firebrok

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PROJET

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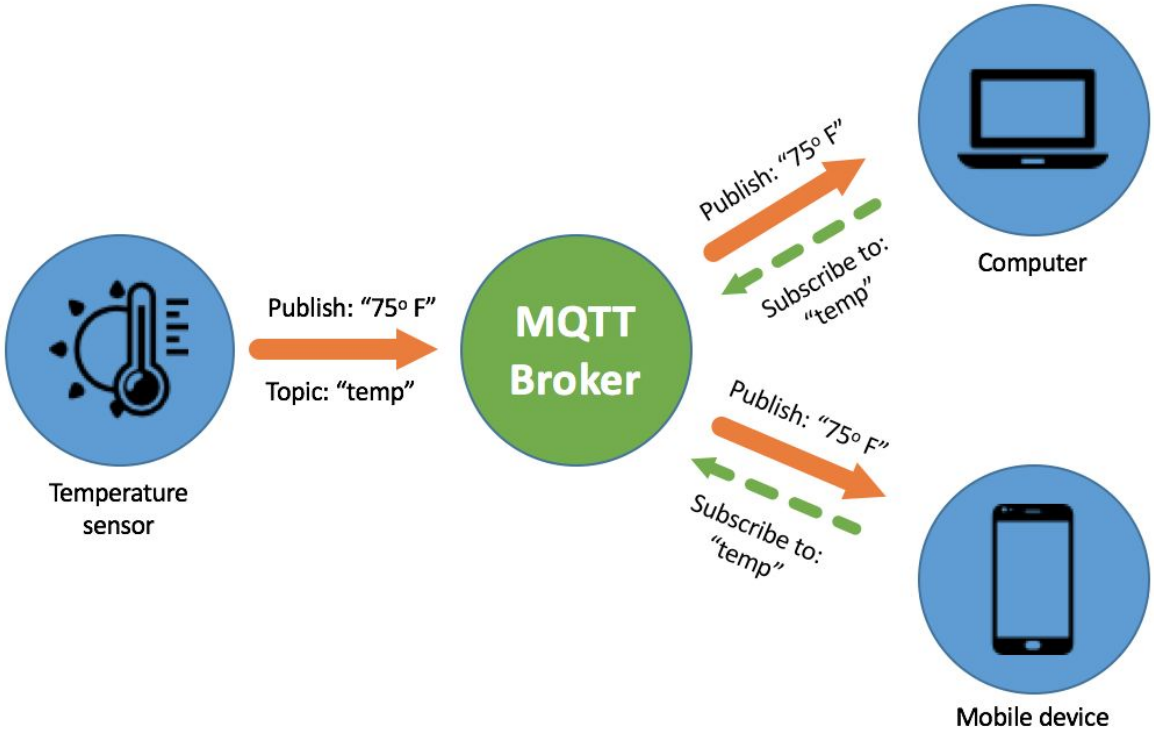
PROTOCOLE MQTT



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TECHNOLOGIES CHOISIES

Technologies serveur

Technologies client

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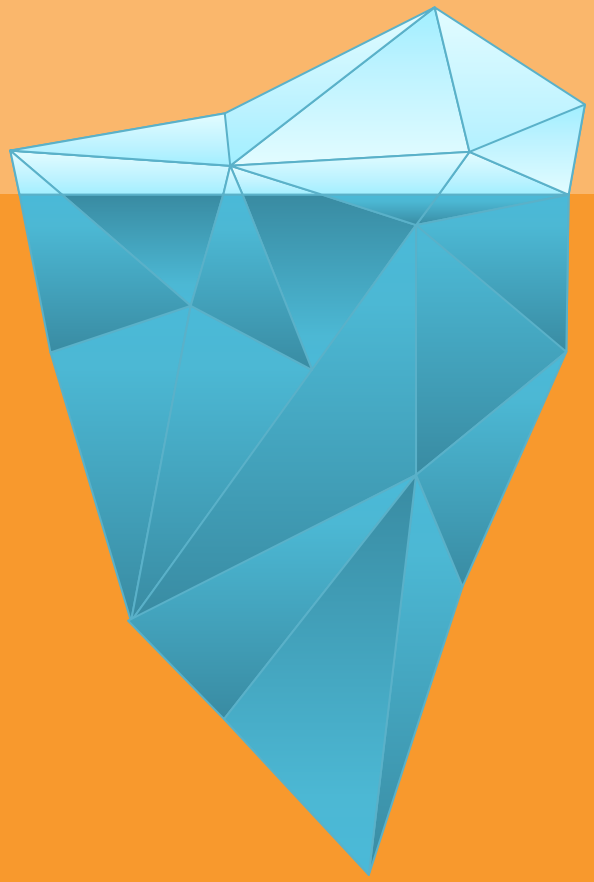
INFRASTRUCTURE



Dashboards
Développé indépendamment de la plateforme.

Base de données,
Firebase

Aggregateur
Serveur node.js

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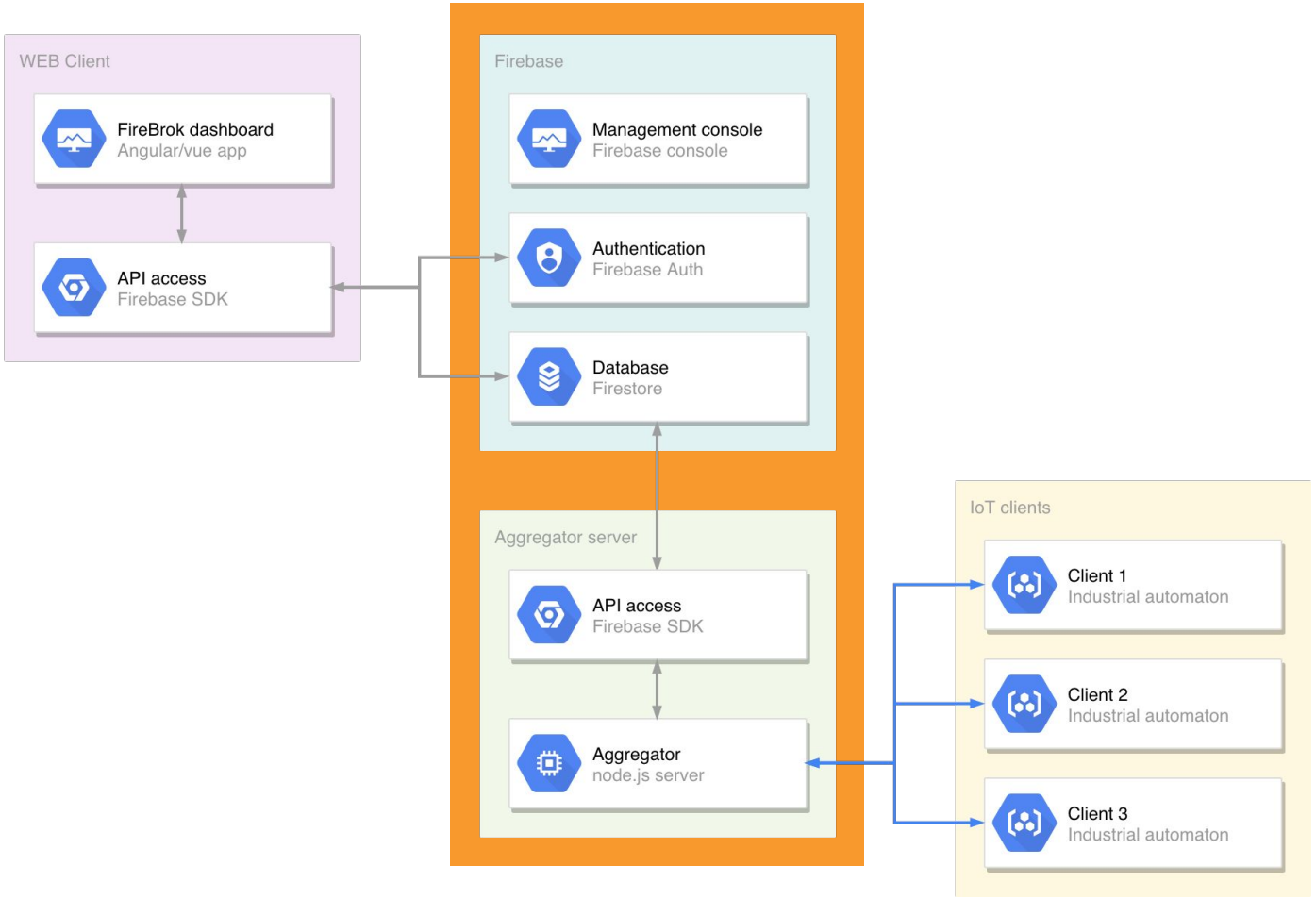
INFRASTRUCTURE



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AGGREGATEUR
FONCTIONNEMENT
MQTT

```
var net = require('net')
var mqttCon = require('mqtt-connection')
var server = new net.Server()

server.on('connection', function (stream) {
    var client = mqttCon(stream)

    // Automaton connected
    client.on('connect', function (packet) {

      var automatonName = packet.username
      var automatonId = packet.password.toString('utf8')

    })

})

// Listen on port 1883
server.listen(1883)

console.log("Listening ... ")
```

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AGGREGATEUR
FONCTIONNEMENT
FIREBASE

```
var admin = require("firebase-admin");

var serviceAccount = require("./token/firebrok-adminsdk.json");

admin.initializeApp({
    credential: admin.credential.cert(serviceAccount),
    databaseURL: "https://firebrok.firebaseio.com"
});

var db = admin.firestore();
```

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AGGREGATEUR
FONCTIONNEMENT
AUTORISATIONS

```
automatonsCol.doc(automatonId).get()
  .then(doc => {
    if (!doc.exists || doc.data().name ≠ automatonName) {
      console.log(`Automaton ${automatonName} refused`)
      client.destroy()
    } else {
      console.log(`Automaton ${automatonName} authorized`)

      automatonsCol.doc(automatonId).set({
        connected: true
      }, { merge: true })
      authorized = true
    }
  })
  .catch(err => {
    console.log(err)
    client.destroy()
  })
```

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AGGREGATEUR
FONCTIONNEMENT
MESSAGES

```
let fluxDoc = automatonsCol
                .doc(automatonId)
                .collection("topics")
                .doc(topic)
                .collection("flux")
                .doc()

fluxDoc.set({
  message: packet.payload.toString('utf8'),
  timestamp: admin.firestore.Timestamp.fromDate(currentDate)
}, { merge: false });

console.log(`Automaton ${automatonName} send :`)
console.log(`Topic : ${topic}`)
console.log(`Message : ${packet.payload.toString('utf8')}`)
```

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AGGREGATEUR
TEST
SCRIPT PYTHON

```python
from paho.mqtt.client import Client

# Create the mqtt client
mqtt_client = Client(username)

# Assign events
mqtt_client.on_connect = on_connect
mqtt_client.on_disconnect = on_disconnect

# Connexion
mqtt_client.connect('endpoint')

# Publish messages
mqtt_client.publish('mon topic', 'mes donées')
```

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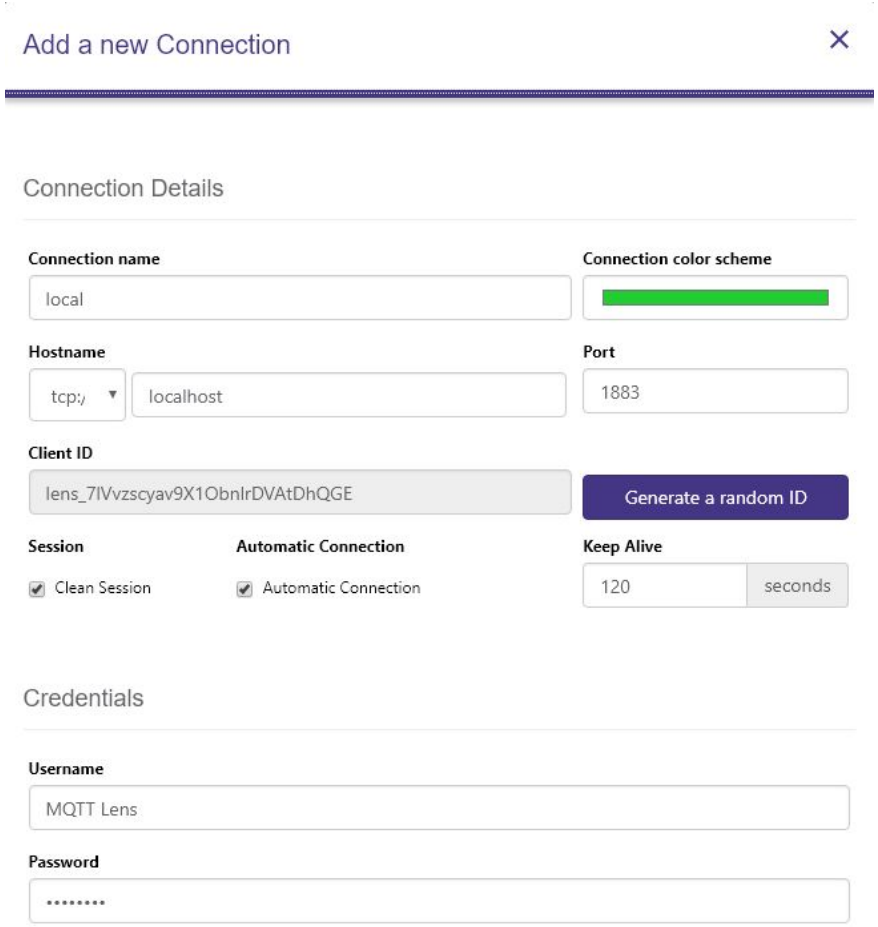
AGGREGATEUR
TEST
MQTT LENS



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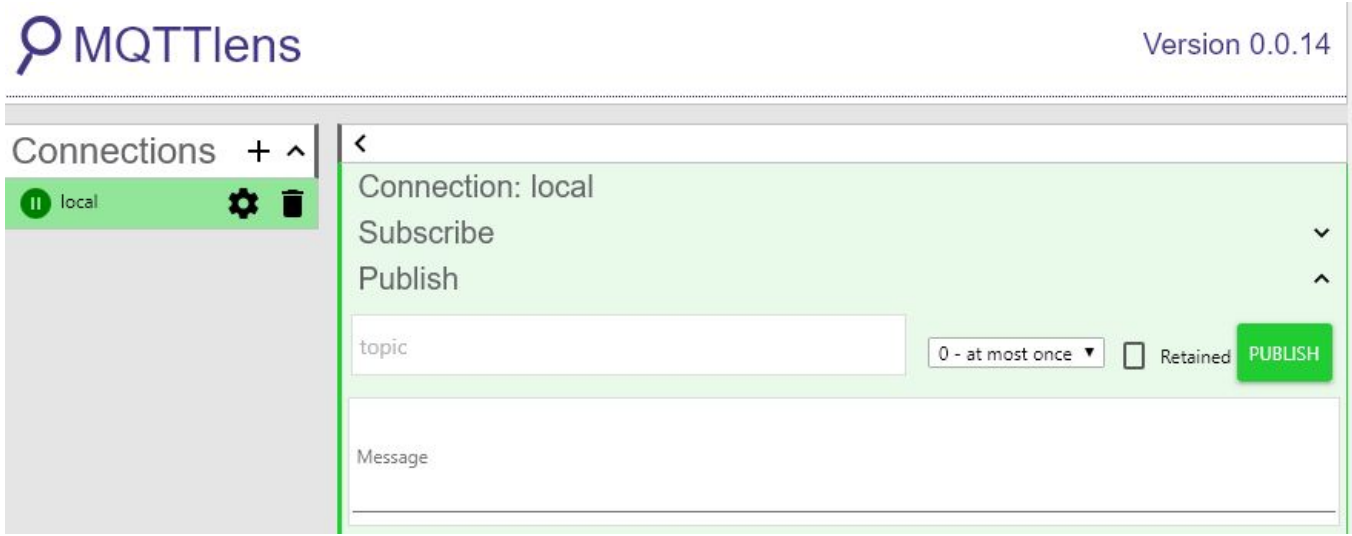
AGGREGATEUR
TEST
MQTT LENS



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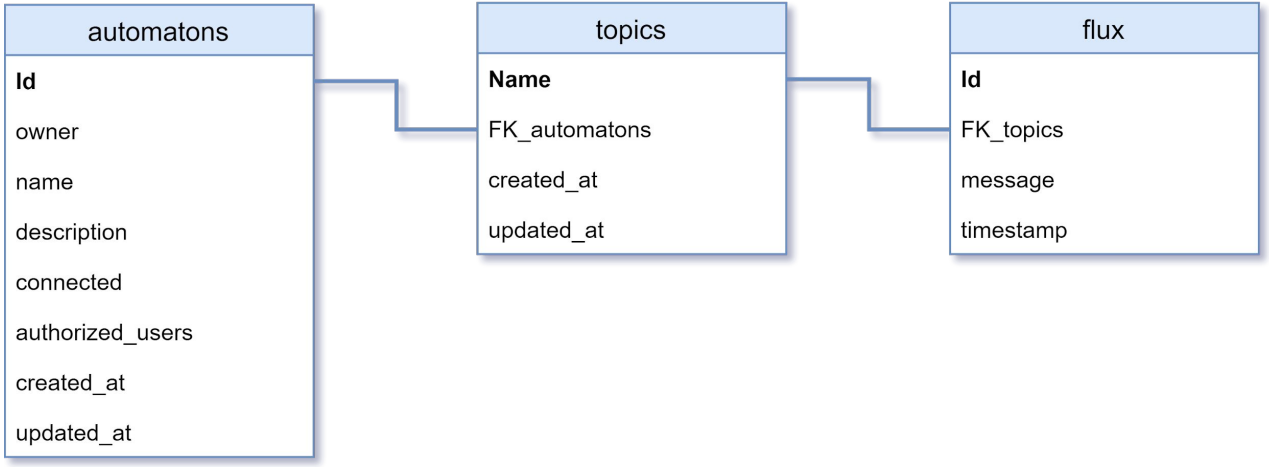
FIREBASE
BASE DE DONNÉES



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FIREBASE
BASE DE DONNÉES


```
{
    "automatons": {
        "HD3JKT7Cmld93BB1QVHV": {
            "owner": "msDGeAqwfOPSDSwFUxxQgdWm5352",
            "name": "Mon automate",
            "description": "Il est dans la salle C333",
            "connected": "true",
            "authorized_users": [
                "khLsPy9tjxRJt4GlWOuij1rKMNu2",
                "9EljJmOY6Yg5CqiyyZPUVUEUR382"
            ],
            "created_at": "20 mars 2019 à 09:04:38 UTC+1",
            "updated_at": "21 mars 2019 à 10:25:08 UTC+1",
            "topics": {
                "ultrasonic": {
                    "name": "Ultrasonic",
                    "created_at": "20 mars 2019 à 09:05:55 UTC+1",
                    "updated_at": "21 mars 2019 à 10:25:08 UTC+1",
                    "flux": {
                        "08WfqmCR82hgfbS3DDuq": {
                            "message": "51.68",
                            "timestamp": "20 mars 2019 à 09:05:55 UTC+1"
                        },
                        "0A41ZrMipalJnEfy18q0": {
                            "message": "60.38",
                            "timestamp": "21 mars 2019 à 10:25:08 UTC+1"
                        }
                    }
                }
            }
        }
    }
}
```

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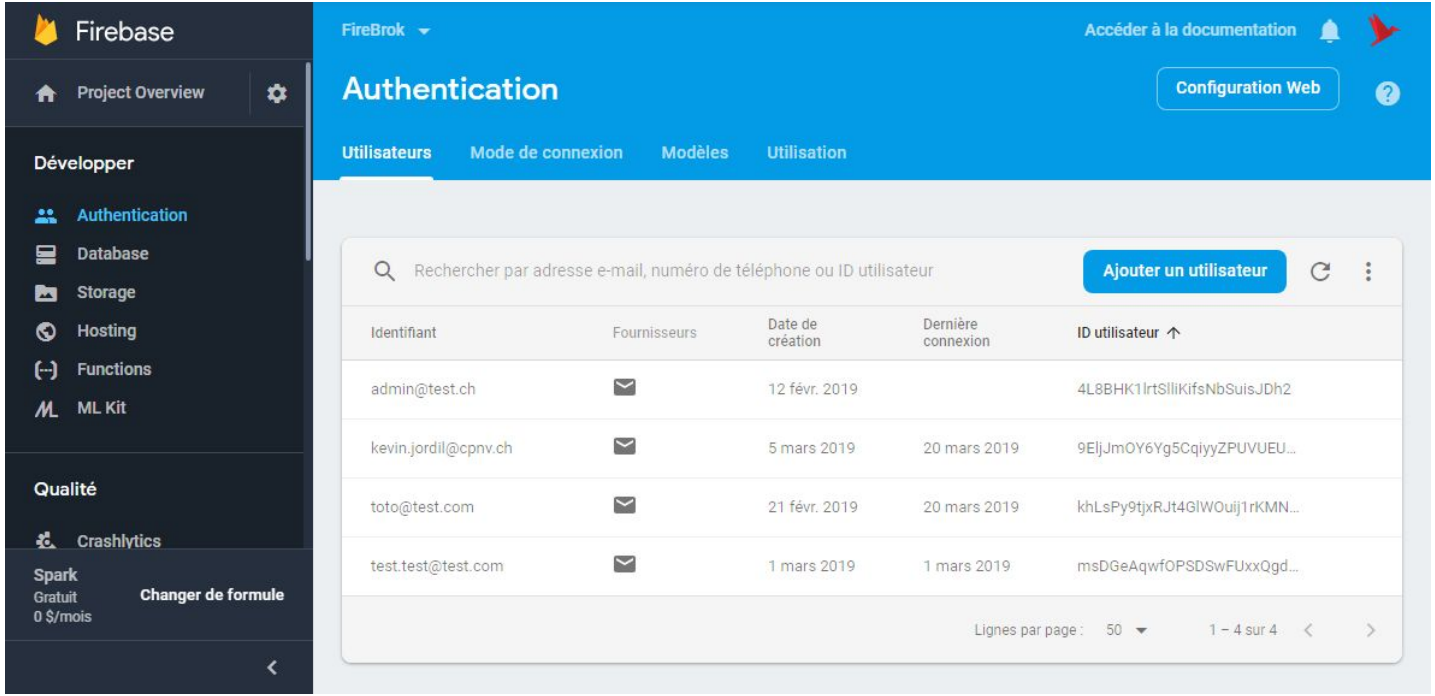
FIREBASE
AUTHENTIFICATION



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FIREBASE
AUTHENTIFICATION

```
import { firebase } from "firebase";

await firebase
        .auth()
        .signInWithEmailAndPassword(this.email, this.password);

firebase
    .auth()
    .onAuthStateChanged(user => {
        this.authenticated = user
    })
```

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DASHBOARD
EXAMPLE
VUE

```
<template>
  <ul>
    <li v-for="automaton of automatons" :key="automaton.id">
      <p>{{ automaton.name }}</p>
    </li>
  </ul>
</template>

<script>
import { firebase } from 'firebase'

export default {
  firestore() {
    return {
      automatons: firebase
        .firestore()
        .collection('automatons')
        .orderBy('name', 'desc')
    }
  }
}
</script>
```

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DASHBOARD
EXAMPLE
ANGULAR

```
<ul>
  <li *ngFor="let automaton of automatons$ | async">
    <p>{{ automaton.name }}</p>
  </li>
</ul>
```

```
@Component({})
export class MyAwesomeComponent implements OnInit {

  automatons$: Observable<Automaton>;

  constructor(private firestore: AngularFirestore) { }

  ngOnInit() {
    this.automatons$ = this.firestore
      .collection(
        'automatons',
        ref => ref.orderBy('name', 'desc')
      )
      .valueChanges()
  }
}
```

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SYNTHÈSE

Données centralisées

Services découplés

Temps réel

Intégration simple

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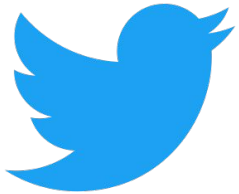
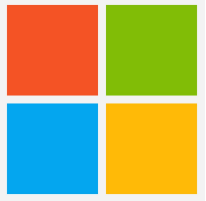
OUVERTURE
AUTHENTIFICATION





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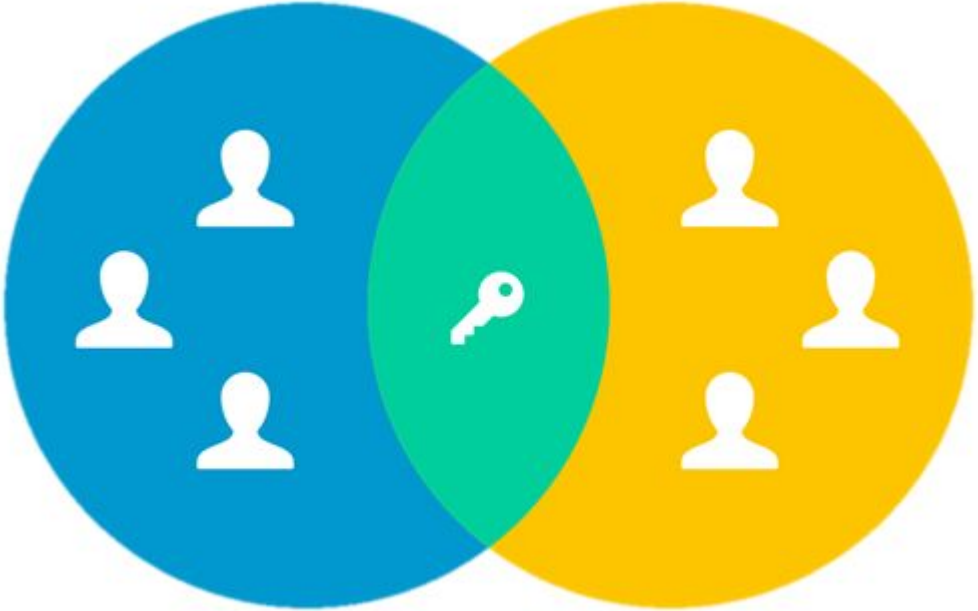
OUVERTURE
SYSTÈME DE
PERMISSIONS



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OUVERTURE
FORMAT DES DONNÉES

{JSON}

JavaScript Object Notation

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OUVERTURE
BROKER MQTT
COMPLET

Questions ?