

Architecture Characteristics Worksheet

System/Project: The Road Warrior trip management

Architect/Team: Tshering Wangpo Dorji, Dupchu Wangmo,
Kelden Phuntsho Dorji and Kinley Palden

Domain/Quantum: _____

Date: 11/03/2025 Next Review: _____

Top 3 Driving Characteristics

Implicit Characteristics

| | |
|-------------------------------------|-------------------------|
| <input checked="" type="checkbox"/> | <u>interoperability</u> |
| <input checked="" type="checkbox"/> | <u>Performance</u> |
| <input checked="" type="checkbox"/> | <u>Scalability</u> |
| <input type="checkbox"/> | <u>Availability</u> |
| <input type="checkbox"/> | <u>Responsiveness</u> |
| <input type="checkbox"/> | <u>Extensibility</u> |
| <input type="checkbox"/> | <u> </u> |

| |
|--------------------------------|
| <u>feasibility (cost/time)</u> |
| <u>security</u> |
| <u>maintainability</u> |
| <u>observability</u> |

Others Considered

| |
|-------------------------|
| <u>Configurability</u> |
| <u>Data consistency</u> |
| <u>Workflow</u> |
| <u>Fault tolerance</u> |
| <u>Elasticity</u> |

Instructions

- Identify no more than 7 driving characteristics.
- Pick the top 3 characteristics (in any order).
- Implicit characteristics can become driving characteristics if they are *critical* concerns.
- Add additional characteristics identified that weren't deemed as important as the list of 7 to the *Others Considered* list.
- Definitions are on the following pages

Common Architecture Characteristics

| | | |
|-----------------|------------------|-----------------|
| performance | data integrity | deployability |
| responsiveness | data consistency | testability |
| availability | adaptability | abstraction |
| fault tolerance | extensibility | workflow |
| scalability | interoperability | configurability |
| elasticity | concurrency | recoverability |

Composite Architecture Characteristics

agility → maintainability, testability, deployability

reliability → availability, testability, data integrity, data consistency, fault tolerance

- | | |
|---|--|
| a | denotes characteristics that are related; some systems only need one of these, other systems may |
| b | need both |

Architecture Characteristics Worksheet

performance

The amount of time it takes for the system to process a business request

responsiveness

The amount of time it takes to get a response to the user

availability

The amount of uptime of a system; usually measured in 9's (e.g., 99.9%)

fault tolerance

When fatal errors occur, other parts of the system continue to function

scalability

A function of system capacity and growth over time; as the number of users or requests increase in the system, responsiveness, performance, and error rates remain constant

elasticity

The system is able to expand and respond quickly to unexpected or anticipated extreme loads (e.g., going from 20 to 250,000 users instantly)

data integrity

The data across the system is correct and there is no data loss in the system

data consistency

The data across the system is in sync and consistent across databases and tables

adaptability

The ease in which a system can adapt to changes in environment and functionality

concurrency

The ability of the system to process simultaneous requests, in most cases in the same order in which they were received; implied when scalability and elasticity are supported

interoperability

The ability of the system to interface and interact with other systems to complete a business request

extensibility

The ease in which a system can be extended with additional features and functionality

deployability

The amount of ceremony involved with releasing the software, the frequency in which releases occur, and the overall risk of deployment

testability

The ease of and completeness of testing

abstraction

The level at which parts of the system are isolated from other parts of the system (both internal and external system interactions)

workflow

The ability of the system to manage complex workflows that require multiple parts (services) of the system to complete a business request

Architecture Characteristics Worksheet

configurability

The ability of the system to support multiple configurations, as well as support custom on-demand configurations and configuration updates

recoverability

The ability of the system to start where it left off in the event of a system crash

feasibility (implicit)

Taking into account timeframes, budgets, and developer skills when making architectural choices; tight timeframes and budgets make this a driving architectural characteristic

security (implicit)

The ability of the system to restrict access to sensitive information or functionality

maintainability (implicit)

The level of effort required to locate and apply changes to the system

observability (implicit)

The ability of a system or a service to make available and stream metrics such as overall health, uptime, response times, performance, etc.