

Web of Things

Thing Description Recipes

Linked Data & Semantic Processing TF

F2F Meeting, 13.07.2017 Düsseldorf

Darko Anicic

Thing Description Recipes

(Darko, Koster, Aparna, Danh)

- Problem Statement
 - How to easily enable thing interactions, thereby creating **WoT applications**;
- Proposal
 - Interop client creates a WoT application based on a **Recipe**. **Discovery** of Things is automated thanks to their semantic specification of **TDs** and the Recipe. Recipe **interactions** are implemented with **WoT API**.
 - Propose a Recipe format based on TD and **Capabilities** from **iot.schema.org**
- Demonstrate
 - Discovery and impl. of Recipes for rapid creation of WoT applications
 - Semantic interoperability, cross-domain orchestration & choreography

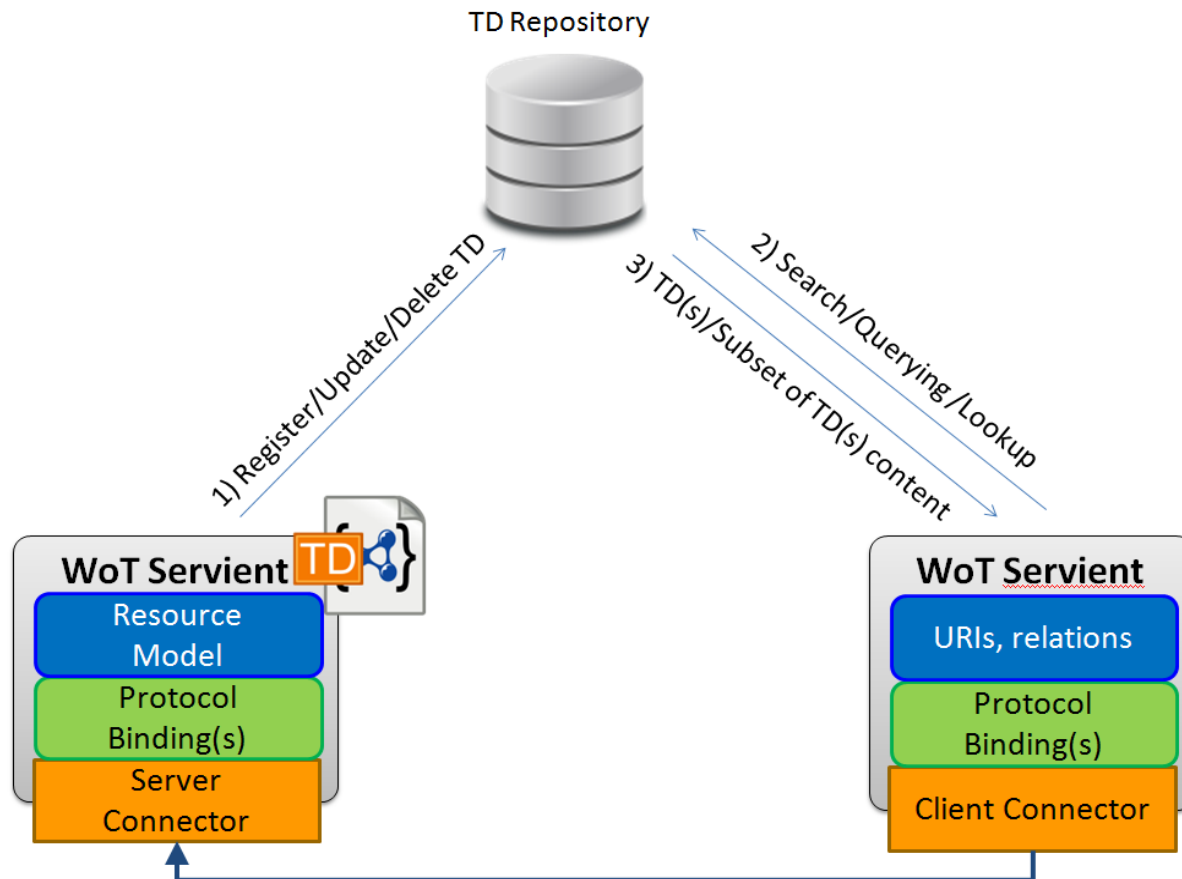
Thing Description Recipes

(Darko, Koster, Aparna, Dan

- Problem Statement
 - How to easily enable thing interaction for creating **WoT applications**;
- Proposal
 - Interop client creates application based on a **Recipe**. **Discovery** of Things is automated. Their semantic specification of **TDs** and the **Recipe** **actions** are implemented with **WoT API**.
 - Propose **actions** based on TD and **Capabilities** from **iot.schema**.
- Demo
 - Demo and impl. of Recipes for rapid creation of WoT applications
 - Semantic interoperability, cross-domain orchestration & choreography

This topic is also about TD discovery
(not only things orchestration)

Current Situation: Discovery with TD Repository



- Bottom-up discovery requires “intelligence” on the thing side to decide which thing to interact with in the context of an application

Recipe Example I

Recipe: Motion Detector Light Switch

Turn a light on when motion is detected in a room.

Ingredients

MotionStatus Property

TurnOn Action

TurnOff Action

Interactions

SUBSCRIBE MotionStatus

UPDATE TurnOn or

UPDATE TurnOff

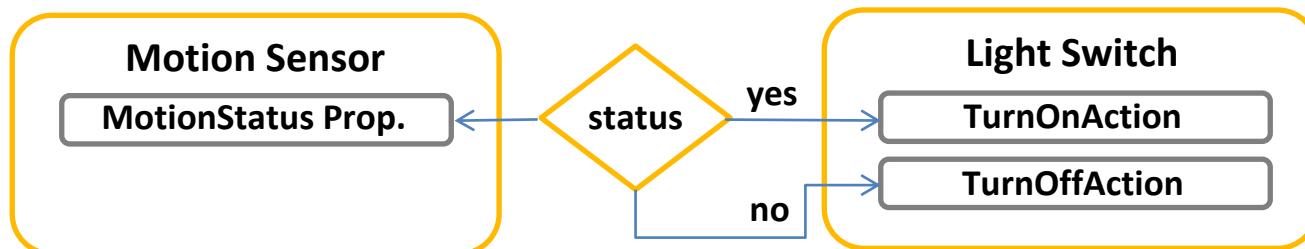



Recipe Example I

Recipe: **Motion Detector Light Switch**

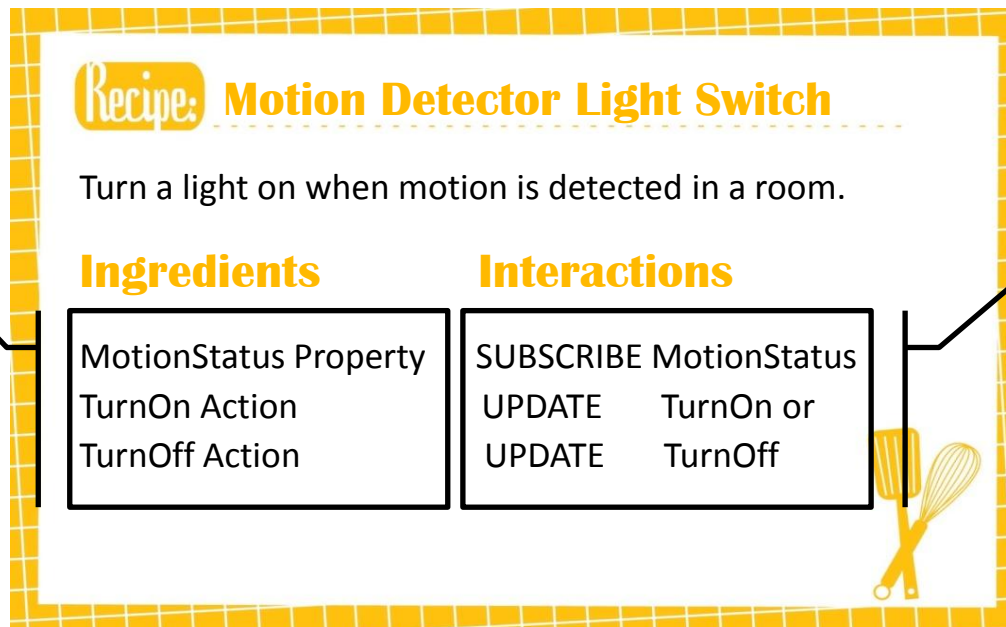
Turn a light on when motion is detected in a room.

Ingredients	Interactions
MotionStatus Property	SUBSCRIBE MotionStatus
TurnOn Action	UPDATE TurnOn or
TurnOff Action	UPDATE TurnOff

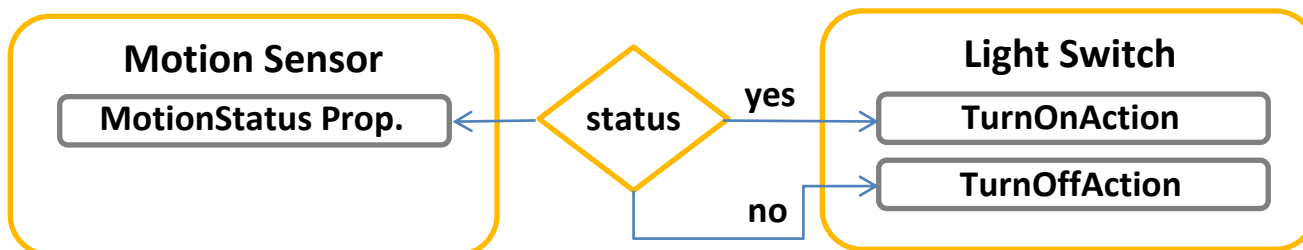


Recipe Example I

TD Interaction
Patterns &
iot.schema.org
Capability

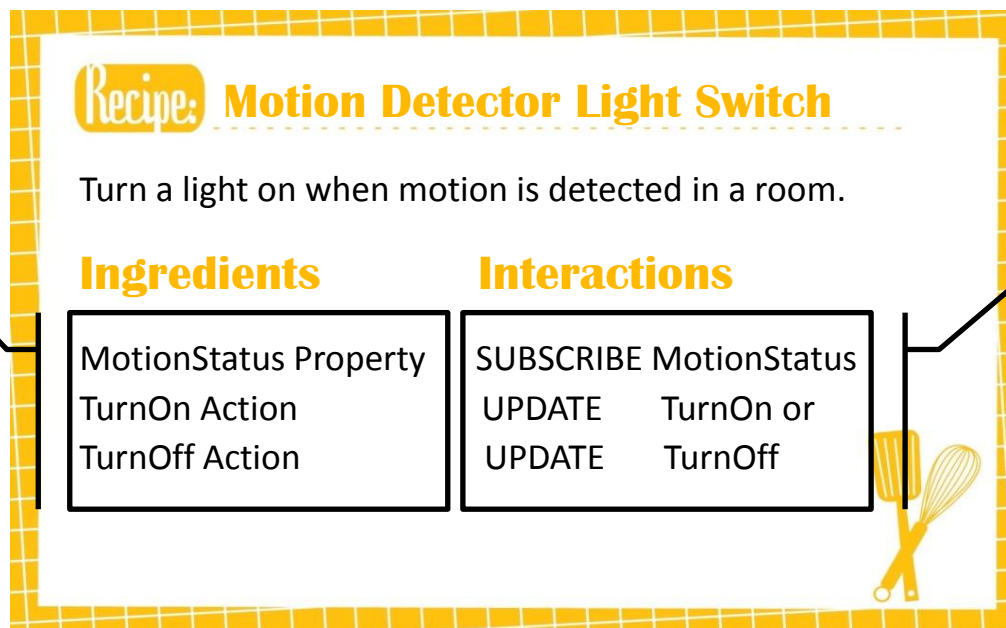


Implemented
with W3C WoT
Script API



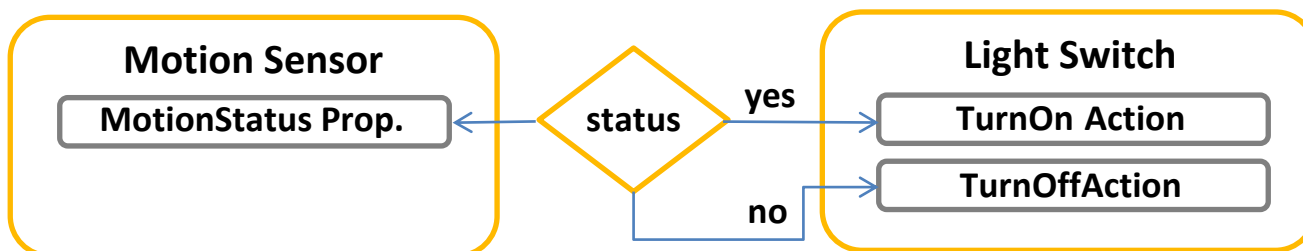
Recipe Example I

TD Interaction
Patterns &
iot.schema.org
Capability

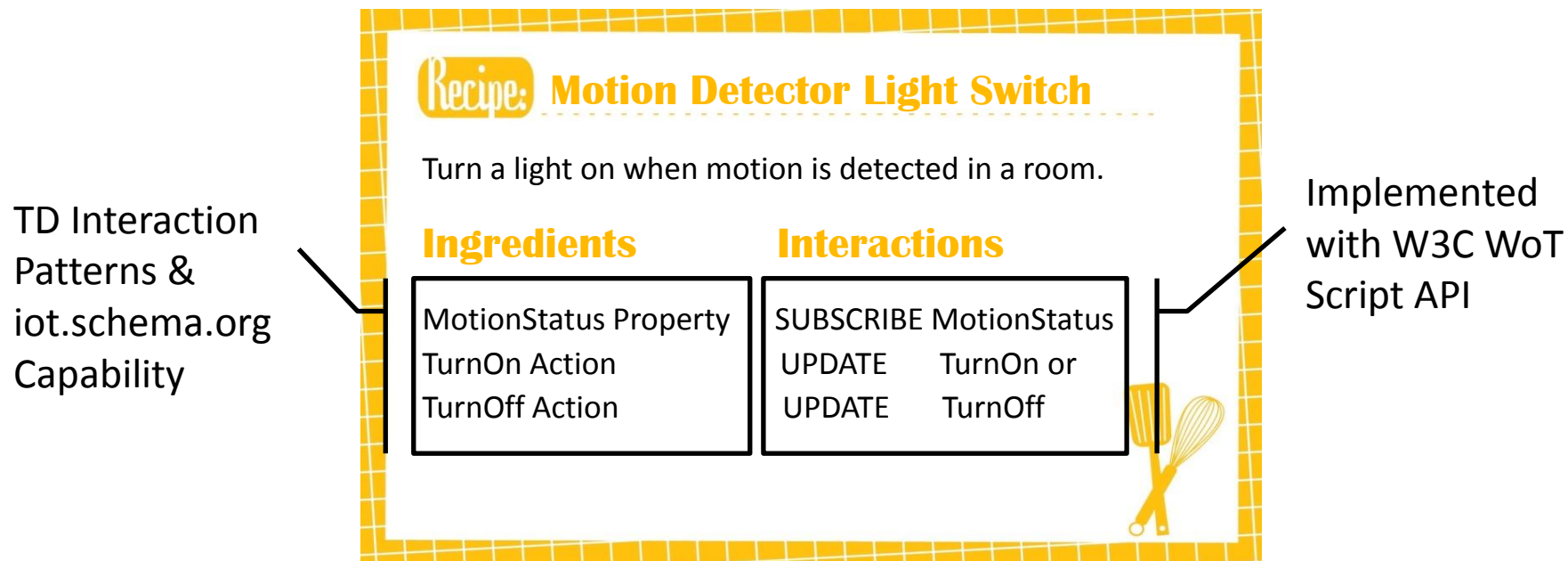


Implemented
with W3C WoT
Script API

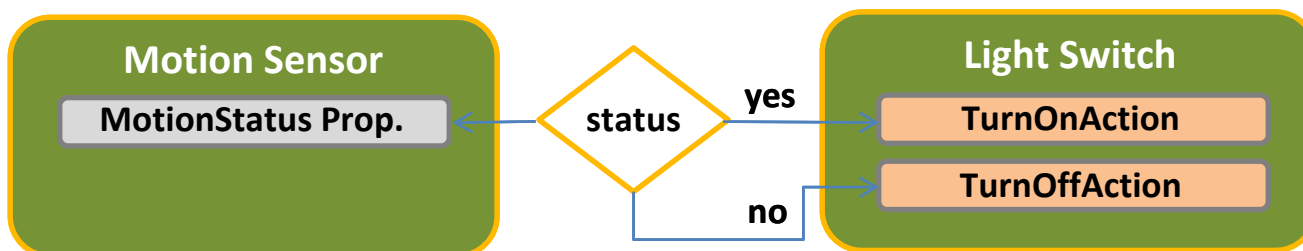
Discovery & Binding







Recipe Example I



Discovery & Binding



Recipe Example II

1. Discover a thing with a
air-temperature-control Capability  TD Repository/Marketplace
2. No such a thing available but there
is a Recipe: temperature sensor &
air temperature controller 
3. Discover things that implement
that Recipe 
4. temperature sensor TD,
air temperature controller TD 



Benefits of Recipes

Thanks to availability of WoT TD, WoT API and iot.schema.org, Recipes offer:

- Discovery of Recipes for various applications
- Easy implementation of applications with Recipes
- Efficient discovery of things required for Recipe applications
- Easy creation of Recipes based on existing applications
- Easy sharing of Recipes on a marketplace/repository
- Easy extensions of existing Recipes on a marketplace/repository
- Web links of an application in TD
 - awareness of connected things
 - semantic documentation eases maintenance of application lifecycle