



# Improve the classification accuracy of WRS by the automatically accumulated human knowledge

Forrest Zhang, Roland Sun, Thomas Guo

#### **WRS**

- URL Filtering Service Offering
  - URL Categorization, grant URL Category type to each URI
  - Pharming/Phishing Detection
  - Solution to stop users download/visit the malicious URLs
  - Block malicious URL before virus patterns release
- Web Reputation Service (WRS) Offering
  - URL Reputation Scoring, grant WRS Score to each URI
  - Solution to stop users download/visit the malicious URLs
  - Block malicious URL before virus patterns release



# But it is not always right.



Trend Micro Online URL Query - Feedback System

Type a URL in the field below to:

- · Check which category it belongs to or
- · Submit feedback about the current category it belongs to

Complete URL\*:

www.csdn.com

Only HTTP and HTTPS are supported. (e.g., http://www.trendmicro.com)

Category result:

**Shopping** 

Check category

Submit feedback

Copyright 1989-2009 Trend Micro, Inc. All rights reserved. Legal Notice | Privacy Policy | Contact Us

TOD: to demonstrate articles from csdn can not be accessed.



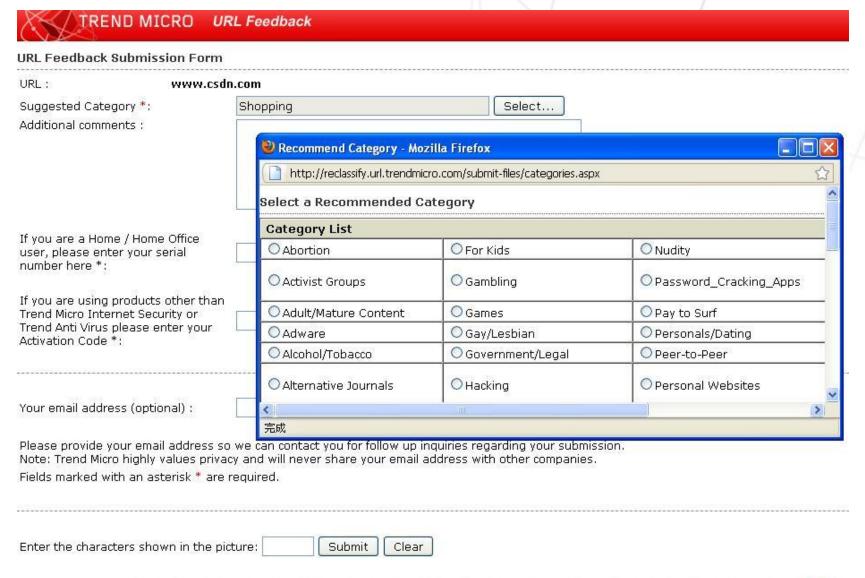
URL	Simple introduction	Category of WRS
www.csdn.com	Computer information	Shopping
www.cnn.com/	news	Arts / Entertainment

# **Problem: URLs without category in WRS**

URL	Simple introduction	Category of WRS
www.ontechnews.com	Computer tech news	Unrated
http://www.mollify.org/	File share manager	Unrated
http://livingstories.googlelabs.com	News	Unrated
http://www.chelseafc.com.cn/	Football club	Unrated



#### **User Feedback**





Experiments shows that, it is always not easy to explore users' idea by asking them answer your question.  $\odot$ 



Is there a large data source with aggregation of massive structured URLs and have accurate classification information which also comes from the knowledge and experiences of human beings rather than the machine generation?



### Yes, there are.

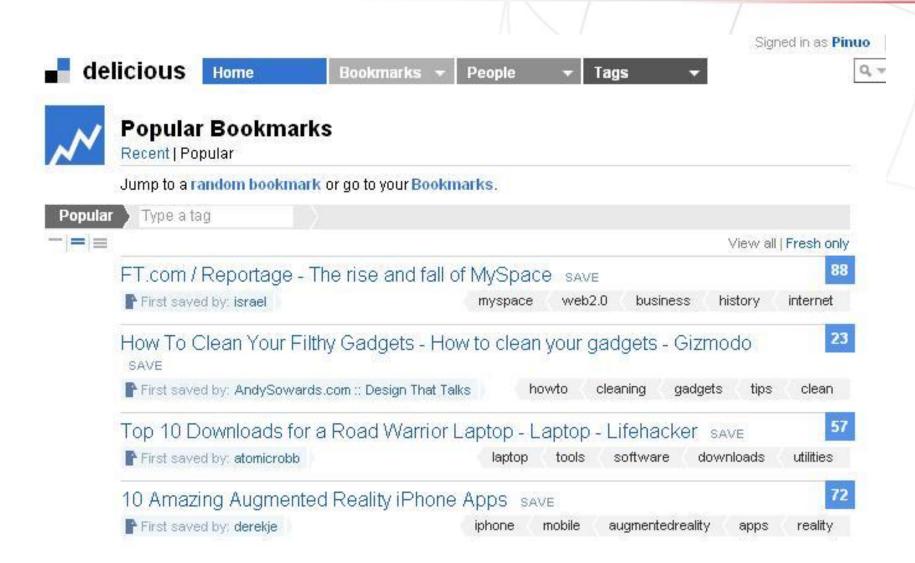
- By the Web2.0, user can express their idea as they want everywhere.
- You can pick up this tool link in nearly all the popular news, blog.

Tags: Creative Bus Stop Advetisements

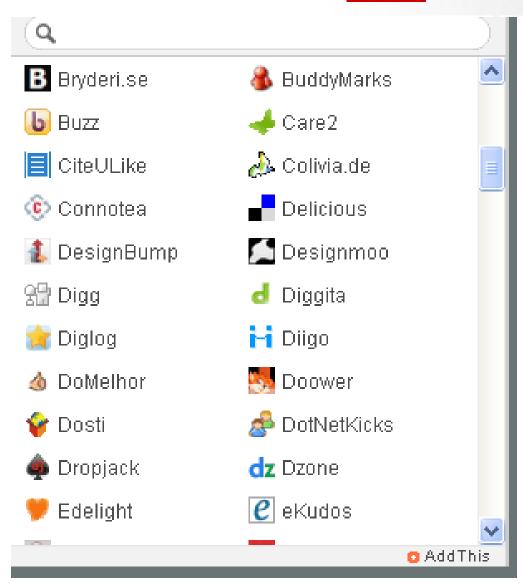




## For example, the famous delicious...



## You can find more here



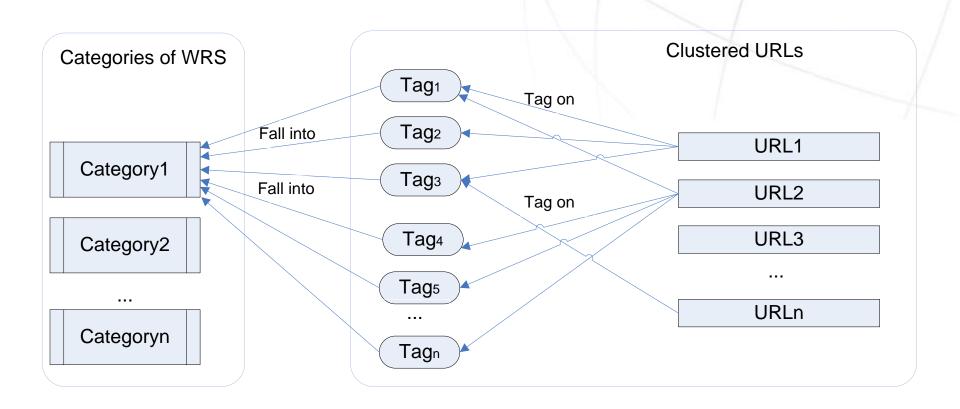


#### All we need to do is.

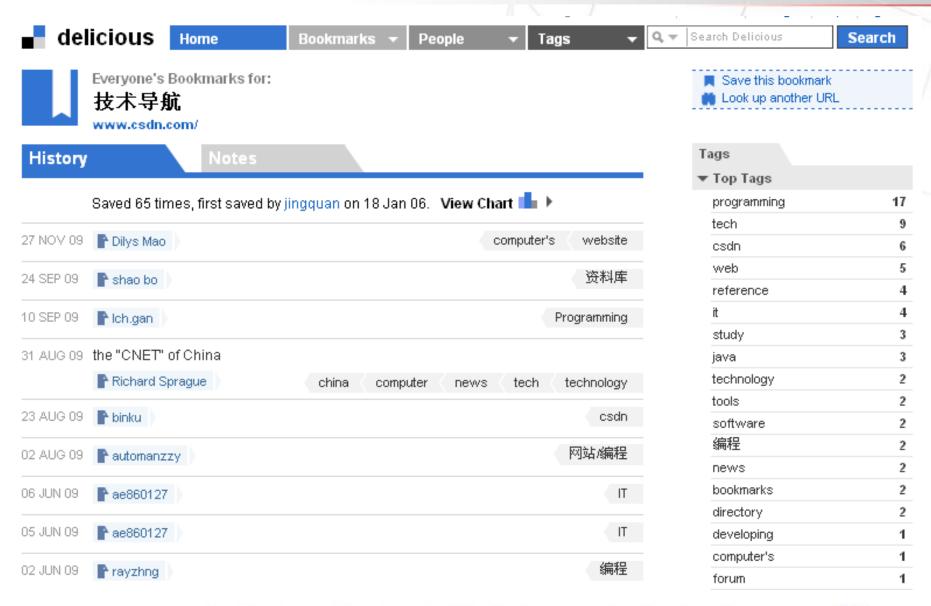
- Import the users' knowledge from other place to our system.
- And extract information which help us make a classification.



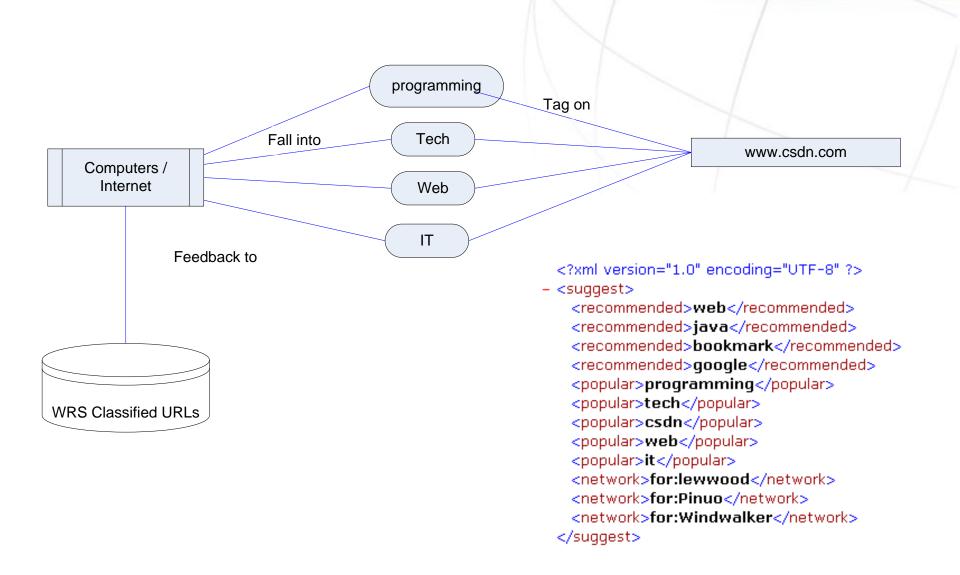
# The process looks like this.



## www.csdn.com in delicious



#### Feedback to WRS



- http://reclassify.url.trendmicro.com/submitfiles/onlinequery.aspx
- http://delicious.com/help/api
- http://delicious.com/url/d2c82efdd26138da82f538044fd3c0be
- http://www.techcrunch.com/2007/09/06/exclusive-screenshots-and-feature-overview-of-delicious-20-preview/
- http://ishare.trendmicro.com/enggroup/CoreTech/ContentSec urity/TMUFE/Product%20Integration%20Guide/When%20Will %20We%20Get%20WRS%20Score%2075.aspx

