps you can build in your preferred IDE.

Simple Data Access

Power Platform connectors provide a common interface to retrieve data from 1,400 data sources. **Your code uses auto-generated models/services**.

Enterprise ready host

Code apps publish into an established cloud service with **built in reliability, resilience, auth and enforce IT policies**.

Scale management

Like traditional Power Apps, **code apps work with the Managed Platform** (Managed Governance, Operations & Security. E.g. Inventory, Conditional Access on apps, sharing limits, Monitor)

Why code apps vs cloud technologies?

Power Apps is fastest path to an enterprise LOB app

	 **Power Apps code apps** Fast, secure, enterprise ready	 **Cloud Platform-as-a-Service (Paas)** Highly customizable, more code/config required
Development experience	✓ Idea-to-published in hours ✓ Built-in Power Platform stack	Full stack config required 'App registrations' require coordinating with Admins
Authentication	✓ Built-in MS Entra, no code required	Custom configuration (or code) required
Connectivity	✓ 1400+ connectors out of the box	SDK or API integration per data source
Data Layer	✓ Dataverse included	No built-in data layer (Azure SQL is standalone)
Hosting	✓ Cloud service with disaster recovery and CDN built-in	Manual wiring of services Traffic manager set up needed for multi-region
Deployment	✓ Pipelines deployments included with Managed Envs. ✓ Optional DevOps/GitHub integration	CI/CD requires Azure DevOps or GitHub setup
End-user playback	✓ Web – just share the app	Web only, requires Azure configuration
Governance	✓ Enterprise-grade governance (PPAC, Managed Envs)	Requires custom code/config for parity with Managed Envs.

Demo – Create where desired

Ryan Jansen

How do code apps work?

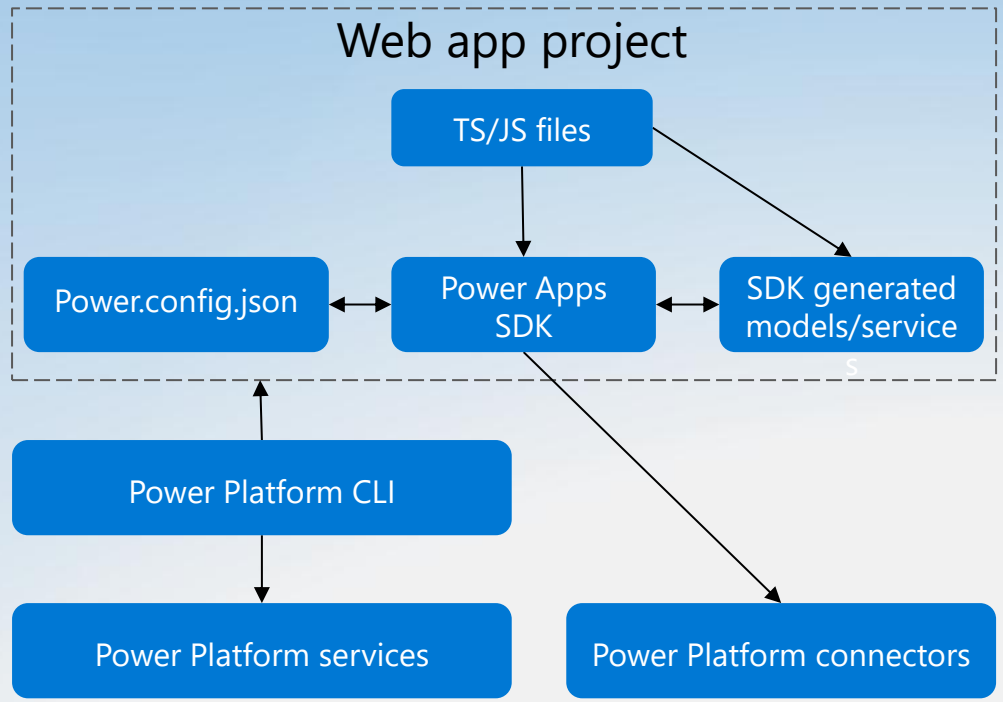
Development: JS apps use the Power Apps SDK

When developing, code apps consist of:

- **Your code**, a Single-Page Application (SPA)
- The Power Platform **CLI** (pac CLI)
- The Power Apps **SDK**

The Power Apps CLI creates a **power.config.json** file and **generates strongly-typed models/services** for connections.

Your code **runs locally** using the Power Apps **SDK** to use connections and interact with the Power Apps shell.



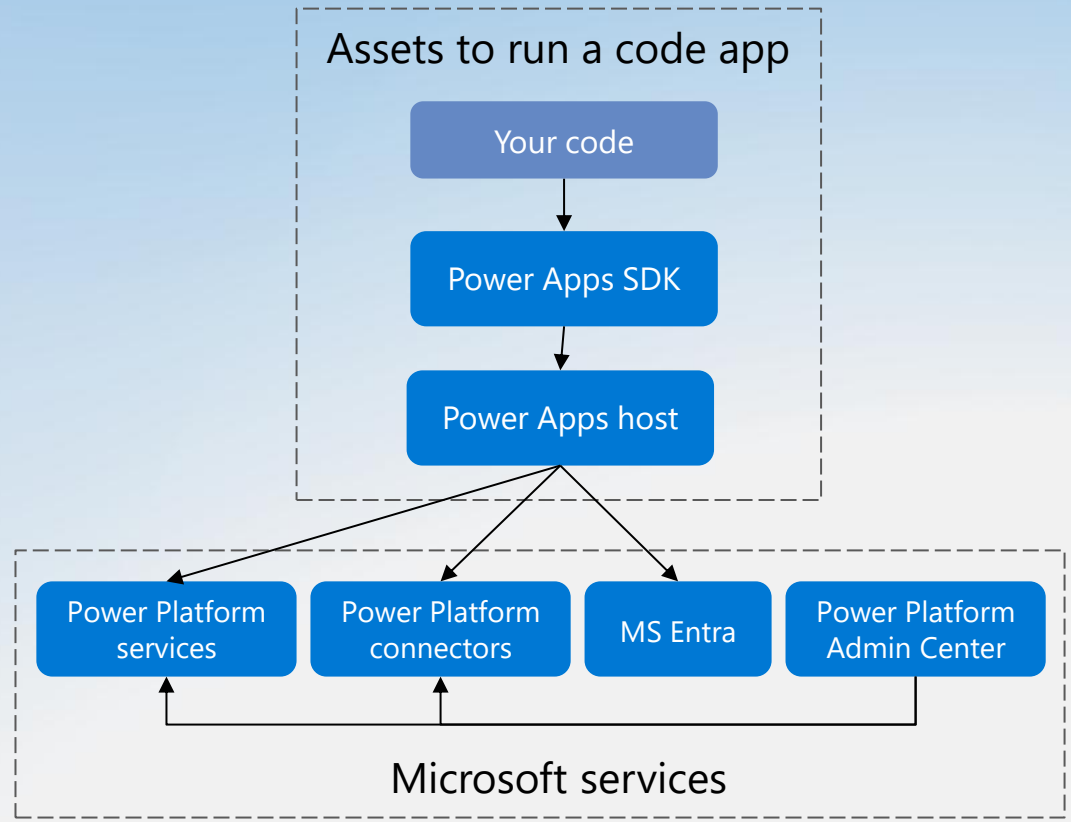
Runtime: Power Apps host loads your app

When a code app runs, there are three components:

- **Your compiled code**
- The Power Apps **SDK**
- The Power Apps **host**

Your compiled code is published to Power Apps and runs inside of the Power Apps **host**, which manages **end-user authentication**, **app loading**, and **enforcing governance boundaries**.

The **SDK** communicates with the host to enable secure access to **connections** and **platform features**.



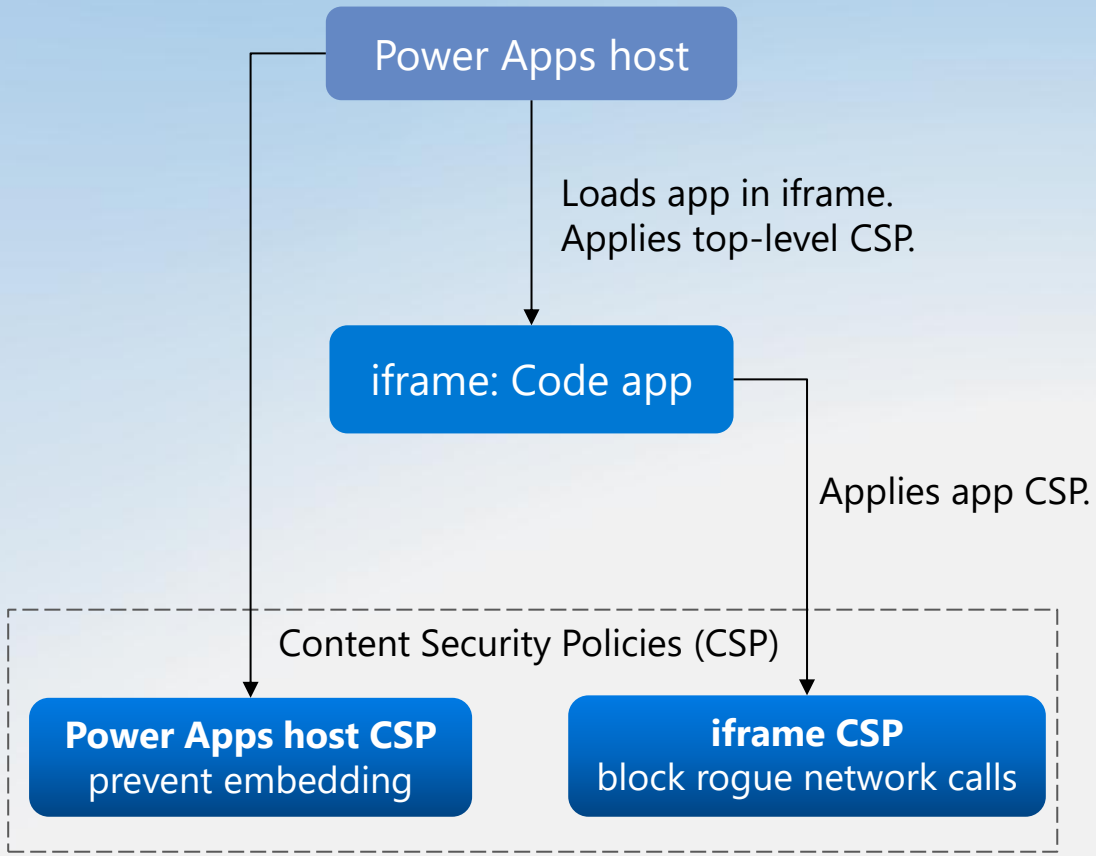
Runtime: Power Apps host is a secure sandbox

The Power Apps **host** will support **Content Security Policies** (CSP) to control what apps can access.

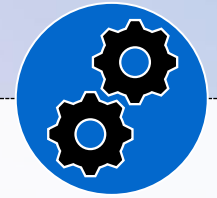
Power Apps will **enforce a strict CSP policy by default**, but admins can configure it to be more permissive.

The host applies CSP settings to **prevent undesired embedding**. E.g. your app will run in apps.powerapps.com.

The app code runs in a sandboxed iframe that applies additional CSP settings to **prevent rogue network calls** (data exfiltration risk) and **disallow insecure JavaScript patterns**.



App lifecycle: code Apps use the Managed Platform



MANAGED OPERATIONS

- "Solution aware" and support connection references
- Deploy via Power Platform pipelines
- Health metrics, alerts in Monitor
- (Coming soon…) Solution Pack/unpack support

MANAGED GOVERNANCE

- Appear in Admin Center inventory
- Honor sharing limits
- Respect app quarantine
- Support Azure B2B users
- Comply with data loss prevention (DLP) policies

MANAGED SECURITY

- Respect tenant isolation
- Apply default Content Security Policy (configurable)
- Enforce Conditional Access Policies

Demo – IT benefits of code apps in Power Platform

Jordan Chodak

Customer use case

Lummus Technology

Christopher Robbins

Why Power Apps hit limits for our engineering apps

UX & Domain Complexity

- Large calculations and visualization of the information in Project specific Units of Measure caused performance and added complexity
- Ability to view specialty visuals such as Process Flow Diagrams would require a PCF coded solution that would then be put into a Canvas or Model Driven App adding complexity to the ALM of the tool

Performance & Scale

- Limited Custom Component Reusability
  - No custom components inside of a Gallery
  - Updates to custom components are SLOW
- Embed Canvas in MDA results in poor performance
  - We move between multiple records that all have embed canvas and the loading time is each time the record opens

DevEx & ALM

- Git/code reviews on app artifacts isn't developer-friendly
- Reuse/versioning at scale is cumbersome.
- Automated testing/observability for client logic was limited/complex to build and maintain. No real unit testing of logic.

Why we are running FAST to Code Apps

F

Faster

Performance - Full control of data loading & client caching
Development - OOTB Security, Connection Ecosystem and Dataverse

A

Agility

Reusable screens/components across apps & data sources
Utilize react libraries for engineering visualizations without PCF

S

Speed of Delivery

New app in ~120 hours vs >18 months originally
GitHub Copilot accelerated a non-developer (Chemical Engineer) to build complex apps

T

Testing

Unit/automated testing
PR reviews
Fully utilize browser console for troubleshooting

Demo – HYDRA: Hydrualics Calculation app

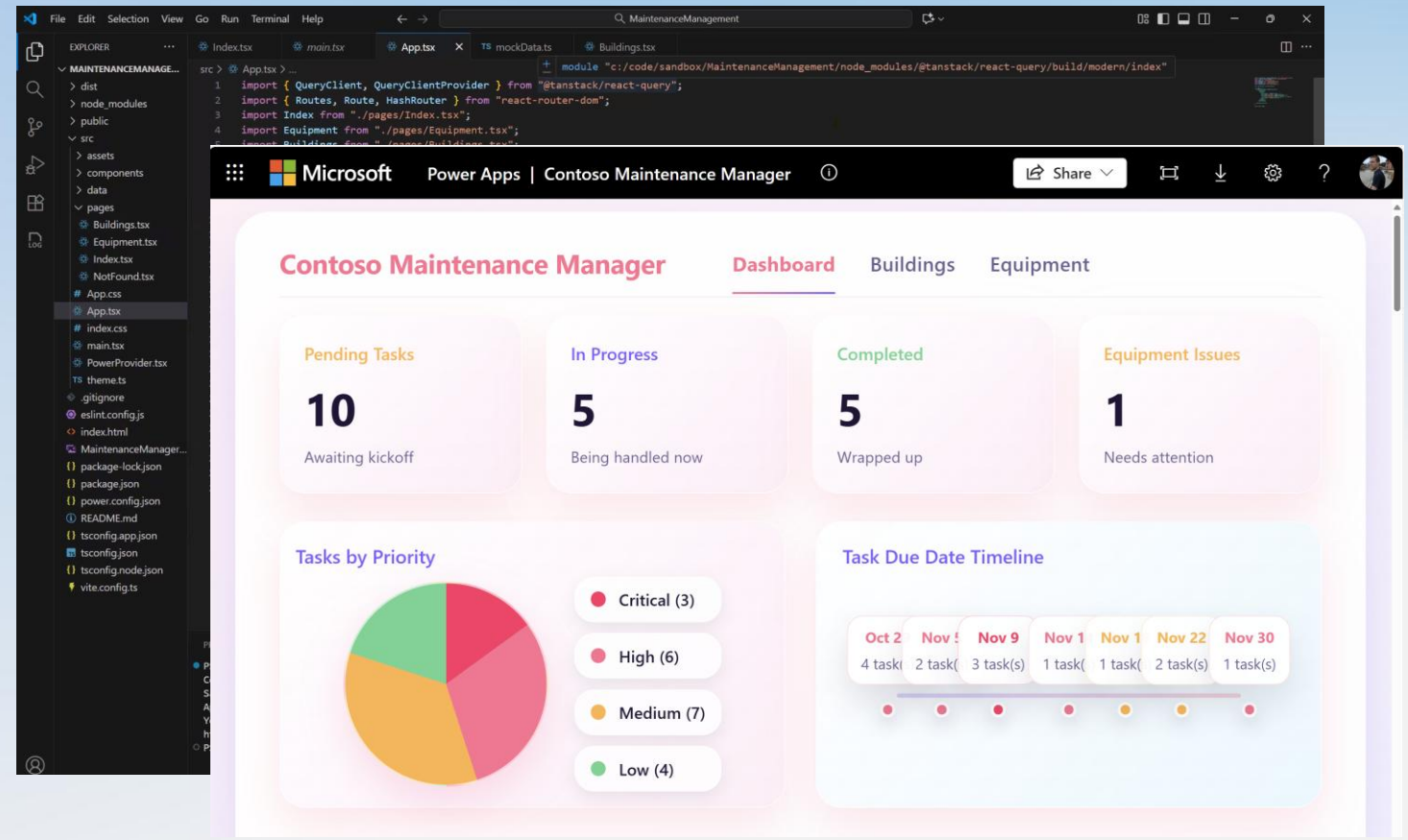
Christopher Robbins

Code apps

Power Apps for developers.

Simplify reaching enterprise-grade.

- **Build with your IDE**, take control of the code.
- **Built in Entra auth** without writing code
- **Safe place to innovate** CSP protects your organization from a code-first app that could attempt rogue requests.
- **Enterprise ready with Managed Platform** – with Managed gov/security/operations.



AVAILABILITY: PUBLIC PREVIEW

Microsoft Power Platform

Get Involved – Sign Up for Code Apps Office Hours

Schedule (rest of 2025):

- **Wednesday, November 12,** 10:00–10:30 AM PT
- **Wednesday, December 10,** 10:00–10:30 AM PT

We will resume the series on **Wednesday, January 7, 2026**. Look for future announcements on GitHub!

What to expect:

- Brief updates on new features and docs
- Live Q&A with the code apps team
- Share feedback and feature requests

Microsoft Power Platform

Thank you

Austin Laugesen, Jordan Chodak, Ryan Jansen, Christopher Robbins

Email: **paCodeAppPreview@microsoft.com**

Documentation: https://**aka.ms/paCodeApps**

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