Repetition Questions (dt. Wiederholungsfragen) Lesson 3

Topics and Concepts (Link to Lecture, via Fact Sheets)

The lesson of the lecture today covered the following concepts (see fact sheets in script folder):

1. Solution Strategy and Big Decisions[1]
2. Layers and Client Server Cuts[2]
3. C4 Model[3]

In the corresponding exercise[4], we applied these concepts.

Questions

Topic/Concept: Solution Strategy (Making Big Decisions)

1. Which concept in UP and DA(D) corresponds to Solution Strategy (an arc42 term)?
2. List at least five decision making criteria for "big" executive decisions that were mentioned in lecture or exercise.
3. Would you make any of the following decisions during solution strategy, or defer them until later in the project?

- Choice of messaging middleware ActiveMQ vs. RabbitMQ (see VSS lecture) [Y/N]
- Choice of asynchronous messaging as an integration style (instead of RPC or shared database or file transfer) [Y/N]
- Choice of JSON library used for parsing text messages exchanged in the backend [Y/N]

Topic/Concept: Client/Server Cuts

1. What is the difference between layers and tiers (according to the lecture slides and the fact sheet)?
2. How many CSC options/patterns were introduced? Do they exclude each other or can they be combined?
3. Which CSC is implemented by Spinnaker (according to the sample solution for exercise 3)?

Topic/Concept: C4 Model

1. Name the four diagrams in the C4 model and discuss at least one option to create such diagrams.
2. What is the connection from C4 to CSCs and the layers-and-tiers topic?
3. How do the C4 concepts relate to the topics from lesson 1, for instance definitions of software architecture, ASRs, viewpoints?
4. How are quality attribute scenarios and stories used when working with C4 diagrams?

[1] ../2-lecture-script/lesson1/ZIO-SolutionStrategyFactSheet.md
[2] ../2-lecture-script/lesson1/ZIO-ClientServerCuts.md
[3] ../2-lecture-script/lesson1/ZIO-C4ModelStructurizrFactSheet.md
[4] ../3-exercises-solutions/ZIO-AppArch-ExerciseWeek3.md

Answers

Topic/Concept: Solution Strategy (Making Big Decisions)

1. *Architecture Envisioning*
2. *Cost (of development effort or software procurement), license type, coverage of FURPS requiements (or other NFR taxonmy), supported platform, vendor credibility and market position and many more (for buy vs. build decision)*
3. *Answers:*

- *Choice of messaging middleware ActiveMQ vs. RabbitMQ (see VSS lecture) [N]*
- *Choice of asynchronous messaging as an integration style (instead of RPC or shared database or file transfer) [Y]*
- *Choice of JSON library used for parsing text messages exchanged in the backend [N]*

Topic/Concept: Client/Server Cuts

1. *Application of Layers pattern in the logical viewpoint (layers) and in the physical viewpoint (tiers): a tier boundary implies a remote connection*
2. *Five, see slide 15 in lesson 2 and corresponding bullet list in fact sheet; we saw several examples of combinations, e.g., remotr presentation plus remote database in a 3-Tier architecture*
3. *Distributed Application Kernel (set of microservices), Remote Presentation, possibly aso Remote Database (depending on deployment decision for Redis datastore)*

Topic/Concept: C4 Model

1. *Context, Containers, Components, Classes; UML or IRP or Structurizr (for first three); code for classes*
2. *The container diagram shows tiers (and, optionally, some layering); the component diagram shows the layers and their oontent in detail.*
3. *Diagrams show elements with some high-level properties; ASR justify their inclusion and structure (relationships); Context: Scenario; Container: logical and physical, Component: logical (and implementation?), Classes: implementation*
4. *They can justify the introduction of elements in each diagram, or the relationships between and properties of elements (no direct representation).*