

台灣 Big Data 產業供應鏈 與人才社群發展現況分析

Big Data in Taiwan : Supply Chain and Communities

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Free Software Lab, STD, NCHC, NARL, Taiwan



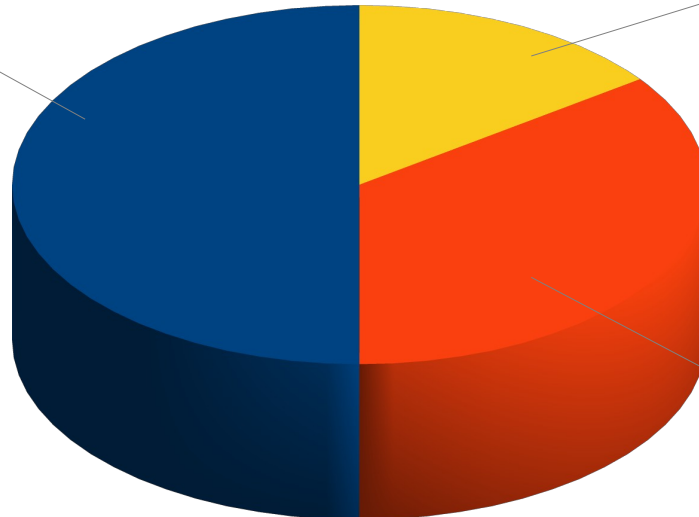
WHO AM I ? 這傢伙是誰啊 ? JAZZ ?

- 講者介紹：
 - 國網中心 王耀聰 副研究員 / 交大電控八九級碩士
 - 今天我是以台灣 Hadoop 社群傳教士的身份發言
 - jazz@nchc.org.tw
- 所有投影片、參考資料與操作步驟均在網路上
 - <http://trac.nchc.org.tw/cloud>
 - 由於雲端資訊變動太快，愛護地球，請減少不必要之列印。



FOSS 使用者

- Debian/Ubuntu
- Access Grid
- Motion/VLC
- Red5
- Debian Router
- DRBL/Clonezilla
- Hadoop



行動力薄弱的開發者

- TRTC WSU/
- Haduzilla /
- Hadop4Win / Ezilla

推廣者

- DRBL/Clonezilla
- Partclone/Tuxboot
- Hadoop Ecosystem

Supply Chain of Cloud Computing

雲端產業的產業供應鏈

應用軟體
供應商



端

行動裝置
共通平台



各類裝置
存取服務

軟體服務
供應商



雲

資料中心
機房維運



資料中心
提供服務

基本硬體
建設組件



廣達電腦
Quanta Computer

Relation of different departments !!

各科系人才如何供給雲端產業

應用軟體
供應商



資工

資管

美術

其他

行動裝置
共通平台



電機

資工

軟體服務
供應商



資工

資管

統計

資料中心
機房維運



機械

土木

資管

基本硬體
建設組件



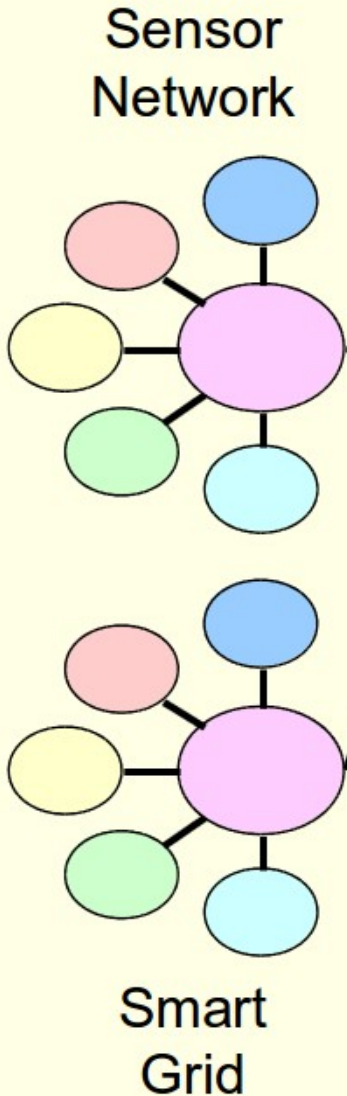
電機

資工

巨量資料的奇幻漂流

Life of Big Data

Internet of Things
物聯網



雲 資料中心
提供服務

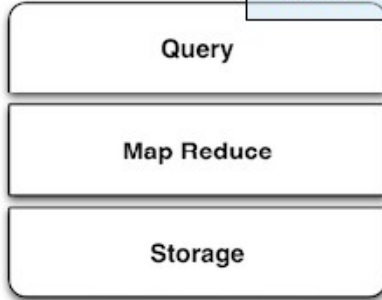


Public Data Hub
Data as a Service

開放資料
Open Data



Web 2.0



Big Data



Mobile Computing

端

各類裝置
存取服務

Cloud Computing
雲端運算

Supply Chain of Big Data Industry

巨量資料產業的上下游供應鏈

Mobile

Web 2.0

Query

Analytics

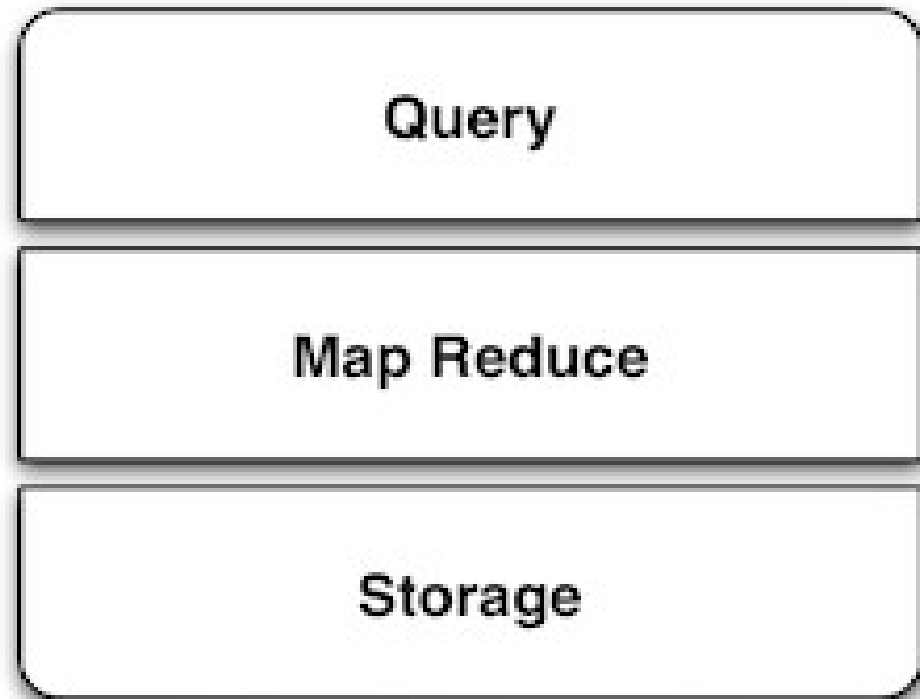
MapReduce

Storage

Open Data

IoT

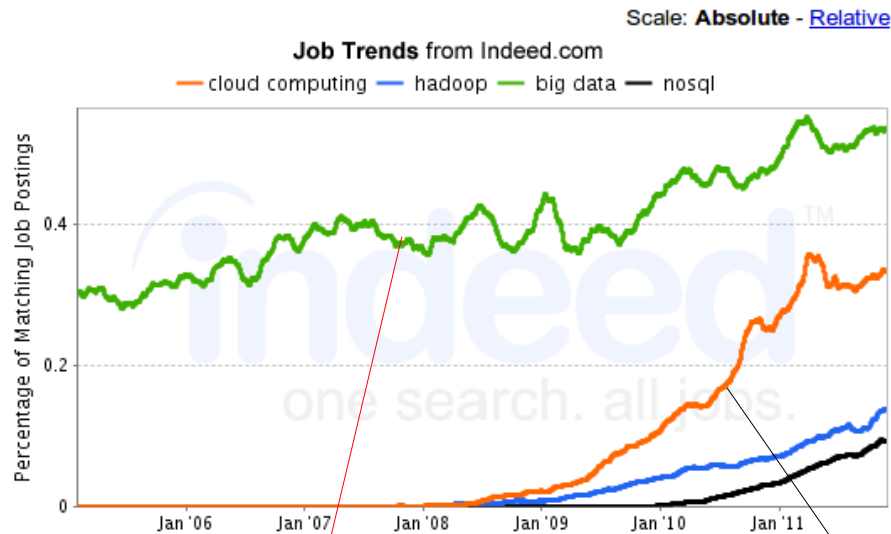
處理巨量資料的資訊架構
SMAQ (Storage, MapReduce and Query)



參考來源：The SMAQ stack for big data , Edd Dumbill , 22 September 2010 ,
<http://radar.oreilly.com/2010/09/the-smaq-stack-for-big-data.html>

Big Data 很重要，但該去那兒找人才？

cloud computing, hadoop, big data, nosql Job Trends

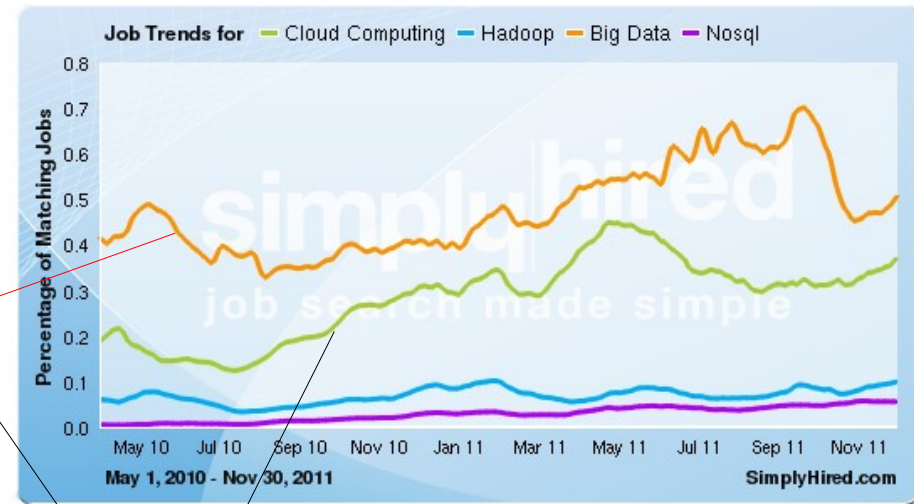


Indeed.com searches millions of jobs from thousands of job sites. This job trends graph shows the percentage of jobs we find that contain your search terms.

Find [Cloud Computing jobs](#), [Hadoop jobs](#), [Big Data jobs](#), [Nosql jobs](#)

Big Data

美國軟體就業市場分析，根據 indeed 與 simply hired 兩間公司的趨勢觀察，都得到一樣的結果：
Big Data > Cloud Computing > Hadoop > NoSQL



Cloud Computing

自由軟體社群最重要的是「人」！產業供應鏈也一樣！

Community Evangelist

Connecting People

Connecting Values

< Mission >

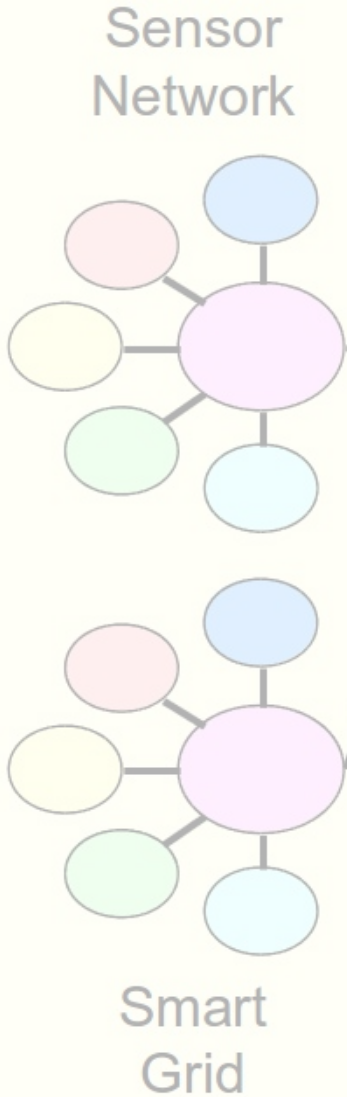
**Connecting People to
build a Value Supply Chain**

巨量資料的社群關聯

Relations between Communities

Internet of Things

物聯網



雲 資料中心 提供服務

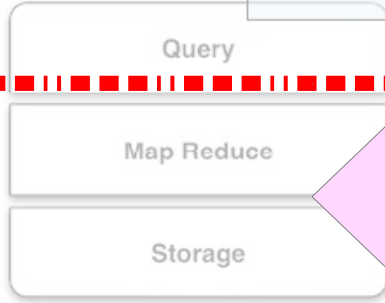


Public Data Hub
Data as a Service

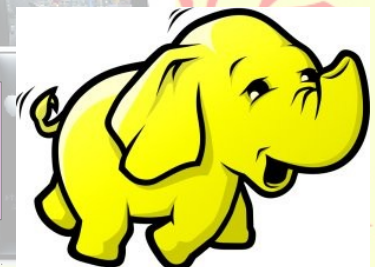
開放資料
Open Data



Web 2.0



Hadoop



Big Data

Mobile Computing

Cloud Computing

雲端運算

Hadoop related Facebook Group in Taiwan

Hadoop.TW

<https://www.facebook.com/groups/hadoop.tw>

The screenshot displays the Facebook interface for the "Taiwan Hadoop User Group". At the top, the group name is visible in the search bar. Below the header, there are navigation tabs for "About", "Events", "Photos", and "Files". The main content area features a "Write Post" section with a text input field and options to "Add Photo / Video", "Ask Question", and "Add File". To the right, it indicates "788 members (33 new)" and provides an "Add People to Group" button. The "Pinned Posts" section shows a post by "Jazz Yao-Tsung Wang" with the text: "請問各位社群夥伴, 您在學習 Hadoop 或使用 Hadoop 過程中, 曾經遇過或者經常覺得很痛苦的原因有哪些呢? (歡迎接龍~)". Below this, two poll questions are visible: "希望能瞭解怎麼整合前端 App 與後端 Web Service 與 Hadoop、NoSQL (有範例最好)" with 40 votes, and "缺乏完整的教學範例, 以瞭解 HDFS 到 MapReduce, 甚至如何與 SQL/NoSQL 整合" with 27 votes. The left sidebar contains "FAVORITES" (News Feed, Messages, Events, Photos, Browse), "PAGES" (Hadoop in Taiwan 2012, 台灣機器學習, Pages Feed, Like Pages, Create Ad), and "GROUPS" (JavaScript.tw, Front-End Develo..., AWS在台灣).

2013/09/04 Hadoop.TW 986 members

Hadoop related Facebook Group in Taiwan

Hadoop in Taiwan

<https://www.facebook.com/groups/hadoopintaiwan/>

The screenshot shows the Facebook group page for 'Hadoop in Taiwan'. At the top, the group name is displayed in a search bar. Below it, there are several profile pictures of group members, including a cartoon avatar and a photo of a man eating. The page features a navigation bar with tabs for 'About', 'Events', 'Photos', and 'Files'. A 'Write Post' section is visible with a text input field. On the right side, it shows '93 members (3 new)' and an 'Add People to Group' button. Below the main content, there are 'Pinned Posts' and 'Related Groups' sections. The 'Pinned Posts' section features a post by Jazz Yao-Tsung Wang about a 2013 Hadoop conference in Taiwan, with details on the date, time, and topic. The 'Related Groups' section lists 'Linux Questions and Answers' and 'JAVA For Developers'. The left sidebar contains navigation options like 'News Feed', 'Messages', 'Events', 'Photos', and 'Browse', along with a list of 'PAGES' and 'GROUPS'.

Hadoop in Taiwan About Events Photos Files Notifications

Write Post Add Photo / Video Ask Question Add File

Write something...

93 members (3 new) · Invite by Email
+ Add People to Group

Related Groups See All

- Linux Questions and Answers**
4,933 members
Join Group
- JAVA For Developers**
Alexis Li joined
Join Group

Rate These Places See All

PINNED POSTS

Jazz Yao-Tsung Wang
Hadoop in Taiwan 2013 徵求講者, 歡迎社群同好於 6/28(五) 15:00 前 至投稿網址填寫講題內容: <http://goo.gl/EkctcB>

今年的主題是「即時(Realtime) • 安全(Security) • 便利(Accessibility)」

...
See More

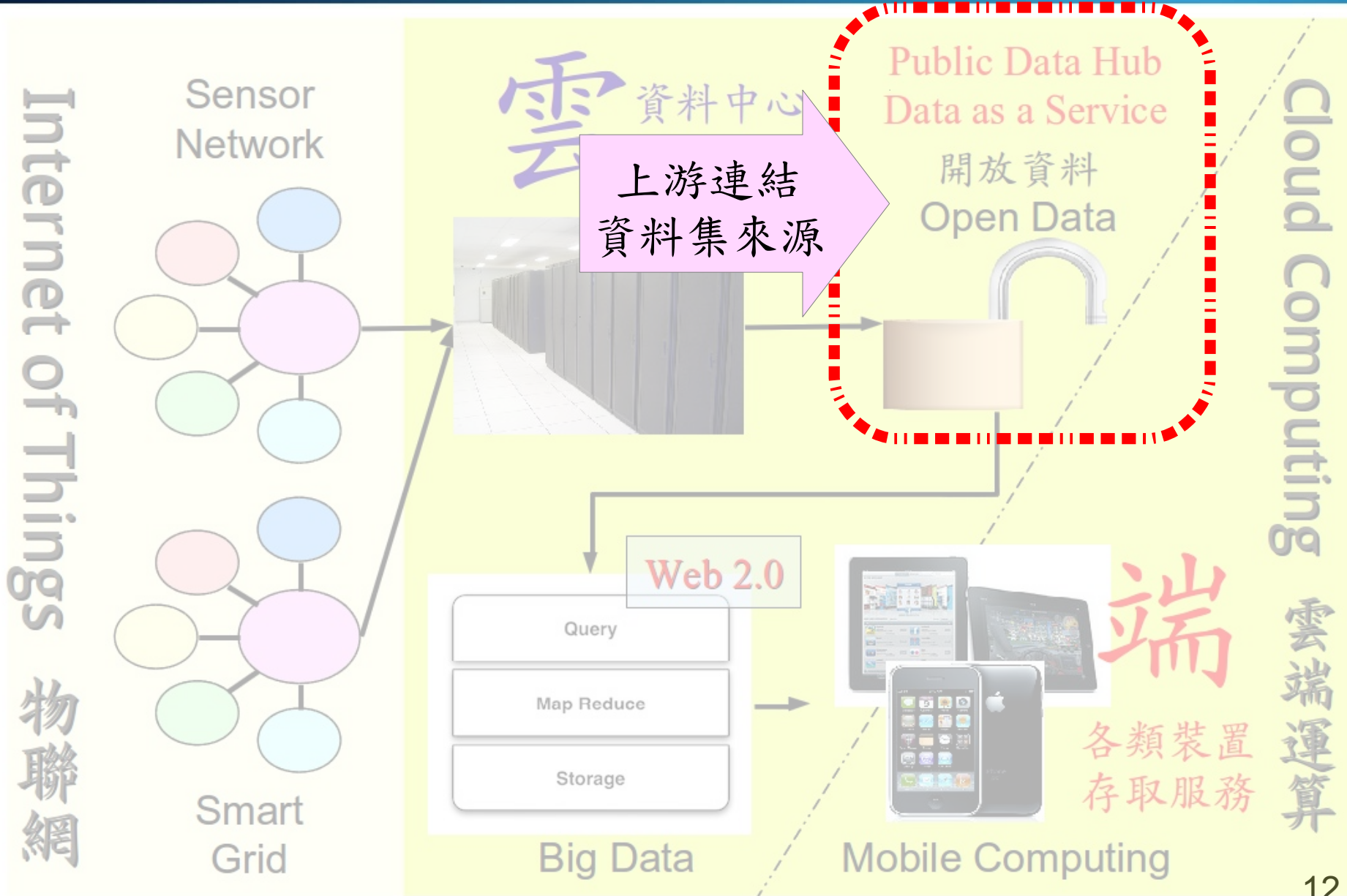
PAGES

- Hadoop in Taiwan 2012
- 台灣機器學習
- Pages Feed 18
- Like Pages
- Create Ad

GROUPS

- JavaScript.tw 1
- Front-End Develo... 1
- AWS在台灣 1

2013/09/04 Hadoop in Taiwan **118** members



Open Data Taiwan Facebook Group

OpenData / Taiwan (ODTWN)

<https://www.facebook.com/groups/odtwn/>

OpenData / Taiwan

Jazz Yao-Tsung Wang
Edit Profile

FAVORITES

- News Feed
- Messages
- Events
- Photos
- Browse

PAGES

- Hadoop in Taiwan 2012
- 台灣機器學習
- Pages Feed
- Like Pages
- Create Ad

GROUPS

- JavaScript.tw
- Front-End Develo...
- AWS在台灣

OpenData / Taiwan About Events Photos Files Notifications

Write Post Add Photo / Video Ask Question Add File

Write something...

490 members (95 new) · Invite by Email

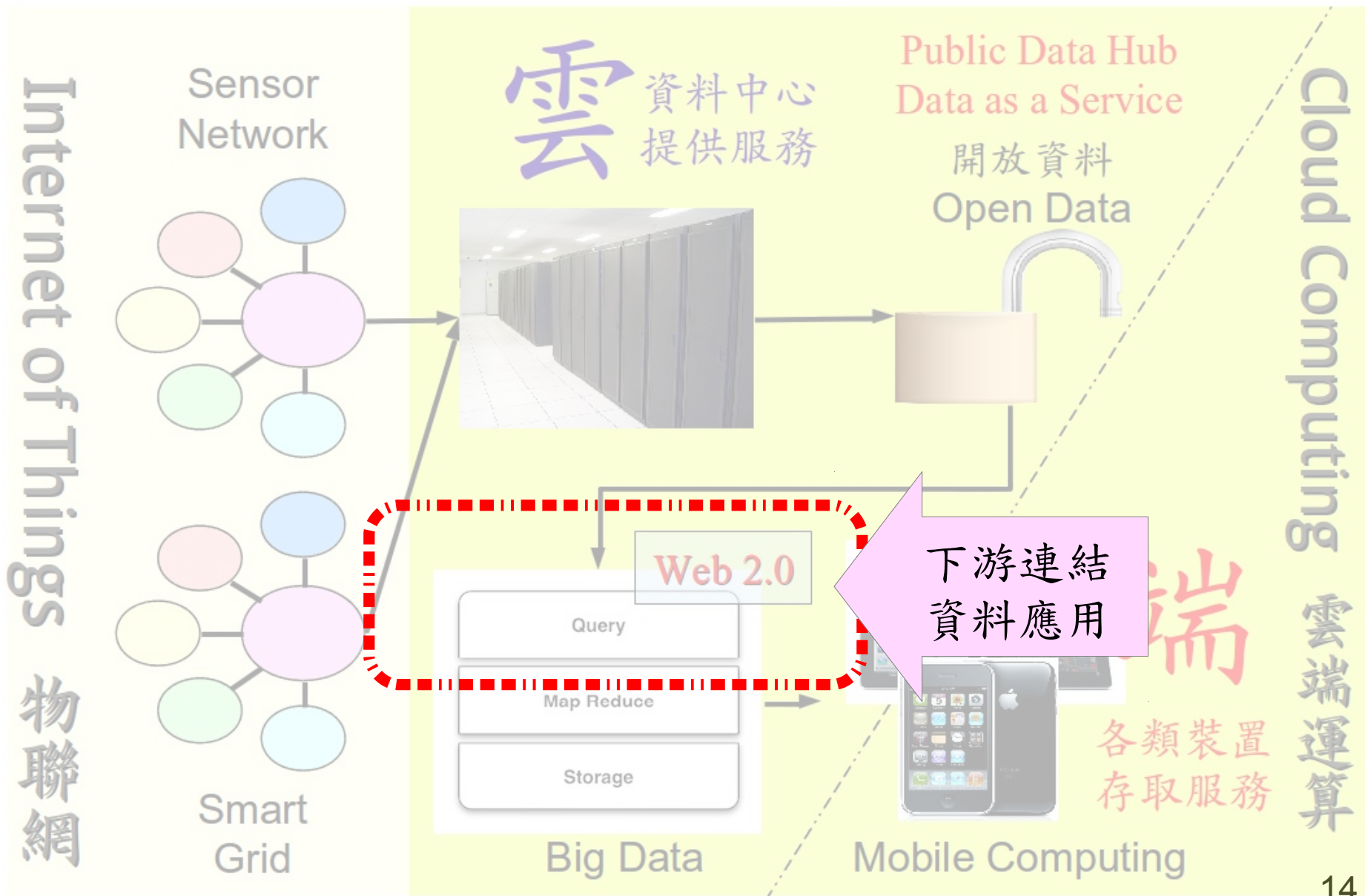
+ Add People to Group

Related Groups See All

RECENT POSTS

Tyng-Ruey Chuang

2013/09/04 Open Data Taiwan **614** members



Taiwan R User Group @ Meetup

Taiwan R User Group

<http://www.meetup.com/Taiwan-R/>

The screenshot shows the Meetup website interface for the Taiwan R User Group. At the top, there is a navigation bar with the Meetup logo, 'Find a Meetup Group', and 'Start a Meetup Group' buttons. On the right, there are links for 'What's new', 'Log in', and 'Sign up', along with a search bar. Below this is a large blue banner with the text 'Taiwan R User Group (R Programming Language)'. Underneath the banner is a secondary navigation bar with 'Home', 'Members', 'Photos', 'Discussions', and 'More' buttons, and a 'Join us!' button on the right. The main content area is divided into two columns. The left column features a photo of Taipei, Taiwan, with the text 'Taipei, Taiwan' and 'Founded Sep 29, 2012'. The right column has a 'Members' section with two tabs: 'All members (292)' and 'The Leadership Team (7)'. Below the tabs is a Facebook login prompt: 'Who do you know here? Log in with Facebook to find out who you know in this Meetup.' To the right of this prompt is a note: 'Creating a Meetup account means you agree to the Terms of Service'. At the bottom of the members section, there are 'Sort by:' and 'Find a member:' options.

2013/09/04 Taiwan R User **384** members

NoSQL Taiwan Facebook Group

NoSQL Taiwan

<https://www.facebook.com/groups/306552142710977/>

NoSQL Taiwan Home Jazz Yao-Tsung

Jazz Yao-Tsung Wang
Edit Profile

FAVORITES

- News Feed
- Messages
- Events
- Photos
- Browse

PAGES

- Hadoop in Taiwan 2012
- 台灣機器學習
- Pages Feed 18
- Like Pages
- Create Ad

GROUPS

- JavaScript.tw 1
- Front-End Develo... 1
- AWS在台灣 1

NoSQL Taiwan About Events Photos Files Notifications

Write Post **Add Photo / Video** **Ask Question** **Add File**

Write something...

RECENT POSTS

Fan Tracey
不知道大家對這個產品有什麼看法,我是剛進入NOSQL的工程師,請大家多給意見
<http://www.oracle.com/technetwork/products/nosqldb/downloads/index.html>

Oracle NoSQL Database Downloads
www.oracle.com
Oracle NoSQL Database is a distributed, highly performant, highly available scalable key-value

1,044 members (158 new) · Invite by Email
+ Add People to Group

Related Groups See All

- Ruby on Rails**
Alexis Li joined
Join Group
- PHP**
Alexis Li joined
Join Group
- 台南私藏景點

2013/09/04 NoSQL Taiwan **1,343** members

NoSQL & Big Data Architecture

NoSQL & BigData Architecture

<https://www.facebook.com/groups/423848814337101/>

The screenshot shows a Facebook group page. At the top, the group name is 'NoSQL 中的分散式架構與 Big Data 議題小聚'. The page features a navigation bar with 'About', 'Events', 'Photos', 'Files', and 'Notifications'. A post by 'Reynolds Joe' is visible, titled 'A developer's dilemma: When to use NoSql!', with a link to a blog post. The post includes an image of database cylinders and a red prohibition sign. The right sidebar shows 'Related Groups' including 'JAVA For Developers', 'Javascript', and 'ASP.Net'. The left sidebar lists 'FAVORITES' and 'PAGES'.

2013/09/04 NoSQL-BigData **230** members

HBase Taiwan Facebook Group

HBase 小聚

<https://www.facebook.com/groups/289369481132604/>

Hbase小聚 Home Jazz Yao-Tsung

Jazz Yao-Tsung Wang
Edit Profile

FAVORITES

- News Feed
- Messages
- Events
- Photos
- Browse

PAGES

- Hadoop in Taiwan 2012
- 台灣機器學習
- Pages Feed **18**
- Like Pages
- Create Ad

GROUPS

- Hbase小聚**
- JavaScript.tw **1**
- Front-End Develo... **1**
- AWS在臺灣 **2**

Hbase小聚 About Events Photos Files Notifications

Write Post Add Photo / Video Ask Question Add File

Write something...

RECENT POSTS

James Chang
有前輩去研究過CDH3U4昇級成CDH4.2後, HFile格式由V1轉成V2的過程嗎?有沒有什麼地雷要注意?Thanks
Like · Comment · Follow Post · Share · April 22 at 7:53pm near Nankang, Taipei
Seen by 47
Write a comment...

122 members **(10 new)** · Invite by Email
+ Add People to Group

Related Groups See All

- JAVA**
Alexis Li joined
Join Group
- JAVA For Developers**
Alexis Li joined
Join Group
- C Plus Plus (C++)**
James Chang joined
Join Group

2013/09/04 HBase.TW **134** members

MongoDB Taiwan Facebook Group

MongoDB 小聚

<https://www.facebook.com/groups/142553245867411/>

MongoDB小聚

Home Jazz Yao-Tsung

Jazz Yao-Tsung Wang Edit Profile

FAVORITES

- News Feed
- Messages
- Events
- Photos
- Browse

PAGES

- 台灣機器學習
- Pages Feed 18
- Like Pages
- Create Ad

GROUPS

- MongoDB小聚**
- JavaScript.tw 1
- Front-End Develo... 1
- AWS在台灣 2

MongoDB小聚 About Events Photos Files

Write Post Add Photo / Video Ask Question Add File

Write something...

210 members (47 new) · Invite by Email

+ Add People to Group

Related Groups See All

- Cloud Computing Kuo-Chun Su and 12 other friends joined Join Group
- 家教網-接家教的好地方 Alexis Li joined Join Group
- PHP

RECENT POSTS

Kai-Yuan Lin

徵才啟事:
各位朋友, 敝公司正開發雲端產業, 想要徵求資料庫顧問, 如果您或您的朋友的公司有這方面的顧問服務, 請幫我介紹牽線, Keyword為非關聯式資料庫、NoSQL、MongoDB、文件導向資料庫、Hadoop等。感謝各位朋友了^^

Like · Comment · Unfollow Post · Share · June 4 at 4:55pm

Chieh-Wen Yang, 蔡勝雄 and 5 others like this. Seen by 110

Jazz Yao-Tsung Wang 也許可以問一下 <http://www.ic->

2013/09/04 MongoDB.TW **267** members

JavaScript Taiwan Facebook Group

JavaScript.TW

<https://www.facebook.com/groups/javascript.tw/>

The screenshot displays the Facebook group interface for JavaScript.TW. At the top, the group name 'JavaScript.tw' is visible next to the Facebook logo. Below this, there's a navigation bar with icons for Home, user profile (Jazz Yao-Tsung), and settings. The main content area features a large cover photo of a conference titled '2012 JS 嘉年華會'. Below the cover photo are navigation tabs: 'JavaScript.tw', 'About', 'Events', 'Photos', and 'Files'. On the right side of the cover photo, it says '3,606 members (164 new) · Invite by Email' and a button '+ Add People to Group'. Below the navigation tabs, there's a 'Write Post' section with a text input field containing 'Write something...'. To the right of the post area, it says '3,606 members (164 new) · Invite by Email' and a button '+ Add People to Group'. Below the post area, there's a 'PINNED POSTS' section with a post by 'Tonyq Wang' titled '「社群近況通知」'. On the left side of the page, there's a sidebar with 'FAVORITES' (News Feed, Messages, Events, Photos, Browse) and 'PAGES' (台灣機器學習, Pages Feed, Like Pages, Create Ad). At the bottom of the sidebar, there's a 'GROUPS' section with 'MongoDB小聚', 'JavaScript.tw' (highlighted), 'Front-End Develop...', and 'AWS在台灣'.

2013/09/04 JavaScript.TW **4,328** members

Supply Chain of Big Data Industry

Mobile

Web 2.0

Query

Analytics

MapReduce

Storage

Open Data

IoT

JavaScript.TW 4328 members

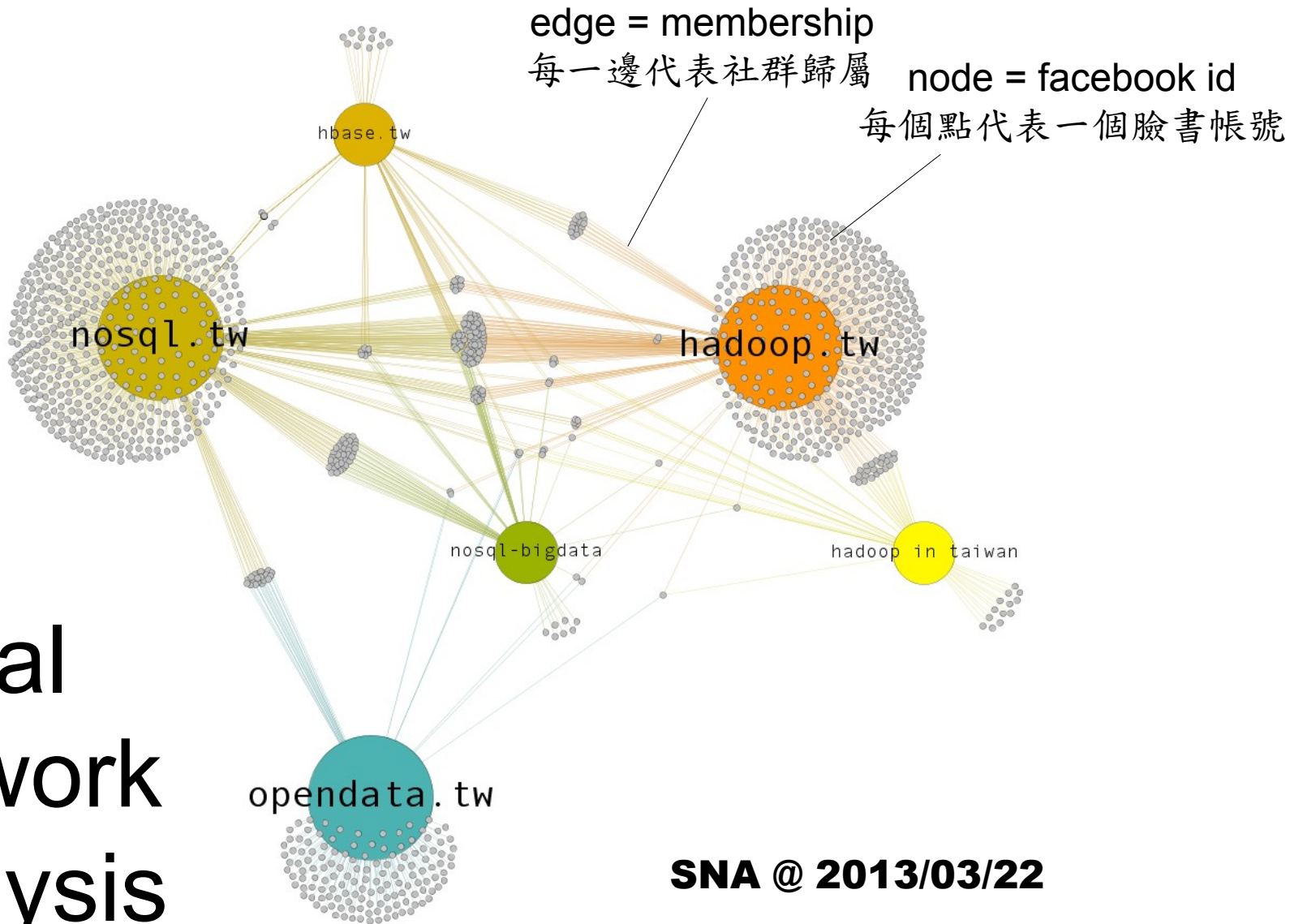
NoSQL Taiwan 1343 members

Taiwan R User 384 members

Hadoop Taiwan 986 members

Open Data Taiwan 614 members

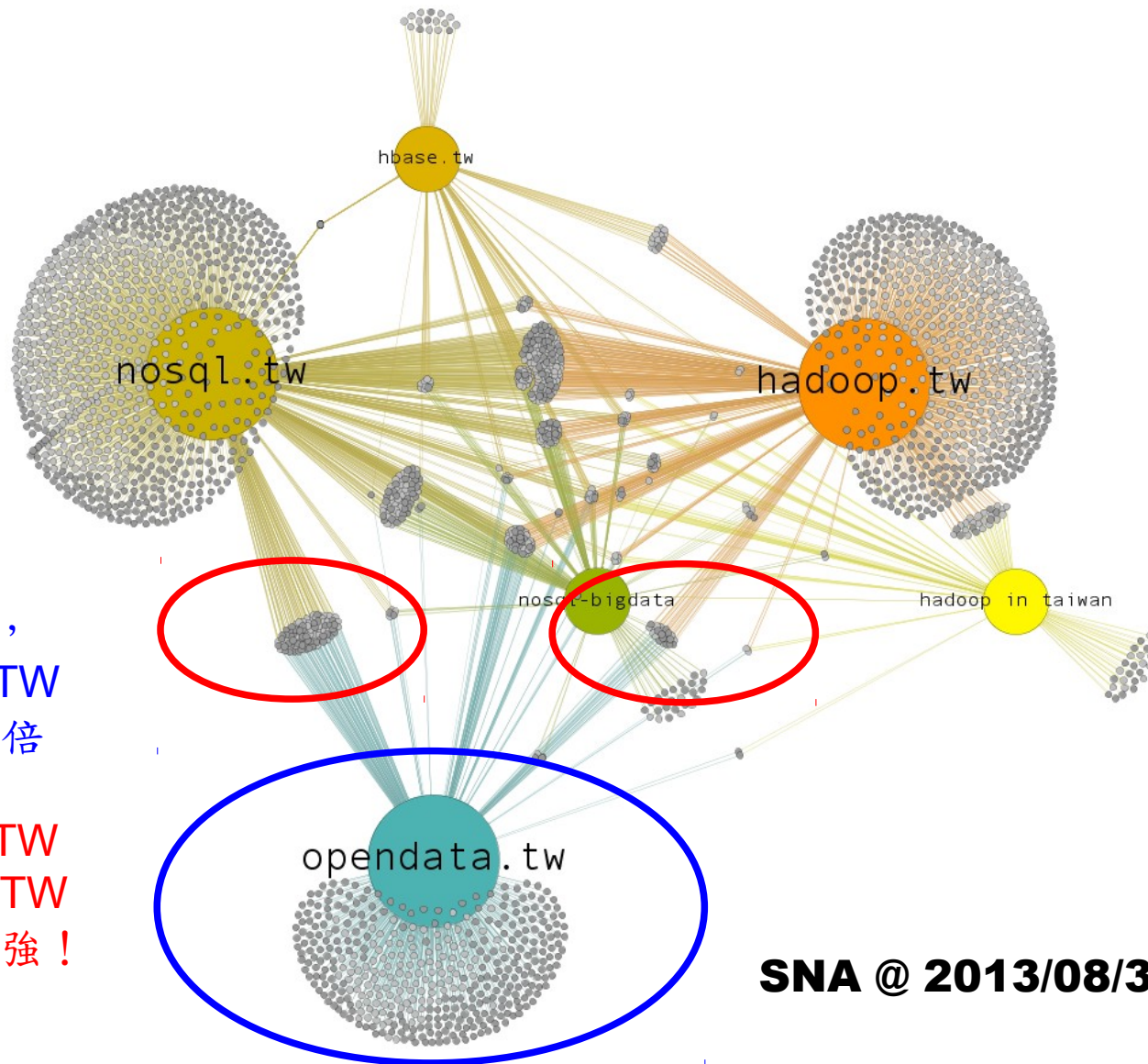
SNA of Big Data Communities 巨量資料社群的群聚分析



Social
Network
Analysis

SNA @ 2013/03/22

SNA of Big Data Communities 巨量資料社群的群聚分析



5 個月以後，
OpenData.TW
人數翻了 5 倍

與 NoSQL.TW
跟 Hadoop.TW
的連結也變強！

SNA @ 2013/08/31

SNA of Big Data Communities

巨量資料社群的群聚分析

巨觀來看，對於資料庫
有興趣的人數比較高！

JavaScript.TW
人數非常龐大！
代表台灣有很多人
對前端工程有
興趣。

玩 OpenData 的人不少都
需要前端視覺化的技術。

NoSQL.TW

跨領域人才？

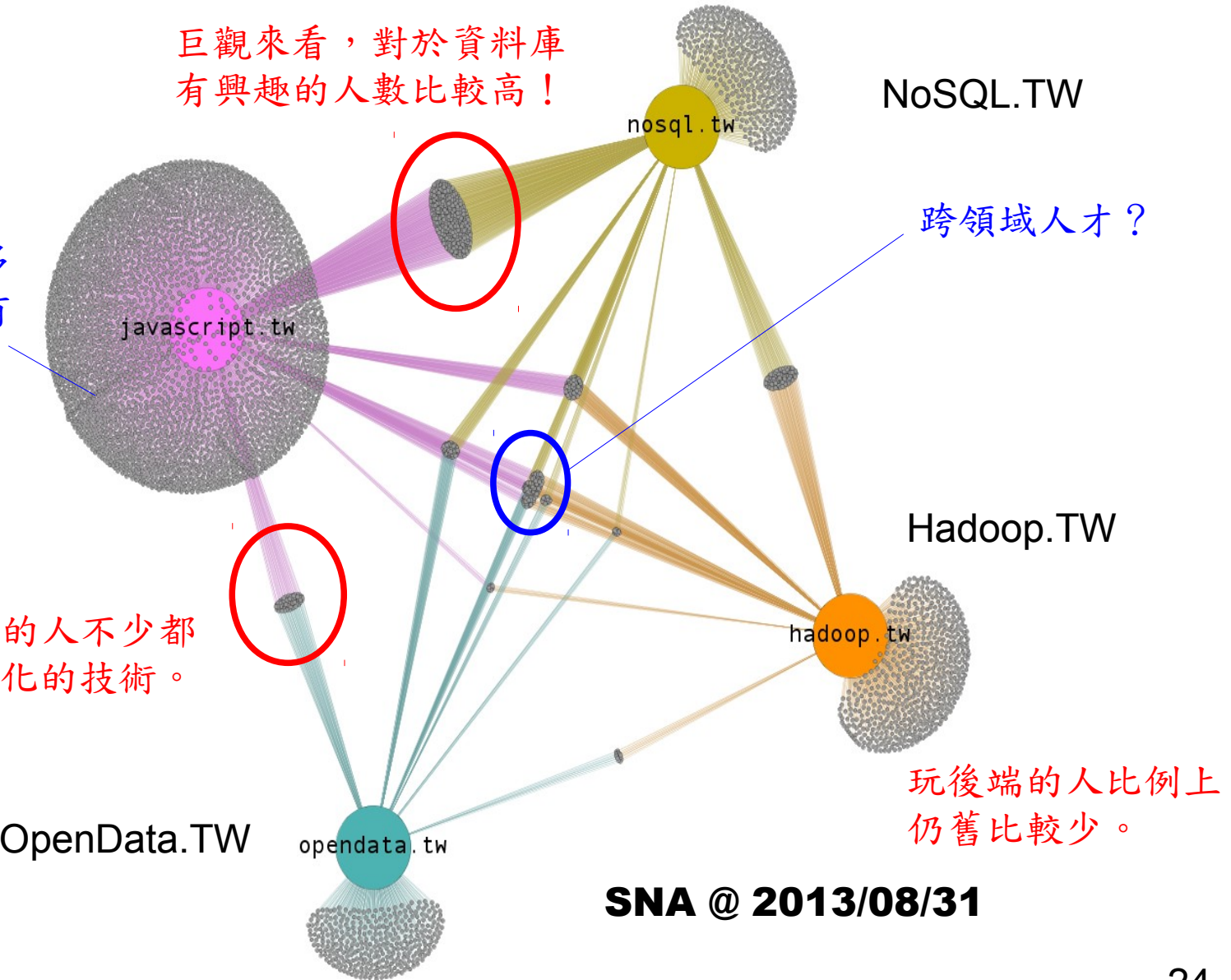
Hadoop.TW

玩後端的人比例上
仍舊比較少。

OpenData.TW

opendata.tw

SNA @ 2013/08/31



結語

Conclusion

Mobile

Web 2.0

Query

MapReduce

Storage

Open Data

IoT

紅海

需求明確
市場飽和

JavaScript.TW **4328** members

缺乏成功案例

NoSQL Taiwan **1343** members

還算健康
持續互動

Hadoop Taiwan **986** members

藍海

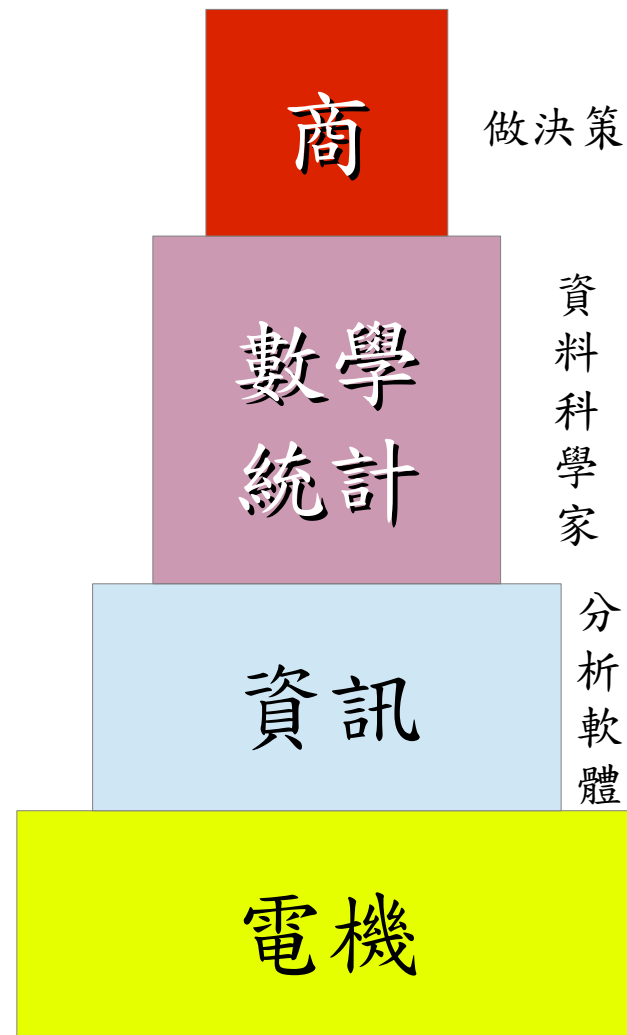
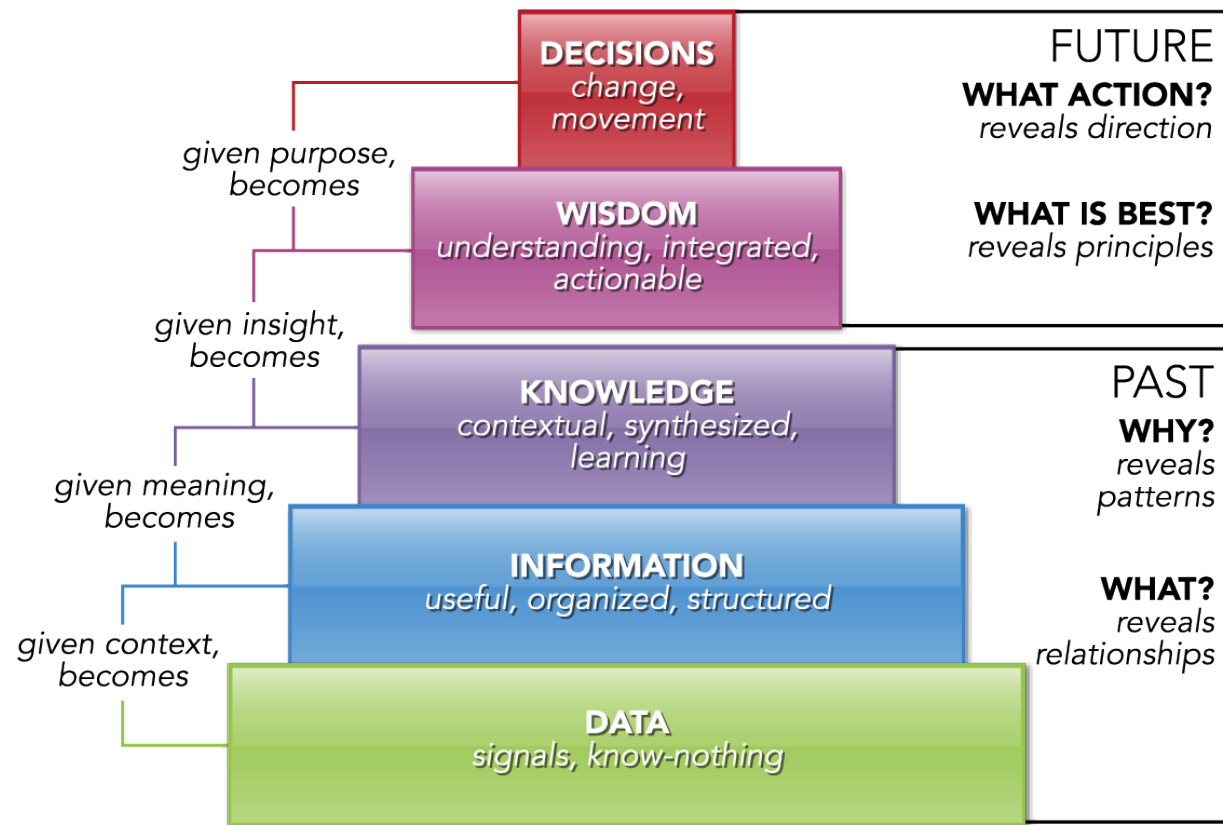
設法找出需求
強化供應鏈

Open Data Taiwan **614** members

有待法令開放

仍有待打通產業
供應鍊
巨量資料產業
尚未成型

就讀科系決定您未來在巨量資料產業的地位



大家都說「資料是金礦」，讓我們拿採礦當類比

國際金價

提供給客戶的價值

產品通路

開採成本

總擁有成本

軟硬體投資

提煉廠

分析工具軟體

SMAQ

含金量

資料鑑價？

商業模式

開採權

分析資料的合法性

個資法

金礦

資料集

Open Data

巨量資料的未來？ Future of Big Data ?

http://www.huffingtonpost.com/deb-roy/the-birth-of-a-word_b_2639625.html

TED WEEKENDS: Big Data Can Get Very Personal



The Birth of a Word



個人化的巨量資料

Big Data Can Get Very Personal



3 years recorded
90,000 hrs video
140,000 hrs audio
200 terabytes

http://www.ted.com/talks/deb_roy_the_birth_of_a_word.html

知識有價，熱情無價！
社群也一樣需要永續經營

Questions?

Slides - <http://trac.nchc.org.tw/cloud>

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