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SYSTEMATIC THOUGHT LEADERSHIP FOR INNOVATIVE BUSINESS

Executing Business Processes using Business Logic on Smart Items

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Collaborative Business Items – Consortium

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EU FP6 Specific Targeted Research Project

duration: 30 months, currently month 12 – 1st prototype iteration

3 industry partners

3 academic partners

1 SME

Requirements Specification

Hardware Contributor

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Service Composition

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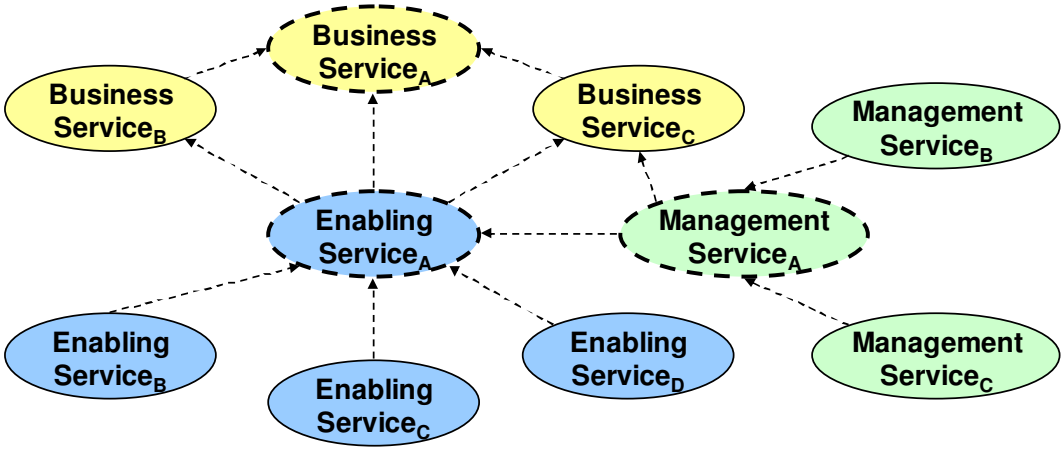
- Sensor nodes host *atomic* and/or *compound* services
- Services can be combined
  - within the same functional domain, or
  - across domains



A ---▸ B: B uses A

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Usage Patterns for Business Services

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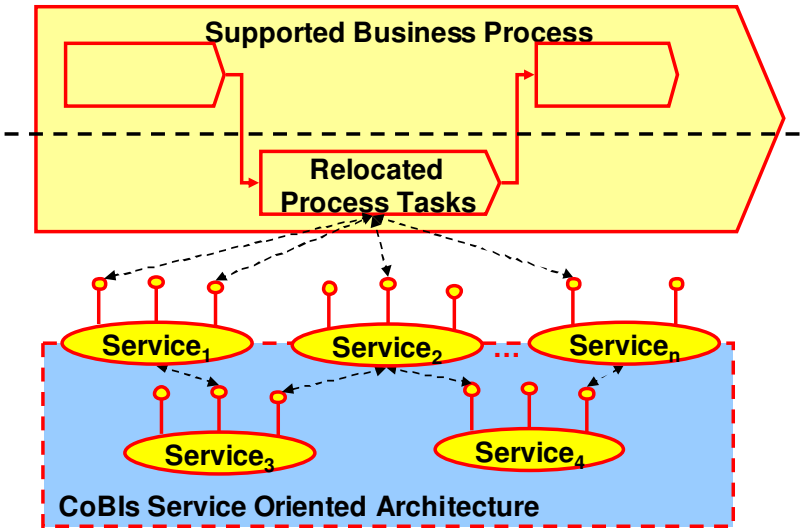
Relocated Process Execution

- Business process tasks are implemented by CoBIs nodes
- Back-end processes need to be changed
- Intelligent tremcards



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Usage Patterns for Business Services

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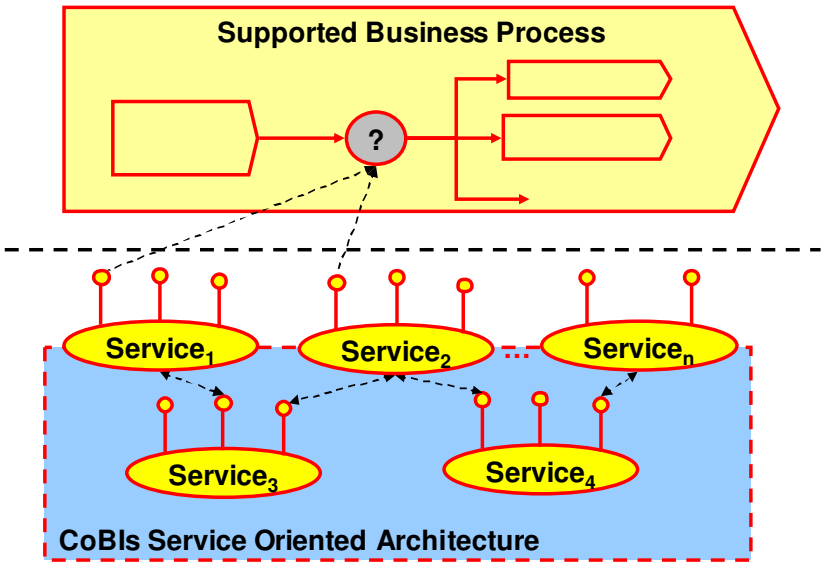
Relocated Process Control

- Starting/stopping of back-end processes, conditional jumps, etc.
- Example: Collaboration with SAP Event Manager



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Usage Patterns for Business Services

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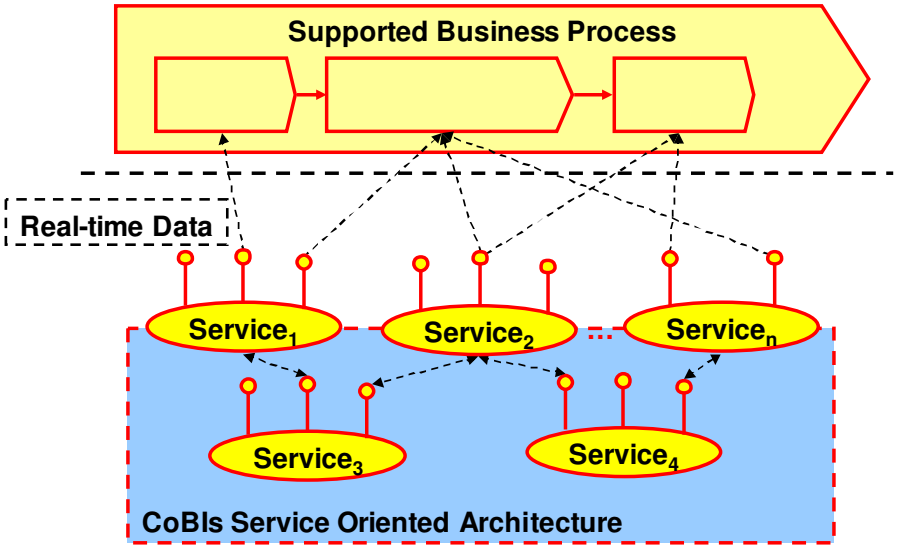
Delivery of real-world & real-time data

- Closing the gap between back-end and field data
- Auditing, Quality management, etc.



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Demo Scenario

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tert-Butyl hydroperoxide
$C_4H_{10}O_2$

2-Propanol
C_3H_8O

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Demo Scenario

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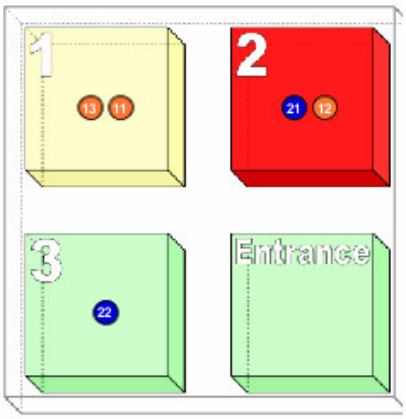
tert-Butyl hydroperoxide
$C_4H_{10}O_2$



Alerts

Room 1: Storage limit of F+ reached.
Room 2: Drums O+ and F+ can not stay in the same room!

Storage Suggestions

Currently, the system cannot make any storage suggestions, because no drums are recognized in the enterance area.

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Result – CoBIs System Architecture

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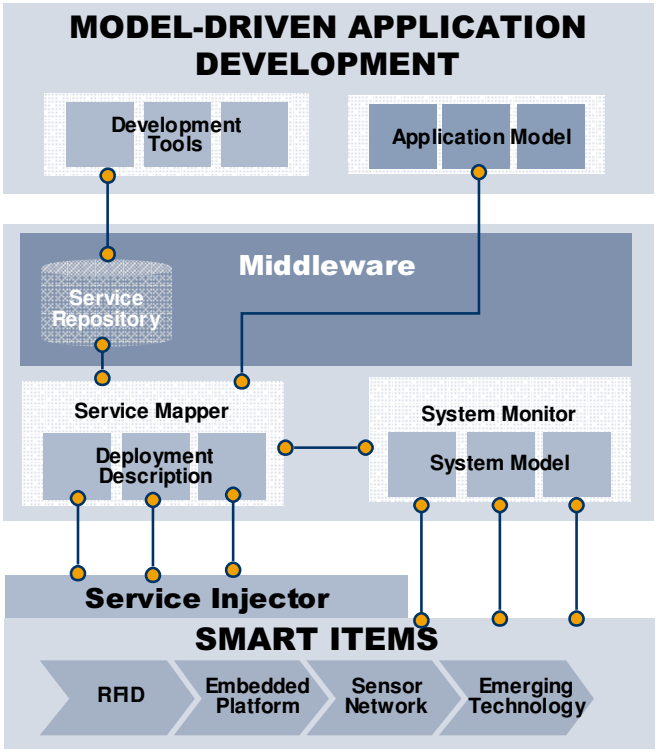

Service Classes

- **Business Services**
  Application dependent
- **Enabling Services**
  Collaboration between nodes
- **Management Services**
  Monitoring, control and deployment of services

Steps for deploying a service

- **Development Tools**
  Design Time → Application Model
- **System Monitor**
  Deliver status of system landscape
- **Service Mapper**
  Map service requirements to current status of system landscape. Where should which service be deployed?
- **Service Injector**
  Inject services into a subset of wireless nodes according to mapper's decision
- **Start the service**

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Result – Management Tools for CoBIs

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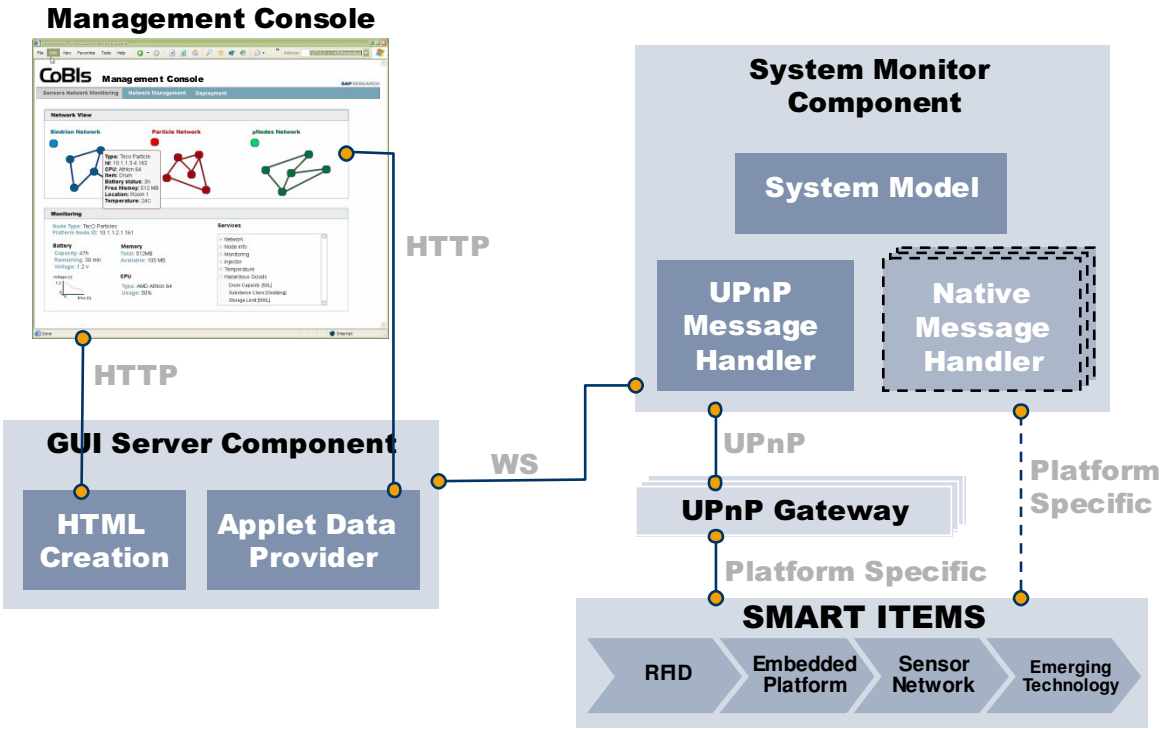

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Result – CoBIL

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- CoBIs Language (XML Schema)
- Service Description Document
- Technical Requirements of a Service
  => used for mapping
- Composition rules
  => used for describing dependencies
- Interface description
  => subset of Web Service Description Language
  => allows to generate Web Service Stub for upper layers
- Platform specific extensions
  => allows message conversion of sensor network messages to events and generation of service invocation messages

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Thank you! Any questions?

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Q&A

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