The Social Network Revolution
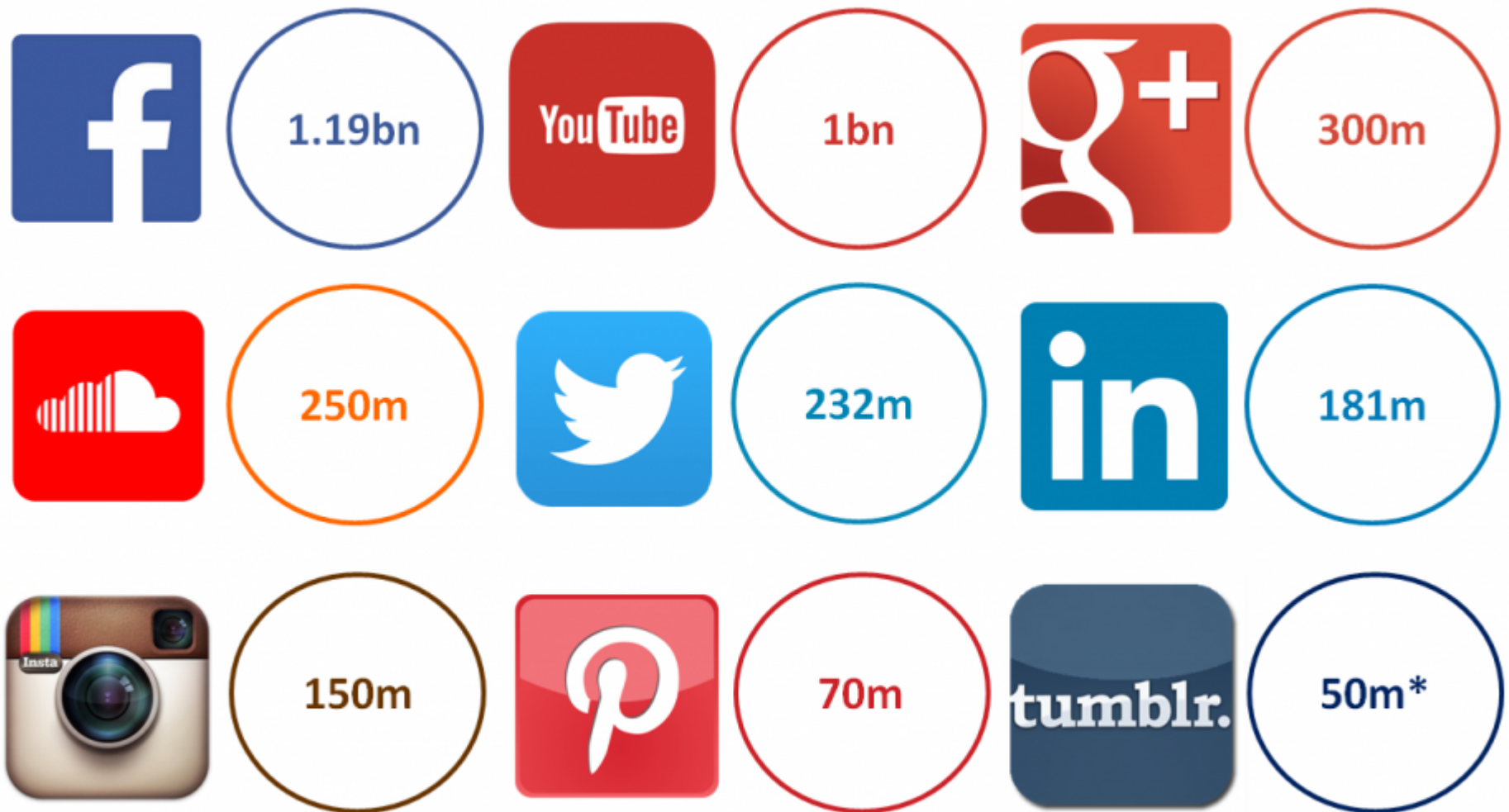
François Bar

1. the emerging social web
2. social network and uprising
3. analysis and prediction

1. the social web is big and growing

Active Monthly Users of the 'Big 9'

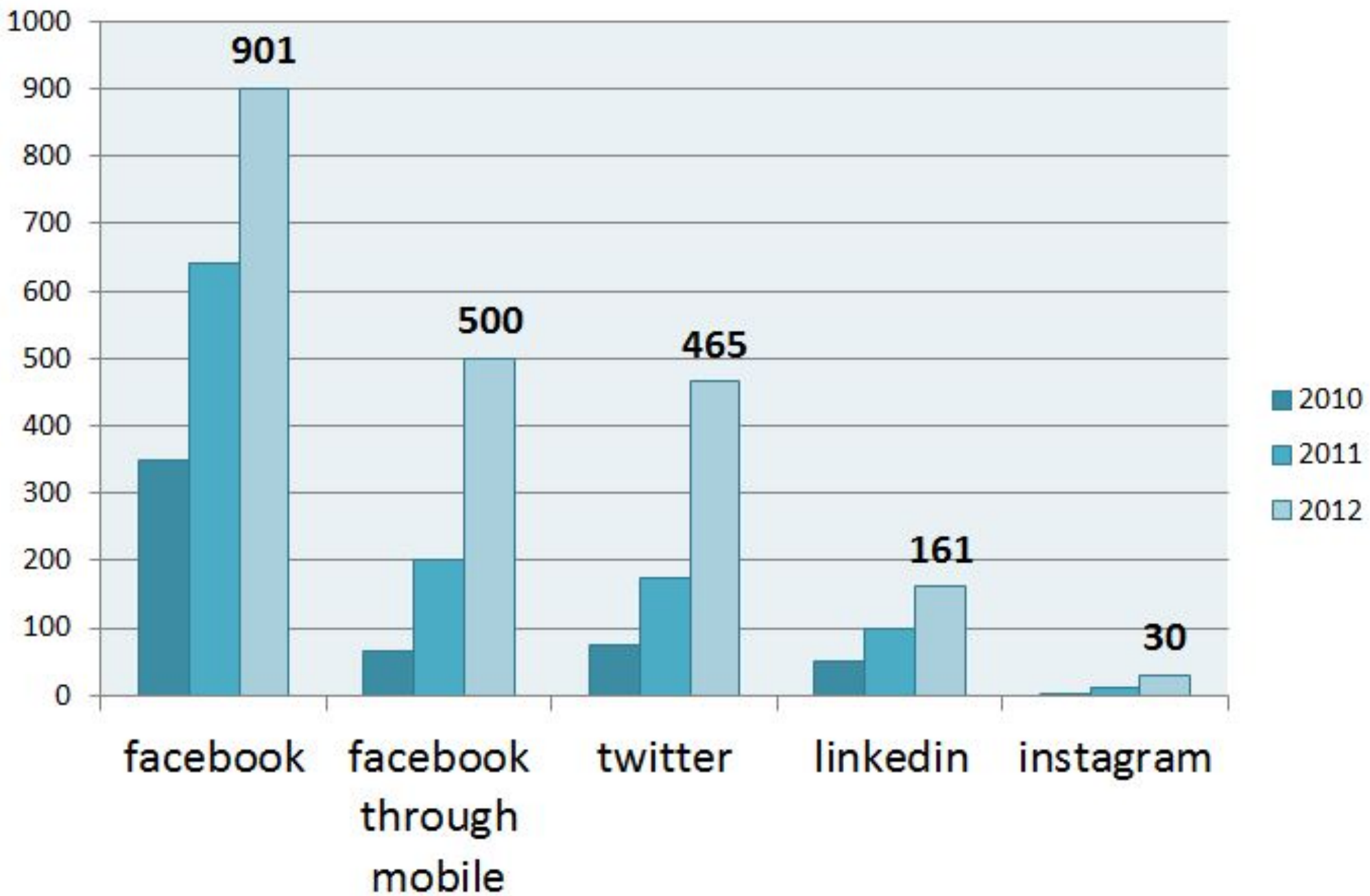|					
Facebook	**1.19bn**	YouTube	**1bn**	Google+	**300m**
SoundCloud	**250m**	Twitter	**232m**	LinkedIn	**181m**
Instagram	**150m**	Pinterest	**70m**	tumblr.	**50m***

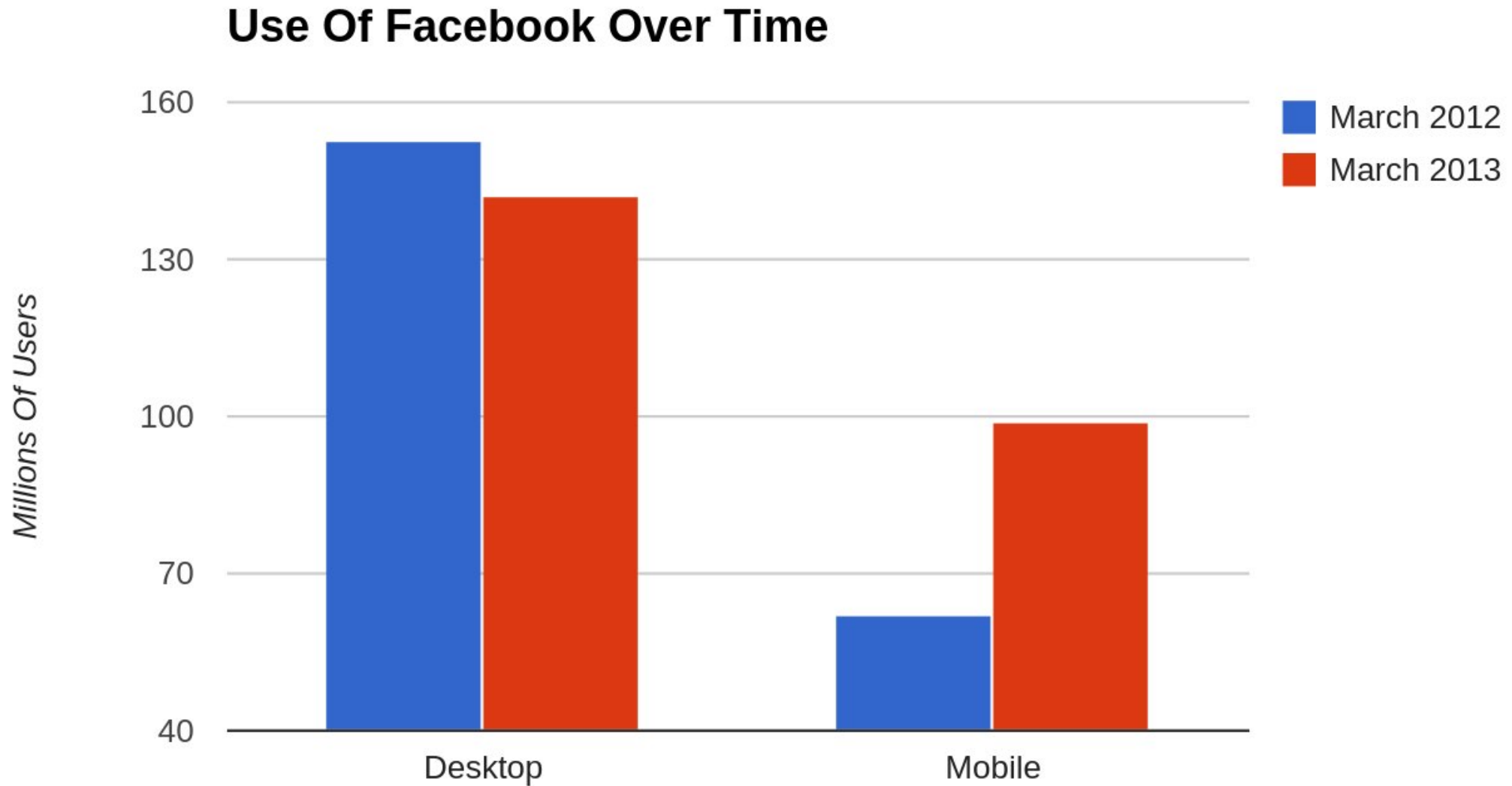**As at 15 November 2013 (multiple sources cited)**

•Tumblr does not release active monthly user data and this figure is based on an estimate from BusinessInsider.com. It does reveal that the site and its domains receives 300m visits per month.
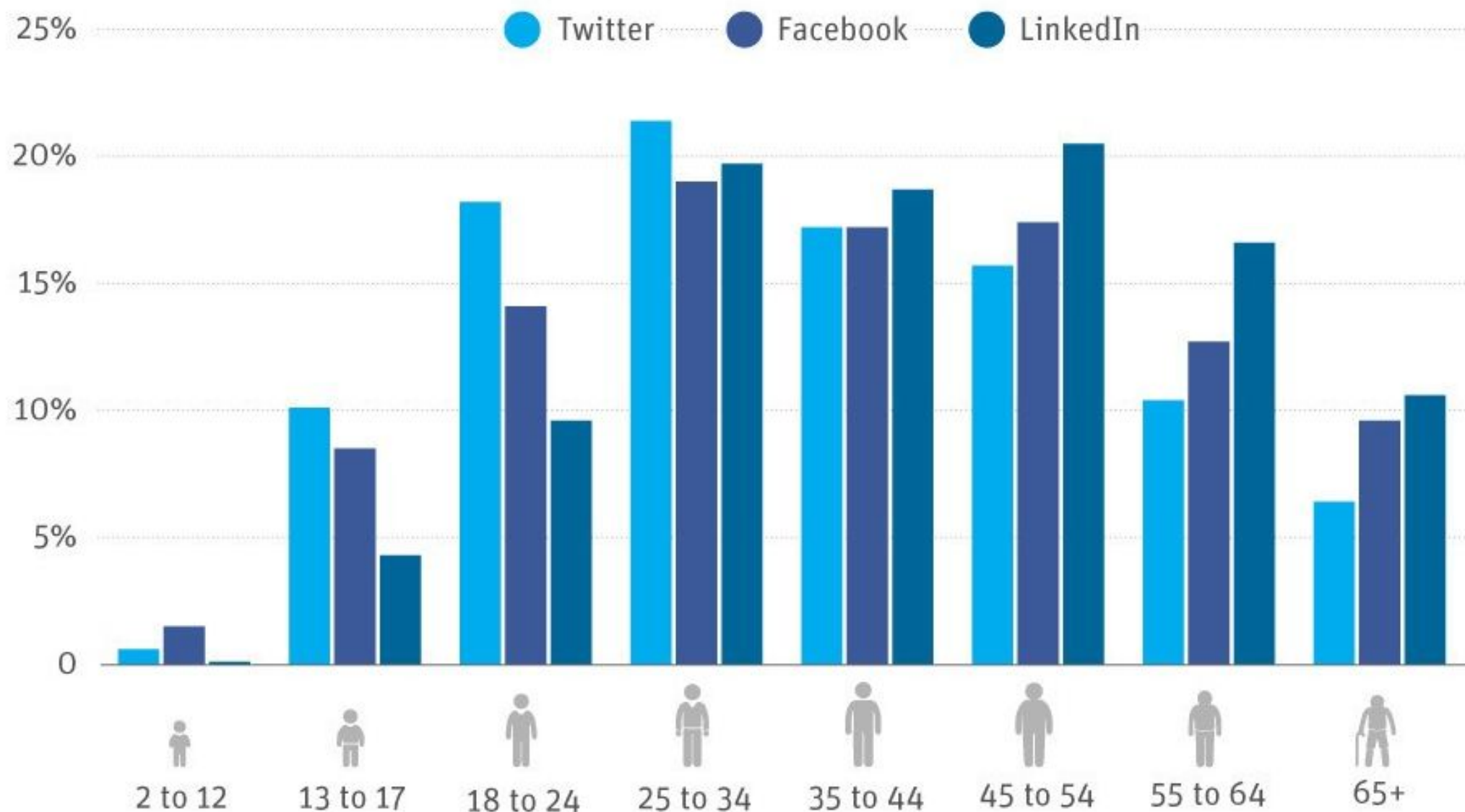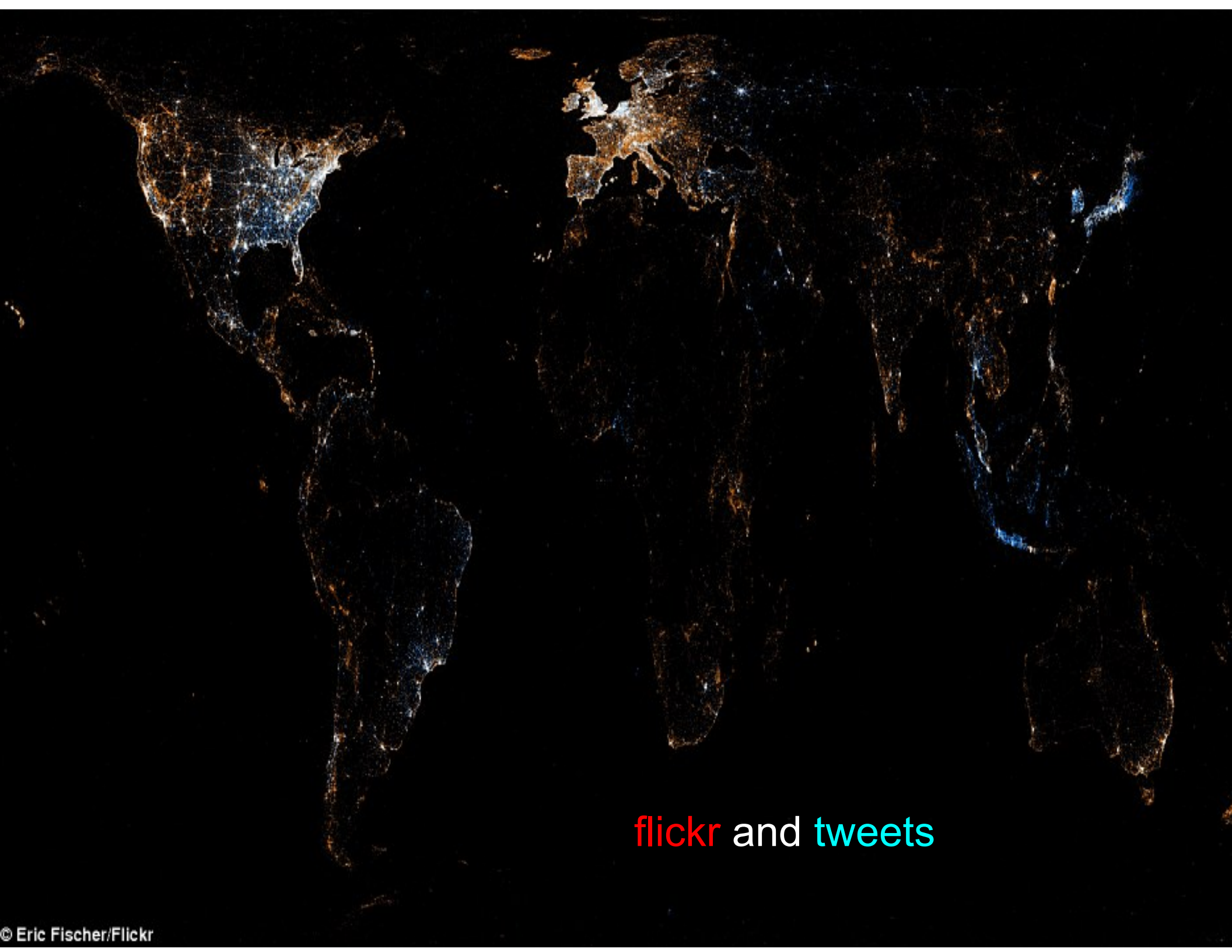
k/\mber

Unique visitors to facebook 2012-13

Use Of Facebook Over Time

Twitter Skews Young, LinkedIn Skews Old

Age breakdown of the U.S. desktop audiences of Twitter, Facebook and LinkedIn (October 2013)

● Twitter ● Facebook ● LinkedIn

Age groups: 2 to 12 | 13 to 17 | 18 to 24 | 25 to 34 | 35 to 44 | 45 to 54 | 55 to 64 | 65+

Y-axis: 0, 5%, 10%, 15%, 20%, 25%

statista The Statistics Portal

Mashable

Source: comScore

flickr and tweets

2012:
Facebook
dominates
almost
everywhere

June 2012			
Countries	SNS #1	SNS #2	SNS #3
Australia	Facebook	LinkedIn	Twitter
Austria	Facebook	Badoo	Twitter
Belgium	Facebook	Badoo	Linkedin
Brazil	Facebook	Orkut	Badoo
Canada	Facebook	LinkedIn	Twitter
China	Qzone	Tencent Weibo	Sina Weibo
Denmark	Facebook	LinkedIn	Badoo
Finland	Facebook	LinkedIn	Twitter
France	Facebook	Badoo	Skyrock
Germany	Facebook	Wer-kennt-wen	Xing
India	Facebook	LinkedIn	Orkut
Italy	Facebook	Badoo	Twitter
Japan	Facebook	Twitter	Mixi
Netherlands	Facebook	Hyves	Twitter
Norway	Facebook	LinkedIn	Twitter
Portugal	Facebook	Badoo	Orkut
Sweden	Facebook	Twitter	Linkedin
Russia	Odnoklassniki	V Kontakte	Facebook
Spain	Facebook	Tuenti	Badoo
United Kingdom	Facebook	Twitter	Linkedin
United States	Facebook	Twitter	Linkedin

WORLD MAP OF SOCIAL NETWORKS

June 2009

Legend:
- Facebook
- V Kontakte
- Odnoklassniki
- Lidė
- Hyves
- Zing
- Hi5
- Orkut
- Nasza-Klasa
- QQ Zone
- Iwiw
- Maktoob
- One
- Mixi
- Friendster
- Wretch
- Cyworld
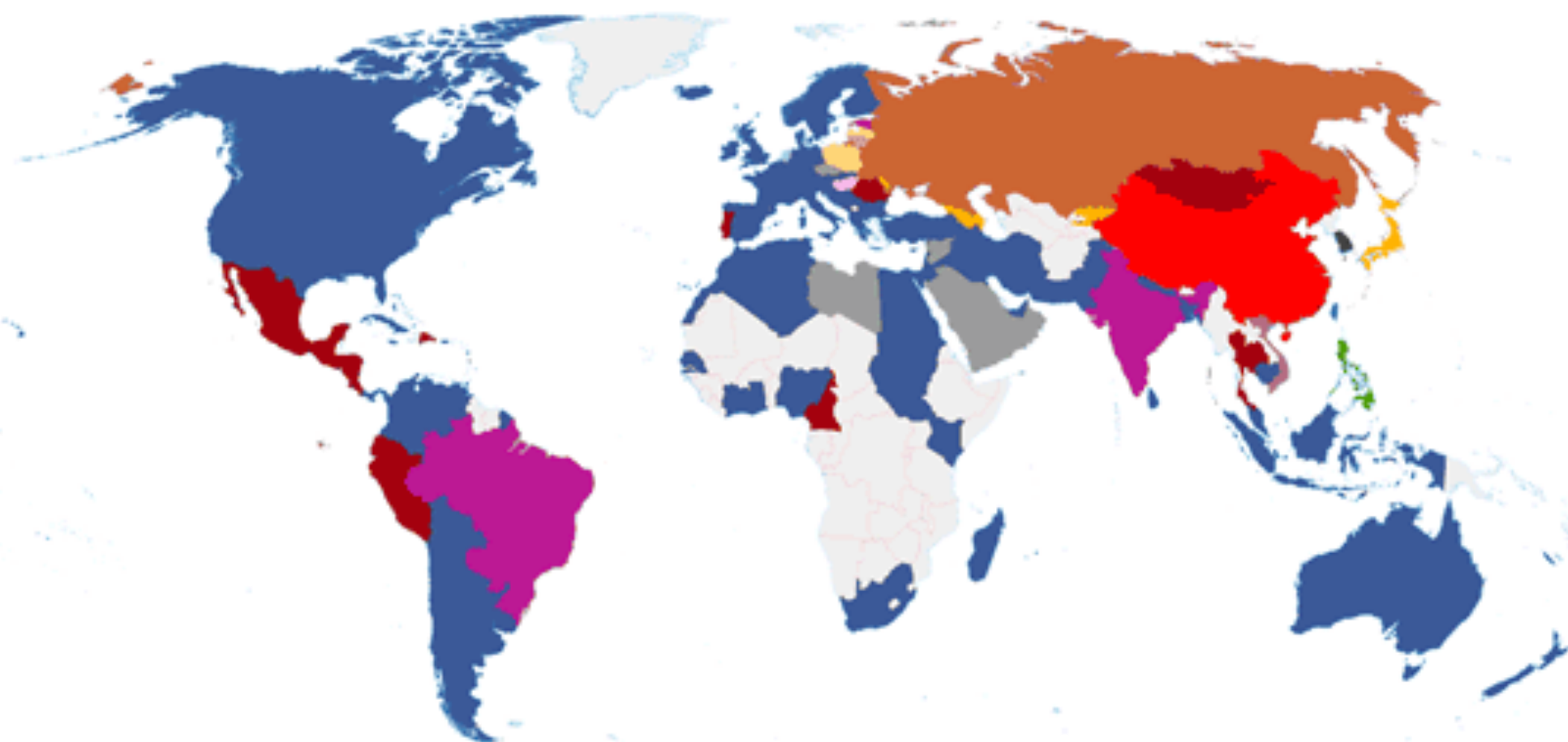
WORLD MAP OF SOCIAL NETWORKS
December 2013
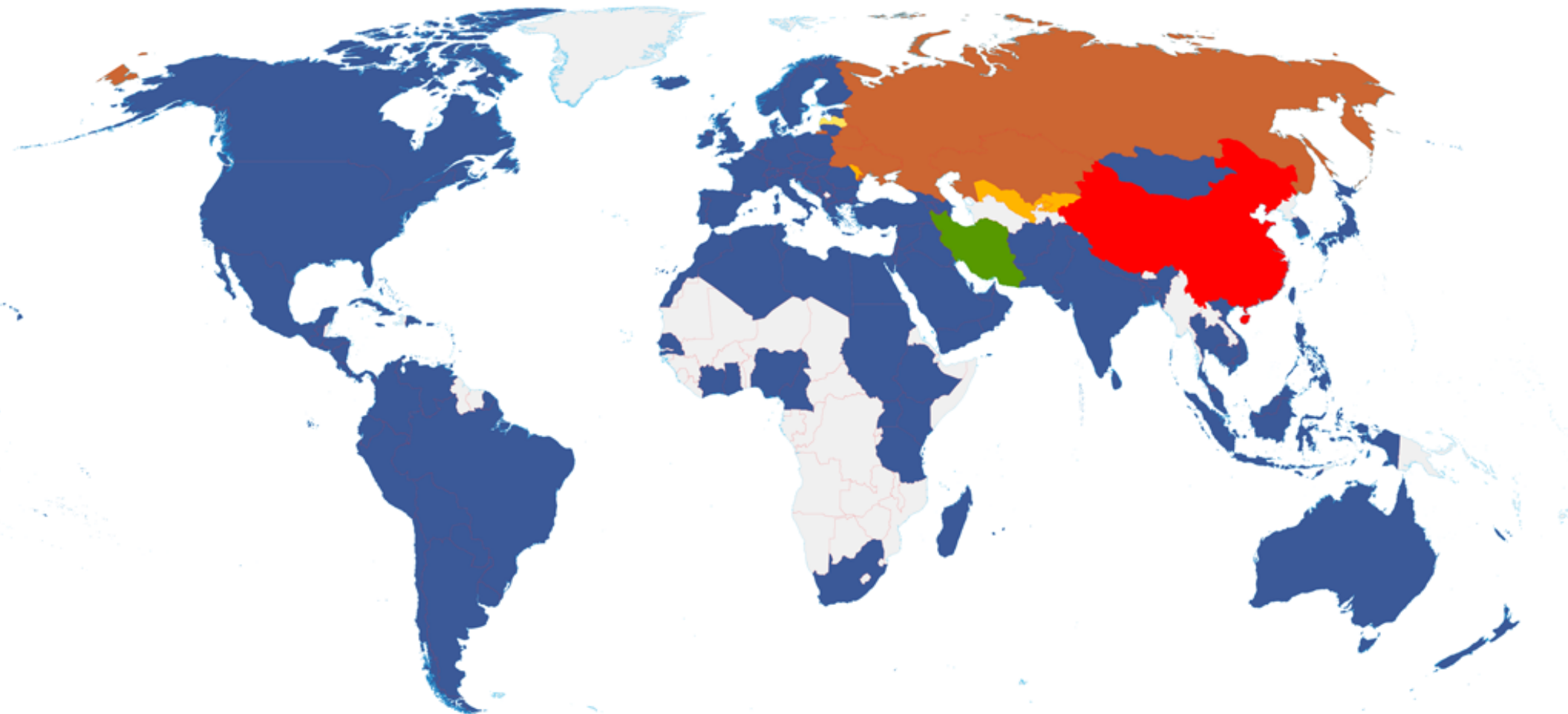
■ Facebook ■ QZone ■ V Kontakte ■ Odnoklassniki ■ Cloob ■ Drauglem

Global OTT (Over-the-Top) Messaging Services = >1B Users in <5 Years...

Global Messaging Ecosystem – Select Players, 2013

WhatsApp (USA), 4+ Years

MAUs = **400MM**, +100% Y/Y
Messages / Day = **50B**, +178% Y/Y

Tencent WeChat (China), 3+ Years

MAUs = **355MM**, +125% Y/Y

Line (Japan), 2+ Years

MAUs = **280MM**
Messages / Day = **10B**
Revenue = **$388MM**, +5x Y/Y (Q4:13)

KakaoTalk (Korea), 3+ Years

Messages / Day = **5.2B**, +24% Y/Y
Revenue = **$203MM**, +4xY/Y

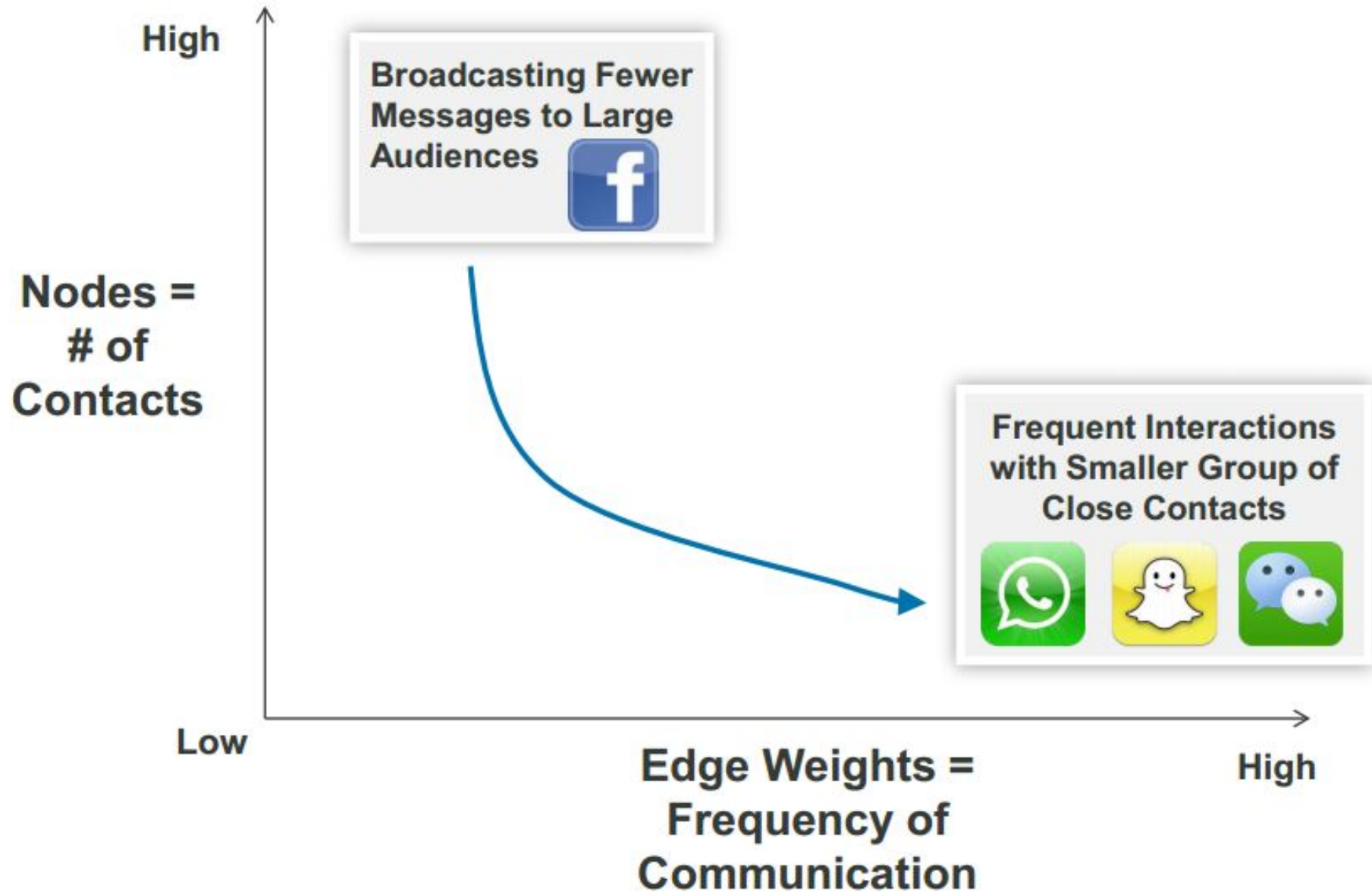**Snapchat (USA), 2+ Years**

Messages / Day = **1.2B**

Viber (Israel), 3+ Years

MAUs = **100MM**

Source: Publicly disclosed company data for 2013. Note: Snapchat messages / day comprises number of snaps sent per day and number of stories viewed per day.

Evolution of Messaging → New Social Graphs...
Edges = Potentially More Value than Nodes...

High

Broadcasting Fewer Messages to Large Audiences f

Nodes = # of Contacts

Frequent Interactions with Smaller Group of Close Contacts

Low

Edge Weights = Frequency of Communication

High

a new web: from content to connections

- from content / search to users / social networks
  - it's not just what you know, but whom you know

- from influencials to collaborative filtering
  - interpersonal relationships among ordinary users
  - society's readiness to adopt innovation

- from fixed to mobile
  - situated use, connections in context

egypt tweets by googlerank,
in english and arabic
Kovas Boguta
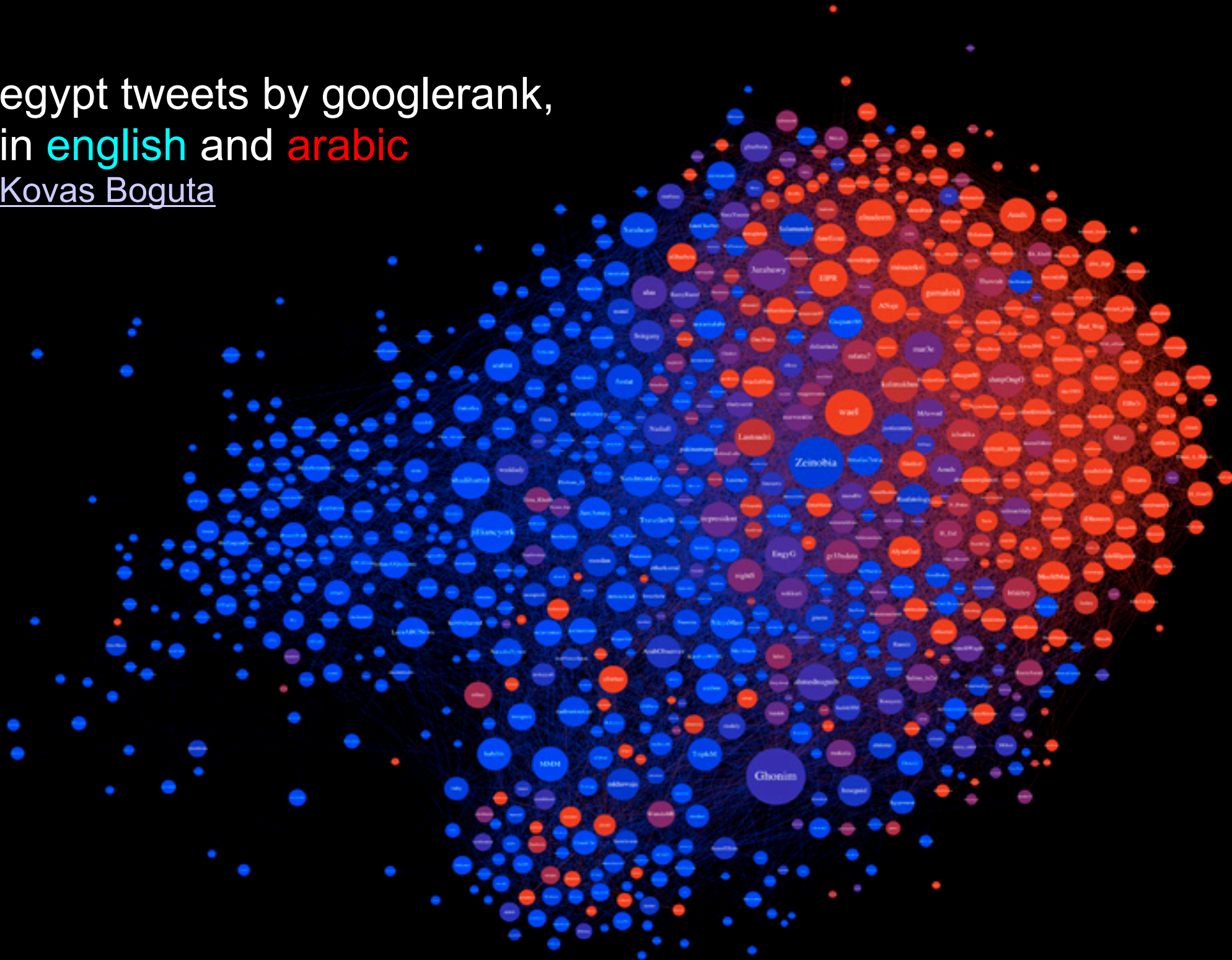
social networks and the arab spring

sparks and powder kegs

1. new communication ecosystem
"The combination of Google, Twitter, Facebook and Al Jazeera in the hands of a new generation of youth armed with cell phones broke social shackles" ([Antoní Gutiérrez-Rubí](#))

Feb 2011: 5 million Egyptians (out of 80m) have a facebook acct., 77% have a mobile, 21% internet penetration (fewer than 15,000 Egyptians tweeted)

2. spark: Mohamed Buazizi - broadcast by Al Jazeera, retransmitted by social nets

3. the spirit of revolution: microblogging has its own narrative capability to transmit emotions + collective awareness

limits and dangers

limited penetration: internet, mobiles, facebook not (yet) universal BUT high penetration among urban youth + Al Jazeera audience

what is really new? there have been revolutions without ICTs...

reliability? government shutdowns

networks effective against **hierarchies** (Tunisia, Egypt). less against tribes? (Libya, Yemen, Syria)

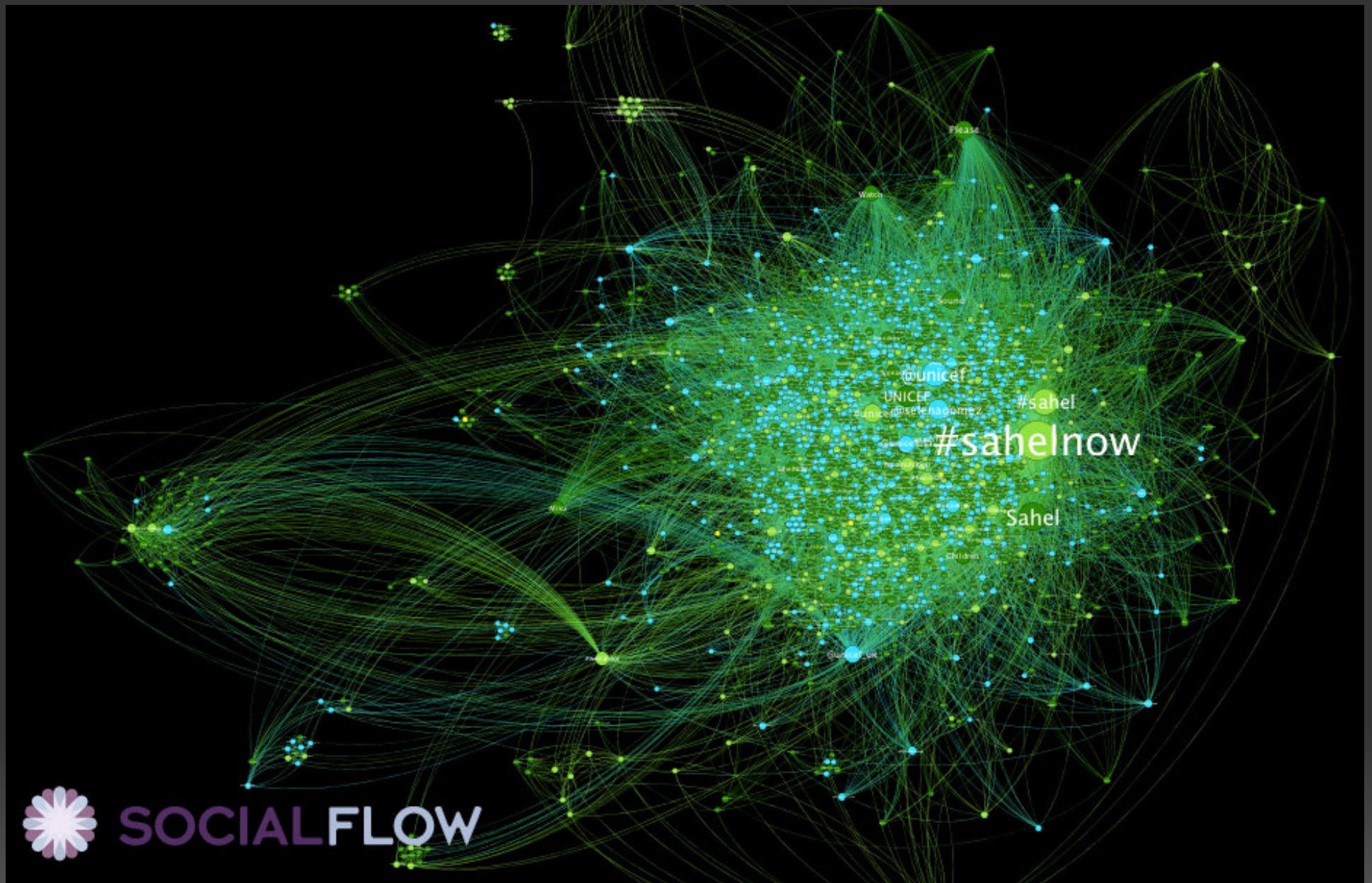**backlash**: social networks can also be used against dissidents

facebook intel

Leveraging Social Network for analysis and prediction

SocialFlow: UNICEF #SahelNOW campaign analysis

Whole network graph of concepts related to #SahelNow
(user mentions, hashtags, phrases)

Hovering over the #foodcrisis hashtag shows all of the related concepts, effectively other hashtags, user names or phrases referenced with #foodcrisis in the same tweet

connections between users who posted to the hashtag.
clusters highlight different regional and topical communities
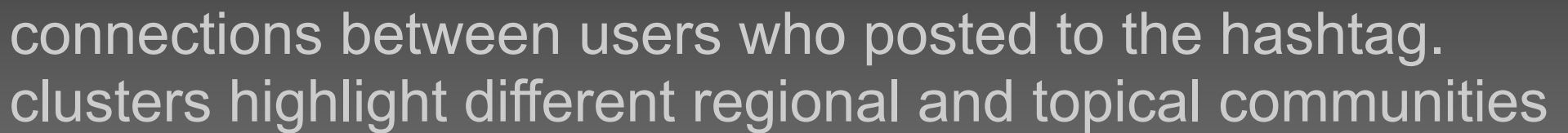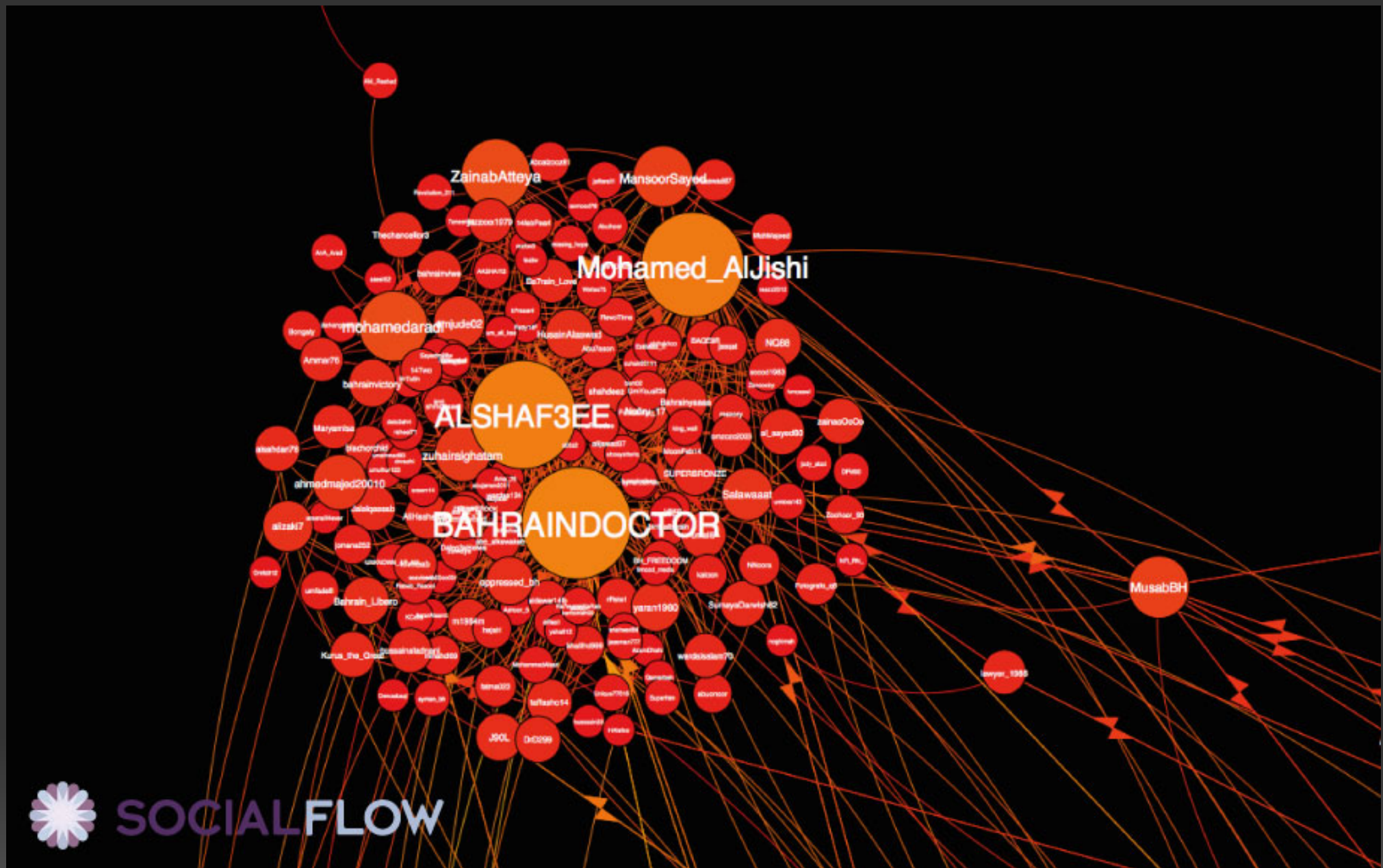
Zoom-in view of the Bahraini group – a dense cluster of mostly Bahraini users sharing the #SahelNow hashtag

Leveraging Social Network for analysis and prediction

Twitter Sentiment Analysis
Annenberg Innovation Lab

Figure 1. The system architecture for real-time processing Twitter data

Tweet	WAAAAAH!!! RT @politico: Romney: Santorum's 'dirty tricks' could steal Michigan: http://t.co/qEns1Pmi #MIprimary #tcot #teaparty #GOP
Tokens	WAAAAAH !!! RT @politico : Romney : Santorum's ' dirty tricks ' could steal Michigan : http://politi.co/wYUz7m #MIprimary #tcot #teaparty #GOP

Figure 2. The output tokens of a sample tweet from our tokenizer

Table 1: F-Scores and Accuracy for unigrams.

Experiment	Neg.	Pos.	Neu.	Uns.	Acc.
$M_{ME}F_1T_0$	**0.74**	0.33	0.14	0.10	0.58
$M_{ME}F_1T_0 - \{H\}$	0.72	0.34	0.19	0.12	0.57
$M_{ME}F_1T_0 - \{S\}$	0.67	0.36	0.25	0.15	0.51
$M_{ME}F_1T_0 - \{S,H\}$	0.66	0.37	0.24	0.14	0.49
$M_{ME}F_1T_1$	**0.74**	0.35	0.17	0.11	**0.59**
$M_{ME}F_1T_1 - \{H\}$	0.73	0.37	0.23	0.13	0.58
$M_{ME}F_1T_1 - \{S\}$	0.67	0.38	**0.28**	0.13	0.51
$M_{ME}F_1T_1 - \{S,H\}$	0.65	0.37	**0.28**	**0.16**	0.49
$M_{NB}F_1T_0$	0.64	0.39	0.25	**0.16**	0.48
$M_{NB}F_1T_0 - \{H\}$	0.65	0.39	0.24	0.15	0.49
$M_{NB}F_1T_0 - \{S\}$	0.64	0.39	0.26	**0.16**	0.49
$M_{NB}F_1T_0 - \{S,H\}$	0.65	0.39	0.25	0.15	0.49
$M_{NB}F_1T_1$	0.67	0.40	0.23	**0.16**	0.51
$M_{NB}F_1T_1 - \{H\}$	0.68	0.40	0.24	0.15	0.52
$M_{NB}F_1T_1 - \{S\}$	0.67	**0.41**	0.26	**0.16**	0.51
$M_{NB}F_1T_1 - \{S,H\}$	0.68	0.40	0.26	**0.16**	0.52

Table 2: F-Scores and Accuracy for bigrams.

Experiment	Neg.	Pos.	Neu.	Uns.	Acc.
$M_{ME}F_2T_0$	**0.73**	0.33	0.18	0.11	**0.58**
$M_{ME}F_2T_0 - \{H\}$	0.72	0.35	0.19	0.14	0.56
$M_{ME}F_2T_0 - \{S\}$	0.68	0.36	0.25	0.12	0.52
$M_{ME}F_2T_0 - \{S,H\}$	0.67	0.36	0.25	0.14	0.50
$M_{ME}F_2T_1$	**0.73**	0.35	0.22	0.11	**0.58**
$M_{ME}F_2T_1 - \{H\}$	0.72	0.36	0.23	0.15	0.56
$M_{ME}F_2T_1 - \{S\}$	0.69	0.38	**0.28**	0.14	0.53
$M_{ME}F_2T_1 - \{S,H\}$	0.67	0.38	**0.28**	0.15	0.51
$M_{NB}F_2T_0$	0.47	0.38	0.24	0.16	0.36
$M_{NB}F_2T_0 - \{H\}$	0.52	0.38	0.24	0.17	0.39
$M_{NB}F_2T_0 - \{S\}$	0.55	0.38	0.25	0.16	0.41
$M_{NB}F_2T_0 - \{S,H\}$	0.58	0.38	0.25	0.17	0.43
$M_{NB}F_2T_1$	0.48	0.38	0.25	0.17	0.37
$M_{NB}F_2T_1 - \{H\}$	0.54	0.39	0.26	0.17	0.40
$M_{NB}F_2T_1 - \{S\}$	0.56	**0.40**	0.26	0.17	0.41
$M_{NB}F_2T_1 - \{S,H\}$	0.59	**0.40**	0.27	**0.18**	0.44

$$F = 2 \cdot \frac{\text{precision} \cdot \text{recall}}{\text{precision} + \text{recall}}.$$

50 top hourly intervals by tweet volume
(10/12/2011 to 2/29/2012)

Thousands of tweets

State of the Union Address (2012-01-24 18:00 PT)	483.191
State of the Union Address (2012-01-24 19:00 PT)	387.865
Fox News Debate, Sioux City, IA (2011-12-15 19:00 PT)	174.851
Fox News Debate, Myrtle Beach, SC (2012-01-16 19:00 PT)	152.380
Fox News Debate, Sioux City, IA (2011-12-15 18:00 PT)	147.507
Fox News Debate, Myrtle Beach, SC (2012-01-16 18:00 PT)	137.127
CNN Debate, Las Vegas, NV (2011-10-18 18:00 PT)	132.874
CNN Debate, Jacksonville, FL (2012-01-26 18:00 PT)	122.298
CNN Debate, Charleston, SC (2012-01-19 18:00 PT)	121.917
CNN Debate, Mesa, AZ (2012-02-22 18:00 PT)	119.680
CNN Debate, Jacksonville, FL (2012-01-26 17:00 PT)	109.178
ABC Debate, Manchester, NH (2012-01-07 19:00 PT)	108.462
CNN Debate, Las Vegas, NV (2011-10-18 17:00 PT)	106.704
CNN Debate, Charleston, SC (2012-01-19 17:00 PT)	105.632
IA Caucus (2012-01-03 20:00 PT)	105.129
ABC Debate, Manchester, NH (2012-01-07 18:00 PT)	103.900
IA Caucus (2012-01-03 21:00 PT)	102.616
CNBC Debate, Rochester, MI (2011-11-09 18:00 PT)	101.324
CNN Debate, WA, DC (2011-11-22 18:00 PT)	100.996
NBC Debate, Tampa, FL (2012-01-23 18:00 PT)	96.458
CNN Debate, Mesa, AZ (2012-02-22 17:00 PT)	95.295
CNN Debate, WA, DC (2011-11-22 17:00 PT)	87.585
NBC Debate, Tampa, FL (2012-01-23 19:00 PT)	86.115
IA Caucus (2012-01-03 19:00 PT)	79.474
NH Primary (2012-01-10 17:00 PT)	77.649
Fox News Debate, New York, NY (2011-12-03 10:00 PT)	76.003
IA Caucus (2012-01-03 18:00 PT)	74.750

Retweeted Users during 17:00-to -20:00 on Nov12

| Retweetd ID	retweets	Category1	Category2	Nb of Followers
ggreenwald	1073	media	Salon	61651
donnabrazile	806	pundit		145177
RonPaul	805	campaign	republican candidate	29
LOLGOP	551	satire		19609
JedediahBila	521	pundit		17470
DavidCornDC	431	media	Mother Jones	41959
TPM	415	media	Talking Points Memo	53011
ConanOBrien	411	satire		429
anamariecox	370	blogger		1374984
thinkprogress	367	media	Think Progress	76196
TheDemocrats	366	campaign	democratic party	56156
TheDailyEdge	257	media	Daily Edge	4447
davidfrum	254	media	Daily Beast	22008
MelissaTweets	242	blogger		24612
HuffingtonPost	229	media	Huffington Post	1363506
CharlesMBlow	228	media	New York Times	25042
JoyVBehar	227	satire		537060
michaelianblack	225	blogger		1677111
keder	220	blogger		11553
MonicaCrowley	220	media	Fox News	14657

Distribution of the top 100 retweeted accounts during 3 presidential debates

	count	total retweets	% of tweets by top 100 accts	% of total 3 debate retweets	% of total 3 debate tweets
humor	33	1,032,807	30.11%	5.88%	2.93%
news/pundit	39	998,788	29.12%	5.68%	2.83%
campaign/party	14	721,206	21.03%	4.10%	2.05%
non-existent or discontinued acct	3	483,740	14.10%	2.75%	1.37%
celebrity	6	107,115	3.12%	0.61%	0.30%
don't know	5	85,936	2.51%	0.49%	0.24%
	100	3,157,162	100.00%	19.51%	9.73%
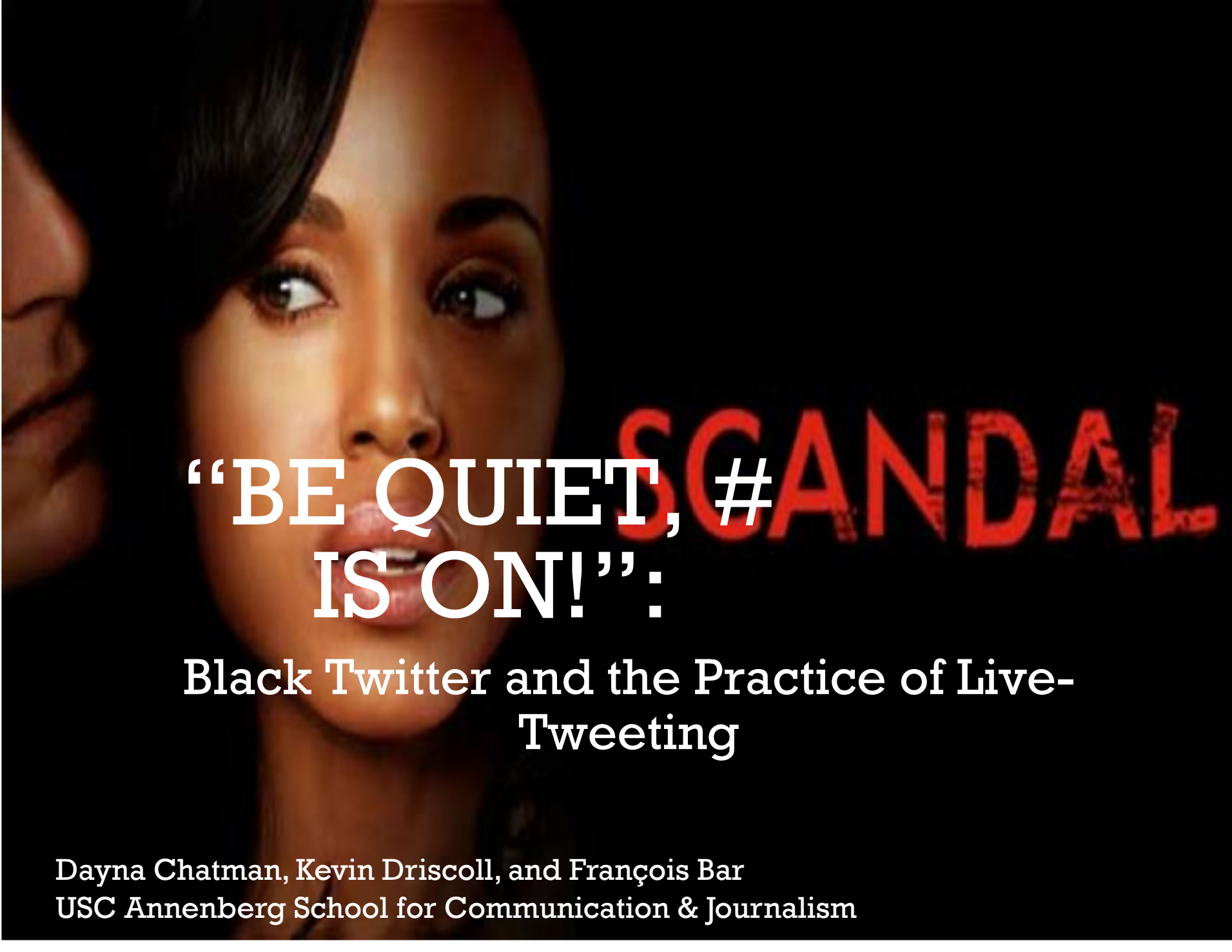
ggreenwald retweet distribution

tweet	time sent	# of retweets	sentiment	tweet text
1	17:05	220	positive	Herman Cain wants to overthrow the government of Iran - that worked out really well for the US the first time it did that.
2	17:16	18	unsure	Rick Santorum urges us not to have the smoking gun be a mushroom cloud over Tehran - copies Condi Rice & makes no sense
3	17:19	1	negative	Crazies! RT @sunny_hundal "Jon Huntsman joins Ron Paul in calling to pull out of Afghanistan"
4	17:39	16	negative	Yes, Rick Santorum, I think it's a pretty safe bet the US has played some role in those dead Iranian nuclear scientists & computer viruses
5	17:42	74	negative	BREAKING: Michele Bachman - The ACLU is running the CIA!!!!
6	17:45	29	neutral	Here's where all the GOP candidates (except Paul & Huntsman) cheer for Obama's assassination of Awlaki - Romney just went first
7	17:47	42	negative	Gingrich endorses Obama's Awlaki assassination - because "a panel found him guilty" - meaning a secret WH panel
8	17:48	30	negative	Loudest cheers from the GOP "small government" crowd is over Obama's Awlaki assassination and support for it from Gingrich & Romney
9	18:00	54	negative	Paley to Gingrich: "But Awlaki was never found guilty" - Gingrich: "he was"- Paley: "not by a court" - Gingrich: by a WH panel! #AMERICA
10	18:07	7	negative	Everyone knows he's crazy: RT @AliAbunimah Ron Paul disqualifies himself as serious candidate by saying US shouldn't prop up dictatorships.
11	18:11	188	negative	Crazy Ron Paul points out the GOP's rather glaring contradiction between not trusting the govt & wanting it to kill citizens w/o due process
12	18:14	28	neutral	Michele Bachman the latest GOP candidate tonight to join @ThinkProgress in declaring Obama's Awlaki assassination a grand & noble success
13	18:16	2	positive	Koch-traitor! RT @JamesFallows I am ready to join the Ron Paul support team, for his no-BS anti-torture and pro rule-of-law talk
14	18:18	278	negative	Ron Paul to the GOP: So to sum up: you people don't trust the govt to run health care, but want the President to kill whomever he wants
15	18:23	0	negative	That's why he's the front-runner RT @AntDeRosa Cain's foreign policy plan seems to be "I don't know"
16	18:25	22	negative	The supreme summary of this GOP debate, excluding Ron Paul * Jon Huntsman: http://t.co/fET4jo5P
17	18:42	24	negative	Adam Serwer examines Michele Bachmann's claim that "the ACLU is running the CIA": http://t.co/VWiLvNas
18	18:45	14	negative	This was acutally an unusually brave thing for Rick Perry to say, even though he quickly diluted it afterward: http://t.co/RkSb30N8
19	18:48	28	negative	So much for Rick Perry's unusually brave answer - he quickly realized such heresy on Israel is strictly forbidden: http://t.co/K2C6M57G

# of retweets per 2 min period, for each of the 19 tweets sent by Salon.com's Glenn Greenwald
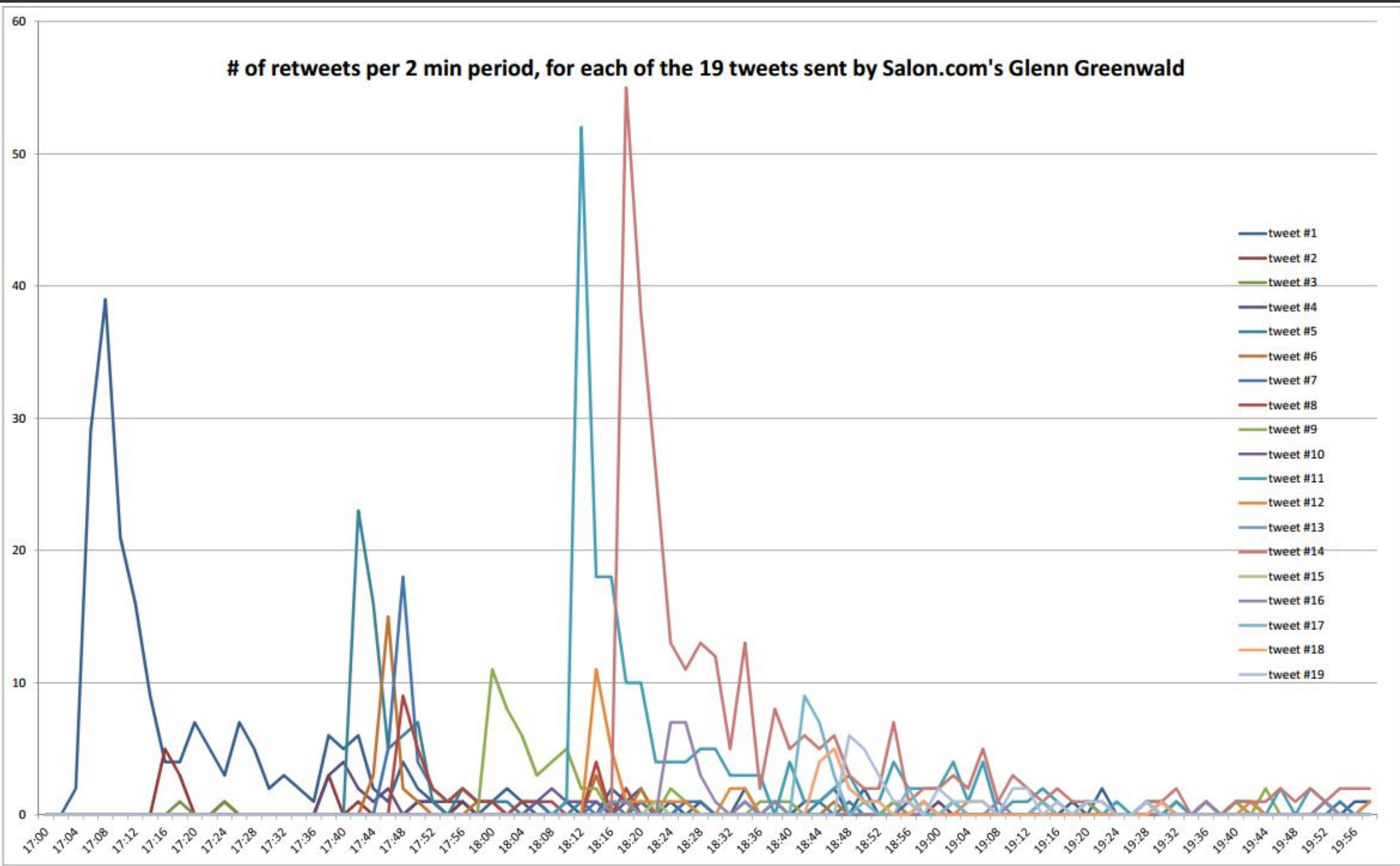
"BE QUIET, #ANDAL IS ON!":

Black Twitter and the Practice of Live-Tweeting

Dayna Chatman, Kevin Driscoll, and François Bar
USC Annenberg School for Communication & Journalism

What Are You Watching? Top 10 Primetime Shows Among Black Viewers

BY TAMBAY A. OBENSON

TELEVISION

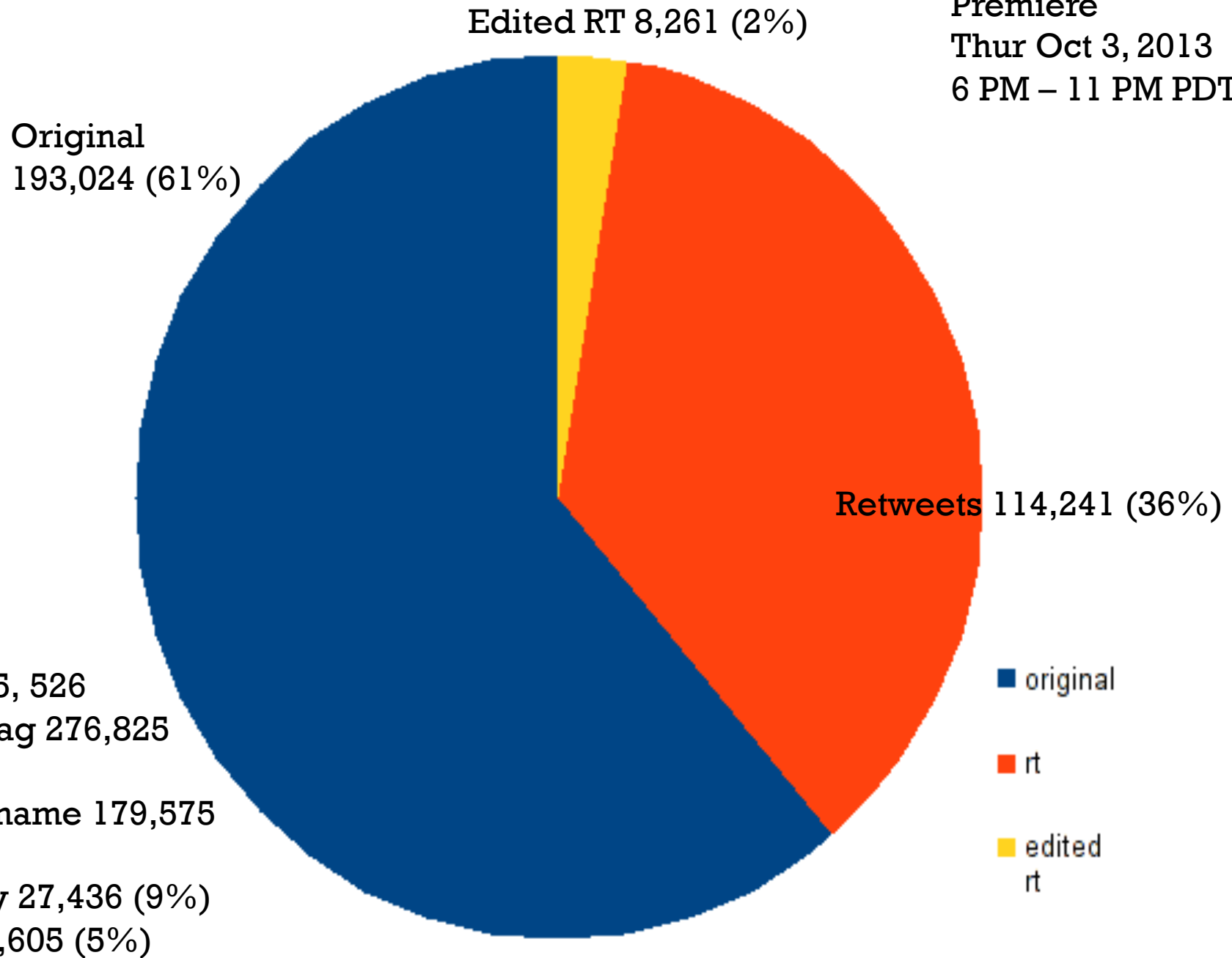NOVEMBER 4, 2013 5:05 PM

26 COMMENTS

Participatory Viewing

Participant Viewing in the AIL
Scandal Premiere: Thur Oct 3, 2013

Edited RT 8,261 (2%)

Original
193,024 (61%)

Scandal Season 3
Premiere
Thur Oct 3, 2013
6 PM – 11 PM PDT

Retweets 114,241 (36%)

■ original

■ rt

■ edited
rt

Total: 315, 526
+ #hashtag 276,825
(88%)
+ @username 179,575
(57%)
+ @reply 27,436 (9%)
+ URL 14,605 (5%)

Pre-Show Live-TweetinG Practices

ScandalChild
@ScandalChild

⚙ ➕👤 Follow

6 minutes... 6 minutes.... 6 minutes - Scandal will be on... on on on... (In my Doug E. Fresh voice)
#ScandalisBack #AskScandal

↩ Reply ⇄ Retweet ★ Favorite ••• More

6:56 PM - 3 Oct 2013

Counting Down

Food

Friends

Anti-Fandom

Jay Buf
@jaybambino

✿ 🔧 Follow

Oh, Scandal comes on son. The show where black women get hypocritical about cheaters because "Fitz & Olivia are so cute"

↩ Reply ⟲ Retweet ★ Favorite ••• More

7:03 PM - 27 Feb 2014

Big Shawty
@ToxicBeauty_

✿ 🔧 Follow

Scandal took over my TL smh *logs off*
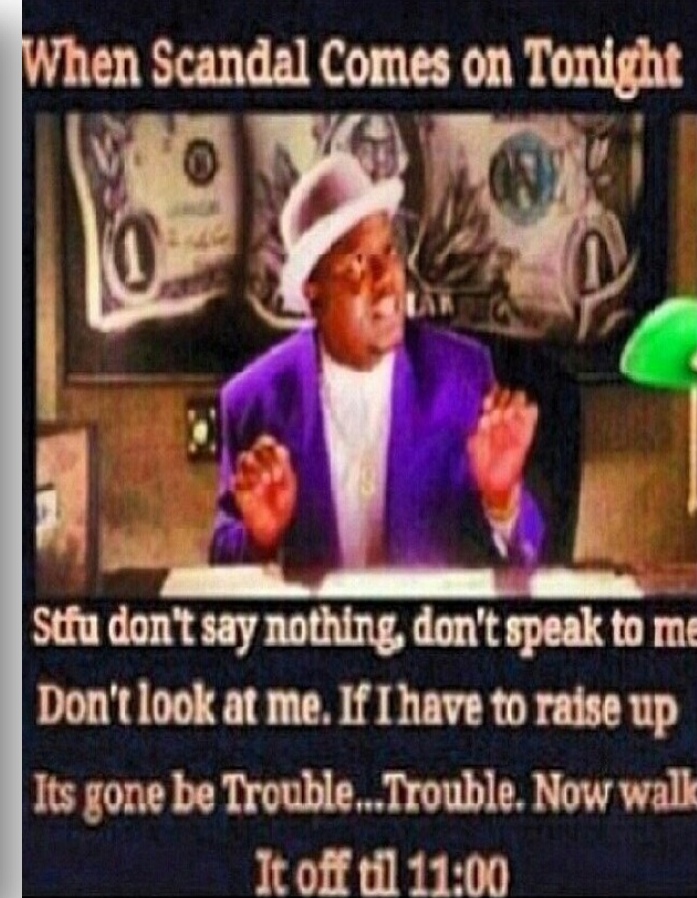
↩ Reply ⟲ Retweet ★ Favorite ••• More

RETWEET
1

7:03 PM - 27 Feb 2014

| TheMoFactor9	7:01:37 PM	"Dayum daddy read! #Scandal"
_MaineMaine	7:01:39 PM	"Oooh daddy is reading!!!! #ScandalABC"
BriJGotti	7:01:40 PM	"Her daddy is reading. #Scandal"
kammierogers	7:01:42 PM	"Her daddy just read her to fiflth #scandal"
marissamakesart	7:01:42 PM	"Papa Pope is reading. #Scandal"
jillianbowe	7:01:44 PM	"OOOH! Big Daddy is reading the library of congress outta Liv! #ScandalIsBack"
shawnj3000	7:01:46 PM	"Daddy is reading his damn daughter #Scandal ðŸ"ž"
ashe_phoenix	7:01:47 PM	"Daddy is READING to his daughter. #Scandal"
EstaFiestaPR	7:01:47 PM	"But her dad is reading her like Iyanla!! #scandal"
DaV_Spot	7:01:49 PM	"Lol lol lol daddy just read her! You a random hoe!!! #Scandal"
Magnificent_Nef	7:01:49 PM	"Her father is reading her!! Oh nah @ScandalABC"
ibeDAME	7:01:51 PM	"So she get her reading skills from her dad #Scandal"
mykuhlann	7:01:51 PM	"You raise your skirt and opened your knees and have it up to somebody special! This season starts with a READ OF LIV?! #Scandal"
JudasAffiliated	7:01:52 PM	"YASSSS! Daddy read her #AskScandal"
Janelledakid	7:01:52 PM	"RT @ashe_phoenix: Daddy is READING to his daughter. #Scandal"
krysfrank	7:01:53 PM	"Daddy is reading Liv. #Scandal #ScandalisBack"
Crotch0_0Watcha	7:01:54 PM	"Her Daddy is reading her 4 BLOOD!! #scandal"
SweetKiaNC	7:01:54 PM	"HAAAA!!! Olivia dad is reading her a**!!! #Scandal"
Peace_Love_Vee	7:01:55 PM	"So pops a fixer too. And he reads..... Lord this family is just royalty. #Scandal"
DeiondreCGraves	7:01:55 PM	"RT @kammierogers: Her daddy just read her to fiflth #scandal"
kardashleigh	7:01:58 PM	"SHE LEARNED HOW TO READ FROM HER DADDY #SCANDAL"
auntiej41	7:01:58 PM	"RT @jillianbowe: OOOH! Big Daddy is reading the library of congress outta Liv! #ScandalIsBack"
revealingmia	7:01:59 PM	"Daaaaaaammn Daddy reading Olivia!! #Scandal"
aka_savannah	7:02:01 PM	"RT @jillianbowe: OOOH! Big Daddy is reading the library of congress outta Liv! #ScandalIsBack"
Jamaal_Miller	7:02:02 PM	"Dad just read her like a father should! #Scandal"

SHARED INTERPRETATIONS

Erick Burrell
@ErickBurrell

Follow

Lawd Daddy is READING Olivia @ScandalABC

Reply   Retweet   Favorite   More

7:26 PM - 3 Oct 2013
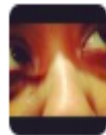
Carmen Santos
@revealingmia

Follow

Daaaaaaammn Daddy reading Olivia!! #Scandal

Reply   Retweet   Favorite   More

7:01 PM - 3 Oct 2013

Shared Interpretations

MichaelaAngela Davis
@MichaelaAngelaD

"You have to be twice as good to get half of what they have" #UniversalBlackGirlSpeech #Scandal @ScandalABC

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RETWEETS 115   FAVORITES 30

7:05 PM - 3 Oct 2013

Rod Live Tweets
@RodLiveTweets

That speech from daddy Pope came with everything except a switch and time out! #scandal

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RETWEETS 628   FAVORITES 112

7:05 PM - 3 Oct 2013

David Johns
@MrDavidJohns

Twice as good = lessons learned early in black households #scandal

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RETWEETS 110   FAVORITES 49

7:10 PM - 3 Oct 2013

Akilah Green
@akilahgreen

That twice as hard/half as far line resonated with every black person I know. Kudos! This is why we need more black TV writers! #scandal

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RETWEETS 17   FAVORITES 5

11:22 PM - 3 Oct 2013

I Am Me & U R You
@cypherdivine

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You are going to see more tweets tomorrow for #Scandal than you did for Trayvon Martin and Jordan Davis combined #fact #fb

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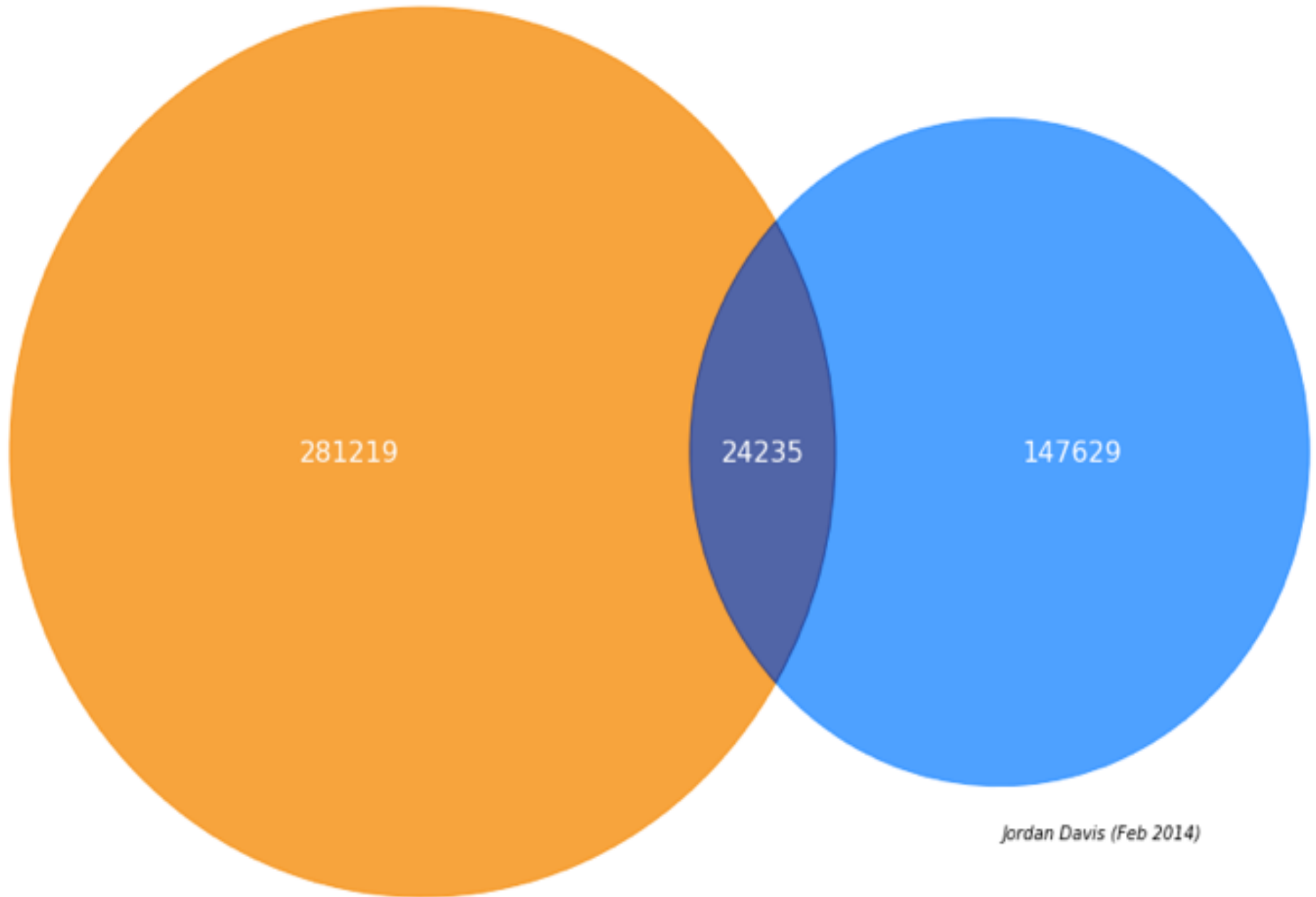
FAVORITE
1

5:14 PM - 26 Feb 2014

Intersection between people tweeting TV and Jordan Davis

281219

24235

147629

Jordan Davis (Feb 2014)

Scandal, Being Mary Jane, Haves & Have Nots

synthesizing, measuring, etc.

Some examples:

- facebook analytics: insights,etc...
- twitter tools: grader, followerwonk, retweetrank, wildfire, etc...
- flickr and twitter maps: major cities
- crowd-mapping: Ushahidi's Libya crisis map
- crowd-slicing: many eyes on egypt