



FINANCIAL SERVICES
CLOUD SYMPOSIUM

MAY 4, 2021



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FSI 202

The Wise logo, consisting of a blue square with a white stylized "W" icon followed by the word "wise" in a lowercase, sans-serif font.

Partnering with AWS to accelerate
Wise achieving its mission

Harsh Sinha

Chief Technology Officer
Wise

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Wise

A photograph of two men standing on a city street. The man on the left is wearing a dark blue t-shirt with a white graphic of three arrows pointing upwards. The man on the right is wearing a light green polo shirt with a small orange logo on the chest. The background shows a city street with buildings and a car. The text "Wise was started to solve a problem." is overlaid in white, bold font across the center of the image.

**Wise was started to solve a
problem.**

Moving money internationally is broken.

TRADITIONAL BANKS

Expensive

3-7% avg. fee¹

Slow

2-5 business days

Inconvenient

Long, unfriendly CX

Opaque

Hidden rate markups

And the
problems with
cross border
are **structural**.

CORRESPONDENT BANKING



Intermediary-heavy network



Unreliable. Hard to monitor



Manual, or semi-automated processes

We've built a replacement infrastructure for correspondent banking.

CORRESPONDENT BANKING



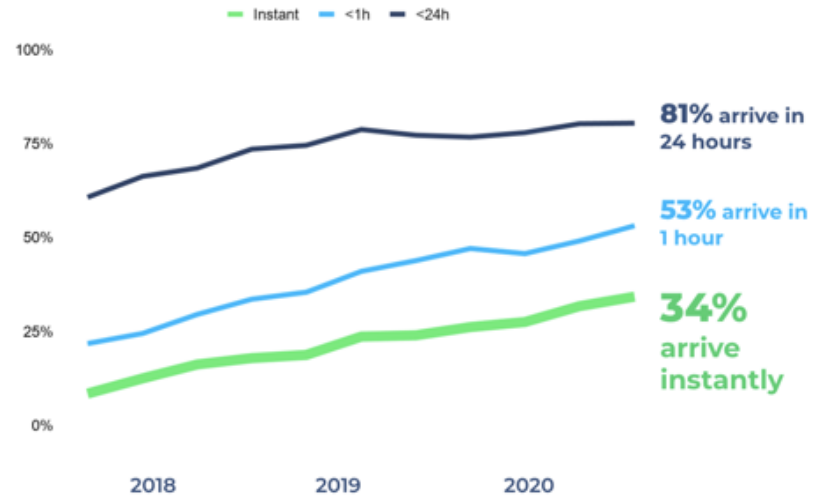
**We build
connections to
local payment
systems
around the
world, which
are efficient,
fast and low
cost**



Price



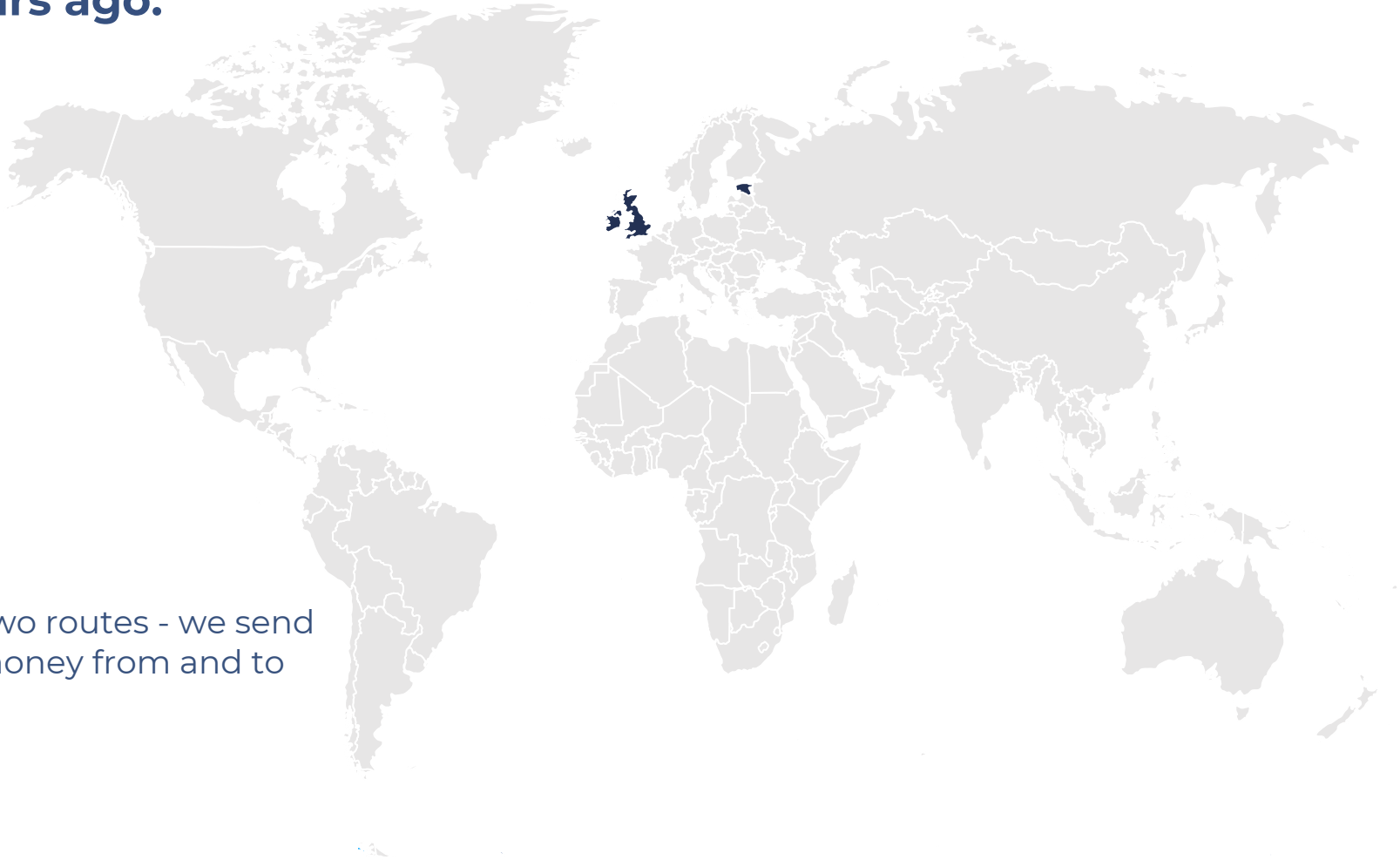
Speed



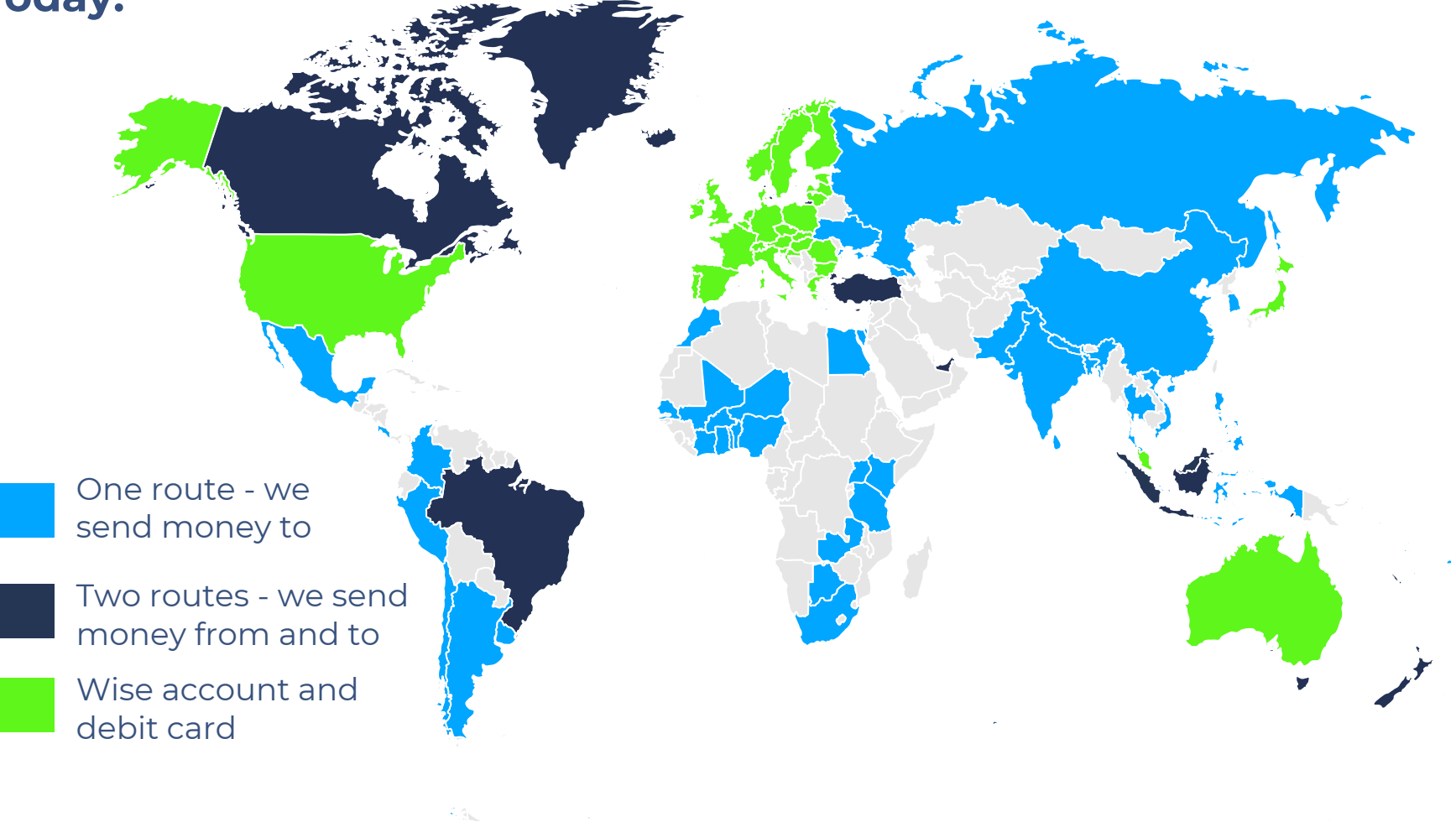
10 years ago:



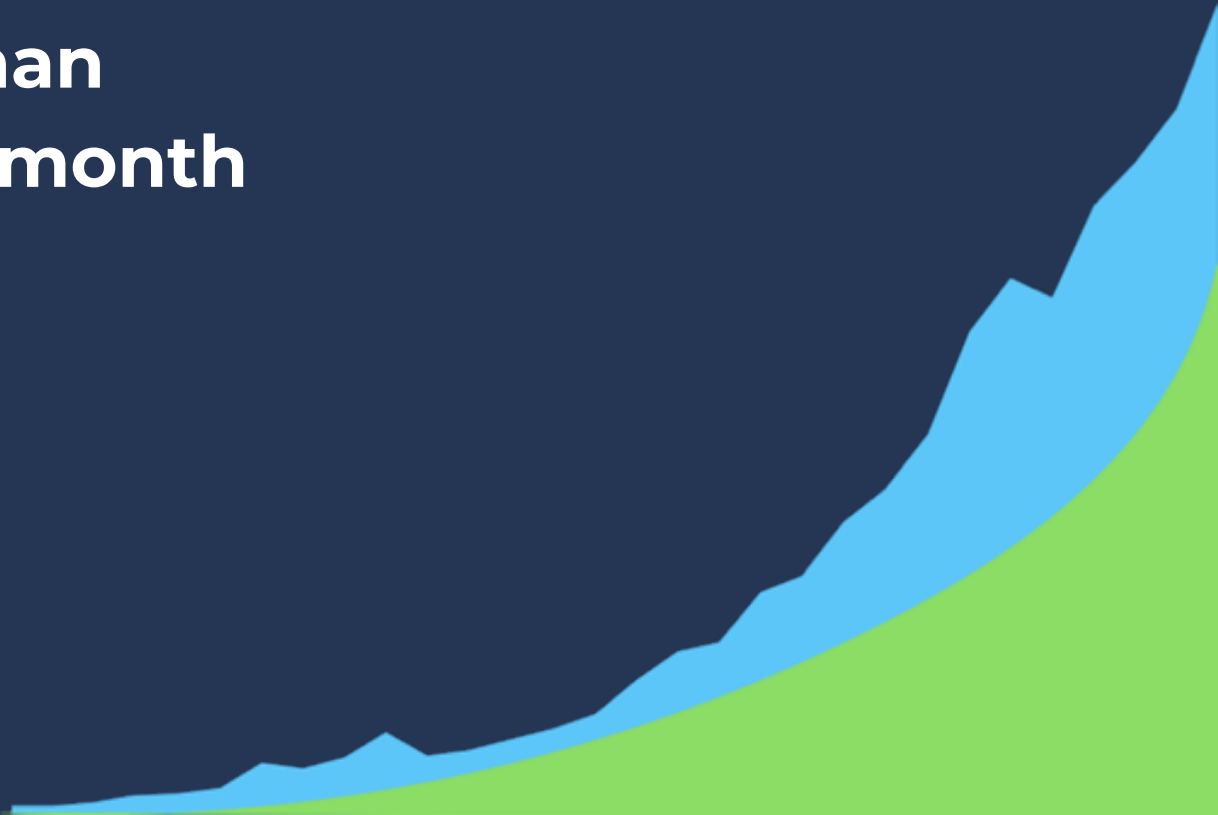
Two routes - we send money from and to



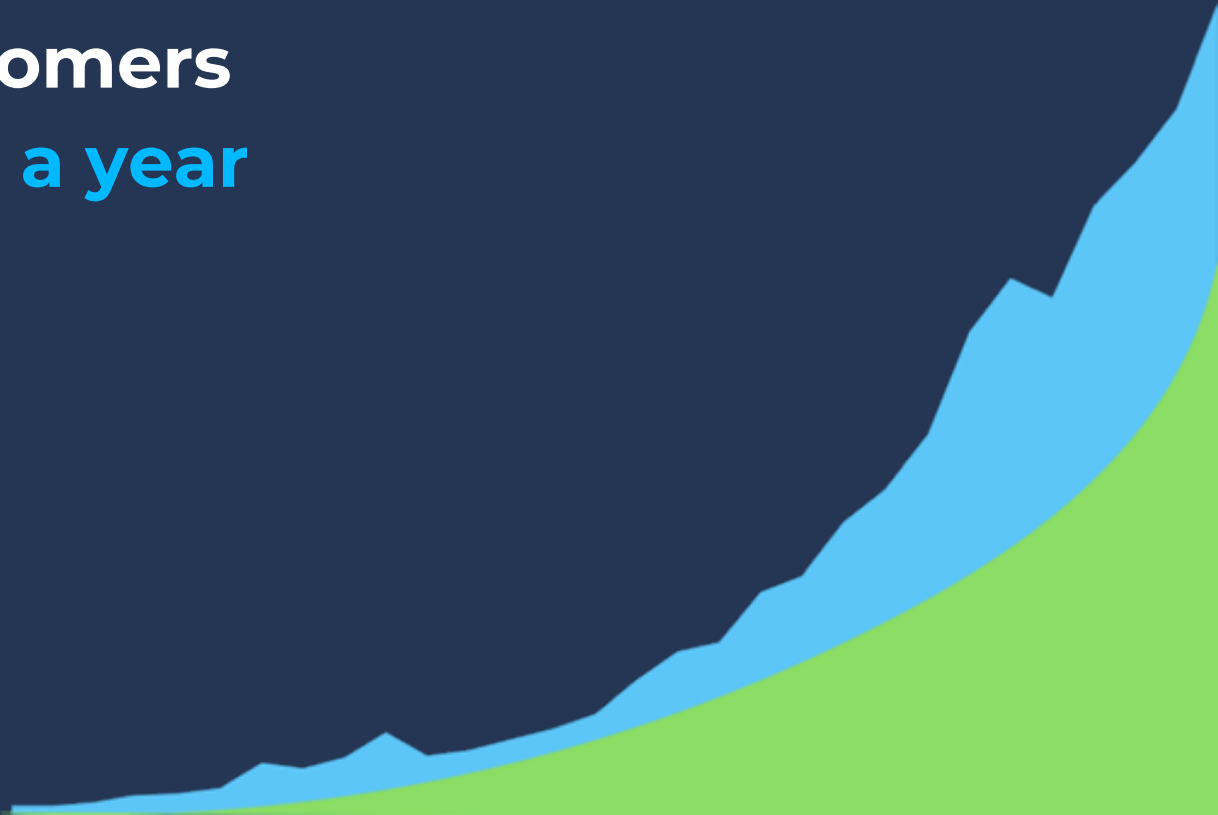
Today:



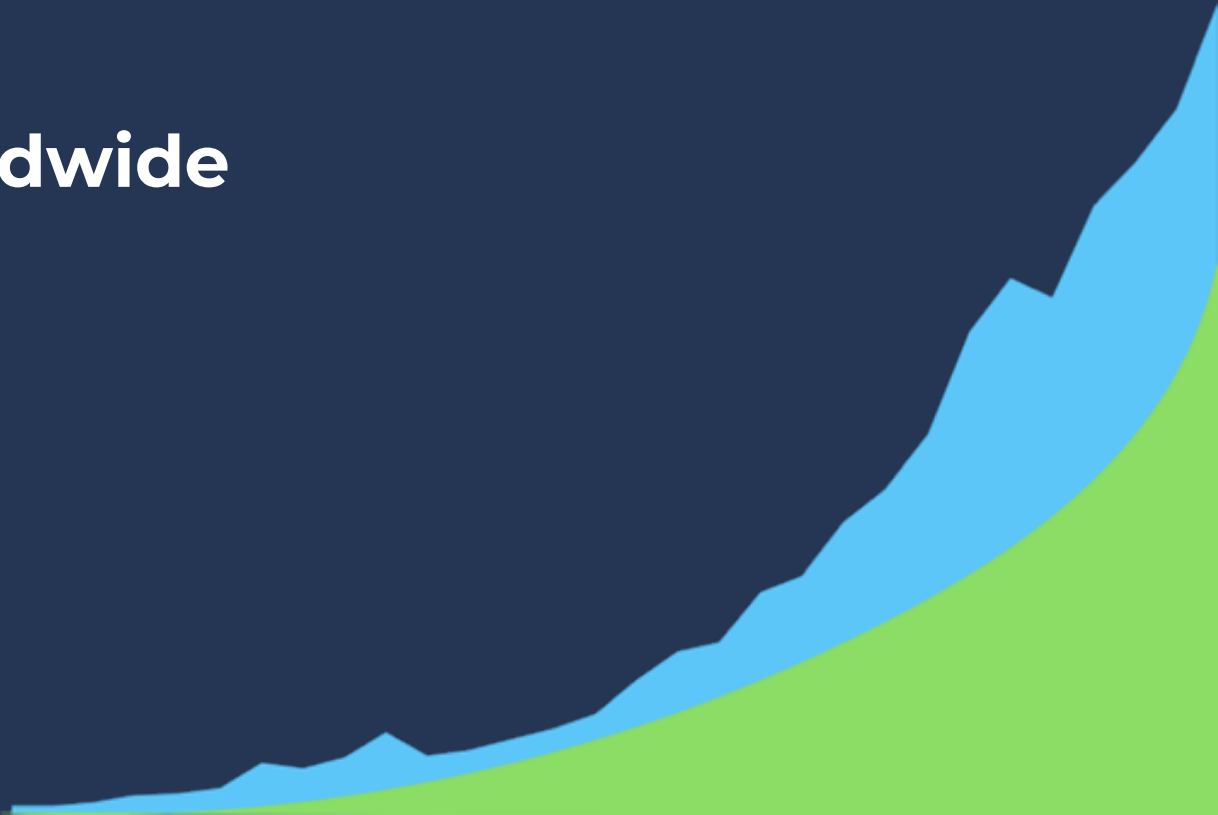
Moving more than
£4.5 Billion per month



**Saving our customers
more than **£1bn a year****



Over **10 million**
customers worldwide



2,200+
People

70+
Nationalities



Our Mission.

Money without borders -

Instant, convenient, transparent

and eventually **free**.

We're powering money for people and businesses: to pay, to get paid, to spend, in any currency, wherever you are, whatever you're doing.

How our teams work

Our culture
prioritises
customers
and is built for
speed.

We execute in **Autonomous** teams focused on solving **customer problems**:



Our autonomous team structure



We have scaled this model.

Autonomous team growth

- UX / Features / Conversion
- Engine / Infrastructure
- Currency / Geo / Coverage



Today at Wise:



500+
Engineers

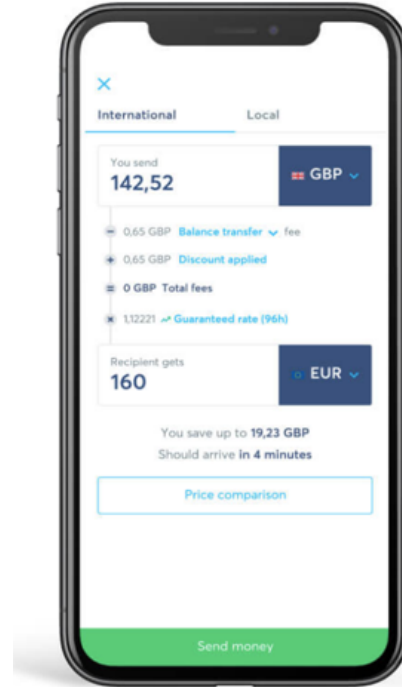


3,000
Releases into production
per month

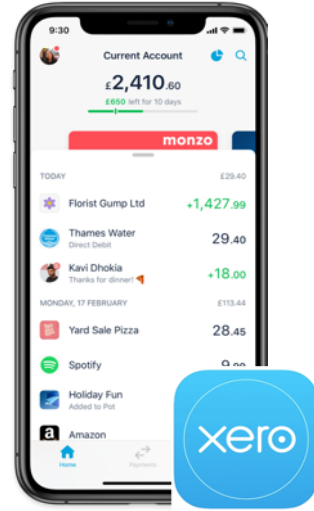
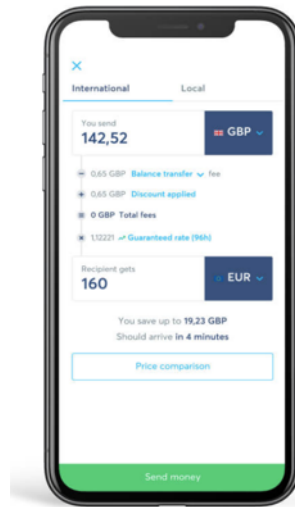
Partnering with



Money transfer
consumer
proposition
mostly served
by our own
apps



New product verticals and moving to a platform provider





Why Amazon Web Services?

Migration started in **2018**

1

Established provider with a track record of providing platform services to other regulated financial technology companies

2

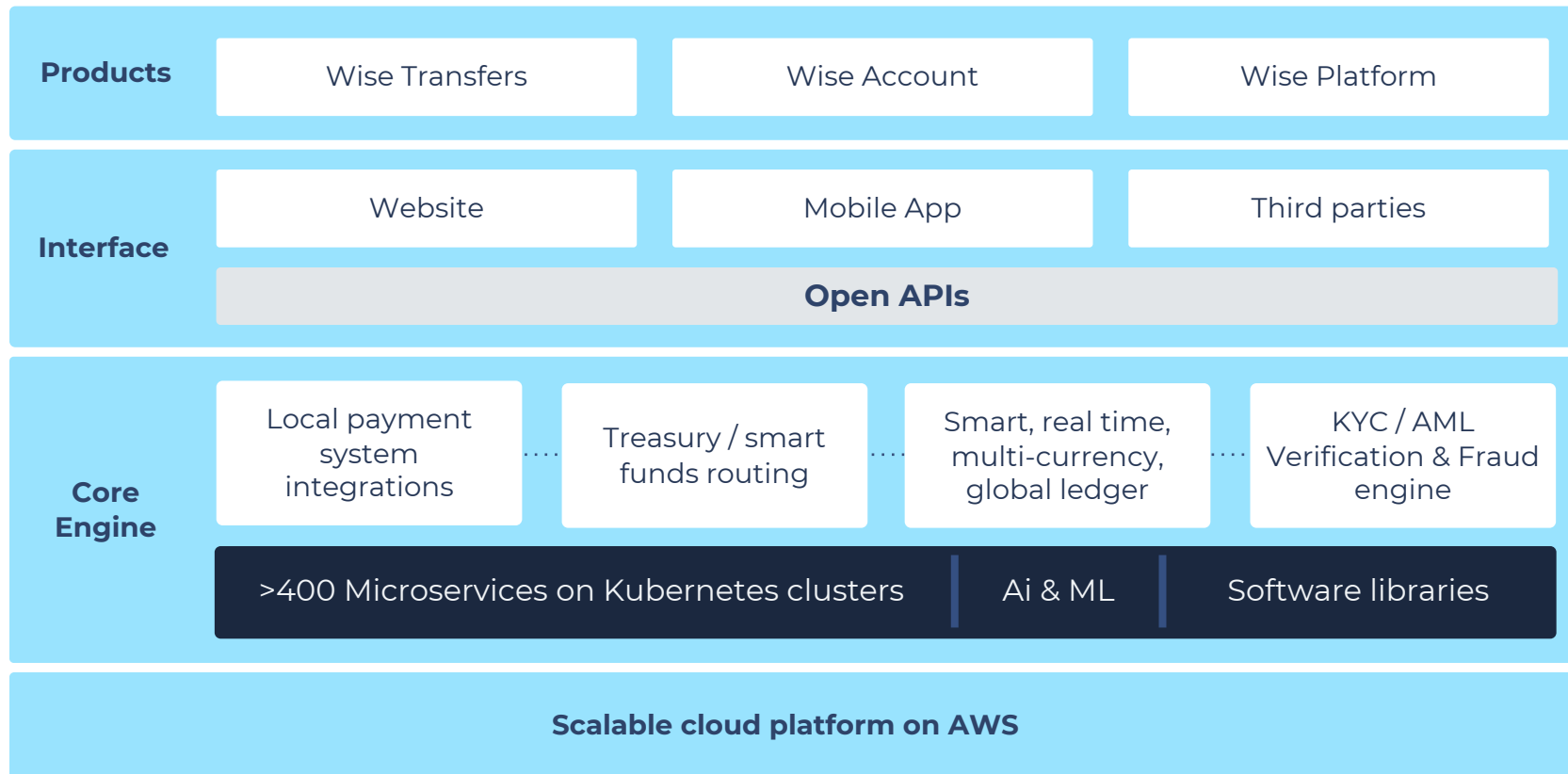
Reference checks with other executives showed AWS relationship management actually worked

3

Large globally deployed presence given our global ambitions and regulatory requirements for direct integrations

**As we migrated, we containerised our
microservice platform**

Wise



Mostly built
everything
ourselves using
'basic' AWS
services



Amazon EC2



Amazon S3



Amazon
DynamoDB



Amazon RDS

Mostly used open source software deployed on top of basic AWS tech



kubernetes



ubuntu



HashiCorp
Terraform



ANSIBLE



MariaDB



PostgreSQL



HashiCorp
Packer



Prometheus



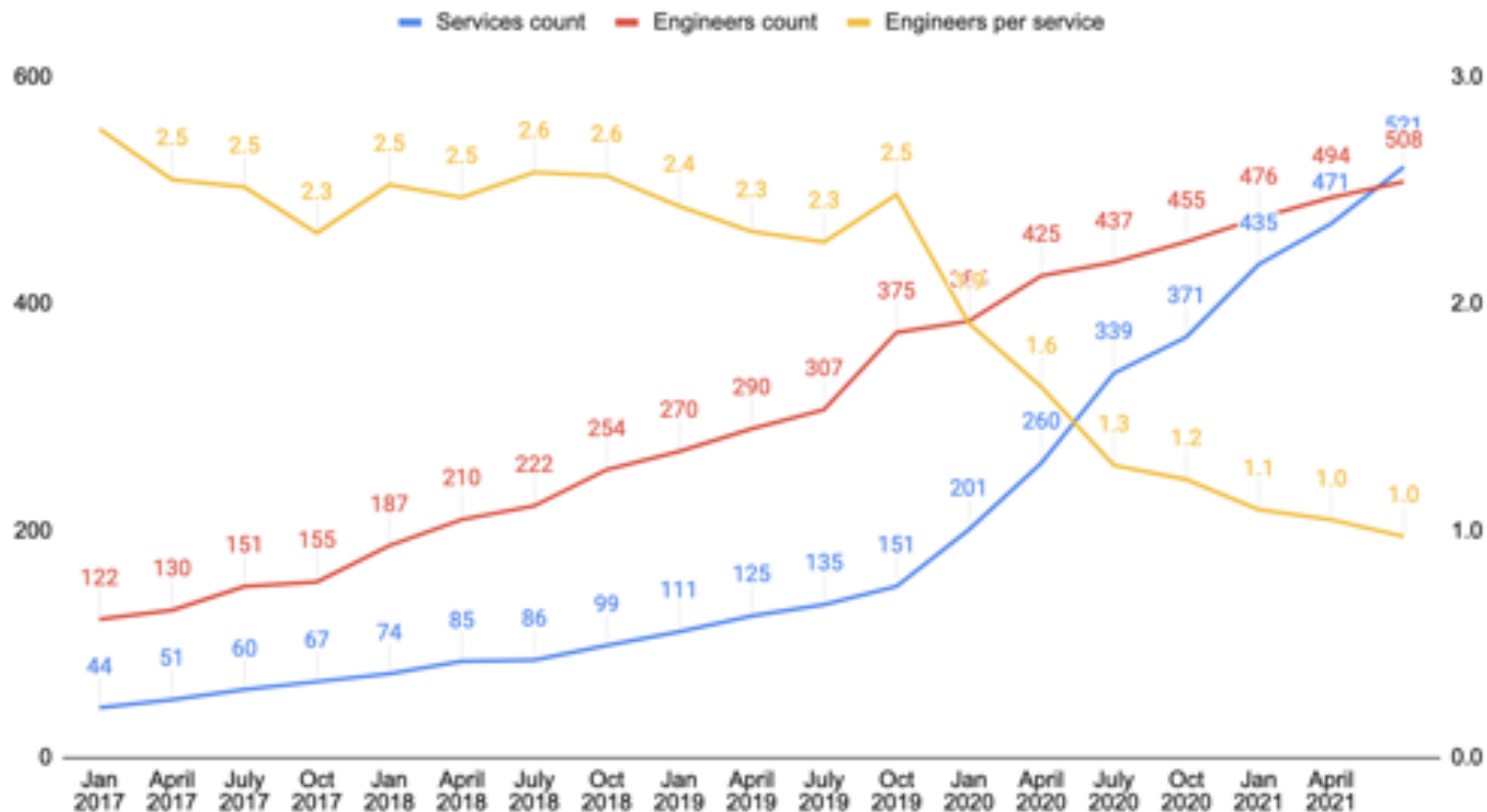
elastic



envoy

**Prioritised reliability and uptime over
cost - within defined architecture**

Services growth





On demand provisioning of test environments



yurii opryshko 15:37

create yuriy



k8s-bot APP 15:37

Now that is a beautiful environment name!

Creating custom-env `yuriy`

Provisioning Databases `yuriy`

Applying FX db migration

FX migration completed in 47s

Applying manifests for 24 services

--- snip ---

- `zookeeper:latest` installed

Marking @yurii.opryshko as creator of yuriy

Setting expiration time to 4h

Waiting for Octopus ingress hostname to resolve...

Octopus: <https://octopus.services.yuriy.>

Website: <https://transferwise.services.>

Ninjas: <https://ninjas.services.yuriy.>

Creating custom-env `yuriy` finished in 177s

Test environments in a distributed architecture

- Short provision time leads to cost efficiencies
- Capacity requirements and limits on AWS region as you scale
- Managing the test estate requires a lot of automation to scale
- **2000+** environments created in Q1 2021

Since migration...

**Added a few more
specialized
services over time**



**Amazon
SageMaker**



**Amazon
Rekognition**



AWS Lambda



**AWS Simple
Notification Service**

On going balancing act



Cost



Speed



Reliability

**Continue to bring Wise to all corners of
the globe - in partnership with AWS**





Provide the 'paved road' for TransferWise engineers that balances our autonomous culture with feature velocity and business goals, while ensuring our systems are reliable.

Paved Road

- Release Tooling
- Development Tooling
- Observability Libraries & Tooling
- Data and compute Services
- Cost Management Tooling
- Service Management Tools

Paved Road

- Resilience and Redundancy
- Scalability
- Backup and recovery
- Security
- Backed by operational expertise

Platform's Pillars

Efficiency



Reliability



Performance



Scalability





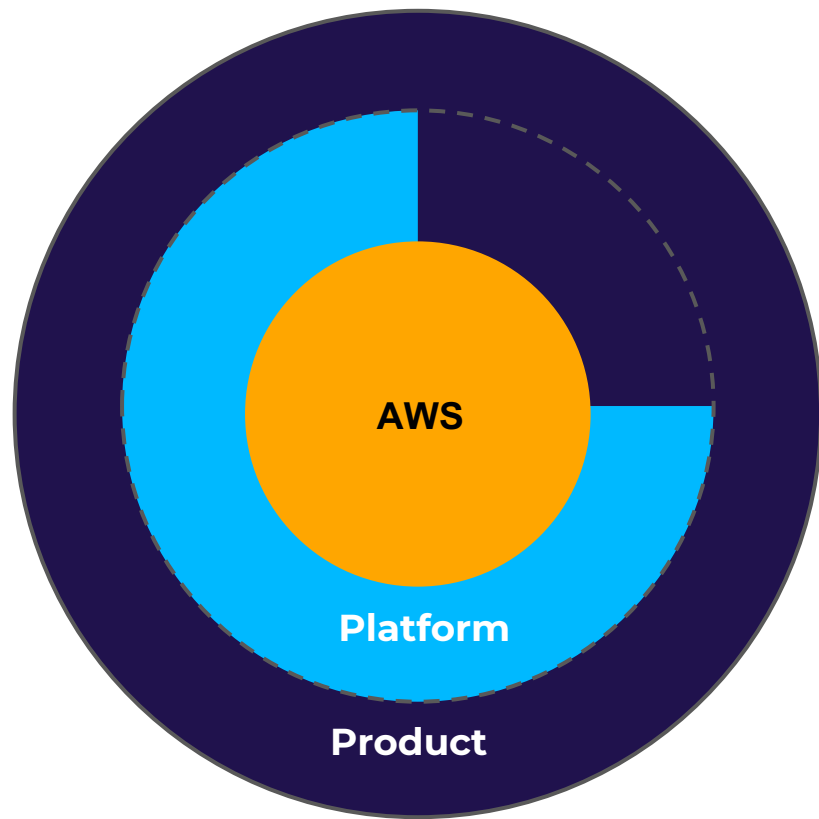
**Requirements are the same if you don't
use the Paved Road**





**Autonomy need to include ground up
risk awareness and management**

**Autonomous
teams can solve
problems and
exploit
opportunities
quickly**



**YOU MUST
BE THIS
TALL TO RIDE!**



**We continue to develop our paved
path of platform services to support
more requirements**

Teams don't have to use platform services but partner with platform on the design and risk assessments

Our Mission.

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**As volume
increases our
costs scale**

- Playing the long game
- Volume drive down cost
- Integrations drive down cost

**Constantly iterate on our architecture
to drive down unit costs**

A red banner is stretched across the front of a brick building. The banner features the text "CLOSING DOWN" in large white letters and "EVERYTHING MUST GO!!!" in large yellow letters. The building has a brick facade with a central brick chimney and two arched windows with white frames. A small white sign is mounted on the brick wall above the banner.

CLOSING DOWN
EVERYTHING MUST GO!!!

Price

- AWS costs incorporated into 'Product Economics'
- Tagging accuracy and discipline
- Track unit cost(s)



Cost Management is everybody's job

That's infrastructure but is there more?

A photograph of two people in a meeting room. On the left, a man with brown hair tied back, wearing a white long-sleeved shirt, is looking at a whiteboard. On the right, a woman with short dark hair and glasses, wearing a blue long-sleeved shirt, is pointing at a sticky note on the whiteboard. The whiteboard is covered with numerous yellow sticky notes, some of which are labeled 'Q1', 'Q3', and 'Q4'. The man is holding a blue marker and a sticky note labeled 'GEP'. The background shows a modern office environment with glass walls and ceiling lights.

Collaborative partnership aimed to growing together than just a service

A photograph of four people standing in a lush green field, seen from behind. They are all making heart shapes with their hands raised against a clear blue sky with light clouds. The scene is bright and positive, suggesting a sense of unity and shared purpose.

Wise is obsessed with customer satisfaction - an ethos we share with Amazon

Scaling culture, people and organizations



Summary

Summary

- 1.** Partner for today and beyond - all things given equal relationship won for us!
- 2.** Paved road approach helps teams moves fast with flexibility to explore with guard rails
- 3.** Cost is a big factor but visibility of cost is key to help keep costs in control.
- 4.** Partnership can be beyond just infrastructure



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Thank you!



Harsh Sinha

Chief Technology Officer
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Director, Platform Engineering
Wise



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Please complete
the session survey