A model-driven framework for runtime adaptation of Web Service Compositions

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Basic assumptions

- Dynamic interaction between business processes
  - Web services
    - high level modeling languages and interface specifications
    - Focus on discovery and composition
- Services don't exist in a vacuum
  - Composition of application process on both sides
  - User prespecifies control flow between tasks that will be tied to abstract services
  - Specification of functional and other requirements for service usage
  - Global requirements (e.g., maximum cost)
- The environment is unreliable
  - Explicit inclusion of control tasks
  - Query environment and reconfigure task execution if needed

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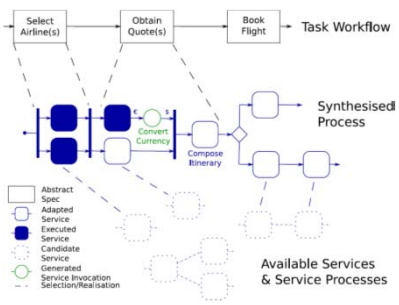
Overall Concept



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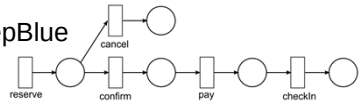
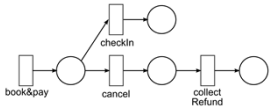
Airline booking service processes

- DeepBlue



- PurpleRed



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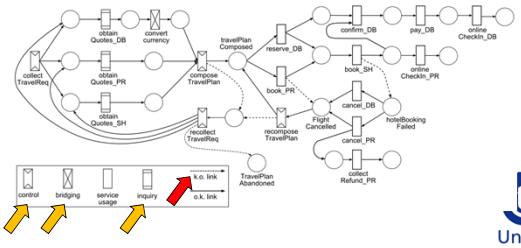
Detailed Task Workflow - Business Trip



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What models are there

- Process model
- Business objects
- State and execution schedule
- A way to conduct composition [ICSOC 09]

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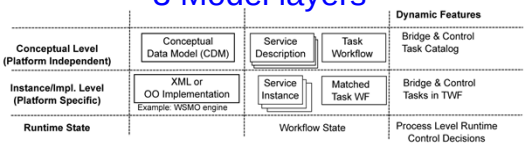
3 Model layers



- Future sample domains:
  - Maintenance processes
  - Naval combat systems

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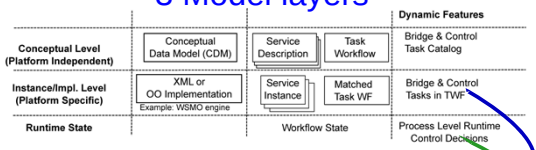
3 Model layers



- Future sample domains:
  - Maintenance processes
  - Naval combat systems
- Different levels of flexibility:
  - Design for interoperability [MODELS 10]
  - trace-based replacement [ICSOC 10]

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