

CLOUD MASTERY 2026

Pawa-ring AI-Powered Apps

Full-Day Cloud Masterclass Curriculum

 Date	Thursday, 16 July 2026
 Venue	The Social House, Nairobi
 Hours	08:30 – 18:30

At Cloud Mastery 2026, you will build Soko AI

Not watch it being built. Not follow along as someone else deploys it. You will build it — layer by layer, session by session, until a fully functional AI super-agent is running in your own Google Cloud project by 16:00.

SokoAI is a Kenyan AI agent designed around real market contexts — grocery retail, auto parts, personal finance, and customer support. It is the centrepiece of the day, and every session adds a new layer of intelligence to it.

By the time the day is done, SokoAI will be able to:

MODULE	WHAT IT DOES
 Soko Shop	Search, recommend, and order grocery & retail products
 Soko Parts	"I have a Mazda Demio 2018 — what battery do I need and how much does it cost?"
 Soko Wealth	"I am 22, just started my first job at KSh 45,000/month — where should my money go?"
 Soko Support	Store locations, opening hours, delivery status, how to pay, FAQs

Why Attend?

Real-World Context: We use a Kenyan-centric retail and finance scenario so you see the business relevance of AI immediately.

End-to-End Proficiency: Full stack — serverless architecture, conversational AI, and machine learning. You understand the glue that holds it all together.

A Tangible Asset: You leave with a deployed, live AI agent product running in your own Google Cloud project.

AI-Native Thinking: Learn how agentic apps reason, plan, and act — moving beyond simple chatbots into the future of software development.

Technical Stack

FRONTEND	BACKEND & DATA	AI AGENT
• Next.js (App Router) • Deployed on Cloud Run • SokoAI chat widget embedded on storefront	• NestJS API on Cloud Run • Cloud SQL (PostgreSQL) • BigQuery — analytics warehouse + BQML	• Vertex AI Agent Builder • 3 sub-agents: Shop, Parts, Wealth • Grounded in BigQuery via custom Data Store

Your Trainers

NAME	ROLE	SESSION
TBD	Google Guest Speaker	The Strategic case for Agentic AI
Oscar Limoke	CTO, Pawa IT Solutions	Keynote — The SokoAI Vision
Evans Mwongera	Cloud Architect, Pawa IT	Session 1: Deployment & Security
Eddie Ngugi	Head of Engineering, Pawa IT	Grand Demo · Session 2: Agent Build
John Higi	Senior Data Engineer, Pawa IT	Session 3: Data & BigQuery ML

Day at a Glance — July 16, 2026

08:30 - 09:00	DOORS OPEN Grab a coffee, get your environment online, and find your seat.
09:00 - 0930	GOOGLE GUEST SPEAKER The strategic case for Agentic AI — why it matters for your organisation right now.
09:30 - 10:00	KEYNOTE: The Soko AI Vision (Oscar Limoke, CTO) Agentic AI isn't a feature. It's the new application layer. Oscar opens the day by introducing SokoAI — what it is, what you'll build, and why it changes how software gets made.
10:00 - 10:30	GRAND DEMO: Soko AI Live (Eddie Ngugi, Head of Engineering) Before you build it, you see it. Eddie demonstrates the completed SokoAI agent live — then opens the floor to one question every engineer in the room will have: <i>how did that actually work?</i>
10:30 - 11:30	SESSION 1: Serverless & Secure Foundation (Evans Mwongera - Cloud Architect) Deploy SokoAI's core on Cloud Run — serverless, production-grade, and secure from day one. Connect your app to a hosted Cloud SQL database and import the SokoAI product catalogue.
11:30 - 12:30	SESSION 2, Part 1: The Agent Brain (Eddie Ngugi, Head of Engineering) Introduction to Google's AI stack — Vertex AI Agent Builder, Gemini, and Conversational Agents. The brain gets its first layer.
12:30 - 13:30	NETWORKING LUNCH Three courses. Trainers at the table. You already have a deployed app — this is a good time to show it off.
13:30 - 15:00	SESSION 2, Part 2: The Agent Brain (Eddie Ngugi, Head of Engineering) Wire SokoAI's live inventory into your conversational agents. Ground them in real product data, test the conversations, and deploy SokoAI as a web widget on your storefront. The app becomes intelligent.
15:00 - 16:30	SESSION 3: Data Intelligence (John Higi, Senior Data Engineer) BigQuery ML — K-Means customer segmentation and demand prediction, all in SQL. Feed the model outputs back into SokoAI so the agent's recommendations get smarter with every interaction.
17:00	VIBE & CONNECT The build is done. Tea, snacks, and open floor time with trainers and peers.

Detailed Session Breakdown

Session 1 — Serverless & Secure Foundation

The session takes the day from zero to a live, deployed application. The output is a running Next.js storefront and NestJS API on Cloud Run, connected to a Cloud SQL database seeded with SokoAI's product catalogue.

A. Cloud Run Deployment

- Clone the SokoAI starter repo (pre-seeded GitHub repository provided)
- Containerise with Docker — walkthrough of the Dockerfile
- Deploy Next.js frontend and NestJS API to Cloud Run as separate services
- Configure environment variables, secrets, and Cloud Run service settings

B. Keyless Authentication

- Why service account keys are dangerous — the "keys under the mat" problem
- Workload Identity Federation — concept and hands-on configuration
- Connect NestJS API to Cloud SQL via Cloud SQL Auth Proxy — no stored credentials
- Test the connection: NestJS API returns SokoAI product data from Cloud SQL

Session 1 Milestone

Open your browser, hit your Cloud Run URL, and see the SokoAI storefront with real product data from your own Cloud SQL instance.

Learning Objectives

- Deploy a production-grade Next.js + NestJS application to Cloud Run
- Configure Workload Identity Federation — eliminating all service account keys
- Connect Cloud Run services to Cloud SQL securely, without stored credentials
- Understand why keyless authentication is now the industry standard

Session 2 — The Agent Brain

The SokoAI agent is built from scratch inside Vertex AI Agent Builder, with each sub-agent grounded in the BigQuery data store and wired into the Next.js frontend via the Agent API.

A. Agent Architecture

- Vertex AI Agent Builder overview — agents, tools, data stores, playbooks
- Design the SokoAI multi-agent architecture: one orchestrator → three specialist sub-agents
- Define the agent's persona, tone, and scope (Kenyan English; grounded only in SokoAI data)

B. Building the Three Sub-Agents (45 min)

- Soko Shop Agent: BigQuery data store of products + inventory. Tools: search_products, add_to_cart, check_delivery_eta
- Soko Parts Agent: Vehicle-to-battery compatibility matrix in BigQuery. Tools: match_part, check_stock, find_nearest_location
- Soko Wealth Agent: Financial product catalogue + simple rule engine. Tools: get_products, build_recommendation, calculate_projection

C. Frontend Integration (15 min)

- Call the Vertex AI Agent API from the Next.js app (server action or API route)
- Stream agent responses into the chat UI component
- Live test: send a message from your browser and watch SokoAI respond from your own agent

Session 2 Milestone

A live, conversational SokoAI agent running in your own Cloud project, accessible from your deployed storefront.

Learning Objectives

- Build a multi-agent system in Vertex AI Agent Builder with three specialist sub-agents
- Ground agents in BigQuery using Vertex AI Data Stores and custom function tools
- Integrate the Vertex AI Agent API into a Next.js frontend with streaming responses
- Understand the difference between a chatbot (scripted) and an agent (reasoning + tool use)

Session 3 — Data Intelligence

Every product search, cart action, agent query, and order that SokoAI handles becomes a training signal for models that make it smarter. This session demonstrates the compound effect of an AI-native app — where the product learns from its own usage.

A. The Data Pipeline (20 min)

- Cloud Functions triggered by Cloud SQL events → stream activity data into BigQuery
- The SokoAI event schema: session_id, user_id, query_text, module, product_viewed, cart_action, order_status
- Walk through the pre-built pipeline — observe and understand, not configure from scratch

B. BigQuery ML Models

- K-Means clustering: segment SokoAI users by behaviour (high-value, price-sensitive, parts-focused, wealth-seeking)
- Classification model: predict which users are likely to convert from 'browse' to 'buy'
- All using SQL — no Python, no ML framework. BigQuery ML does the heavy lifting.

C. Closing the Loop

- How BQML model outputs feed back into SokoAI agent recommendations (e.g., high-value segment → show premium MMF products first)
- Looker Studio dashboard: live agent activity, user segments, and conversion predictions — on one screen

Grand Finale

The full SokoAI system is pulled up live — deployed app, conversational agent, ML-powered recommendations — demonstrating the complete loop. The room built this today.

Learning Objectives

- Build a real data pipeline from Cloud SQL to BigQuery using Cloud Functions
- Create a K-Means customer segmentation model using only SQL (BigQuery ML)
- Build a classification model to predict user conversion probability
- Understand how ML model outputs close the loop back into agent behaviour

What to Bring

- Laptop with Docker installed (Cloud Shell fallback will be available for those without)
- A Google Cloud account — a setup sheet with project IDs and credentials will be provided
- A browser with access to Google Cloud Console (console.cloud.google.com)
- Curiosity and an appetite to build something real

What You'll Walk Away With

- A fully deployed SokoAI application running on your own Google Cloud project
- Hands-on experience with Cloud Run, Vertex AI Agent Builder, BigQuery ML, and Cloud SQL
- Understanding of keyless authentication and production-grade security on GCP
- A live AI agent you can demo, extend, and build on after the event
- Connections with Google engineers and Kenya's cloud practitioner community