Building Semantic Web Applications as Information and Knowledge Sharing Systems

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Difficulty of Semantic Web Applications

- Why semantic web applications are so difficult to become popular?
  - Not only
    - Because semantic web is difficult to understand and use
  - But
    - Because information and knowledge sharing is basically difficult to widespread
SW as information and knowledge sharing

- The power of semantic web is realized only when information and knowledge are shared among people
- Information Sharing is basically difficult to widespread
  - “People are basically reluctant to exhibit their information”
    - Information publishing is not easy for ordinary people
    - Unbalance between information collecting and publishing
- How to solve it?
  - Groupware: Force people to use! (“Intranet” solution)
  - Semantic Web: Cannot force people to use (“Internet Way”)

Instant Gratification

- Need for Instant Gratification for semantic web
  - Most SW applications lack feedback to users
  - Mangrove: Rapid realization of users’ actions
- Instant Gratification alone is NOT enough for SW applications
  - Information and knowledge sharing intrinsically needs time
    - Information should be circulated via loop among people
Double-loop Gratification

- Instant Gratification: Rapid feedback to users
  - Clear benefits to users themselves
    - Not necessary to be objectives of semantic web
  - Keep users to use SW applications from the beginning
- Delayed Gratification
  - Benefits through long-run use of SW applications
    - Real objectives of semantic web
    - Often implicit
      - e.g., sense of participation
  - Users use them naturally and sometimes advocate to other people
- Problems
  - How to realize both types of gratification in a single application?
  - How to connect two types of gratification to each other?

Translucence Strategy

- Put people in a situation where they can feel possible delayed gratification within kissing distance
  - Just a very small amount of extra efforts to join information/knowledge sharing in addition to ordinary efforts to obtain instant gratification.
Case studies

- Social experience
  - WWW

- Our experience
  - Community navigator
  - Semblog
  - (Ba-log: Location-based weblog)

Case Study: World Wide Web

- Instant Gratification:
  - Authoring hypertexts
    - A new fascinating method for people to organize own information that is difficult to write down as stable well-organized form like word

- Delayed Gratification:
  - Publishing hypertexts
    - New communication is established between information publishers and readers

- Translucence Strategy
  - Authoring hypertexts and publishing them are so closely connected
    - Almost no extra efforts
Community Navigator: Collaborative Scheduling Support System for Conferences

- Support conference participants by helping their own scheduling and communication among them
  - Used at JSAI annual conferences (2003, 2004)

- Instant Gratification:
  - Work as a personal scheduler
Community Navigator:
Collaborative Scheduling Support System for Conferences

- Delayed Gratification:
  - Browsing personal network
  - Recommendation through personal network

Co-author network
(# of cluster: 73)

Know-link network
(# of cluster: 5)
Community Navigator

- Translucence Strategy
  - Show their “know” and “known” links explicitly in their “my page”
  - Just a single click to add people into your “know” list

How does it work?

- # of participants: 558
- # of system users: 276
  - # of users who added papers to schedules: 160 ...(a)
    - Users for instant gratification
  - # of users who added people to “know” list: 99 ...(b)
    - Users for both instant and delayed gratification
- Rate (b)/(a) (60%) is better than publishers/readers of Web
Semblog Platform

- Applying Weblog and Semantic Web technologies for Personal Knowledge Publishing
- Our Platform includes…
  - “Person” on Web
    - Weblog: Information archive for individuals
    - FOAF
  - Interpersonal relations
    - Links between Weblogs
    - FOAF relations
- To realize personal knowledge publishing environment…
  - Phase 1: Platform
    - Metadata design
    - Basic tools for seamless support in searching, editing, and publishing
  - Phase 2: Applications
    - Recommendation
    - Search

Semblog Products

- Extended RSS aggregator
  - Provides seamless support of searching, editing, and publishing RSS-based contents
    - Publishing: Three ways
      - Check: which weblogs I am reading
      - Clip: which entries I am interested
      - Post: what I am thinking
  - Developed Tools
    - RNA: Server-side scripts
    - Glucose: Windows client
RNA: Personal RSS Portal  
http://www.semblog.org/  

- Server-side RSS aggregator with Perl  
- User can…  
  - Register weblogs (Check)  
  - View entries from various aspect (HTML/RSS)  
  - Preserve interested entries (Clip)  
- RNA provides…  
  - Metadata Management  
    - TrackBack extraction from each entry  
    - Keep Metadata-added cache  
  - Re-distribution of RSS  
    - Publishing “Checked”, “Clipped”, and “Posted” entries  
  - FOAF Management  
    - FOAF TrackBack  
- Over 3,000 downloads in Japan.  

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Double-loop Gratification in Semblog  

- Instant Gratification  
  - Making Personal Memo / Agenda  
    - Clip “important contents for me” on the Web  
  - Translucence Strategy  
    - Friends’ clips works as “human-filtered search engine”  
    - My clip will work as “human-filtered search engine” for my friend  
- Delayed Gratification  
  - Realizing Knowledge sharing and exchange  
    - Clip “important contents for others”!  
    - Better cost / performance with CMS and RSS
Conclusion

- Analysis on why semantic web is difficult to be widespread
  - Difficulty on information and knowledge sharing
    - People do not want to “share” but to “get” information
  - Concept of double-loop gratification is needed
    - Instant gratification
    - Delayed gratification
  - Translucence strategy
    - Put people within kissing distance and make feel possibility of delayed gratification
- Some case studies
  - (WWW)
  - Community Navigator / Semblog Platform
- Future work
  - How to leverage “information sharing” to “knowledge sharing”
    - RSS is too simple
    - How we treat more complicated information with casual way