UKG

EPIC TechStars

Expo Presentation

Internship Summer Overview

07/28/2025

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Team Structure:

- Pillar: Pro Pay
- Value Stream: Agency Reporting and Filing
- Sub-Value Stream: Company Tax Setup
- Team: Stormtroopers

A recollecting of my summer with the Stormtroopers team!

Agenda

- Tech Stack: Tools for Enterprise Authentication
- POA UkgAuth0 Migration: Engineering Unified Authentication
- Publication UkgAuth0 Migration: A Functional Unification
- Afterwords
- Thank You / Q&A (After the Presentations)

Core Technologies & Authentication/Security

C# / .NET Framework

SQL Server

JWT (JSON Web Tokens)

UKG Auth0

F# / Functional Programming Paradigms

Power of Attorney
UKG Auth0 Migration

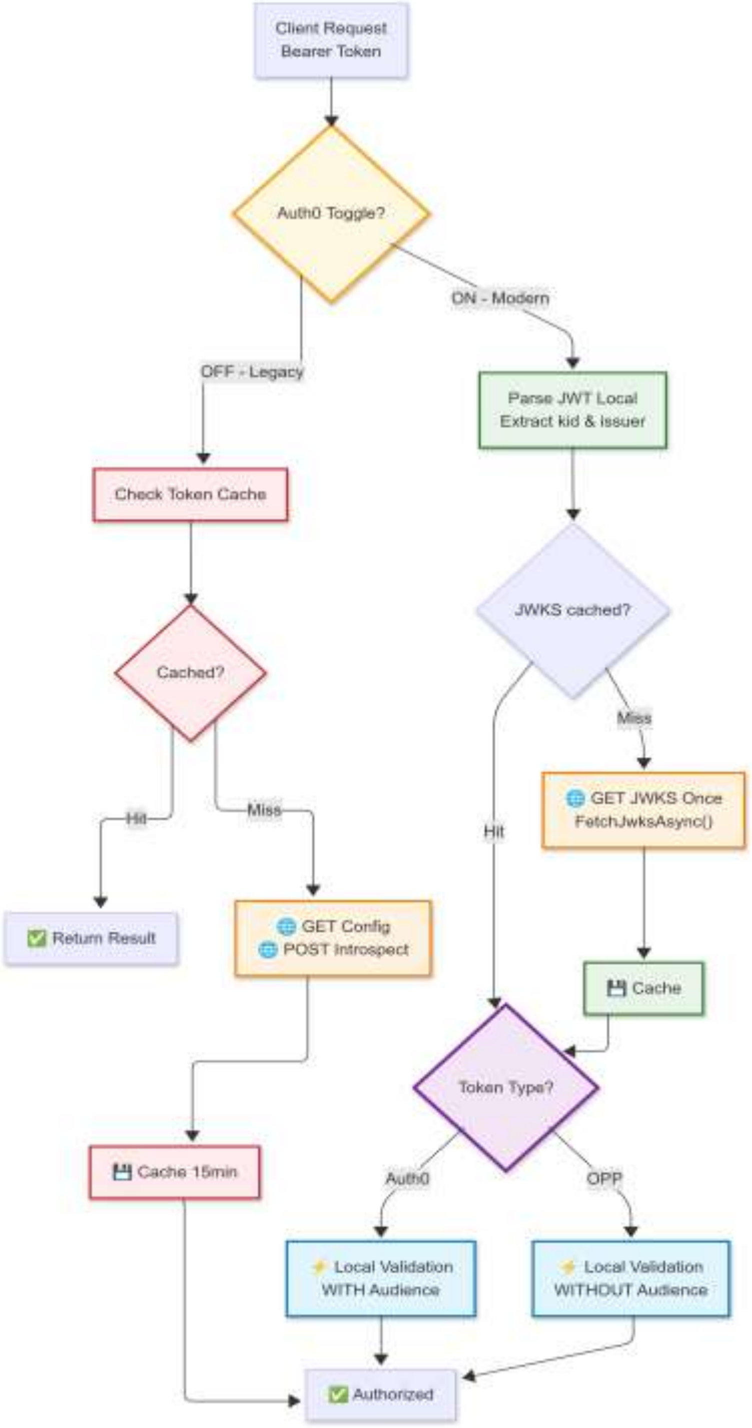
Leading Cross-Team Auth0 Migration

Problem Statement (Context)

- Multiple UKG's suite of services are using legacy OPP token infrastructure that is fragmented and inconsistent
- We needed a secure, scalable, and modern solution for authentication, one that enabled observability and long-term compliance.

Initiative & Impact

- Became the **first team to implement this migration**, setting a working pattern for other services
- **Took ownership of a cross-cutting initiative** to **migrate POA and Publication** services to **UKGAuth0**



Inbound Token Validation

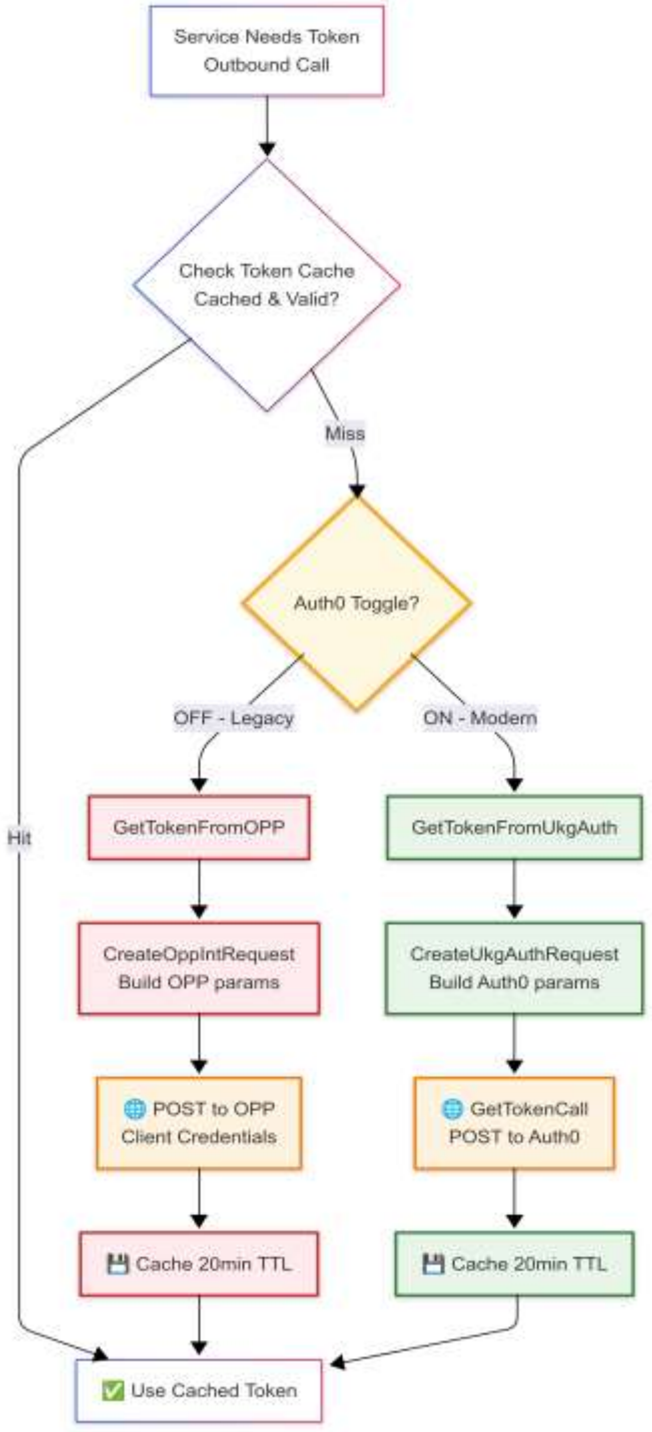
Auth0 toggle determines flow: legacy (OPP) vs modern (auth0)

Legacy Path:

- 2 external HTTP calls on cache miss.

Modern Path:

- Local JWT parsing and signature validation.
- Only 1 network call on JWKS cache miss.
- Auto token-type detection (OPP or Auth0) which allows dual support



Service Needs Token Outbound Call

Check Token Cache Cached & Valid?

Hit

Miss

Auth0 Toggle?

OFF - Legacy

ON - Modern

GetTokenFromOPP

GetTokenFromUkgAuth

CreateOppIntRequest Build OPP params

CreateUkgAuthRequest Build Auth0 params

🌐 POST to OPP Client Credentials

🌐 GetTokenCall POST to Auth0

💾 Cache 20min TTL

💾 Cache 20min TTL

✅ Use Cached Token

Outbound Token Generation

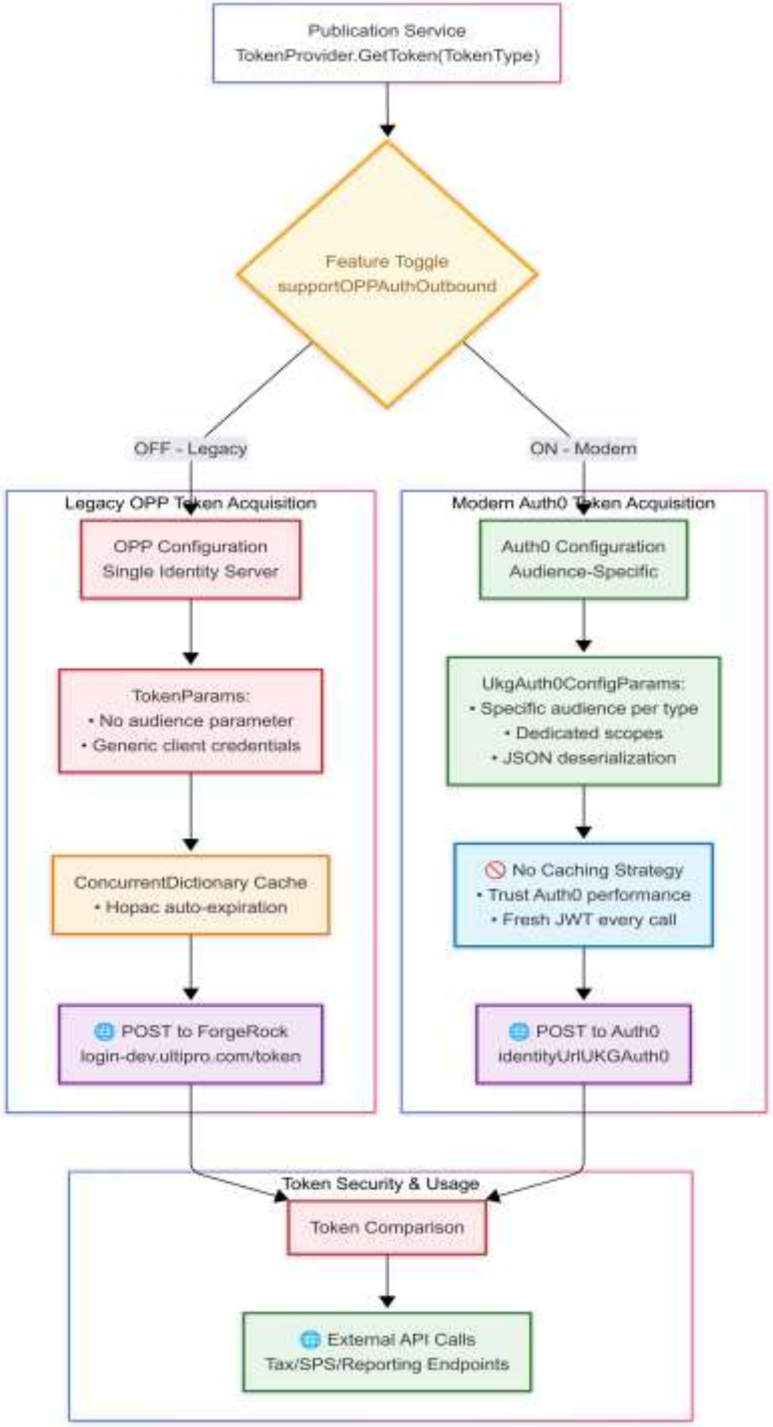
1. **Unified Caching Strategy**

- Both legacy and modern flows cache tokens for 20 minutes.

2. Secure-by-Design

- Auth0 flow explicitly builds a request with audience and scope, improving token specificity.
- Legacy OPP flow lacks granularity and relies on client credentials grant, a less constrained model. As stated in the problem context

Publication UKG Auth0 Migration: A Functional Unification

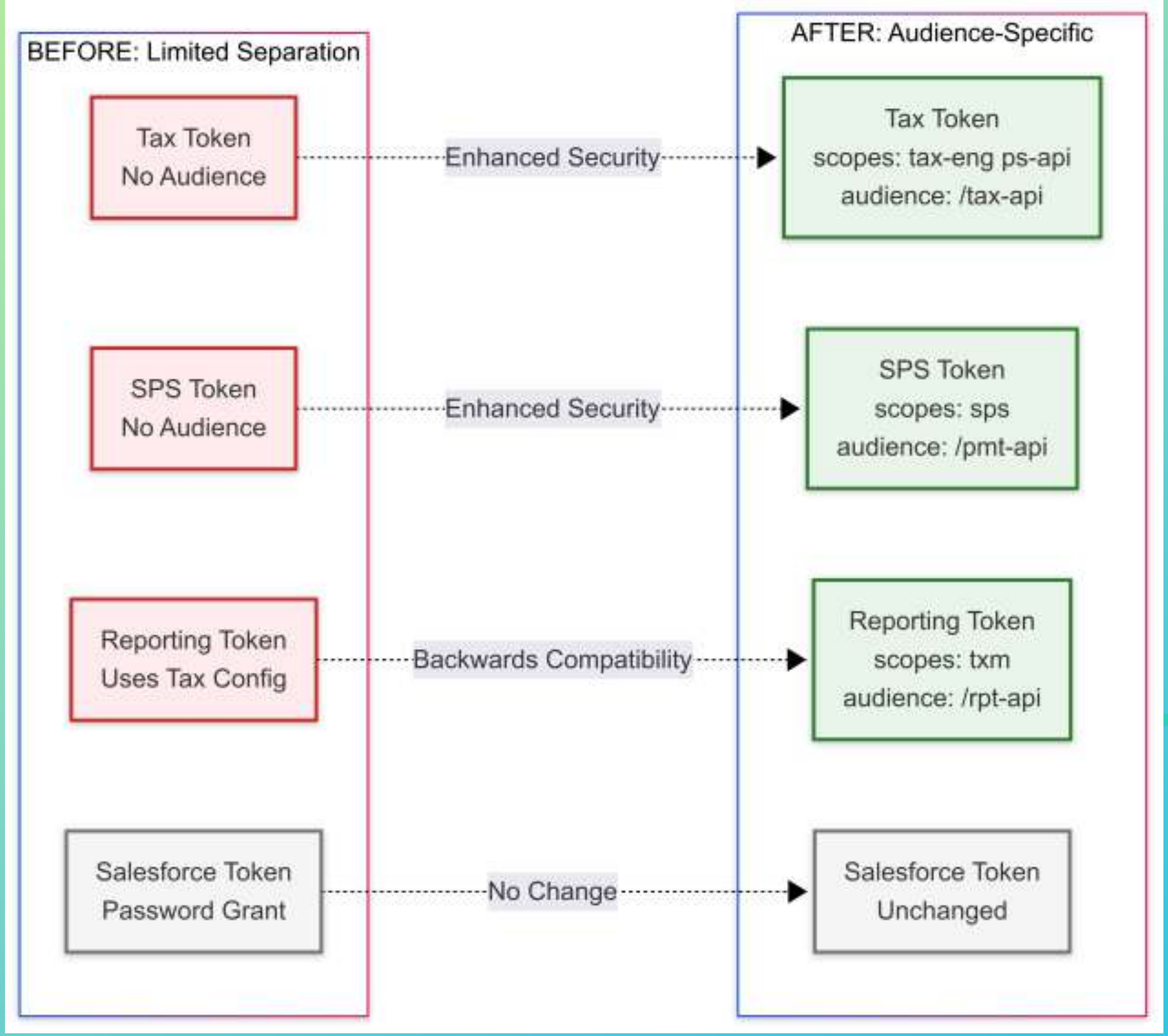


Before & After: Publication Outbound Logic

- Legacy: Single configuration, shared across token types
- Modern: JSON-based UkgAuth0ConfigParams with type-specific settings

Token Type Flow Comparison

This migration represents both a performance and security upgrade, from tokens to audience specific JWTs, while maintaining zero breaking changes through our feature toggle strategy



Afterwords

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Overall, this summer I learned a lot about enterprise applications and how robust they really are. I'm leaving Florida with a new appreciation of architectural design and programming paradigms.

But more importantly, thank you to the PS US Tax Setup team and the TechStar program for giving me the opportunity to learn and grow as a person and student.

Huge thanks to Grace for collaborating and being an open-ear to my extra questions!

Thank You