4 - Definição das Características de Arquitetura

Monday, 3 March, 2025 8:14 Manhã

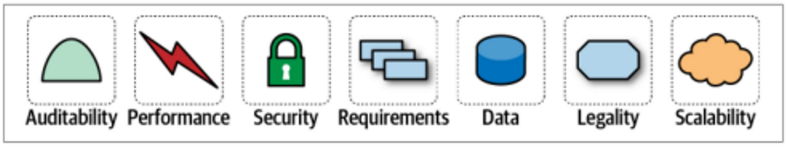
- Vários critérios - requisitos
- 

Figure 4-1. A software solution consists of both domain requirements and architectural characteristics

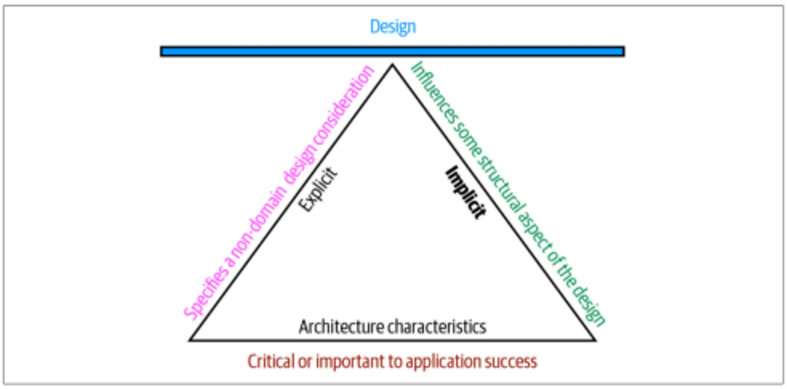
- Características de arquitetura
- 

Figure 4-2. The differentiating features of architecture characteristics

- Arquiteto deve escolher o mínimo de características possível
  - Cada uma adiciona complexidade
- Características:
  - Implícitas
    - Confiabilidade, segurança, está pressuposto em qualquer aplicação
  - Explícitas

- Listas (incompletas) de características:

  - **Características Operacionais** (próximo a DevOps)
    - *Table 4-1. Common operational architecture characteristics*

Term	Definition
Availability	How long the system will need to be available (if 24/7, steps need to be in place to allow the system to be up and running quickly in case of any failure).
Continuity	Disaster recovery capability.
Performance	Includes stress testing, peak analysis, analysis of the frequency of functions used, capacity required, and response times. Performance acceptance sometimes requires an exercise of its own, taking months to complete.
Recoverability	Business continuity requirements (e.g., in case of a disaster, how quickly is the system required to be on-line again?). This will affect the backup strategy and requirements for duplicated hardware.
Reliability/ safety	Assess if the system needs to be fail-safe, or if it is mission critical in a way that affects lives. If it fails, will it cost the company large sums of money?
Robustness	Ability to handle error and boundary conditions while running if the internet connection goes down or if there's a power outage or hardware failure.
Scalability	Ability for the system to perform and operate as the number of users or requests increases.

  - **Características Estruturais** (estrutura do código)

Table 4-2. Structural architecture characteristics

Term	Definition
Configurability	Ability for the end users to easily change aspects of the software's configuration (through usable interfaces).
Extensibility	How important it is to plug new pieces of functionality in.
Installability	Ease of system installation on all necessary platforms.
Leverageability/ reuse	Ability to leverage common components across multiple products.
Localization	Support for multiple languages on entry/query screens in data fields; on reports, multibyte character requirements and units of measure or currencies.
Maintainability	How easy it is to apply changes and enhance the system?
Portability	Does the system need to run on more than one platform? (For example, does the frontend need to run against Oracle as well as SAP DB?
Supportability	What level of technical support is needed by the application? What level of logging and other facilities are required to debug errors in the system?
Upgradeability	Ability to easily/quickly upgrade from a previous version of this application/solution to a newer version on servers and clients.

- **Características Transversais** (outros)

Table 4-3. Cross-cutting architecture characteristics

Term	Definition
Accessibility	Access to all your users, including those with disabilities like colorblindness or hearing loss.
Archivability	Will the data need to be archived or deleted after a period of time? (For example, customer accounts are to be deleted after three months or marked as obsolete and archived to a secondary database for future access.)
Authentication	Security requirements to ensure users are who they say they are.
Authorization	Security requirements to ensure users can access only certain functions within the application (by use case, subsystem, webpage, business rule, field level, etc.).
Legal	What legislative constraints is the system operating in (data protection, Sarbanes Oxley, GDPR, etc.)? What reservation rights does the company require? Any regulations regarding the way the application is to be built or deployed?
Privacy	Ability to hide transactions from internal company employees (encrypted transactions so even DBAs and network architects cannot see them).
Security	Does the data need to be encrypted in the database? Encrypted for network communication between internal systems? What type of authentication needs to be in place for remote user access?
Supportability	What level of technical support is needed by the application? What level of logging and other facilities are required to debug errors in the system?
Usability/ achievability	Level of training required for users to achieve their goals with the application/solution. Usability requirements need to be treated as seriously as any other architectural issue.

- Definições nem sempre são 100% objetivas
  - Algumas se sobrepõem
- ISO (international Standards Organization) tem uma lista própria
  - Não é unanimidade
- Não se pode otimizar todas as características ao mesmo tempo
- Trade-offs
  - E.g. desempenho VS segurança
- Procurar a arquitetura menos pior
- Projetar a arquitetura iterativamente é bom