



Getting it Booking right – Using Data to make Decisions

Iaroslav Khramov | GOTO conference 2014

Are you sure?

- Are you sure that new design is good?
- Are you sure this change will not break the app?
- Are you sure customers will like our new feature?
- Are you sure ?

Real data can help!

Decision-making using data

- When should you should run an experiment (use A/B testing)?
 - Need to decide which option is better
- What are the alternatives?
 - Expert opinion / intuition
 - Historical data

Why is experimentation better?

1. Our intuition is not very good
(people are complex)
2. Historical data is second-best
(becomes outdated fast)

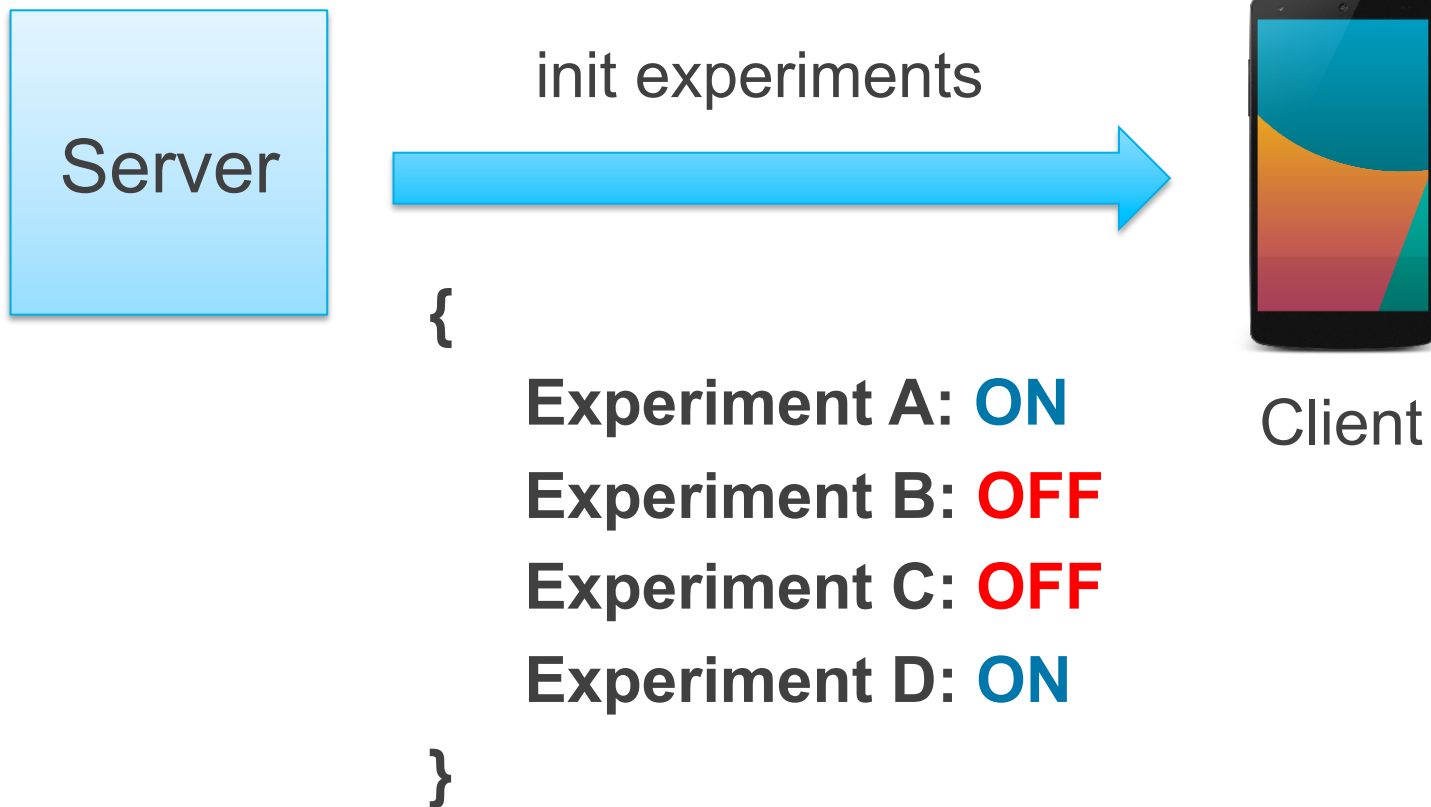
What do we get?

- Reduced design discussions
- Less dependent on expert opinions
- Makes sure all changes are actually (commercial) improvements
- Additional safety net for new changes in the app

How complex is it?

```
If(newFeatureEnabled == true) {  
    // new feature code  
} else {  
    // old reliable solution  
}
```

For more control - turn experiments on and off from server



It's easy! Can I start experimenting now?

Yes, but first:

- Pick a metric
- Find users to include in an experiment
- Come up with a new idea

Metrics

Metrics are the main determinant of success!

1. Pick your own metric!
2. Diversify metrics!

What is my metric?

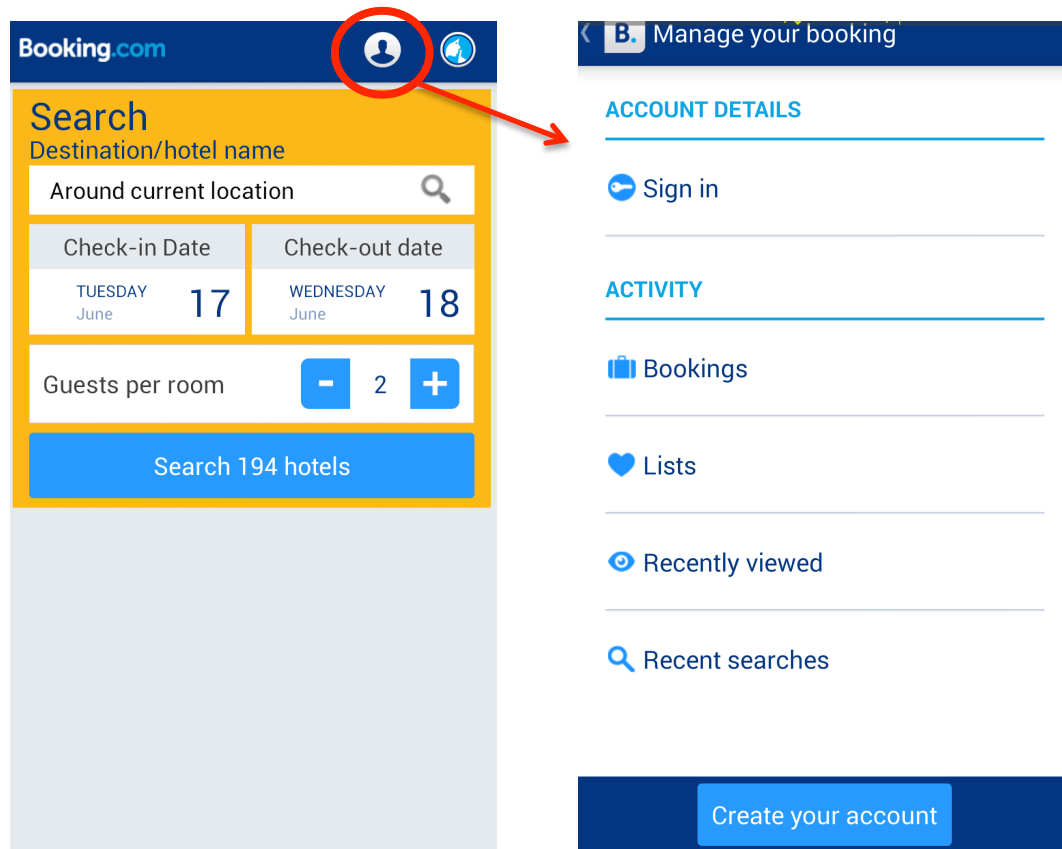
Type of business	Possible key metrics
Ecommerce: Booking.com, Amazon	items sold, conversion, loyalty
Content: Euronews, CNN	visitors, engagement, ad clicks
Social Networking: Facebook, Twitter	visitors, engagement, ad clicks
Gaming: Angry birds	purchases, subscriptions

Experiment lifecycle

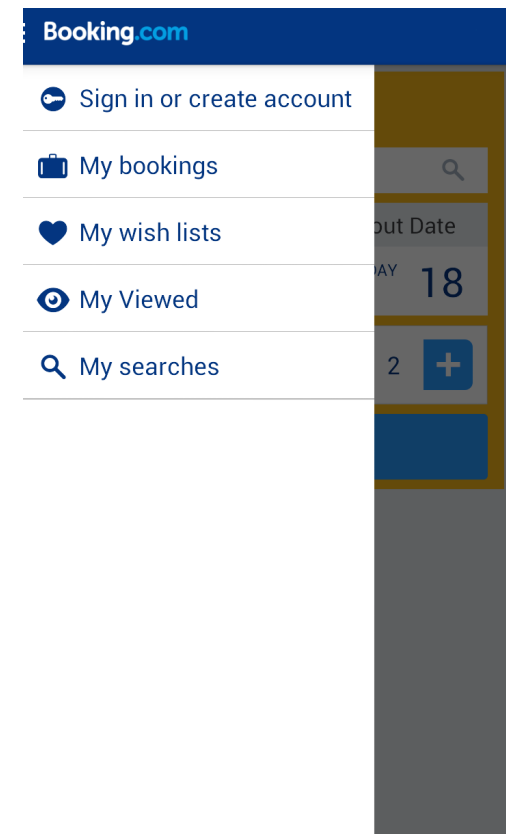


Example of an experiment

A



B



Are there any A/B exp tools for mobile that will allow you to start experimenting today?

Yes, just Google it!

For example:

- Airlock (Facebook)
- Arise.io
- Apptimize
- Leanplum
- ...

Thanks!

Any Burning
questions?

Quotes

...the ability to experiment easily is a critical factor for Web-based applications. The online world is never static. There is a constant flow of new users, new products and new technologies. Being able to figure out quickly what works and what doesn't can mean the difference between survival and extinction.

Hal Varian, chief economist for Google, 2007

Please evaluate
this talk via the
mobile app!



THE NEW MOTION®

a network of

Olger Warnier - @owarnier

Started 2009



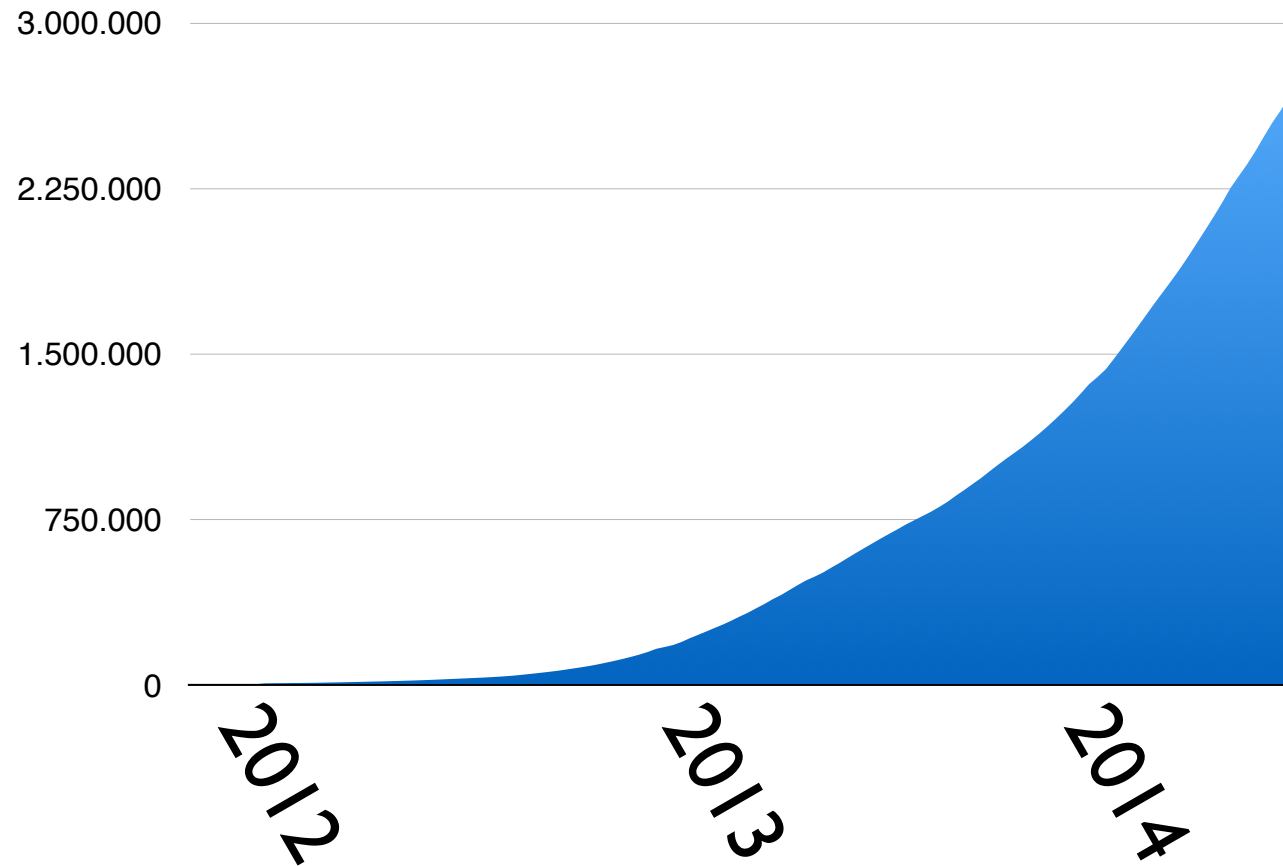
2010



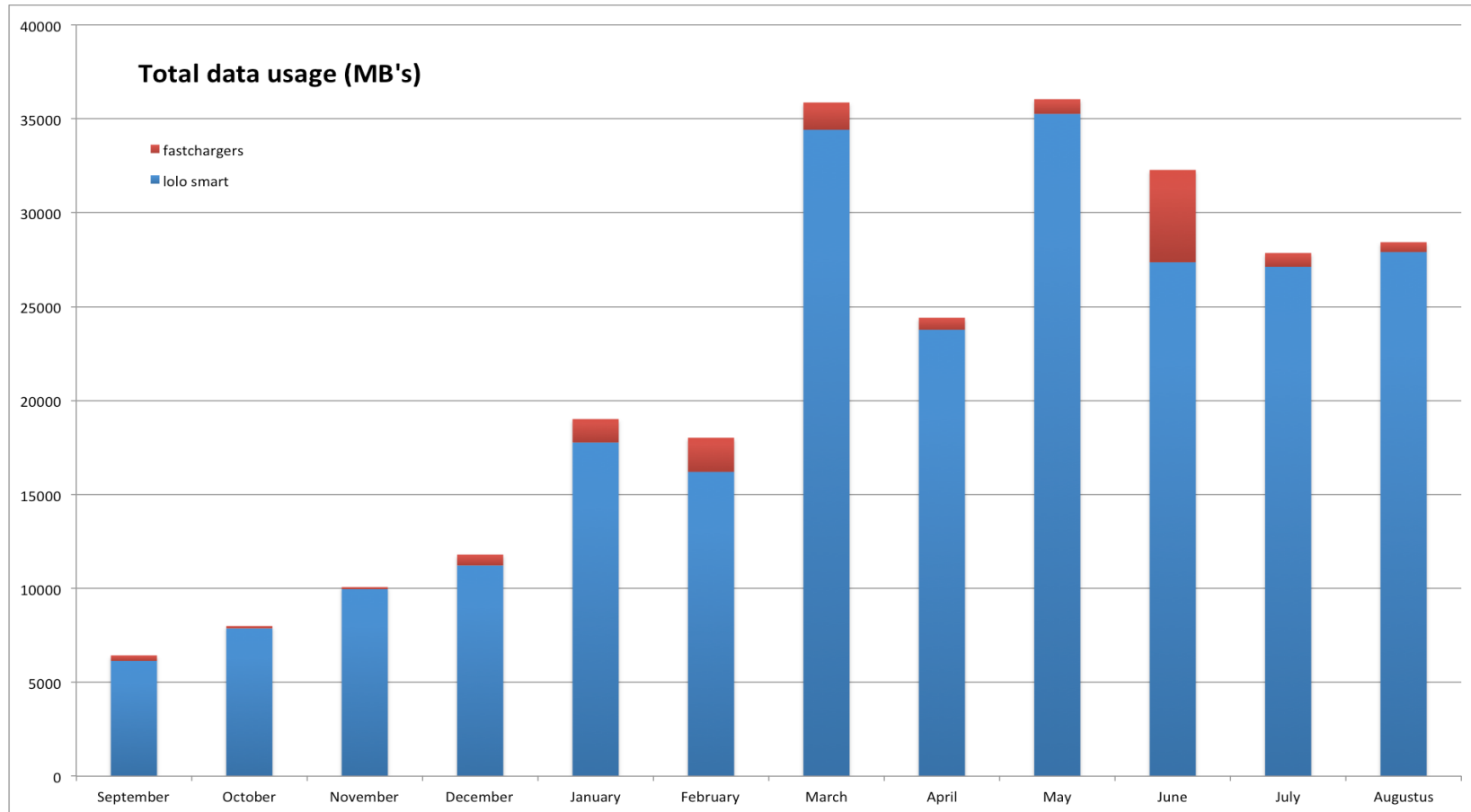
2014



Times a car charged



Connectivity



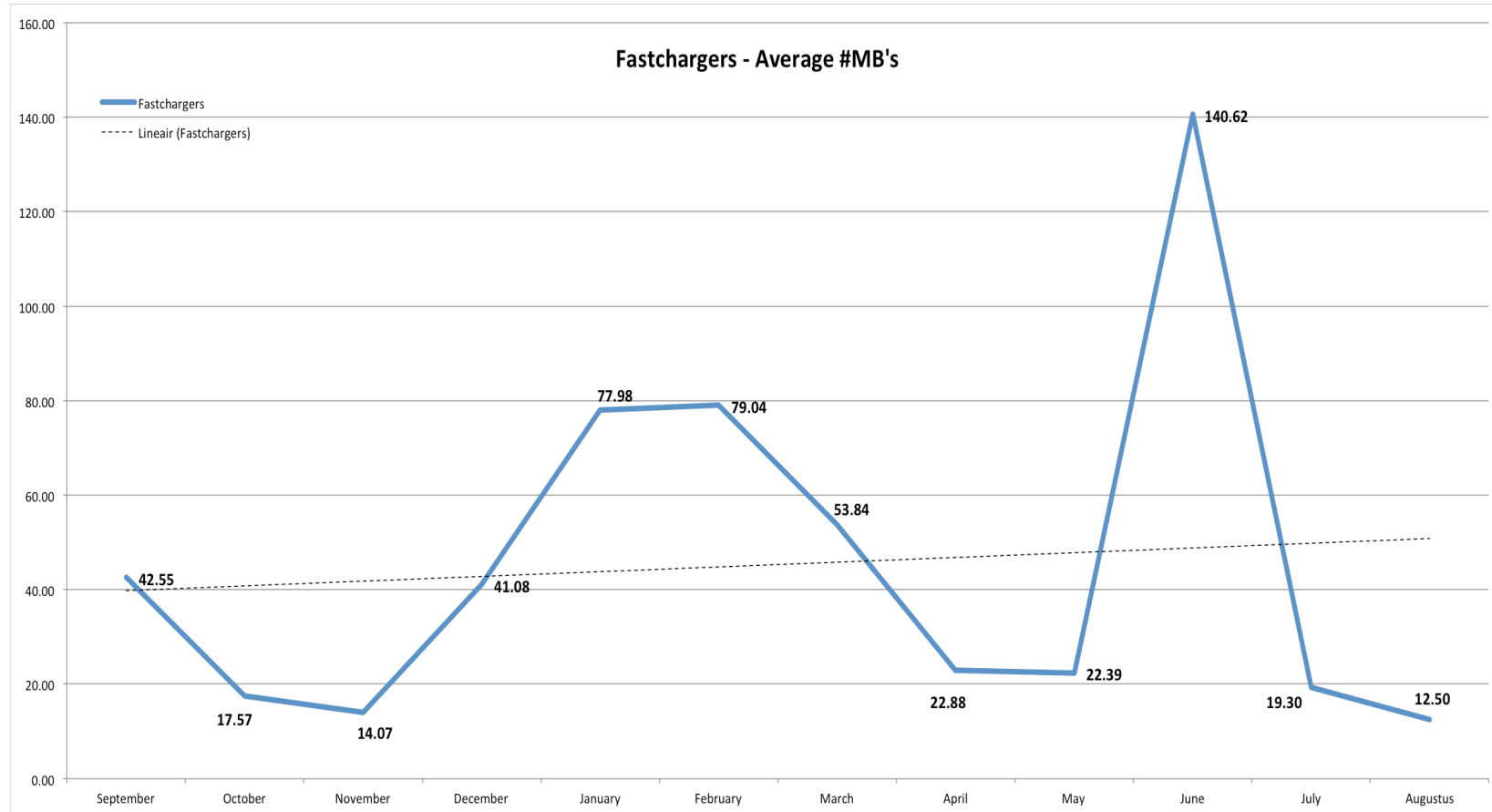
Communication



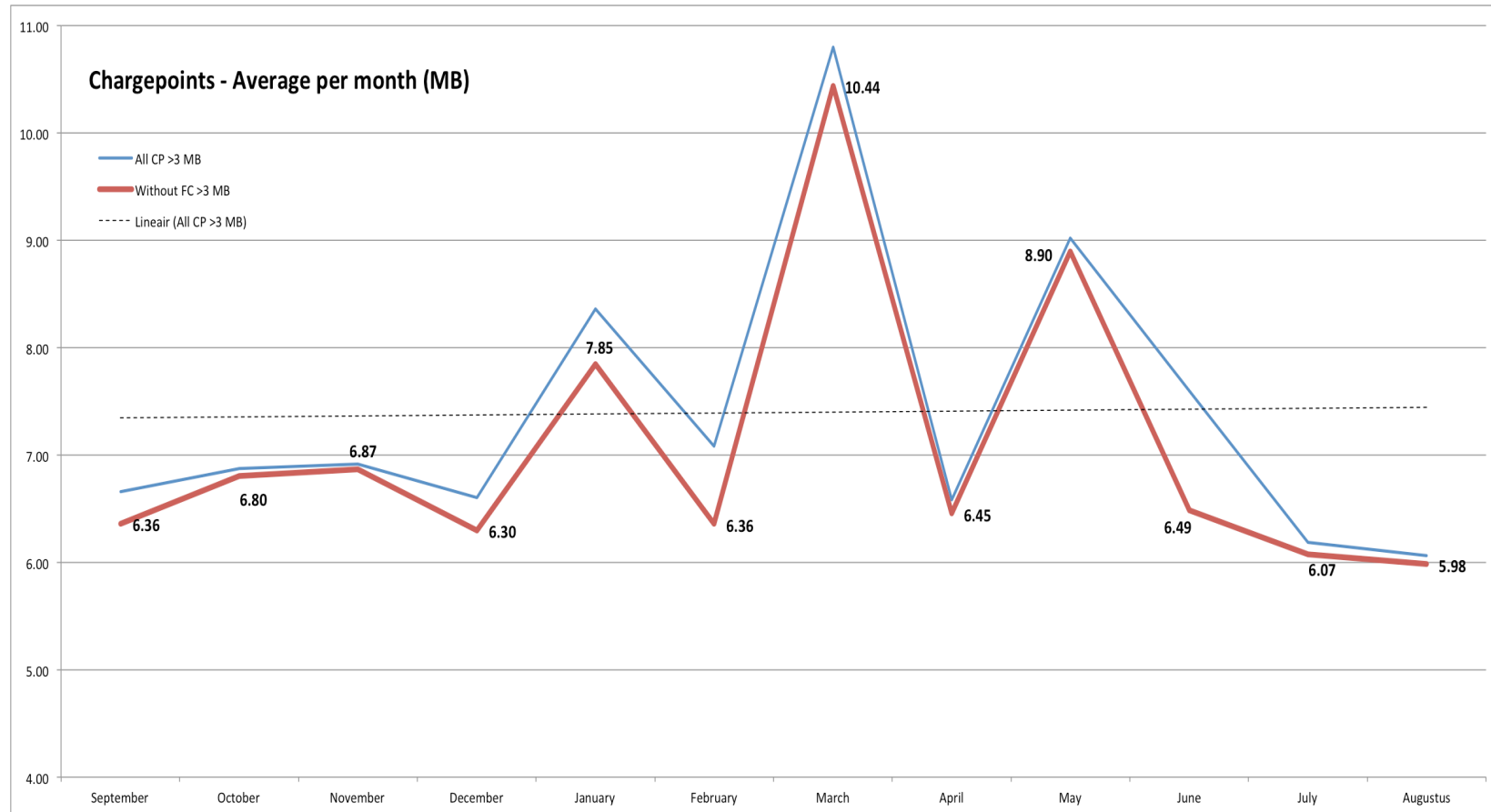
- ▶ 2010: SOAP / XML (e-laad foundation OCPP)
- ▶ 2011: Custom Protobuf/HTTP Keep-Alive protocol
- ▶ 2013: JSON + WebSockets (OCPP 2 beta)

OCPP = Open ChargePoint Protocol
<http://openchargealliance.org>

SOAP



Protobuf + Keep-



JSON + Web Sockets

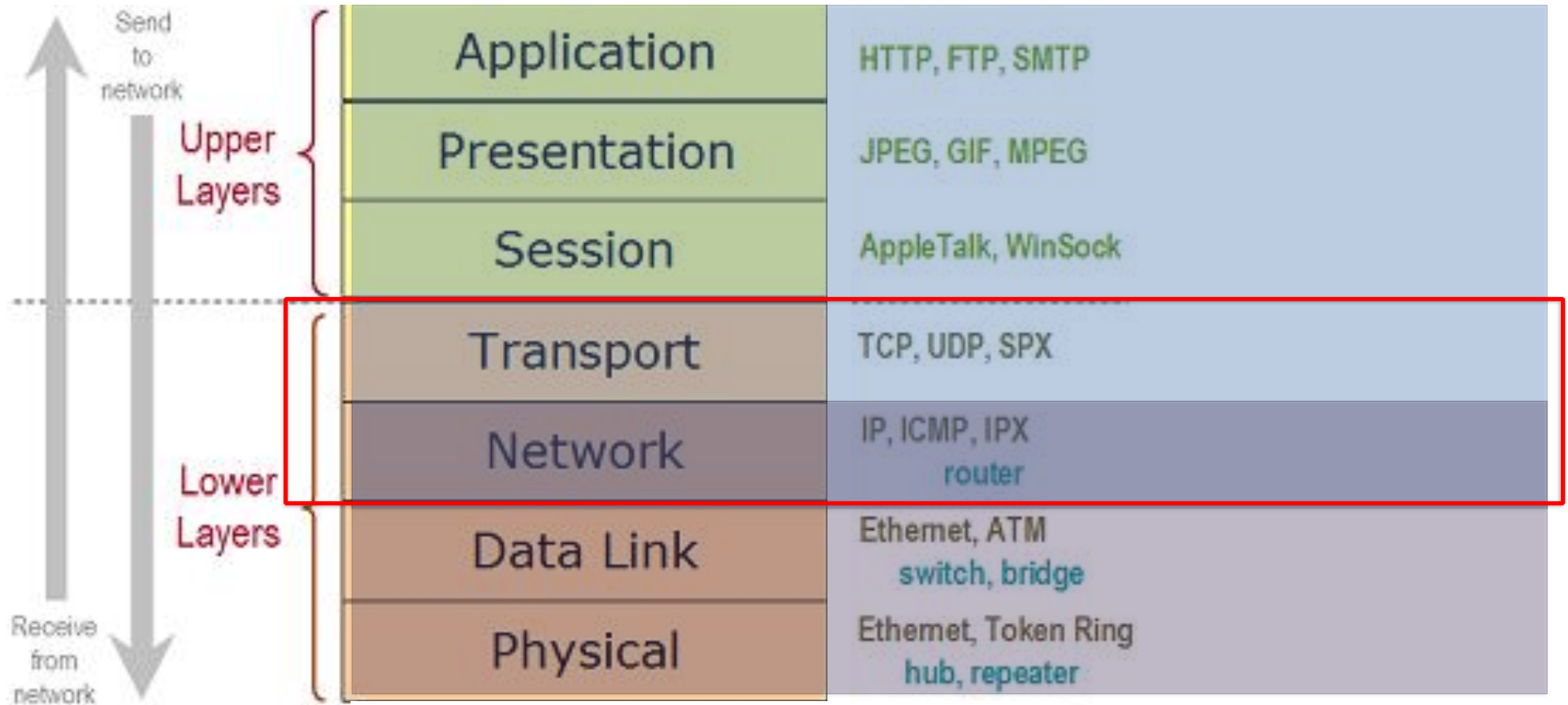


- Compressed connection
- Estimated data usage 2.7 MB
- Theoretical optimum (perfect network) 0,14 MB

Network coverage



OSI layers - network



Lessons learned



- ▶ Type of protocol saves data
- ▶ Optimise functional usage saves more data
- ▶ Lengthy stable connections save data
- ▶ Cater for offline use
- ▶ Mobile networks are costly

Websockets & Akka



- ▶ Atmosphere (java websockets framework)
- ▶ Atmosphere to Akka Actor framework
- ▶ JSON4S

Atmosphere



```
<servlet>
  <description>AtmosphereServlet</description>
  <servlet-name>AtmosphereServlet</servlet-name>
  <servlet-class>org.atmosphere.cpr.AtmosphereServlet</servlet-class>
  <init-param>
    <param-name>org.atmosphere.cpr.AtmosphereInterceptor.disableDefaults</param-name>
    <param-value>true</param-value>
  </init-param>
</servlet>
<servlet-mapping>
  <servlet-name>AtmosphereServlet</servlet-name>
  <url-pattern>/ocppws/*</url-pattern>
</servlet-mapping>
```

Atmosphere & Akka



```
@Singleton  
@WebSocketHandlerService  
class WebSocketEntryPoint extends...
```



contains a routing actor

Atmosphere & Akka



```
private def sendWebSocketEvent(webSocket: WebSocket, event:
WebSocketEvent) =
  withWebSocketsActor { webSocketsActor =>
    webSocketsActor ! Routed(webSocket.resource.uuid, event)
  }

private def withWebSocketsActor[T](f: ActorRef => T): T = {
  webSocketsActor match {
    case Some(wsa) => f(wsa)
    case None      => sys.error("Trying to process websocket
traffic before WebSocketEntryPoint is configured")
  }
}
```

The actor



- ▶ It's wise to have an actor that Routes the request to a processing actor
- ▶ This frees the actor of its' job and allow it to take (and route) a new message

JSON4S

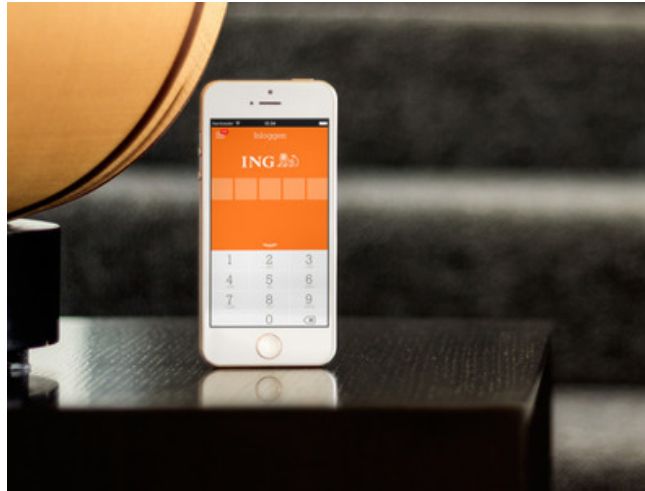


```
object OcCppWsMessageHandling extends Logging {  
  implicit val formats: Formats =  
    DefaultFormats ++ TransportMessageJsonSerializers()
```

```
class RequestMessageJsonFormat extends CustomSerializer[RequestMessage]  
(format => (  
  {  
    case JArray(JInt(callType) :: JString(callId) ::  
      JString(action) :: payload :: Nil) =>  
      RequestMessage(callId, action, payload)  
  },  
  {  
    case x: RequestMessage =>  
      JArray(JInt(BigInt(2)) :: JString(x.callId) ::  
        JString(x.procedureName) :: x.payload :: Nil)  
  }  
)))
```

Please evaluate
this talk via the
mobile app!



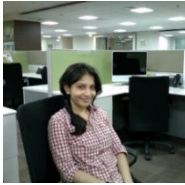


There's An App For That
Innovating @ ING mobile.

GOTO Amsterdam



Itroduction



Nandini Chauhan
iOS Developer from
Capgemini working at ING



Pim Stolk
iOS Developer at ING since
January 2011







+



=



Our first App



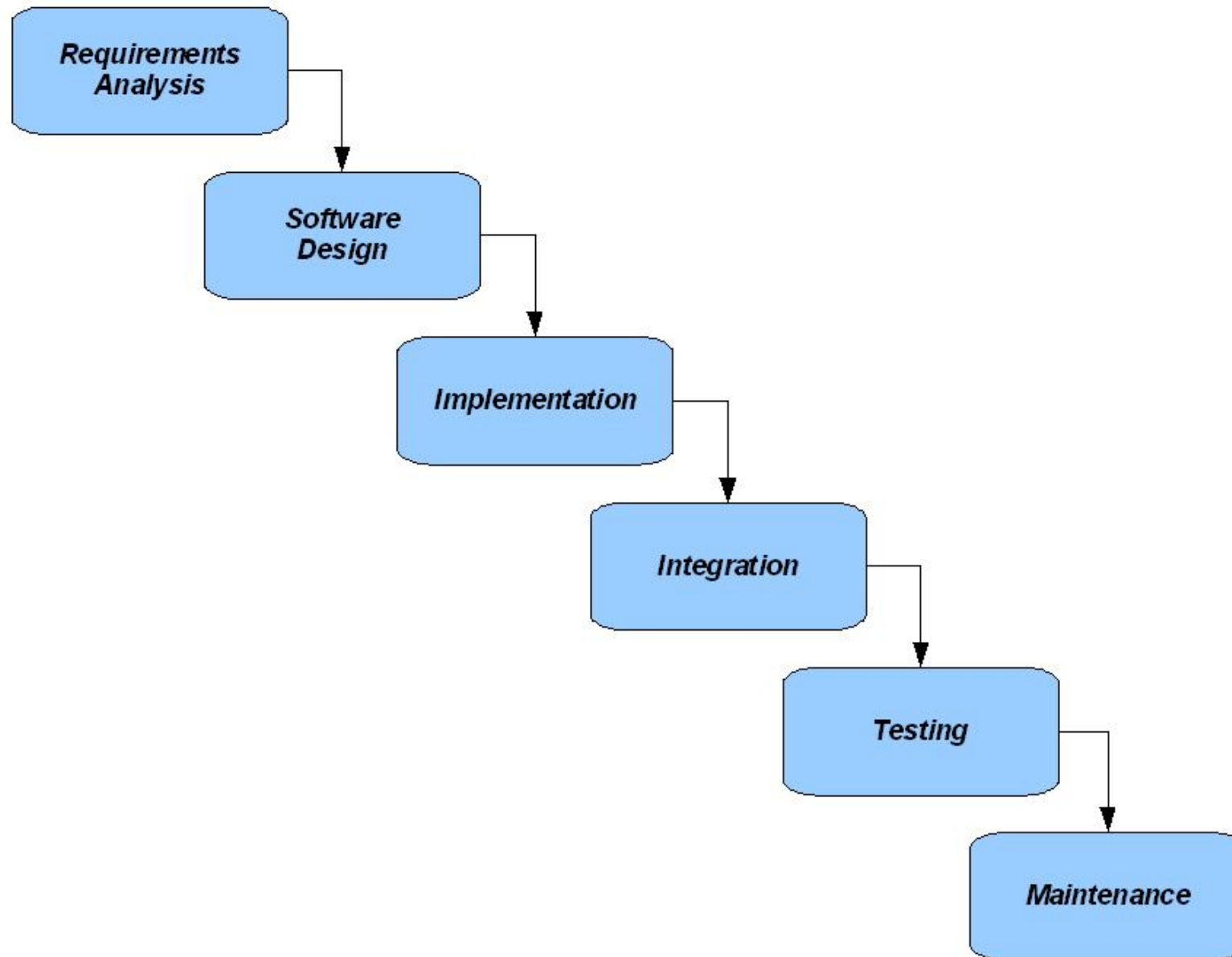
We launched in 2010 ...



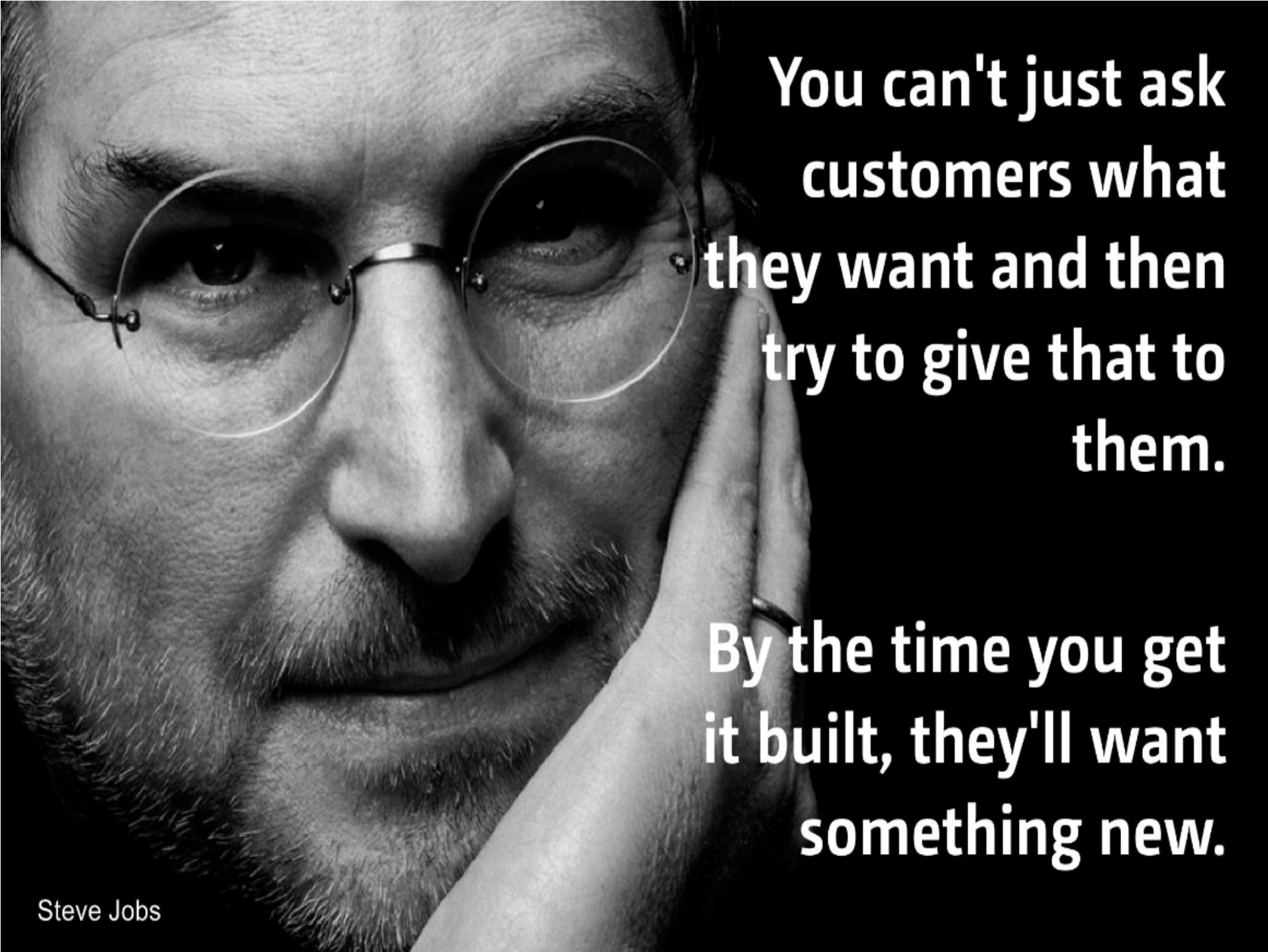
One Star!



What were the reasons for failure?



Waterfall

A black and white close-up portrait of Steve Jobs. He is wearing his signature round glasses and has a slight beard. His hand is resting against his face, with his fingers near his temple. The background is dark, making his face the central focus.

**You can't just ask
customers what
they want and then
try to give that to
them.**

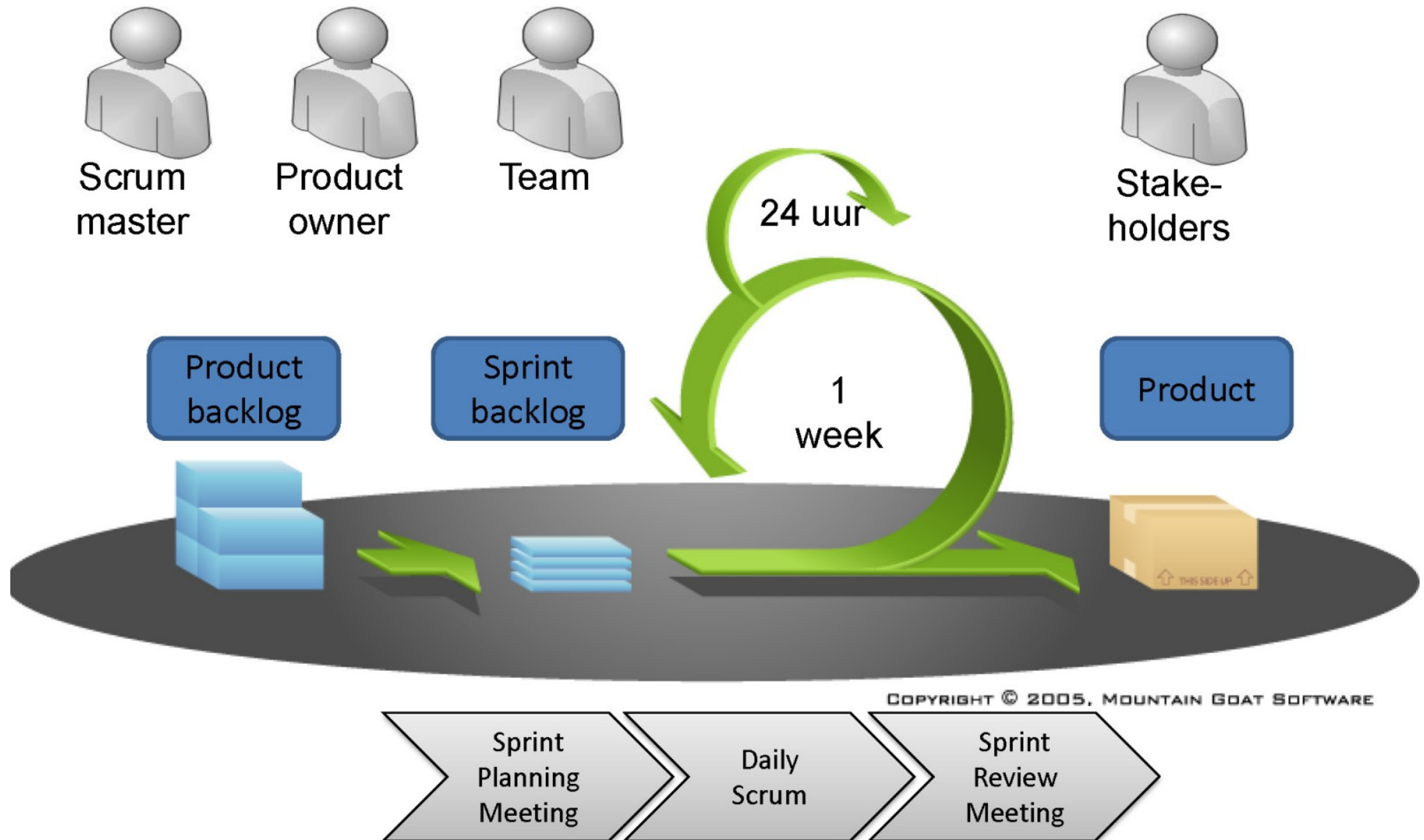
**By the time you get
it built, they'll want
something new.**

Steve Jobs



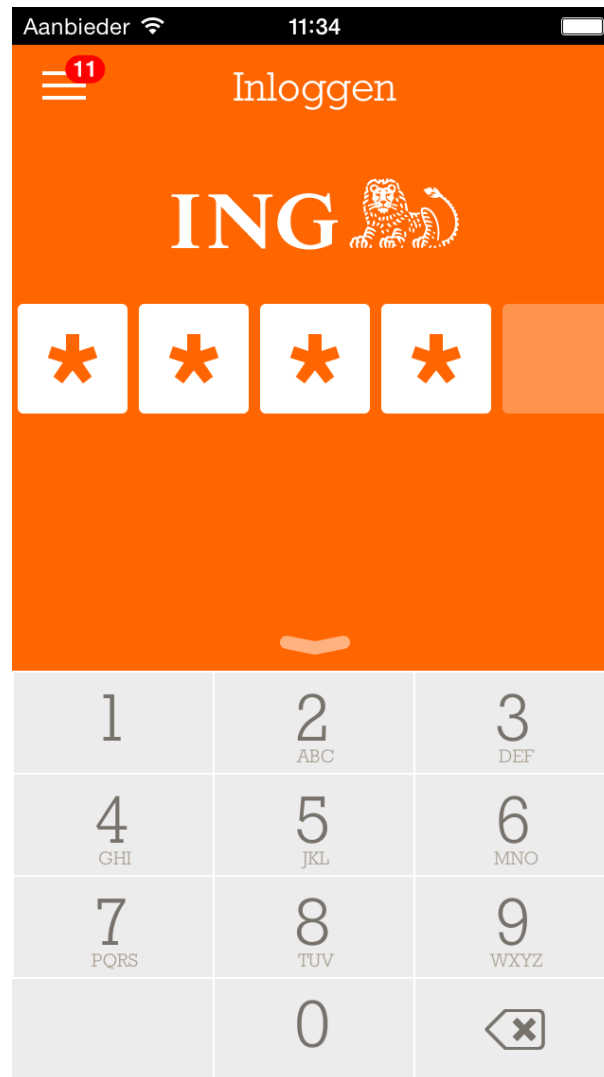


Scrum





We CAN do IT !



a completely new App emerged



Reminder!



@ 8th of November 2011



And here we go again ...

100.000 activations

after just three days

One year, four months later...

2 million downloads

1.6 million active apps

1.2 million customers

a million logins a day

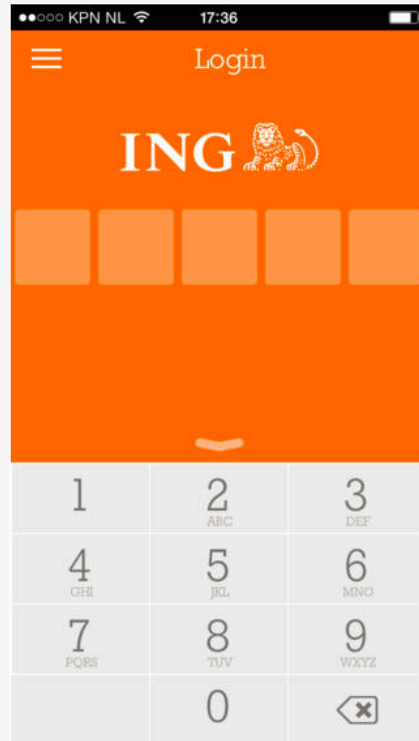




‘Listen’

Screenshots

iPhone | iPad



Customer Reviews

Eindelijk beleggen!!! ★★★★★
by Grim Reaper62

Top gedaan, nu alleen nog de mogelijkheid bieden om vanuit de App orders in te kunnen leggen.

easy banking ★★★★★
by uunbound

well-designed app for mobile banking specially if you have investment account at ING. simple yet powerful!

Fantastisch ★★★★★
by Peter H.M. Jacobs

Geweldig tempo van upgrades. Erg mooi allemaal

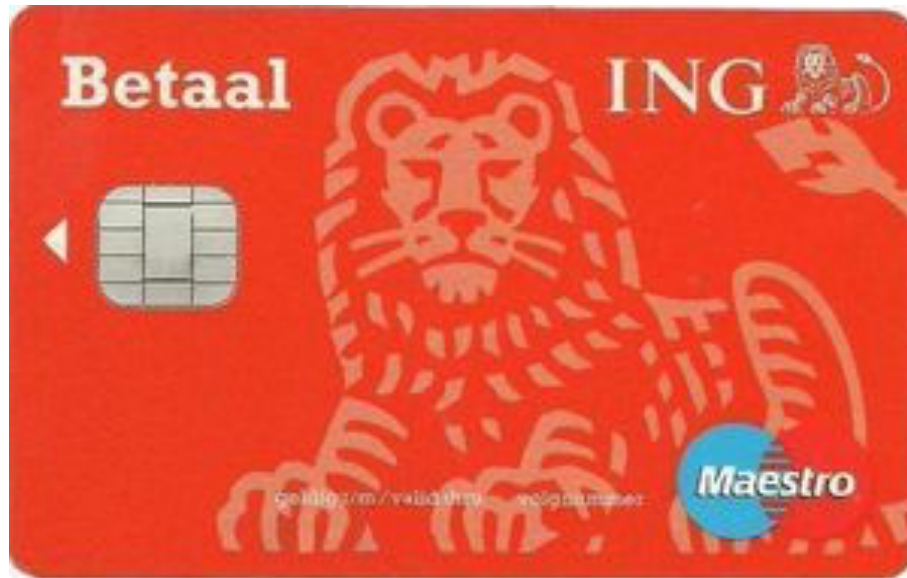
‘Reviews’



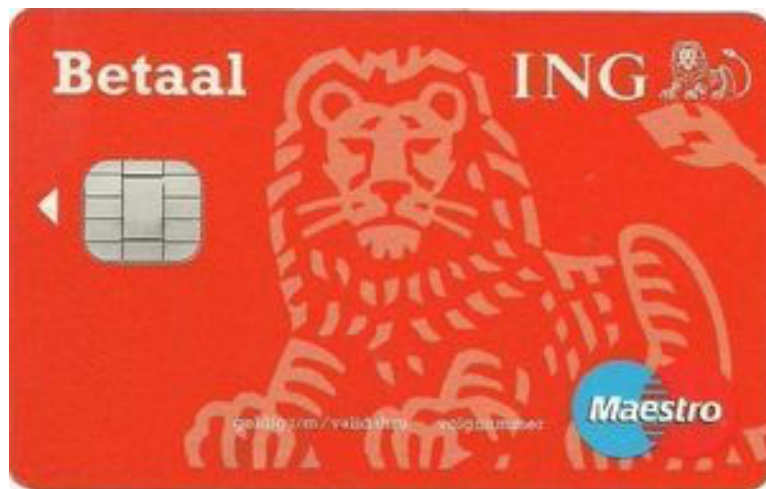


‘Features’

GeoBlocking:



GeoBlocking:



GeoBlocking:

Aanbieder

12:20

Annuleer

Instellen


Gereed

Betaalrekening

Account with 1 tx 17 months ago
NL46 INGB 0001 1110 06

Pasgebruik

 Wereld 

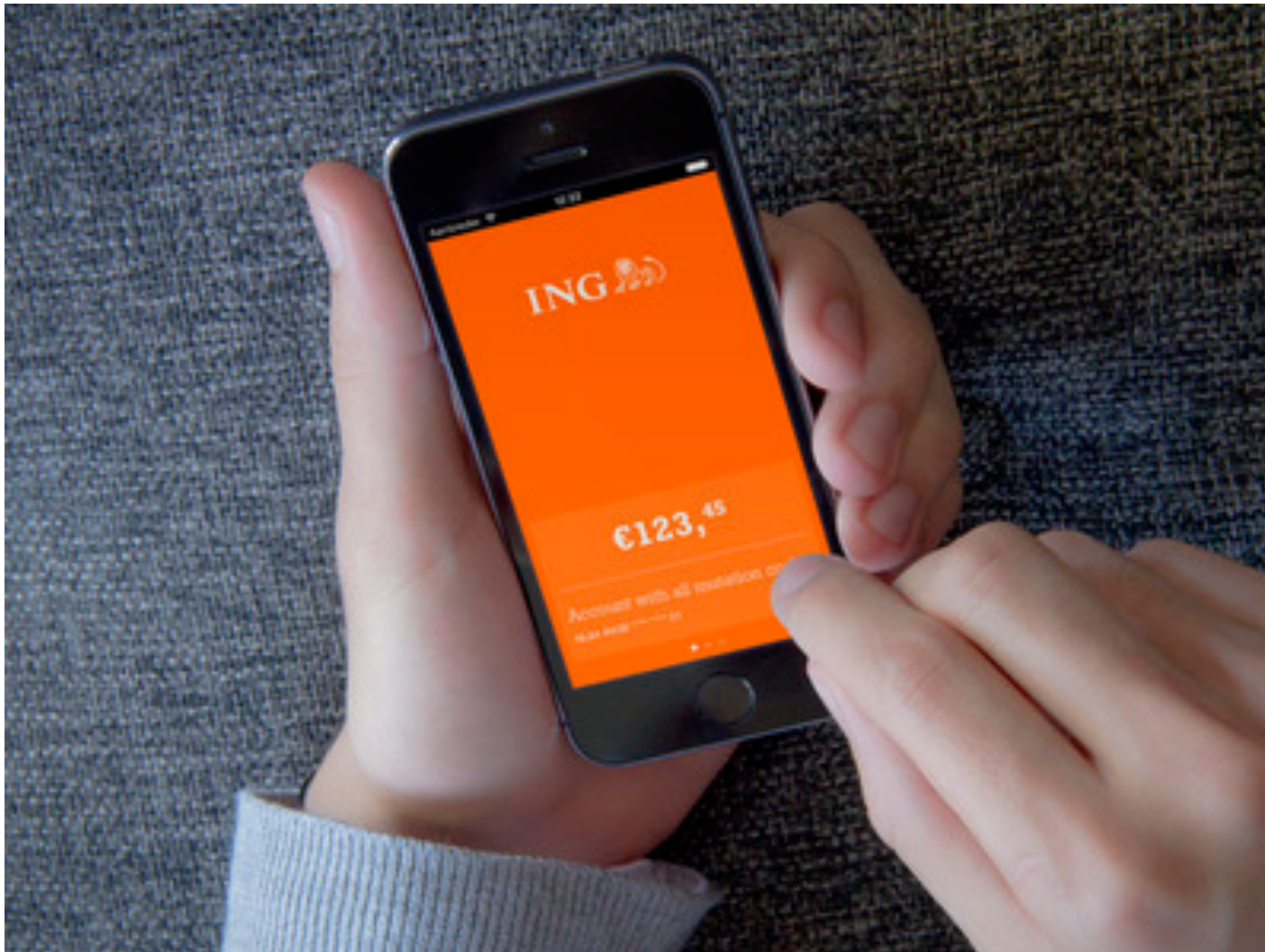
 Begindatum
Vandaag

 Einddatum
Geen

Het pasgebruik geldt voor alle passen van deze Betaalrekening. Het duurt maximaal 24 uur voordat wijzigingen in het pasgebruik zijn doorgevoerd.



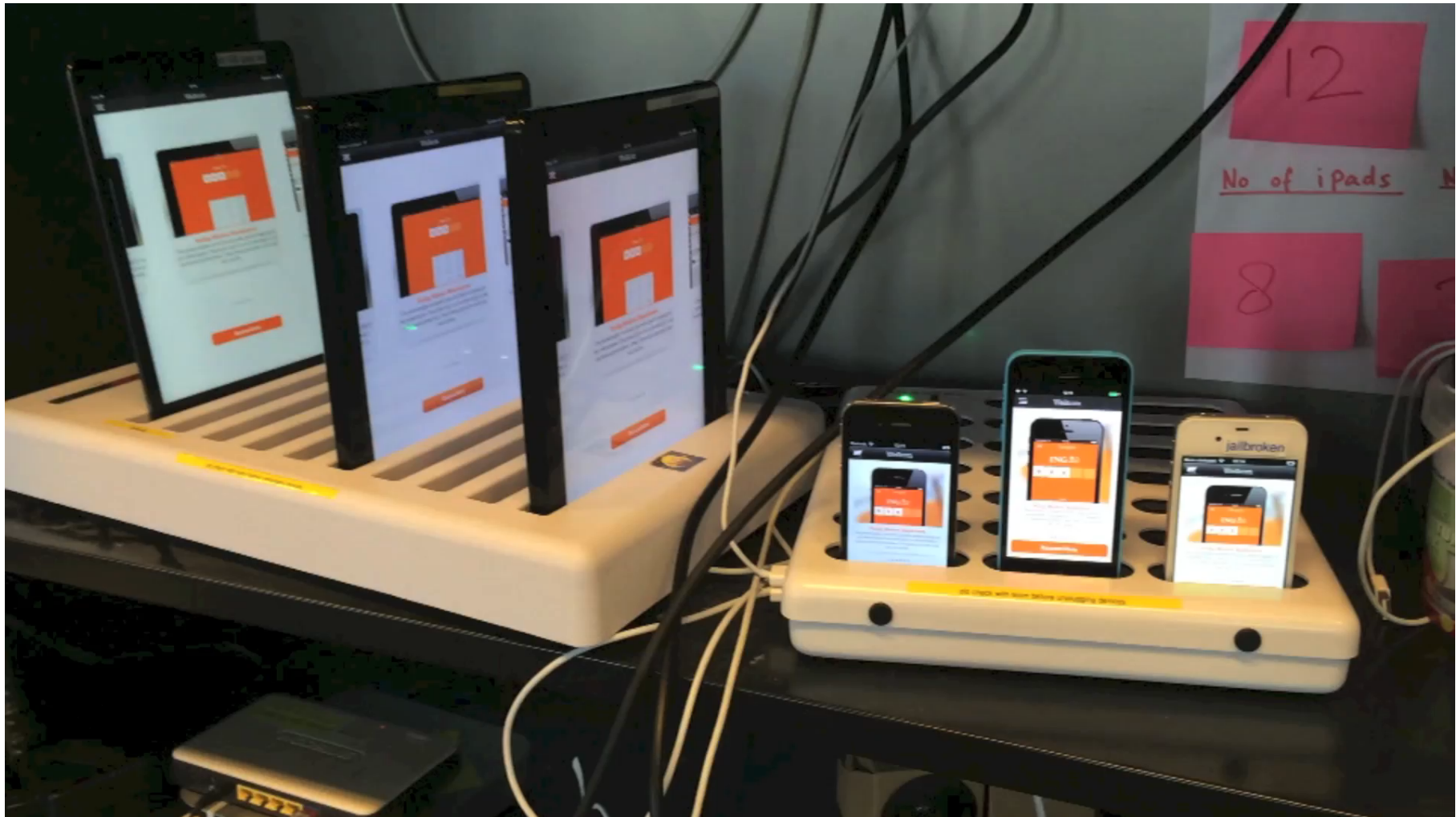
Balance before login:



iDEAL Payment:



Yvonne for testing



Future



Thank you