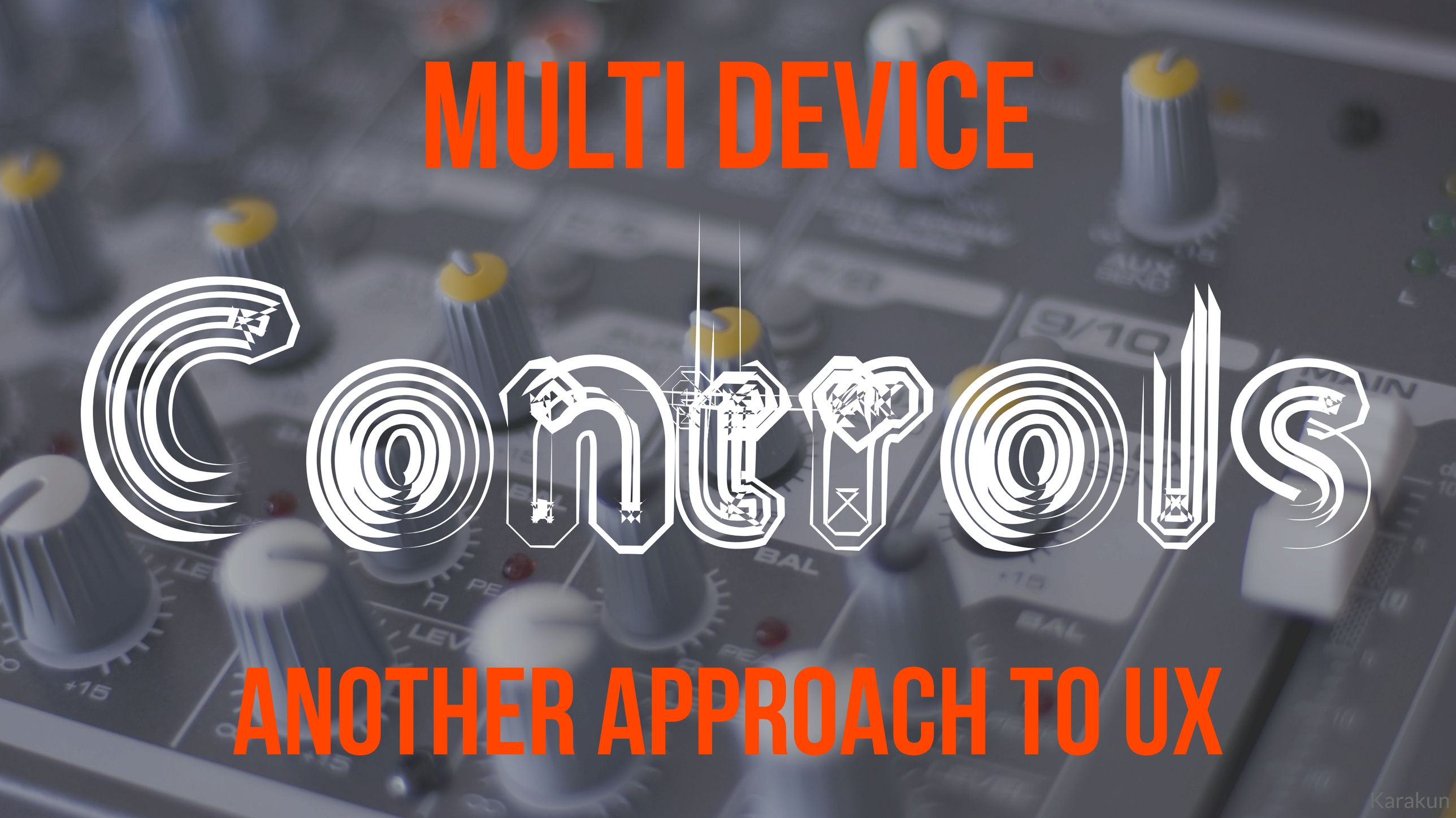
MULTI DEVICE



ANOTHER APPROACH TO UX

Karakun

ABOUT ME.

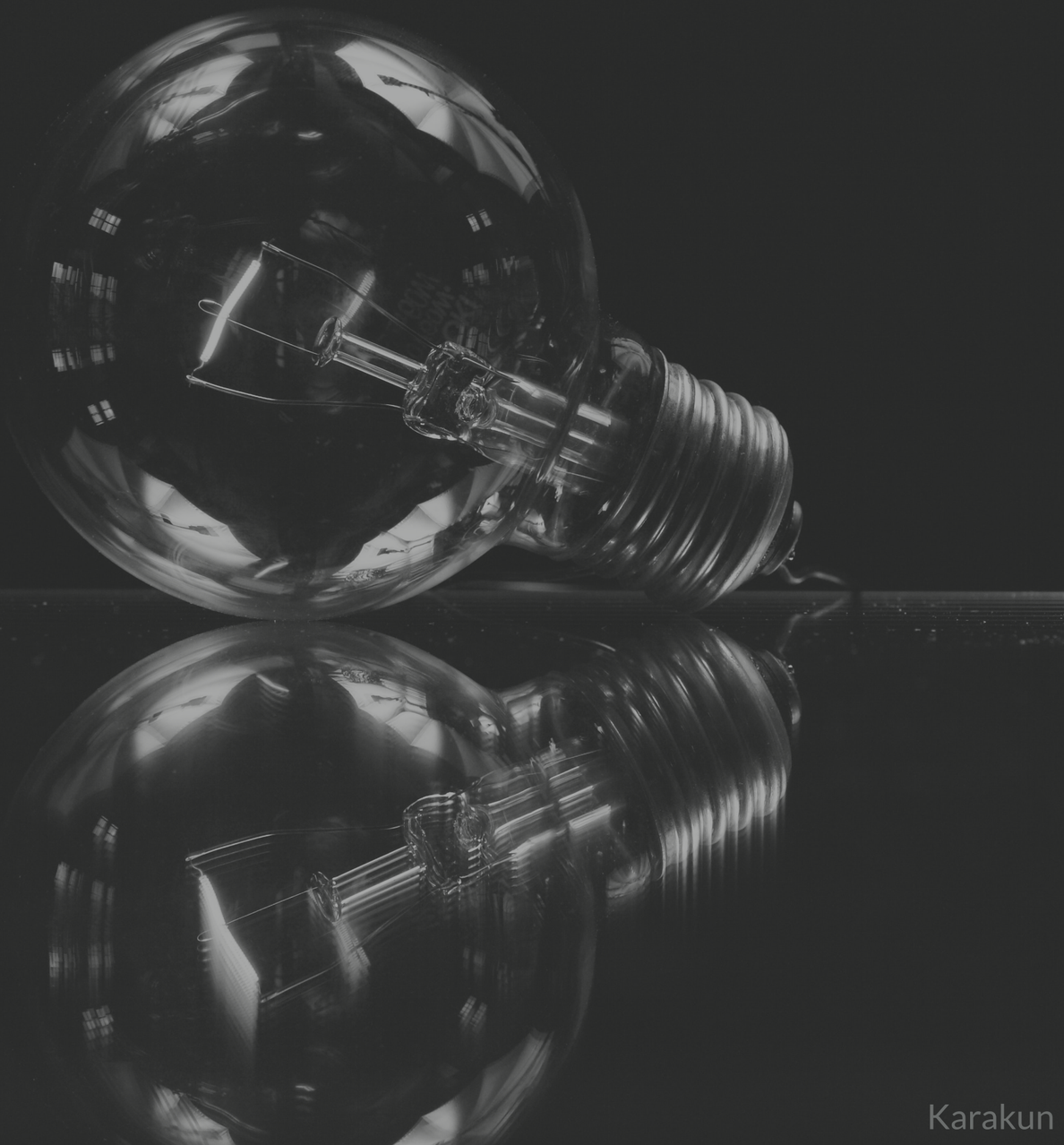
Karakun

Gerrit Grunwald | Engineer

Karakun.

n|w University of Applied Sciences and Arts
Northwestern Switzerland

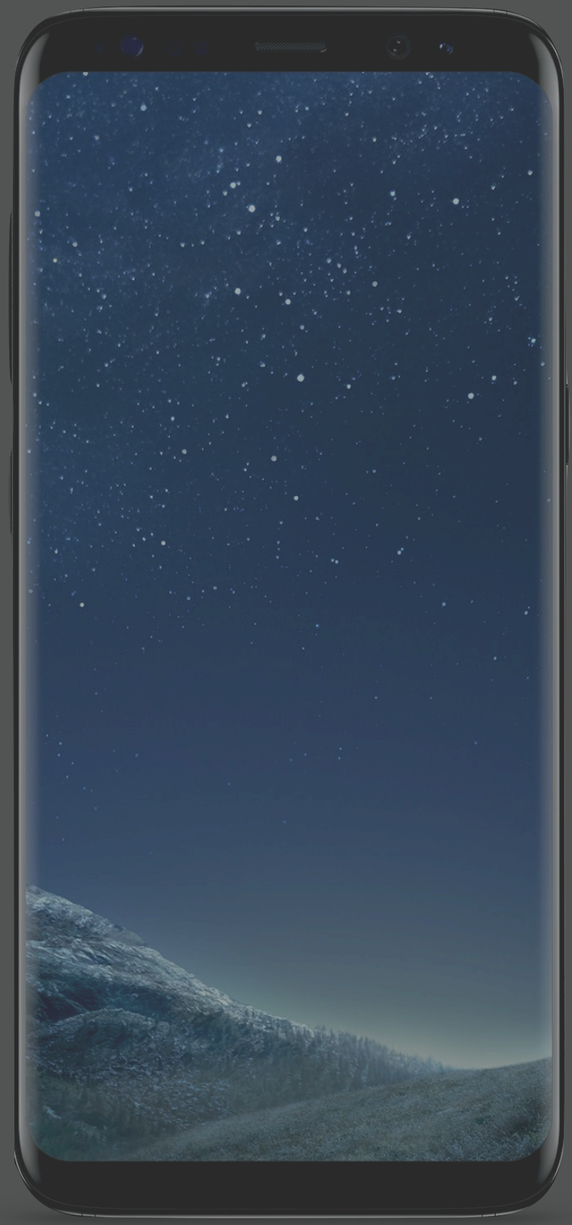
The IDEA



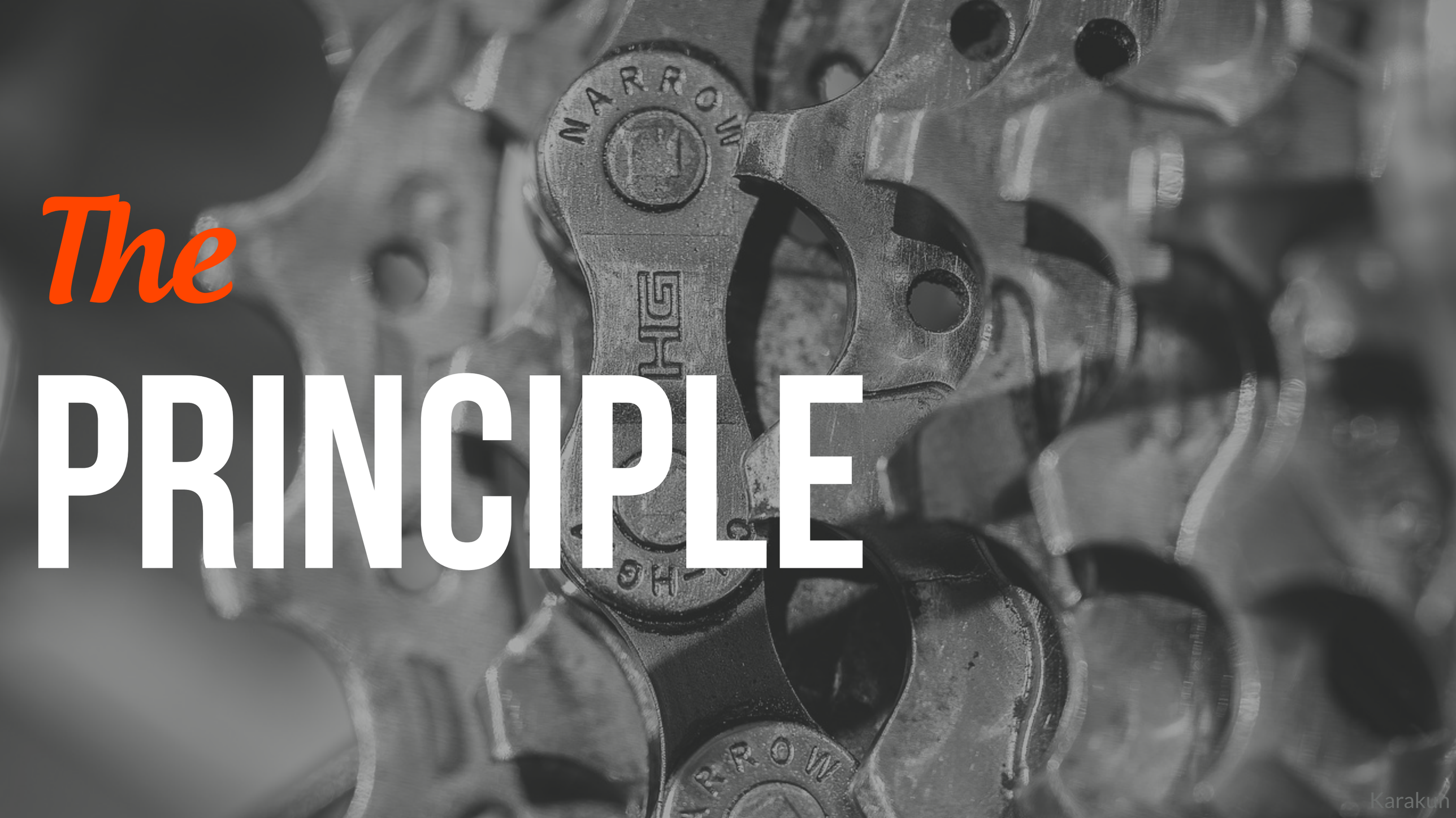
Karakun

Combining the

PLATFORMS



Karakun



The

PRINCIPLE

Karakun

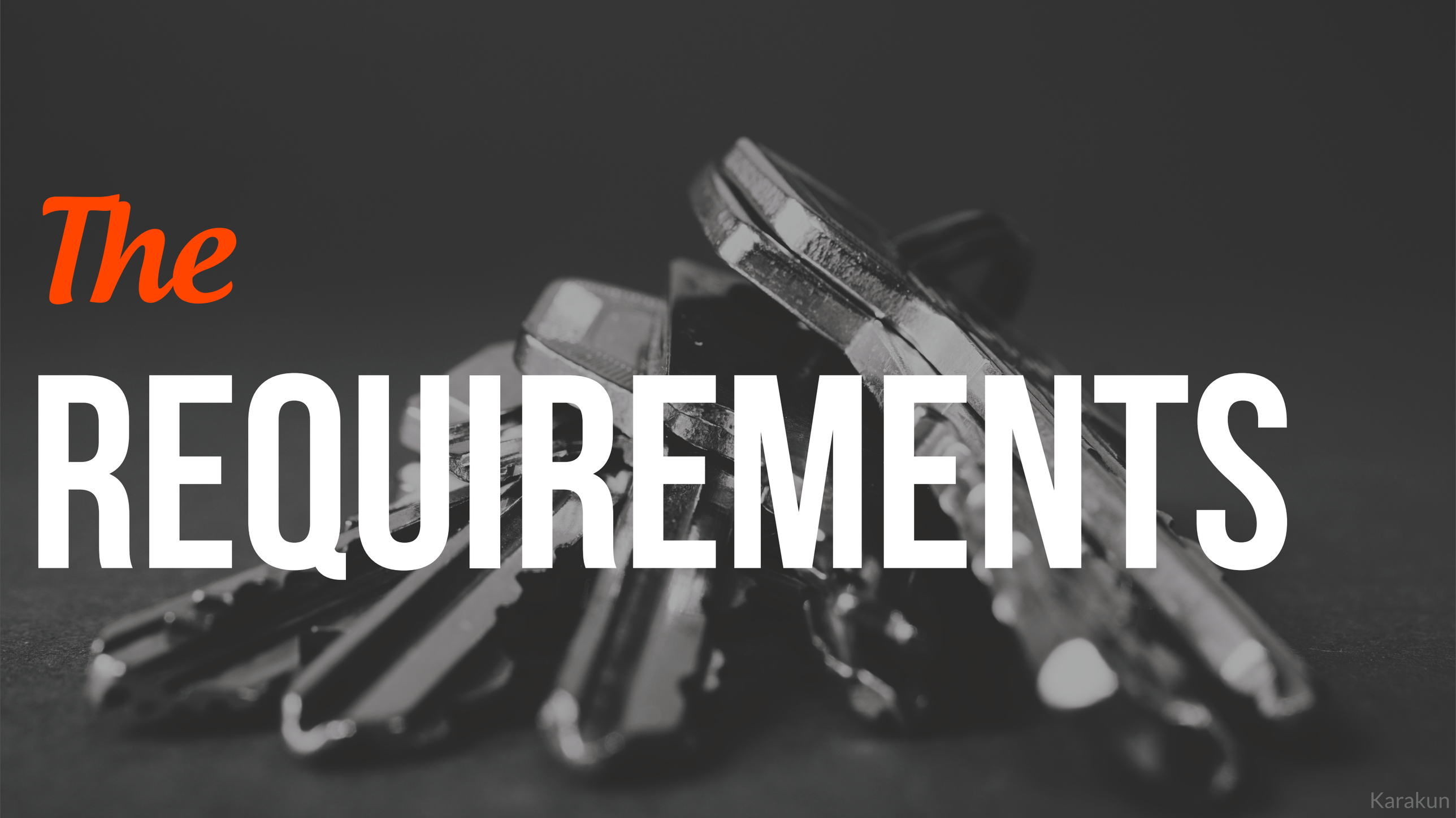
Apple Touch Bar

Separate Controls

Karakun

Separate Controls

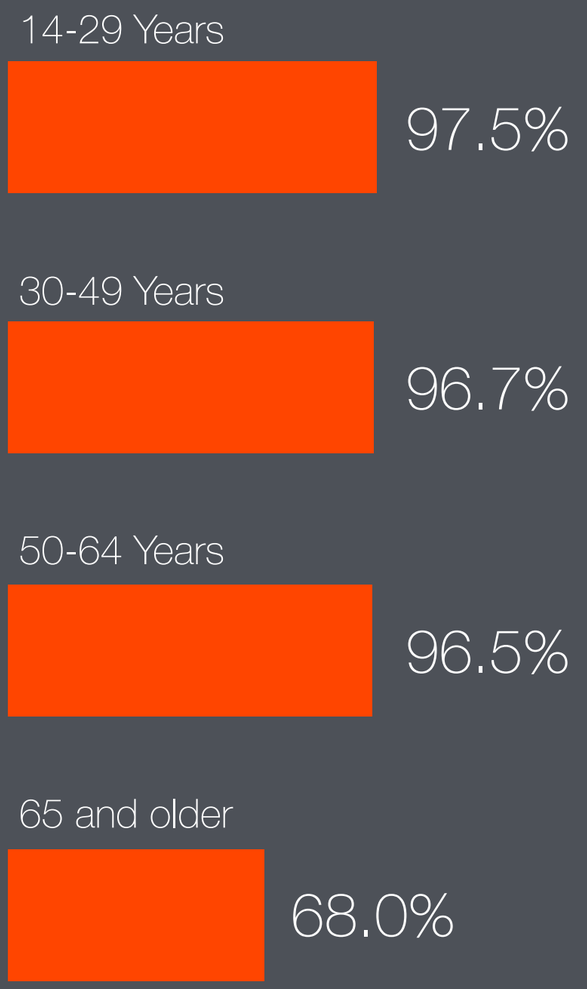
Karakun


The
REQUIREMENTS
Karakun

Karakun

Mobile Availability

(Bitkom, Germany 2013)

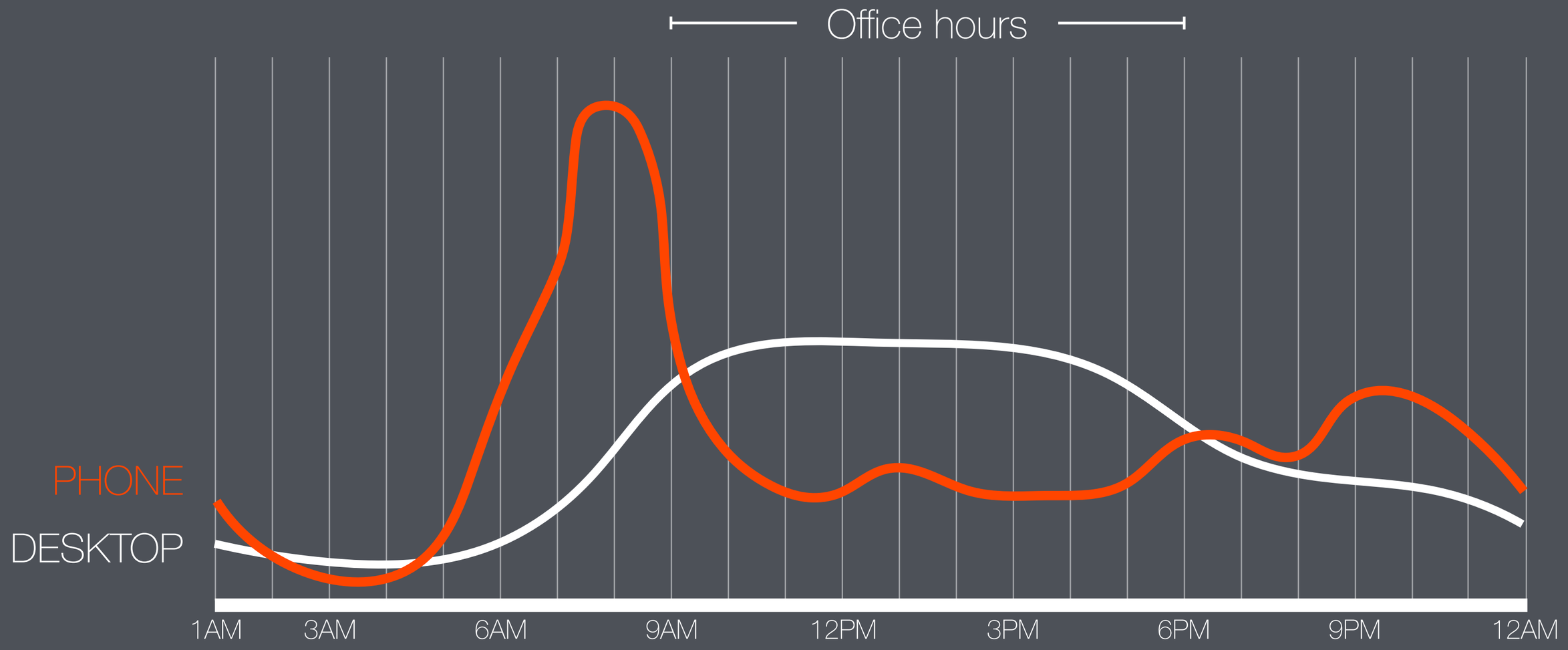


Karakun

USAGE

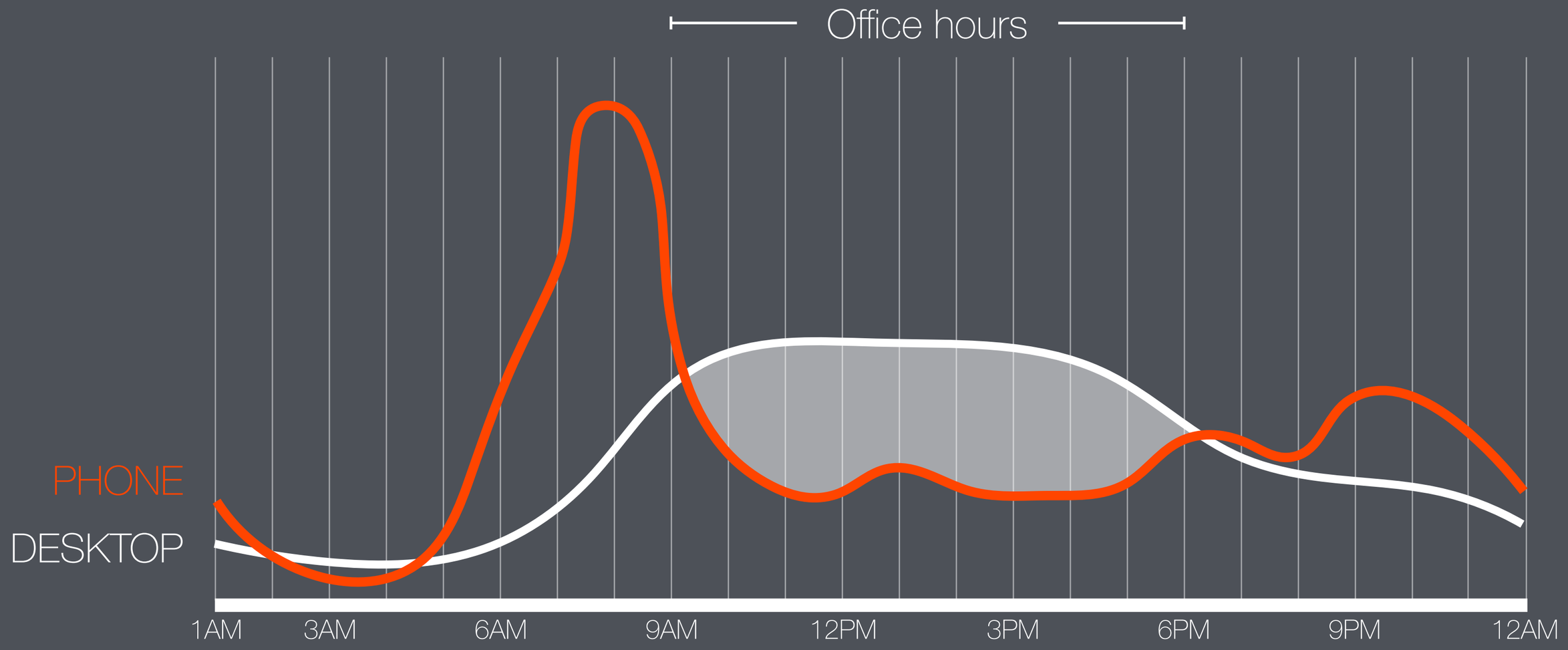
Karakun

24h Usage

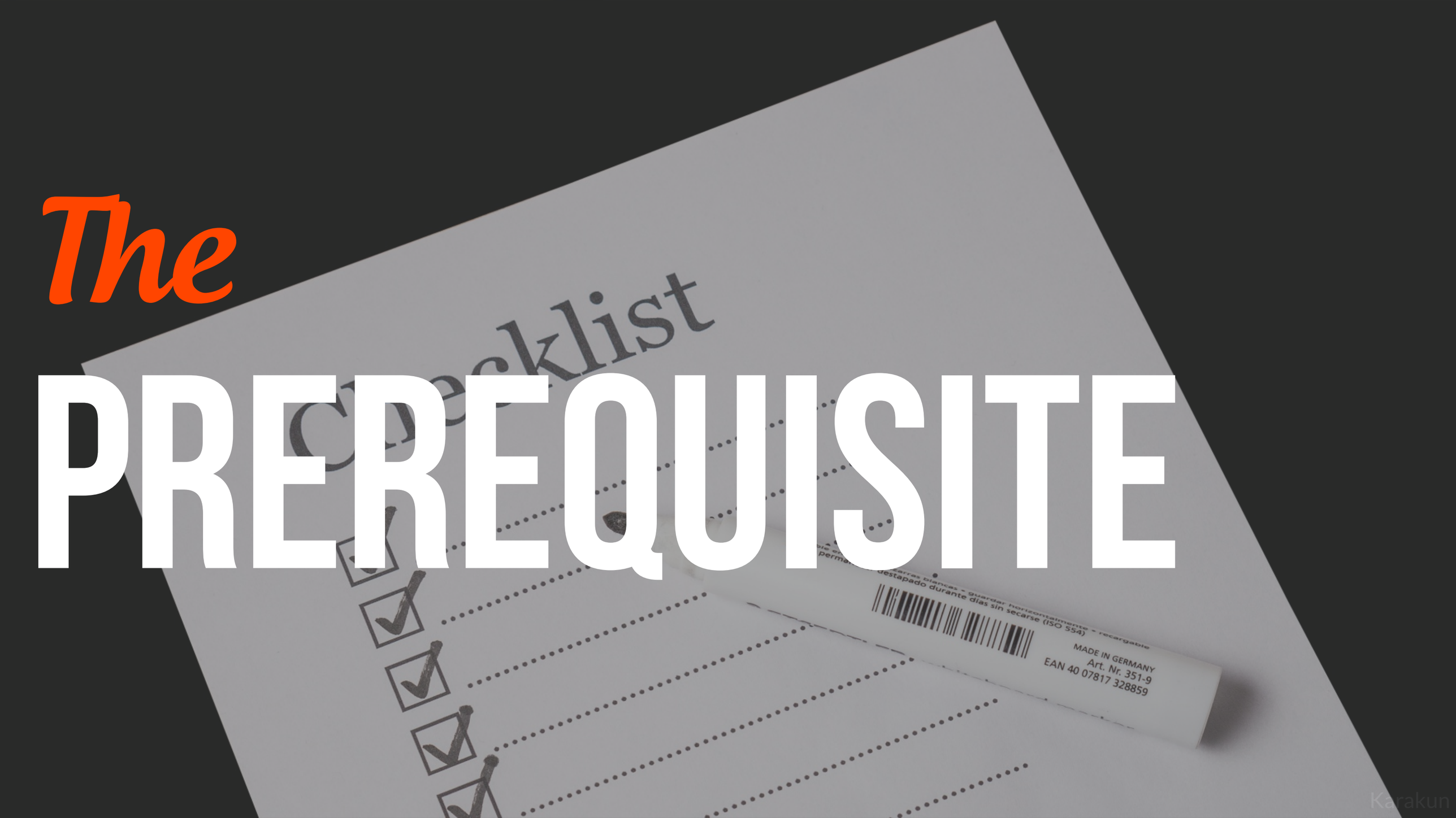


Karakun

24h Usage



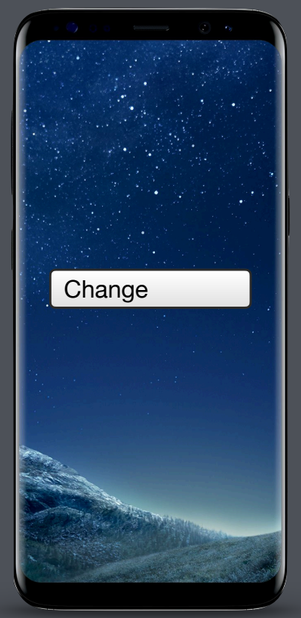
Karakun


The
PREREQUISITE
Checklist
MADE IN GERMANY
Art. Nr. 351-9
EAN 40 07817 328859

Karakun

Synchronization

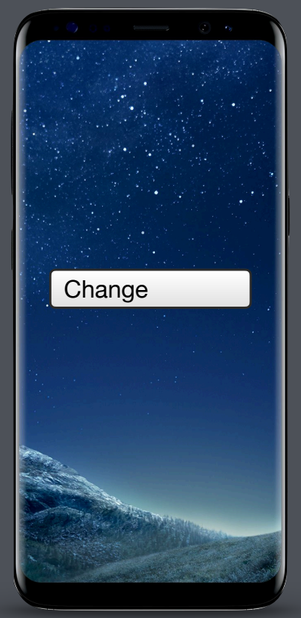
Desktop



Mobile

Karakun

Synchronization



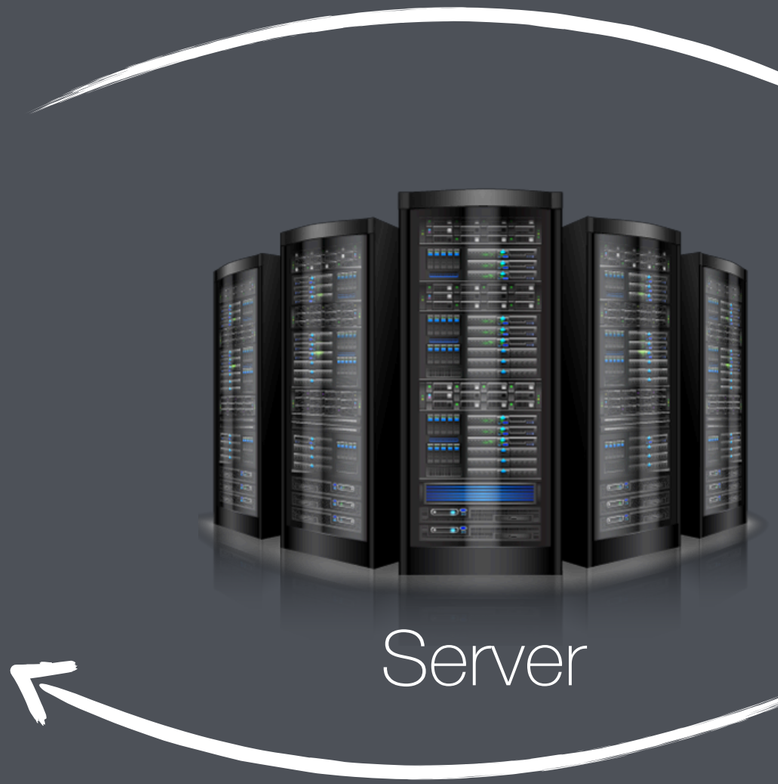
Desktop

Mobile

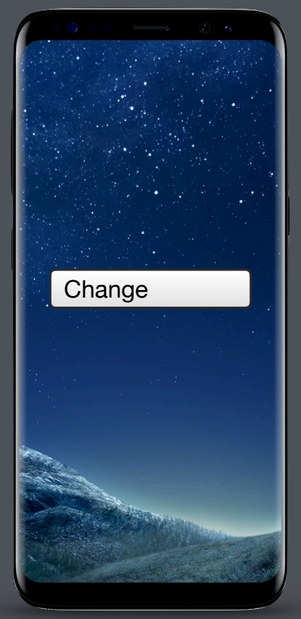
Karakun

Synchronization

Desktop



Server



Mobile

Karakun

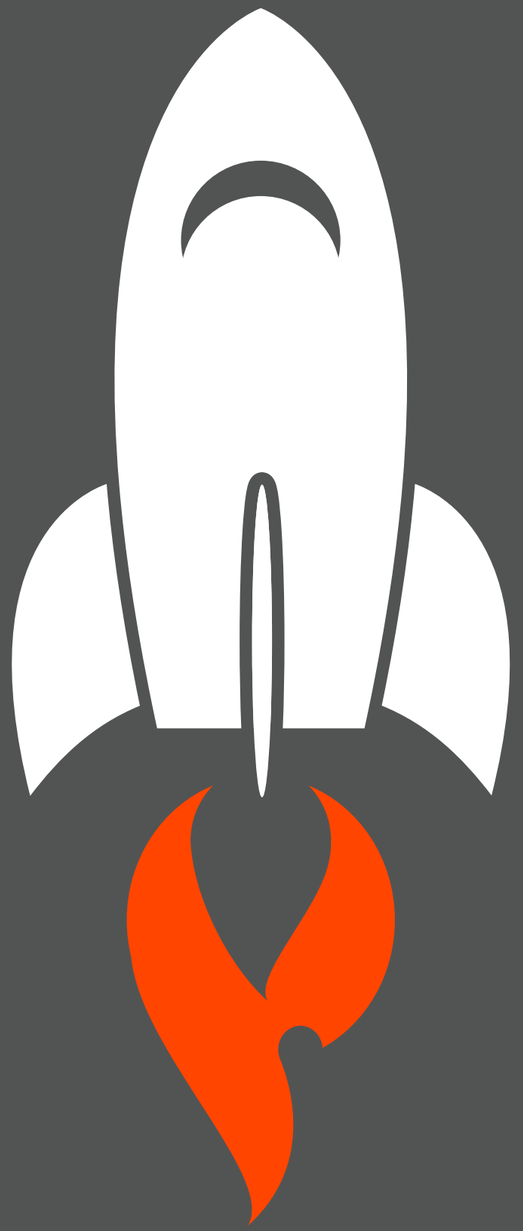
Karakun

1. Version

- USING ONLY JAVA
- CONTROLS WITH ADDITIONAL FUNCTIONALITY
- SAME CONTROL ON DESKTOP AND MOBILE
- DIFFERENT VISUALIZATION FOR EACH PLATFORM

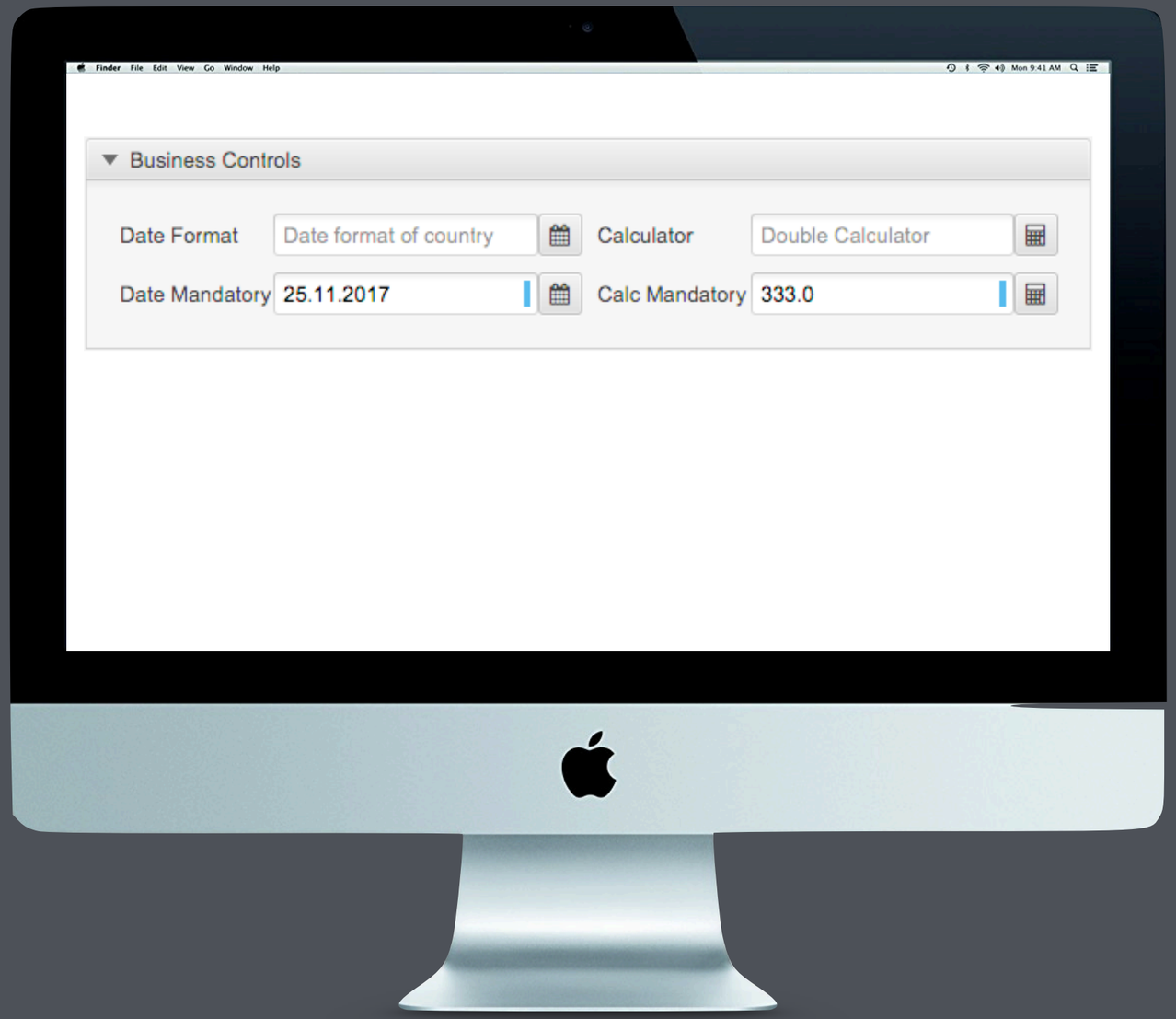
Technology

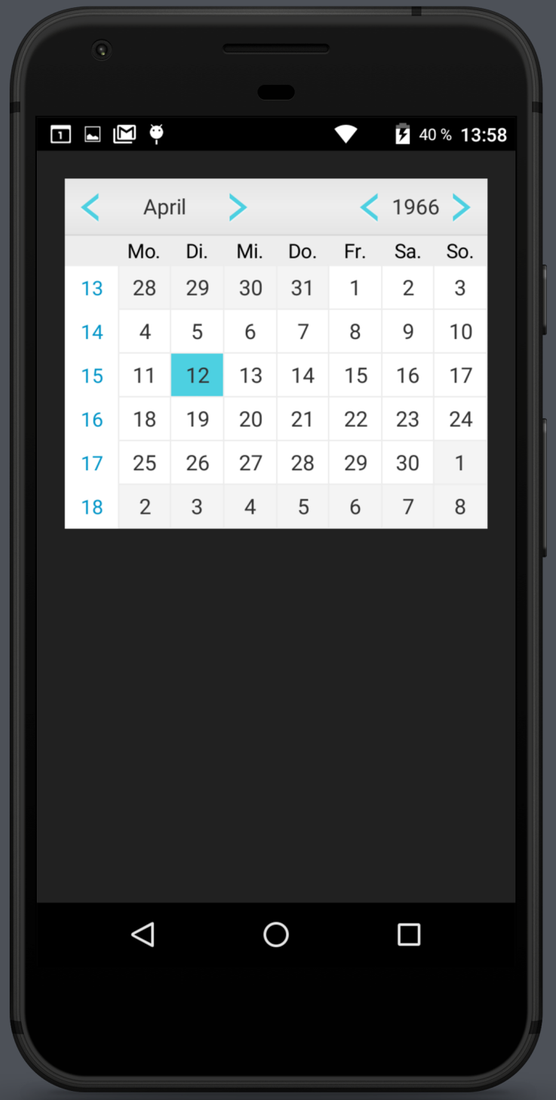
JavaFX



Karakun

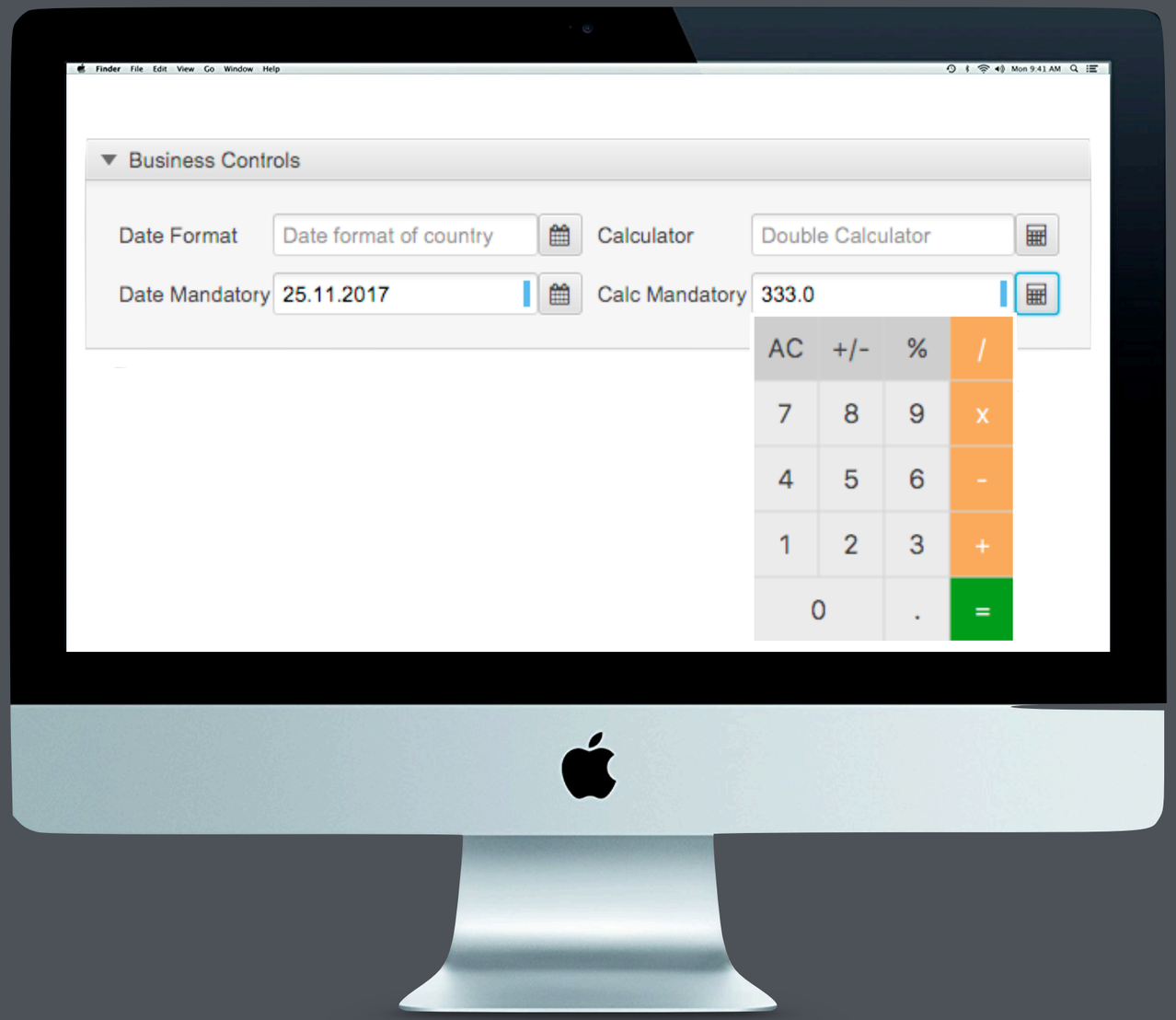
One Control...

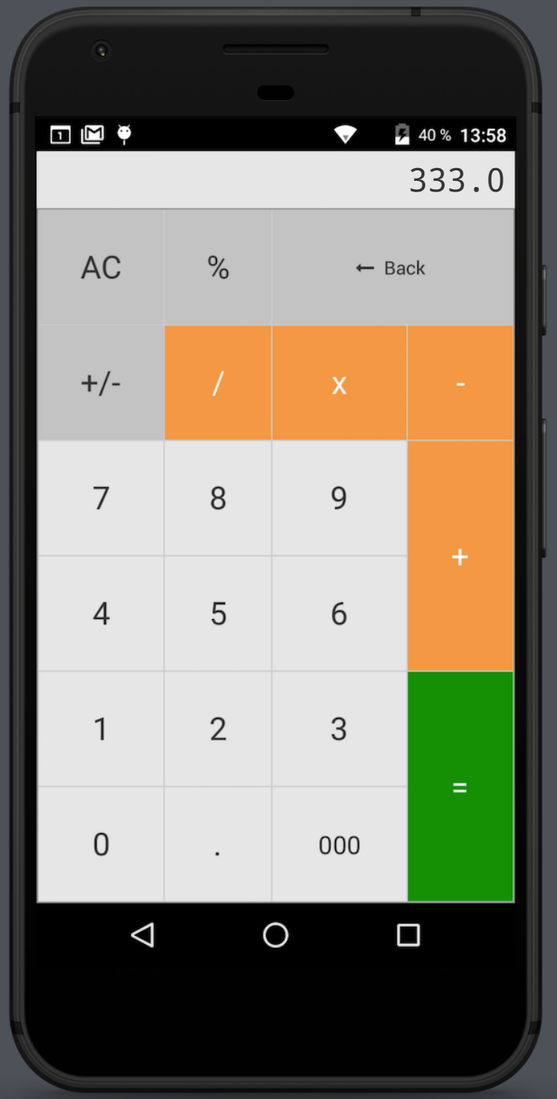




Karakun

One Control...





Karakun

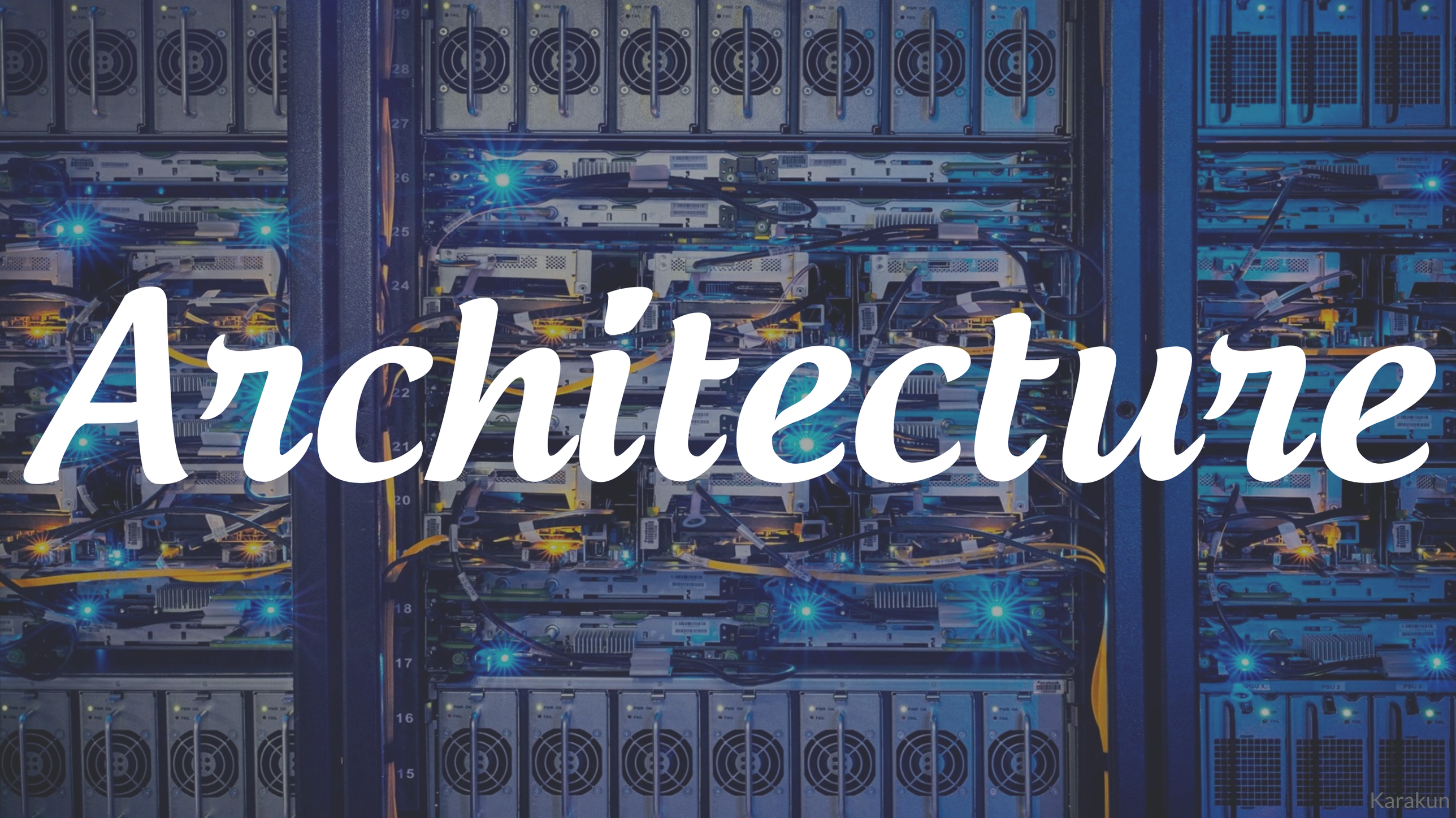
Gluon

MOBILE

Gluon Mobile

- SINGLE APPLICATION
- MULTIPLE PLATFORMS
- JAVA END TO END
- ACCESS HARDWARE BY API
- NATIVE APPS FOR IOS AND ANDROID

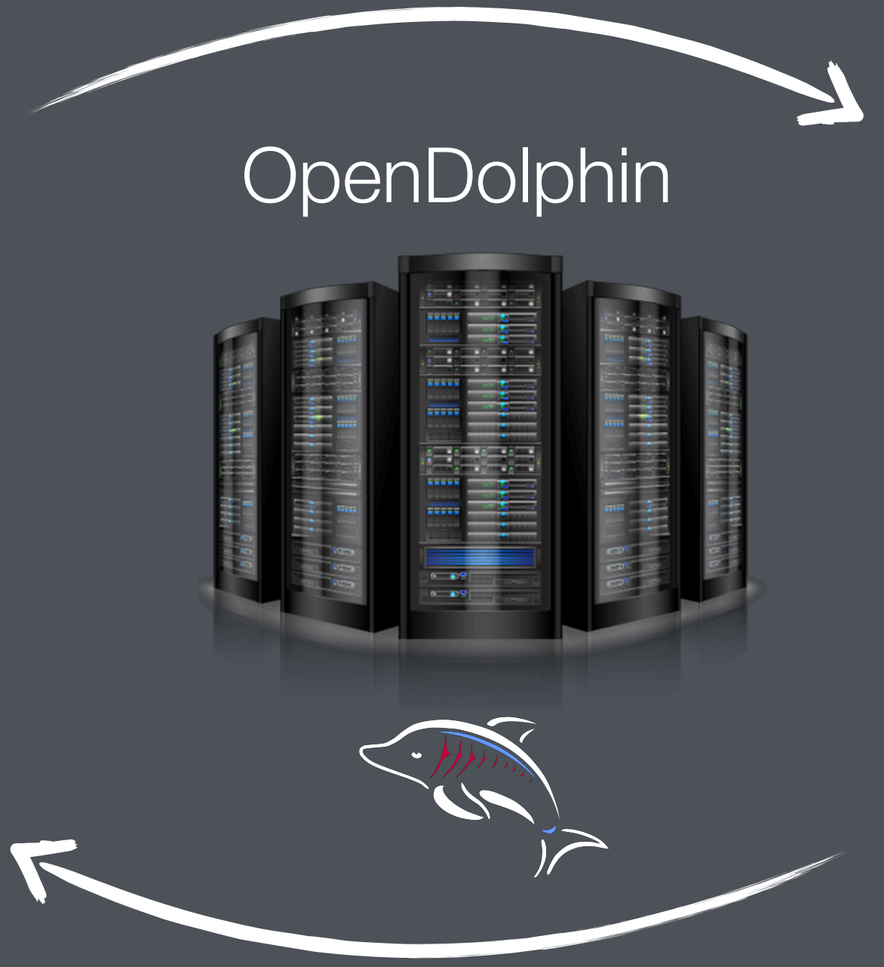
Karakun

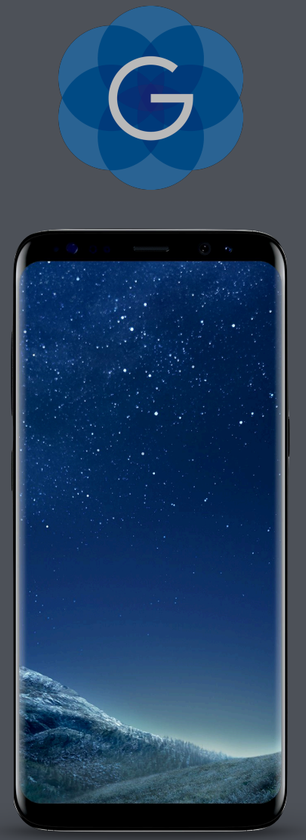


Karakun

Architecture

JavaFX

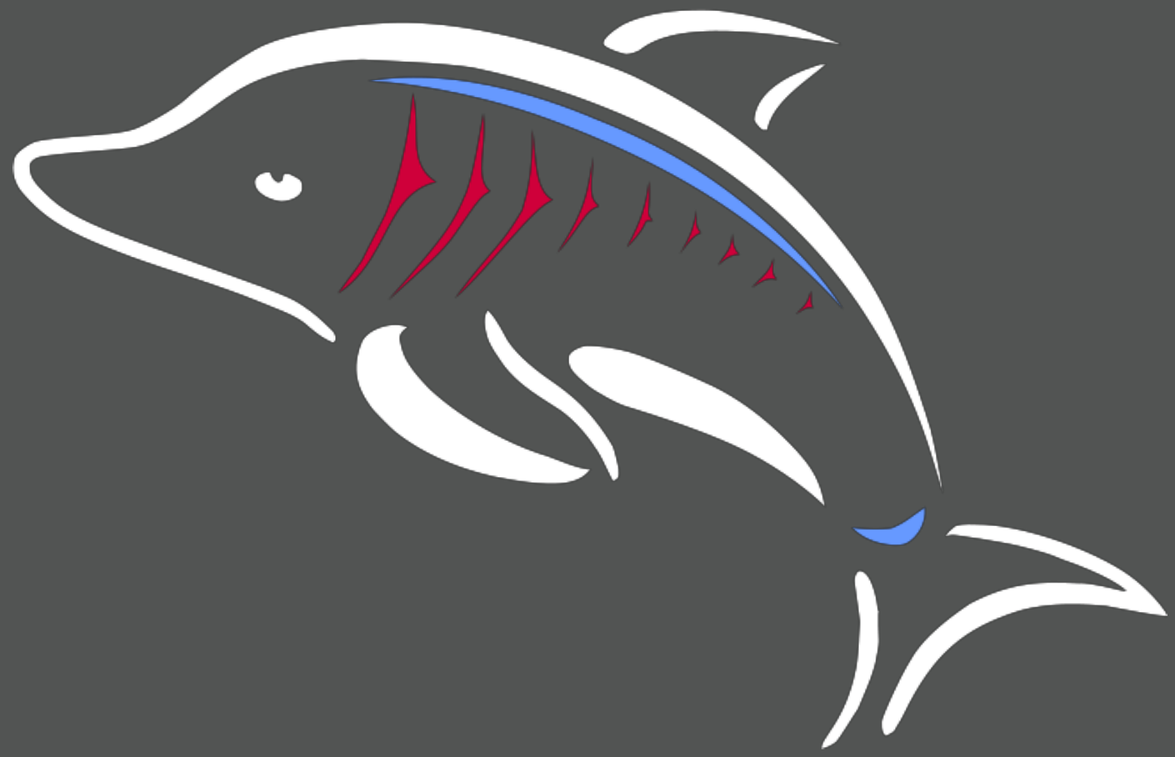




JavaFX

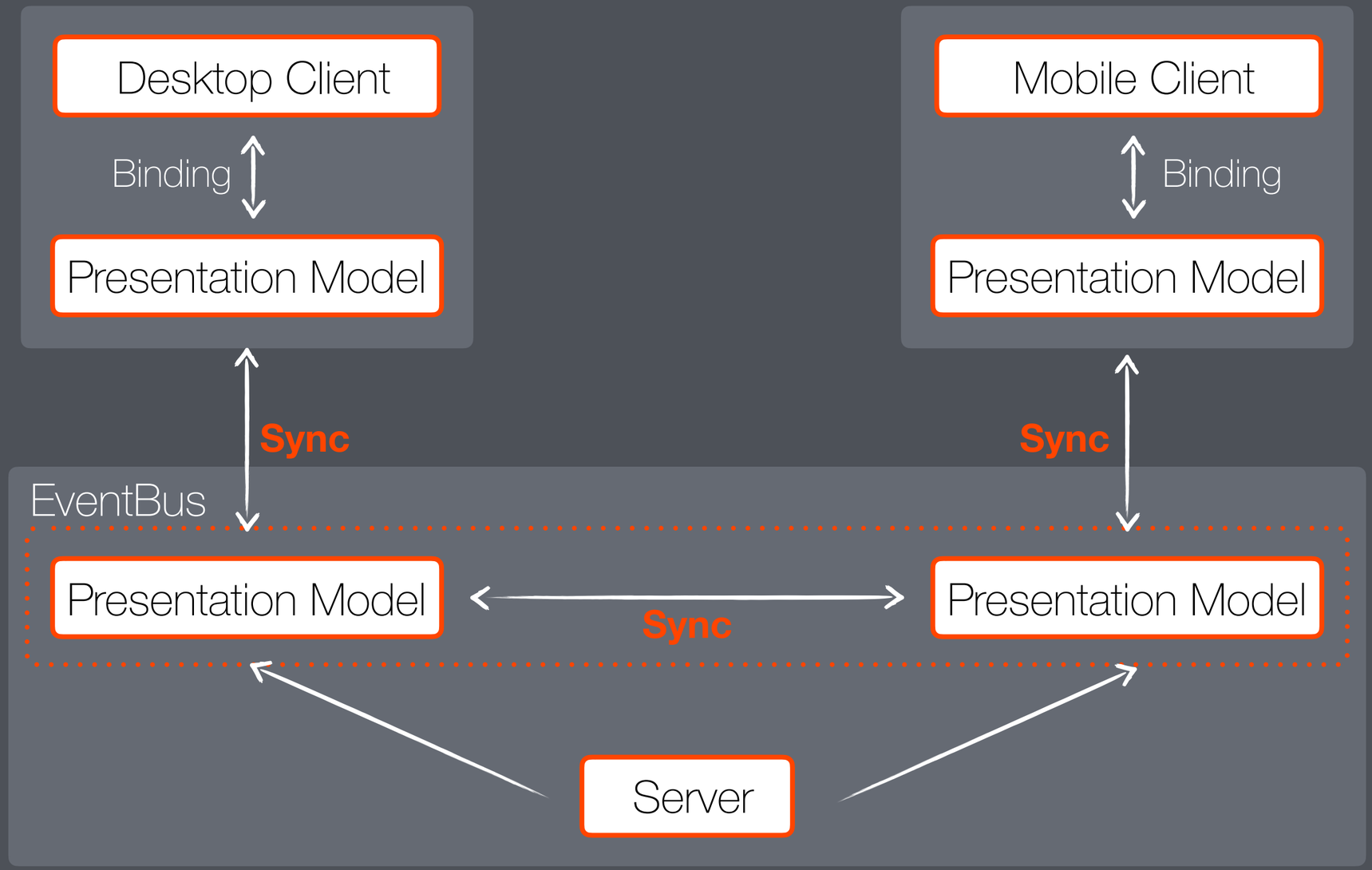
Karakun

Open
DOLPHIN



Karakun

Open Dolphin



Karakun

Open Dolphin

- BINDS CONTROLS TO THE PRESENTATION MODEL
- TAKES CARE ABOUT SYNCHRONIZATION

Demo

Karakun

Karakun

PROS & CONS

Karakun

PROS

- ★ SAME CODE BASE
- ★ EASY TO DEVELOP
- ★ EASY TO TEST
- ★ EASY TO DEPLOY
- ★ ONE CONTROL ON ALL ENVIRONMENTS
- ★ ALL PLAIN JAVA

CONS

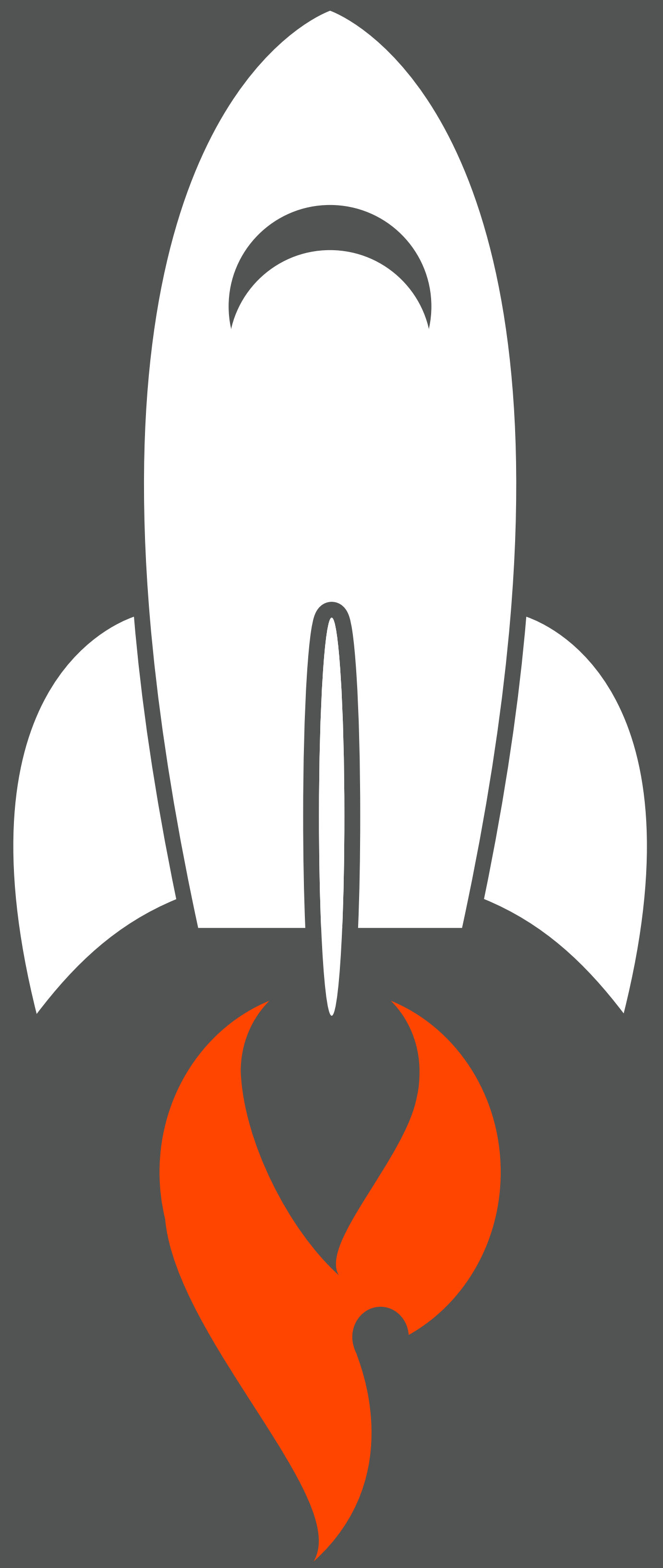
- ★ OVERHEAD BY OPENDOLPHIN
- ★ PERFORMANCE LOSS
- ★ BOUND TO JAVA ECOSYSTEM


2. Version
Karakun

2. Version

- PLATFORM INDEPENDENT
- STANDARD FRAMEWORK CONTROLS ON DESKTOP
- ONE CONTROL ON MOBILE FOR EACH DESKTOP CONTROL

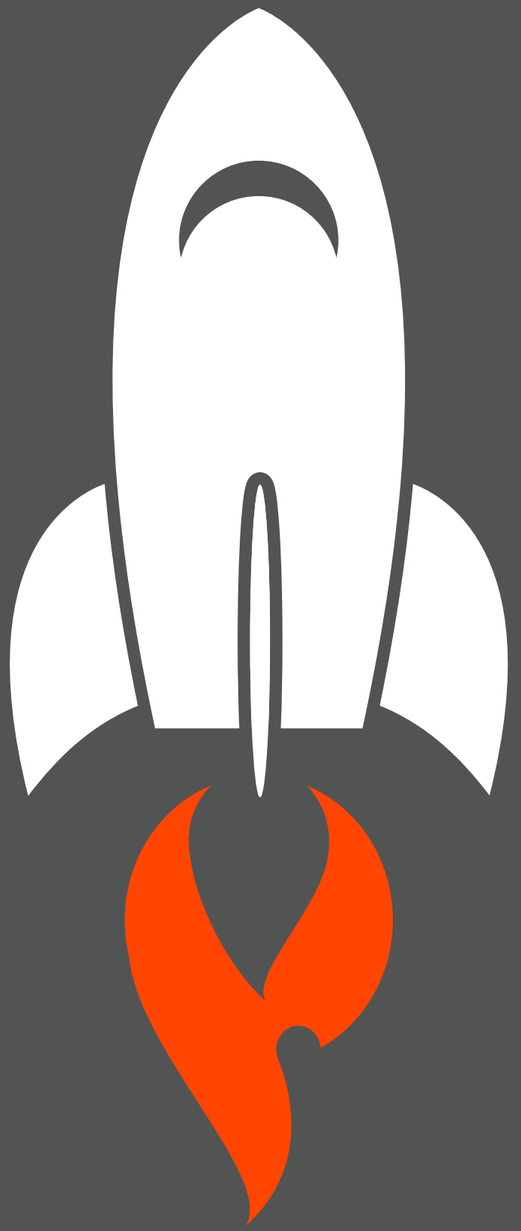
Technology



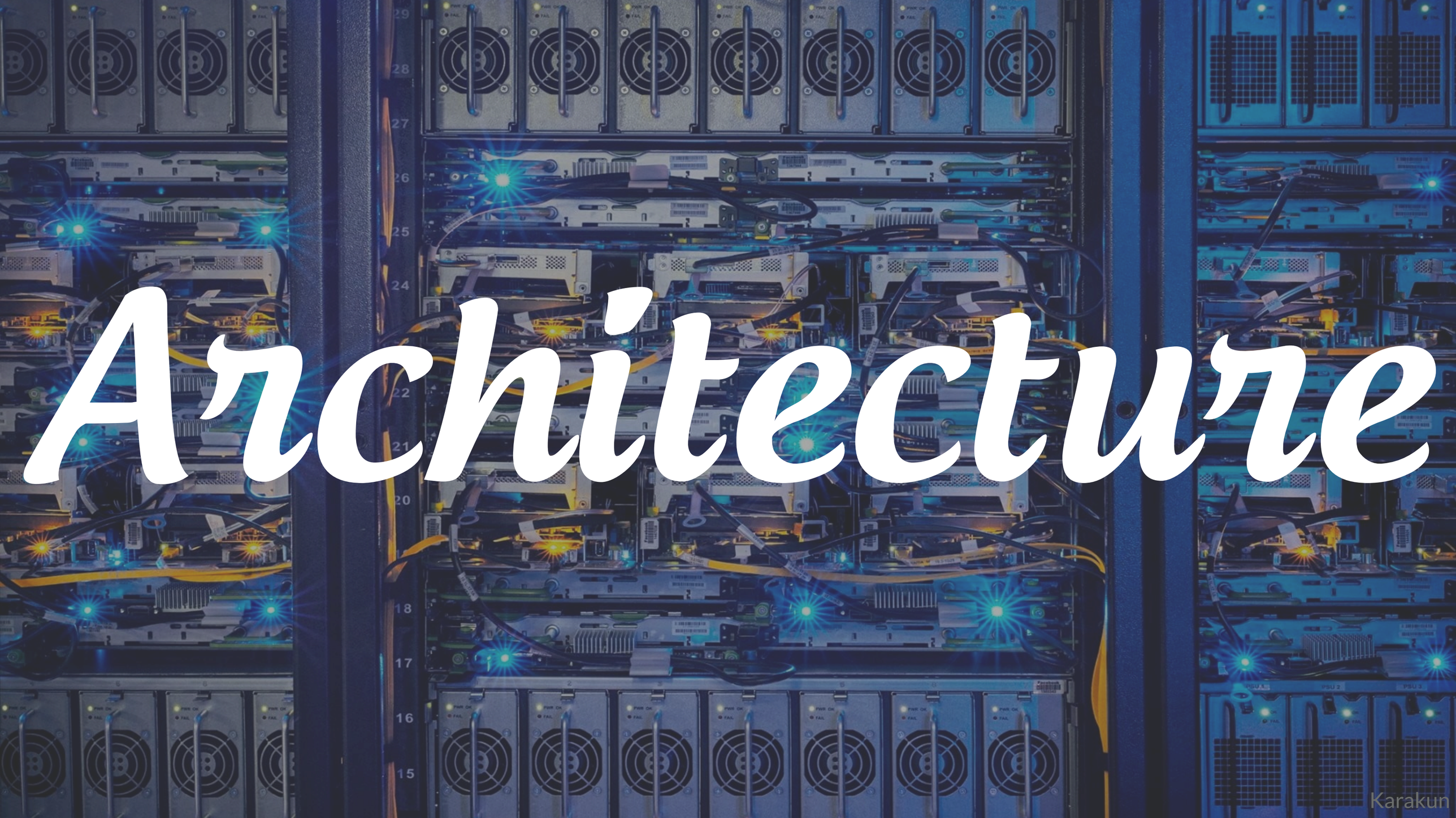
Karakun

Technology

Swift



Karakun



Karakun

Architecture

JavaFx Polymer

MQTT

mosquitto

Swift

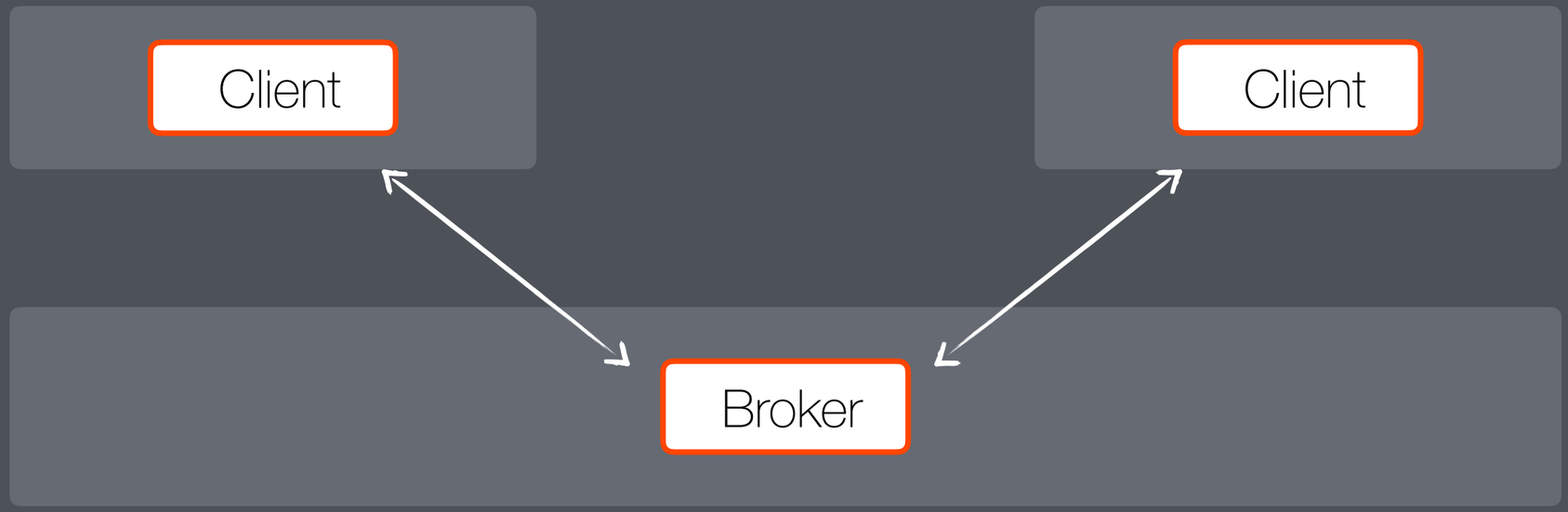
Karakun

Using

MQTT

Karakun

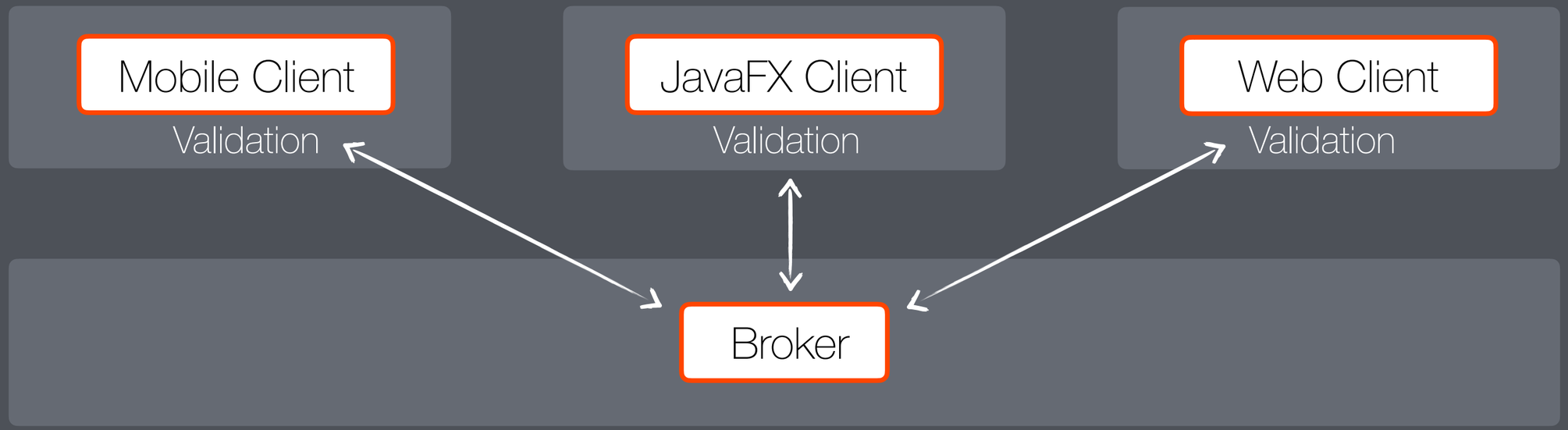
Using MQTT



WE HAVE TO SYNCHRONIZE

Karakun

Using MQTT



CLIENT SIDE VALIDATION

Shared

CONTENT ACROSS CTRLS

Karakun

Shared content

- CTRL TYPE
- CTRL ID
- NUMBERS (DOUBLE, INTEGER)
- MIN- AND MAX-VALUES
- UNIT
- TEXT

Karakun

Karakun

JSON

```
{
  "ctrl"     : "TextField",
  "id"       : "numberField",
  "type"     : "NUMBER",
  "text"     : "",
  "min"      : 0,
  "max"      : 100,
  "value"    : 4,
  "decimals" : 0,
  "unit"     : ""
  "combo"    : ""
}
```

Types...

Karakun

Types...

- TEXT
- NUMBER
- NUMERIC
- DATE
- COLOR
- COMBO
- SIGNATURE
- IMAGE

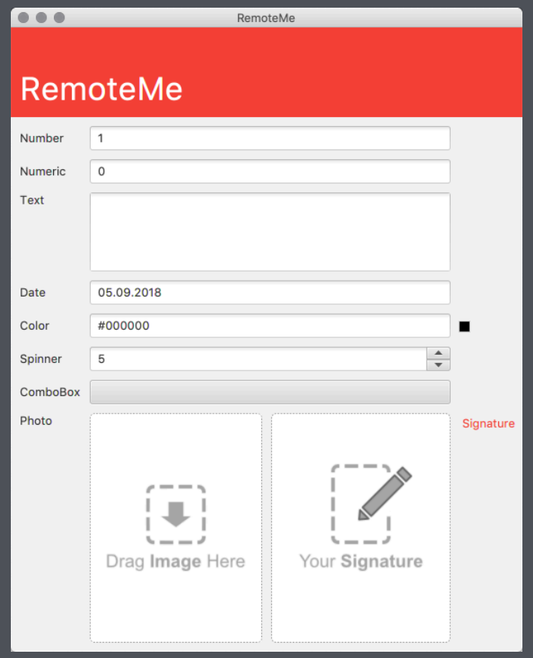
Types of Controls

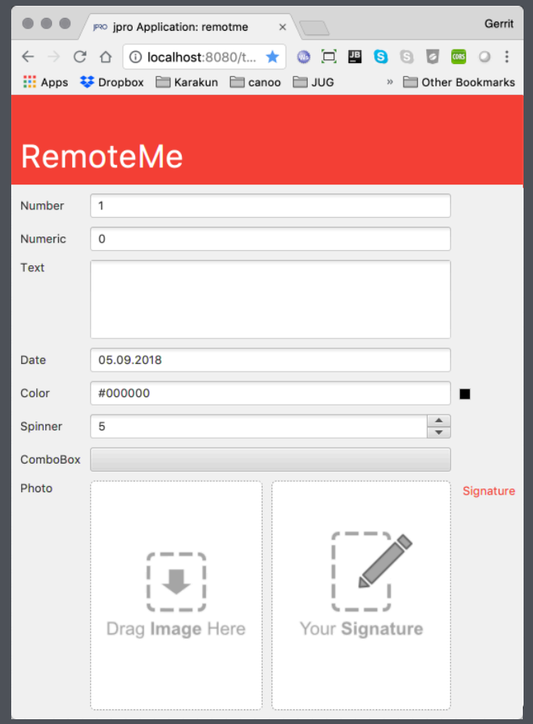

```
public enum Type {
    // Types of Controls
    UNKNOWN,
    TEXT,
    NUMBER,
    NUMERIC,
    DATE,
    COLOR,
    COMBO,
    SIGNATURE,
    IMAGE,
    // Commands
    EXIT,
    NEXT,
    PREVIOUS,
    REQUEST
}
```

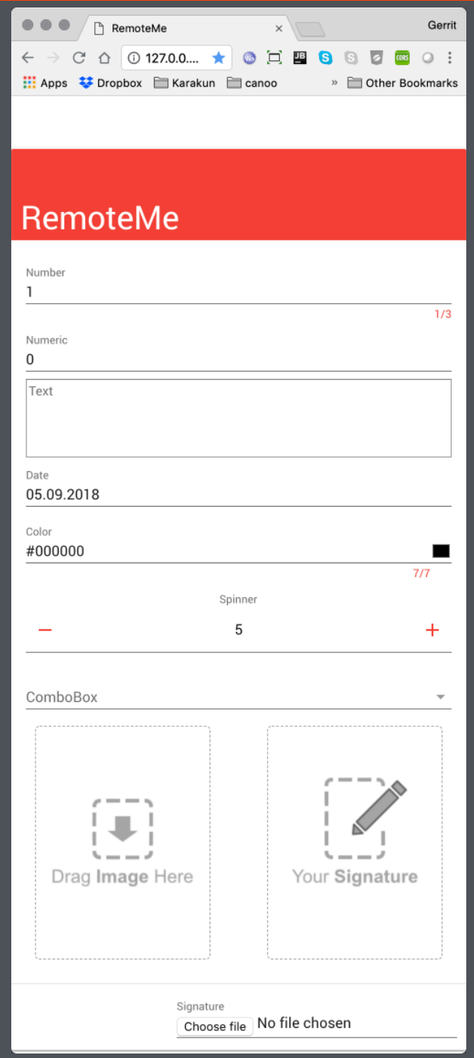
The App...

Karakun

The App...







JavaFX

JPRO

Polymer

Karakun

Controls...

Karakun

Controls...

- TEXTFIELD (NUMBER, NUMERIC, DATE, COLOR)
- SPINNER
- TEXTAREA
- COMBOBOX
- IMAGEVIEW (PHOTO, SIGNATURE)

Representations...

Karakun

NumberField

Karakun

NumberField

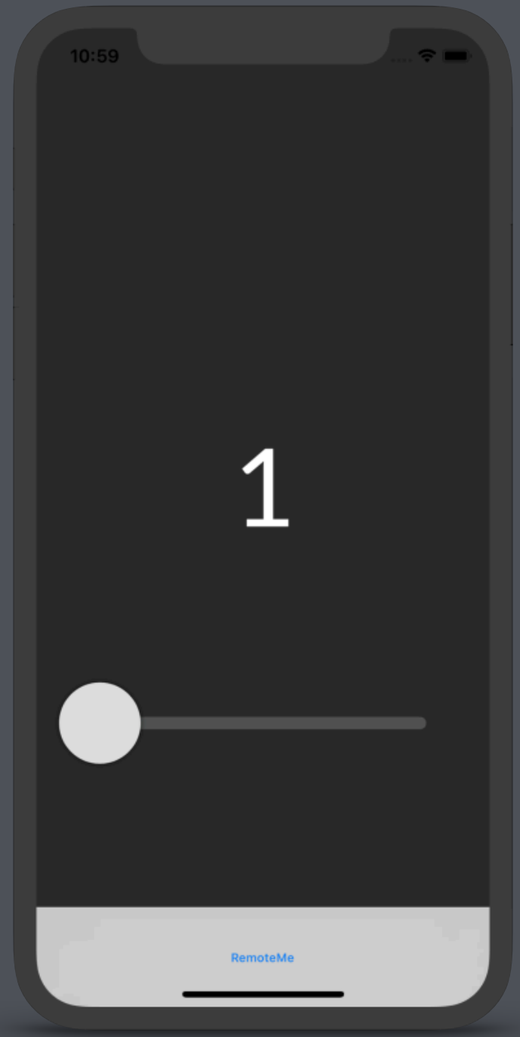
JavaFX

Number 1

Polymer

Number
1

Swift



Karakun

NumericField

Karakun

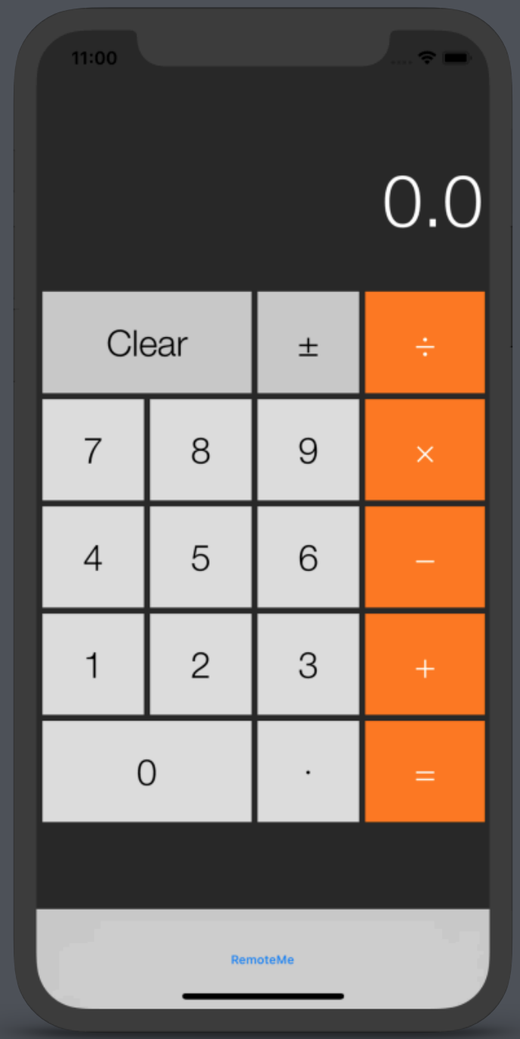
NumericField

JavaFX

Numeric 0

Polymer

Numeric
0



Swift

Karakun

DateField

Karakun

DateField

JavaFX

Date 08.04.2018

Polymer

Date
08.04.2018

ColorField

Karakun

ColorField

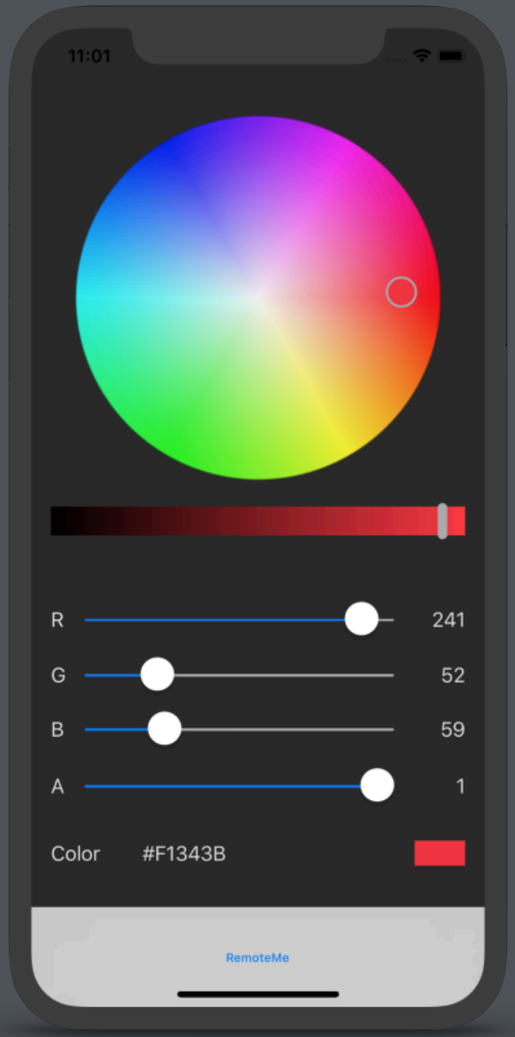
JavaFX

Color #F1343B

Polymer

Color
#F1343B

Swift



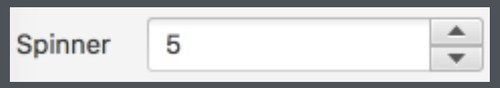
Karakun

Spinner

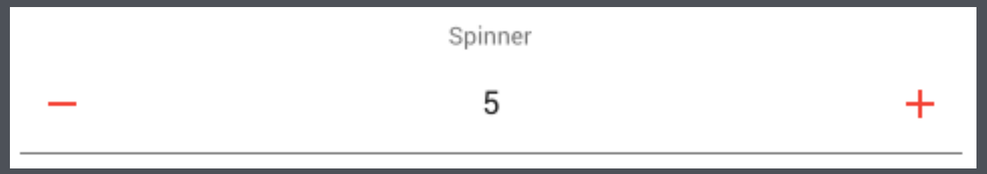
Karakun

Spinner

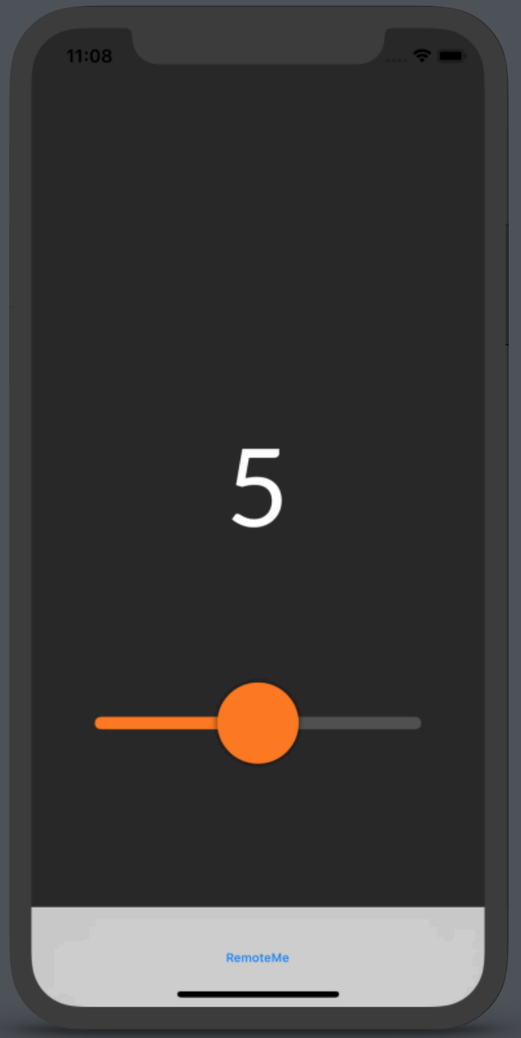
JavaFX



Polymer



Swift



Karakun

TextArea

Karakun

TextArea

JavaFX

Text

Polymer

Text

Swift

Karakun

ComboBox

Karakun

ComboBox

JavaFX

ComboBox Germany

Polymer

ComboBox

Swift

Karakun

Photo

Karakun

Photo

JavaFX

Polymer

Swift

Karakun

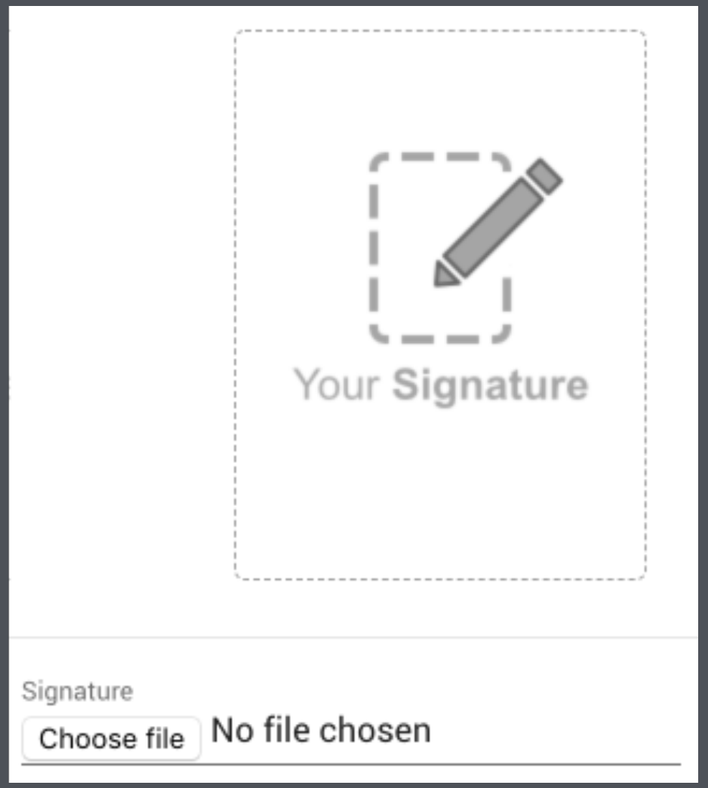
Signature

Karakun

Signature

JavaFX

Polymer



Swift

Karakun

Karakun

The Flow

Polymer

Field gains focus

The Flow

Polymer

Field gains focus

```
{
   "ctrl"     : "TextField",
   "id"       : "numberField",
   "type"     : "NUMBER",
   "text"     : "",
   "min"      : 0,
   "max"      : 100,
   "value"    : 1,
   "decimals" : 0,
   "unit"     : "",
   "combo"    : ""
}
```

Generate JSON

The Flow

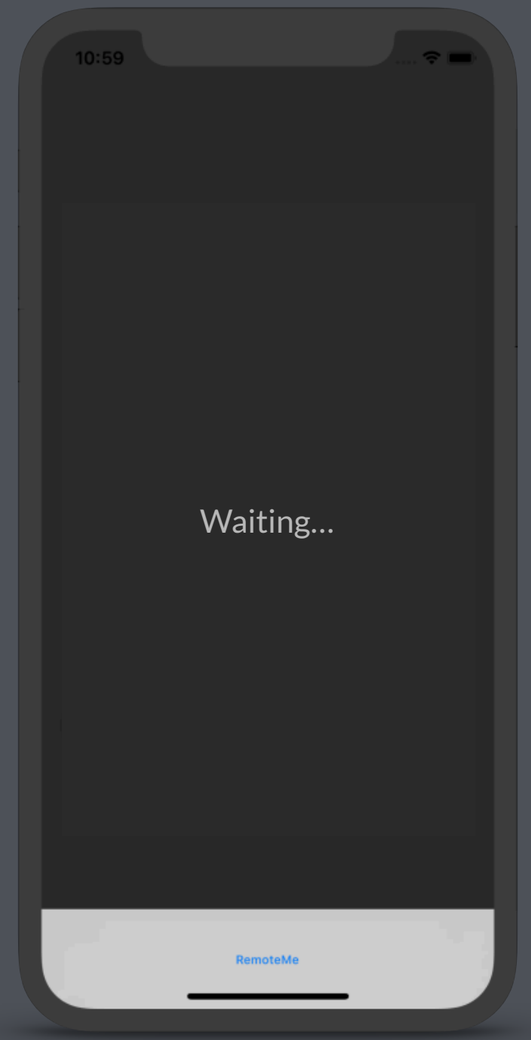
Polymer


```
{
   "ctrl"     : "TextField",
   "id"       : "numberField",
   "type"     : "NUMBER",
   "text"     : "",
   "min"      : 0,
   "max"      : 100,
   "value"    : 1,
   "decimals" : 0,
   "unit"     : "",
   "combo"    : ""
}
```

mosquitto

Generate JSON

Send to Device via MQTT



Karakun

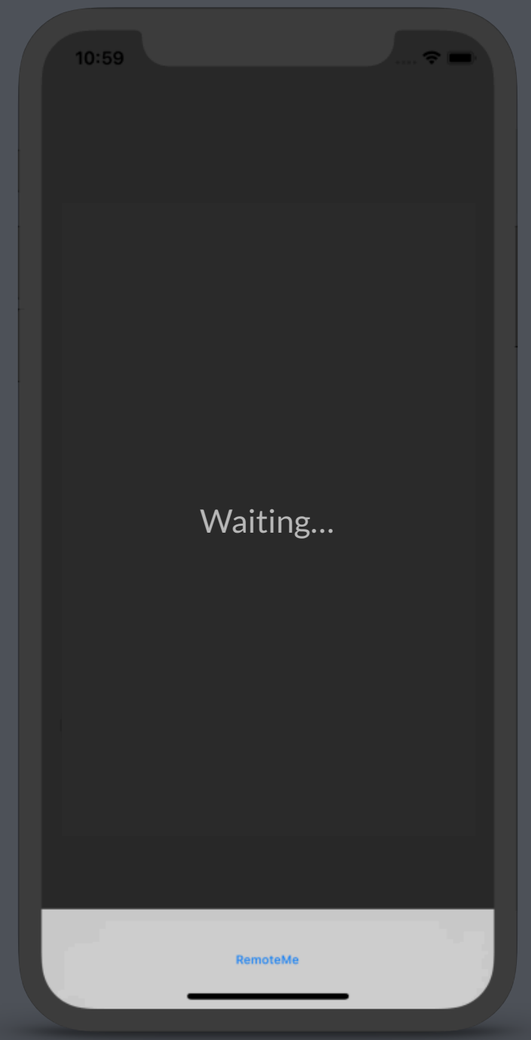
The Flow

Polymer


```
{
   "ctrl"     : "TextField",
   "id"       : "numberField",
   "type"     : "NUMBER",
   "text"     : "",
   "min"      : 0,
   "max"      : 100,
   "value"    : 1,
   "decimals" : 0,
   "unit"     : "",
   "combo"    : ""
}
```

mosquitto

Send to Device
via MQTT

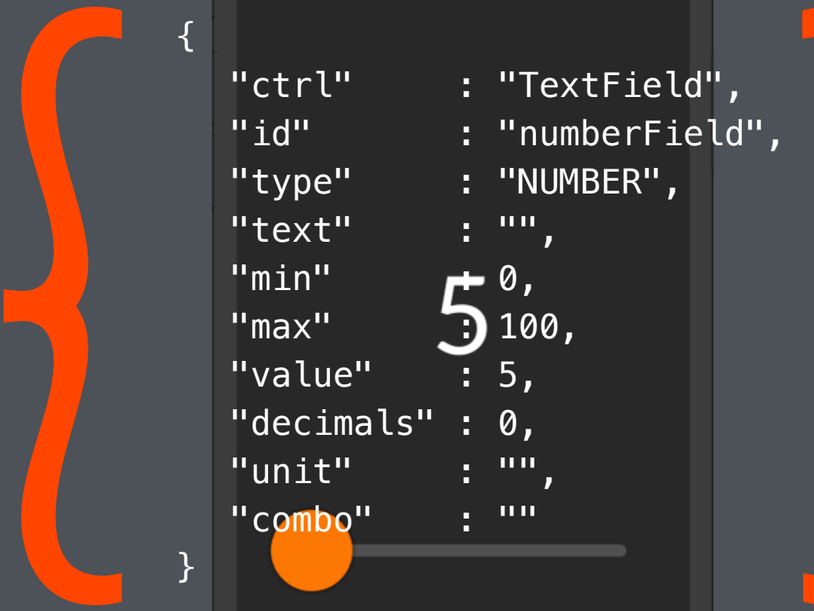


Karakun

The Flow

Polymer

mosquitto



Generate JSON and send to Desktop

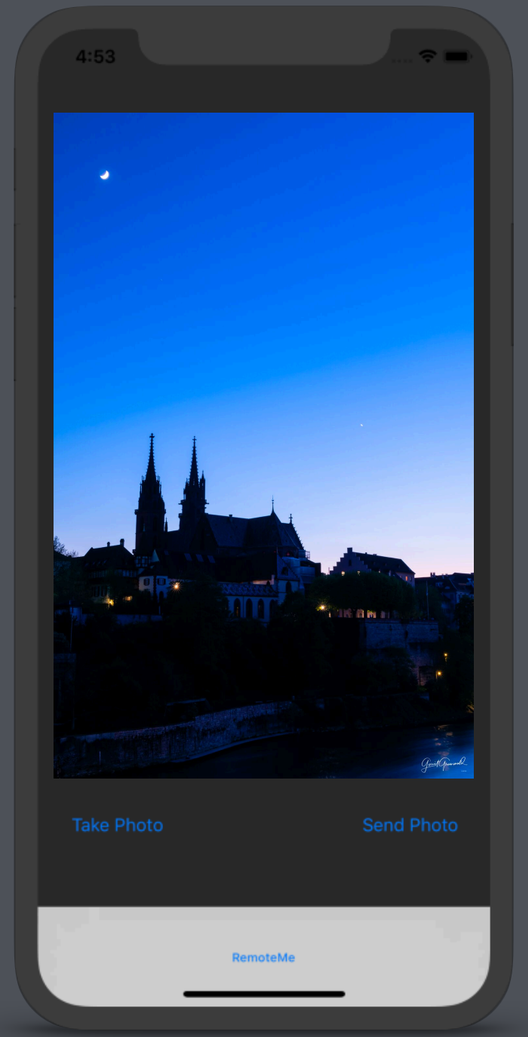
Karakun

The Flow

Polymer

file.io

upload image



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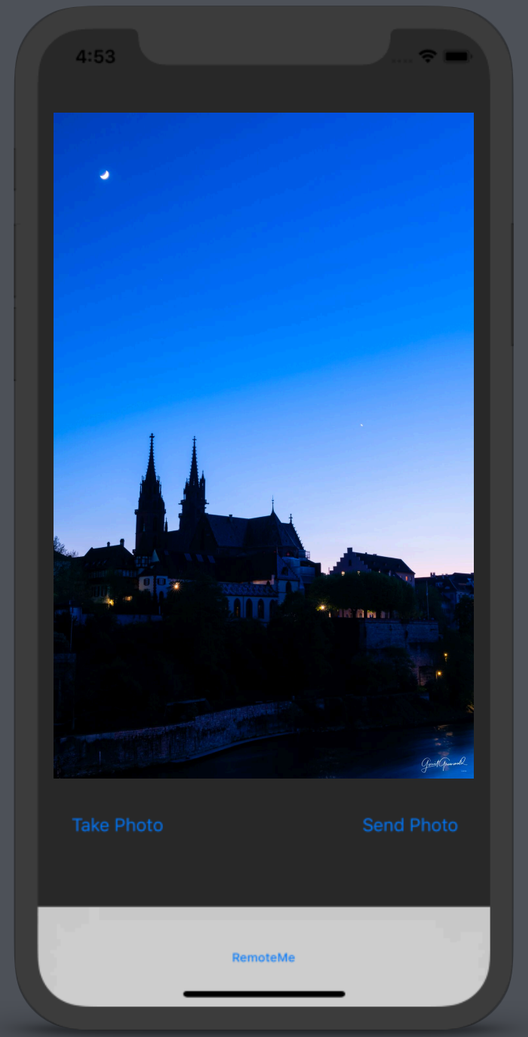
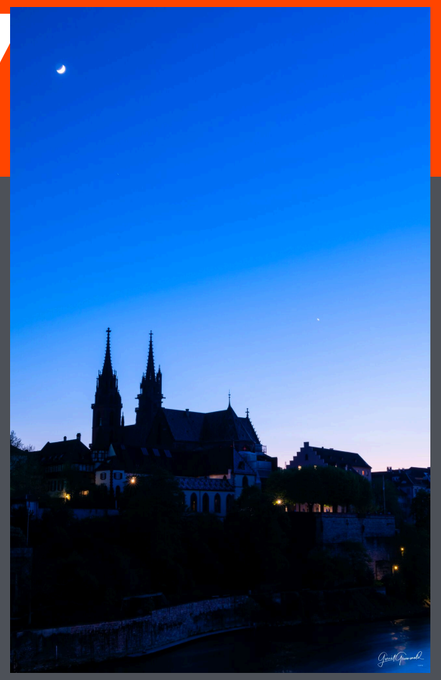


Karakun

The Flow

Polymer



mosquitto

- Connected to network
- Screen Mirroring activated
- Airserver running
- iPhone hooked to Airserver via airplay
- Airplay in window and not fullscreen mode
- gradle jproRun to run JPro demo
- polymer serve to run Polymer demo

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PROS & CONS

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PROS

- ★ ECOSYSTEM INDEPENDENT
- ★ BETTER PE
- ★ EASY TO DE
- ★ ONE MOBIL
- DIFFERENT
- PLATFORMS

CONS

- DIFFERENT CODE BASE
- EDGE NEEDED
- EACH
- S AND
- ANDROID CLIENT

General cons:
Bad connection -> bad ux

100 ms -> instantaneously
200 ms -> dogged (esp. for coders)
1000 ms -> limit for user's flow of thought to stay uninterrupted
10000 ms -> limit to keep user focused on dialog

Karakun

Thank U

Karakun