

Towards Modelling Systems of Cyber-Physical Systems

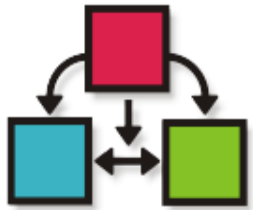
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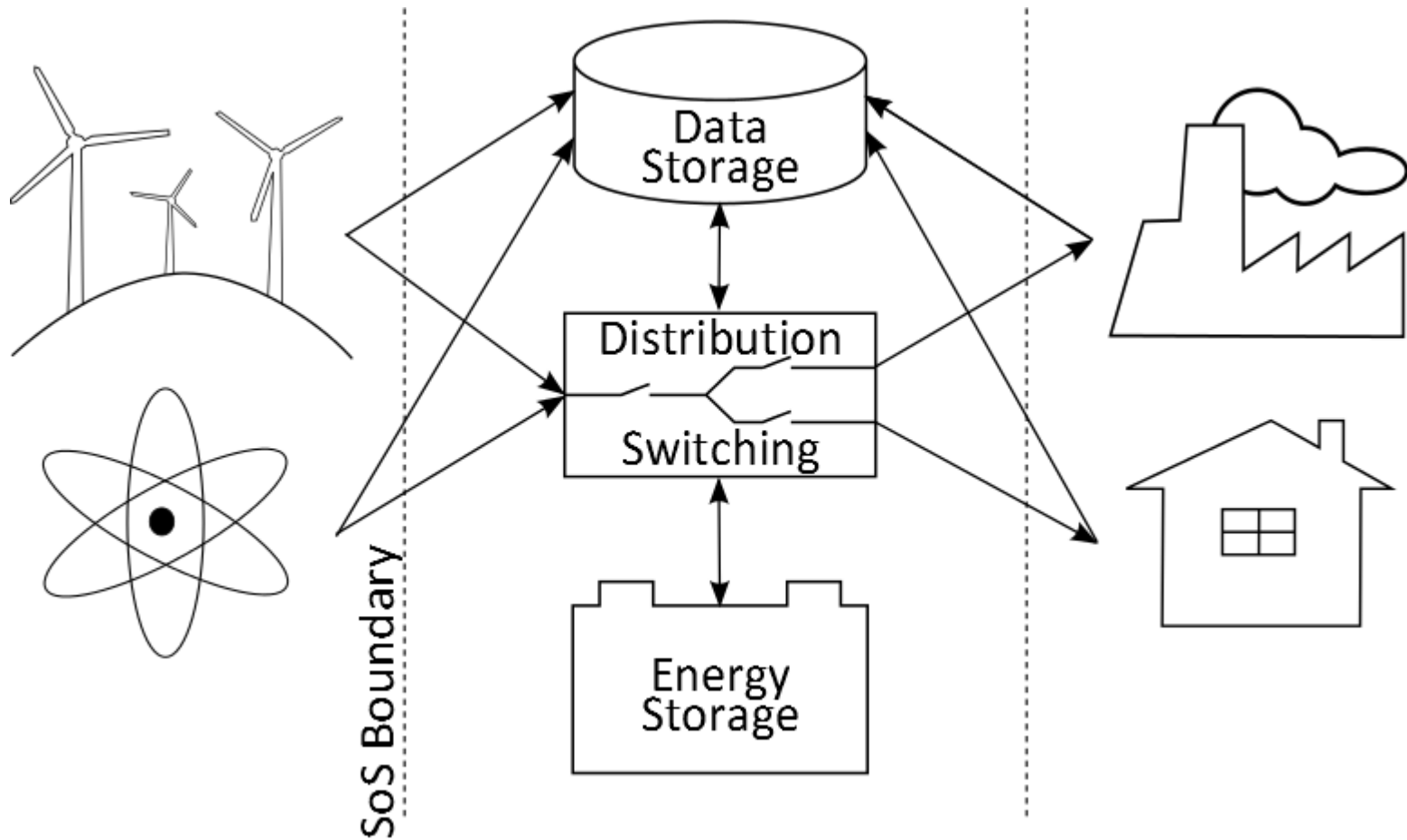
Background



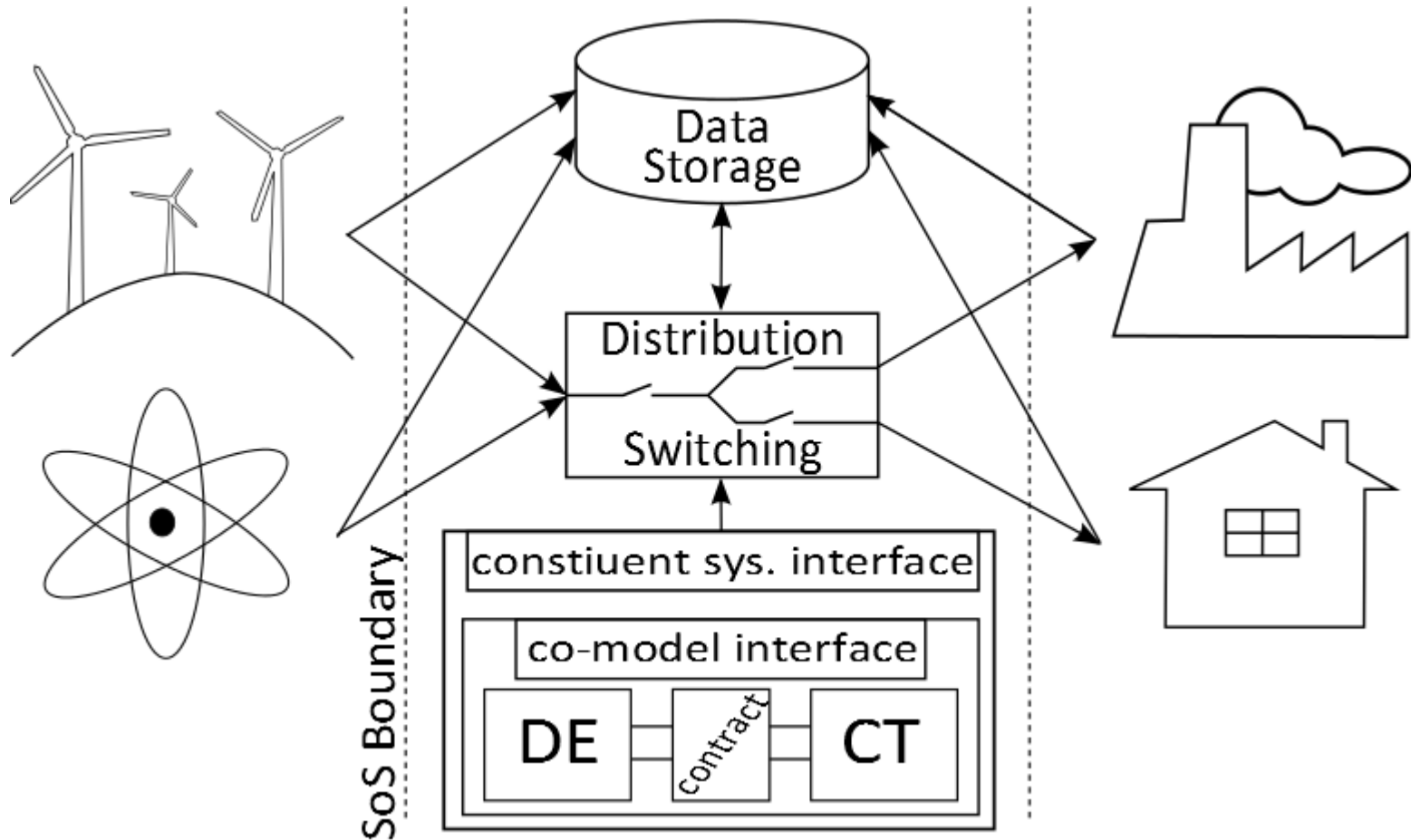
DESTECs

C © M P A S S

Motivational Example: Smart Grid



Motivational Example: Smart Grid



Combining Technologies

CML

```
process Hydroplant
```

```
types
```

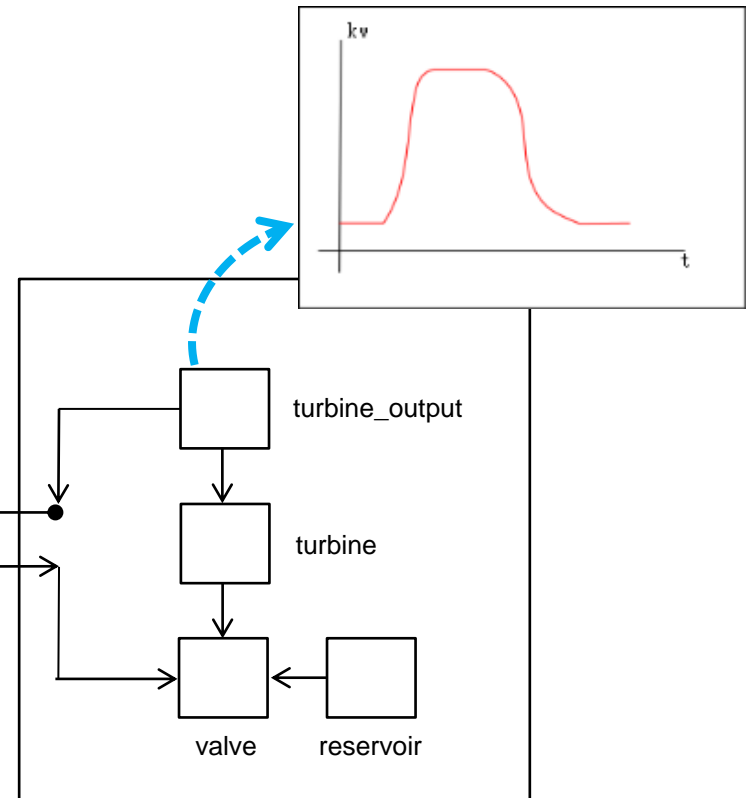
```
  Mode = <OFF> | <STANDBY> |  
        <STARTING> |  
        <GENERATING> |  
        <SHUTDOWN>
```

```
State
```

```
  currOutput : real -- {kW}  
  currMode   : Mode
```

```
...
```

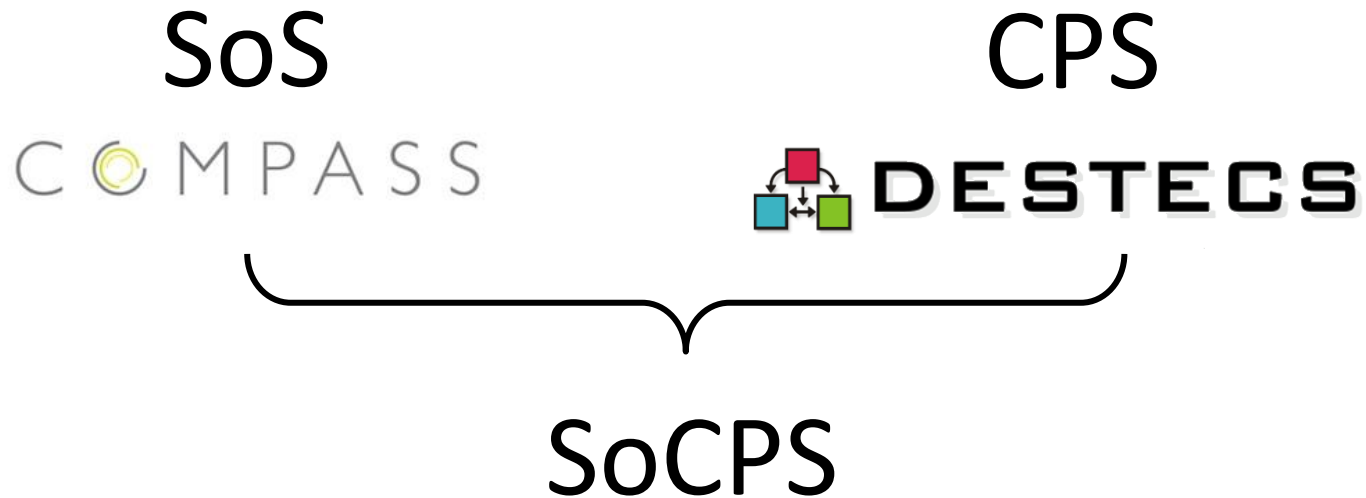
CT Model (e.g. 20-sim)



Verification Advantages

- Why bother?
- Combination of properties that influenced DESTECS and COMPASS

Modelling SoCPS



- Extend CML syntax
- Combine semantic definitions
- Create patterns for creation & use
- ...