On communication, interaction, and server-initiated sessions

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Outline

- This talk will try to summarize some of the experiences gathered during the initial phases of WeSAHMI and present them at a level that is independent of specific technologies
- A paper on the subject has been planned
  - Interested contributors?

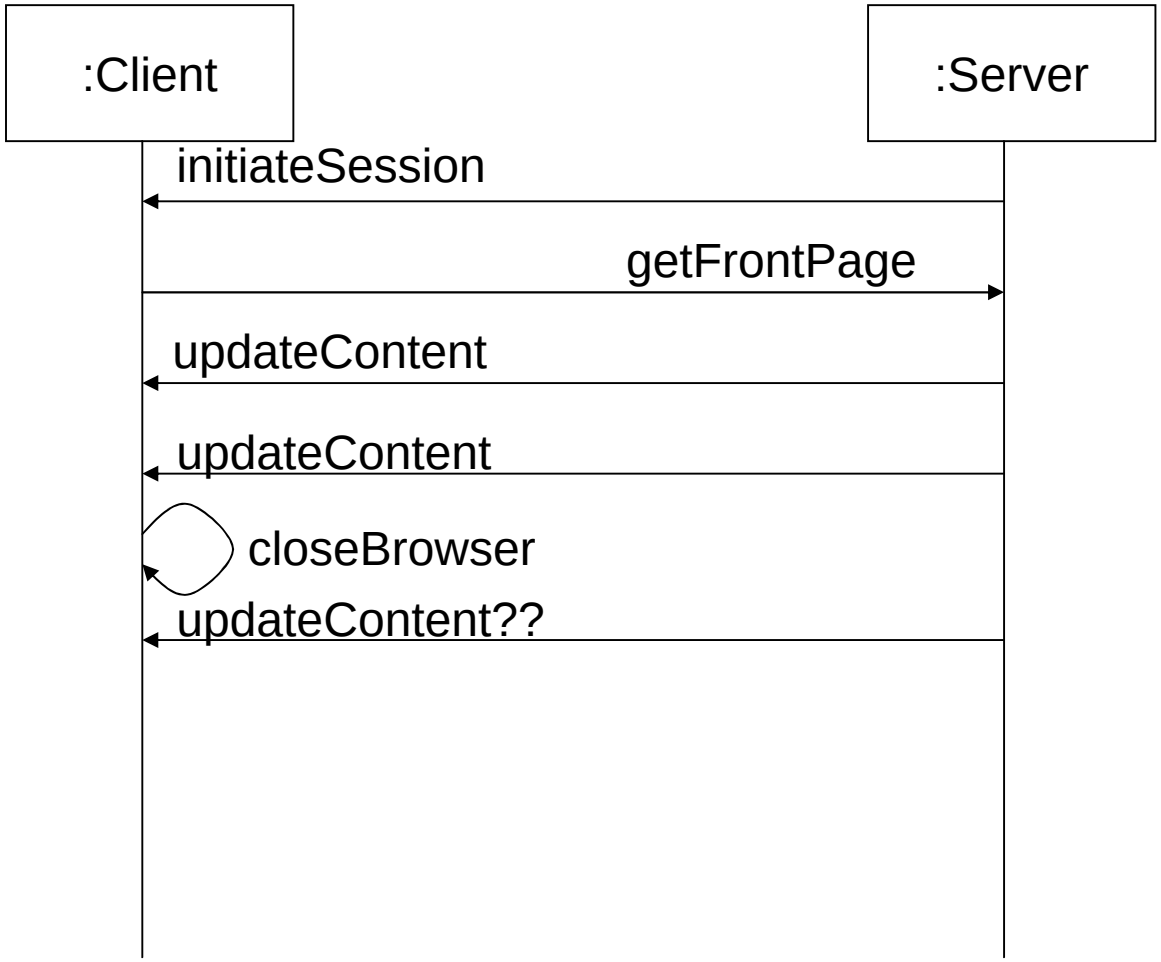
Traditional web applications

- In traditional interactive web applications, interactions are initiated by the client
  - Web bookstore, web mail
- The user navigates to the page containing the application he wants to use
- The application is usually a passive system that reacts to user stimuli
  - E.g. handles a form submitted by the user
  - Even highly interactive applications such as Google Maps mostly rely on a client-based approach, resorting to special tricks if server-initiated events are needed

“Push services”

- In a mobile wireless environment, context-triggered push services would often be preferable
  - E.g. Finnair check-in case study
- New problems:
  - To which users are service notifications to be pushed and in which situations?
  - How are the users and services identified and discovered in real world situations?
  - What kinds of interaction patterns are there (single push, server-initiated session, client initiated session with server-based updates, …)?
  - How are issues such as privacy to be handled?

Example problem: server-initiated session implicitly closed by client



More on problems

- What if user closes his browser in the middle of a session?
  - Especially if the server normally keeps pushing updated data?
  - Should the browser notify the server upon closing?
- What if there is a timeout on either side?

SIP etc.

- SIP is a protocol that can be used to implement the kind of sessions needed
- It does not, however, provide a direct answer to the high-level questions regarding the interaction model
- Many of the high-level concerns get lost in the details of the protocol
- Similarly, SLP and other service discovery protocols are just specific tools for implementing context-dependent push services

Abstract interaction model

- A definition for an abstract interaction model for server-initiated services would perhaps be useful
  - A model indepent of implementation technologies
  - Useful for identification of requirements, validation
- Should cover issues such as
  - service and user identification,
  - subscriptions,
  - stateless event-based services (new page with some information pushed to user, no further updates),
  - session-based push services (updates are sent to the user inside a single session),
  - security and confidentiality

Previous research

Manfred Hauswirth and Mehdi Jazayeri: A Component and Communication Model for Push Systems. ESEC/FSE'99, LNCS 1687.

- The authors mostly consider subscription-based "web broadcast" type information services, not session-based push services.