HENDRIK EBBERS

JAVAFX ENTERPRISE

GUI Garage

OPEN SOURCE UI STUFF

Do they match?

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ABOUT ME

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CONTENT

- JavaFX
- Enterprise Development
- JavaFX Enterprise

some basics

Best of JEE Spec

Let's test the mix

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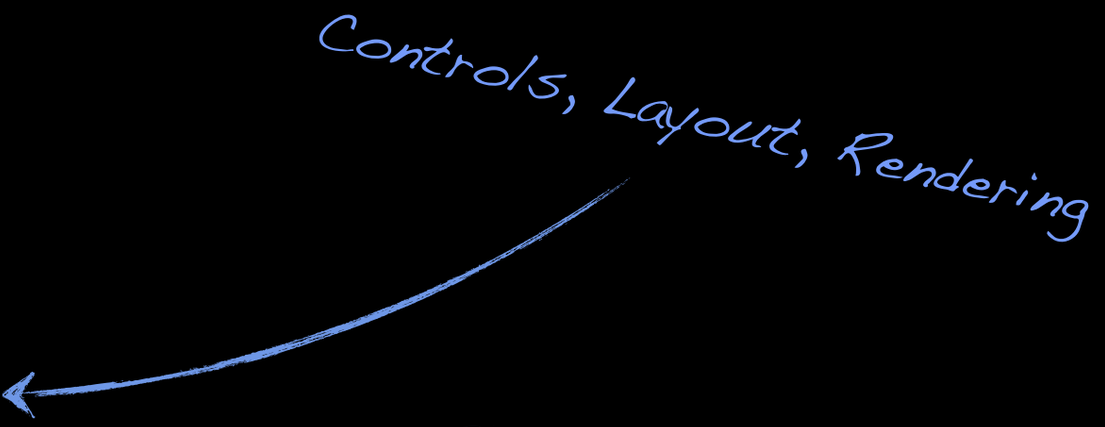
NEXT GENERATION UI WITH

JAVAFX

BASICS

- Scene Graph
- Property API
- FXML
- CSS



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DEMO

THERE IS A LOT MORE STUFF

- Controls
- Animation
- 3D Support
- Printing
- …

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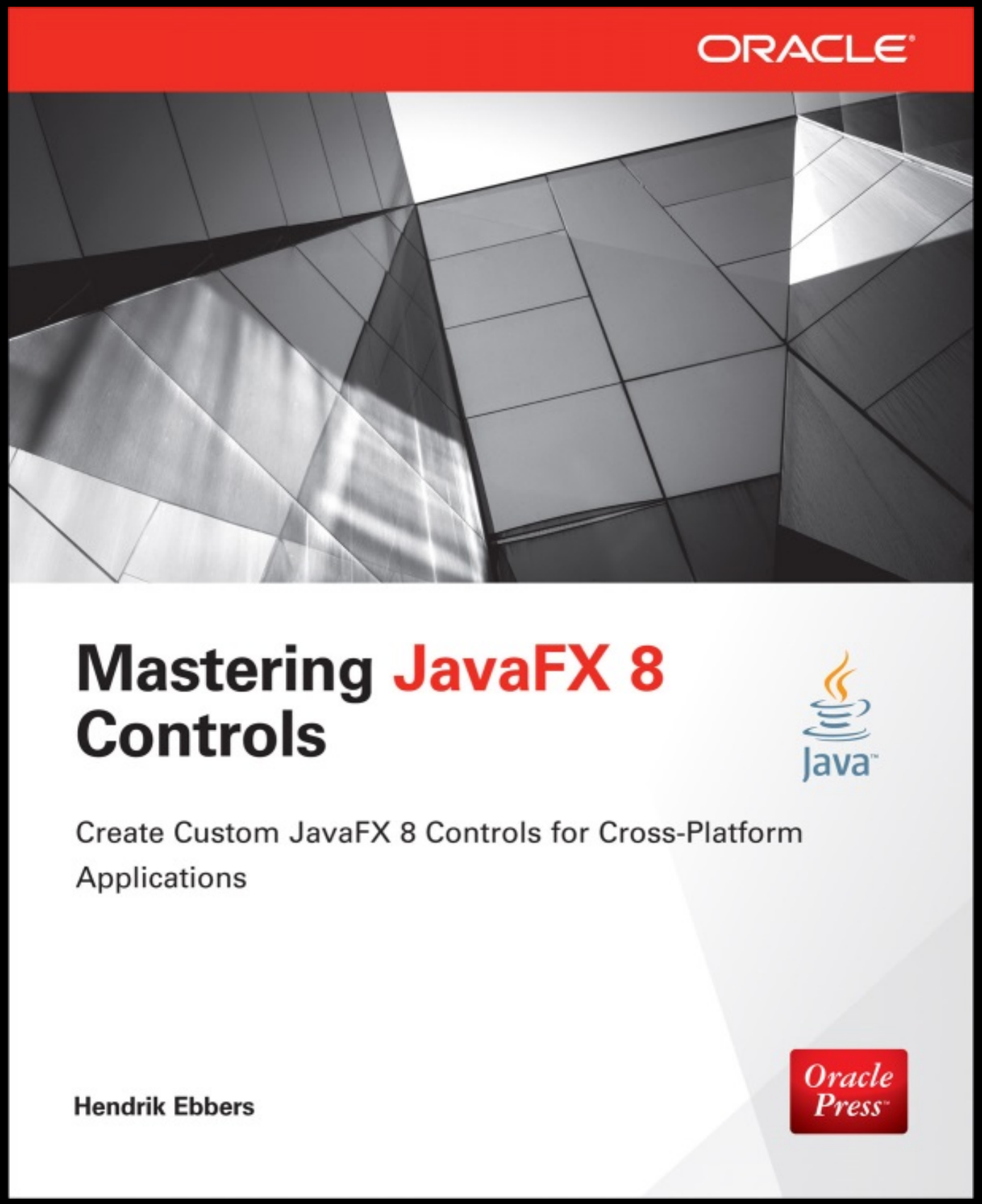

ORACLE PRESS

MASTERING JAVAFX 8 CONTROLS

BEST PRACTICE

ENTERPRISE DEVELOPMENT

JAVA EE SPECIFICATIONS

- JAX-RS ← Data CRUD operations
- JAX-WS ← bidirectional communication
- JAVA BEAN VALIDATION ← just annotations
- EJB ← Local & Remote
- CDI ← manage the lifecycle & inject the data
- JSF Flow ← structure of view

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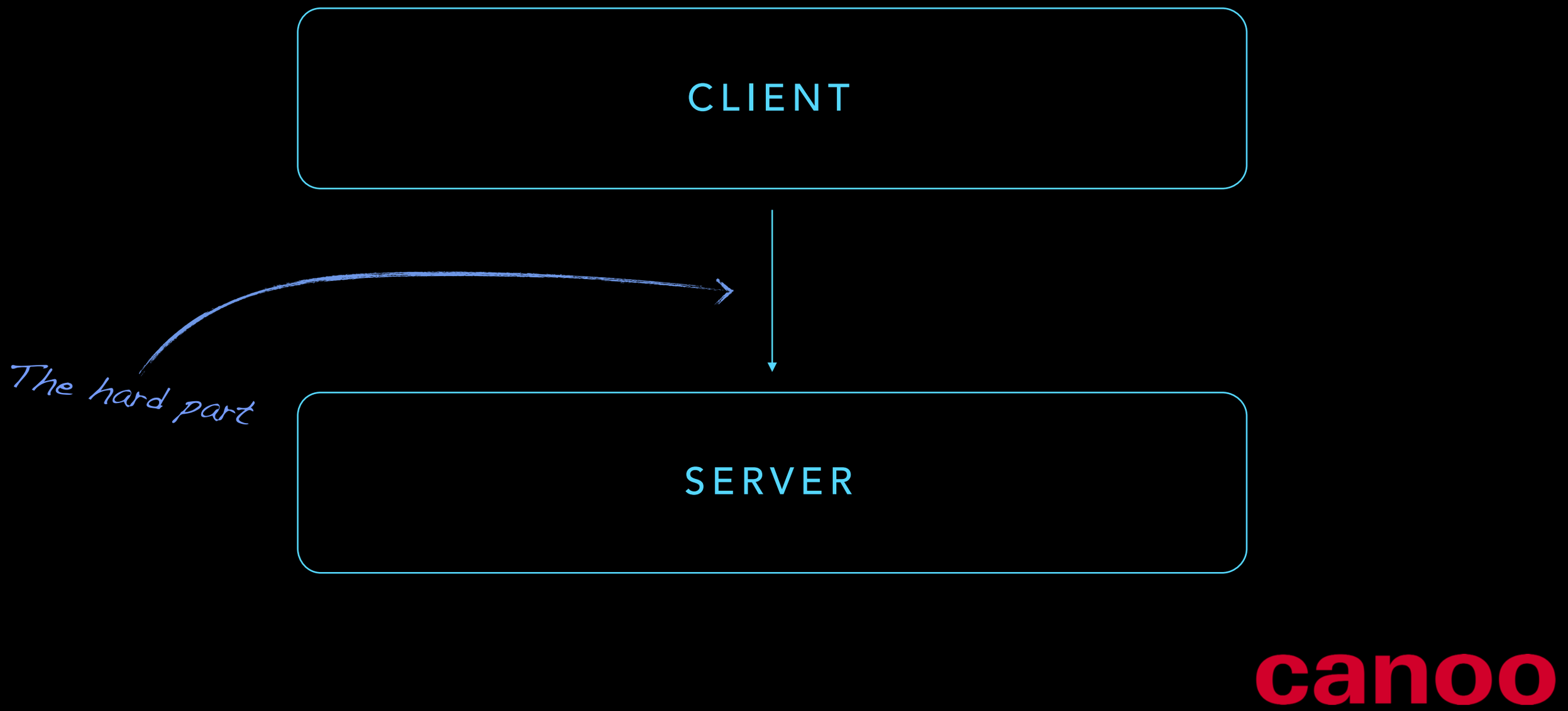
THE SEXY MIX

JAVAFX ENTERPRISE

LET'S START WITH A

BIG PROBLEM



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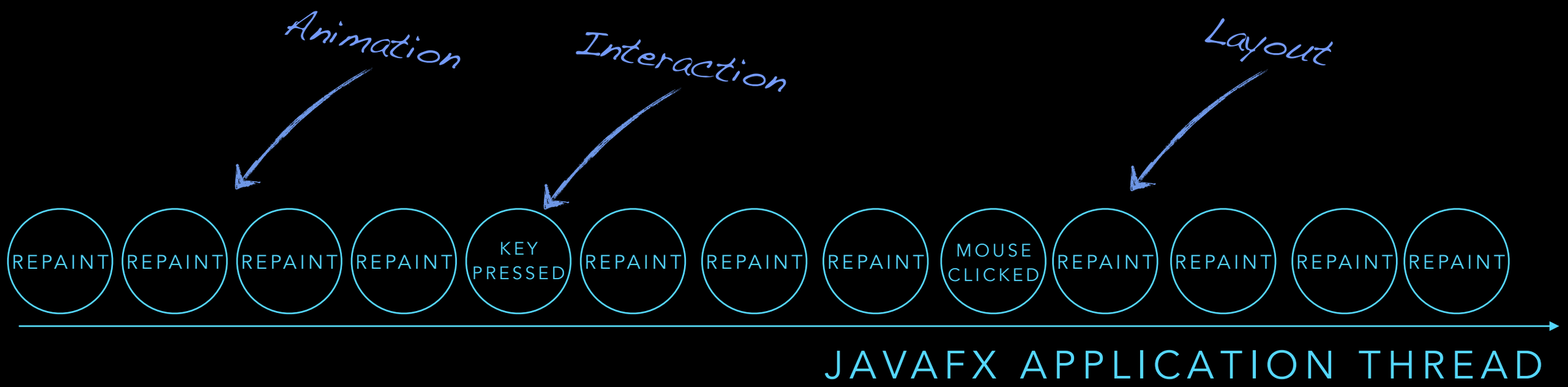
DESKTOP DEVELOPERS NEED TO KNOW

MULTITHREADING...



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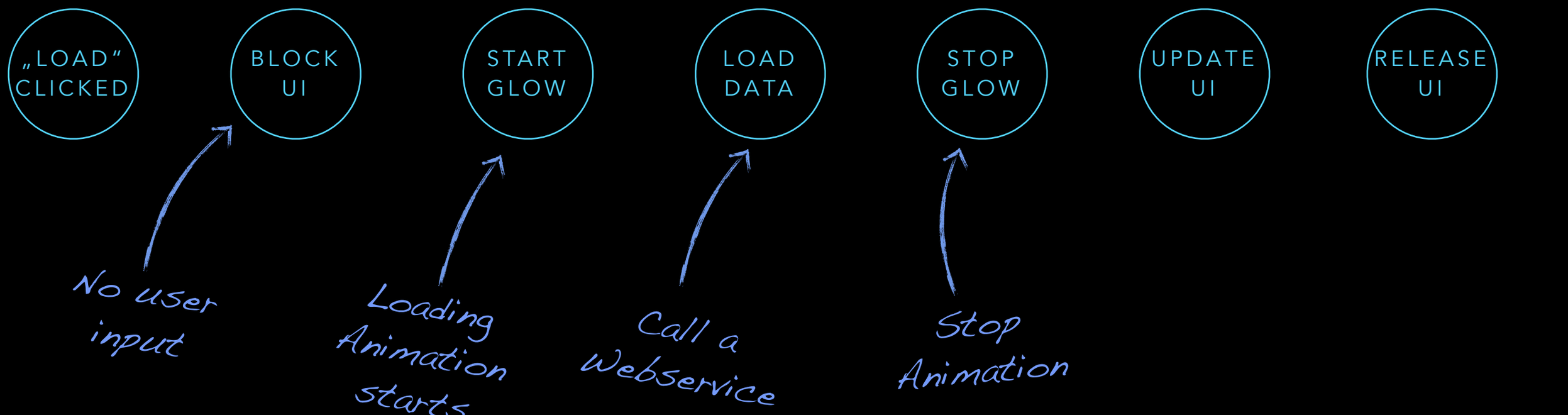
LET'S HAVE A LOOK AT A

SMALL USE CASE

STORYBOARD



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OH, THAT ONE IS SIMPLE

CODE SNIPPET

```
blockUI();
data = loadFromServer();
updateUI(data);
unblockUI();
```

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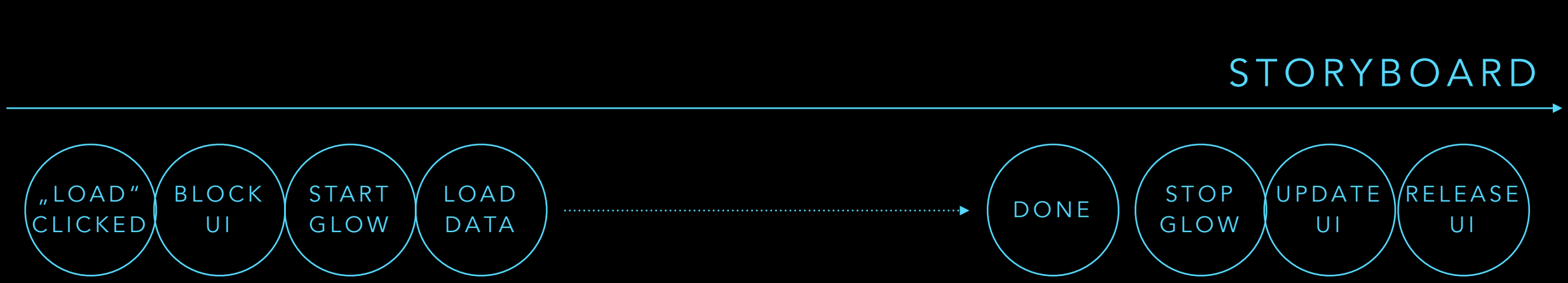
IT'S WORKING LIKE CHARM IN MY

DEV ENVIRONMENT



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BUT THE CUSTOMER HAS PROBLEMS IN THE

REAL ENVIRONMENT

STORYBOARD

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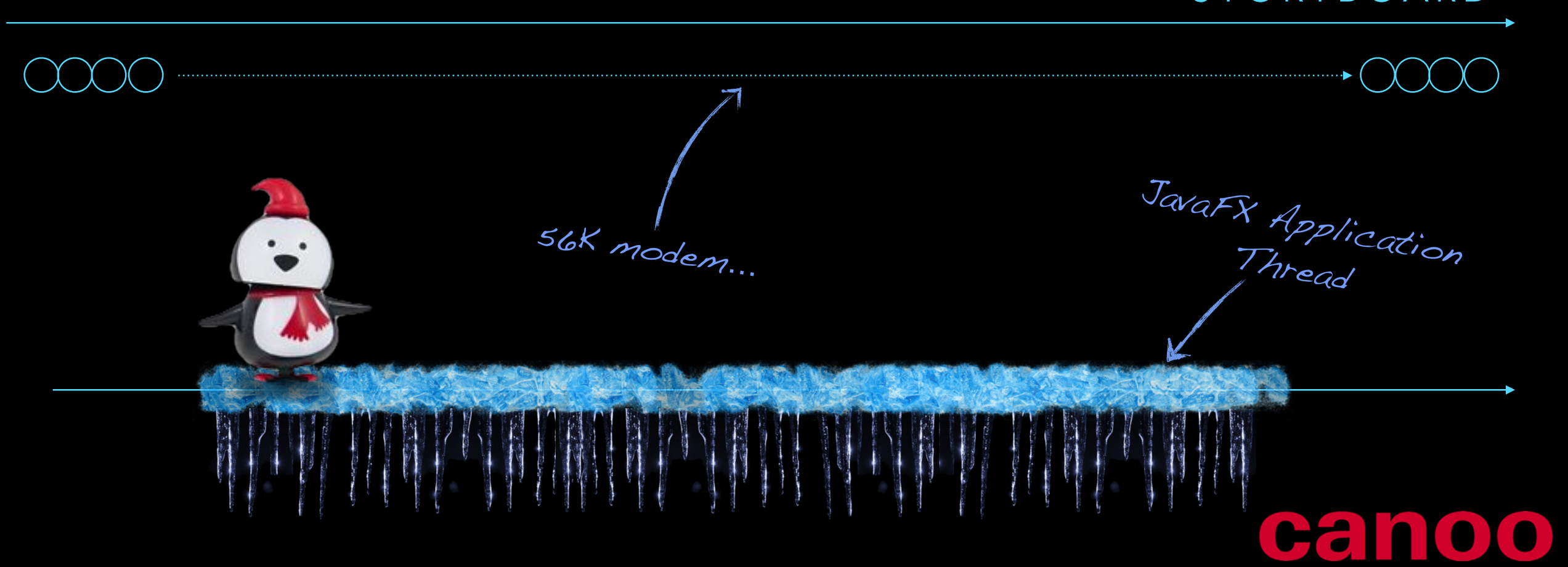
BUT THE CUSTOMER HAS PROBLEMS IN THE

REAL ENVIRONMENT

STORYBOARD



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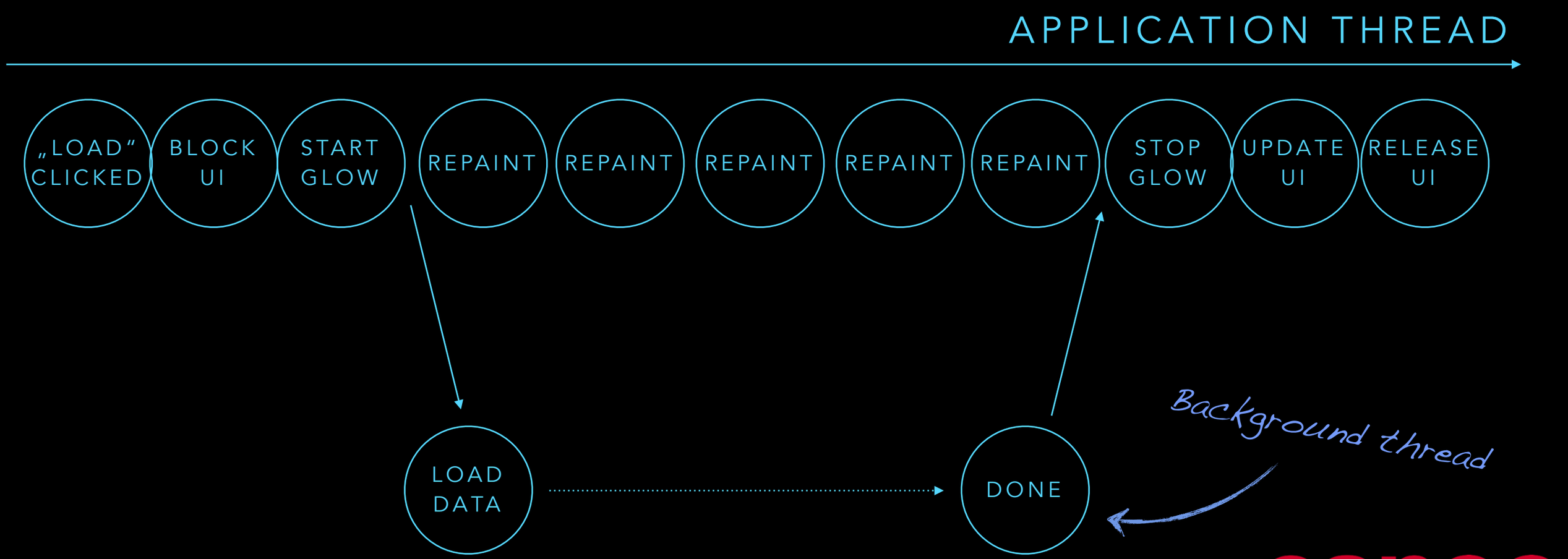
SO WE NEED A

BACKGROUND THREAD



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LET'S START AND CREATE SOME

HACKED CODE

```
blockUI();
new Thread(backgroundRunnable).start();
```

How to go back to application thread?

```
Runnable backgroundRunnable = () -> {
   data = loadFromServer();
   Platform.runLater(() -> {
       updateUI(data);
       unblockUI();
    });
}
```

What happens if this throws an Exception?

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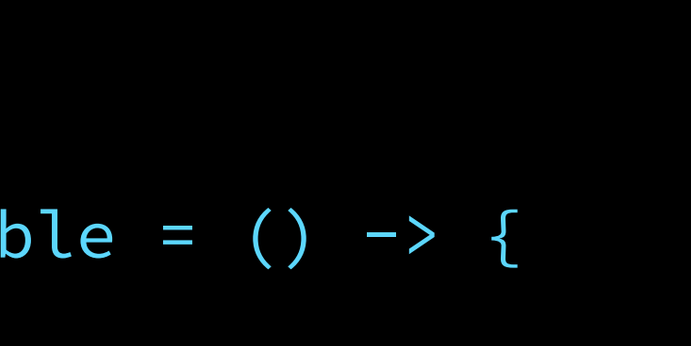
WE NEED TO ADD SOME

EXCEPTION HANDLING

```
Runnable backgroundRunnable = () -> {
    try {
        data = loadFromServer();
    } catch(Exception e) {
        Platform.runLater(() -> {
            handleException(e);
        });
    } finally {
        Platform.runLater(() -> {
            updateUI(data);
            unblockUI();
        });
    }
}
```



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WHO WANTS SOME

SPAGHETTI CODE?

```
Runnable backgroundRunnable = () -> {
    try {
        data = loadFromServer();
        Platform.runLater(() -> {
            updateUI(data);
        });
    } catch(Exception e) {
        Platform.runLater(() -> {
            handleException(e);
        });
    } finally {
        Platform.runLater(() -> {
            unblockUI();
        });
    }
}
```

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DON’T LIKE IT? UNTIL LAST YEAR THIS WAS

SPAGHETTI CODE XXL

```
Runnable backgroundRunnable = new Runnable() {

     @Override
     public void run() {
          try {
               data = loadFromServer();
               Platform.runLater(new Runnable() {

                    @Override
                    public void run() {
                         updateUI(data);
                    }
               });
          } catch(Exception e) {
               Platform.runLater(new Runnable() {

                    @Override
                    public void run() {
                         handleException(e);
                    }
               });
          } finally {
               Platform.runLater(new Runnable() {

                    @Override
                    public void run() {
                         unblockUI();
                    }
               });
          }
     }
}
```

Java 8

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WE NEED A

BETTER SOLUTION

DataFX 8

```
ProcessChain.create().
addRunnableInPlatformThread(() -> blockUI()).
addSupplierInExecutor(() -> loadFromServer()).
addConsumerInPlatformThread(d -> updateUI(d)).
onException(e -> handleException(e)).
withFinal(() -> unblockUI()).
run();
```

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WE CAN EVEN DO IT BETTER BY USING

REACTIVE PROGRAMMING

```
ListView<Data> listView = new ListView<>();

ProcessChain.create().
addRunnableInPlatformThread(() -> listView.getItems().clear()).
addPublishingTask(() -> listView.getItems(),
                  publisher -> getDataWithCallback(elem -> publisher.publish(elem)).
onException(e -> handleException(e)).
run();
```

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TRY IT TODAY AND ADD THE

DATAFX CORE MODULE

```
<dependency>
  <groupId>io.datafx</groupId>
  <artifactId>core</artifactId>
  <version>X.Y</version>
</dependency>
```

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LET'S PIMP THE APP BY ADDING

TIMEOUT CHECKS

```
class CommandGetData extends HystrixCommand<List<String>> {

    public CommandGetData() {
        super(Config.withExecutionIsolationThreadTimeoutInMilliseconds(6000)
                .withExecutionIsolationThreadInterruptOnTimeout(true)
                .withFallbackEnabled(false)));
    }

    @Override
    protected List<String> run() {
        List<String> list = new ArrayList<>();
        for (int i = 0; i < 10; i++) {
            list.add("Value " + i);
            sleep();
        }
        return list;
    }

}
```

Netflix Hystrix

DEMO

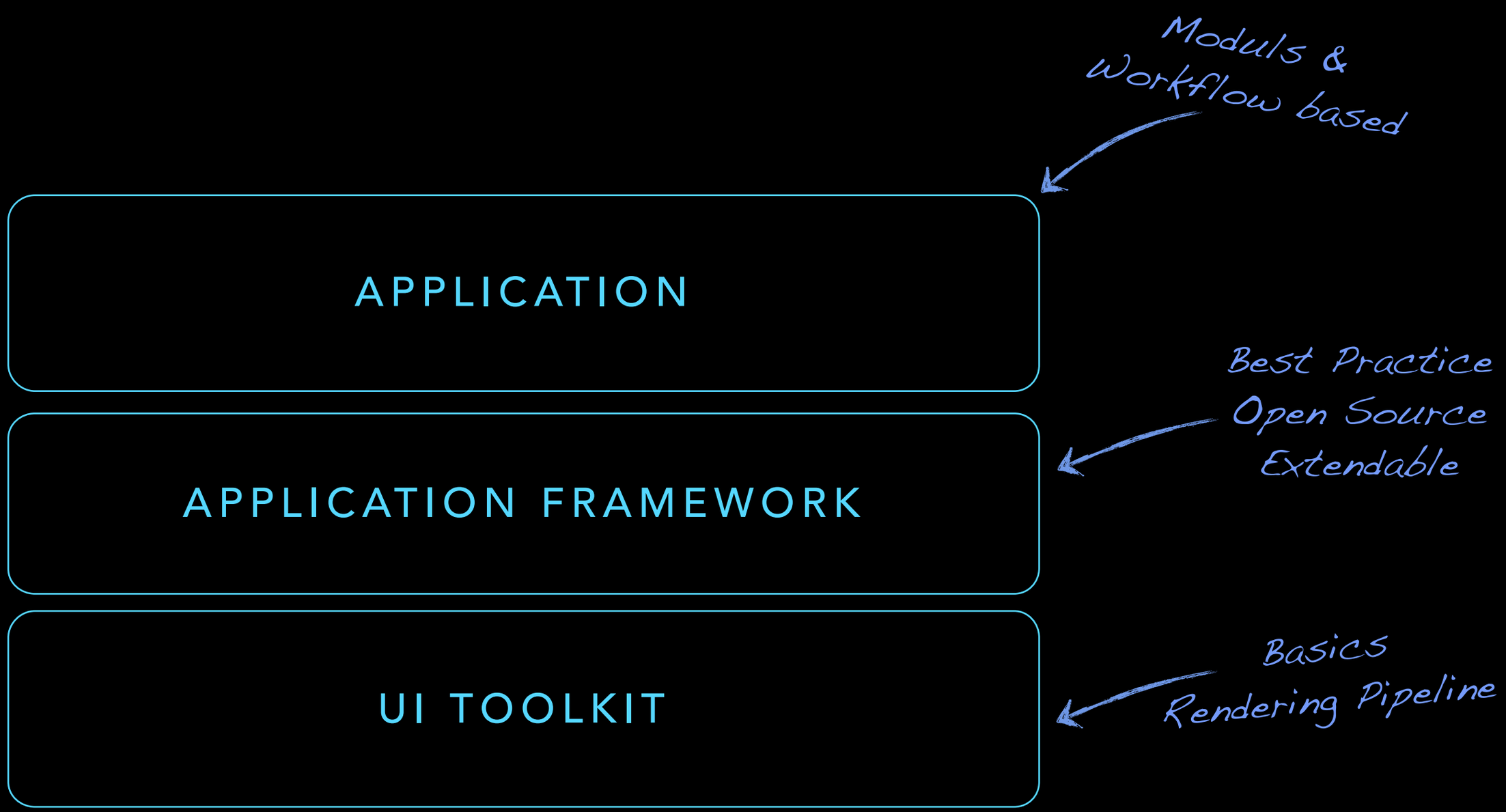
YOU ONLY NEED TO ADD THE

HYSTRIX DEPENDENCY

```
<dependency>
  <groupId>com.netflix.hystrix</groupId>
  <artifactId>hystrix-core</artifactId>
  <version>1.3.18</version>
</dependency>
```

LET'S HAVE A LOOK AT THE

CLIENT ARCHITECTURE



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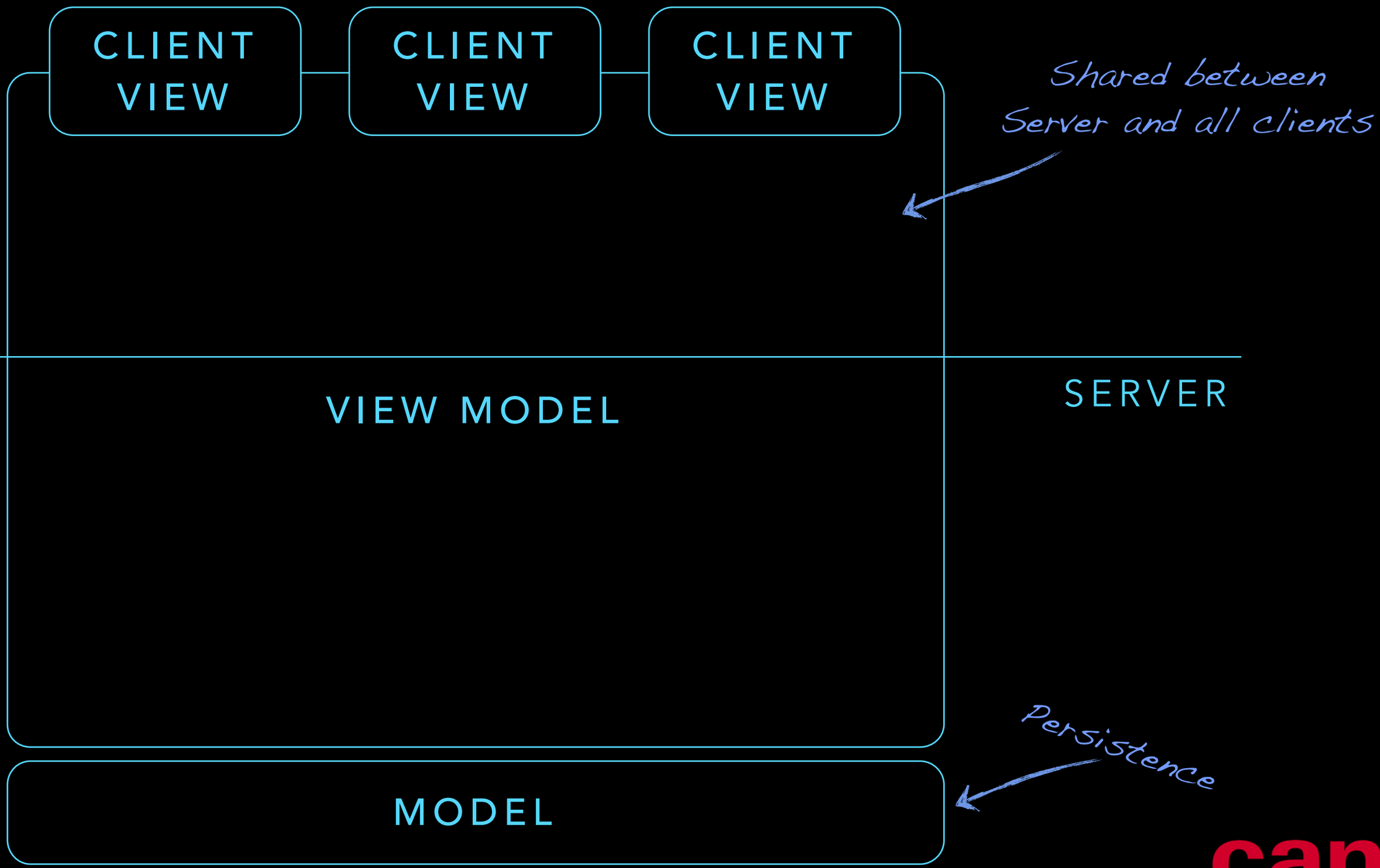
ALL THE COOL PEOPLE TALK ABOUT

MVVM ARCHITECTURE



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USE IT TODAY WITH THE HELP OF

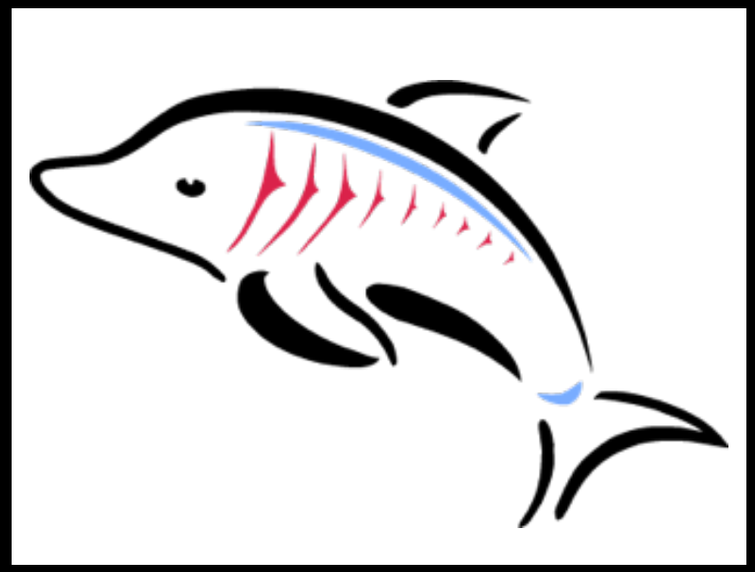
MVVM FRAMEWORKS

ANKOR.IO

MVVMFX

ANOTHER OPTION IS AN

PMVC LIBRARY



OPENDOLPHIN

an architecture for the communication between view and controller in an async [remote] fashion with presentation models.

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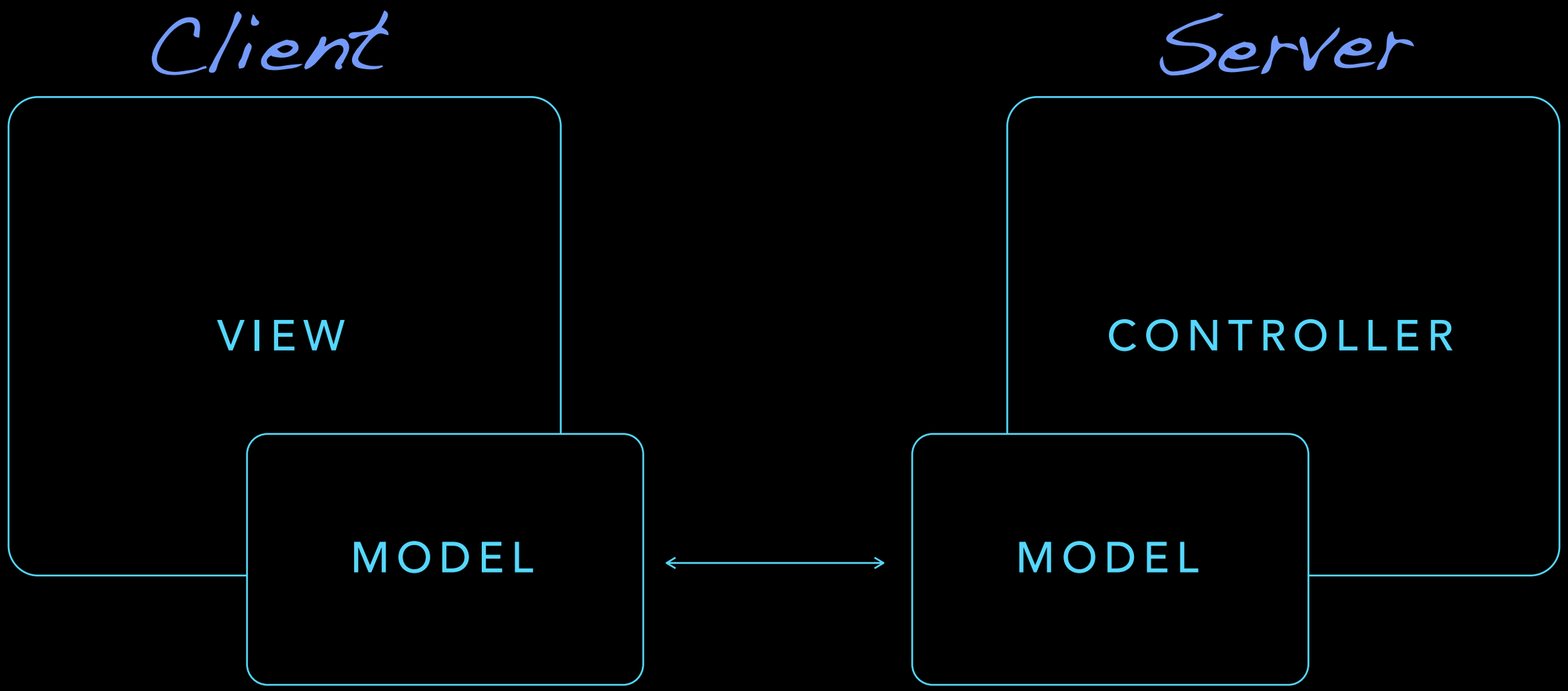
SHARED

PRESENTATION MODEL



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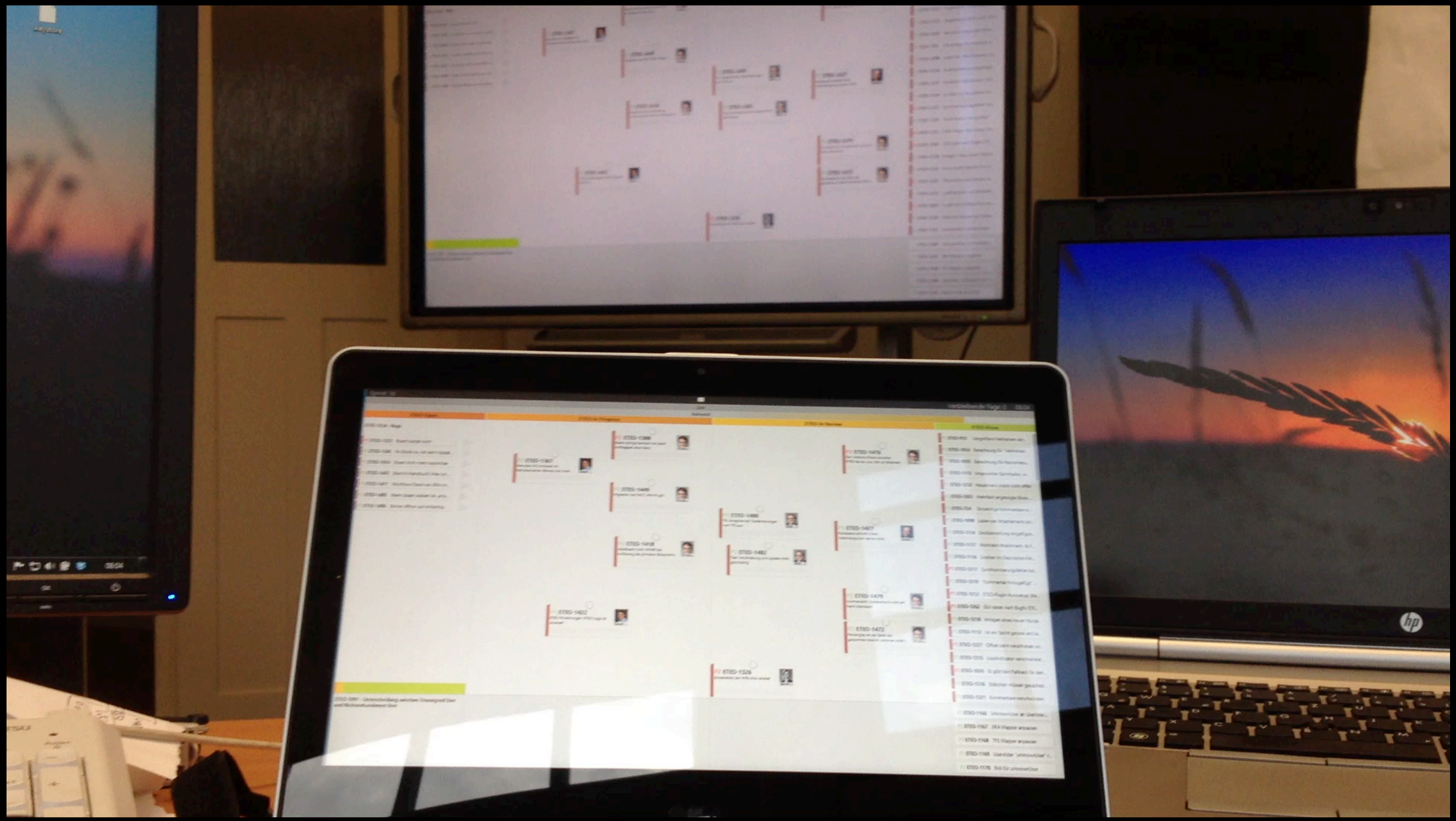
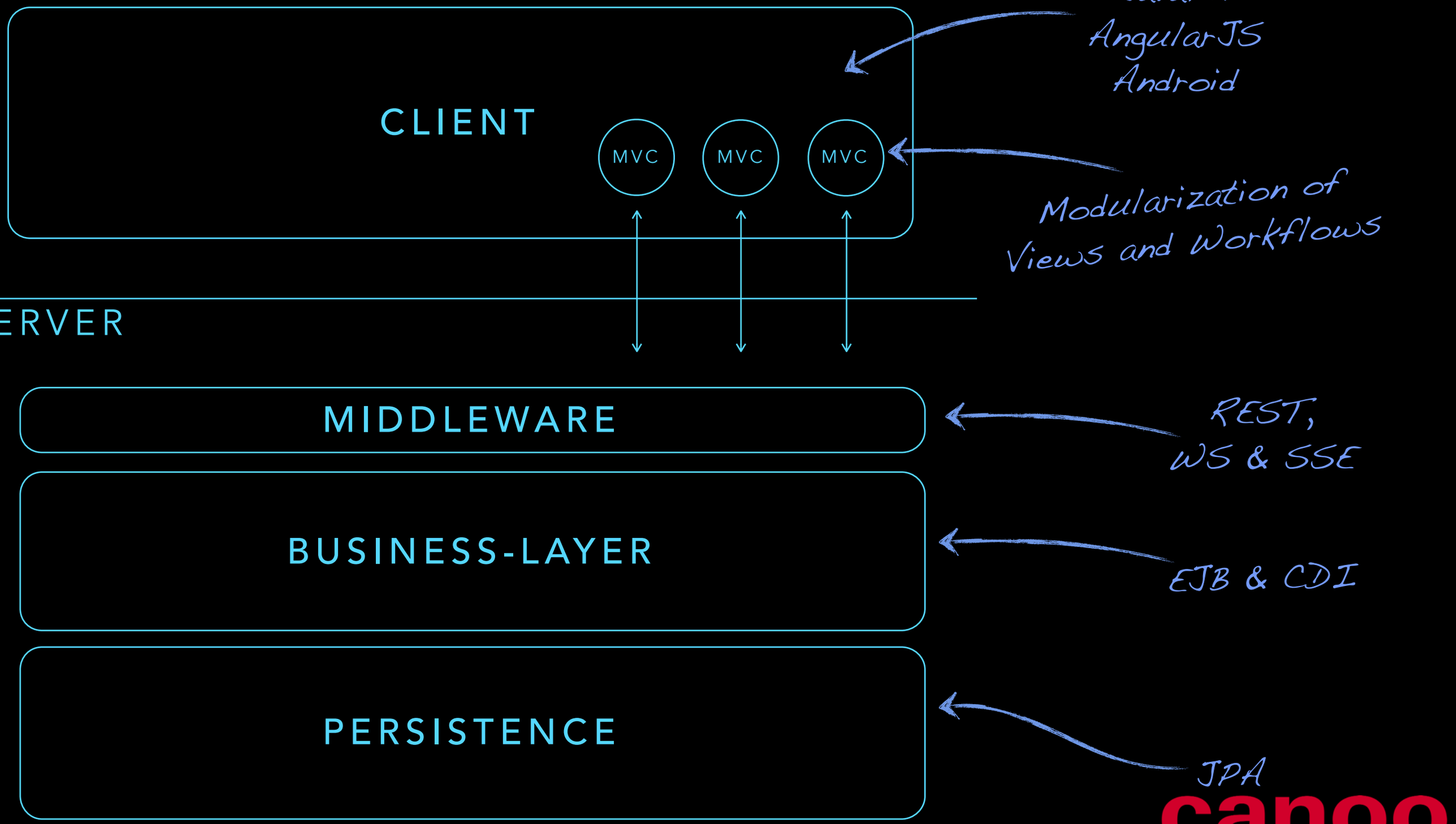
SHARE IT ON

MULTIPLE CLIENTS



BUT I HAVE A JAVA ENTERPRISE BACKEND AND NEED A

CLASSIC ARCHITECTURE



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USE ONE OF THESE

FRAMEWORKS

DATAFX

afterburner.fx

AFTERBURNER.FX

JACPFX

JACPFX

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OVERVIEW

AFTERBURNER.FX

- apache licensed
- as lean as possible: 3 classes, no external dependencies
- combines: FXML, Convention over Configuration and JSR-330 / @Inject
- integrated with maven 3

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OVERVIEW

DATAFX

- Core API with concurrency tools
- DataReader API for fast & easy data access
  - REST, SSE, WebSocket, …
- Flow API to create workflows
- Injection API

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MOST OF THEM PROVIDE

COOL FEATURES

- Application Framework for JavaFX
- Supports JEE Middleware standards

REST
WebSocket
RemoteEJB

- MVC Concept
- Implement Workflows by Flows

Like in JSF 2.2 or
Spring Flow

- (C)DI Support

Inject the data model
in the view controller

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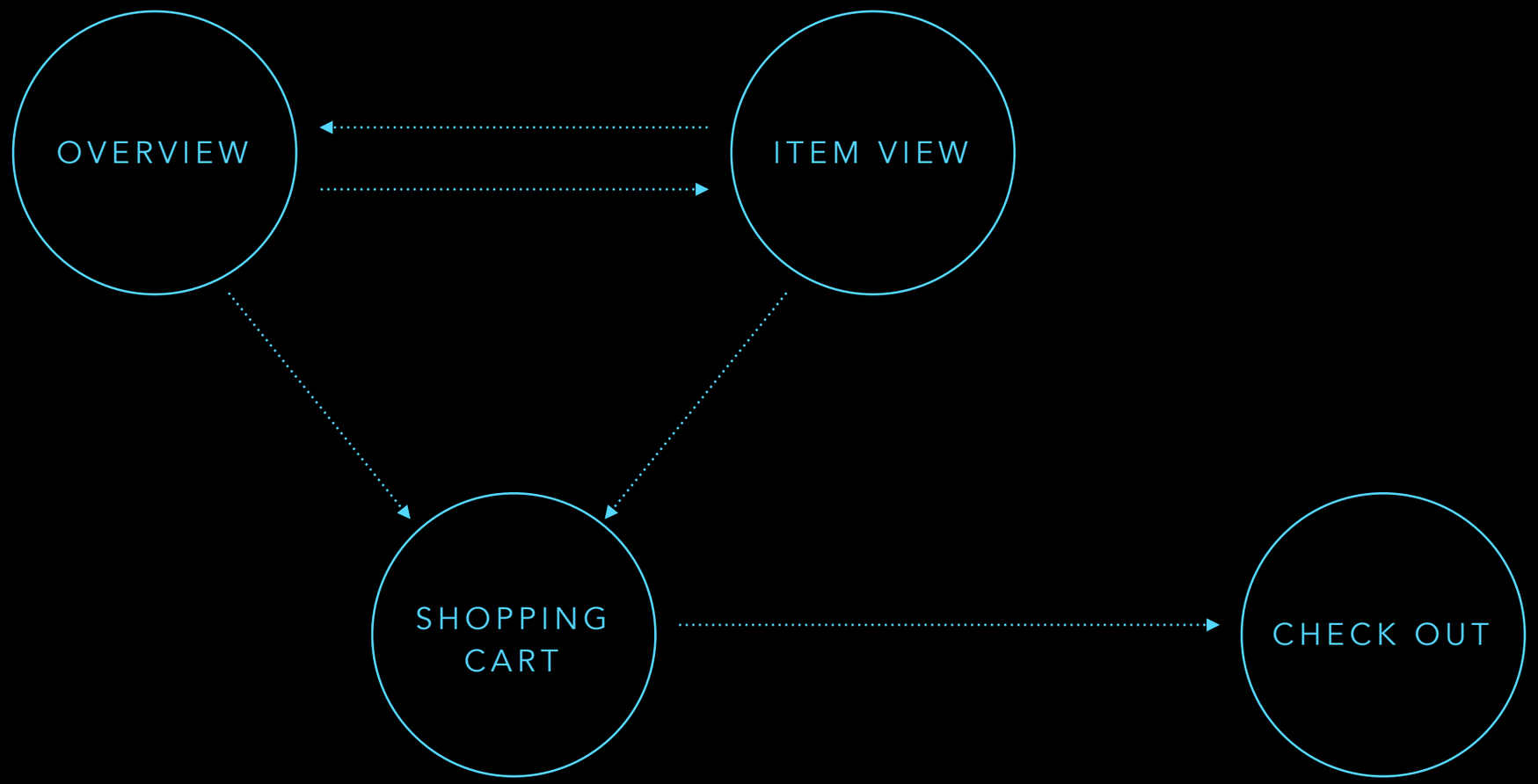
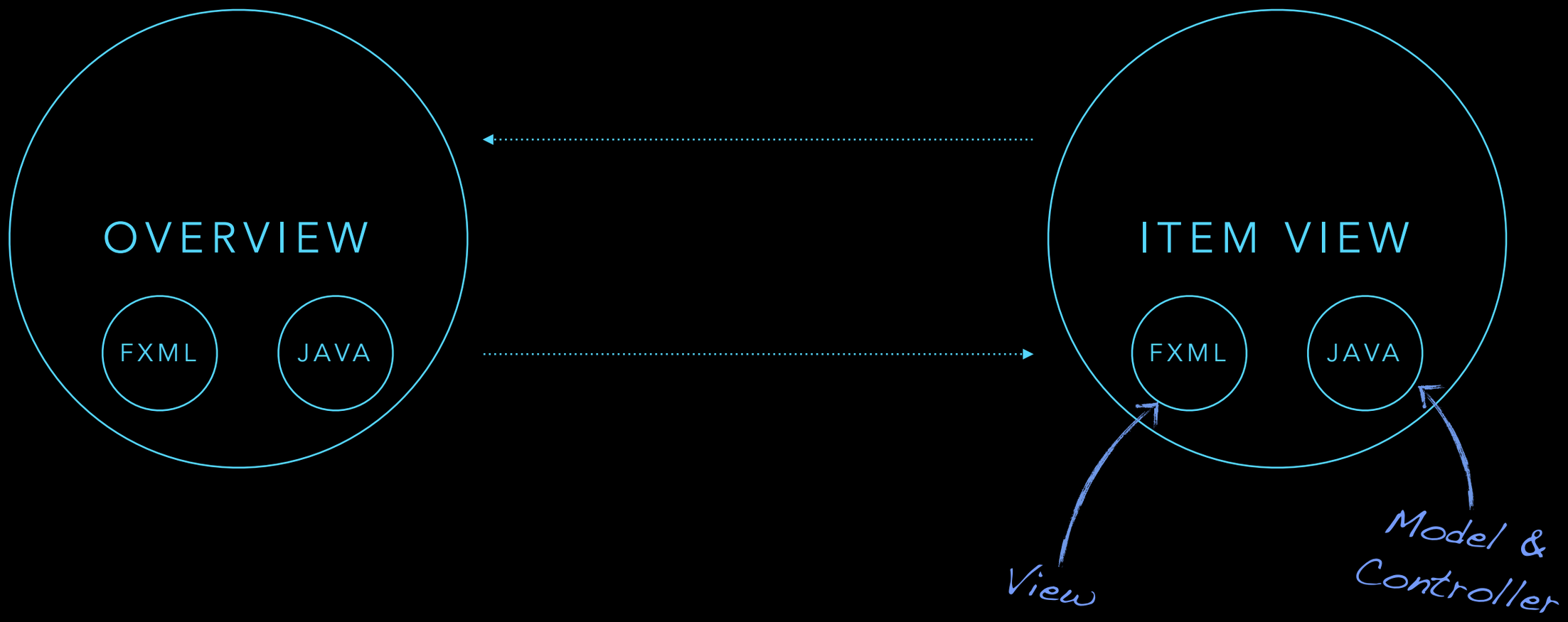
START CREATING AN

APPLICATION FLOW



WE CAN USE THE

MVC PATTERN



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CURRENT STATE OF THE

(C)DI IMPLEMENTATIONS

- Afterburner.fx and DataFX supports injection
- Afterburner.fx supports the singleton scope
- Afterburner.fx provides injection of properties
- DataFX supports different scopes
  (dependent, view, flow, application)
- DataFX provides a plugin mechanism for custom scopes

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THE DARK SIDE OF

CDI IMPLEMENTATIONS

- Qualifier, etc. are currently not supported
- No default CDI implementation is used

Hackergarten?

- CDI-Spec is currently Java EE specific

We don't need a RequestScope

- Weld and OpenWebBeans core modules are Java EE specific

lots of http apis inside...

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THERE ARE COOL

BUSINESS CONTROLS

- The community created a lot of cool controls
- ControlsFX
- FlexGanttFX

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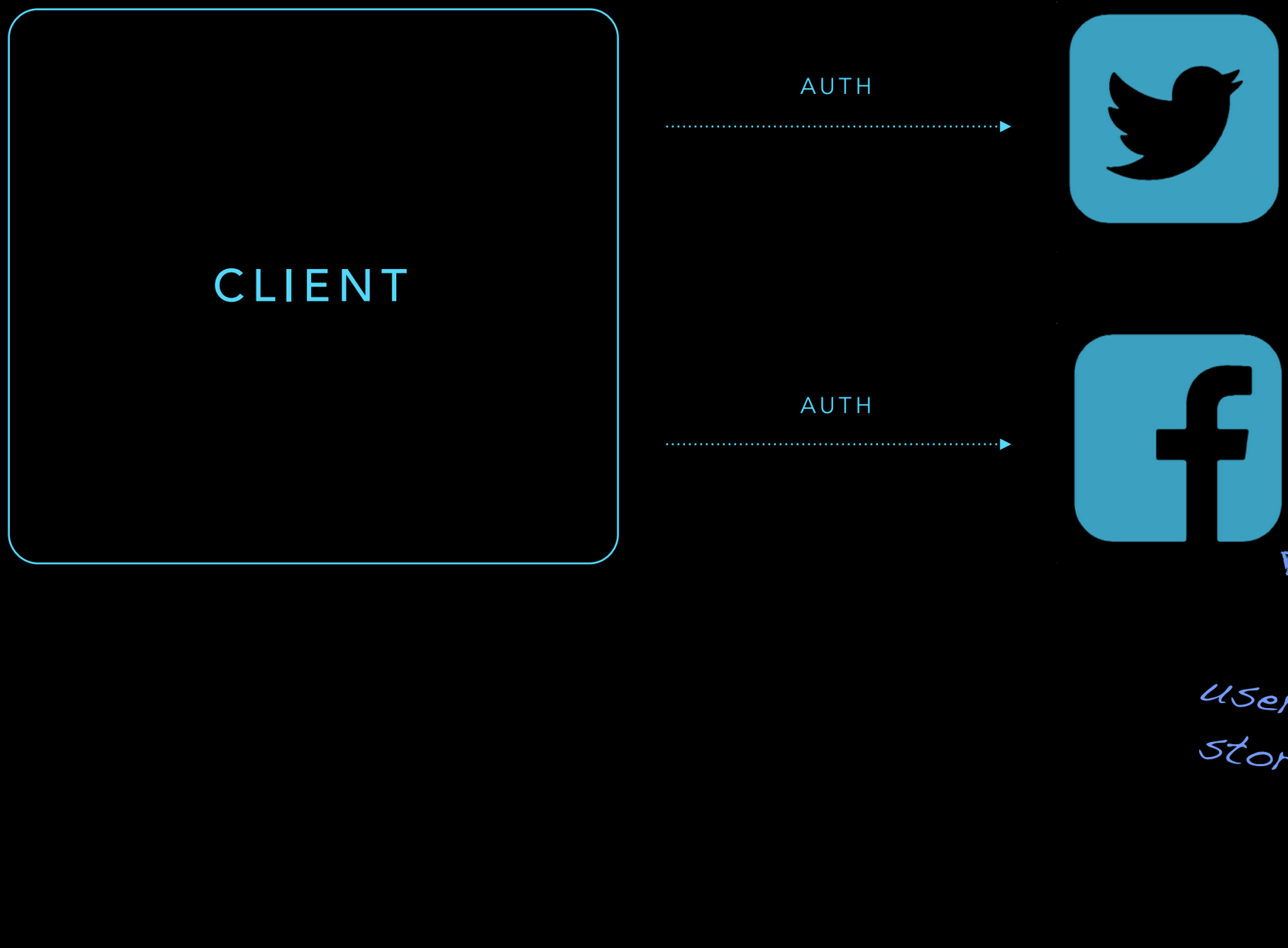
SHIT! MY HIP CUSTOMER WANTS TO

LOGIN WITH TWITTER



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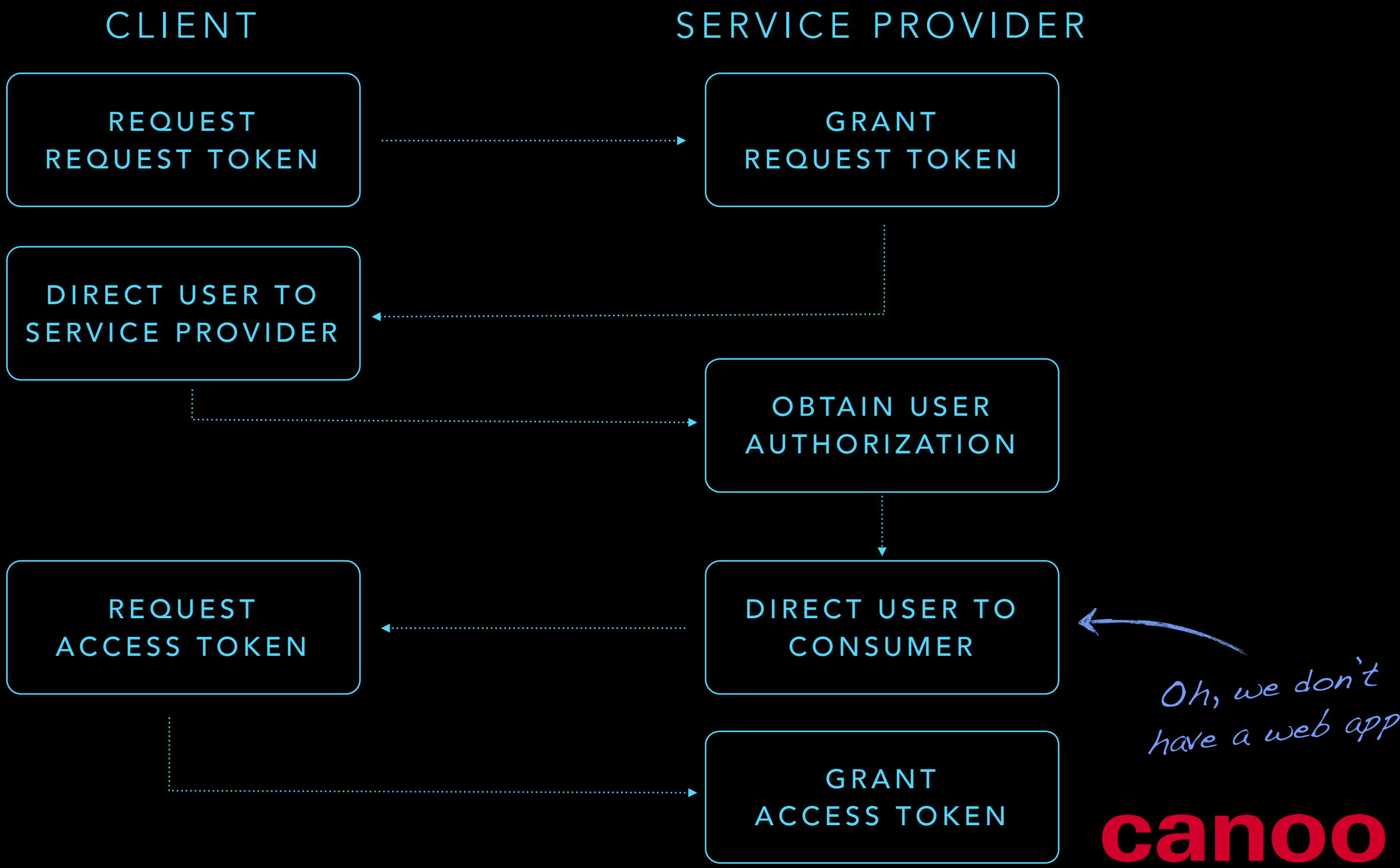
WEB APPS SIMPLY IMPLEMENT THE

OAUTH WORKFLOW



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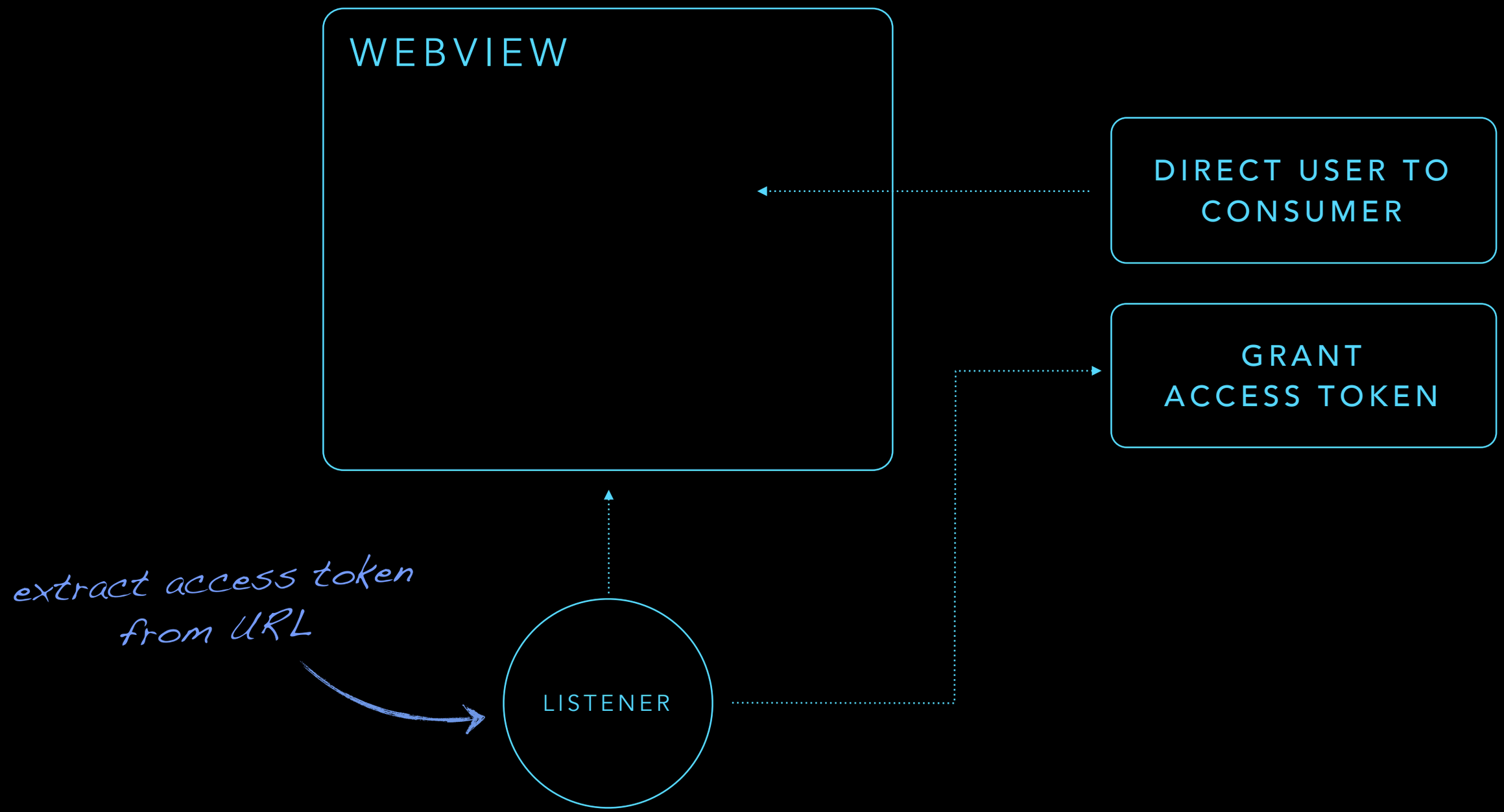
BUT JAVAFX CAN

CONTROL THE WEBVIEW



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INTRODUCING A

GUIGARAGE MODULE

```
<dependency>
  <groupId>com.guigarage</groupId>
    <artifactId>login-with-fx</artifactId>
    <version>X.Y</version>
</dependency>
```

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THERE ARE MORE NEW

GUIGARAGE MODULES

Extreme Gui Makeover

WINDOW STYLER

ANIMATIONS

Extreme Gui Makeover

Smart UIs for Mobile and Embedded

FLATTER

MATERIAL DESIGN

Extreme Gui Makeover

RESPONSIVE-FX

GUI Garage

OPEN SOURCE UI STUFF

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THX FOR WATCHING

QUESTIONS?

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