CHAPTER 13:
The Timely User Experience

Designing the User Interface:

Strategies for Effective Human-Computer Interaction

Sixth Edition

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The Timely User Experience

Topics

1. Introduction
2. Models of System Response Time (SRT) Impacts
3. Expectations and Attitudes
4. User Productivity and Variability in SRT
5. Frustrating Experiences

Introduction

- With current computer, device, wireless and Internet technology, we have an increased thirst and expectation for fast response time
  - Loading graphics, audio, video, images, animation, etc. all impact how quickly we can do things (e.g. find directions, seek a restaurant review, send a video or image, etc.) in today's society
- Time is precious
  - Lengthy or unexpected system response time can produce:
    - Frustration
    - Annoyance
    - Eventual anger
  - Speedy and quickly done work can result in users:
    - Learning less
    - Reading with lower comprehension
    - Making more ill-considered decisions
    - Committing more data-entry errors

https://www.youtube.com/watch?v=seiMQxvCX3A

Introduction (concluded)

- System Response Time (SRT) is a key topic and concern for network designers, wireless manufacturers, telecommunications providers, and others
- There are steps interface designers can take to improve the timely user experience
  - Designers can optimize web pages to reduce byte counts and numbers of files or provide previews (e.g. thumbnails or coverage maps) to help reduce the number of queries and accesses to the network
  - Human reaction time is another factor
  - In practice, users do not seem to be bothered much by one-second delays in changing screens for PC applications and appear to tolerate somewhat longer times for websites to fully load

Optimizing Design (example)
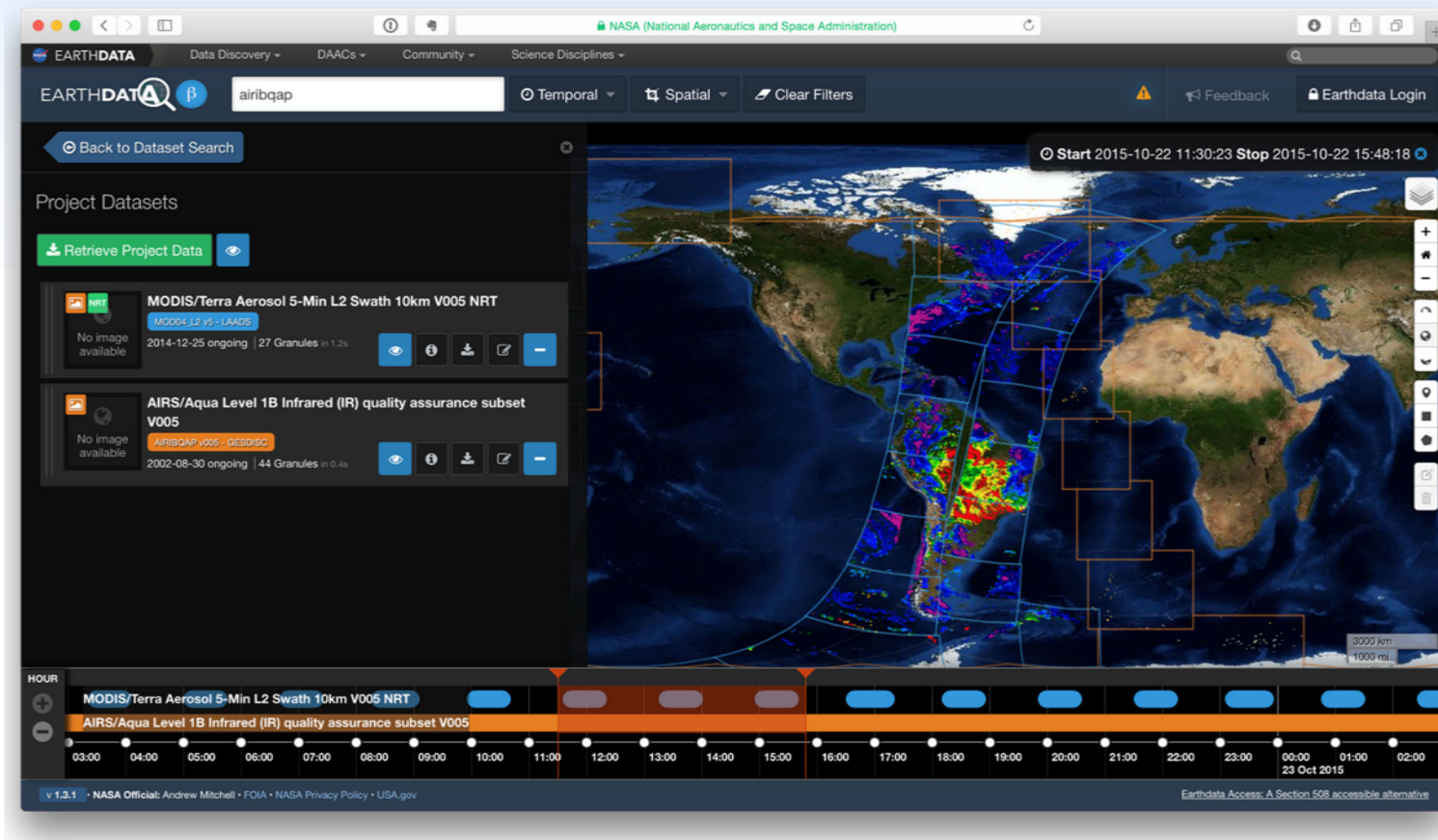
- The Earthdata Search (search.earthdata.nasa.gov) indicates the geographic and temporal coverage of datasets before the data is downloaded. Here the user has selected two datasets
  - The MODIS dataset is tagged with the color blue and the AIRS dataset orange
  - Those colors are used on the timelines and on the map revealing where and when the two datasets overlap
  - Providing previews of data availability helps users find what they need with fewer queries and network accesses

Models of SRT impacts

- ## SRT definition:
  - The number of seconds it takes from the moment users initiate an activity until the computer presents results on the display

- ## User think time:
  - The number of seconds the user thinks before entering the next action
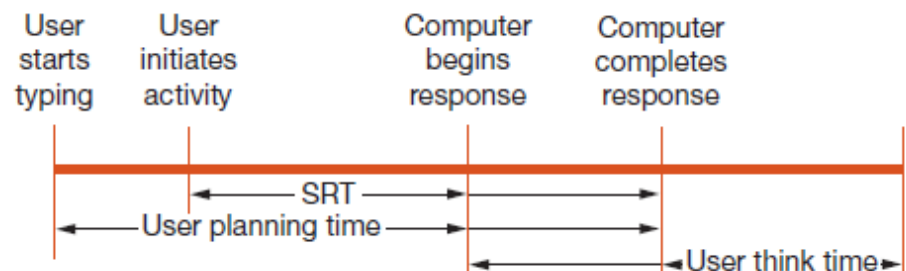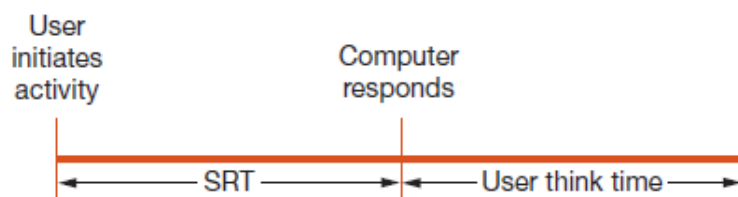
Models of SRT impacts (continued)

- Designers of response times and display rates in HCI must consider:
    - Complex interaction of technical feasibility
    - Cost
    - Task complexity
    - User expectations
    - Speed of task performance
    - Error rates
    - Error handling procedures

- Overall majority of users prefer rapid interactions
    - Lengthy response times (seconds) are detrimental to productivity
    - Rapid response times (1 second or less) are preferable, but can increase errors for complex tasks

Models of SRT impacts (concluded)

- SRT has been investigated and analyzed for years

- Many factors have been measured with the results sometimes debated (Dabrowski et al, 2011):
  - User accuracy and error rates with different levels of SRT
  - User performance speed and the efficiency of the commands used
  - How user interactions with the computer changed as a result of changes in SRT
  - How their bodies reacted physiologically to changes
  - How happy, satisfied, anxious or annoyed users were as SRTs changed