

- *An architectural process*  
How do you create and validate an architecture that satisfies the needs of a project? Who does it? What are the artifacts and the quality attributes of this task?

The Rational Unified Process contains some answers to all three points. But let's start by defining more precisely what we mean by *software architecture*, or rather, by the architecture of a software-intensive system.

## A DEFINITION OF ARCHITECTURE

Many definitions of architecture have been proposed. The Rational Unified Process defines *architecture* as follows.<sup>3</sup>

Architecture encompasses significant decisions about the following:

- The organization of a software system
- The selection of structural elements and their interfaces by which the system is composed, together with their behavior as specified in the collaboration among those elements
- The composition of these elements into progressively larger subsystems
- The architectural style that guides this organization, these elements and their interfaces, their collaborations, and their composition

Software architecture is concerned with not only structure and behavior but also context: usage, functionality, performance, resilience, reuse, comprehensibility, economic and technological constraints and trade-offs, and aesthetics.

This definition is long, but it attempts to capture the richness, the complexity, and the multiple dimensions of the concept. We can elaborate on some of the points.

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3. This definition evolved from one given several years ago by Mary Shaw and David Garlan of Carnegie-Mellon University. See their textbook *Software Architecture—Perspectives on an Emerging Discipline*. Upper Saddle River, NJ: Prentice-Hall, 1996.