Software Development Architecture

Software development architecture is an emerging discipline that is somewhat new within the software engineering realm. Even more, it is a practice that continues to change and improve. Still, there are some limitations to software development architecture, including:

- The distinct lack of comprehensive tools and standardized ways to model architecture
- Lack of analysis methods to predict whether software development architecture will result in an
- implementation that meets the requirements a business has set forth
- Lack of understanding of the role that a software architect plays in the development process
- Poor communication among IT teams, CIOs, and stakeholders.
- No comprehension of the design process
- Lack of design experience
- Little chance to evaluate a design

Software System Architect

A software system architect has one main goal: to produce a solution that a technical team can then create and design for the entire application. This is a complicated practice and requires years of hands-on experience and studying for that person to make a few mistakes. Of course, with software system architecture being relatively new, it is difficult to find people with that capability. Therefore there are software system architecture tools to help spot problems and quickly test any changes. Still, a software system architect needs to have experience in the following:

Software Architecture & Design Introduction

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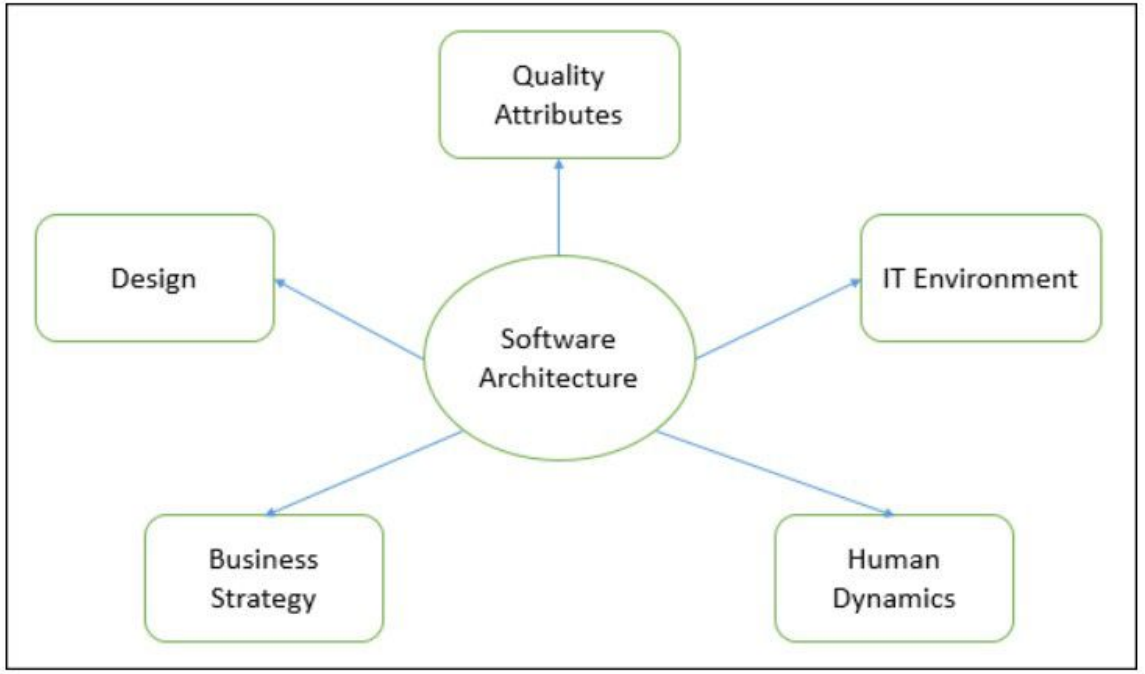
The architecture of a system describes its major components, their relationships (structures), and how they interact with each other. Software architecture and design includes several contributory factors such as Business strategy, quality attributes, human dynamics, design, and IT environment.



We can segregate Software Architecture and Design into two distinct phases: Software Architecture and Software Design. In **Architecture**, nonfunctional decisions are cast and separated by the

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Design: A software system architect needs to be an expert in designing software, including in many diverse approaches and areas that will integrate with a current system. They also need to be able to lead the development team or at least coordinate with them to keep the integrity of the design. Finally, they need to be able to review design proposals and understand just what changes need to be made.

Domain: Software system architects need to be experts on the system being developed for current changes and the future of the software. This includes the ability to assist in the requirement acquisition process and in testing. It also requires the ability to coordinate the definition of a domain model for the system.

Technology: Software system architecture requires professionals to be experts on the emerging technologies that help with the implementation of the system, even if they do not need to be hands on in the process. They still need to be able to coordinate the selection of platforms, frameworks, programming languages, and other imperative pieces of information.

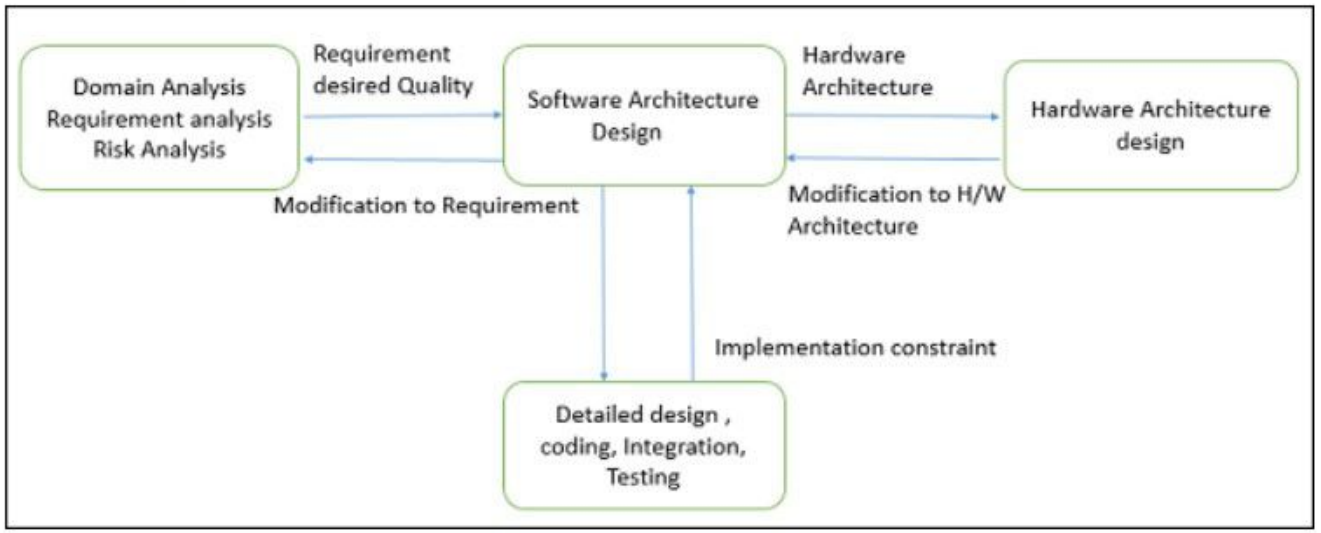
Methods: Software system architecture requires knowledge of the different development methodologies that can be used throughout the software development life cycle. This will help that person help CIOs and IT leaders to choose the appropriate approaches to software development – something that can help the entire team.

Software Design

Software design provides a **design plan** that describes the elements of a system, how they fit, and work together to fulfill the requirement of the system. The objectives of having a design plan are as follows −

- To negotiate system requirements, and to set expectations with customers, marketing, and management personnel.
- Act as a blueprint during the development process.
- Guide the implementation tasks, including detailed design, coding, integration, and testing.

It comes before the detailed design, coding, integration, and testing and after the domain analysis, requirements analysis, and risk analysis.



Goals of Architecture

The primary goal of the architecture is to identify requirements that affect the structure of the application. A well-laid architecture reduces the business risks associated with building a technical solution and builds a bridge between business and technical requirements.

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