

Deployed a ticketing helpdesk for a multi-site nonprofit on a near-zero cloud budget

FastAPI + Cosmos DB on Azure Container Apps · Web portal + admin dashboard + branded onboarding emails · Role: design, build, deploy

Outcome: A working helpdesk in production: staff submit tickets through a web portal, administrators manage them in a dashboard, and the whole thing runs on Azure free tiers. Hosting cost is close to zero.

The Situation

The organization had no way to track IT problems. Requests arrived by text message, hallway conversation, and forwarded email, and they disappeared the same way. A commercial helpdesk subscription did not fit the budget, which was effectively zero.

What Was Built

- **Ticket portal:** a simple web form staff can use without training. Plain language, no required fields that nobody understands.
- **Admin dashboard** for triage, status, and history.
- **Backend:** FastAPI with Cosmos DB, containerized and deployed on Azure Container Apps. The Cosmos free tier and Container Apps consumption pricing keep the bill near zero.
- **Custom domain and SSL** behind the organization's own subdomain.
- **Branded rollout:** welcome and onboarding emails written for non-technical staff, plus user guides for the systems the helpdesk supports.
- **Data migration:** ticket data later moved between Azure subscriptions with a scripted Cosmos migration, verified end to end.

Results

- IT requests now have a single place to live, with history and status.
- Monthly hosting cost is effectively \$0 by design, using Azure free tiers.
- The product is reusable: the same stack can be stood up for any small organization in days.

Stack & Methods

Stack: Python · FastAPI · Azure Container Apps · Cosmos DB · Docker · custom domain + SSL · HTML email templates