Coursera Software Architecture

Capstone 3.3 Assignment

1.


```
Source:          Stimulus:              Artifact:        Response:           Response
End user         User clicks on search  Mobile App       List of other users' Measure:
                                                          items is displayed   Time to load items
                                                                               from remote
                                                                               database
                                 Environment:
                                 Heavy load
```
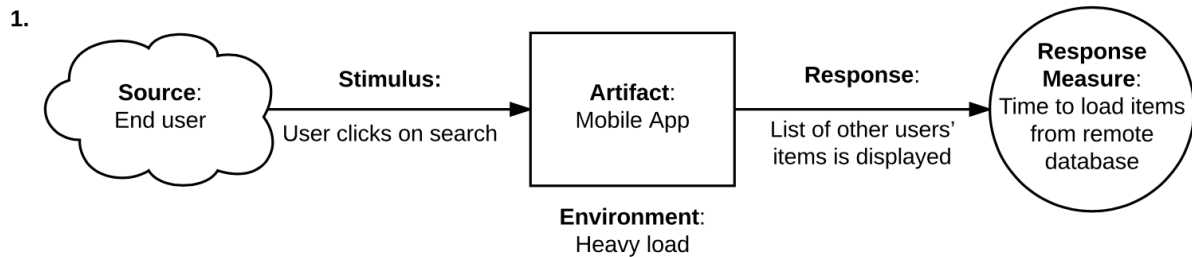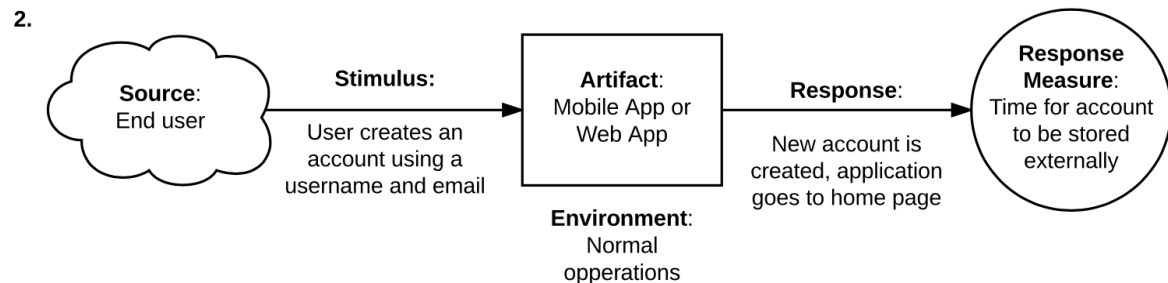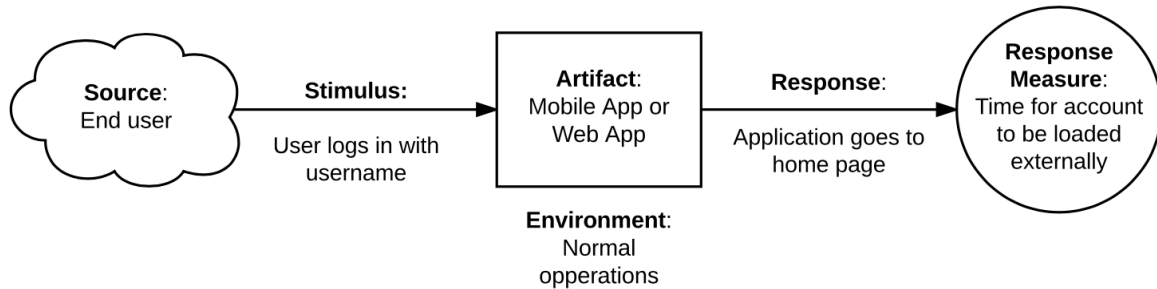
- **Risk**
  - The HTTP request / response needs to be handled / load balanced
  - The DBMS must filter / join tables to provide a user's items
    - If the list is large, we may need to add pagination, ie. 100 at a time
    - The search field string of the Item table may need to be indexed

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2.


```
Source:          Stimulus:              Artifact:        Response:           Response
End user         User creates an        Mobile App or                        Measure:
                 account using a        Web App          New account is       Time for account
                 username and email                     created, application  to be stored
                                                         goes to home page     externally
                                 Environment:
                                 Normal
                                 opperations
```
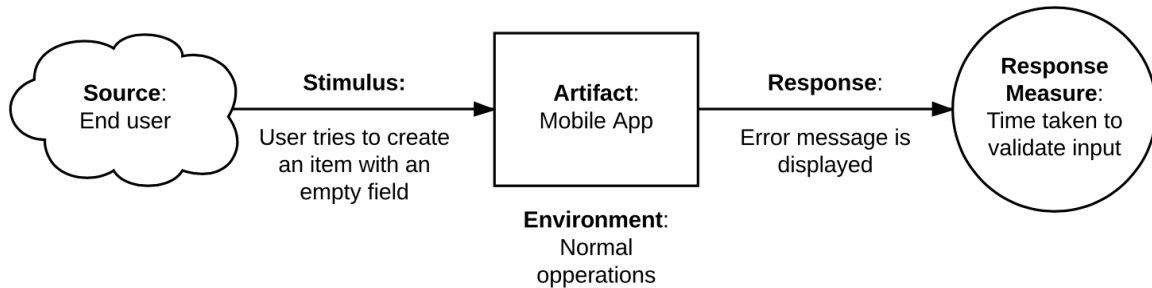
- **Non-Risk**
  - Under normal operations the system response time jitter is expected to coalesce to a highly concentrated distribution per the system requirements
  - There is no risk to perform basic operations, such as creating a new account and rending the home page based upon predefined service level agreements of the system

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3.

- **Non-Risk**
  - Under normal operations the system response time jitter is expected to coalesce to a highly concentrated distribution per the system requirements
  - There is no risk to perform basic operations, such as login based upon predefined service level agreements of the system
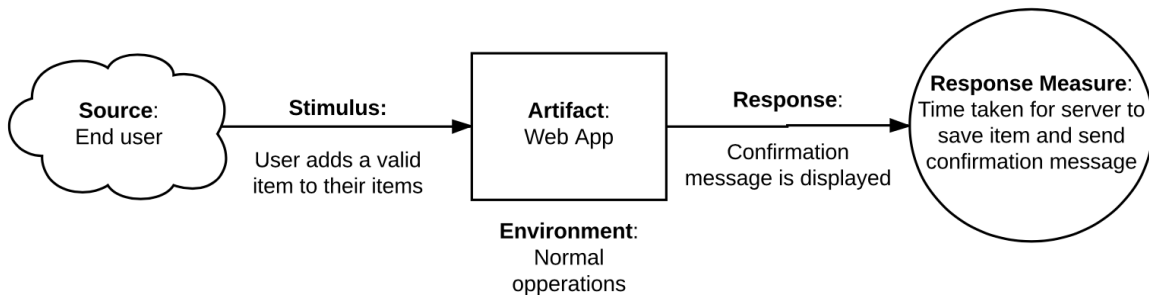

4.

- **Non-Risk**
  - This responsibility is solely owned by the mobile application
    - Client-side validation can be performed before server-side validation
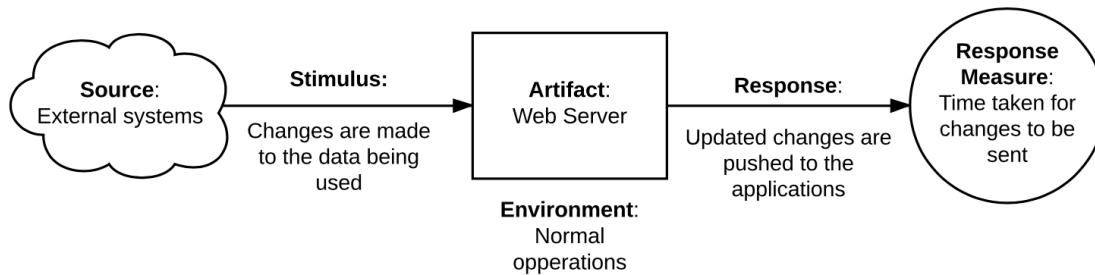 - Functional + integration tests can validate this behavior

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5.

- **Non-Risk**
  - Under normal operations the system response time jitter is expected to coalesce to a highly concentrated distribution per the system requirements
  - There is no risk to perform basic operations, such as login based upon predefined service level agreements of the system
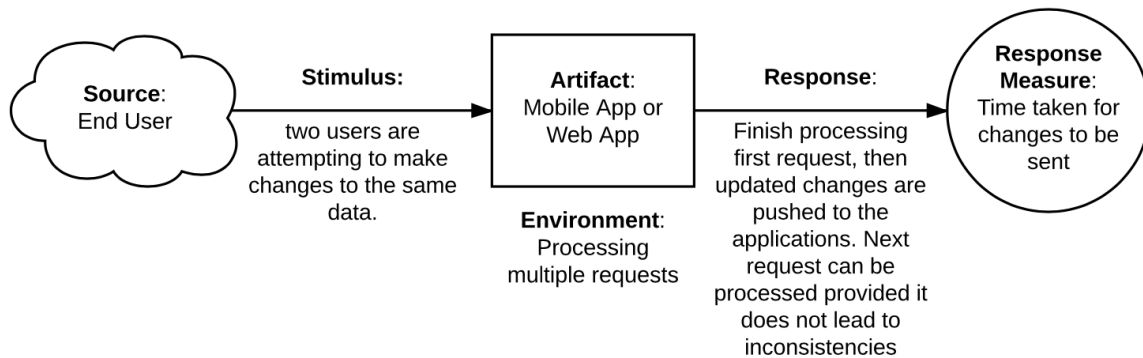
6.

- **Trade-off**
    - We need to determine how often to push data based upon:
        - End-user expected experience
        - Server / hardware / internet service capabilities

7.

- **Sensitivity Point**
    - Conflict resolution for mutually non-exclusive Mobile / Web app updates
        - End-user expected experience

Summary

Using the ATAM process, we have identified a new quality attribute "usability" can be added onto the utility tree of architecturally significant requirements in order to ensure an end-user can search for items and add items. Also since users can login, we add that ASR under the "Authorization" attribute. Finally since there can be concurrent access of the same data via the Mobile and Web applications, the shared storage can handle the mutually exclusive data access for conflict resolution server-side. Below is the updated utility tree with these proposed changes.