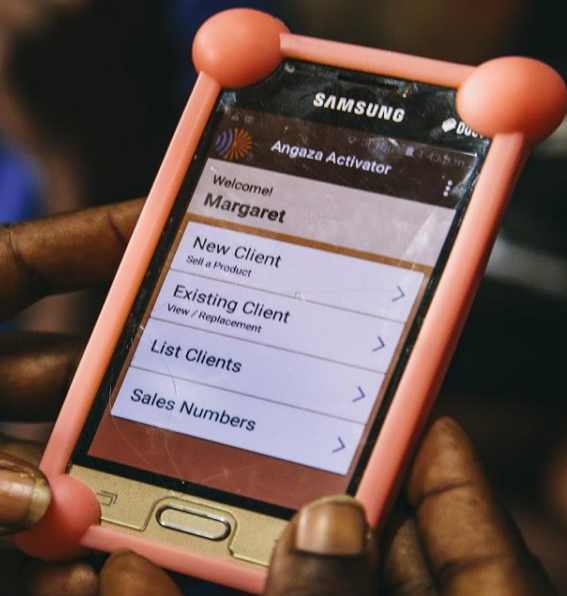


THE DEVOPS EXPERIMENTS

REFLECTIONS FROM A SCALING STARTUP



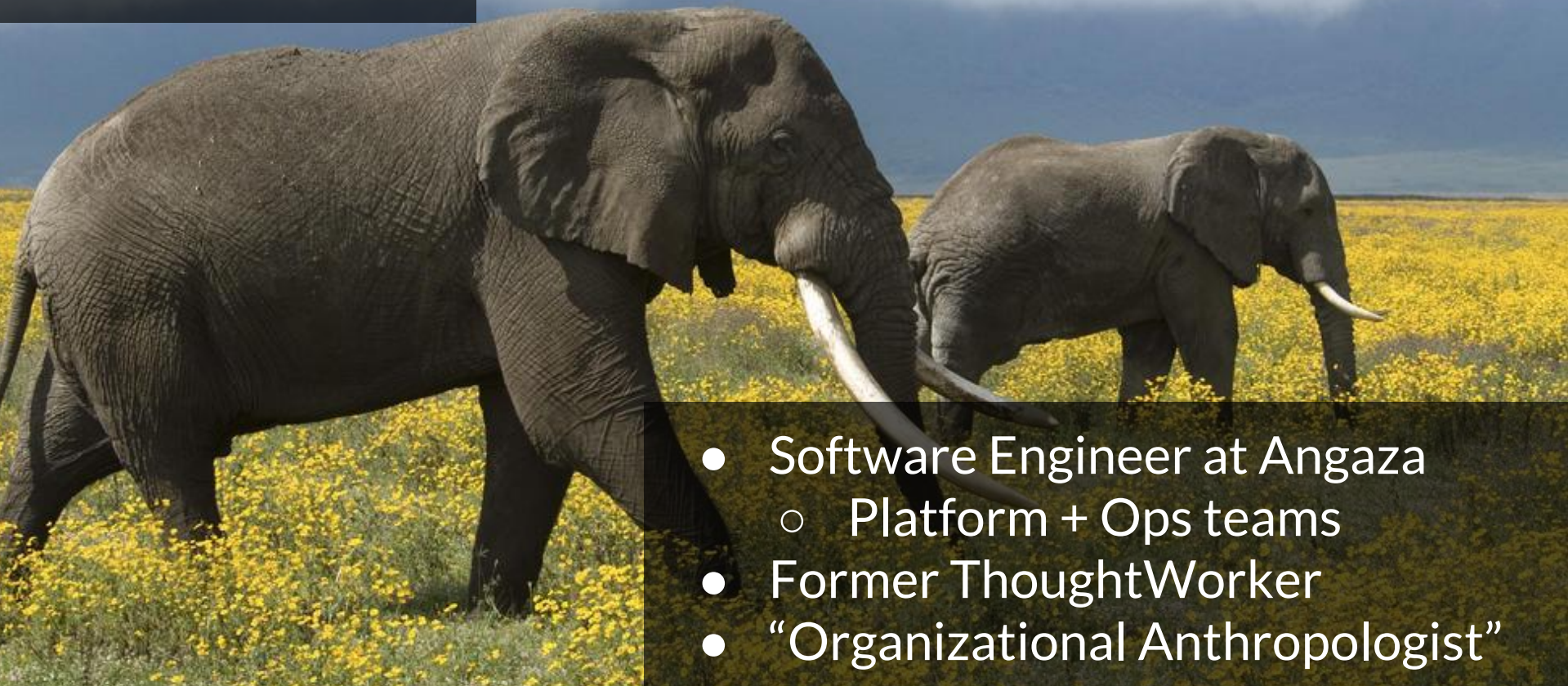
Alison Polton-Simon

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@angazadesign

WHO AM I?



- Software Engineer at Angaza
 - Platform + Ops teams
- Former ThoughtWorker
- “Organizational Anthropologist”

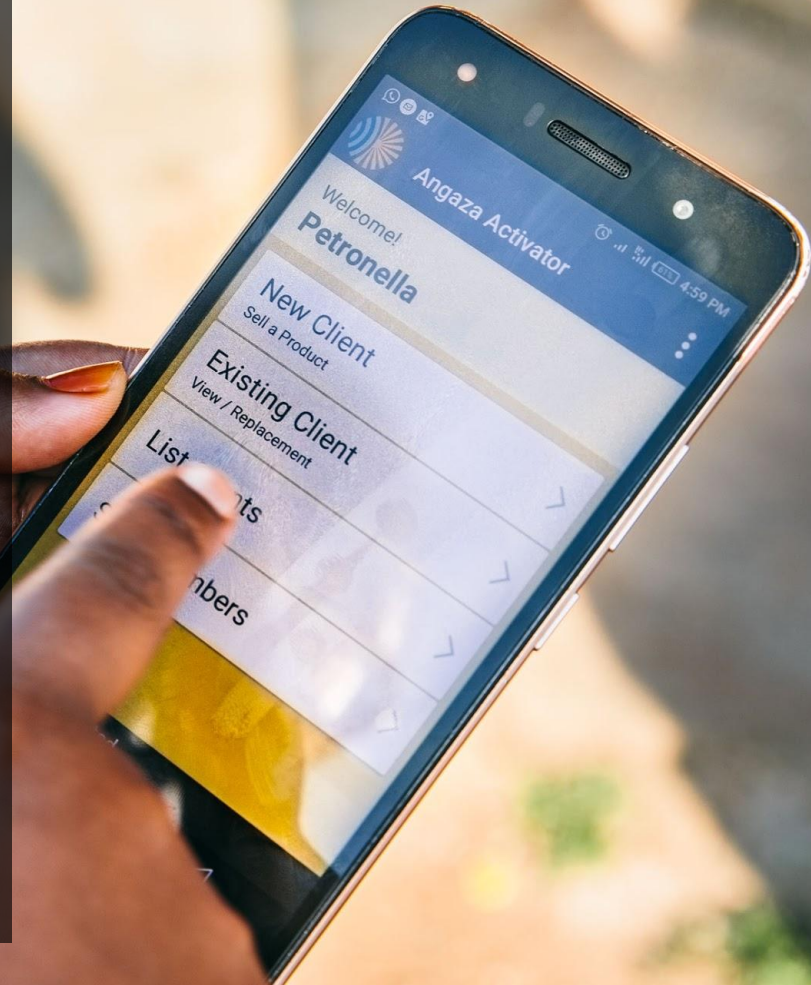
AGENDA

- Introduction to Angaza
- Why reliability matters to us (and why it's hard)
- Evolving team structure
- Future state
- Key takeaways



WHAT IS ANGAZA?

- Enable sales of life-changing products
- ~50 Angazans
 - San Francisco + Nairobi
 - ~50% engineering
- No dedicated Ops



COMPANY VALUES

Maximize impact.

Innovate with empathy.

Be courageous.

Deserve their trust.

Embrace your inner tembo.

keyvalues.com/angaza



ANGAZA MODEL



Manufacturers

Angaza partners with hardware manufacturers to add embedded metering and monitoring technology to the manufacturers' products.



Distributors

The Angaza software suite empowers distributors to sell life-changing products to their clients in affordable increments.



Clients

End users access life-changing products by paying for each product in increments until they are fully paid off.



Mobile Network Operators

Through a unique integration with Angaza's technology and MNOs, distributors can receive mobile money payments from their clients through mobile network operators.





RELIABILITY MATTERS

- Our platform is business-critical
- Outages disrupt real people
 - Households without lights
 - Farmers without irrigation

WHAT RELIABILITY MEANS TO US



Can distributors **access** the platform reports they rely on?

Do we **activate** clients' lights promptly upon payment?

How many agents were unable to **make a sale**?

HOW WE MEASURE RELIABILITY

BUILDKITE



Buildkite
health checks
for critical reports

GRAFANA



Grafana
dashboards for endpoint
performance

ZENDESK



Detailed analyses
of user tickets and
escalations



CONSTRAINTS ABOUND

- Operate in 30+ countries
- Emerging markets
- Rural and peri-urban areas
- Low connectivity, 2G networks

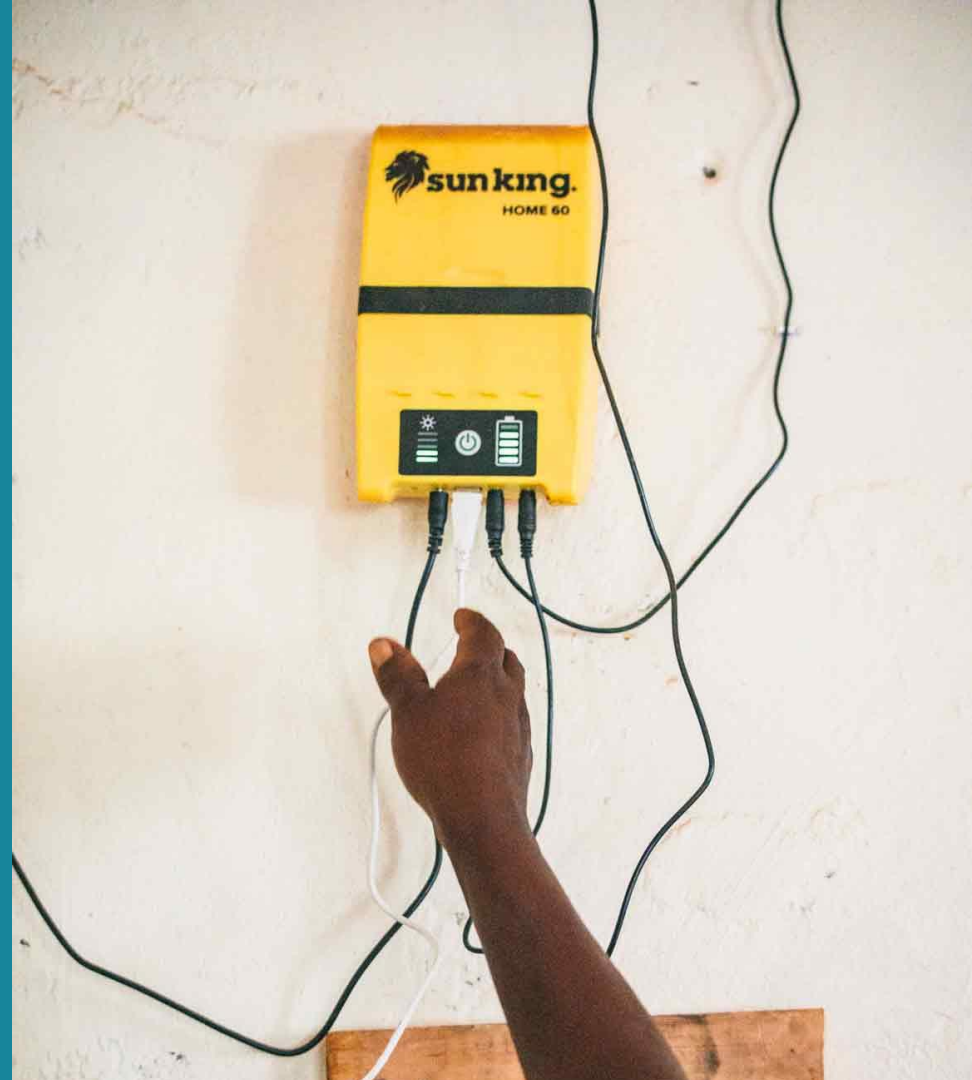
A man in a dark hoodie is sitting at a wooden desk, working on a laptop. He is wearing a headset with a microphone. The laptop screen displays a web application with a list of items. In the background, another person is visible, also working on a laptop. The desk has a large monitor, a smartphone, and some papers. The text "TEAM EXPANDS" is overlaid on the left side of the image.

TEAM EXPANDS

- Increased team by 50% in 2018
- Added two Kenyan engineering teams in the last nine months
- Added a Kenyan QA engineer

ERAS OF EXPERIMENTATION

- Ad Hoc
- Tributes
- Collectives
- Product Teams
- The Future



AD HOC

1—4 ENGINEERS

- Single engineering team
- Ops by Day: “You broke it, you fix it”
- Ops by Night: PagerDuty Rotation
 - Paged on every backend exception
 - 3 pages \Rightarrow amnesty
- Enabled by small scale
 - Small codebase
 - Low volumes



WHAT WENT WELL?

- Small, but senior team
 - “JIT maturity”
 - Developed guardrails
- Co-location ⇒ easy communication
- No “Dev” vs “Ops”

WHAT DID WE LEARN?

- Prioritized necessity over sustainability
- Every incident was highly disruptive



TRIBUTE

5—12 ENGINEERS

- Single engineering team
- Cyclical tribute position
 - Protect team from interruptions
 - Enable roadmap delivery
- Introduced support triage
- Expanded PagerDuty rotation



WHAT WENT WELL?

- *More sustainable*
- Fewer interruptions
- More “JIT maturity”
 - Blue-Green deploys
 - Clustered workloads

WHAT DID WE LEARN?

- Headcount != horizontal scaling
- Customer service declined
- Hard to make investments
- Hard to hire



COLLECTIVES

13—20 ENGINEERS

- Created Support and Ops teams
 - Ops staffed with developers
- Other teams built roadmap & requests
- Teams rotate quarterly
 - Onboard new engineers
 - Build breadth and depth



WHAT WENT WELL?

- Allowed for heightened focus on priorities
- Opportunity for depth
- Crosstrain newer engineers

WHAT DID WE LEARN?

- Teams don't operate what they build
- Still a difficult juggling act
- A quarter flies by quickly
- Context-switching is costly



PRODUCT TEAMS

21—? ENGINEERS

- Five engineering teams, two in Nairobi
- Teams aligned with business verticals
 - Drive KPIs
- Develop, own, and maintain services
- Per-team tribute
- No (Dev)Ops team



INTENDED GOALS

- Independent teams
- Own what you build
- Support business KPIs
- Cross-team coordination

EXPECTED CHALLENGES

- Ownership without responsibility
- Global knowledge sharing
- Return to tribute system





WHAT'S NEXT?

- Continue growing team
- Working groups
- Eventual SRE
- 24-hour global coverage

A large, gnarled tree with thick, twisted branches dominates the foreground. A lioness is perched on one of the lower branches, looking towards the right. The background shows a vast, open savanna landscape with green grass, scattered trees, and distant hills under a clear sky. The text "MAXIMIZE IMPACT" is overlaid in a bold, orange font on a dark, semi-transparent rectangular background in the upper left corner.

MAXIMIZE IMPACT

Dependable is better than fashionable.
Prefer industry-standard technology.
Get creative when necessary.

A savanna landscape with giraffes under a cloudy sky. The foreground is filled with tall, golden-brown grass. In the middle ground, a giraffe stands prominently on the left, facing right. Further back and to the right, another giraffe is visible. The horizon is flat, and the sky is a vibrant blue with large, white, fluffy clouds. A dark grey rectangular box is positioned in the upper left corner, containing the text 'DESERVE THEIR TRUST' in orange.

DESERVE THEIR TRUST

Define reliability for *your* system.
Measure that.
Pursue it relentlessly.

EVOLVE WITH EMPATHY

A vibrant lizard with orange, blue, and purple scales is perched on a grey rock. The background is a soft-focus field of green grass. The image is overlaid with text boxes.

Don't be dogmatic about structure.
Adapt when necessary.
Serve your customers *and* your team.

THANK YOU

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