Smart Synchronization on Social Collaboration

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Background

- Large scale organization (a number of users & a large amount of data)
Collaboration tools in enterprise computing environment
Agenda

• Contextual Synchronization
• Social contextualization
• Social media communication
• Examples
• Conclusion
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What is contextual synchronization?
Synchronization

• happening, existing, or arising at precisely the same time
• recurring or operating at exactly the same periods
• [Merriam-Webster]
Synchronization
Synchronization

• (cont.) Data synchronization refers to the idea of keeping multiple copies of a dataset in coherence with one another, or to maintain data integrity. Process synchronization primitives are commonly used to implement data synchronization. [http://en.wikipedia.org/wiki/Synchronization_(computer_science)]
Synchronization

- A set of communication actions in proper order

1. Send(a, b)
2. Ack(b, a)
3. Send(b, c)
4. Ack(c, b), Ack(c, a)

....
Contextual Synchronization

• **Contextual** synchronization refers to the idea of keeping multiple **USERS** in coherence with one another, or to **maintain data integrity** by considering their **contexts**.
Information Propagation
Behavior Mimicry
Third Party Observation of Mimicry

Participant

Mimic (Interviewee)

Model (Interviewer)

Exp 1: Whole Video

Exp 2: Cropped Video: Mimicry Obscured

Is this person competent?
Tagoole

• Understanding various features of information propagation

• How quickly a certain information is propagated?

• How widely .... ?

• Why .... ?

Building Social Pulse
Folksonomy

Temporal Folksonomy
T+Folksonomy

- Temporal distribution of frequencies
- Inducibility, a relationship between two arbitrary tags
Tag: egypt  Number of tags 1502893

Egypt

Photos ID (21):

Username (14): Chris Firth || Dolphin1932 || Dolphin1932 || Soloegipto || yanvan || Coldwell Banker New Homes || Helen Bailey || sonofwalrus || Coldwell Banker New Homes || GameMusicCompilation || Coldwell Banker New Homes || GameMusicCompilation || Ahmed MK || Andreas Metz || pmiss


cairo

Photos ID (5):

Username (4): yanvan || GameMusicCompilation || GameMusicCompilation || Ahmed MK || AzmirRahman

Timestamp: 2012-03-19 || 2012-02-20 || 2012-02-20 || 2009-08-05 || 2012-03-20

africa

Photos ID (3):

Username (2): GameMusicCompilation || GameMusicCompilation || Andreas Metz

Timestamp: 2012-02-20 || 2012-02-20 || 2011-07-25
Compare two tags: egypt and Libya

<table>
<thead>
<tr>
<th></th>
<th>Egypt</th>
<th>Libya</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of users:</td>
<td>28 ++</td>
<td>29 ++</td>
</tr>
<tr>
<td>Number of tags:</td>
<td>1502900</td>
<td>81941</td>
</tr>
</tbody>
</table>

Inducibility: 18.341245530321

Social Pulse

- Blue line: egypt
- Red line: Libya
Arab Spring

2011 Egyptian revolution
TweetPulse
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Context-aware services

- Location
- Time
- Any other context?
Social networks (2010)
With a number of online social media, our social networks are distributed.
Ego-centric Social Network (e-SN)

- **Social networks are distributed** in many different applications, e.g., Facebook and Twitter.

- Thus, the partial social networks have to be integrated to build an ego-centric social network.
Why e-SN?

- Personalized filtering
Only from my neighbors
Social contextualization

• Context fusion
  • We need to collect all possible information (e.g., resources and knowledge) from our neighbors.
  • Fusing contextual information around target users
Contextualization

• To provide context-aware services, e-SN should be contextualized with
  • location
  • time
  • context of my neighbors

• **Need to consider to exploit the planner module**
Scenario on Context Fusion

- It is my wife’s birthday, tomorrow.
- I am in “Puerta del Sol” for a technical meeting.
Reality mining for TelCon

- Building a social network by mobile phone usage patterns
  - How often (or how long) has Ua called Ub?
- Inferring semantics of each social link between users
- What is the relationship between Ua and Ub?

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Social media communication

• A number of communication media among users
• E-mail, Telephone, SMS, Video conferencing, Instant messaging, and so on.

Question: How (and Why) people choose the SCTs?
Social affinities (context)

• Vertical vs. Horizontal
• e.g., “Ask your boss to answer.” and “Ask your students to come”
• Also, cultural differences
Task characteristics

- Urgency (e.g., “Find the answer right now”)
- Complexity (e.g., “Explain what is the capital of Portugal” and “Tell me what is contextual synchronization”)
- Multiplicity (e.g., 1:1, 1:N, and M:N communications)
Media richness

- Need to weigh a SCT
- Weight(email) > Weight(SMS)
Example

Vision

Cross-media Communication

Ask @Gil and @Robbin who the murderer is.
Wrap-up

• The main research question is
  • “How to support users to efficiently collaborate with each other?”
  • Ontologies? Linked Data?
• Any questions & comments