A Lazy Developer’s Approach to Building Real-Time Web Applications
Markus Renschler

Creativity Hobby

Musician

Money Making Hobby

Cloud Solution Architect
The Challenge

• Play songs
• Have people sing along
• Song books „do not scale“
• Music stand software
• … with API

How to get lyrics to the people with minimum effort?
Demo

Visit

https://live.fiftysix.site
Why being lazy matters

- **Too eager**
  complicated structures, boring to implement, hard to maintain, create code duplicates

- **Too lazy**
  getting nothing done

- **The sweet spot**
  lazy enough to search for easy solutions, eager enough to get things done
Technical Approach

REST-ish API

live.fiftysix.site
Small VM at a cloud provider

NATS
Message Broker

Static Web Page
HTML / JS / CSS

HTTPS

WSS

Local Wifi
Poll for new songs & get lyrics

Internet Connection
NATS, Authenticated

Push lyrics to subject "lyrics"

Javascript App:
• connect to NATS over Websocket
• subscribe to "lyrics"
• update song text on new message

Push lyrics
NATS, Authenticated

Static web page
Fan-Out Pattern

Payload

Publish on subject „lyrics“

Message Broker

Clients subscribed on subject „lyrics“
NATS Configuration

```
authorization {
  default_permissions = {
    subscribe = [ "lyrics", "lyrics." ]
  }
}
LYRICS_PUB = {
  publish = [ "lyrics", "lyrics." ]
}
users = [
  { user: anon-user },
  { user: publisher, password: $2a$...0nrVS, permissions: $LYRICS_PUB }]
}
websocket {
  port: 8443
  compression: true
  handshake_timeout: "5s"
  tls {
    cert_file: "/data/tls/live.fiftysix.site.crt"
    key_file: "/data/tls/live.fiftysix.site.key"
    timeout: "5s"
  }
  no_auth_user: anon-user
```
Read on, here …

- [github.com/au-ee/fosdem-lyrics/](https://github.com/au-ee/fosdem-lyrics/)
- [nats.io](https://nats.io) (NATS)
- [caddysiertserver.com](https://caddyserver.com)

Alternative message broker

- [emqx.io](https://emqx.io) (MQTT / Websockets)

---

Gregor Hohpe, Bobby Woolf
*Enterprise Integration Patterns: Designing, Building, and Deploying Messaging Solutions*
Addison-Wesley Professional, 2003 (!)

[www.enterpriseintegrationpatterns.com](https://www.enterpriseintegrationpatterns.com)