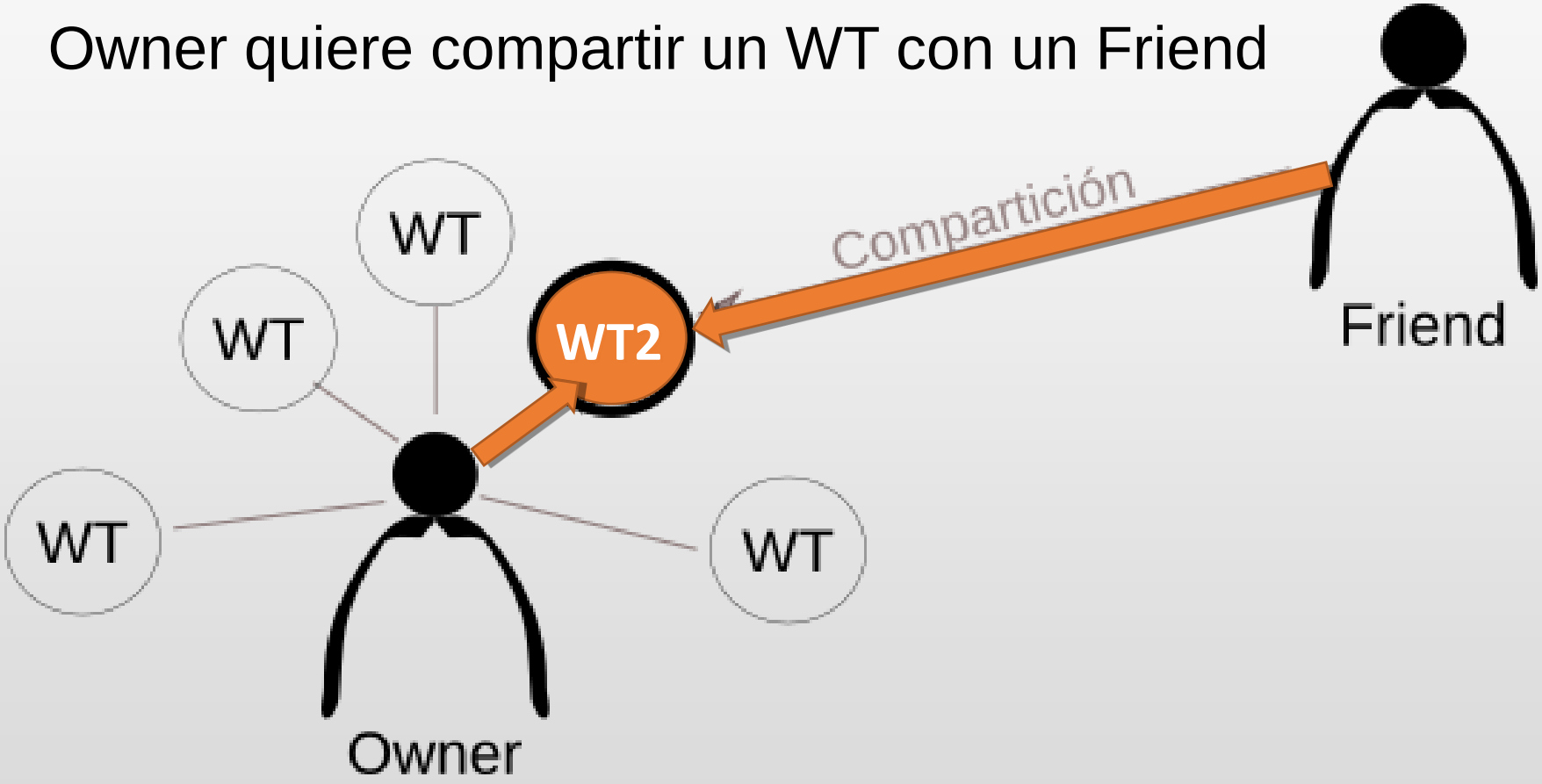
Social Access Controller

Daniel Salgado Población

Internet of Things (IoT)

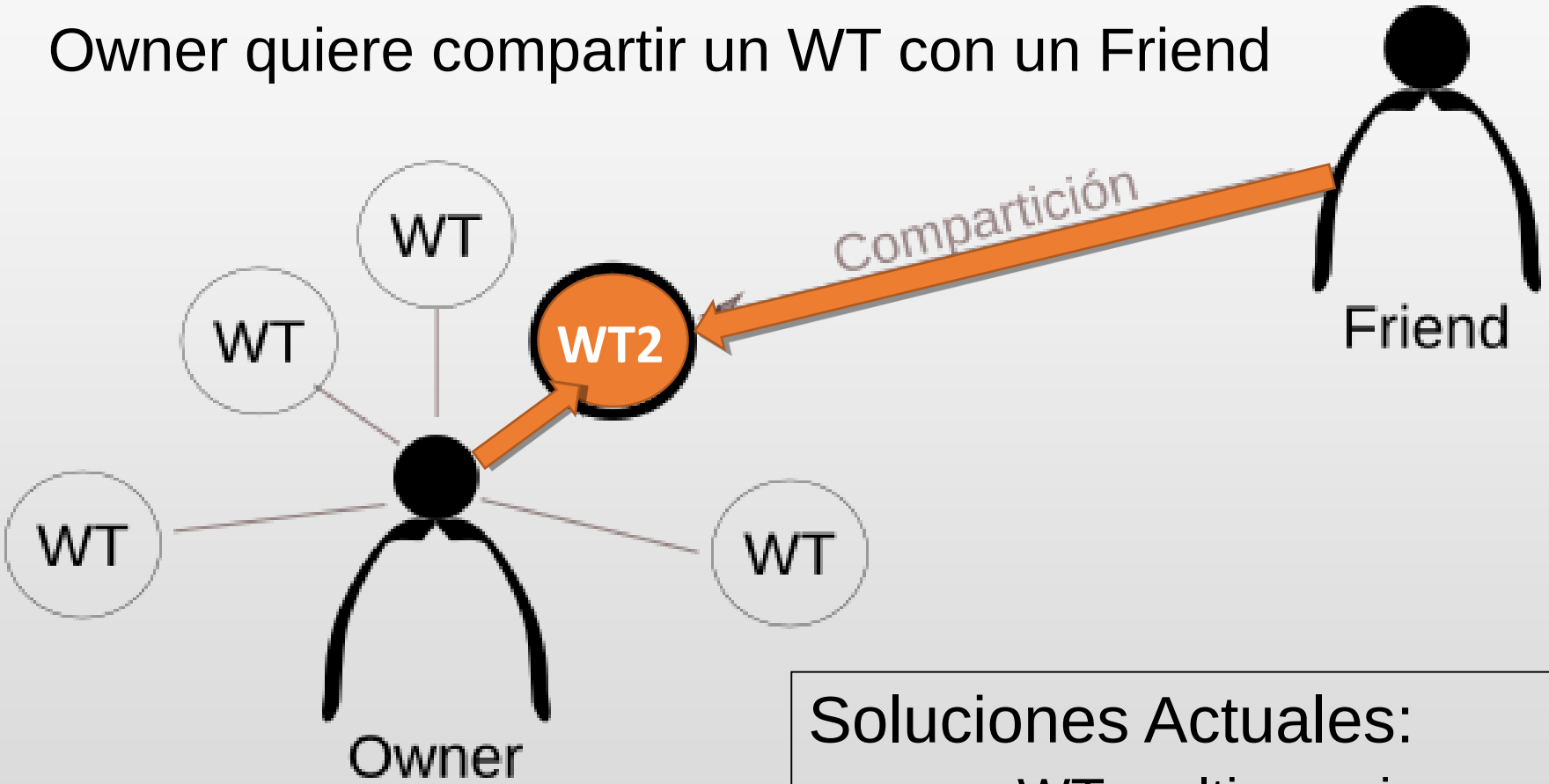
Problema a resolver

Owner quiere compartir un WT con un Friend



Motivación

Owner quiere compartir un WT con un Friend



Soluciones Actuales:

- WT multiusuario
- Compartir Credenciales

Motivación

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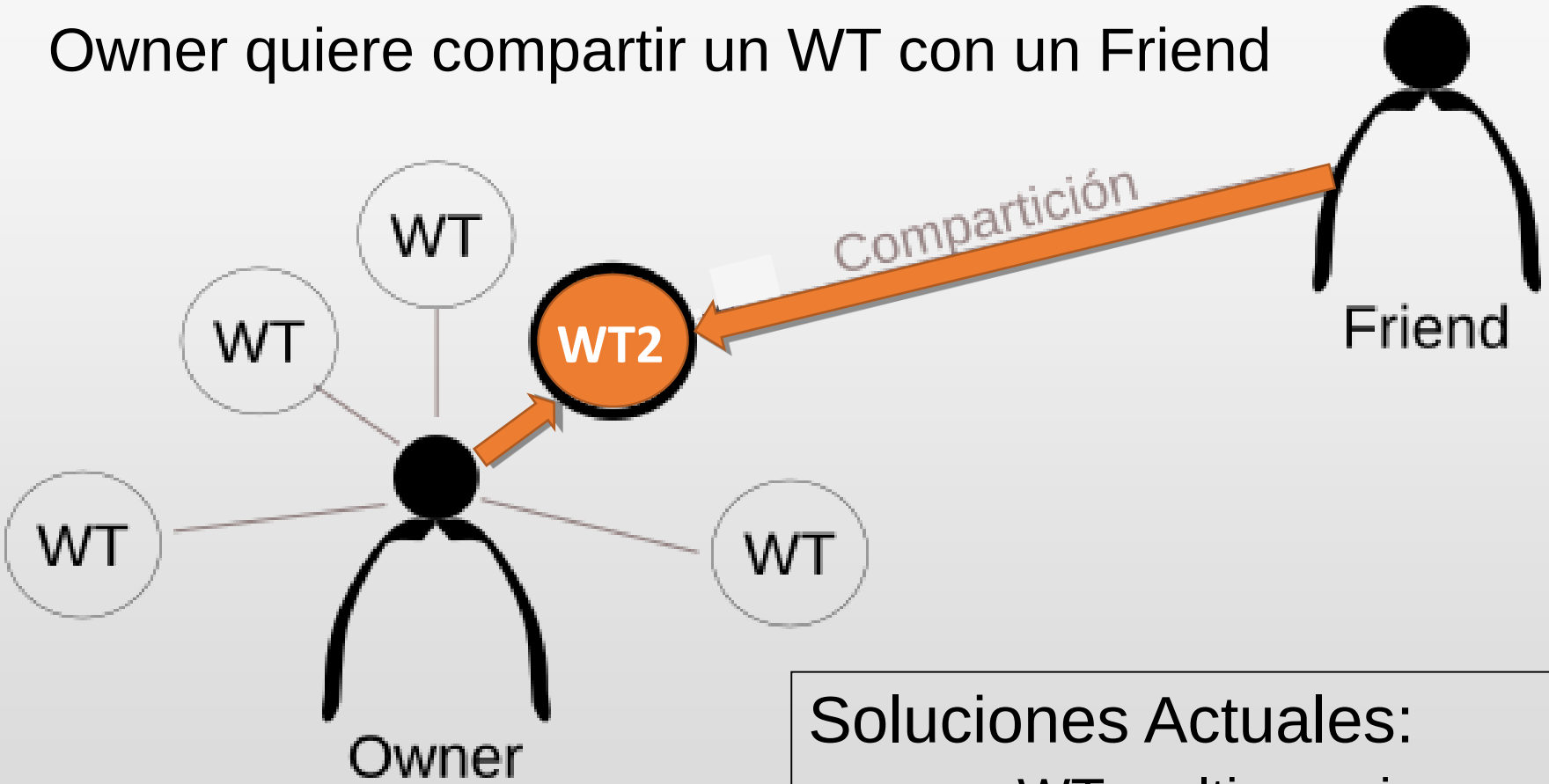
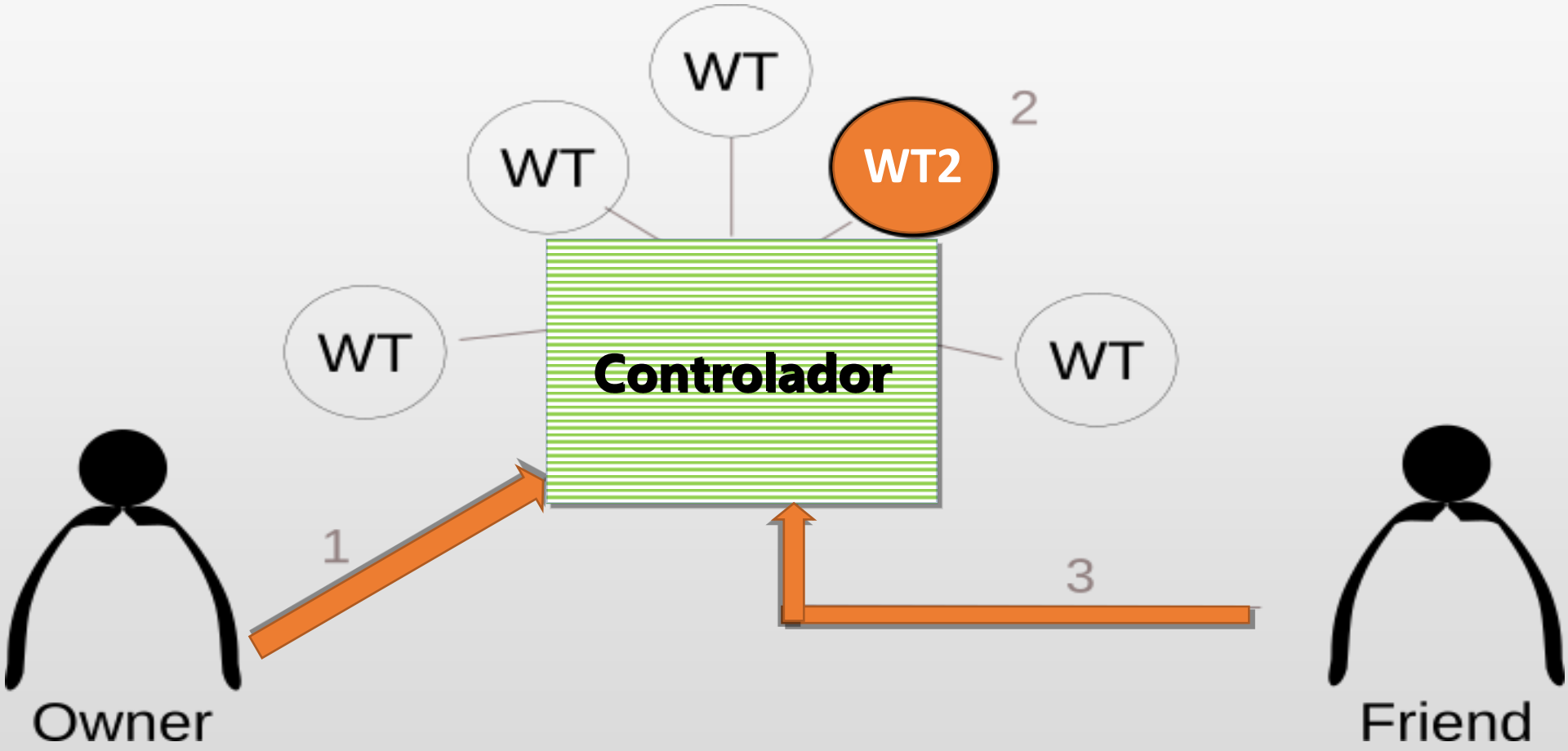


Soluciones Actuales:

- WT multiusuario
- Compartir Credenciales
- Comparticion Atómica

Esquema Solución General



Modelos

*WT

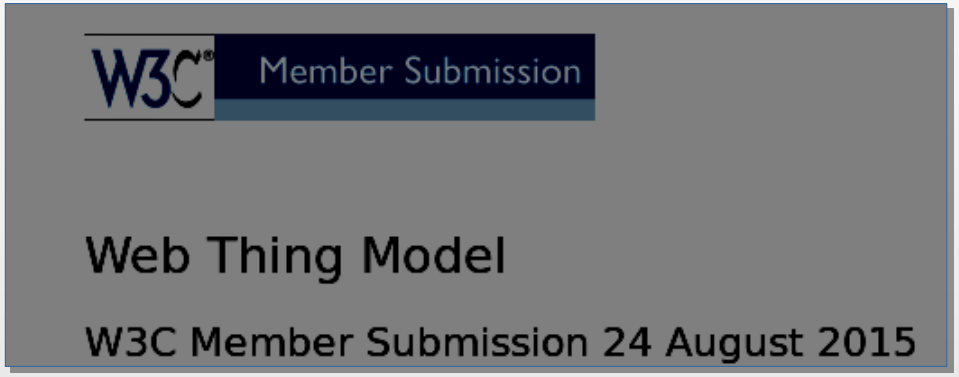
*Controlador

Modelo WT

W3Consortium

W3Consortium

Como deben ser los WT



Ajuste con modelo W3Consortium

Nivel DEBE

Definición de requisito	Nivel de cumplimiento
A WT MUST at least be an HTTP/1.1 server	No. Usamos un proxy para acceder a los WTs
A WT MUST have a root resource accesible via an HTTP URL	Sí
A WT MUST support GET, POST, PUT and DELETE HTTP verbs	Sí
A WT MUST implement HTTP status codes 200, 400, 500	Sí
A WT MUST support JSON as default representation	Sí
A WT MUST support GET on its root URL	Sí

Ajustamos a un 60% a Nivel DEBERÍA

Ajustamos al 0% en Nivel PODRÍA

Modelo Controlador

Dominique Guinard y otros

Como debe ser el Controlador

Guinard

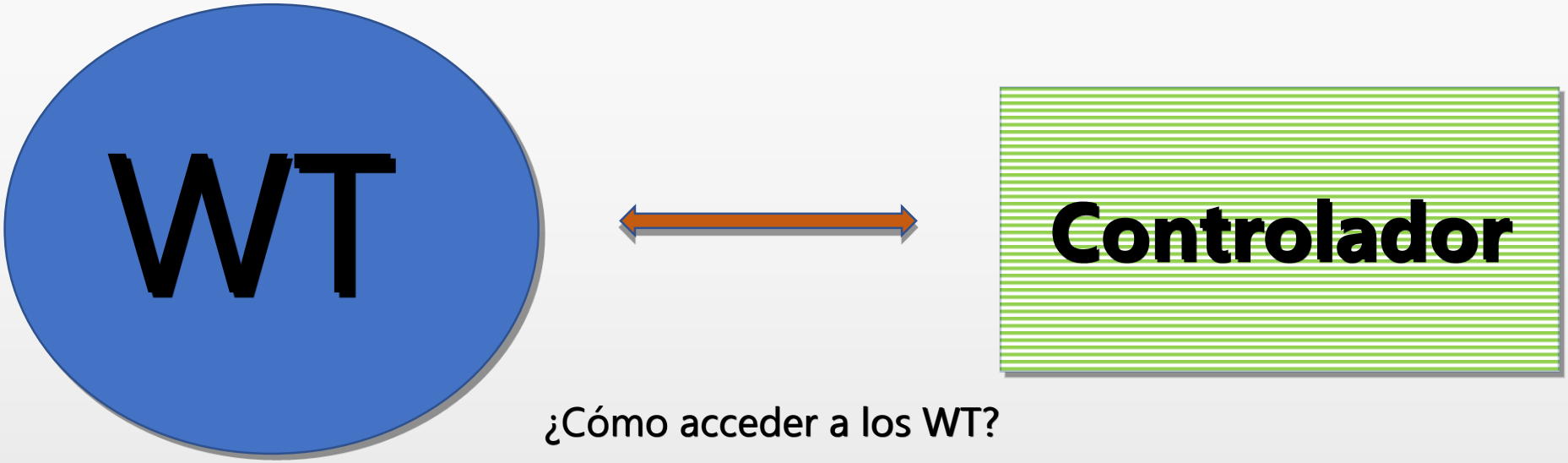
Sharing Using Social Networks in a Composable Web of Things

Dominique Guinard, Mathias Fischer, Vlad Trifa
Institute for Pervasive Computing, ETH Zurich
and SAP Research CEC Zurich
8092 Zurich, Switzerland
Contact Email: dguinard@ethz.ch

Controlador

Ajuste modelo Dominique Guinard y otros

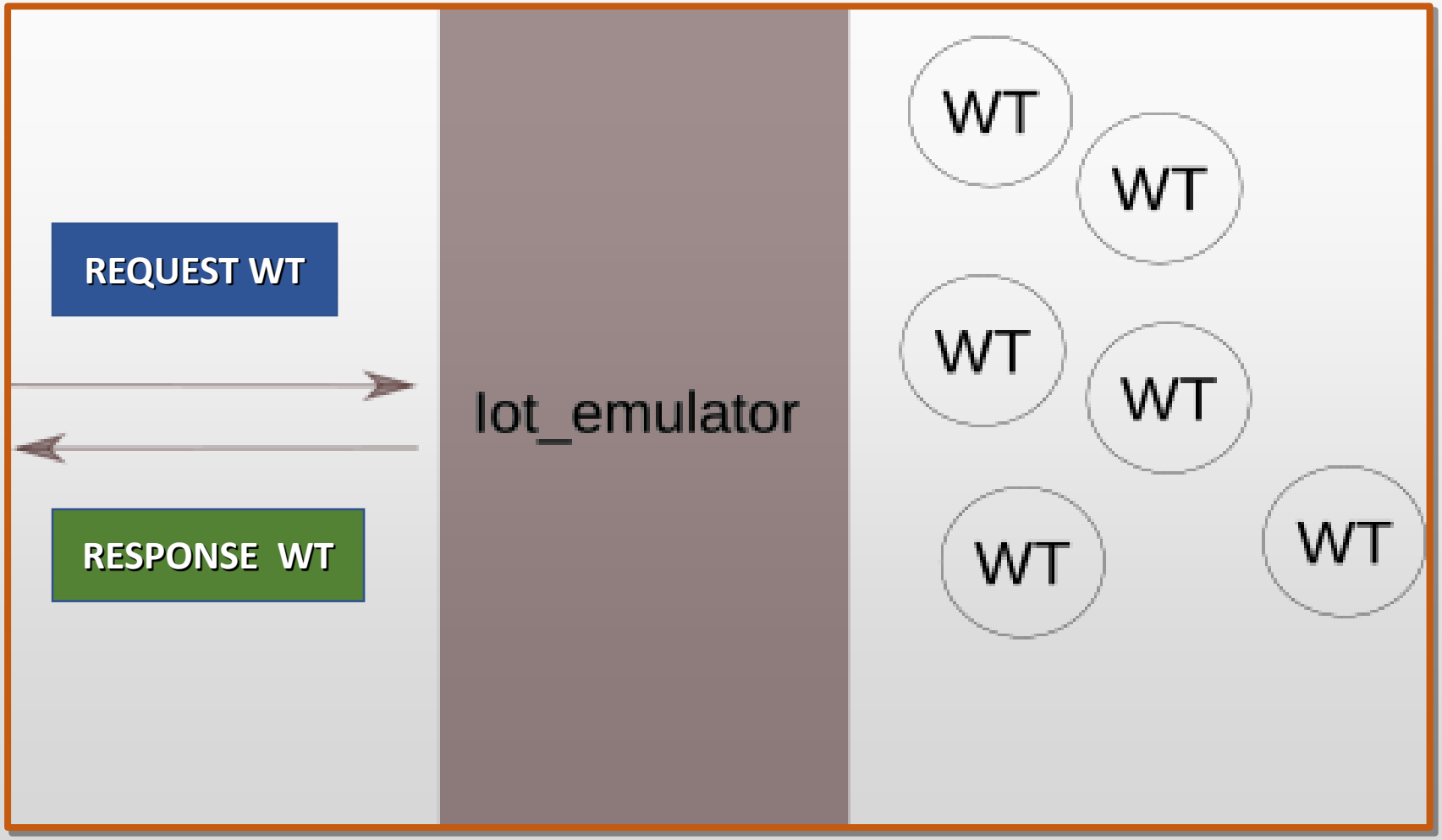
- **Requisitos que NO hemos implementado:**
  - Independencia de Red social usada
  - Descubrimiento de Wts automática
  - Discernir verbo HTTP compartido



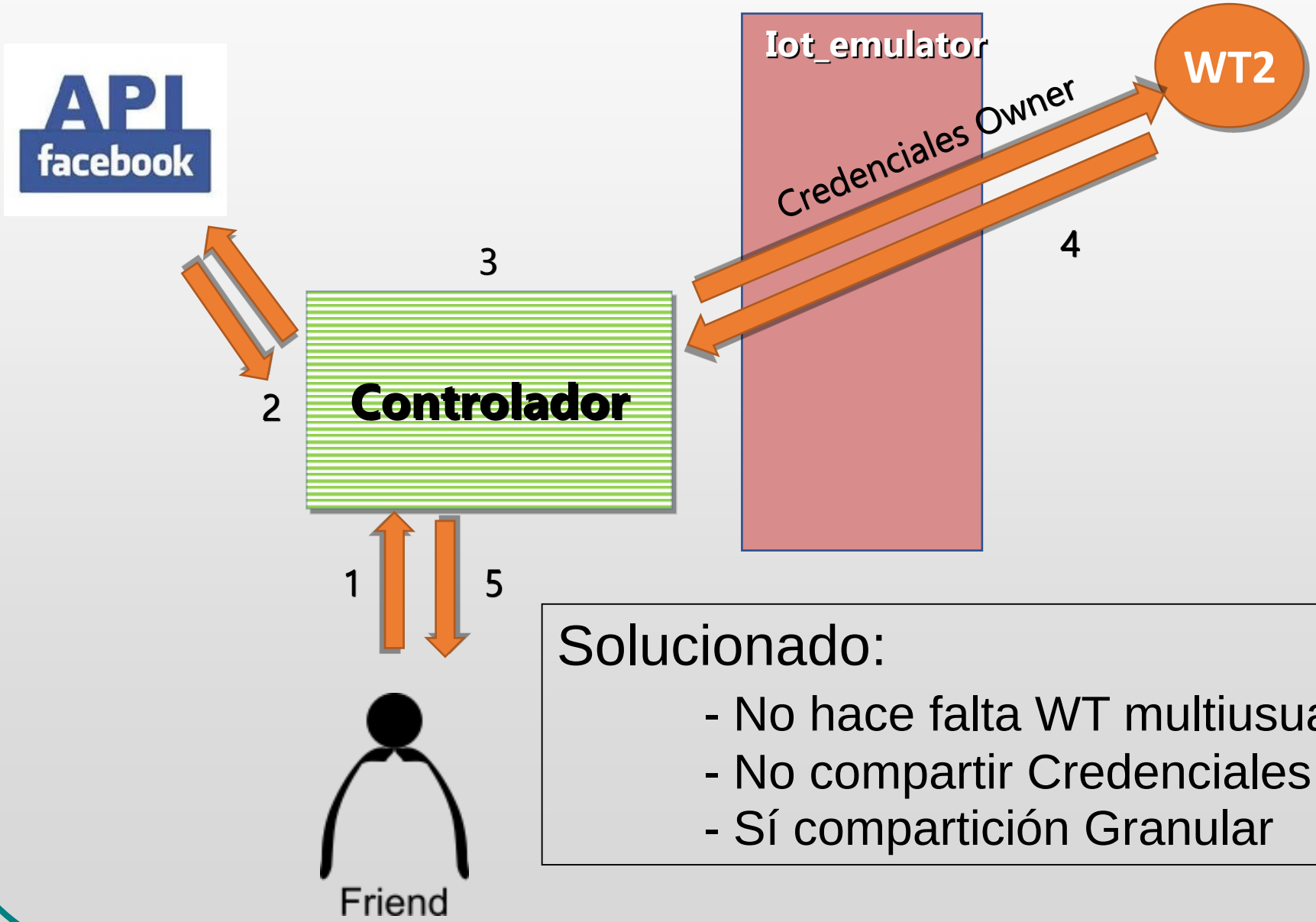
¿Cómo acceder a los WT?

Capa de Accesibilidad

Iot_emulator



Esquema Solución General



Solucionado:

- No hace falta WT multiusuario
- No compartir Credenciales
- Sí compartición Granular

Simplificaciones

Un único Owner

Identificador de WT es el PK de la tabla Action

- Nombre del Action Relación Action y Property

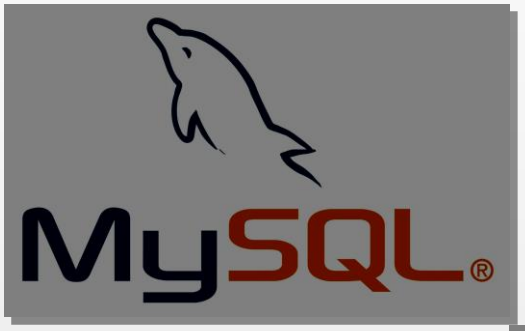
- Action name como nexo unión entre:

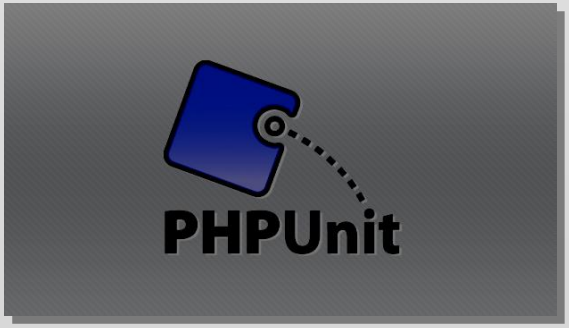
Sac e Iot_Emulator

Teconlogías

Tecnologías Software Backend

Tecnologías Software Backend





Tecnologías Software Frontend

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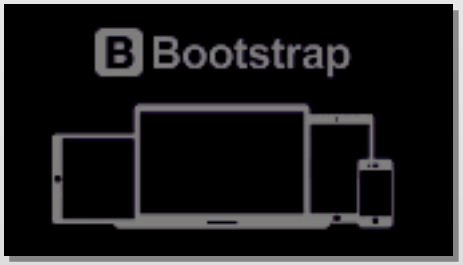


Dominio y Subdominio

Proyecto	Dominio
SAC	https://socialaccesscontroller.tk
Iot_emulator	http://iot.socialaccesscontroller.tk

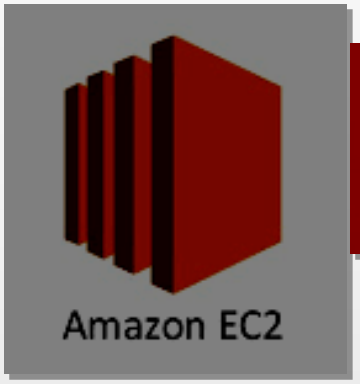
Entornos

Local

Local Server

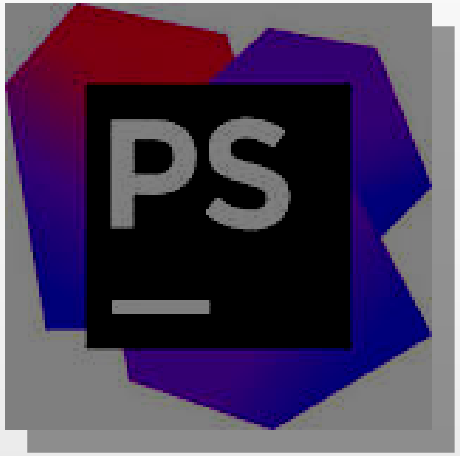
Desarrollo

Producción



Gestores dependencias

Herramientas desarrollo



Arquitectura Común

SAC

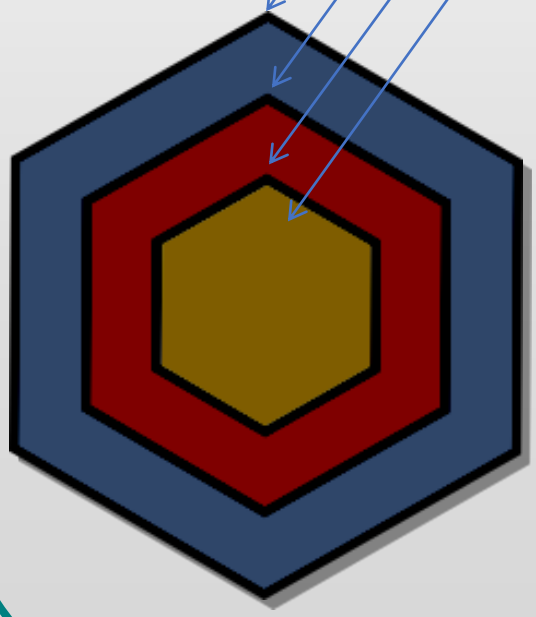
src/Domain
src/Aplication
src/Infrastructure

tests/

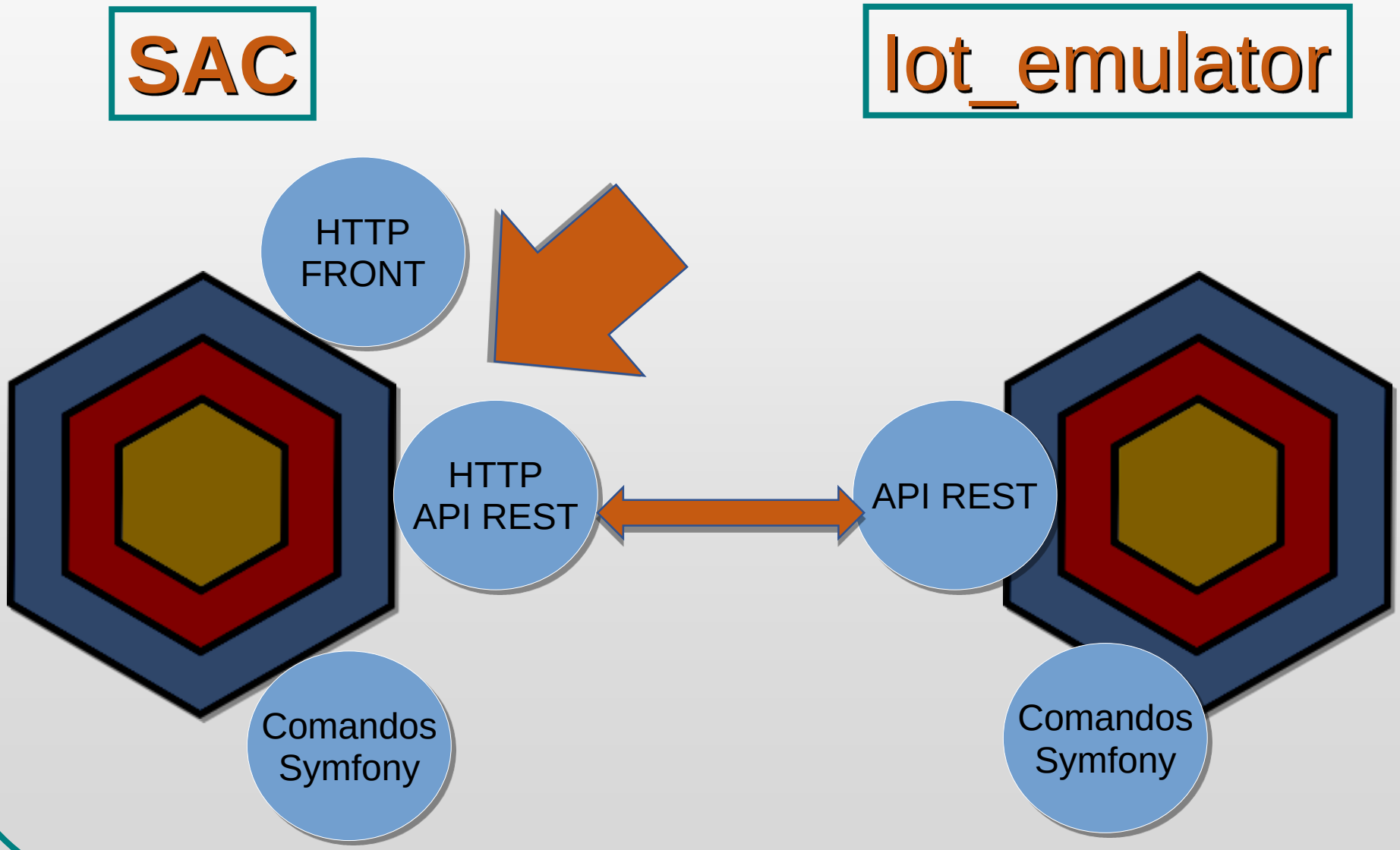
fixtures/

CI/

Iot_emulator



Arquitectura Hexagonal y API



SAC

Dominio SAC

Entidades

```
src/Domain/Entity/Action.php
src/Domain/Entity/Friend.php
src/Domain/Entity/Owner.php
 src/Domain/Entity/Thing.php
```

Repositorios

```
src/Domain/Repository/OwnerRepository.php
src/Domain/Repository/ThingConnectedRepository.php
src/Domain/Repository/ThingRepository.php
src/Domain/Repository/ActionRepository.php
src/Domain/Repository/FriendRepository.php
```

Dominio SAC

Entidades

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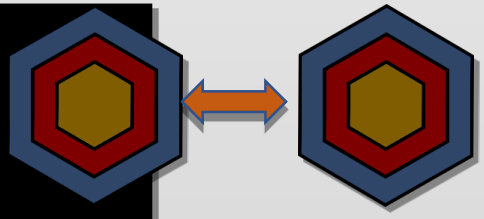
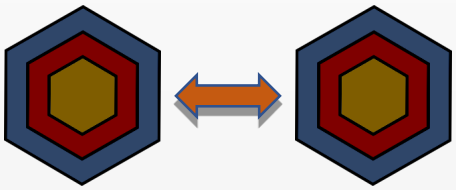


Aplicación SAC

Ejemplo del CommandHandler relacionado con



src/Application/CommandHandler/Thing/ThingConnected/GetThingConnectedCompleteHandler.php

Ejecución de commando Symfony

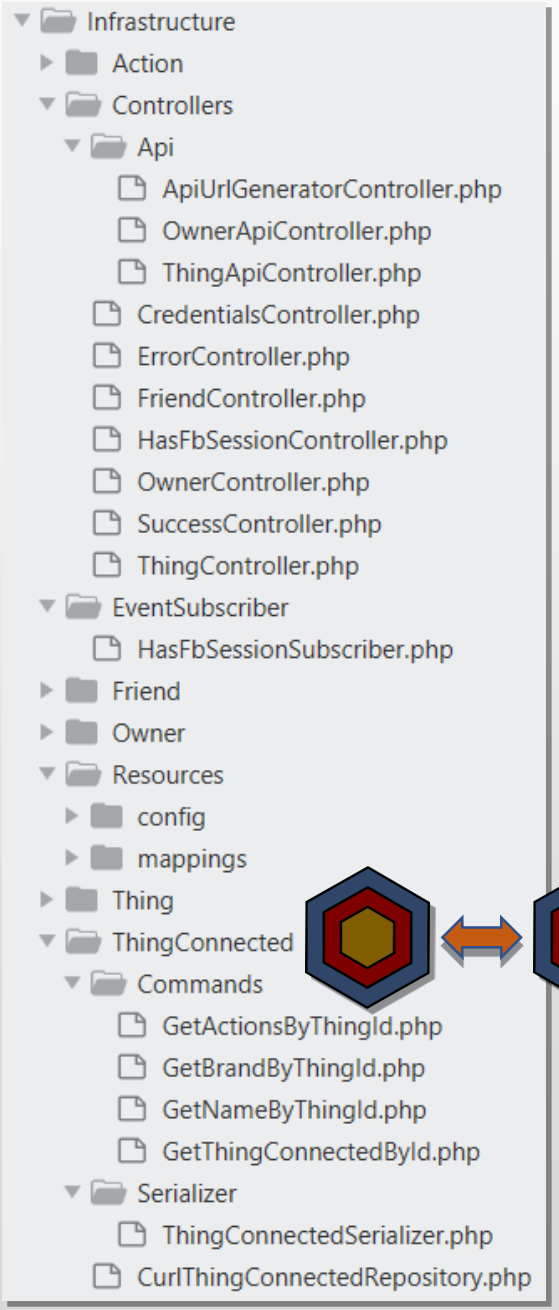
```
ubuntu@ip-172-31-45-14:/var/www/sac$ php bin/console  app:ThingConnected:GetThingConnectedCompleteById 1
array:3 [
  "message" => ""
  "status" => true
  "data" => {#357
    +"id": 1
    +"name": "thing_name1"
    +"brand": "thing_brand1"
    +"links": {#351
      +"actions": {#353
        +"link": "/actions"
        +"resources": {#329
          +"action_name1": {#365
            +"values": "property_value1"
          }
        }
      }
    }
  }
]
```

Infraestructura SAC

- Controladores
- Event Subscriber
- Resources

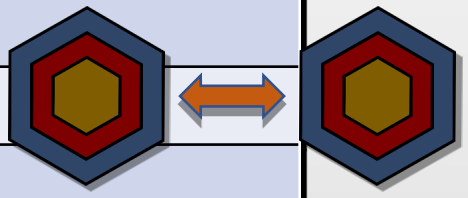
Comandos Symfony

- Serializadores
- Repositorios

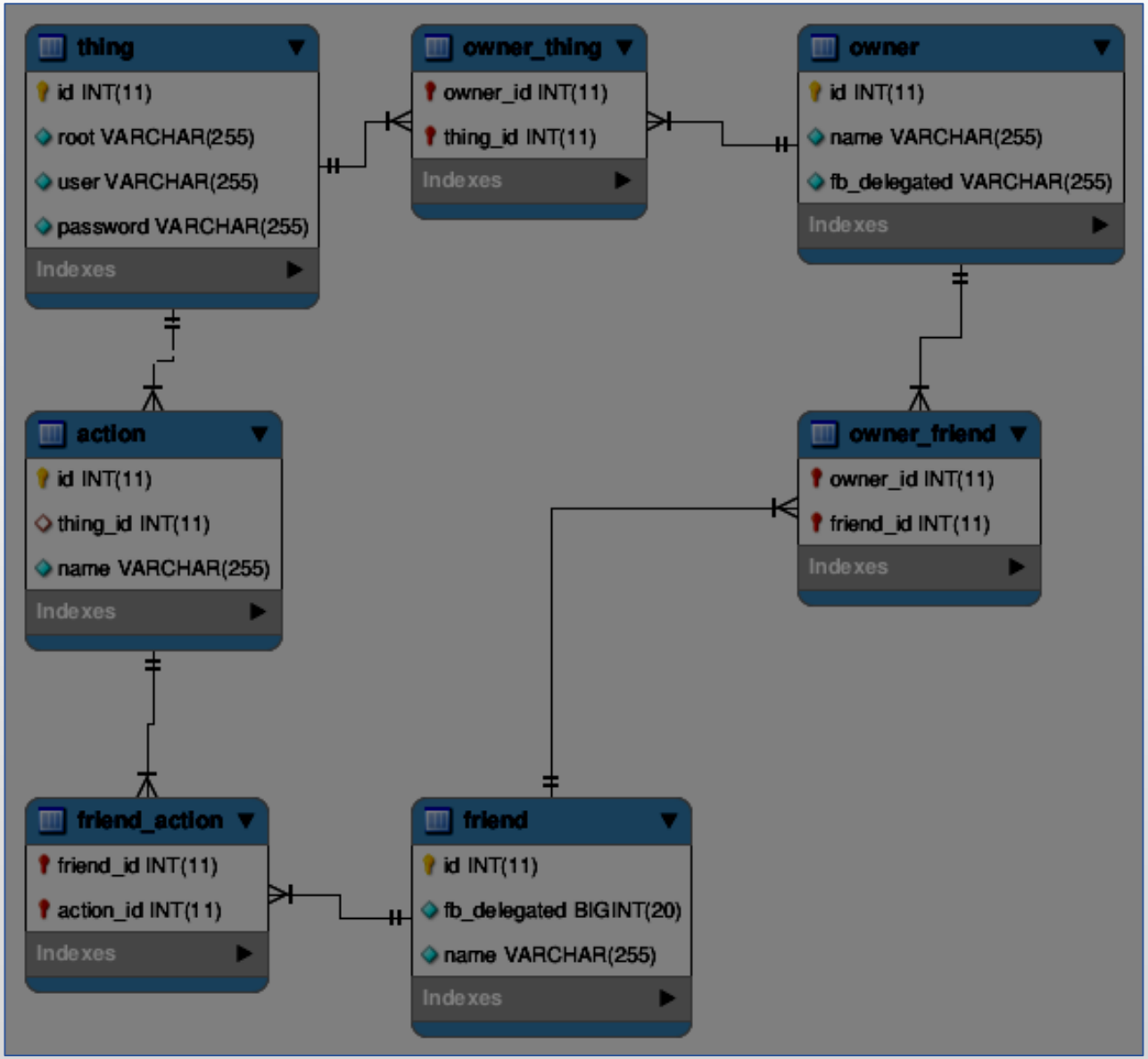


REST API SAC

Verbo HTTP	Endpoint
GET	/api/owner
GET	/api/thing/{thingId}
GET	/api/url/provider/thing
GET	/api/url/provider/api/thing
GET	/api/url/provider/api/share/action



Esquema Base de Datos SAC

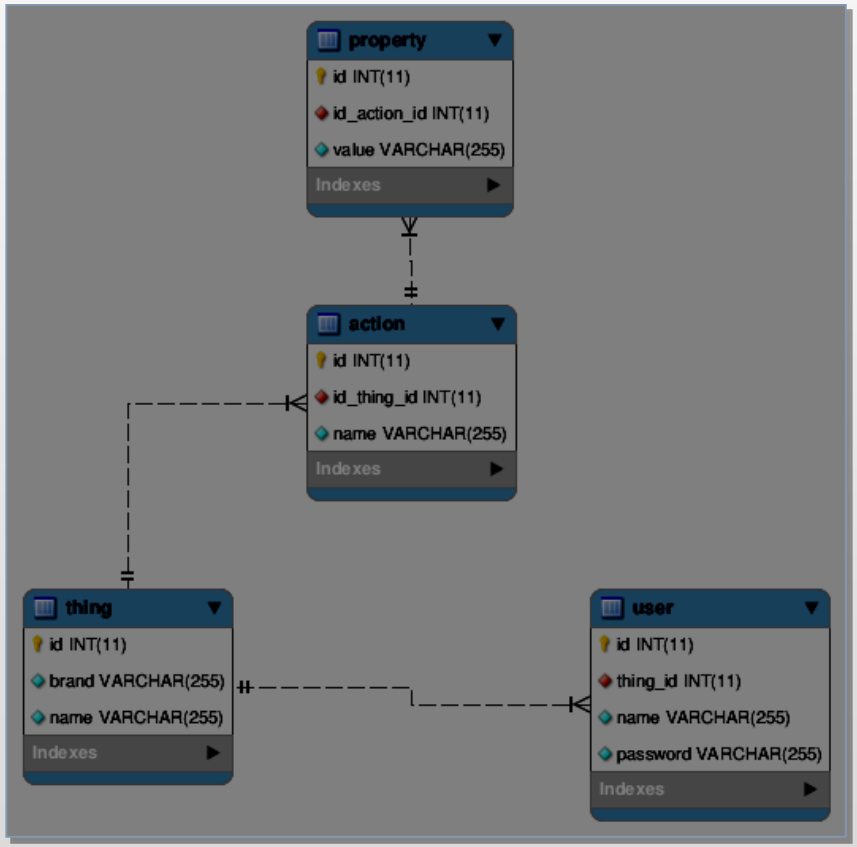


Iot_emulator

Dominio Iot_emulator y esquema de Base de Datos

Existe un Repositorio por cada Entidad

```
src/Domain/Entity/Action.php
src/Domain/Entity/Property.php
src/Domain/Entity/Thing.php
 src/Domain/Entity/User.php
```



Comparación de Dominios

Iot_emulator

```
src/Domain/Entity/Action.php
src/Domain/Entity/Property.php
src/Domain/Entity/Thing.php
 src/Domain/Entity/User.php
```

SAC

```
src/Domain/Entity/Action.php
src/Domain/Entity/Friend.php
src/Domain/Entity/Owner.php
 src/Domain/Entity/Thing.php
```

Comparación de Dominios

Iot_emulator

```
src/Domain/Entity/Action.php
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```

SAC

```
src/Domain/Entity/Action.php
src/Domain/Entity/Friend.php
src/Domain/Entity/Owner.php
 src/Domain/Entity/Thing.php
```

Aplicación Iot_emulator

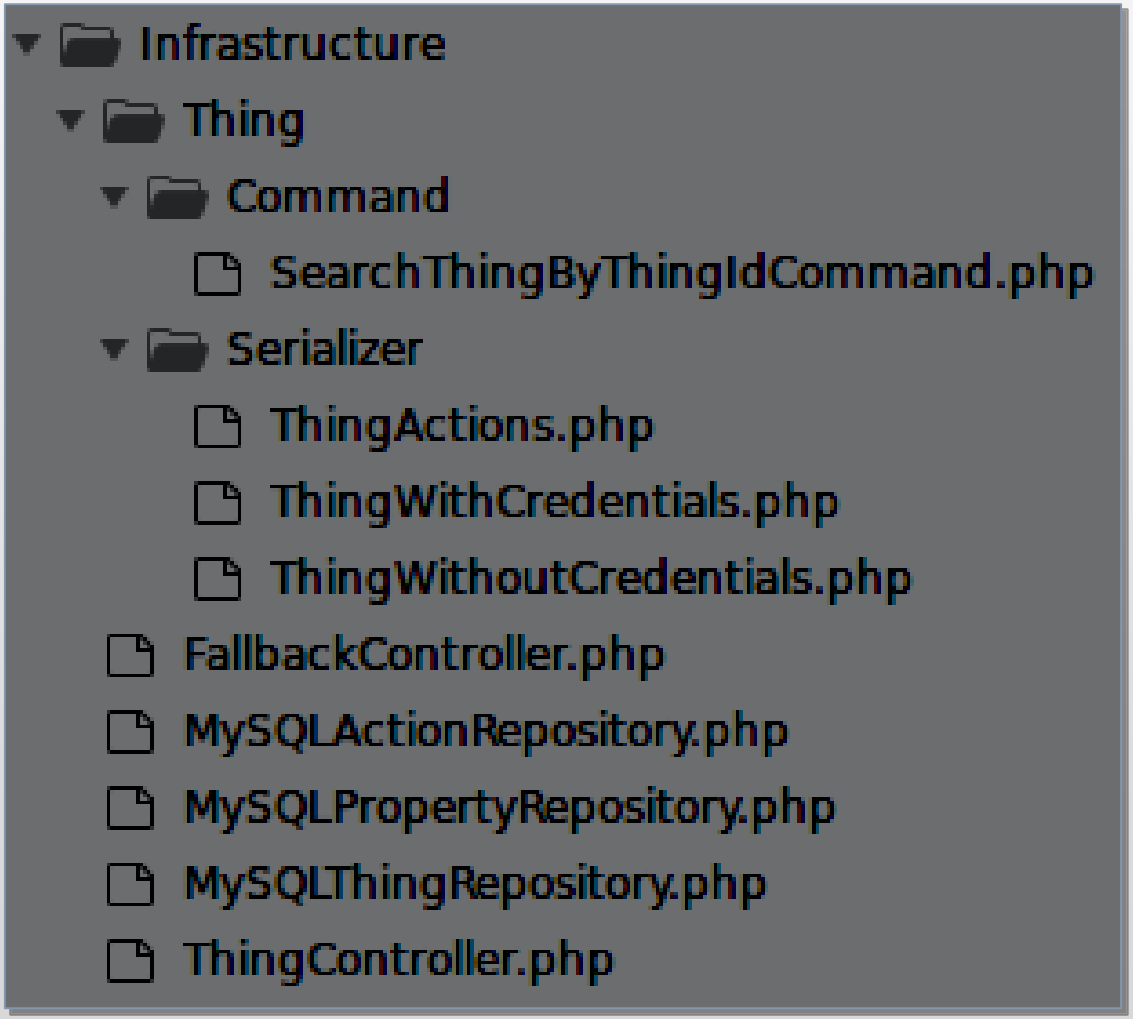
Existe un Comando por cada CommandHandler

```
src/Application/CommandHandler/Thing/CreateThingHandler.php
src/Application/CommandHandler/Thing/ExecuteActionHandler.php
src/Application/CommandHandler/Thing/ SearchThingByIdHandler.php
src/Application/CommandHandler/Thing/SearchThingByIdWithoutCredentialsHandler.php
```

DTO para ayudar con las credenciales

```
src/Application/Dto/UserCredentialsDto.php
```

Infrastructura Iot_emulator



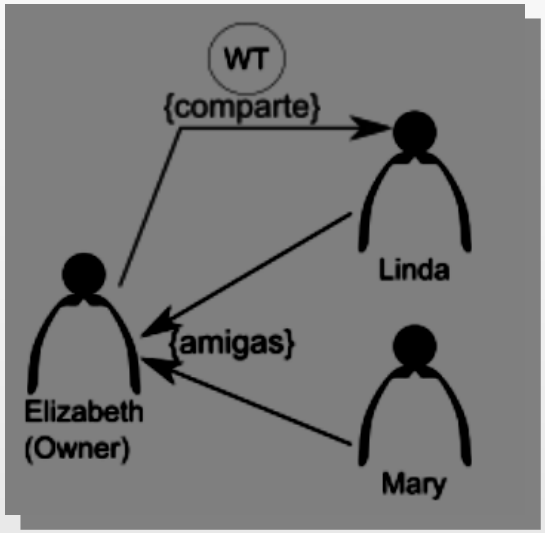
Rest Iot_emulator

Verbo HTTP	Endpoint
GET	/
GET	/{id} (Sin credenciales)
GET	/{id} (Con credenciales)
POST	/create
POST	/{id}/actions/{action_name}
GET	/{id}/properties/{property_name}
GET	/{id}/actions

Datos de Pruebas (mocks)

Explicación datos de prueba

Facebook



Iot_emulator


```
{"name":"thing_name1","brand":"thing_brand1","links":{"actions":["action_name1"],"properties":[{"action_name1":"property_value1"}]}}
{"name":"thing_name2","brand":"thing_brand2","links":{"actions":["action_name1","action_name2"],"properties":[{"action_name1":"property_value1"},{"action_name2":"property_value2"}]}}
{"name":"thing_name3","brand":"thing_brand3","links":{"actions":["action_name1","action_name2","action_name3"],"properties":[{"action_name1":"property_value1"},{"action_name2":"property_value2"},{"action_name3":"property_value3"}]}}
```


SAC

```
php bin/console doctrine:fixture:load
```

CONCLUSIONES

El SAC aporta estas ventajas:

- Manera segura de compartir WT
- Usar estructura social de Redes Sociales
- Compartir granularmente

MEJORAS SAC

- Multi-owner
- Cacheado
- Actualización de Friends
- Descubrimiento de WTs

MEJORAS Iot_emulator

- Actualización propuesta 2019
- Action no acoplada a Property
- NoSQL para estructuras más flexibles