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Fineract for **Enterprise** customer

The story of making a small open source project meet the need of a giant

The pitch

Fineract isn't for enterprise customers… It's for enterprise `[full stop]`
It is used by large enterprise today. Although customers aren't the enterprise itself don't get disheartened, it's going to be a good story. A story of the success of a small open source project.

Apache **Fineract**

System of Record [SOR]

Fineract is an open source core banking system, (also known as **system of record** [SOR]) with open API. It supports any banking product, service, or lending methodology. It supports accounting, general ledger, saving, loan or checking account management.

The customer

US based multinational financial technology company

More than

30K

employees

over

$25B

revenue

Part of top

100

Nasdaq

Why
Open source?

- ✅ No vendor lock
- ✅ No license fee
- ✅ Control over destiny
- ❓ Performance

Performance

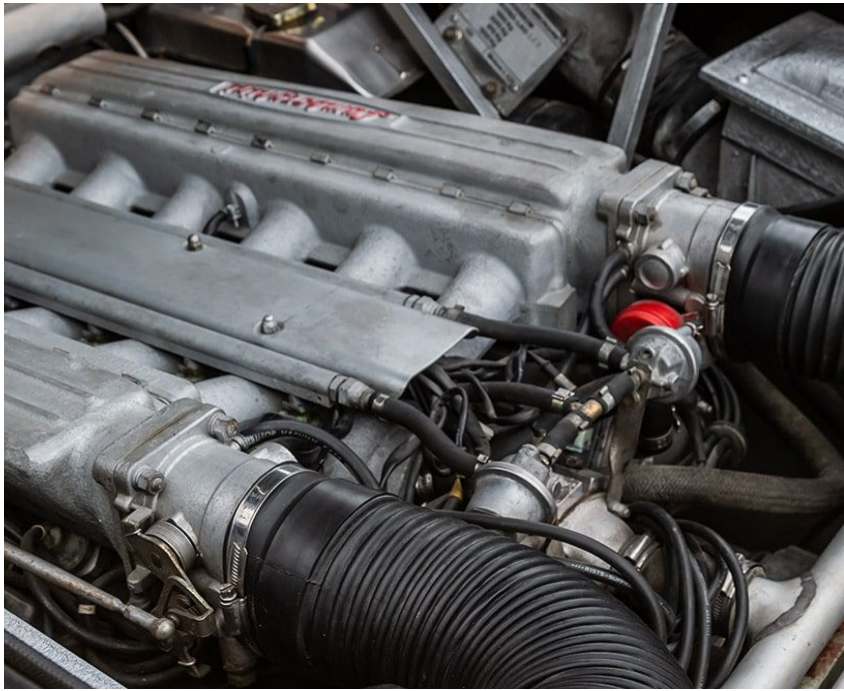
API performance

500 TPS with API response < 1000 ms

Batch processing

Close of business

4M loan accounts within 1 hour



PoC of Performance

Both the API and the batch processing were assessed. The actual db instance it was running on was db.r6g.16xlarge (ARM, 64vcpu, 512g ram) and db.r5.16xlarge (Intel, 64vcpu, 512g ram)

Outcome:
Sufficient API performance and double batch processing time. Both were in addressable range

So what is this story about

Performance, Scalability and Technology;

Quality assurance; Team;

Business understanding; Governance;

Tech stack upgrade

- **Postgres** to enable performance, partitioning,
  - Better performance
  - Possibility of partitioning
  - Keep supporting MySQL, MariaDB
- Persistence layer OpenJPL to **EclipseLink**
  - OpenJPL reached its end of life
  - Reference implementation following GPA
  - Better performance

Scalable and robust technology

- **Spring Batch** for job management
  - Parallel processing of multiple chunks to close loans as soon as possible
  - Prevention of conflict with online transactions
  - Steps to execute must be configurable
  - Retry and error handling
  - Catching up
- Persistent **event framework** with **Kafka** or **AMQ**
  - Replacing earlier JMS implementations
  - Support diverse needs
  - Event based data sharing with downstream systems
  - Replacing ETL jobs

Business Date & Close of Business

Control your destiny - ability to attribute events to time defined by yourself

Close of Business - physical and logical date differentiation

Data recovery - well defined point of recovery

Quality

Problem with open source… it's the source. Not the whole process of creating business value

> On top of the existing integration tests we introduced a business case based regression test framework using gherkin. It allowed us to customize and differentiate **smoke** tests, **regression** tests.

Team

Community is key to find the right people. This is a network of individuals with divers skill and it isn't limited to Fineract

01 | Java developers

02 | Fineract knowledge

03 | Financial market understanding

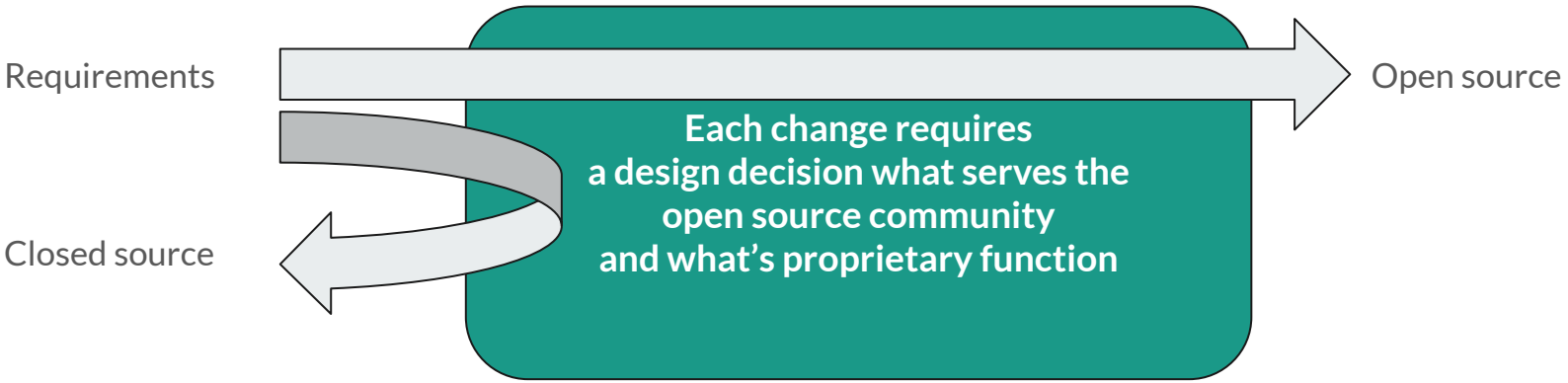
04 | Technical leadership skills

Business understanding

One of our challenges is understanding the business needs.

Specific to US market (payments and transfers, legal requirements etc)

Governance


Requirements
Closed source
Each change requires
a design decision what serves the
open source community
and what's proprietary function
Open source

Governance

Small agile team meeting big company standard timeline

The larger the company is the more dependencies it has to manage. These dependencies can explode your schedule.

Planning

You can plan as much as you understand.

Managing timeline and expectations

It’s not only about highlighting issues but sharing those early. Management doesn’t have a problem learning issues. They have problem learning them late.

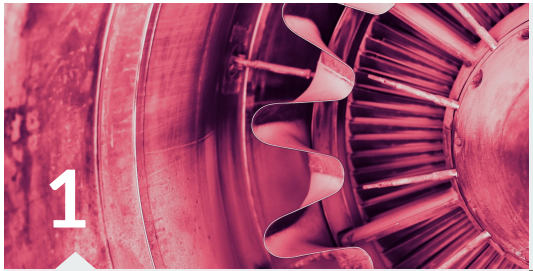
Functional requirements

Let’s see where we ended up...

Results

1. Project delivered **on time**
2. **Quickest** production **ramp up** ever (in 4 weeks from 0 to 100%)
3. **Without** any notable **issue**
4. Over **$200M** projected cost saving over 5 years

Takeaways



Harness the network of the community

It's a great network. Go even beyond. The more diverse

Prove your application

It proves you as well…

Adjust to expectations

Not only technical but how you manage the project will impact the outcome. Manage time and quality. Guard the OS to remain beneficial.

Thank You