

LECTURE IN WINTER TERM 2015/2016:

# FUTURE-PROOF SOFTWARE-SYSTEMS

(Zukunftsfähige Softwaresysteme)

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## LECTURE OBJECTIVES

Software is the fuel which powers most of today's products and services. Their functionality, quality and competitiveness depend on the performance of their software. Banking systems, energy distribution grids, traffic control systems, cars, airplanes, trains, mobile phones, PCs, medical devices, nuclear power plants – and many more – run on more or less visible software. Thus software is responsible for both wonderful success stories and for dangerous failures of products and services.

Software – and the ability to produce software – has therefore become a key competitive factor in most industries. The fundamental quality properties: *Business value*, *agility* and *resilience* of software often decide over success or failure of a product or service. In order to enable a competitive industry, we need agile, dependable, resilient and affordable systems based on software – which in this lecture are introduced as “future-proof software-systems”.

Future-proofness of a software-system is the result of its *architecture*. Only a well defined, adequate and consistently evolving architecture assures the necessary *business value*, *agility*, *resilience*, and other quality attributes. Fortunately, systems architecture has matured from a “black art” to a well founded system science today. Architecture is taught and implemented using *architecture principles*. This lecture focuses on the important architecture principles for future-proof software-systems – presenting the “IT architects toolbox”, focused on agility and resilience of software systems.

In addition, the necessary context and the skills of a “future-proof software-systems engineer” are defined and explained. The lecture will contribute to the student's knowledge and skills to become valuable, leading software architects in their future companies.

## SCHEDULE

The lecture is delivered Wednesday from **11:10 – 14.30** in room **INF/2101** on the following dates: 14.10.2015; 28.10; 11.11; 25.11; 09.12; 06.01.2016; 20.01; 03.02. Lecture language is English.

Please refer to the website of the lecture for short-time changes, for the download of the lecture slides and for additional information: <http://st.inf.tu-dresden.de/teaching/fps>