A Software Architecture Orientation Framework

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Abstract

Software architecture is a complex domain and one of the cornerstones to successful software development. The complexity appears in learning and teaching as well as in real-life projects, where architectural thinking emerges as a process of life-long learning. In order to develop a structured and comprehensive architectural awareness, we present an explanatory model for dealing with architecture.

1. Motivation

Architects work in a very varied and dynamic environment. New technologies are flooding onto the market, new tools promise increases in efficiency and productivity, lean methodologies promise risk-free project management, and new architecture concepts claim to reduce the inherent complexity of IT systems. An architect must be able to understand, classify, and finally assess all of these developments and new features in order to select a suitable solution for a specific problem.

Thereby, architectural thinking emerges as a process of life-long learning. In order to develop a structured and comprehensive architectural awareness, we present an explanatory model for dealing with architecture. It provides orientation by positioning the significant elements of architecture in a comprehensive orientation framework using simple question words.

2. Orientation framework overview

The core of our architectural orientation framework is structured like a type case, into which new experiences and new things learned can be sorted in, and retrieved as when they are required. For simplicity reasons, it is restricted to the few most important dimensions, or rather main sections in the sense of the type case metaphor. However, at the same time, these dimensions are extensive enough to be able to describe the varied natures of architecture. For a practical orientation of our framework, each dimension is assigned with an open question word. This reflects the principal task of an architect as practitioner; providing answers to questions and problems put by customers, team members, suppliers, or even the architect himself.

For the software architecture domain, a detailed consideration of each dimension can be found in [1]. However, the orientation framework itself is not restricted to software architecture. It can be instantiated to get a structured access to learning and teaching in other architectural domains such as enterprise architecture, system architecture etc., too.

References