



Bob Lee

@crazybob







VISA

MAJA DALEY

GOOD THRU 03/15

1234 5678 2011

CREDIT

10:03 AM

Take Payment



\$600.00

Wedding Photography

Clear

Swipe card to charge

1

2

3

4

5

6

7

8

9

0

X



2,000,000

Dim Sum



Accepting a payment

1

Authorization

2

Capture

Persistent Queues



ACID

- Atomicity
- Durability

Filesystem Promises

- Renaming is atomic
- Fsync is durable*
- Segment/block writes

Traditional Strategies

- Write, fsync, rename, fsync
- Rollback log
- Journal



Tape

github.com/square/tape

Header

Elements

Header (16 bytes)

- File length
- Element count
- First offset
- Last offset

Element

- Length
- Data

Enqueueing

1 Write data

2 Fsync

3 Write header

4 Fsync

Dequeuing

1

Read data

2

Write header

3

Fsync

Expansion

- 1 Set file length
- 2 **Fsync**
- 3 Copy data
- 4 Write header
- 5 Fsync

What's next?

- Tape on the server
- Elide the filesystem

Server Stack



Ruby



Java



One Repository



One-Jar



Self Executing Jars

```
#!/usr/bin/java -Xmx2G -jar  
[jar file]
```

Java Stack

- Jetty
- JAX-RS (Jersey)
- JPA (Hibernate)
- Guice
- *Dropwizard*



Rethinking Pub/Sub



Payment Processing

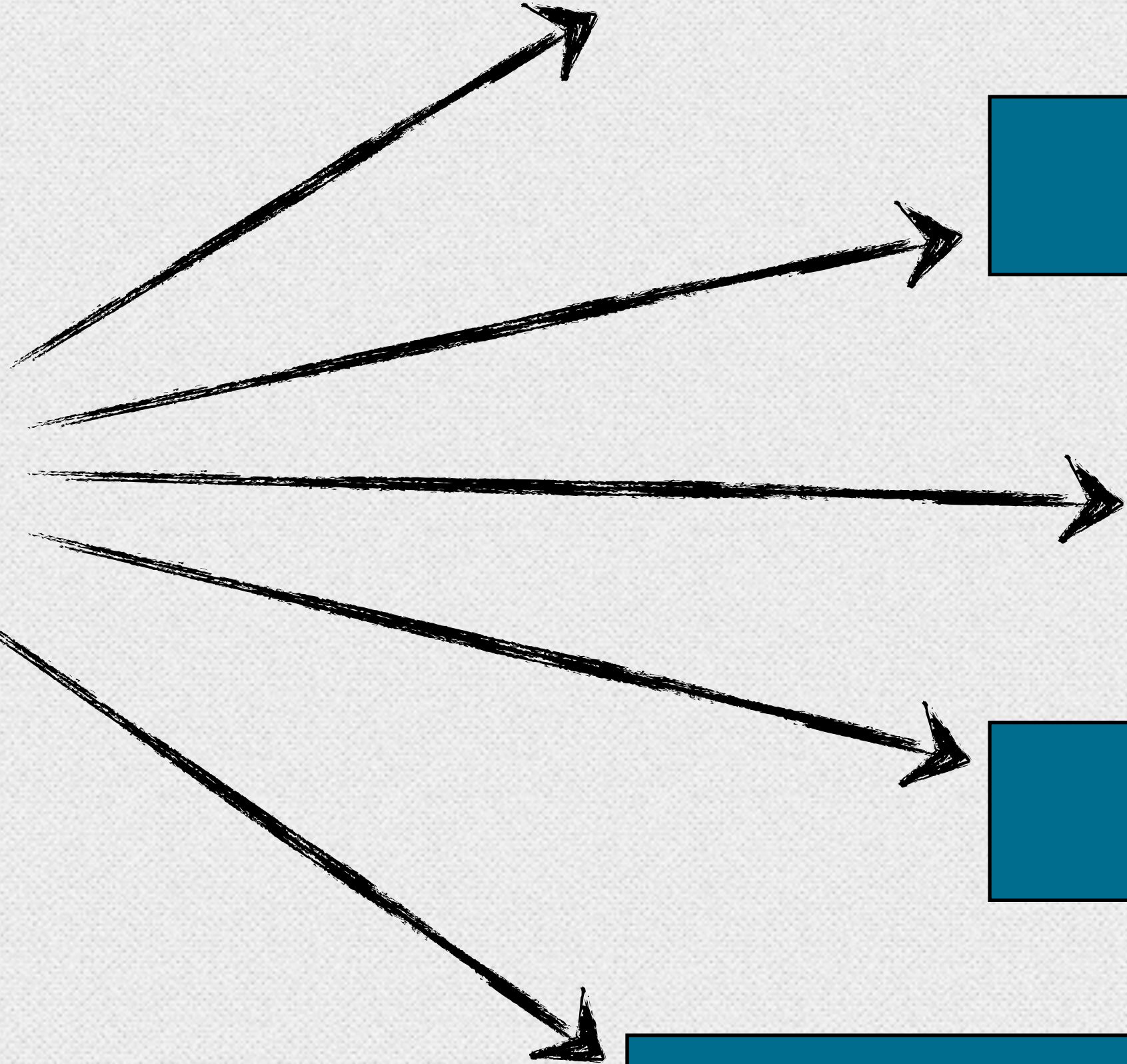
Capture

Settlement

Business Intelligence

Risk

etc.



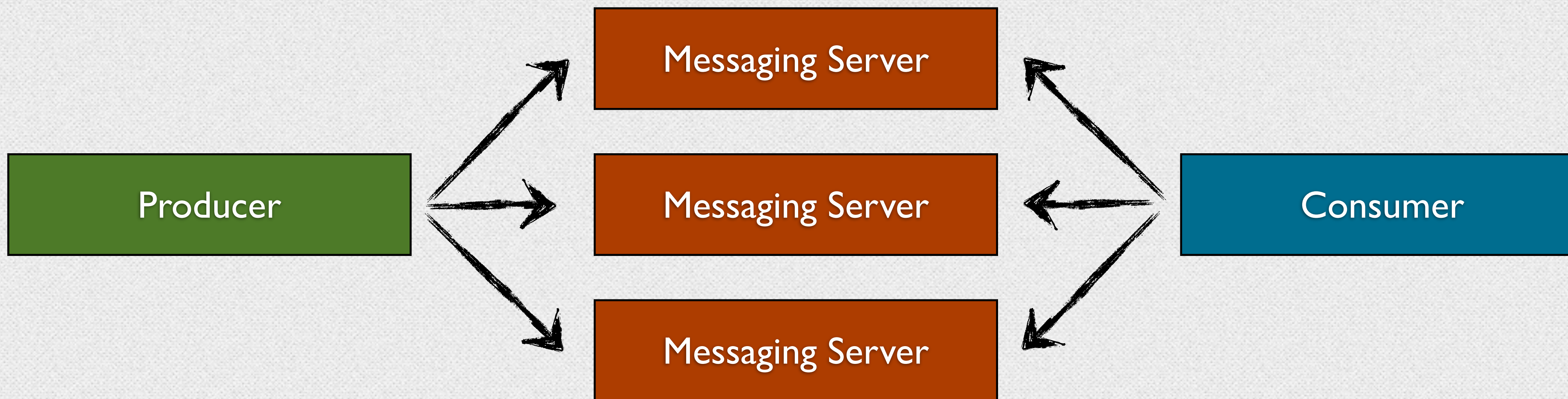
Producer



Messaging Server



Consumer

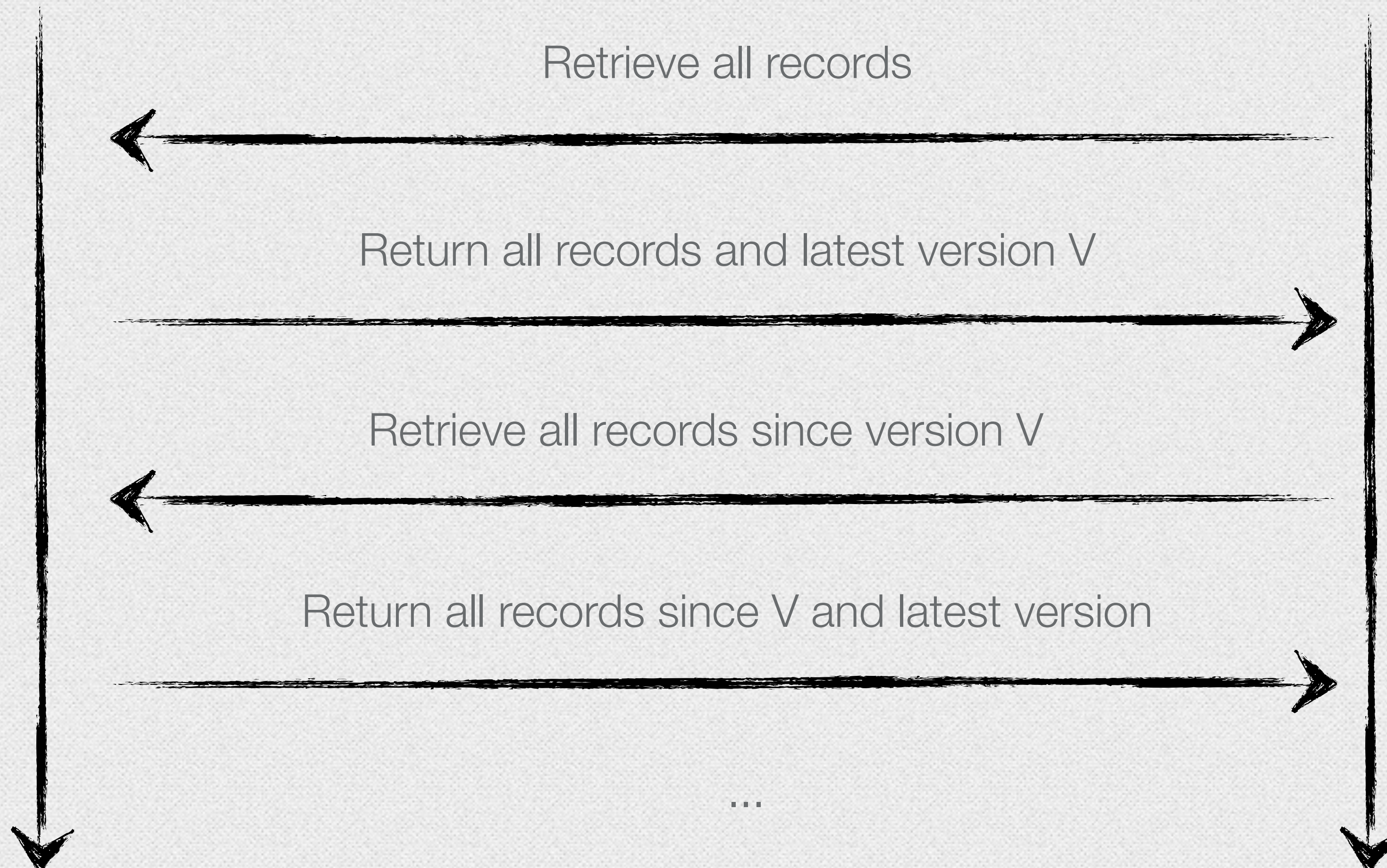




Synchronization Feeds

Producer

Consumer



Constraints

- Immutable sequence of events
- Total order
- Centralized server

Benefits

- Email vs. RSS
- Stateless
- Fewer moving parts
- Free bootstrapping!

Further Ideas

- Partitioning feeds
- Caching and replicating feeds
- Pubsubhubbub

Dependency Injection



Guice

- Launched in '06
- Used by Google, Facebook, Twitter, etc.
- On version 3

- Supports JSR-330
- Provider methods only
- Uses code generation
- Compile time validation
- No custom scopes
- No circular dependencies

corner.squareup.com



github.com/square





ts Charge \$261.97

Blue Oxford \$125.00

Striped Wool Tie \$72.00

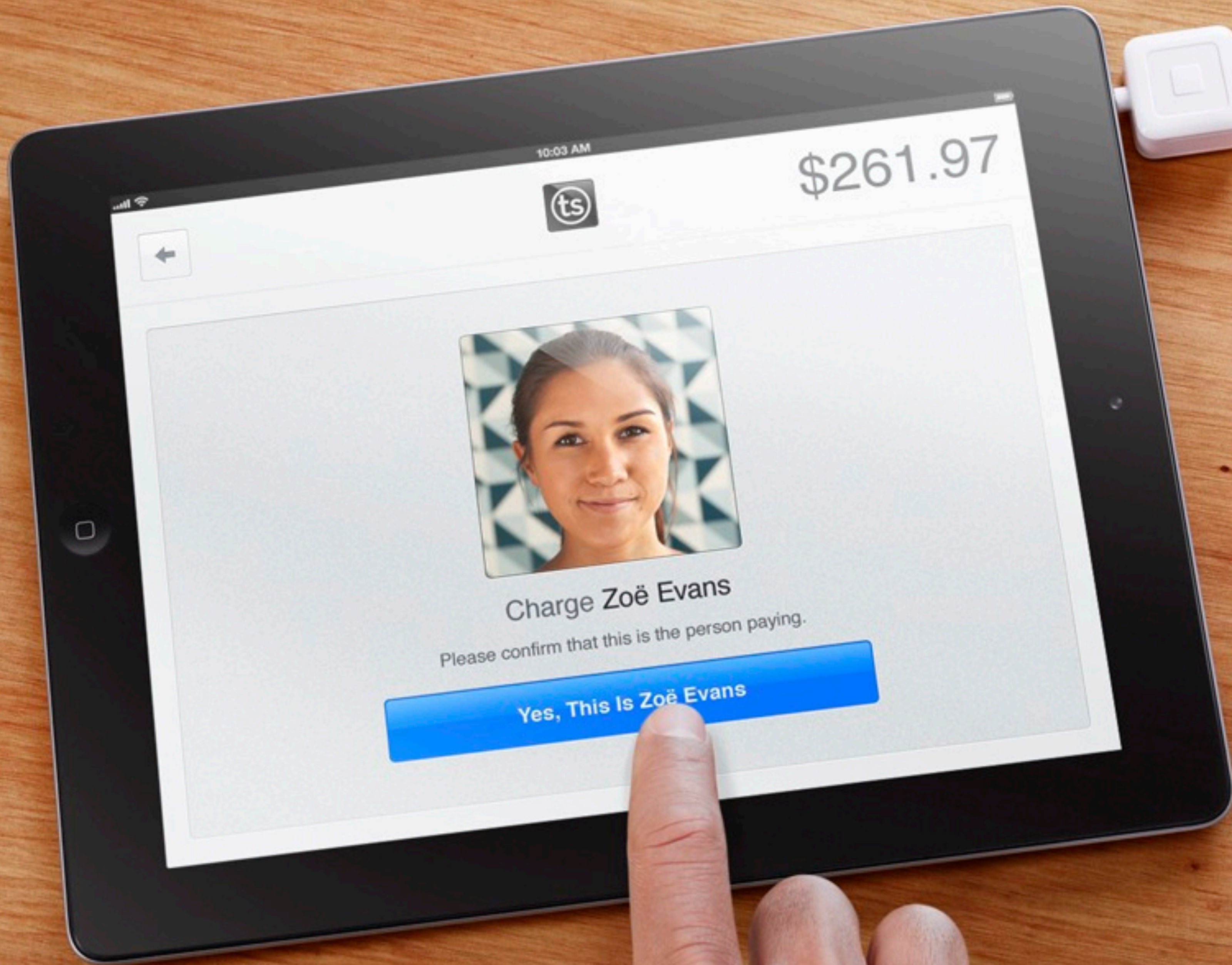
Flannel Cap \$45.00

% Tax (8.25%)

Clear List







\$261.97



Charge Zoë Evans

Please confirm that this is the person paying.

Yes, This Is Zoë Evans

@crazybob



Questions

?

Thank You