WS72 Systems Architecture

Case Study 3: Graduation Exercise

SRSoS Architecture Analysis & Solution

Lecture 18

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Lab Exercise Overview

- You are a System Architect proposing your **final project solution** for your CSs Group and the wider SRSoS.
- You will communicate with other teams to enable the integration of the architecture of individual CS Groups.
- You will revise your system models to
  - Capture the previously defined **alternative behaviours**
  - Incorporate changes required and agreed upon with other CS Groups[1]
  - Integrate the CS Groups behaviours into a **set of SRSoS Sequence Diagrams**, from the **perspective of your CS Group**
  - Identify and specify interfaces (both external and internal) using SysML Block Definition and Internal Block Diagrams
- You will analyse and redefine the search and rescue strategies for your CS Groups according to the agreement reached after the second stakeholder presentation.
- You will also demonstrate, through modelling or otherwise,
  - Consistency between views (diagrams) of your system model
  - Consistency between CS Groups

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[1] *Summary notes (24-21b) to be provided*

Procedure

- You are organised into teams and your team will continue working on the same CS Group.
  - Designate one member to be the Chief Architect who will partition and be responsible for the integration of the work in a presentation.
- Analyse the second stakeholder meeting notes and the agreed search and rescue strategies[1]
- Revise your system model to
  - Incorporate the agreement reached after the second stakeholder presentation
  - Capture alternative behaviours using appropriate model elements, e.g., extended use cases, alternative flows, fragments
  - Capture the optimal search and rescue strategies
- For the final solution[2]
  - Synthesise an SRSoS sequence diagram for your SoS-level strategy;
  - Capture your interface definition in SysML Block Diagrams
- Tomorrow the Chief Architect and team will present the results.
  - 15 min for presentation and questions

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[1] *Summary notes (24-21b) to be provided*
[2] *See also Section 7.1&7.2 in the tutorial (EA&PSE Chpt 7 (pp. 95-104).*

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Assessment

- Each group will be assessed on their final SRSoS solution in terms of:
  - Model revision against stakeholder decisions following the second presentations[1]
  - Alternative behaviours integrated into the baseline scenario
  - The SoS Sequence Diagram(s)
  - Interface Identification (the process you followed)
  - Interface Definition (Block Definition and Internal Block Diagrams)
  - Consistency between the final diagrams
- Architecture analysis is assessed on
  - Architectural trade-offs for your CS Group in the context of SRSoS
  - How well the CS Group addresses the search and rescue capabilities demands
- Final specification[2] is assessed on **quality and persuasion** of the**:**
  - Linkage of the architecture to the search and rescue strategies defined
  - Suitability of the system architecture specification for Design Definition
  - Quality of presentation by the Chief Architect and team.

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[1] *Summary notes (24-21b) to be provided*
[2] *See also Section 7.4 in the tutorial (EA&PSE Chpt 7 (pp. 108-111)*

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