TECHNISCHE UNIVERSITÄT DRESDEN

Department of Computer Science Institute for System Architecture, Chair for Computer Networks

Application Development for Mobile and Ubiquitous Computing

Seminar Task

Final Presentation

GroupNo. 11
Team: Twist (Florian Schmidt & Max Kattner)

The Problem: Without Twist

Flo

The number you've called is currently not available

Max recently changed his phone number,
but he didn't tell his friend Flo.
Now Flo can't reach him anymore.

The Problem: With Twist

Dialing … "Hi, this is Flo"

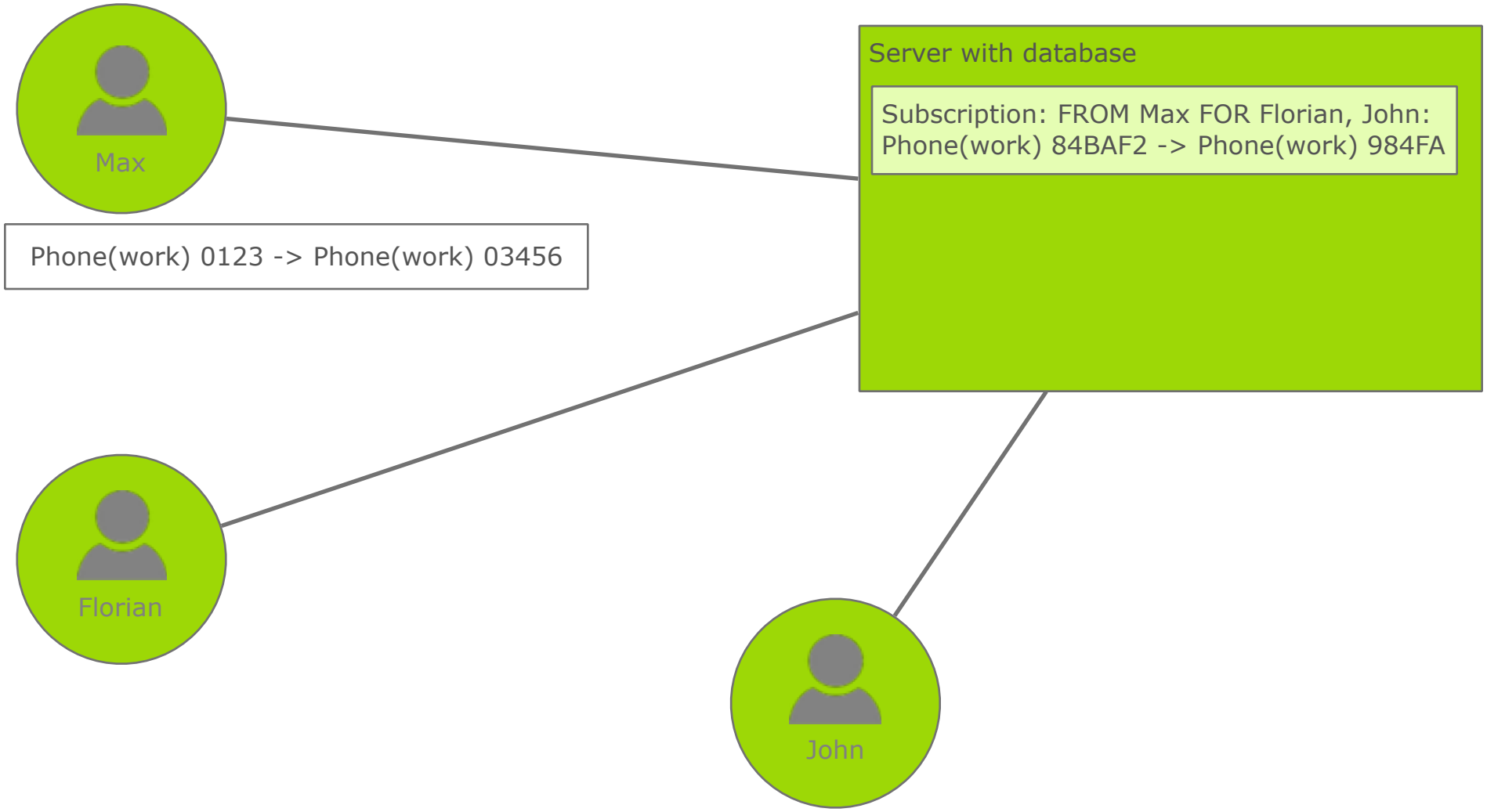
Flo

Max recently changed his phone number,

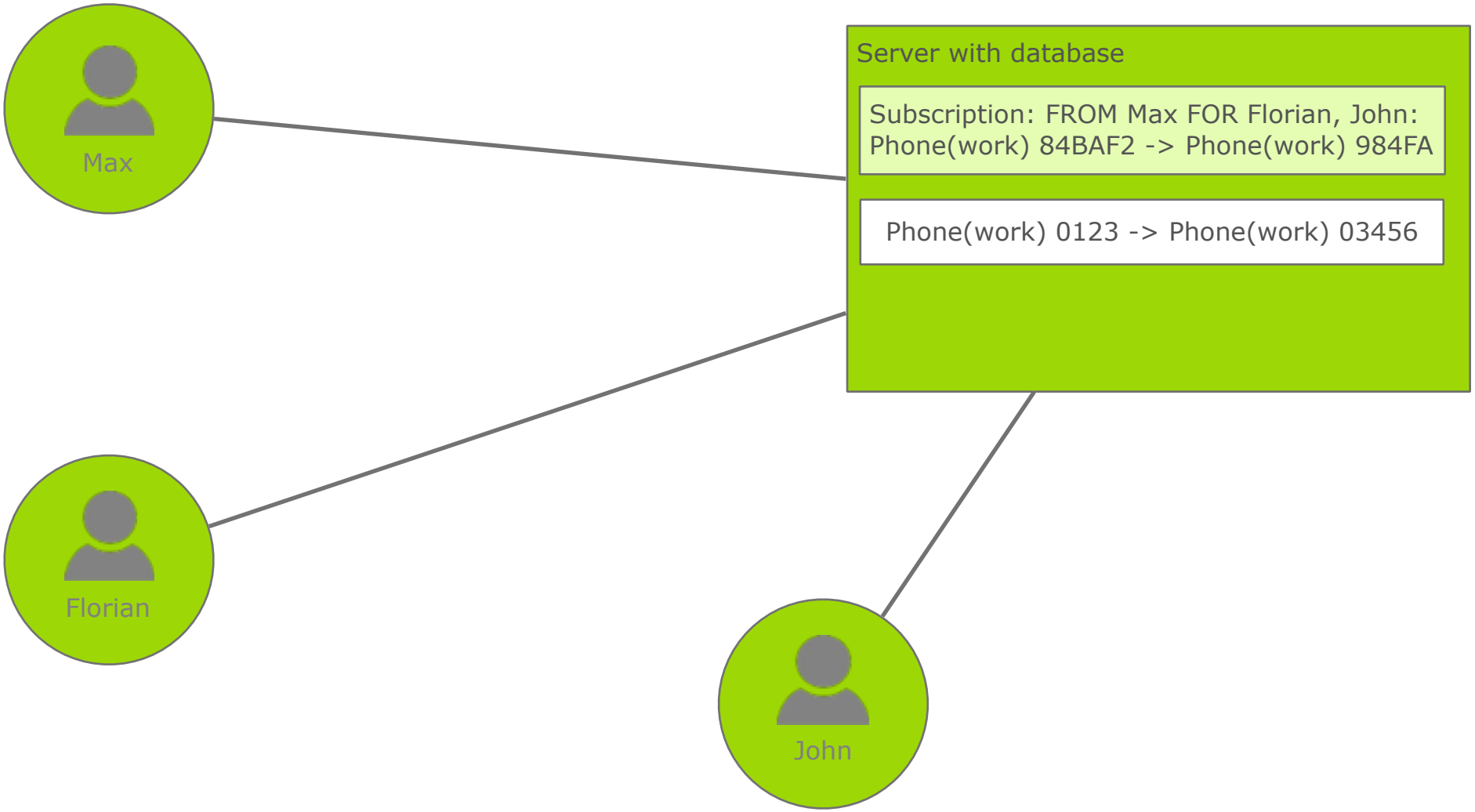
Twist automatically updated Flo's address book.

Flo can now easily call Max again.

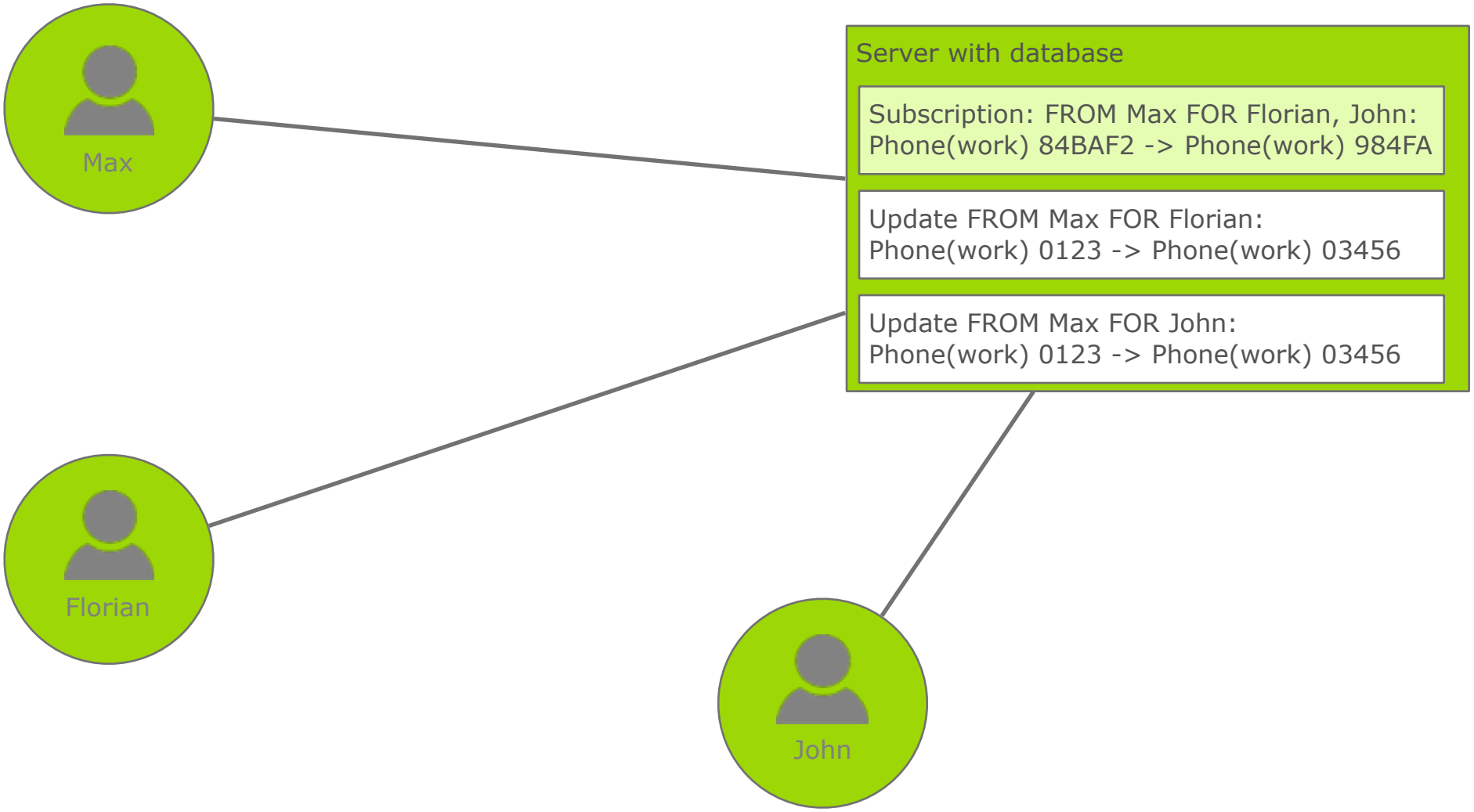
Information Flow



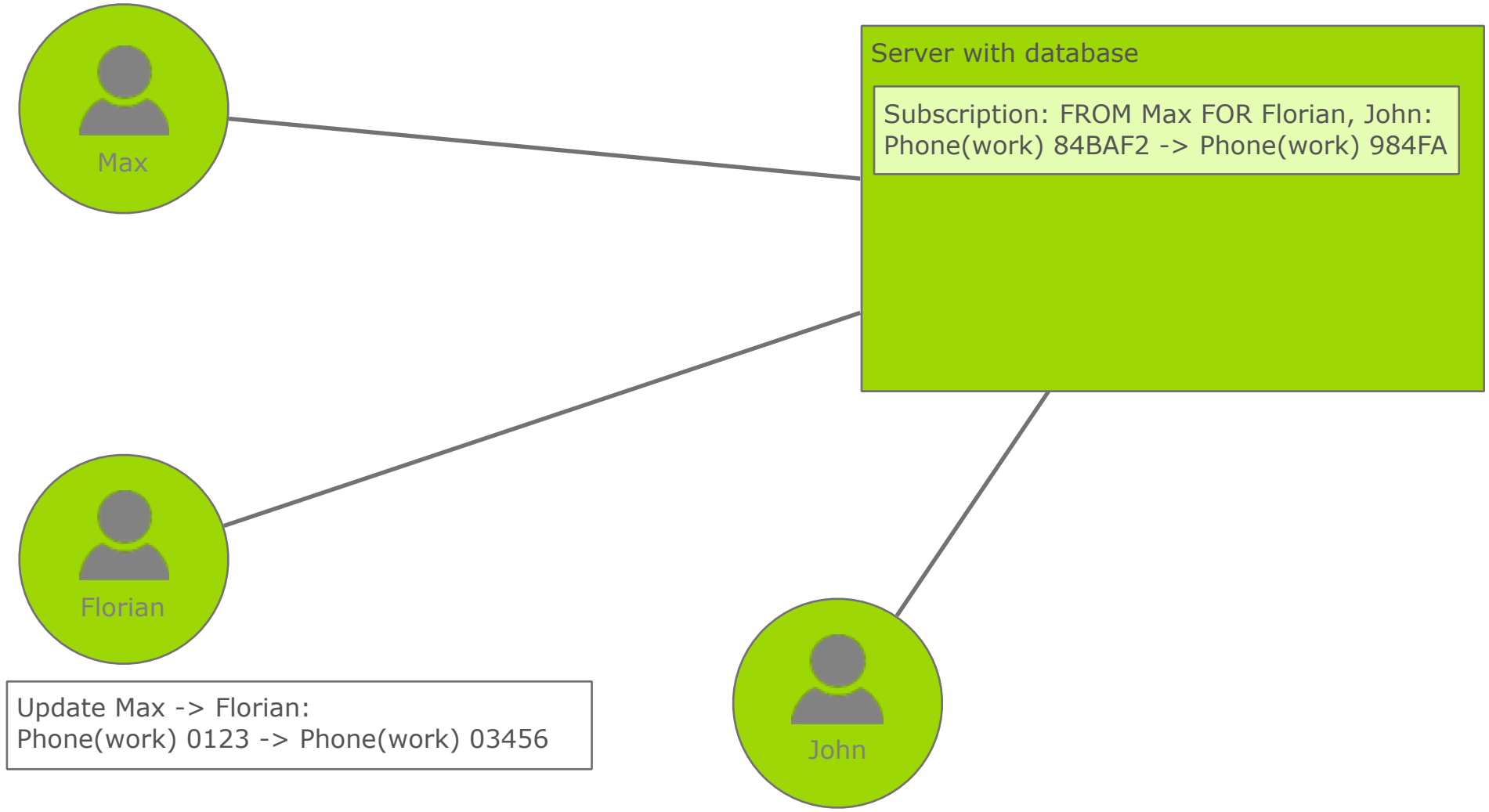
Information Flow



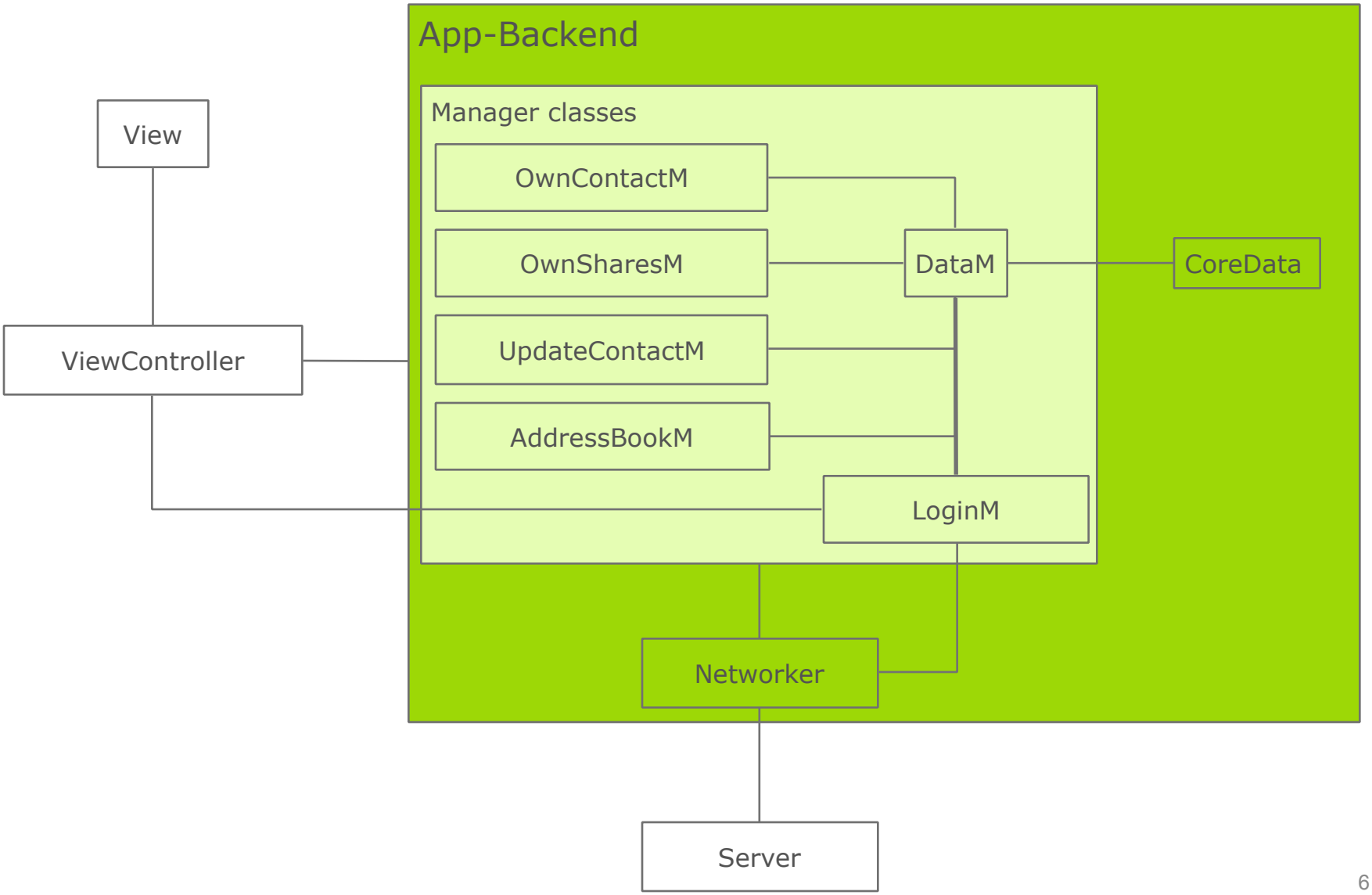
Information Flow



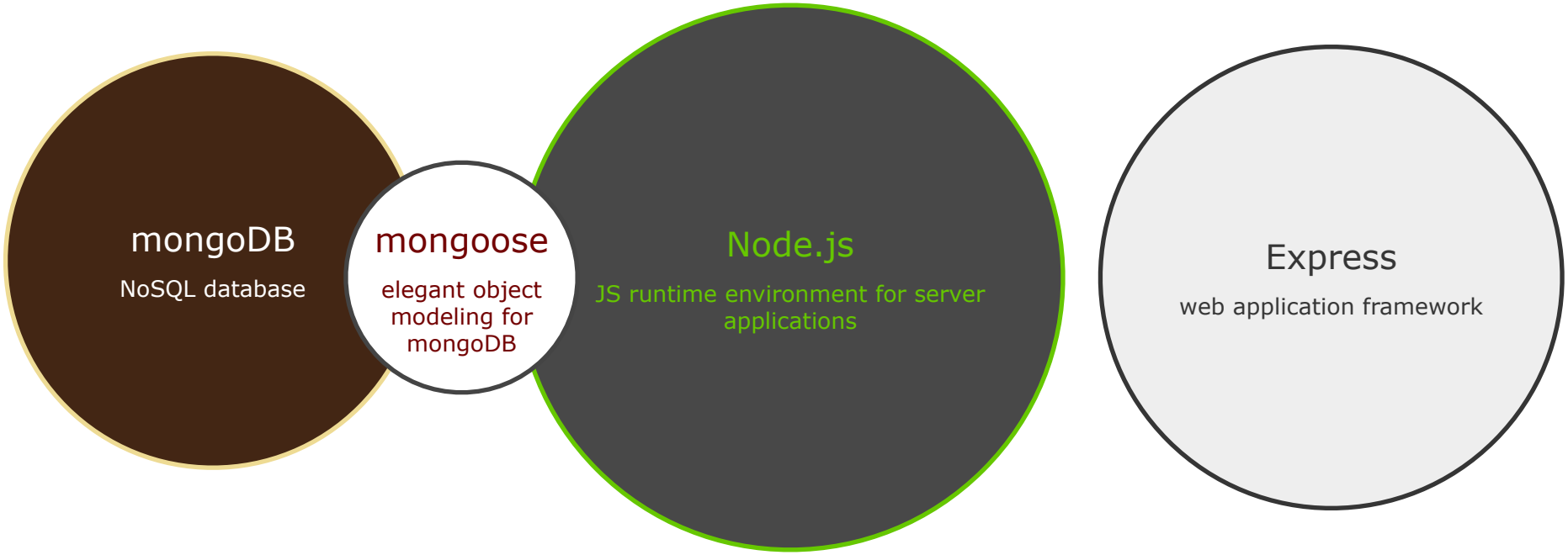
Information Flow



iOS App Architecture



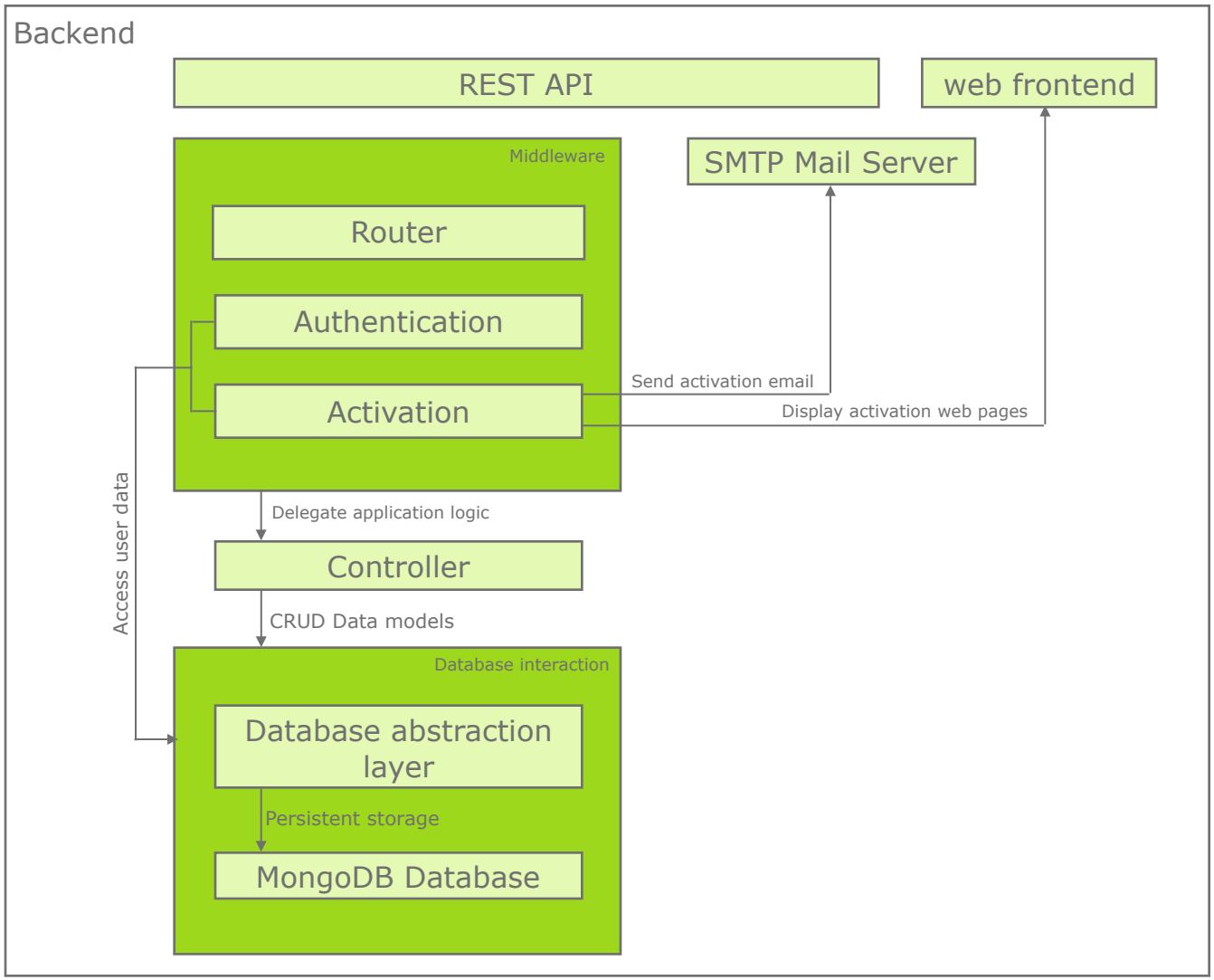
The Backend



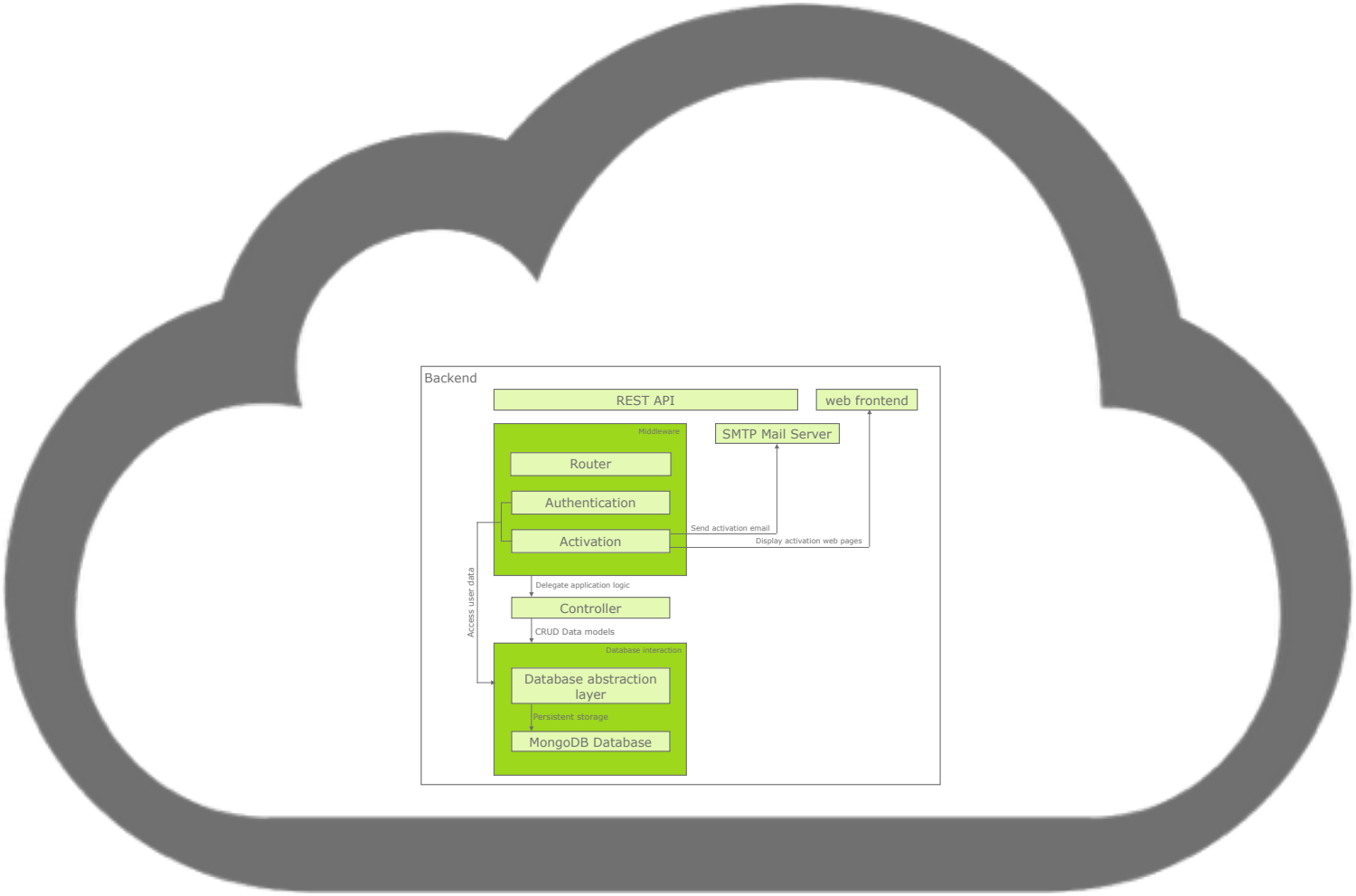
mocha

test framework

The Backend


Backend
REST API
web frontend
Middleware
SMTP Mail Server
Router
Authentication
Activation
Send activation email
Display activation web pages
Access user data
Delegate application logic
Controller
CRUD Data models
Database interaction
Database abstraction layer
Persistent storage
MongoDB Database

The Backend



Ubuntu 14.04 LTS hosted on digitalocean.com

Context adaptation and challenges

- smart communication
  - App’s caching mechanism enables adaption to low bandwidth and connectivity issues (save requests until response and eliminate duplicates)
  - Timestamps in requests enable smart REST API requests:

```
IF timestamp_app OLDER THAN timestamp_server
   send new data
ELSE
   send message: nothing changed
```

Context adaptation and challenges

- Identification and mapping of address book entries
  - Unique combination of *type*, *label*, *hashedValue* identify one address book entry:

```
{
     type: "phone",
     label: "iPhone",
     hashedValue: "C34EF12"
}
```

  - Saving Arrays of *oldLabels* and *oldValueHashes* allows mapping updates to existing entries

Context adaptation and challenges

- Server adds unique ID to each entry
- Querying over ID enables easier communication between App and Server
- CoreData In-App database allows mapping of IDs and *(type,label,hashedValue)*-Keys on user's address book

Lessons learned

- early user testing (Testflight) and bug tracker highly important
- REST API definition anything but trivial
- non-sequel databases require to think differently
- test driven development is crucial for server implementation

Thank you.

twist-app.com