# Getting started with Orocos Toolchain 2

## Orocos Workshop at the euRobotics Forum 2011

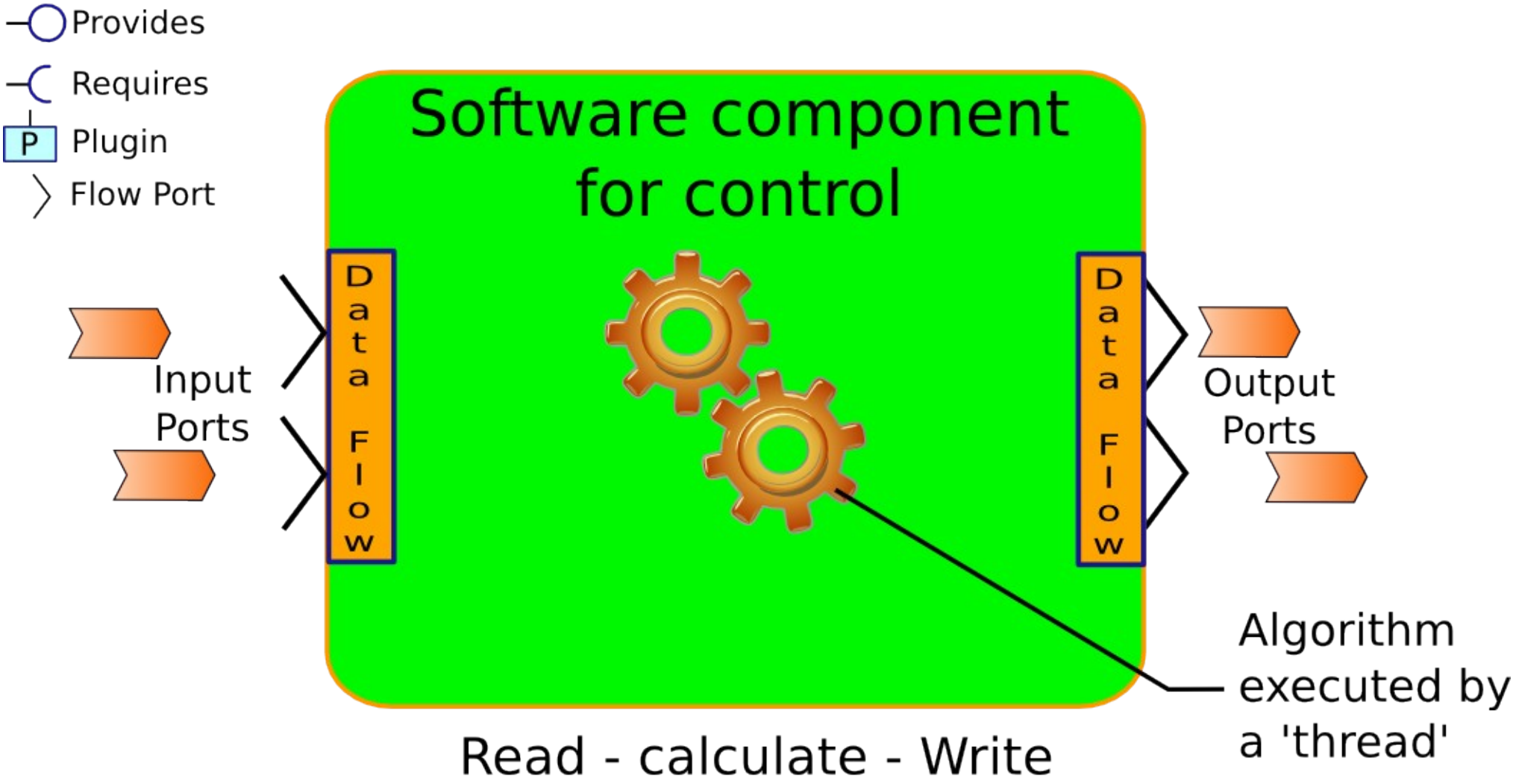
**euRobotics Forum, 7 Apr 2011**

**Vasteras, Sweden**

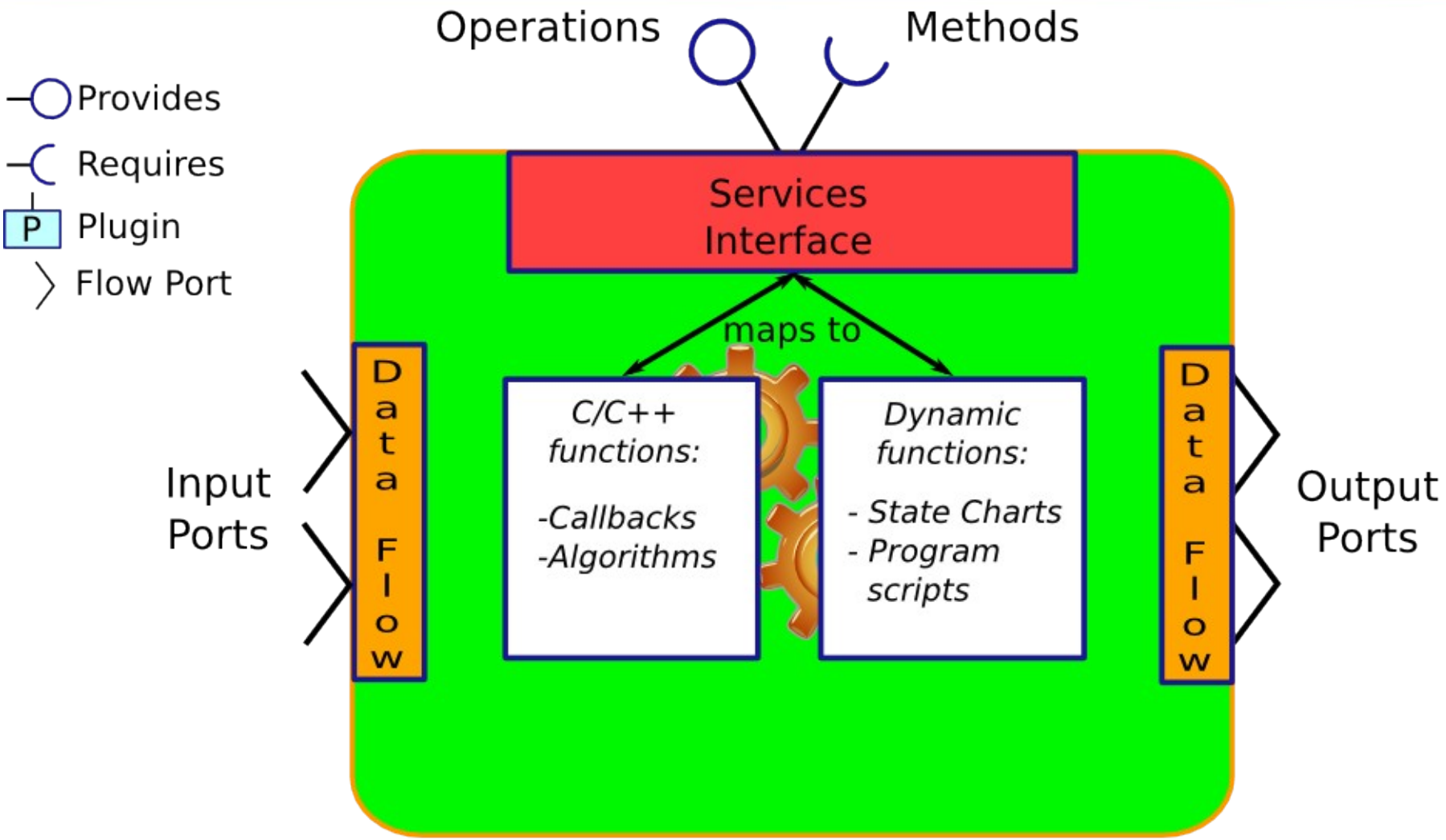
# Introduction

- How this hands-on will go
  - Introduction to some Orocos concepts
    - 30 min
  - Start with simple, focussed exercises to explore the API
    - Hello World 30 min
  - Switch to a YouBot Application
    - 1h

# Revisiting the TaskContext

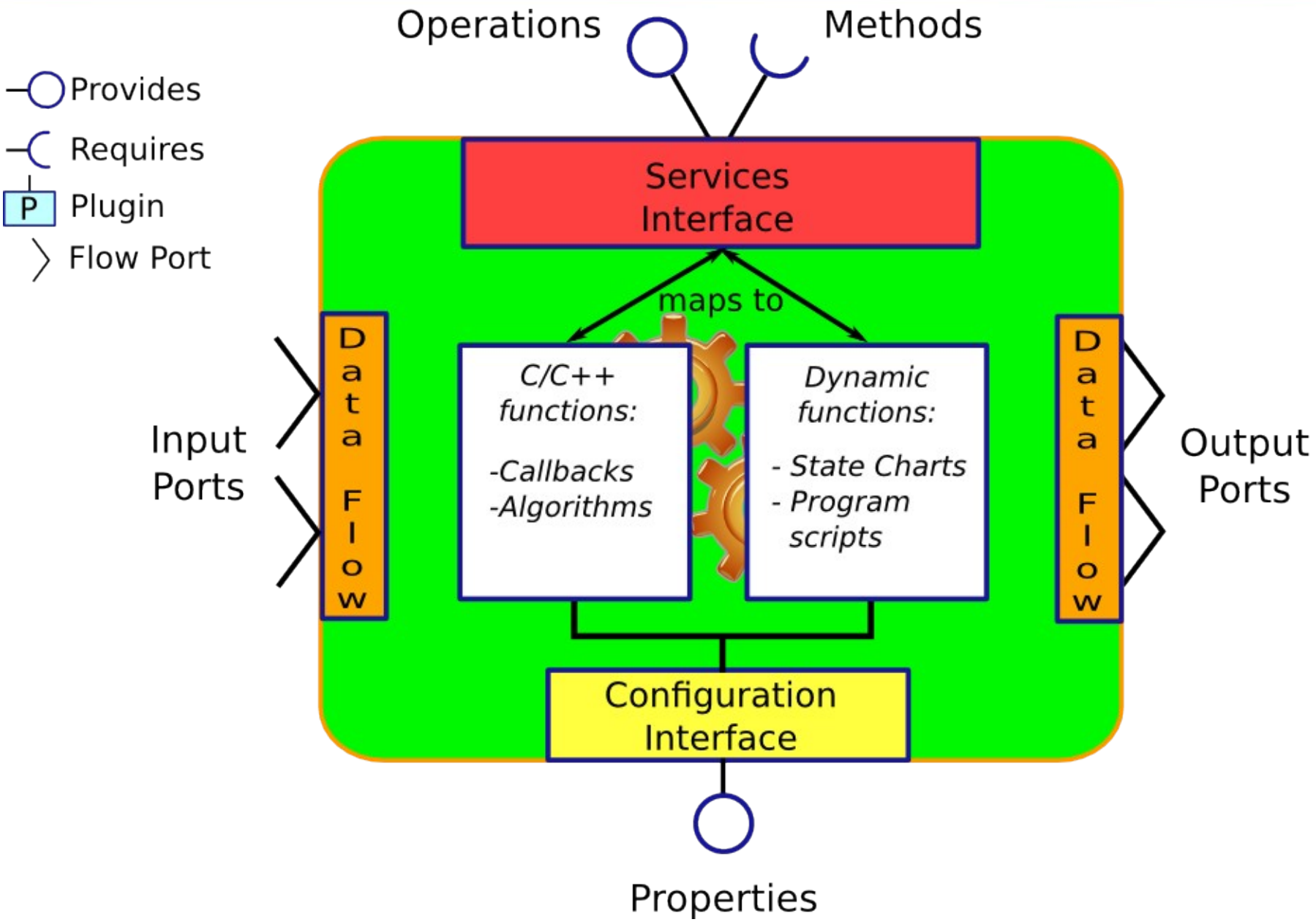


# We need stuff to do other stuff

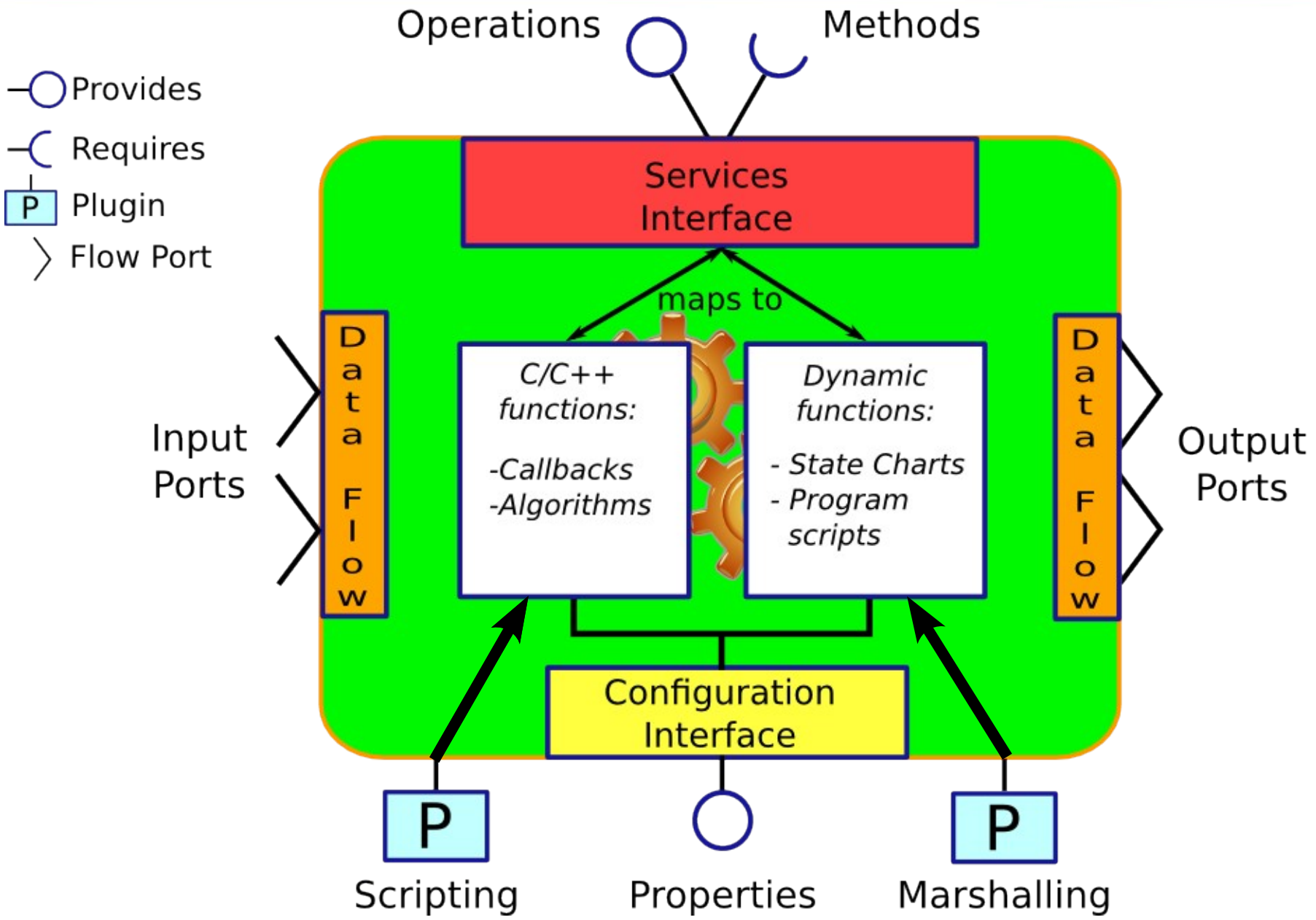



Providing & Requiring Services

# Our services are configurable



# Plugins offer services



# Exercise 1 - Activities

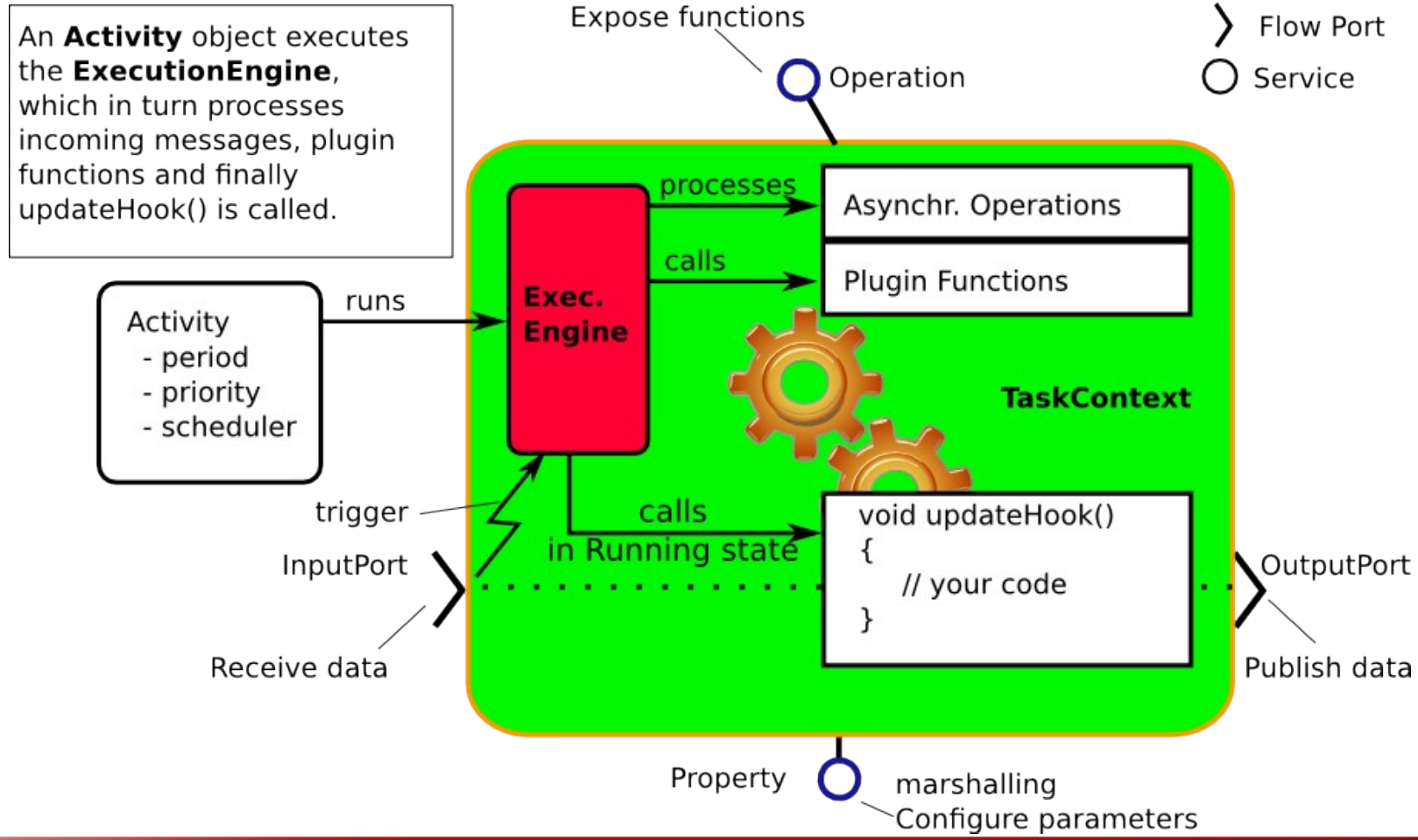
**How and when does code get executed ?**

- **RTT::ActivityInterface**
  - **May map to a thread (RTT::Activity)**
  - **May be a slave (RTT::extras::SlaveActivity)**
  - **May be sequential (RTT::extras:SequentialActivity)**
  - **May be anything else (RTT::extras::...)**

# Exercise 1 - Activities

## The ExecutionEngine runs our code

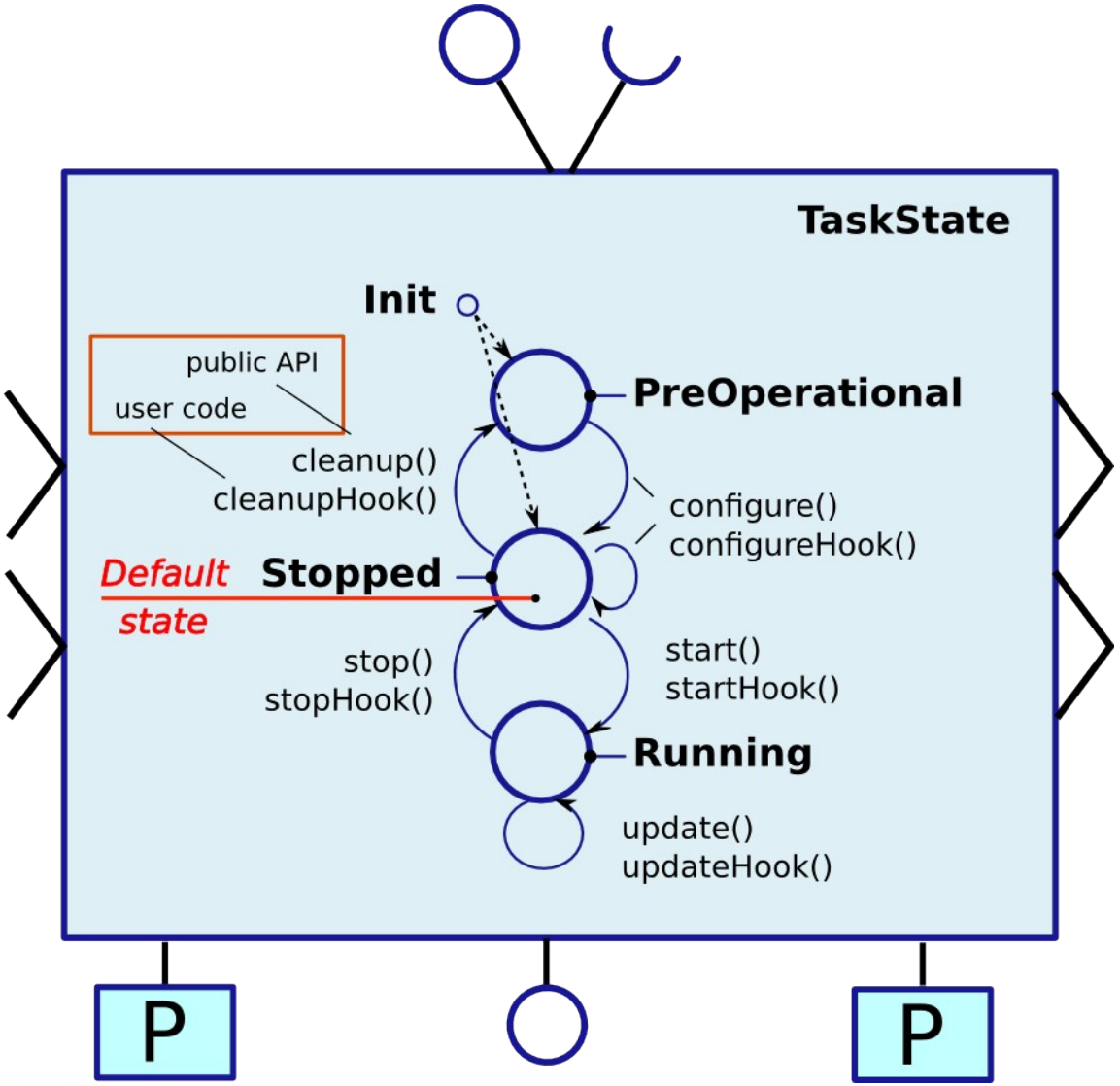
- **It runs all the time**



# Exercise 1 - Activities

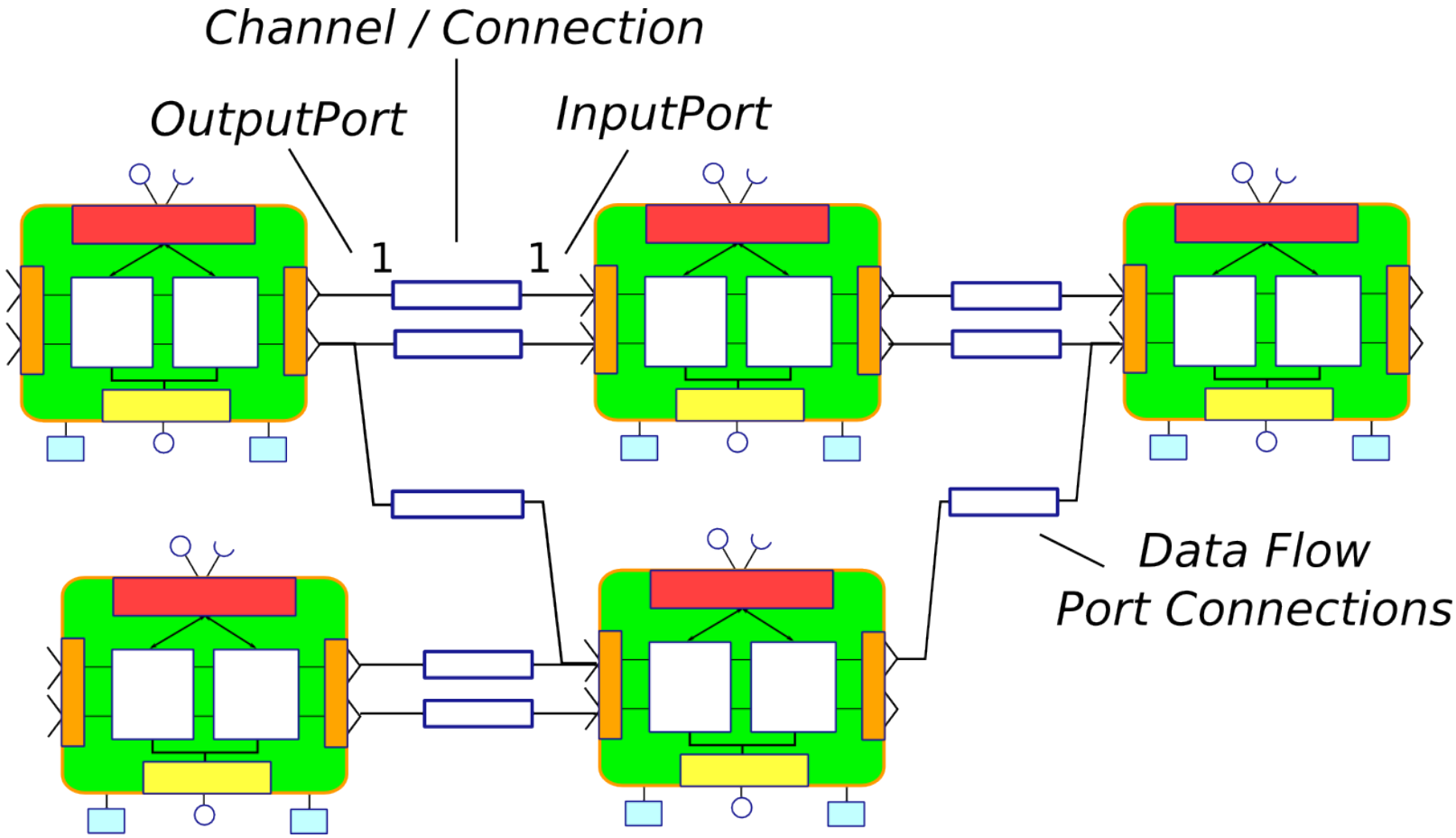
## The TaskContext has an internal state machine

- Hooks



# Exercise 3 - Ports

- **How to move data around ?**



# Exercise 3 – Ports & Policies

- Writing
  - outport.write( d );
- Reading
  - FlowStatus fs = inport.read( d );
  - NoData, OldData, NewData
- Types of data flow connections - Policies
  - Buffered
    - RTT::ConnPolicy::buffer(size, type, init?, pull?)
  - Latest Data
    - RTT::ConnPolicy::data(type, init?, pull?)

# Exercise 3 – Getting dirty

- Writing and reading ports
- Changing connection policies
- Observing real-time behaviour (copying of data)