THE DEVOPS EXPERIMENTS

REFLECTIONS FROM A SCALING STARTUP

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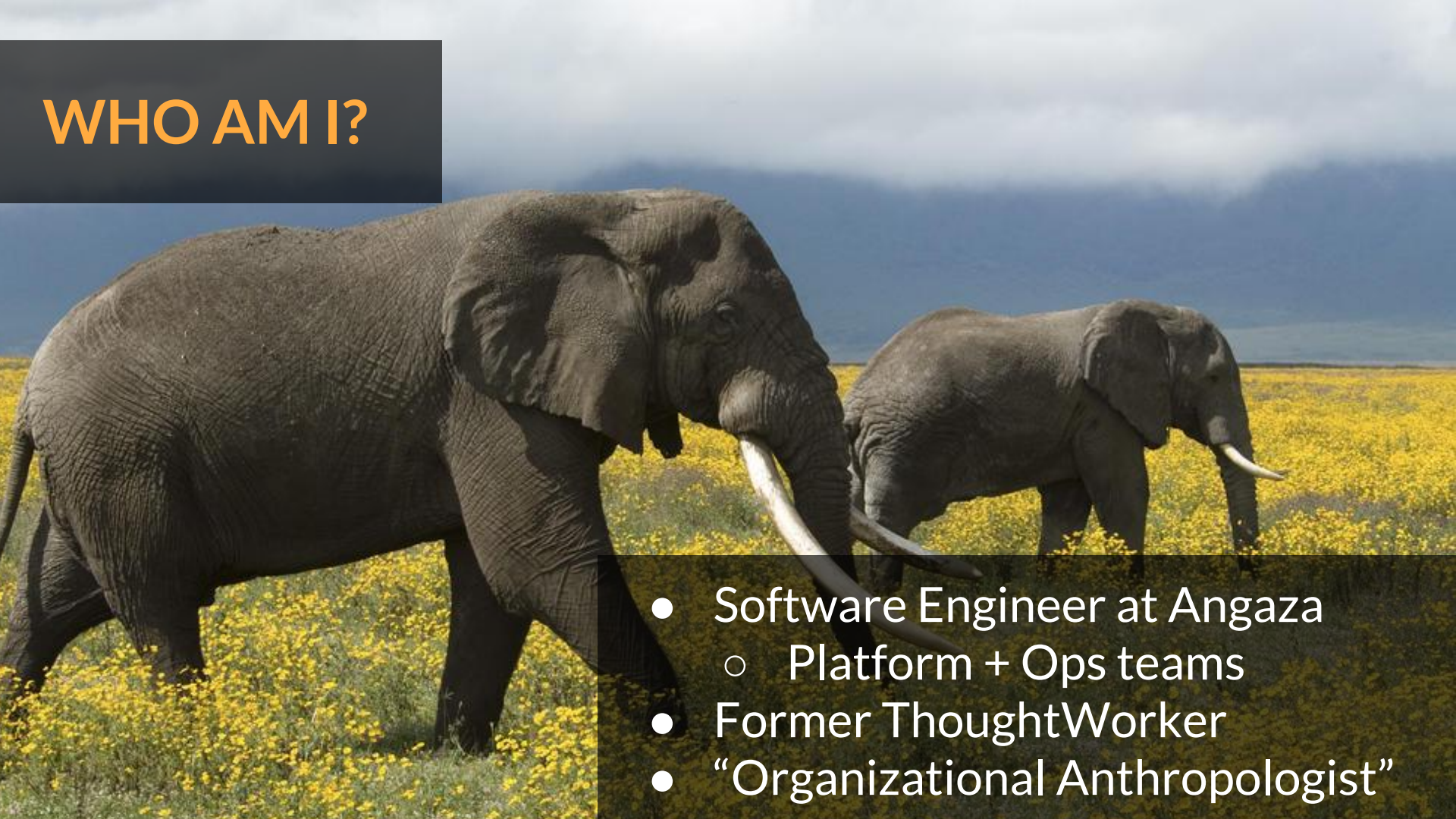
WHO AM I?



- 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

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.

Clients

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

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

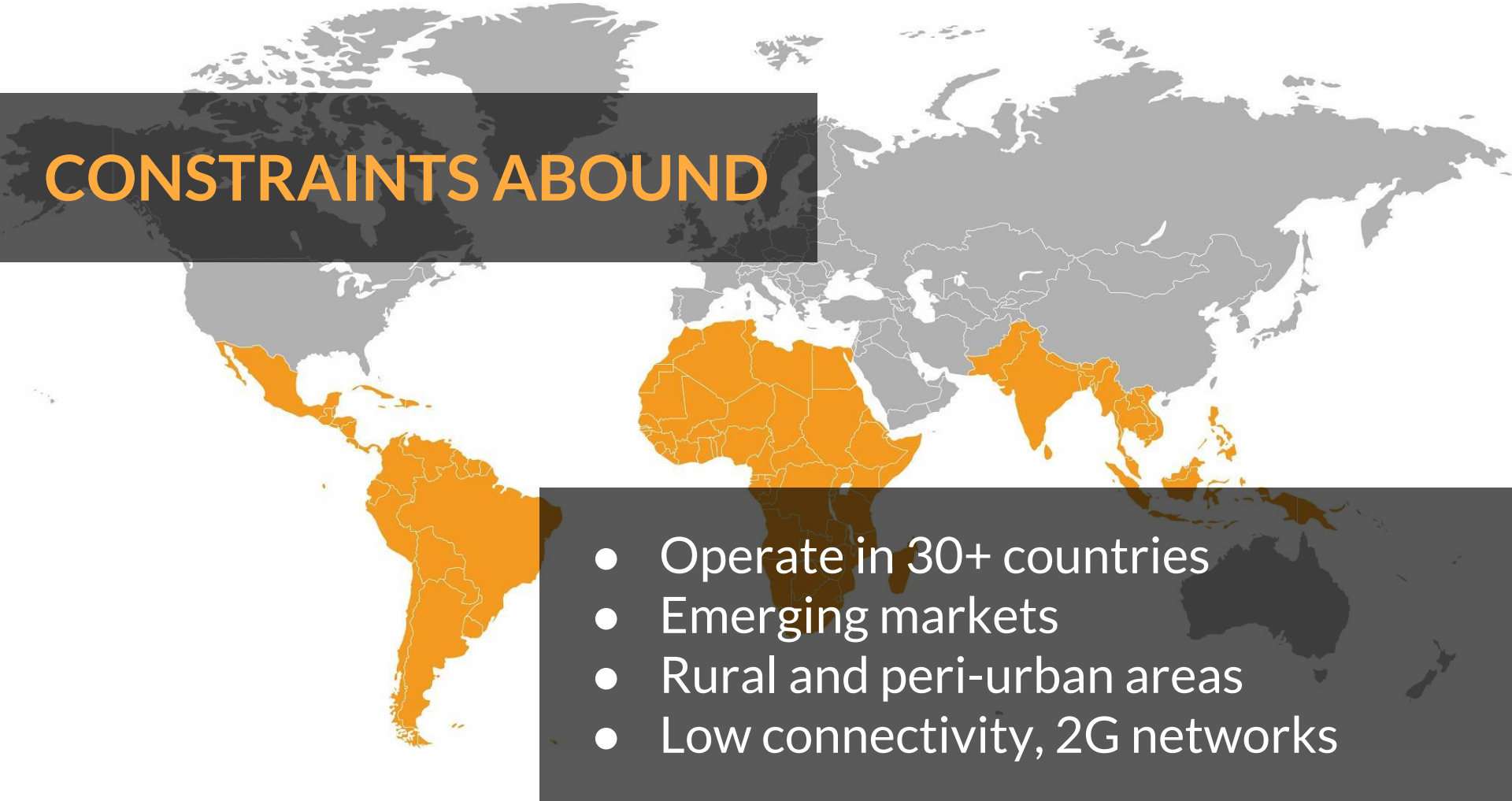
GRAFANA

Grafana
dashboards for endpoint
performance

ZENDESK

Detailed analyses
of user tickets and
escalations

CONSTRAINTS ABOUND



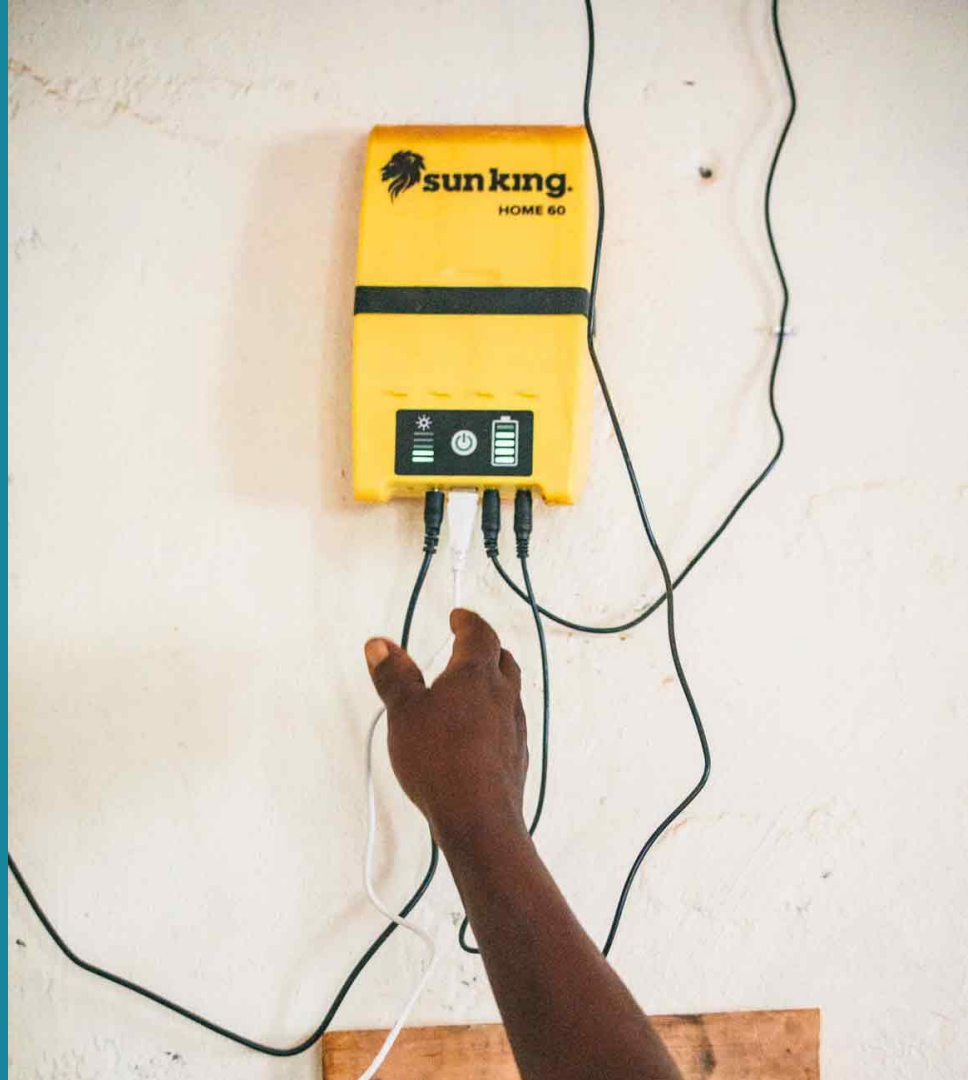
- Operate in 30+ countries
- Emerging markets
- Rural and peri-urban areas
- Low connectivity, 2G networks

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 ⇒ 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

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

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

EVOLVE WITH EMPATHY
Don’t be dogmatic about structure.
Adapt when necessary.
Serve your customers *and* your team.

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