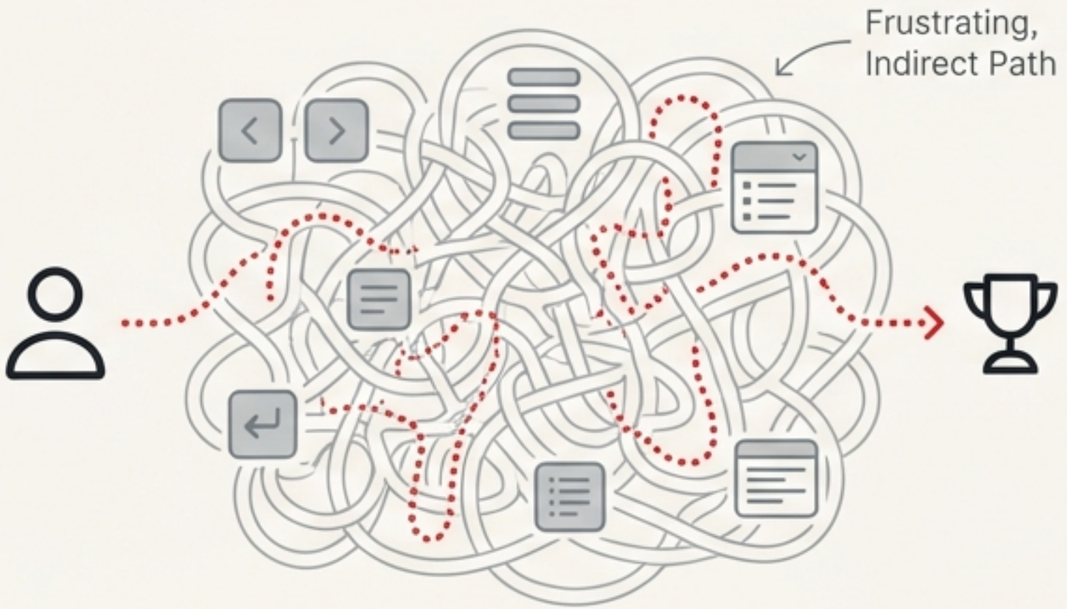
The Dawn of Generative UI

How AI is Moving Beyond Chat to Build Adaptive Interfaces

From Rigid Workflows to Fluid Conversations

The Old Way: Users Learn the App

Users must learn complex, static UIs with fixed buttons, menus, and workflows. The burden is on the user to adapt to the software.



The New Question: The App Learns the User

How can AI agents safely generate rich, interactive UIs in real-time, across any platform, based on what the user wants to achieve?

The Application Adapts to the User

Generative UI is not just a chatbot overlay. It's about AI assembling the right components for a user's intent, in real-time. The interface is generated, not pre-built.

Personalized Experiences: Novices and power users see different interfaces tailored to their needs.

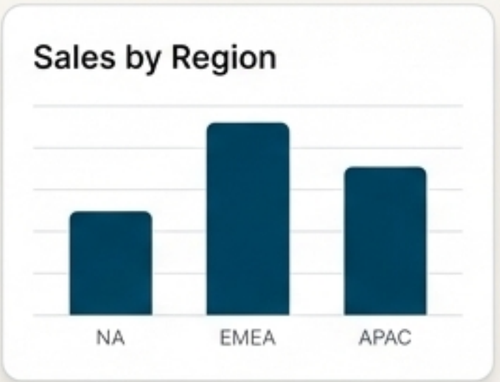
Workflow Acceleration: Translate natural language directly into action, bypassing clicks and menus.

Radical Accessibility: Lower the barrier to using complex software for all user types.

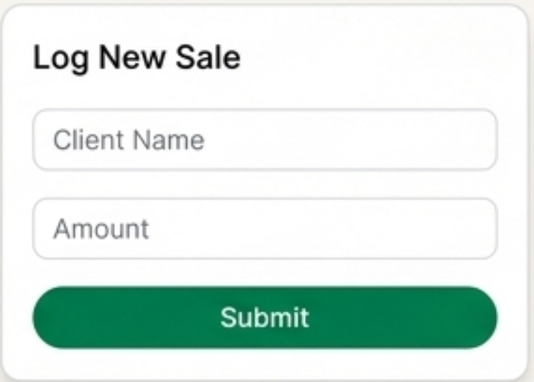
One System, Three Interfaces

For the CEO

For the Analyst

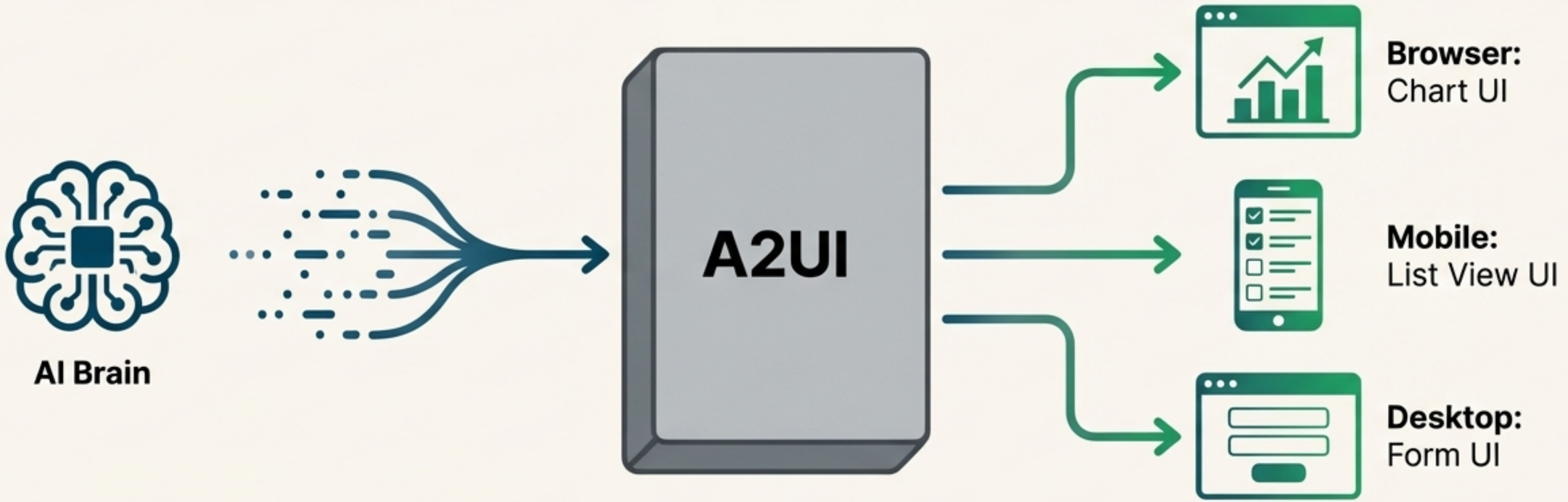


For the Sales Rep



A2UI: The Lingua Franca for Agent-Driven Interfaces

A2UI is the foundational communication protocol that solves the problem:
“how can AI agents safely send rich UIs across trust boundaries?”

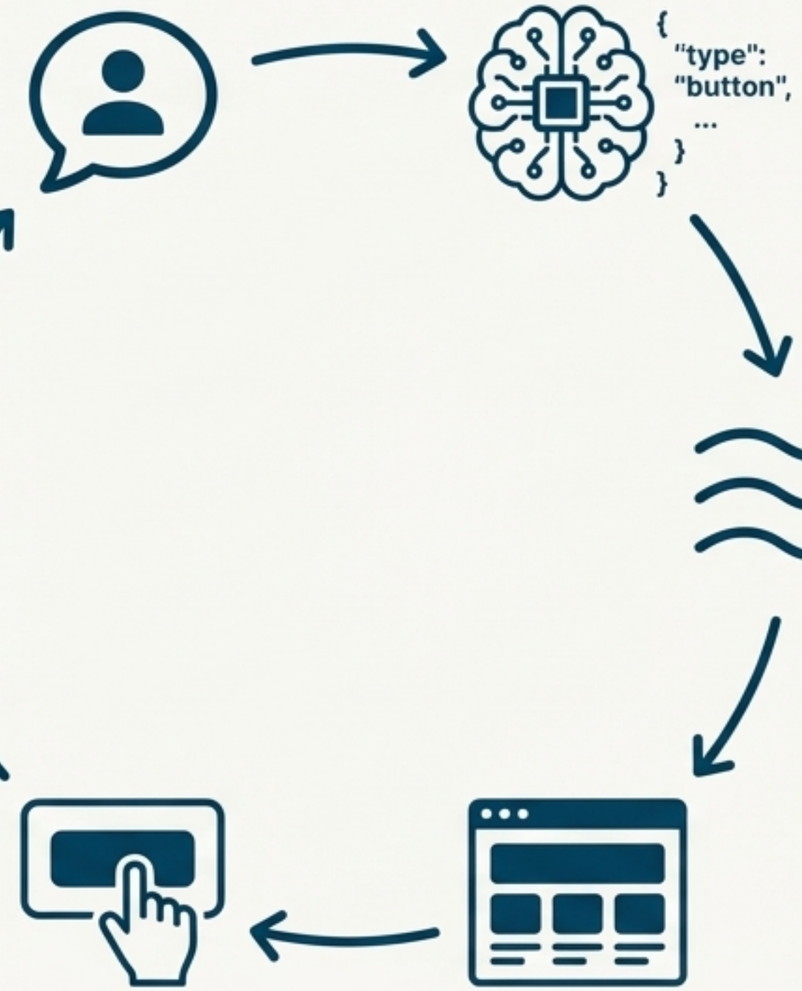


Project: A Google-led open-source project (Apache 2.0 license) with community contributions.

Type: A declarative specification, not executable code.

Status: Currently in v0.8 (Public Preview), actively evolving.

A Secure, Streaming Conversation



1. User Sends Message

User types a request.

2. Agent Generates A2UI

LLM produces declarative JSON describing the UI.

3. Messages Stream

UI description is sent to the client incrementally.

4. Client Renders Natively

The client uses its own components (React, Flutter, etc.) to build the UI.

5. User Interacts

User clicks a button or fills a form in the generated UI.

6. Agent Responds

The interaction is sent back, and the agent replies with UI updates.

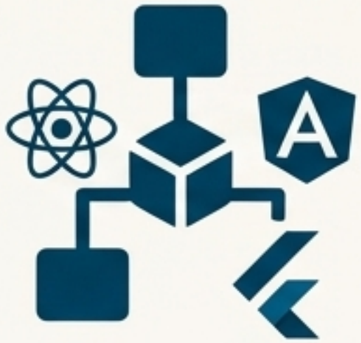
Designed for a New Kind of Interaction

Secure by Design

It's a declarative data format, not executable code. Agents use a pre-approved component catalog, preventing UI injection attacks.

LLM-Friendly

The flat, streaming JSON structure is easy for models to generate incrementally, without needing a perfect, monolithic response.



Framework-Agnostic

A single agent response can be rendered natively on any platform, using your own styled component libraries.

Progressive Rendering

UI updates are streamed as they're generated. Users see the interface building in real-time instead of staring at a spinner.

Tambo: The Generative UI SDK for React

Tambo is the developer's toolkit for building Generative UI applications. It handles the complexity of the agent-UI conversation, letting developers focus on their UI components.

'Build apps that adapt to your users.'

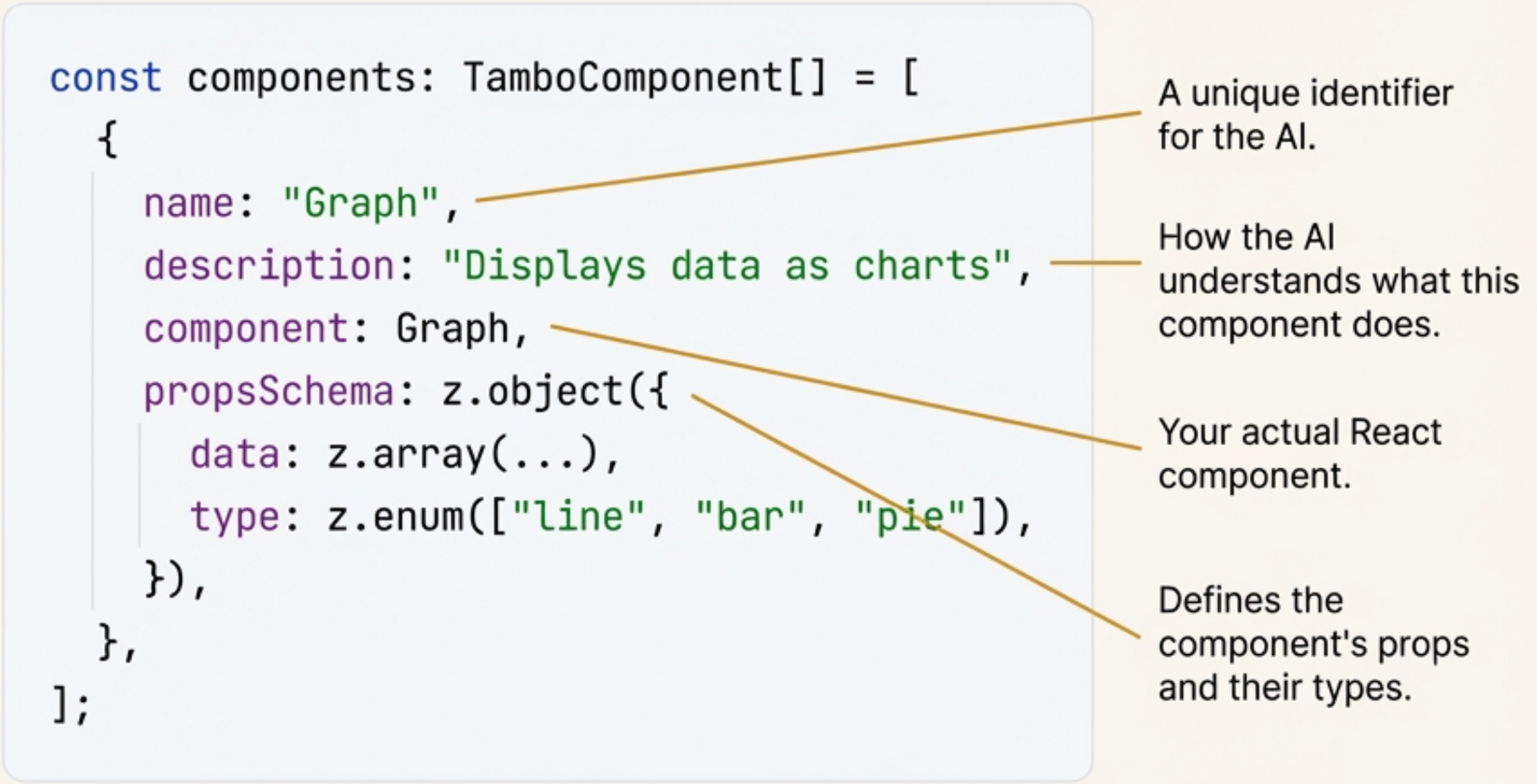
Open-source (MIT license).

Offers both a free hosted backend (Tambo Cloud) and a self-hosted option.

You Provide the Components, the AI Does the Work

1. Register Your Components
You provide your React components along with a `description` (for the AI) and a `propsSchema` (using Zod for type safety).

2. AI Selects & Renders
The AI uses the descriptions to select the right component and the schema to configure its props based on the user's natural language input.



Building Dynamic and Stateful Experiences

Generative Components

Rendered once in response to a user prompt. Ideal for displaying information like charts, summaries, or data visualizations. They are ephemeral.

Show me last quarter's sales

Interactable Components

Persist and update over the course of a conversation. They enable stateful experiences like shopping carts, spreadsheets, or task boards.

create a note

Note

New Note

change the title to "Meeting Prep"

Note

Meeting Prep

More Than Just Components: A Full-Featured Toolkit

Pre-built Library & Templates

Get started quickly with ready-made primitives and forkable application templates.

MCP Integrations

Connect to external tools and services like databases, Slack, or Linear using the full MCP protocol.

Context & Auth

Pass user state, application context, and authentication tokens (e.g., OAuth) for personalized and secure responses.

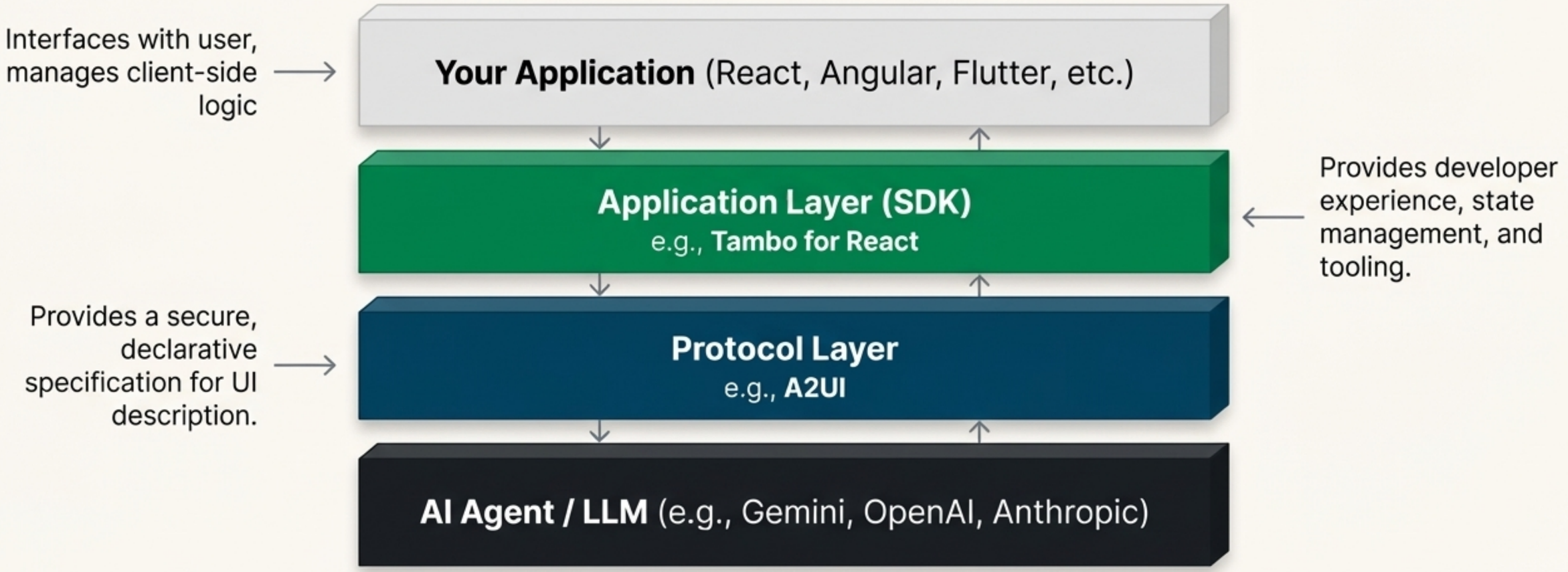
Client-Side Tools

Securely allow the AI to call functions that run in the browser, like DOM manipulation or authenticated fetches.

Two Layers of the Same Revolution

Protocols provide the universal language for interoperability, while SDKs provide the tools for developer productivity.

The Generative UI Stack



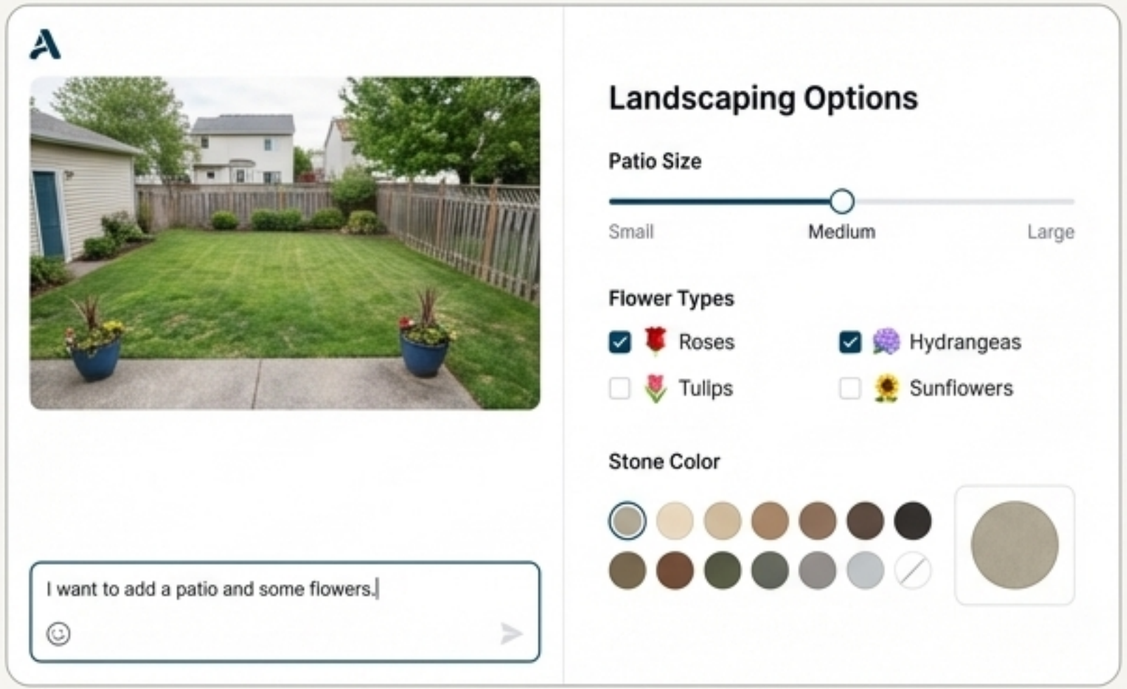
Protocol vs. SDK: Choosing the Right Abstraction

Axis	A2UI (Protocol)	Tambo (SDK)
Category	Protocol	SDK
Core Purpose	Describing UI for any client	Building UI apps in React
Key Asset	The open specification	React components & hooks
Target User	Framework builders, platform architects	Application developers
Primary Benefit	Interoperability & Security	Developer velocity & Rich features

In Action: From Landscape Design to Interactive Databases

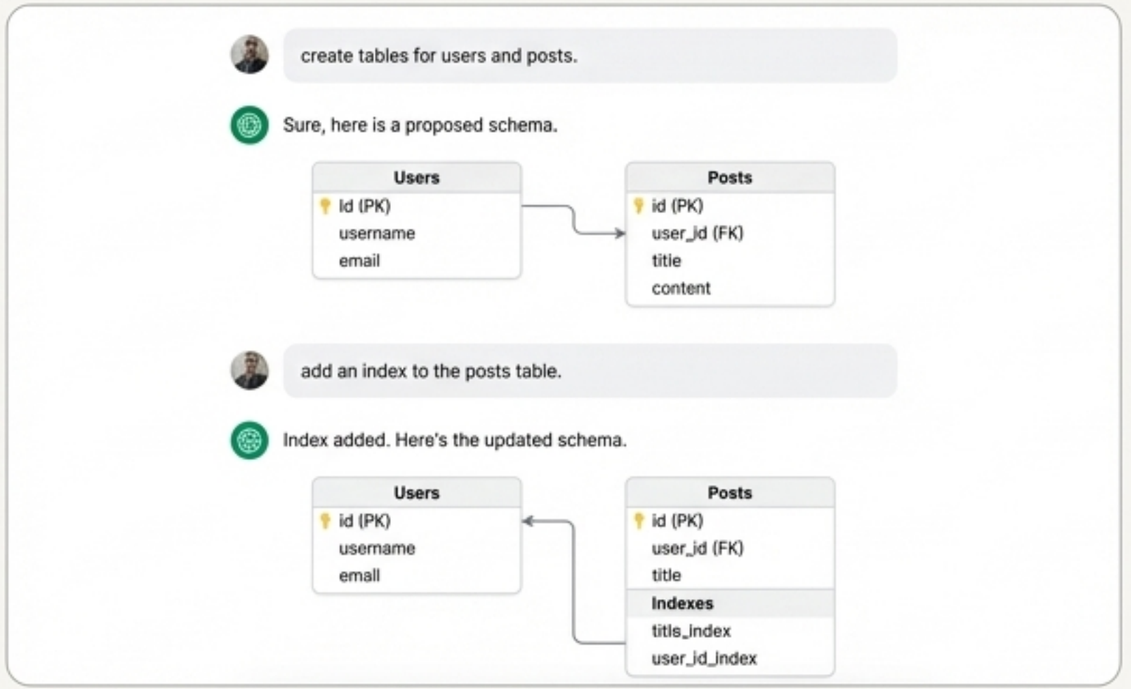
A2UI The Landscape Architect Demo

An agent uses Gemini to understand a user-uploaded photo and generates a custom, multi-step form for landscaping needs, demonstrating dynamic UI generation.



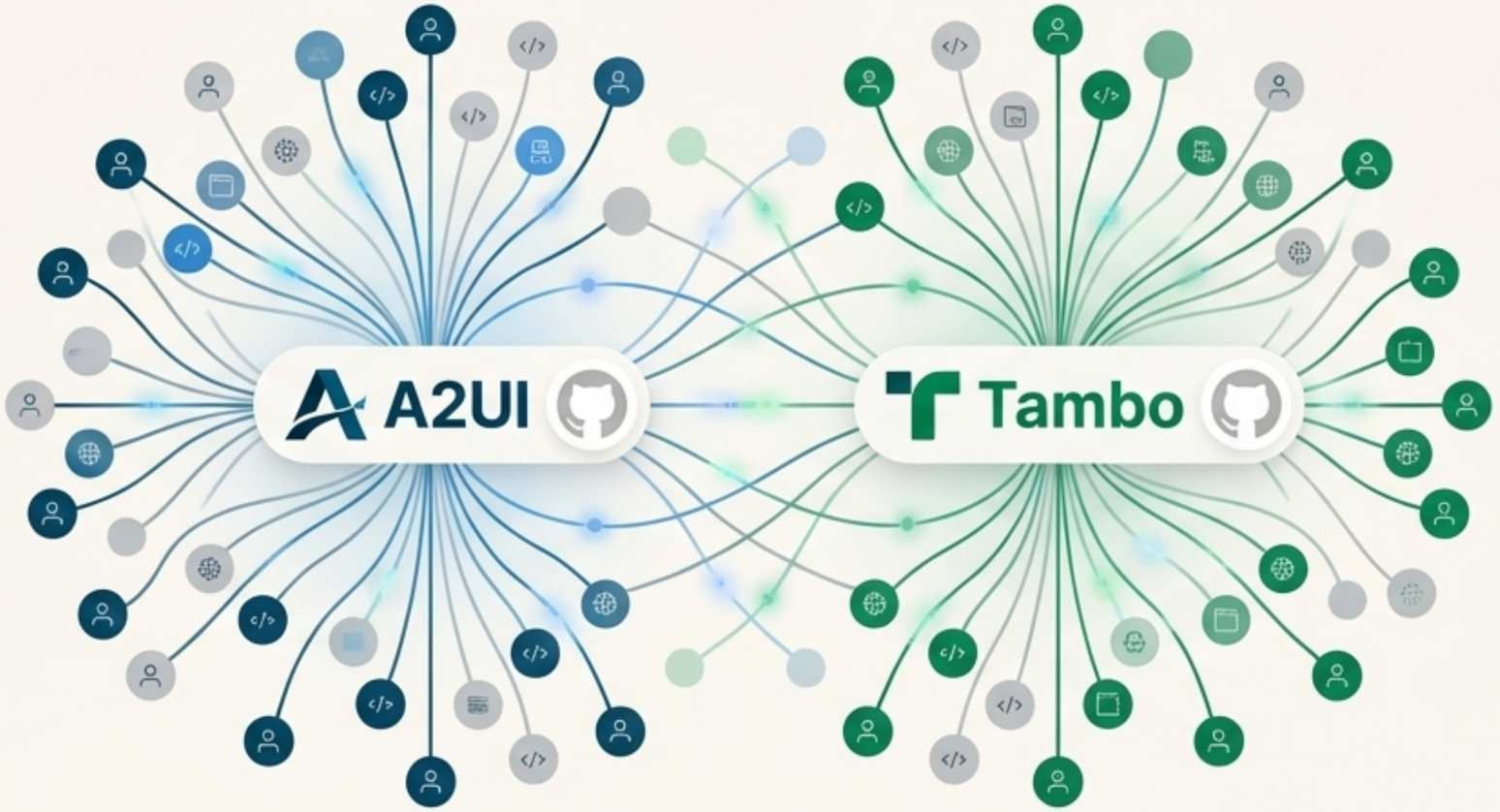
Tambo The 'db-thing' Demo

A user designs a database schema through a conversation. The AI generates ERDs, offers optimization tips, and renders interactive UI components for editing the schema.



An Open, Collaborative Ecosystem

This is not a choice between walled gardens. The future of this stack is open and community-driven. Both A2UI and Tambo are open-source, encouraging collaboration.



What's Next

- More client renderers for the A2UI specification.
- More component libraries and MCP integrations for Tambo.
- Deeper integrations between protocols and SDKs.

Start Building the Future of Interfaces

Key Takeaways

1. **Generative UI** is a major paradigm shift, moving apps from static tools to adaptive partners.
2. A new stack is emerging, with **protocols (A2UI)** ensuring safe, universal communication and **SDKs (Tambo)** providing powerful developer tooling.
3. This is an open and rapidly evolving field—now is the time to explore, build, and contribute.

Explore the A2UI Protocol

`a2ui.dev/docs`

Build with the Tambo SDK

`tambo.co`