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Architecture

Software Architecture

todo:

- Software engineering / software engineer
- Systems architecture / systems architect

Software Architecture Definition

The software architecture of a program or computing system is the structure or structures of the system, which comprise software elements, the externally visible properties of those elements, and the relationships among them.

Architecture is concerned with the public side of interfaces; private details of elements, details having to do solely with internal implementation are not architectural.

— Bass, Clements, and Kazman

Snippet from [Wikipedia](#): **Software architecture**

Software architecture is the set of structures needed to reason about a software system and the discipline of creating such structures and systems. Each structure comprises software elements, relations among them, and properties of both elements and relations.

The *architecture* of a software system is a metaphor, analogous to the architecture of a building. It functions as the blueprints for the system and the development project, which project management can later use to extrapolate the tasks necessary to be executed by the teams and people involved.

Software architecture design is commonly juxtaposed with software application design. Whilst application design focuses on the design of the processes and data supporting the required functionality (the services offered by the system), software architecture design focuses on designing the infrastructure within which application functionality can be realized and executed such that the functionality is provided in a way which meets the system's non-functional requirements.

Software architecture is about making fundamental structural choices that are costly to change once implemented. Software architecture choices include specific structural options from possibilities in the design of the software.

For example, the systems that controlled the Space Shuttle launch vehicle had the requirement of being very fast and very reliable. Therefore, an appropriate real-time computing language would need to be chosen. Additionally, to satisfy the need for reliability the choice could be made to have multiple redundant and independently produced copies of the program, and to run these copies on independent hardware while cross-checking results.

Documenting software architecture facilitates communication between stakeholders, captures early decisions about the high-level design, and allows reuse of design components between projects. ^{:29-35}

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Software application architecture is the process of defining a structured solution that meets all of the technical and operational requirements, while optimizing common quality attributes such as performance, security, and manageability.

Todo:

- [Software design pattern](#)
- Data Structures
- [Algorithms](#)
- Middleware (IIS, Django, Apache etc..)
- https://cio-wiki.org/wiki/Software_Architecture
- <https://www.cs.colorado.edu/~kena/classes/5828/s10/presentations/softwarearchitecture.pdf>
- <https://towardsdatascience.com/10-common-software-architectural-patterns-in-a-nutshell-a0b47a1e9013>

Architecture Articles

A

- [Agile Architecture](#)
- [Application Architecture](#)
- [Architectural Runway](#)
- [Architecture Lifecycle](#)

B

- [Business Architecture](#)

C

- [Cloud Architecture](#)

C cont.

- [Composable Architecture](#)

D

- [Data Architecture](#)
- [Digital architecture](#)

E

- [Enterprise Architecture](#)

I

- [Information Architecture](#)
- [Integration Architecture](#)

S

- [Security Architecture](#)
- [Software Architecture](#)
- [Solution Architecture](#)
- [System Architecture](#)

T

- [Technology Architecture](#)

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