Open Source in Banking:
Multiple Apache Projects Used for Bank Solution

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Halifax, NS
October 6-10, 2023
Intro

Financial Inclusion

Entrepreneur

Open Source

Clean Energy For All

Founder of Mifos
Business model first

Contribute upstream to the open core, build and defend your market position by building defensible services and functionality.

Customer pitch, control and cost.
## Functional Requirements

### Digital First Bank

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<th>Customer Onboarding</th>
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“Self Service?”

Traditionally, Banks are built on the basis of Teller Actions.

But we have these.
“The future is already here – it's just not evenly distributed.

William Gibson, Author
Our Starting Point

- Mifos Back Office UI
- PaymentHUB
- Cloud Expertise
- Scalability Design
- Banking Compliance
## What’s the gap

**Digital First Bank**

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## More Gaps

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<th>Scalability</th>
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<td>Performance</td>
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<tr>
<td>Downstream Systems</td>
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<td>Business Date</td>
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<td>Batch Processing/ EoD</td>
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See other presentations during this track on these topics.
No Humans

If you don't have to have humans touch it, then many of the regulations, and all of the SOC2 assessments are simplified.

CI/CD pipelines can solve compliance questions in Financial Services.
Open Source Projects Used in...

- Core Banking System of Record
  - Fineract

- Payments Orchestration
  - PaymentHUB

- Other Components

- Cloud Deployment

- CI/CD/Testing

- Dev Tooling
Used by Fineract

- eclipse link
- Jersey: RESTful Web Services in Java.
- Spring Boot

Used in Deployment

- kubernetes
Avro used for...

- Reading the saved events from the database
- Sending them into the downstream message channels

Executing with Spring Batch, scheduled, optional.
PaymentHUB

Payment Hub
Multi-tenant

Process Orchestration
Stateful, Distributed Engine

Fraud Detection Connector
Fraud Detection Connector 1
Fraud Detection Connector 2

Payment Schema Connectors
ISO20022 Realtime Connector
Mojaloop Connector
Mobile Money Connector

Account Management System Connectors
Apache Fineract Connector
Apache Fineract CN Connector
Other Core Banking Connector

Omnichannel Services for Customer

powered by Mifos®
Productizing

Ease of Adoption
Onboarding process, migration

Performance and scalability
Scaling to 100s M accounts and billions of transactions.

Compliance
Checking the boxes with regulators

Secure
Bringing cloud security practices.

New Features
Adding defensible features

Approved for SEPA Payments Instance
Where is Banking going?
All US Dollars settle on systems that were built before the internet. (Ben Metz, Chief Digital Officer, Jack Henry Inc)

August 2023
Disallowed in Regulated Banking Core… Not Long Ago

Screenshot of a talk by Chief Digital Officer of Jack Henry Inc
Existing FinTechs

Sit Beside Offering

New Core

Availability Layer

COBOL

Other

Legacy Core

Designed for:
Teller Operations
Bank Management
Treasury Management

Created before the internet

Designed for consumers on the internet, on their mobile devices.
IT spending as share of company revenue in 2022, by industry

- Software: 18%
- Tech Hosting/ Cloud: 11%
- Financial services: 10%
- Retail & eCommerce: 7%
- Transportation & logistics: 5%
- Healthcare: 5%
- Consumer products: 3%
- Industrial products: 2%
NYC Financial District

Retail Banking
Commercial Banking
Trading
Brokers
Asset management
Bond Issuance
Treasury Operations

Lots of COBOL
Visualizing: “Open source is eating software faster than software is eating the world”

- **Closed Core ("SaaS")**
  - Digitized new software markets that hadn’t existed
  - Distribution-model agnostic ("Cloud" not a biz model)
  - Top-Down, centralized R&D, adoption + GTM
  - Largest area under curve, growth slowing

- **Open Core ("COSS")**
  - Transforming existing markets + defining new ones
  - “Web3” part of this wave
  - Bottoms-Up, decentralized R&D, adoption + GTM
  - Smaller area under curve, growth accelerating
CONCLUSION?

Uses growing number of open source projects.

Uses a lot of sister Apache Projects

: High Density of Open Source belowdecks of Fineract
A Convergence

Cloud Native

Using more and more open source
Going to the cloud

Closed

Client Server

Cloud Hosted Banking Infra

Open

Legacy

Mainframes
AI will accelerate the change

Forcing function - synthetic ID, detection systems
Forcing function - AML
Testing - coverage made easier
Discovery - what does the COBOL code do?
Rewriting - do what the COBOL code does
Interfaces with customers will Evolve
Thank you

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To learn more about BaaSFlow and our upstream contributions.
www.baasflow.com