

# Architecture Characteristics Worksheet

System/Project: TAPAS  
Architect/Team: Group 1 Date: 21.9.21

## Candidate Architecture Characteristics

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

others: Evolvability

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<sup>a</sup> denotes characteristics that are related; some systems only need one of these, other systems may need both  
<sup>b</sup>

## Top 3 Driving Characteristics

- 1. Scalability
- 2. Elasticity
- 3. Interoperability
- 4. Fault tolerance
- 5. Responsiveness
- 6. Evolvability
- 7.

### 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 deemed *structural* concerns.
- Add additional characteristics identified that weren't deemed as important as the list of 7 to the *Others Considered* list.

## Implicit Characteristics

feasibility (cost/time)

security

maintainability

simplicity

## Others Considered

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- **Scalability:** As the system should degrade gracefully in the presence of heavy load and be able to handle a large number of concurrent users according to the assignment description.
- **Elasticity:** We expect that there will be large bursts of requests as the students will log on at similar times (probably during exercise sessions) to create tasks and look for executors.
- **Interoperability:** The assignment description explicitly states that the system should excel in terms of interoperability in order to facilitate effective searches for external executors.
- **Fault tolerance:** The assignment description states that the system's operation should not be disrupted in case an Executor malfunctions or fails.
- **Responsiveness:** As a large number of users may be creating tasks at the same time and therefore there could be a large number of auctions happening concurrently, it is important that information is delivered promptly so that the performance of the whole systems does not degrade.
- **Evolvability:** Providers of executors should be able to add and remove executors from the system with ease. Therefore the system should be designed such that it can evolve smoothly over time.

**Editorial Notes** - This assignment has been modified since the original submission:

- Removed *Data Integrity* and *Data Consistency* from driving characteristics based on teacher feedback (due to our reliance on eventual consistency)
- Added *Evolvability* to driving characteristics based on teacher feedback (reason can be seen above where we argue why this is a driving characteristic)
- We know we only have seven now, but according to Mark Richards we should not force seven, sometimes there are really just five or six driving characteristics. We considered all of the other ones but we did not deem any as being important enough to be a driving characteristic.