IIP-Ecosphere

Next Level Ecosphere for
Intelligent Industrial Production

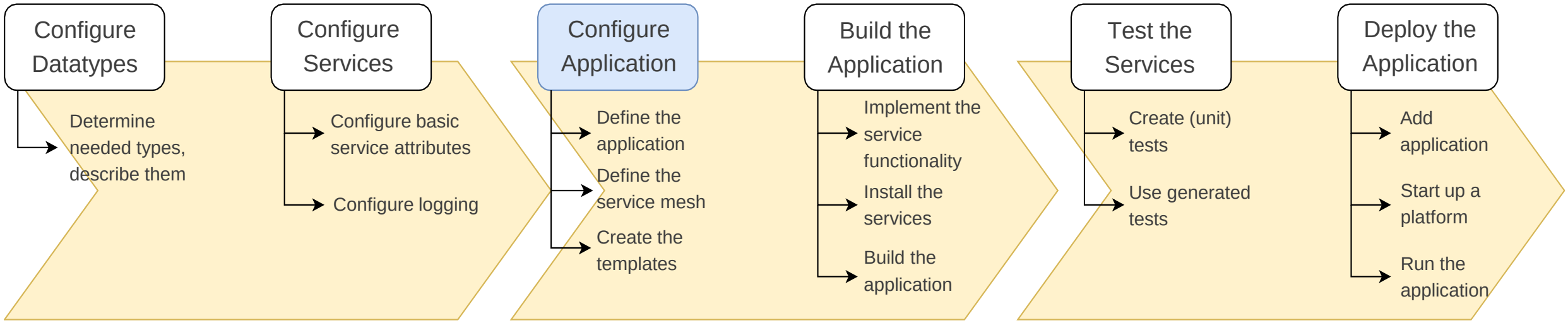
Service Integration: How to Configure an Application

Gefördert durch:

Bundesministerium
für Wirtschaft
und Klimaschutz

IIP-Ecosphere Platform

Configure the Application



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Prerequisites

- Required:
  - Installed the platform and its dependencies or the development container
  - Installed the IDE for IIP-Ecosphere Platform (provided Eclipse Version)
  - How to configure datatypes
  - How to configure services
- Optional:
  - Introduction to code generation

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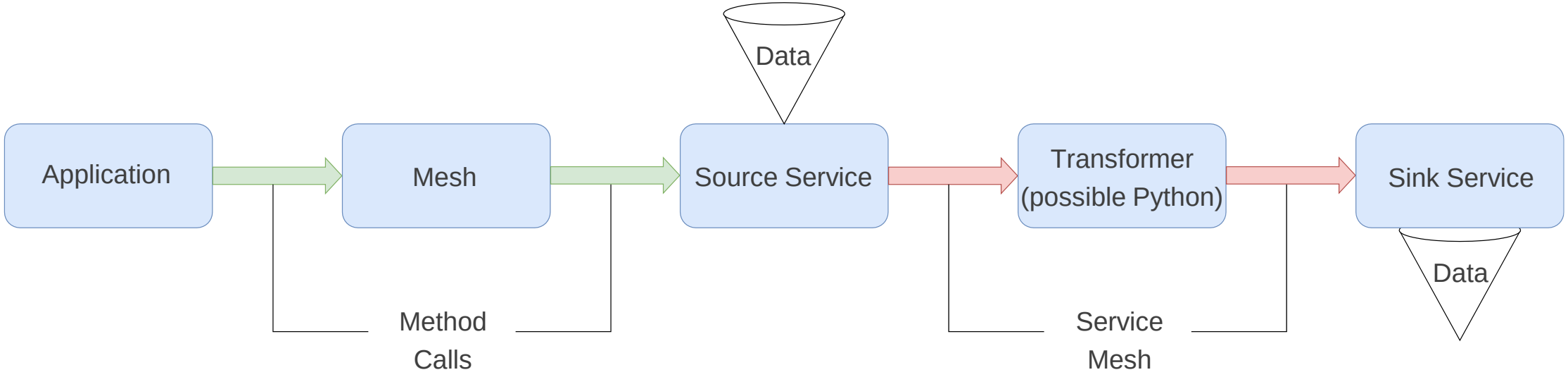
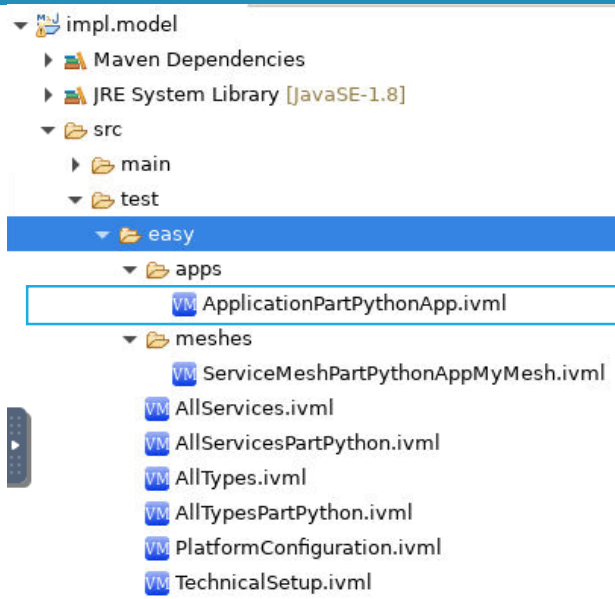
Service Mesh and Application

- A service mesh defines the connections of services
  - It is a directed data flow graph build from connectors and services
  - The graph roots at one or multiple source services
  - The graph terminates in sink services
  - An application can consist of multiple service meshes



Configuring the Application (1)

- Define the application in the *AllAppliationPart….ivml* file:




```
project ApplicationPartPythonApp {

    import ServiceMeshPartPythonApp*;

    annotate BindingTime bindingTime = BindingTime::compile to .;

    Application myApp = {
        id = "TestIntegrationApp",
        name = "TestTestApp",
        ver = "0.1.0",
        description = "",
        services = {refBy(myMesh)}
    };
```

- **`Application:`** Defines an application consisting of service meshes and services. Services shall be re-usable.
  - The **`id`** of the application for management through UI/CLI
  - **`services:`** defines the service mesh associated with this task/company

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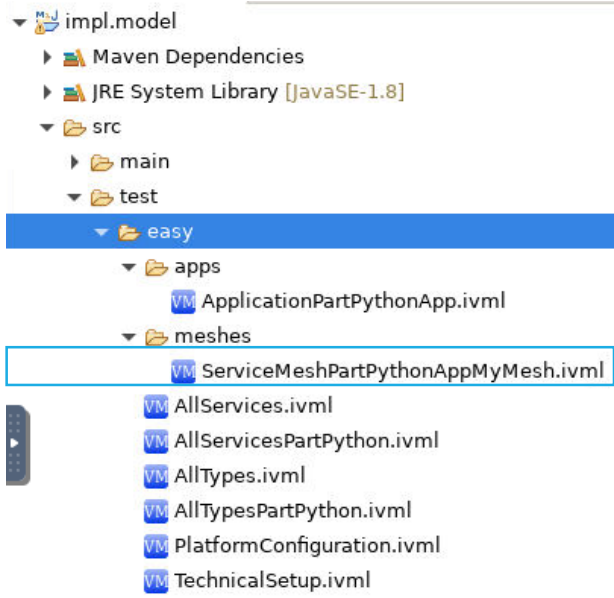
Configuring the Service Mesh (1)

- Define the service mesh in the *ServiceMeshPart….ivml* file

```
ServiceMesh myMesh = {
    description = "WorkshopApp",
    sources = {refBy(mySource)} //defines all source services
};

MeshSource mySource = {
   pollInterval = 800, //if source service is asynchronous = false!
   impl = refBy(source), //name of a concrete service defined in AllServicesPart..
   next = {refBy(myConnMySourceMyTransformer)}
};

MeshConnector myConnMySourceMyTransformer = {
    name = "Source->Transformer",
    next = refBy(myTransformer)
};

MeshProcessor myTransformer = {
    impl = refBy(pyth),  //defines the class containing his impl.
    next = {refBy(myConnMyTransformerMyReceiver)}
};

MeshConnector myConnMyTransformerMyReceiver = {
    name = "Transformer->Receiver",
    next = refBy(myReceiver)
};

MeshSink myReceiver = {
   impl = refBy(sink)
};
```

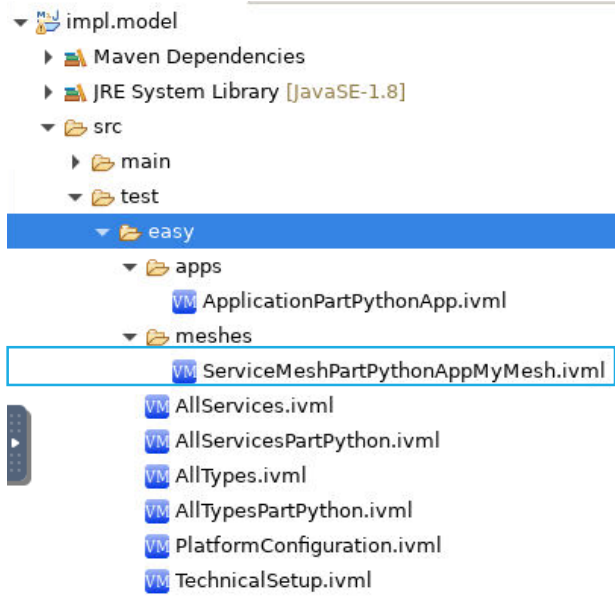


- Chains together the separately defined services
- Alternation between Service and Connector
- Each service kind has a corresponding mesh class like **`MeshSource, MeshSink and MeshProcessor`**
- **`Add <pollInterval> to source in case of synchronous service)`**

Configuring the Service Mesh (2)

- Define the service mesh in the *ServiceMeshPart….ivml* file

```
ServiceMesh myMesh = {
    description = "WorkshopApp",
    sources = {refBy(mySource)} //defines all source services
};

MeshSource mySource = {
   pollInterval = 800, //if source service is asynchronous = false!
    impl = refBy(source), //name of a concrete service defined in AllServicesPart..
    next = {refBy(myConnMySourceMyTransformer)}
};

MeshConnector myConnMySourceMyTransformer = {
    name = "Source->Transformer",
    next = refBy(myTransformer)
};

MeshProcessor myTransformer = {
    impl = refBy(pyth),  //defines the class containing his impl.
    next = {refBy(myConnMyTransformerMyReceiver)}
};

MeshConnector myConnMyTransformerMyReceiver = {
    name = "Transformer->Receiver",
    next = refBy(myReceiver)
};

MeshSink myReceiver = {
   impl = refBy(sink)
};
```



- **impl:** refers to the name of a defined service
- **next:** defines the next service along the data flow (through a connector)
- **name:** here as *"<service>-><service>"* which is only for documentation purposes and does not affect the generation

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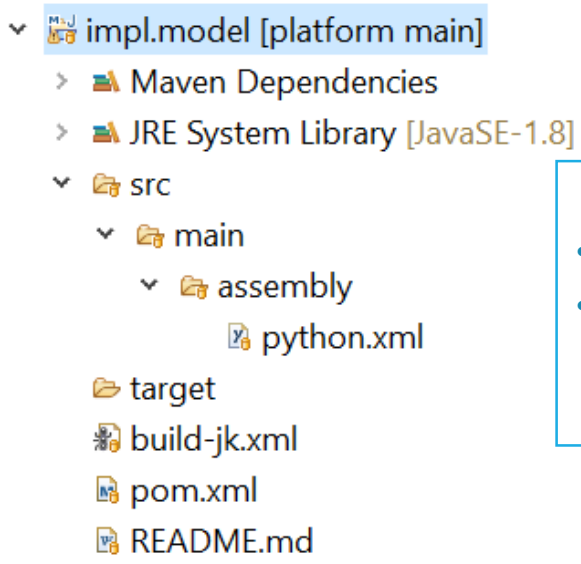
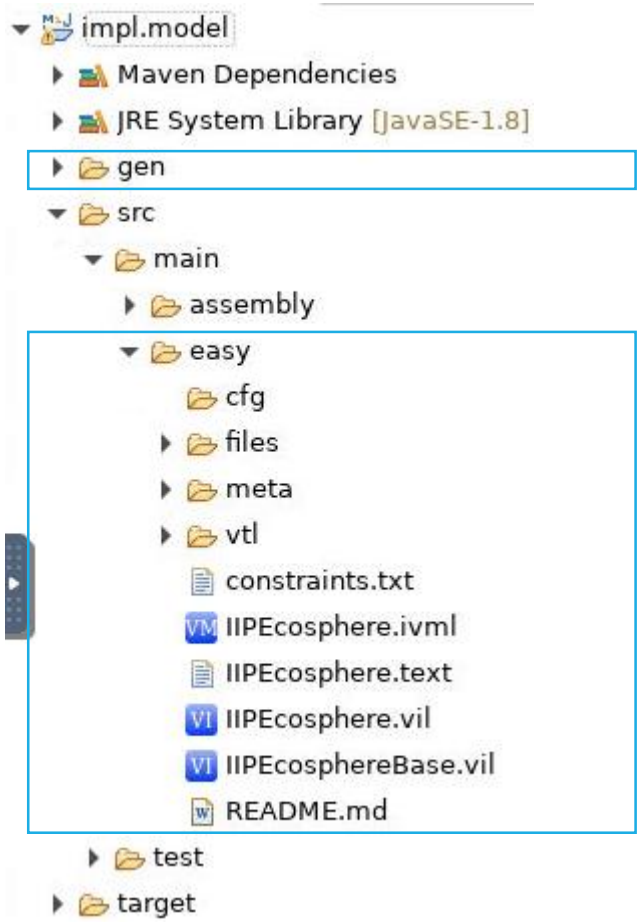
Generate Templates

- The templates for the *.ivml* files should enable you to now build an application
- In *impl.model* run *mvn generate-sources*
  - This will get the platform model as well as generate the templates
  - They will provide you with the groundwork to build an app



- Rename the *"impl.model"* as needed/desired
- Use `cmd` to run *"mvn -U generate-sources"* in the *"impl.model"* directory



Summary

- What we learned
  - How to configure the service mesh
  - How to configure the application
  - How to generate templates
- How to go on
  - How to test out application
  - How to build our application