



Privacy and Social Networks

Evangelos Markatos
FORTH-ICS



Roadmap

- The changing nature of social networks
 - The single sign-on authority in the Internet
 - The single personalization service based on plug-ins
 - The support for mobile users
- How does this nature interact with privacy?
- What research areas need to be addressed?



The **Changing nature** of Social Networks

- Social Networks used to be the place
 - To **share** our photos and
 - **Chat** with our friends
 - A place to “**hang out**” with our friends
- Over the past few years they are re-defining themselves to become
 - The **single-sign-on authority** on the Internet
 - The **single personalization service** on the Internet
 - A **location-based** service for a **mobile** world



Single-sign on

The image shows a single-sign on process. On the left, a web browser displays the New York Times homepage. The article 'Google to Buy Motorola Mobility for \$12.5 Billion' is prominent. On the right, a Facebook 'Request for Permission' dialog is open, listing permissions requested by The New York Times: 'Access my basic information', 'Send me email', 'Access my data any time', and 'Access my profile information'. The dialog includes a 'Logged in as Evangelos Markatos (Not You?)' section and 'Allow' and 'Don't Allow' buttons.

The New York Times - Breaking
www.nytimes.com

HOME PAGE TODAY'S PAPER VIDEO MOST POPULAR TIMES TOPICS

The New York Times
Monday, August 15, 2011 Last Update: 4:04 PM ET

Get a Full Times Experience. BECOM

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Google to Buy Motorola Mobility for \$12.5 Billion
By EVELYN M. RUSLI and CLAIRE CAIN MILLER
12:44 PM ET
In its largest acquisition by far, Google paid a premium of 63 percent on the closing price for the cellphone business as a wireless battle with Apple and Microsoft intensifies.

TimesCast
Marwan Ibrahim/Agence France-Presse -- Getty Images
TimesCast: A Possible Defection From Libya
Col. Muammar el-Qaddafi's interior minister lands in Cairo with his family; Monday is the most violent day in Iraq this year; and a three-way race for the Republican nomination emerges.

Request for Permission - Google Chrome
https://www.facebook.com/dialog/permissions.request?api_key=9869919170&app_id=9869919170&display=popup&fbconr

f Request for Permission

The New York Times is requesting permission to do the following:

Access my basic information
Includes name, profile picture, gender, networks, user ID, list of friends, and any other information I've shared with everyone.

Send me email
The New York Times may email me directly at markatos@ics.forth.gr · [Change](#)

Access my data any time
The New York Times may access my data when I'm not using the application

Access my profile information
Likes, Music, TV, Movies, Books, Quotes, About Me, Interests, Groups, Birthday, Hometown, Current City, Website, Education History and Work History

By proceeding, you agree to the The New York Times Privacy Policy · [Report App](#)

Logged in as Evangelos Markatos (Not You?)

Allow **Don't Allow**

Single sign-on

The image shows a web browser window with the URL www.docstoc.com/docs/43768512/CyberSecurityResearch-in-Crete. The page displays a document titled "CyberSecurityResearch" and a blue banner that says "You are almost ready to download!". Below this, there is a section for "Register and get access to 'CyberSecurityResearch'". It includes a "Login with Facebook" button and a "COMPLETE REGISTRATION »" button. A Facebook "Request for Permission" dialog is overlaid on the right side of the browser window. The dialog lists the permissions Docstoc.com is requesting: "Access my basic information", "Send me email", "Post to my Wall", and "Access my data any time". At the bottom of the dialog, it says "Logged in as Evangelos Markatos (Not You?)" and provides "Allow" and "Don't Allow" buttons.

You are almost ready to download!

Register and get access to "CyberSecurityResearch"

Login with Facebook
Get access to this document

COMPLETE REGISTRATION »

Request for Permission - Google Chrome

f Request for Permission

Docstoc.com is requesting permission to do the following:

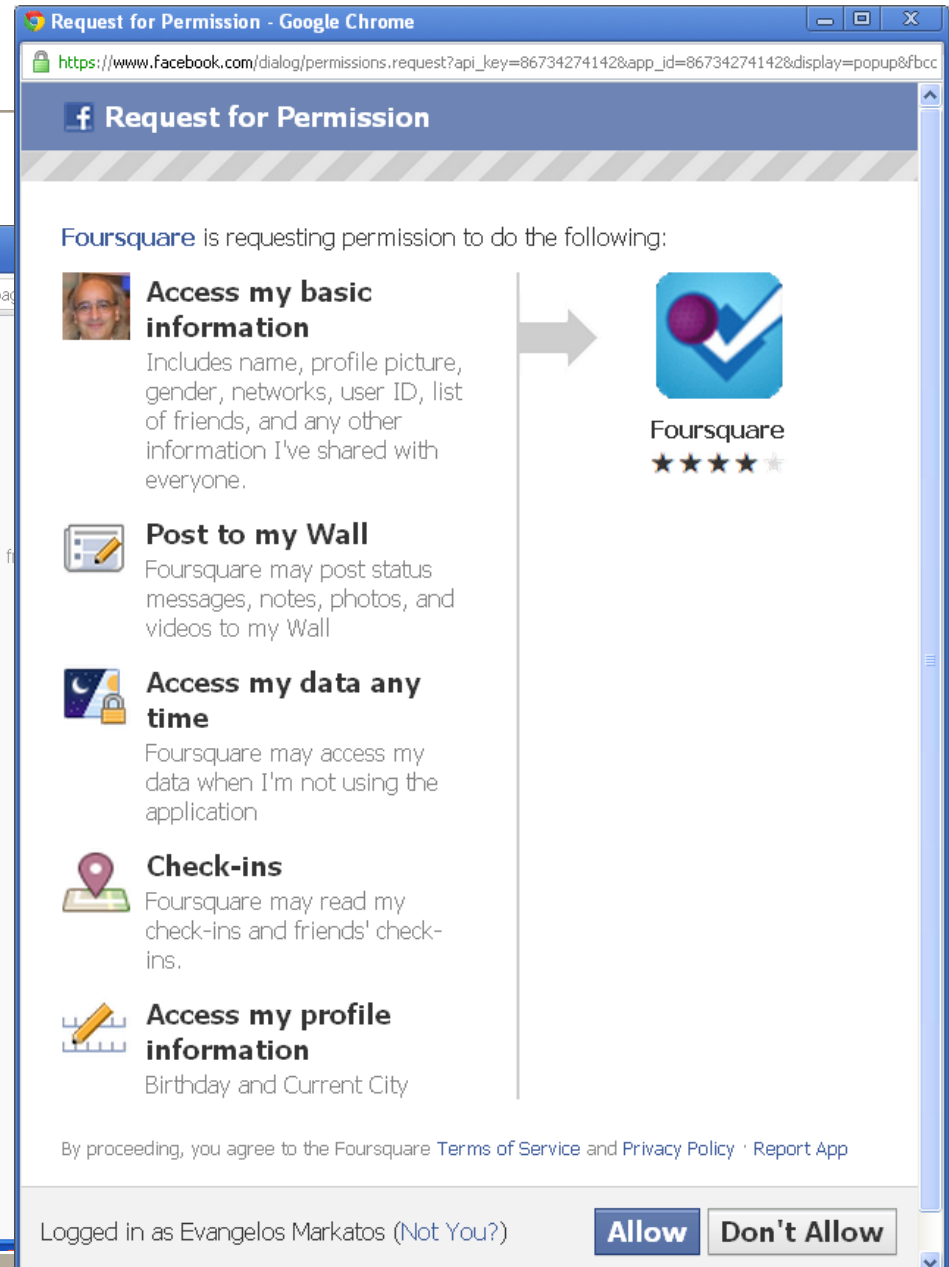
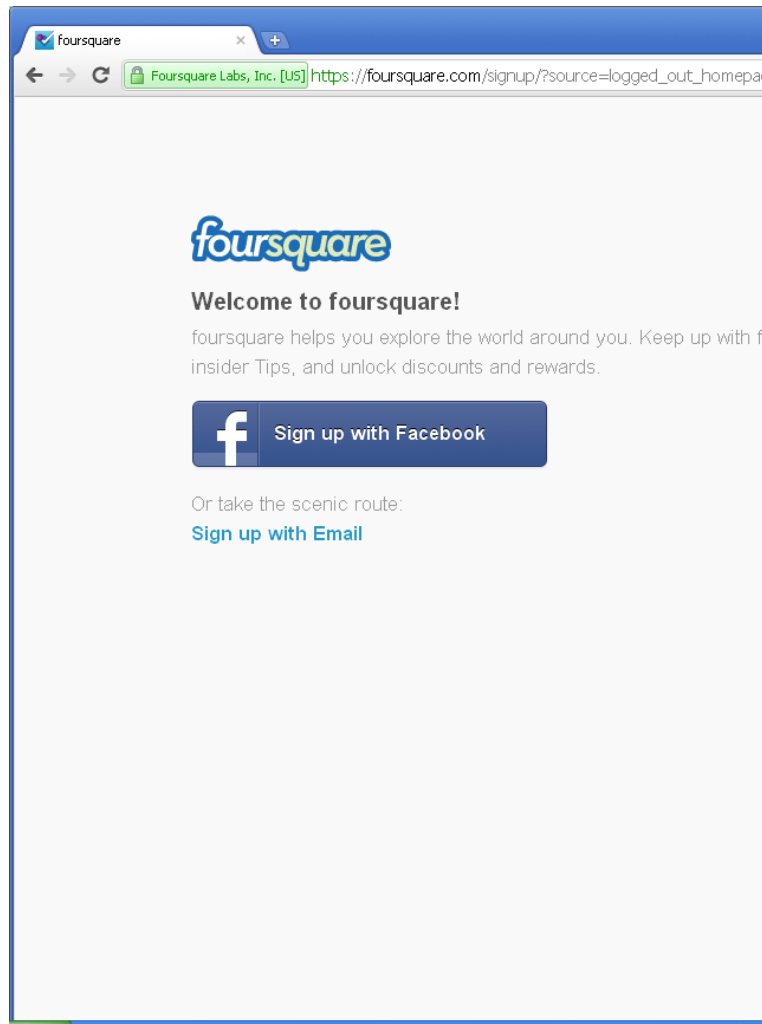
- Access my basic information**
Includes name, profile picture, gender, networks, user ID, list of friends, and any other information I've shared with everyone.
- Send me email**
Docstoc.com may email me directly at markatos@ics.forth.gr · [Change](#)
- Post to my Wall**
Docstoc.com may post status messages, notes, photos, and videos to my Wall
- Access my data any time**
Docstoc.com may access my data when I'm not using the application

Report App

Logged in as Evangelos Markatos (Not You?)

Allow **Don't Allow**

Single sign-on



Single sign on and privacy

- Single sign-on applications request permission
 - to send me email
 - to access my data
 - even when I am not using the application
 - to post on my wall
 - to know which my friends are
 - Are my friends comfortable with that?
 - Do I need to ask (have I asked?) their permission before I sign on?
- Of course people may refuse it
 - but then again, they will not be signed on
- Is the personalization worth the loss in privacy?

Social plug-ins

The screenshot shows the eHow website with a green header. The eHow logo is on the left, and a search bar with a 'Search' button is on the right. Below the header, there are navigation links: family, food, health, home, money, style, and more. A banner below the navigation links reads 'This Season Back to School | Grow. Cook. Eat.'.

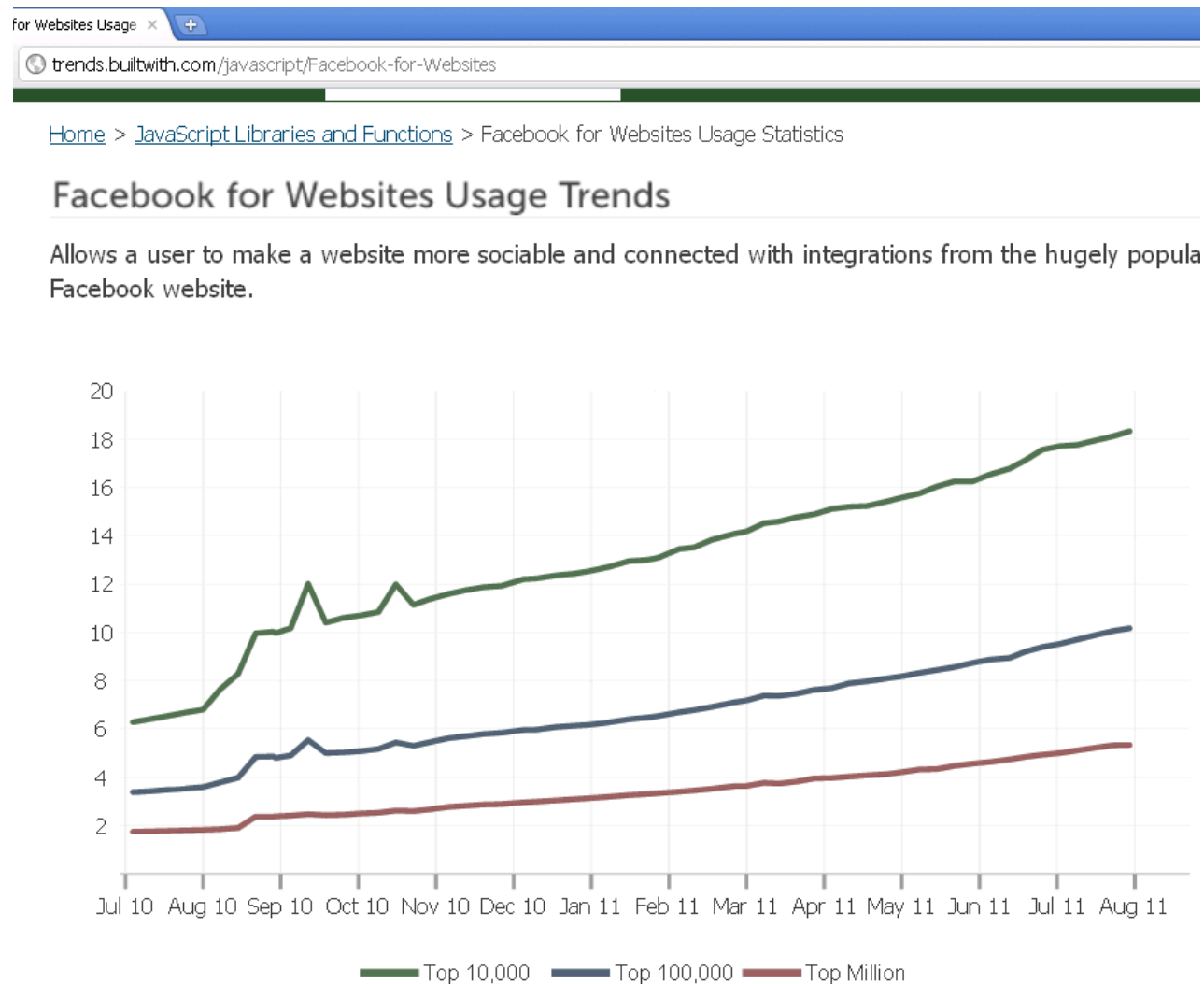
On the right side of the page, there are two red-bordered boxes highlighting social media integration:

- The top box contains the text 'Follow eHow' and a Facebook 'Like' button. Below the button, it says '145,673 people like this. Be the first of your friends.'
- The bottom box contains a Google+ '+1' button with the number '288' and a Twitter 'Follow' button. Below the buttons, it says '@ehow · 21.5K followers'.

Below these boxes, there is a large green number '114,000' and the text 'More than 114,000 people'.

Social plug-ins trends

- 20% of top 10K sites have social plugins



Roadmap

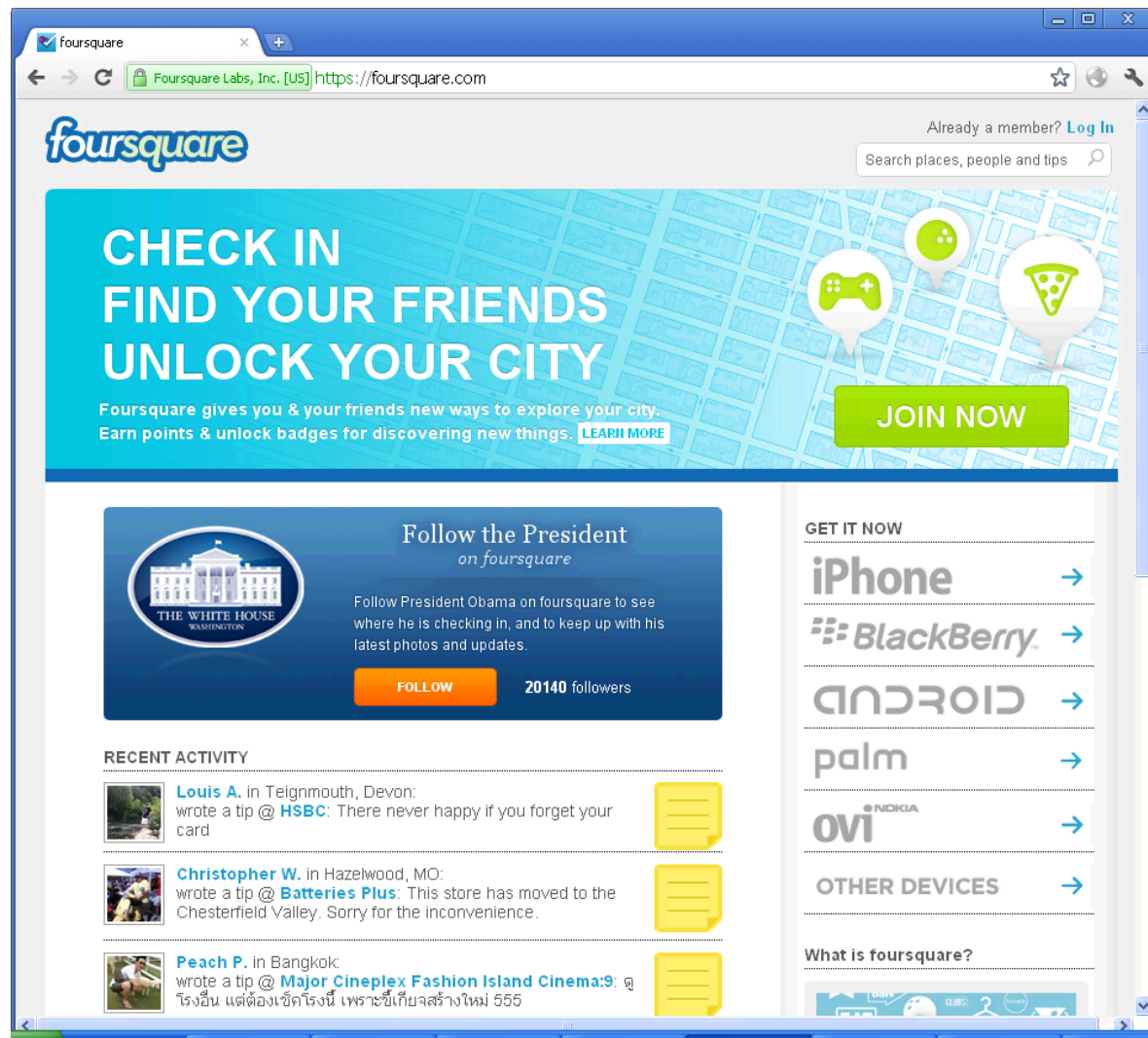
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Social Plugins and privacy

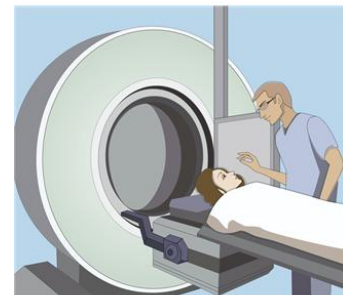
- Web sites that use social plugins
 - Give me a personalized version of their site
 - May let the social network know that I have visited them
 - But, in this case
 - Social networks may discover a large percentage of the sites I (my social network ID) visit
 - Up to 20% of the sites I visit
 - Is this the end of anonymous browsing?

The **mobile** nature of social networks



Privacy and Mobile social networks

- Is it OK for all my “friends” to know where I am?
 - even if their account is compromised?
 - even when I go to the doctor?
- Can potential robbers
 - know when I am not at home?
 - know when I am on vacation?
- Can stalkers get this information as well?



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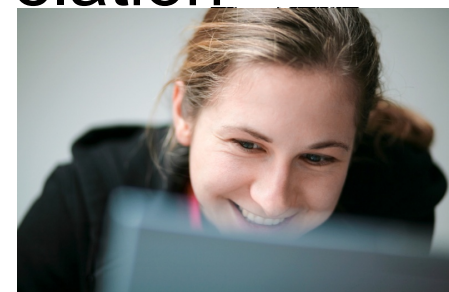
What needs to be done?

- Understand these new types of interactions with privacy:
 - How are they being launched?
 - What is their impact?
 - How can we detect them?
 - How can we stop them?
 - Can we roll back past decisions to release private information?



Privacy

- Help users gain control of their data
- Protect them from disclosing their data
 - Do I really need to send all these tracking cookies around?
- Detect attempts
 - to correlate data
 - to de-anonymize user accounts by correlation



Conclusions

- The nature of social networks is changing
 - The single sign-on authority in the Internet
 - The single personalization service based on plug-ins
 - The support for mobile users
- This nature interacts with privacy
- We need to address this problem



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