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Component Management in OPRoS

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- Introduction of OPRoS
- OPRoS Component Model
- OPRoS Component Execution Engine
- Conclusion

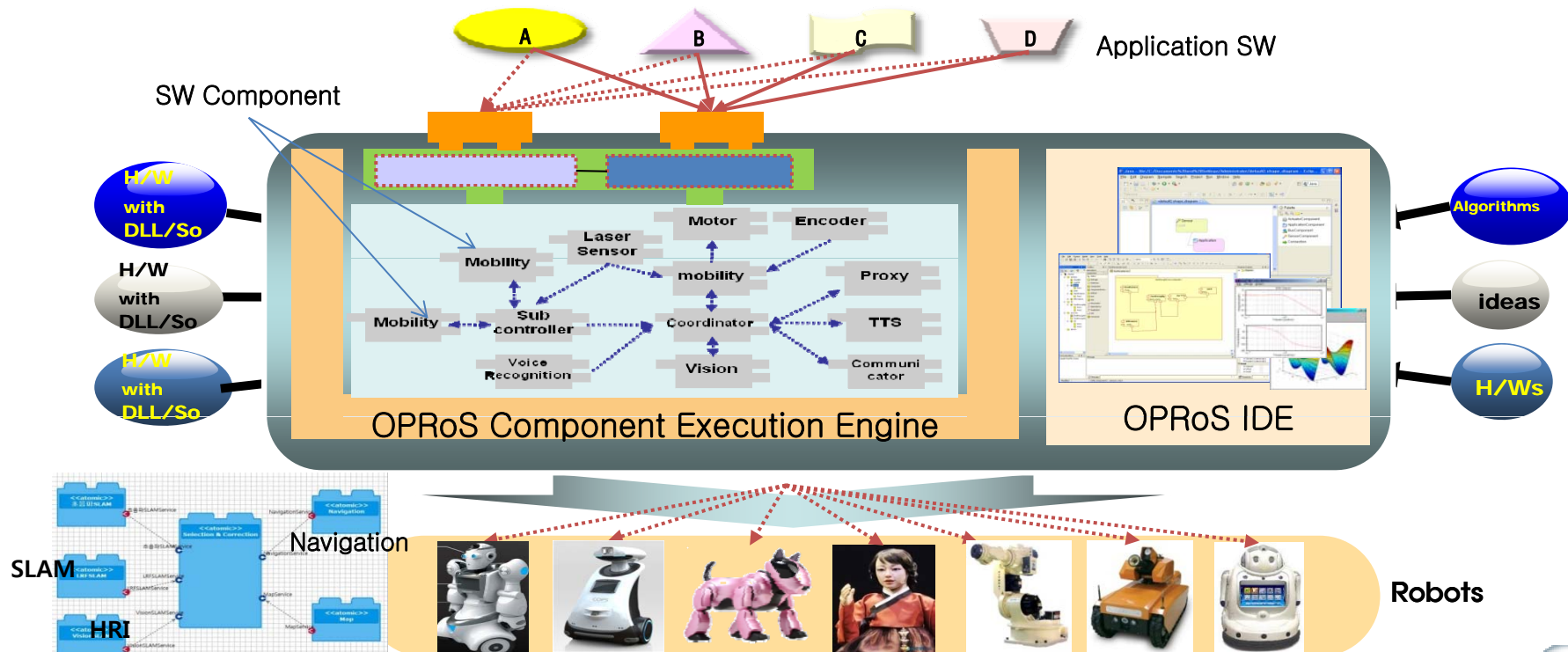


Introduction of OPRoS



OPRoS

- **OPRoS** : Open Platform for Robotic Services
- Robot software platform that provides component-based development and execution environments for robot software
- providing the robot software component model, component execution engine, various middleware services, development tools, and simulation environment



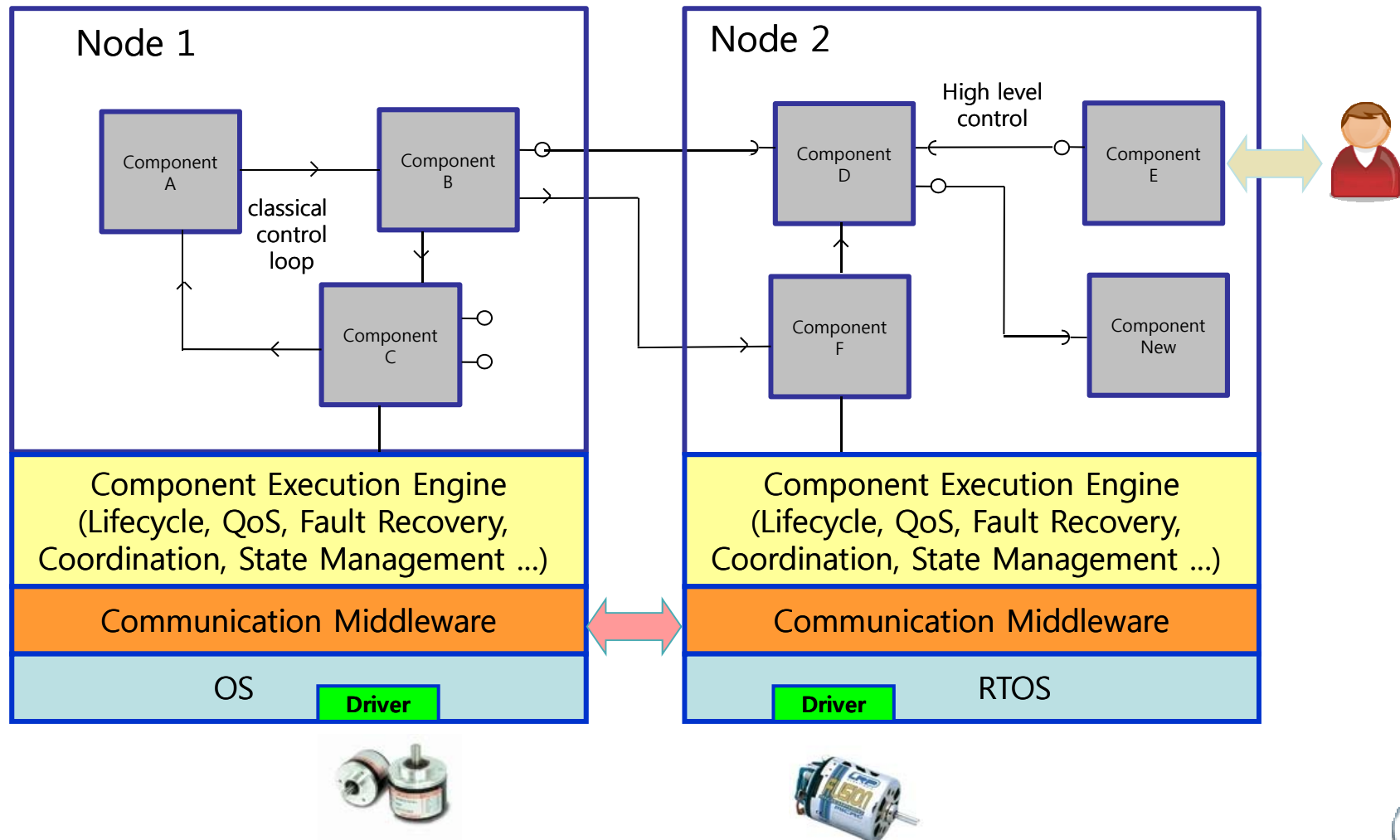
Introduction of OPRoS Component

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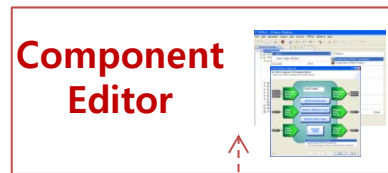
Role of Component Execution Engine





Introduction of OPRoS

Component Development Process



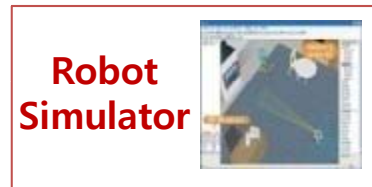
Component Editor

Editing

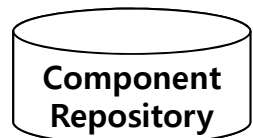
atomic component

store

Simulation & debugging



Robot Simulator

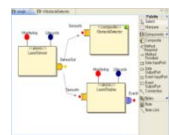


Component Repository

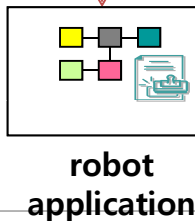
exploring

Simulation & debugging

Component Composer

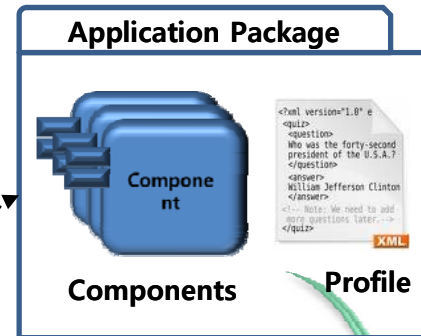


Composing



robot application

packaging

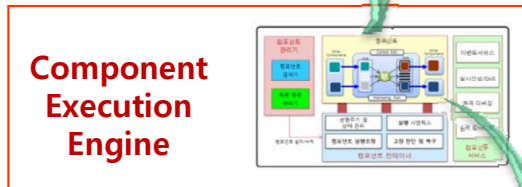


Application Package

Components

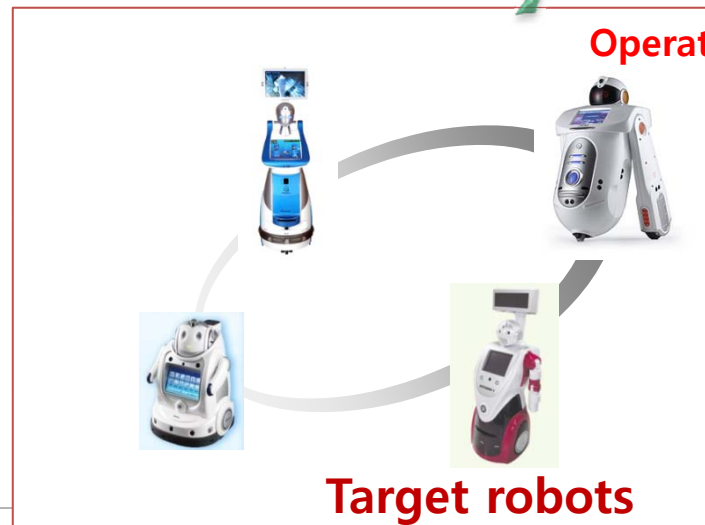
Profile

Deploying



Component Execution Engine

Operation



Target robots

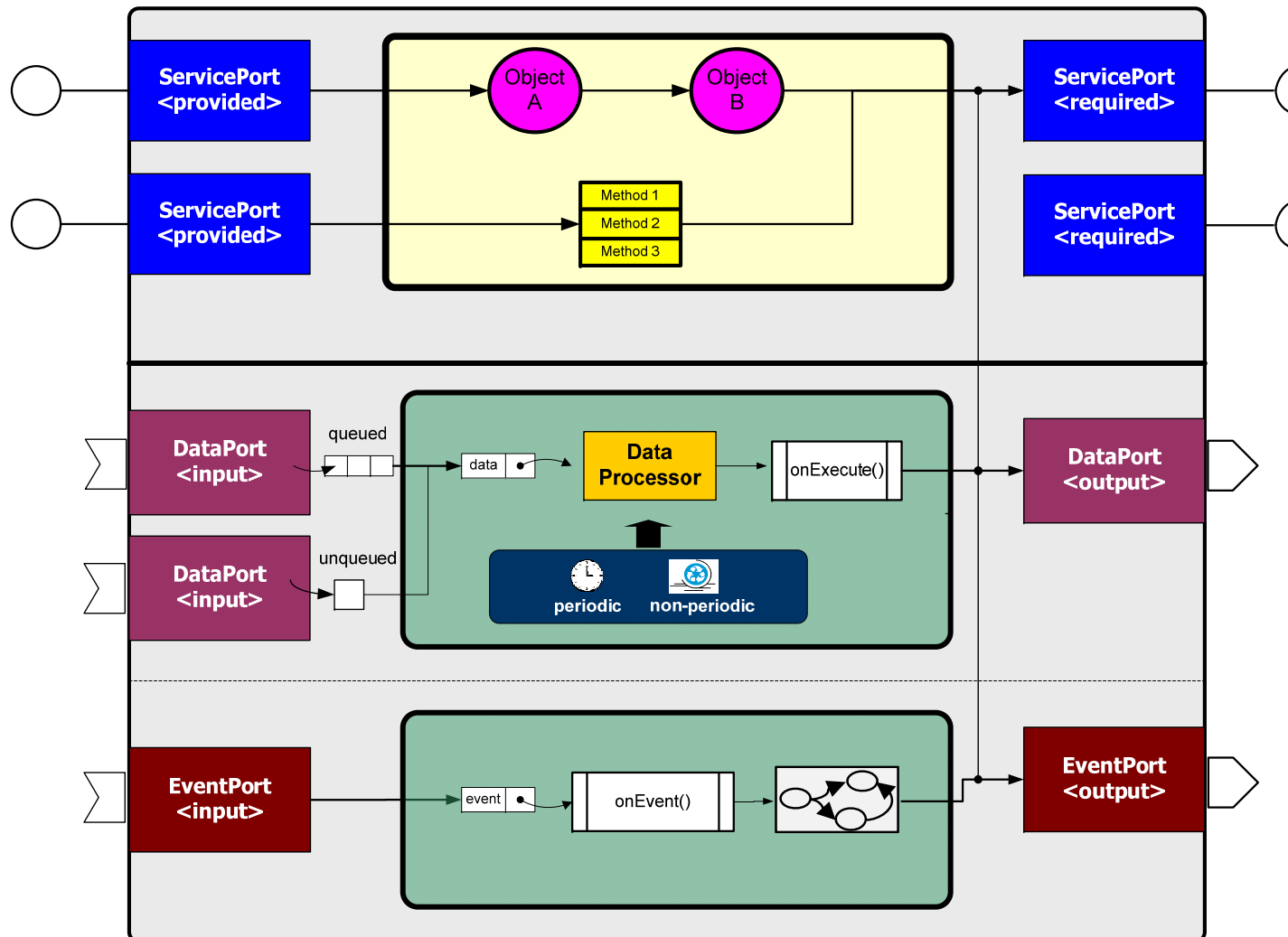
OPRoS Component Model

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Component Communication Model



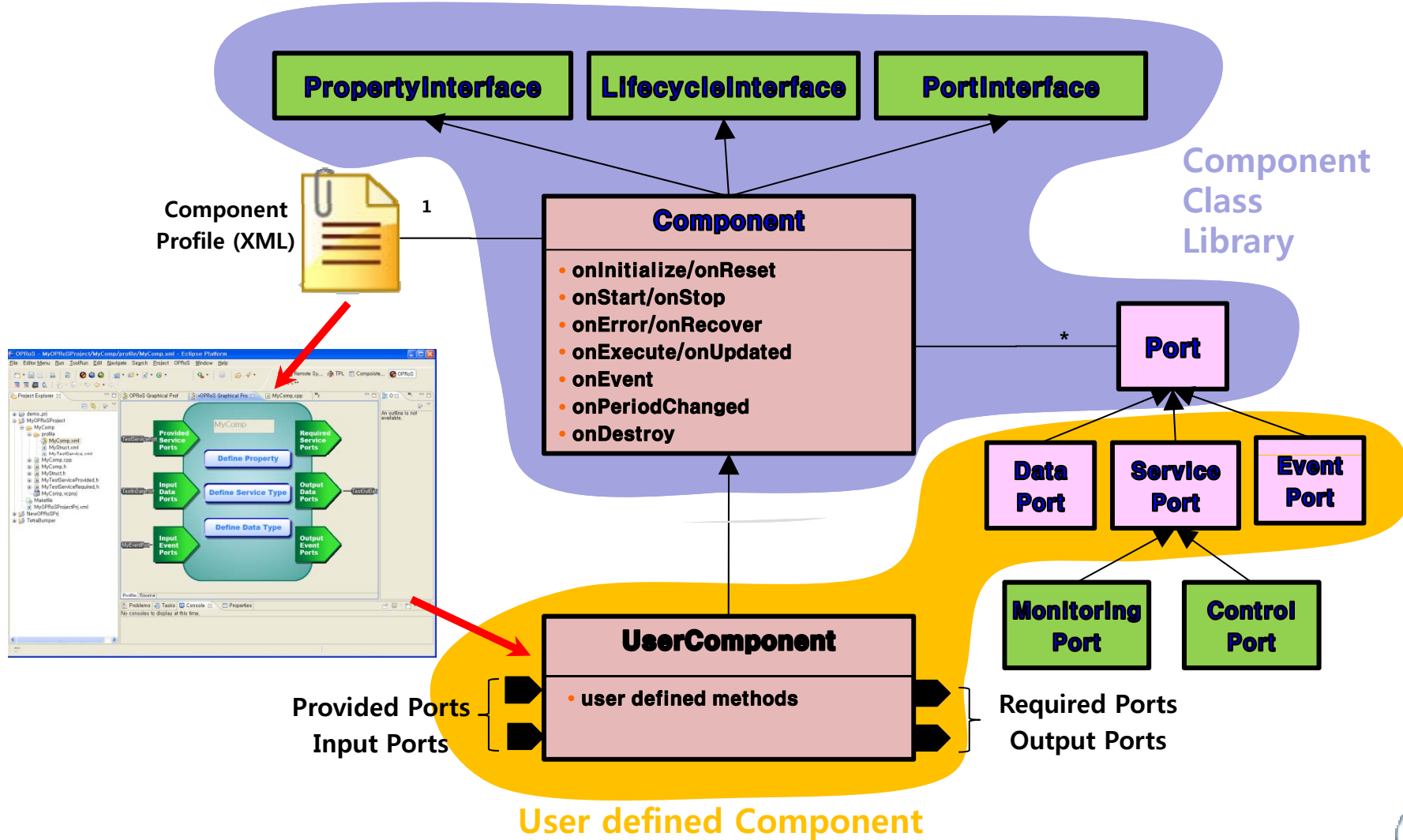
OPRoS Component Model

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Component Class Diagram



OPRoS Component Model

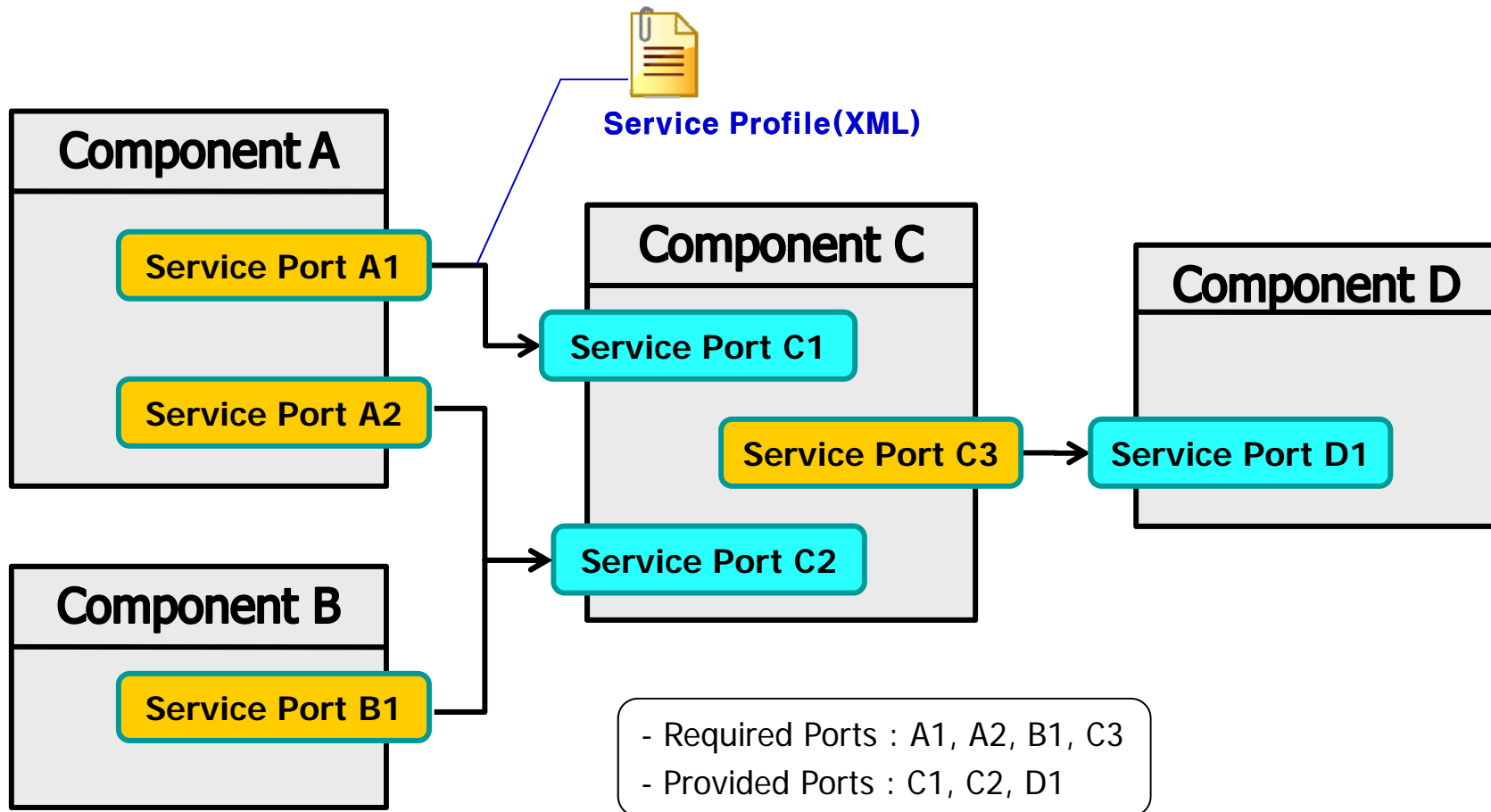
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Service Port

- Interface for method invocation of component



OPRoS Component Model

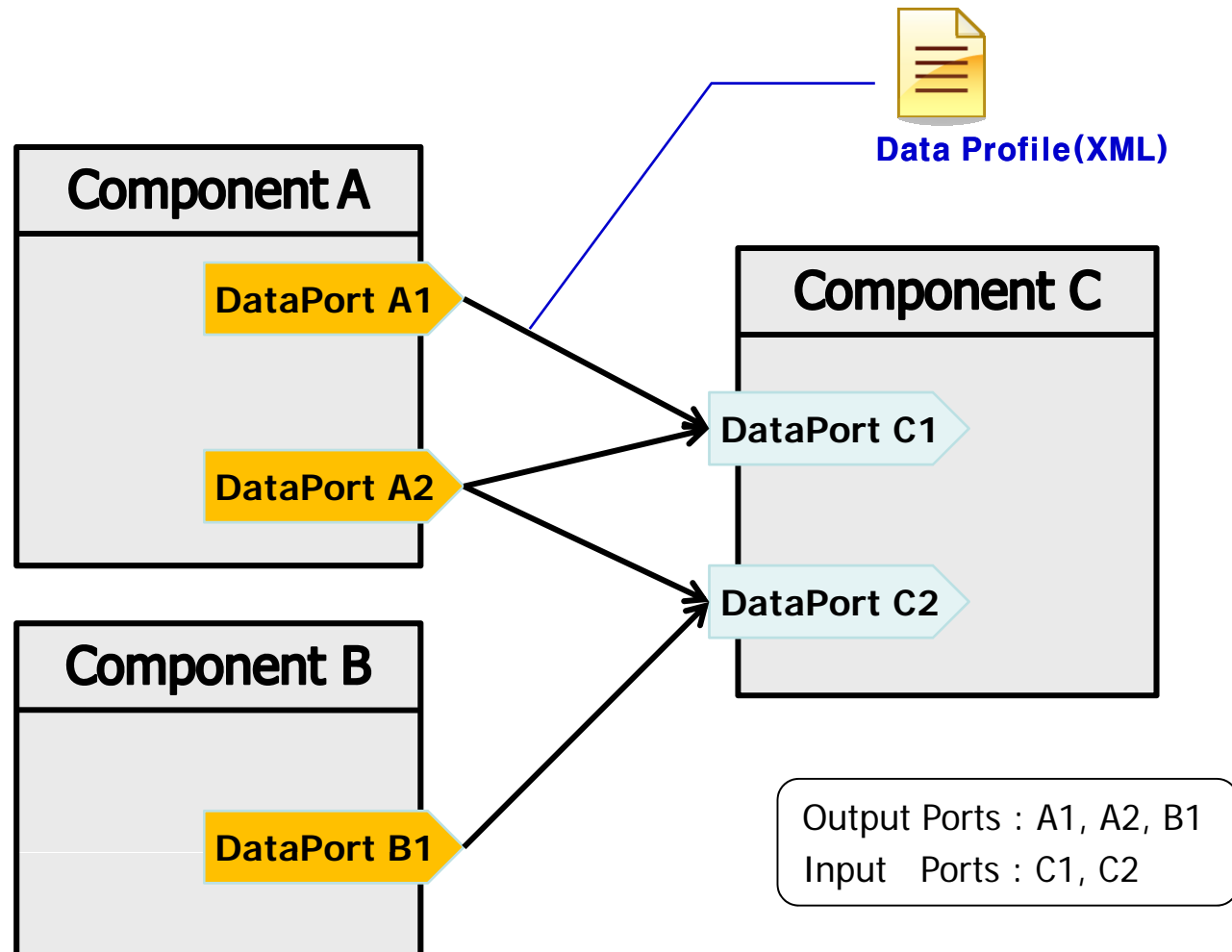
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Data Port

- Port for transferring data to components



OPRoS Component Model

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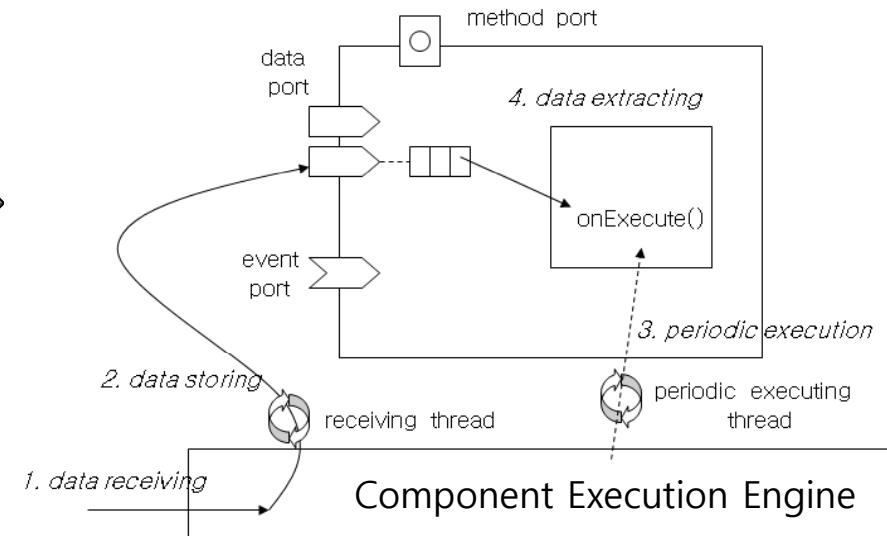
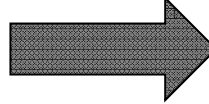
Data Port

- asynchronous processing
- data processing after queuing

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<execution_semantics>  
  <priority>5</priority>  
  <type>periodic</type>  
  <period>100</period>  
</execution_semantics>
```

<Component Profile>

Execution



OPRoS Component Model

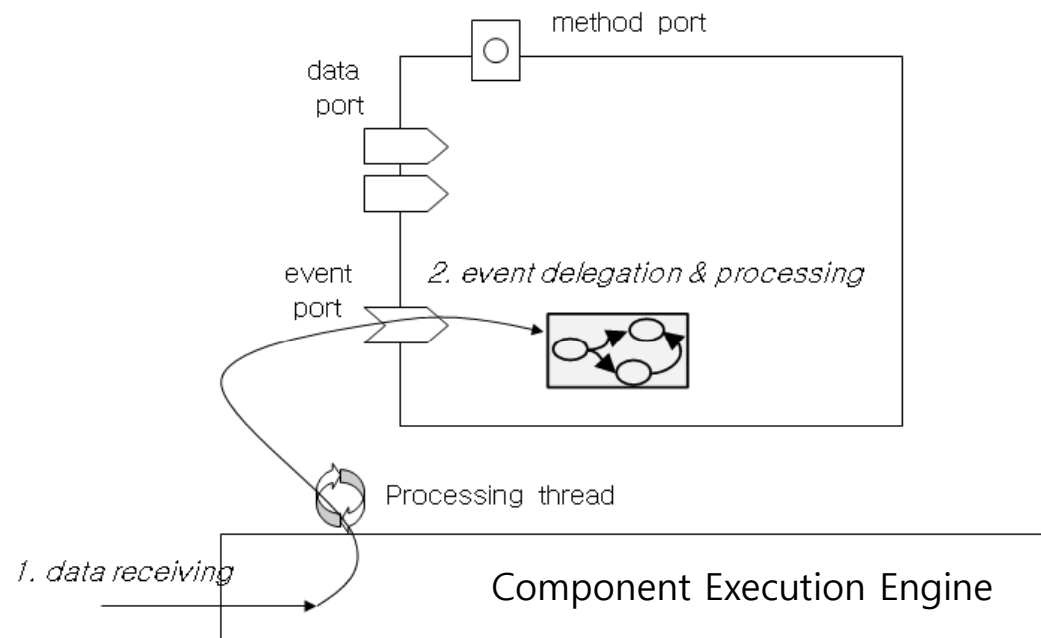
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Event Port

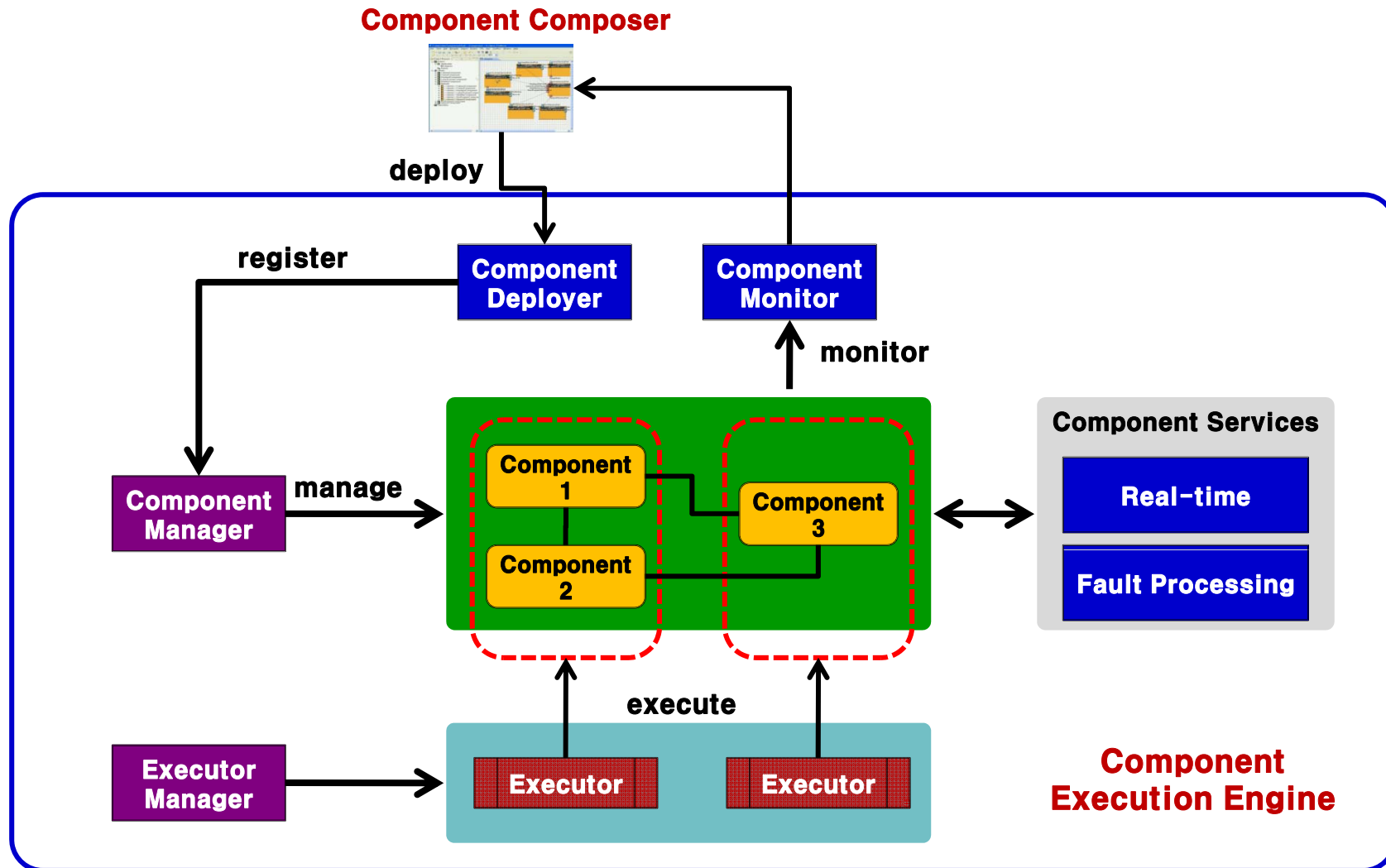
- Port for transferring event to components
 - ▶ Immediate processing of data without queuing



Component Execution Engine

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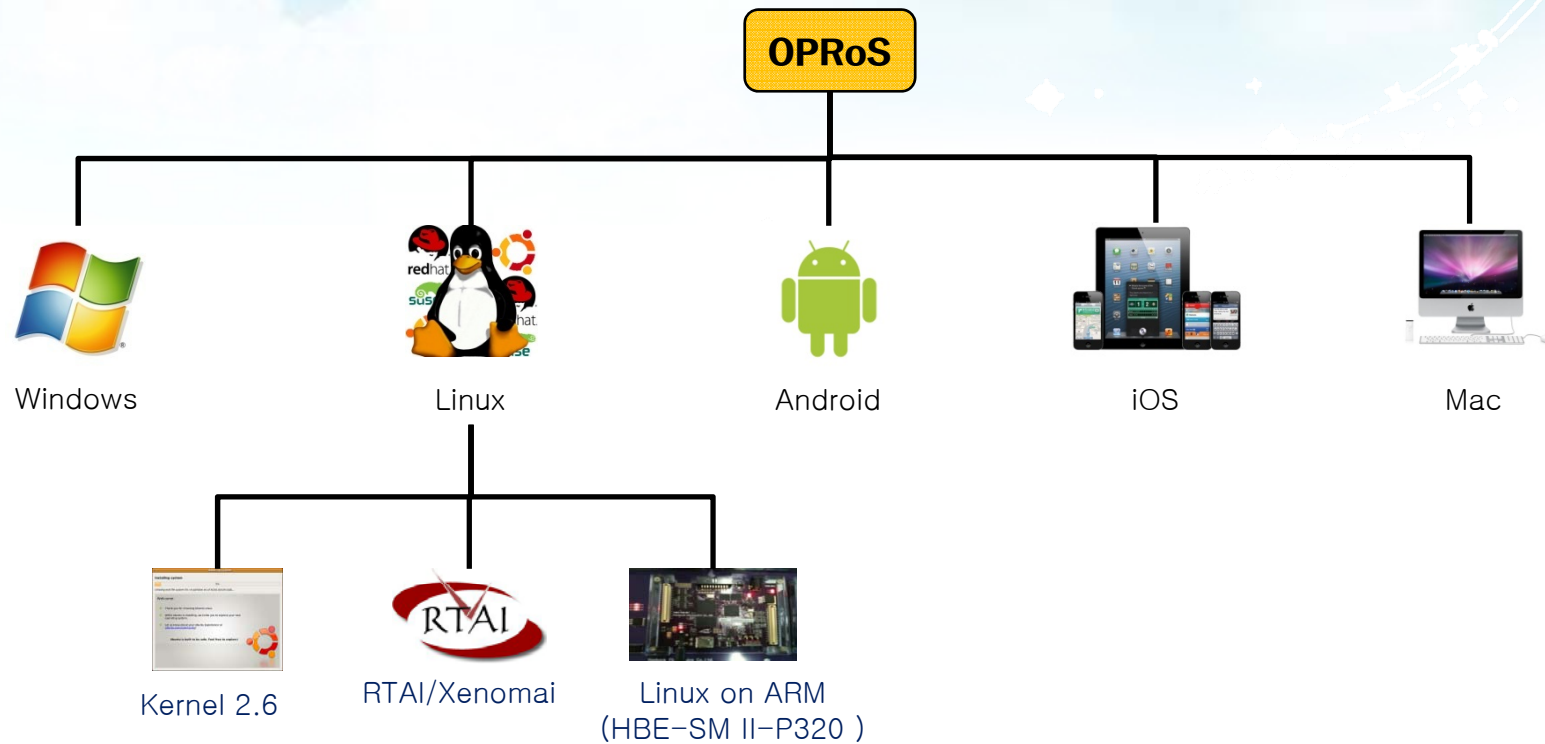




Component Execution Engine

OS Support

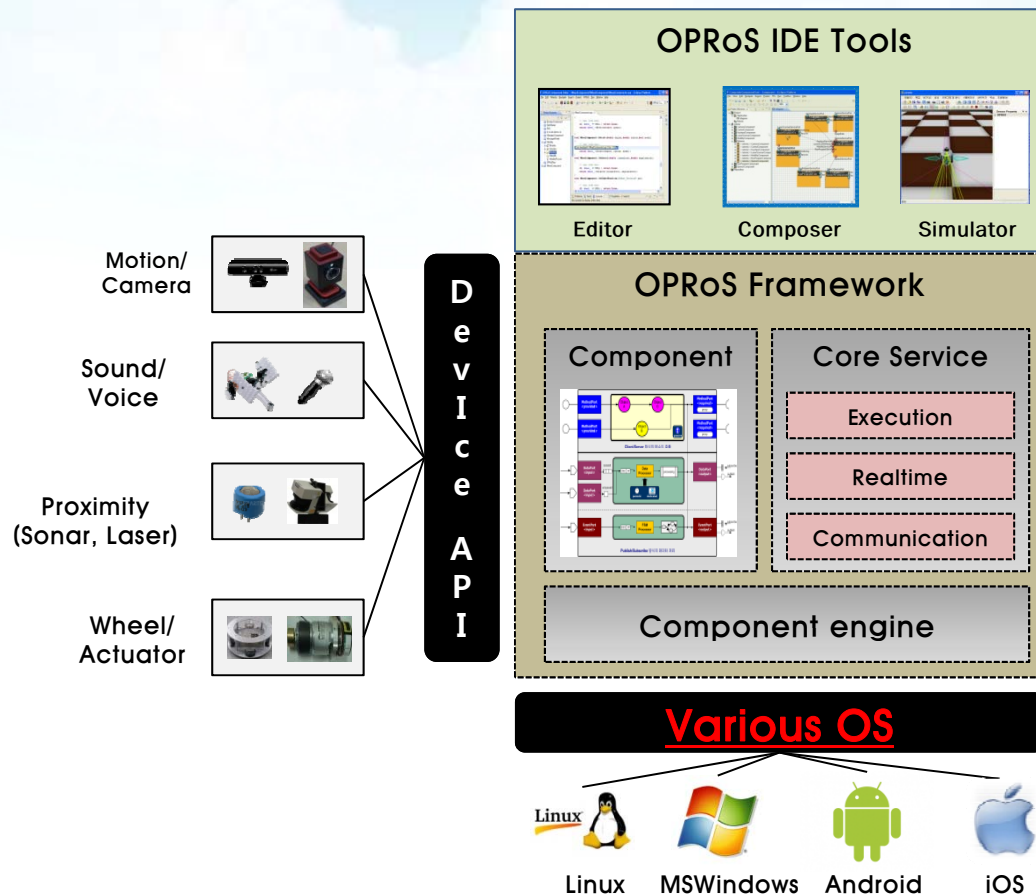
- Various OS support
- Windows, Linux
- Android, iOS, Mac





Component Execution Engine

- Open source (www.ropros.org)
- source code, documents, components

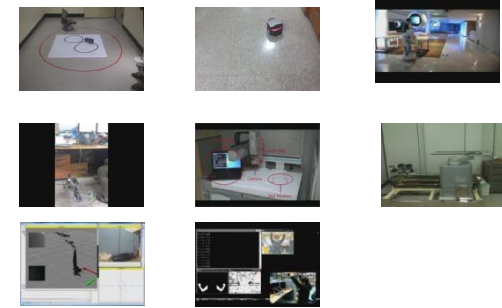


Open Source

- www.ropros.org (LGPL)
- Source, Doc, Components



Demonstrations



Q & A

Thank you!

