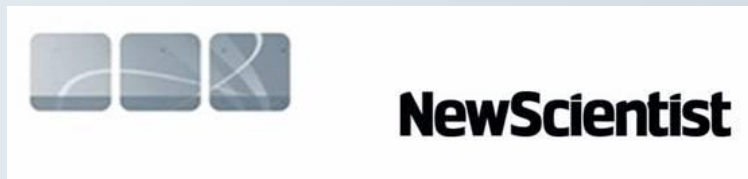# Network Analysis For News

CAR meeting, St Louis, Feb 23 2012

Peter Aldhous

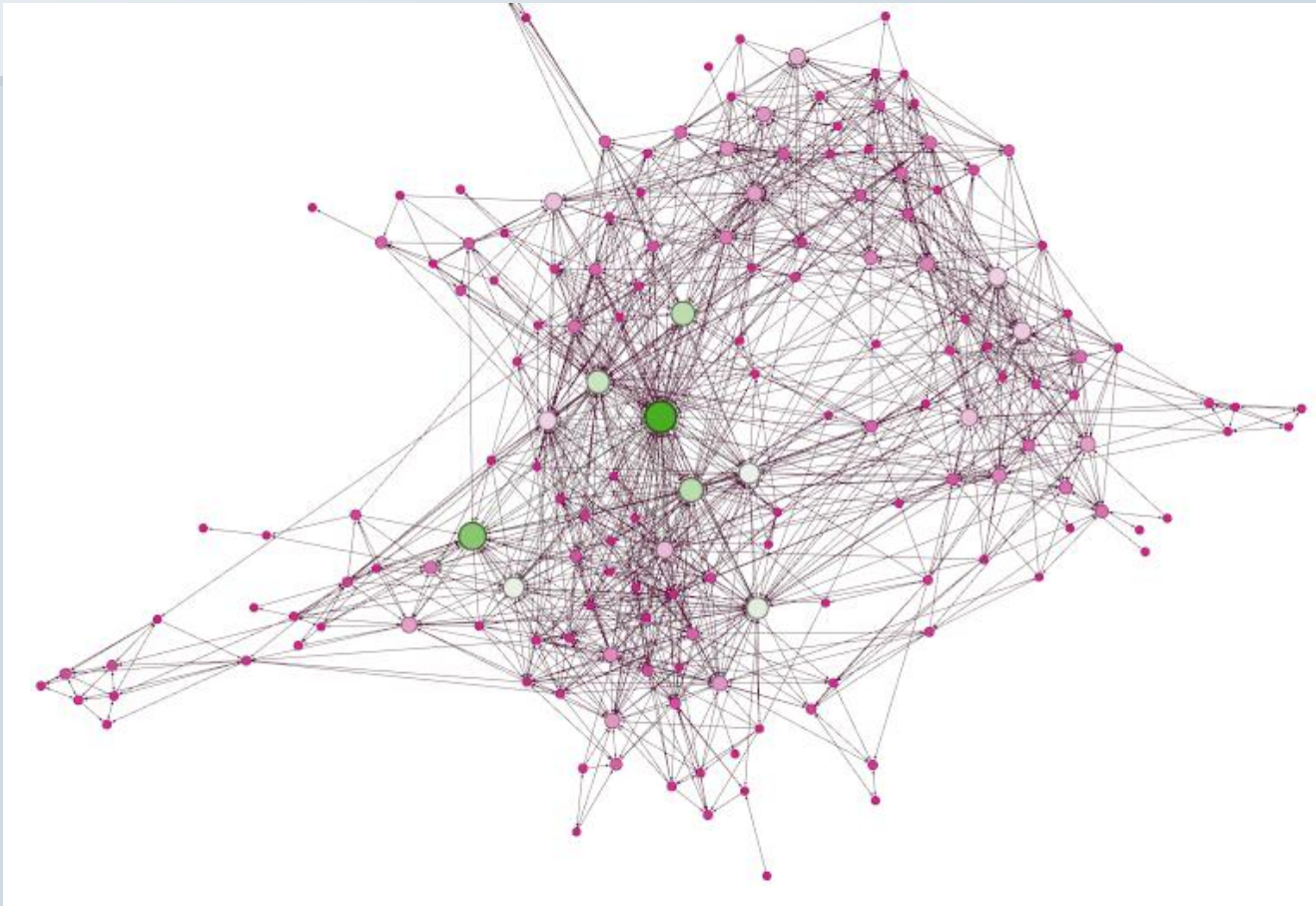**NewScientist**

peter@peteraldhous.com

Peggy Heinkel-Wolfe

Denton Record-Chronicle

pheinkel-wolfe@dentonrc.com

What is network analysis?

Visualizing and quantifying connections between people, organizations etc.

Graphs consist of edges (the connections) and nodes (the entities connected)

Who uses network analysis?

Researchers in almost every discipline – it is being used to study everything from how networks of genes and proteins influence our health, to how connections between multinational companies affect the stability of the global economy:
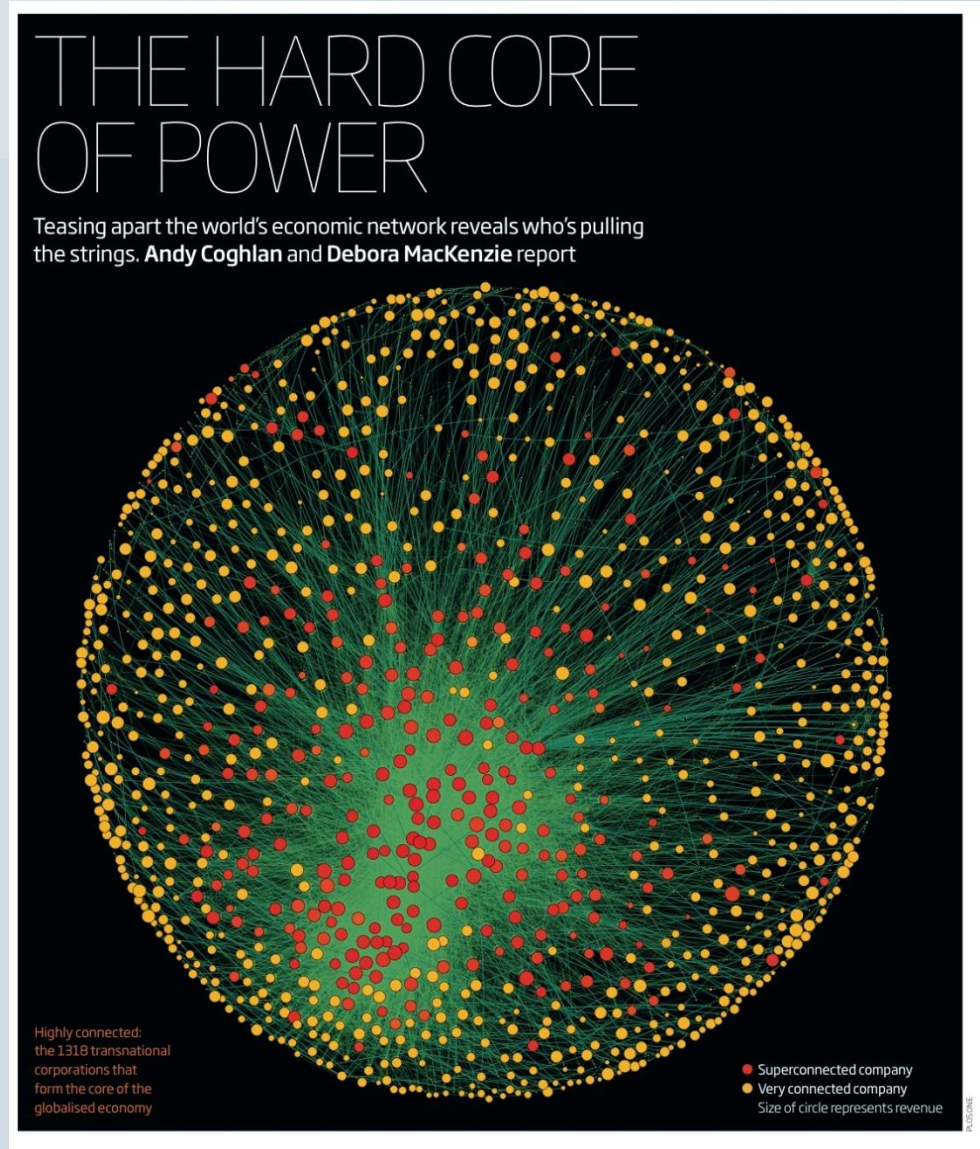
OK, that sounds cool, but how can it help me?

Do any of these phrases sound familiar?

•It's not what you know, it's who you know

•The problem with this city is that it's run by X's cronies

•Contracts in this town are all about kickbacks

Network analysis provides a means to display these and other connections in a way your readers (and your editors) can easily understand.

A classic example
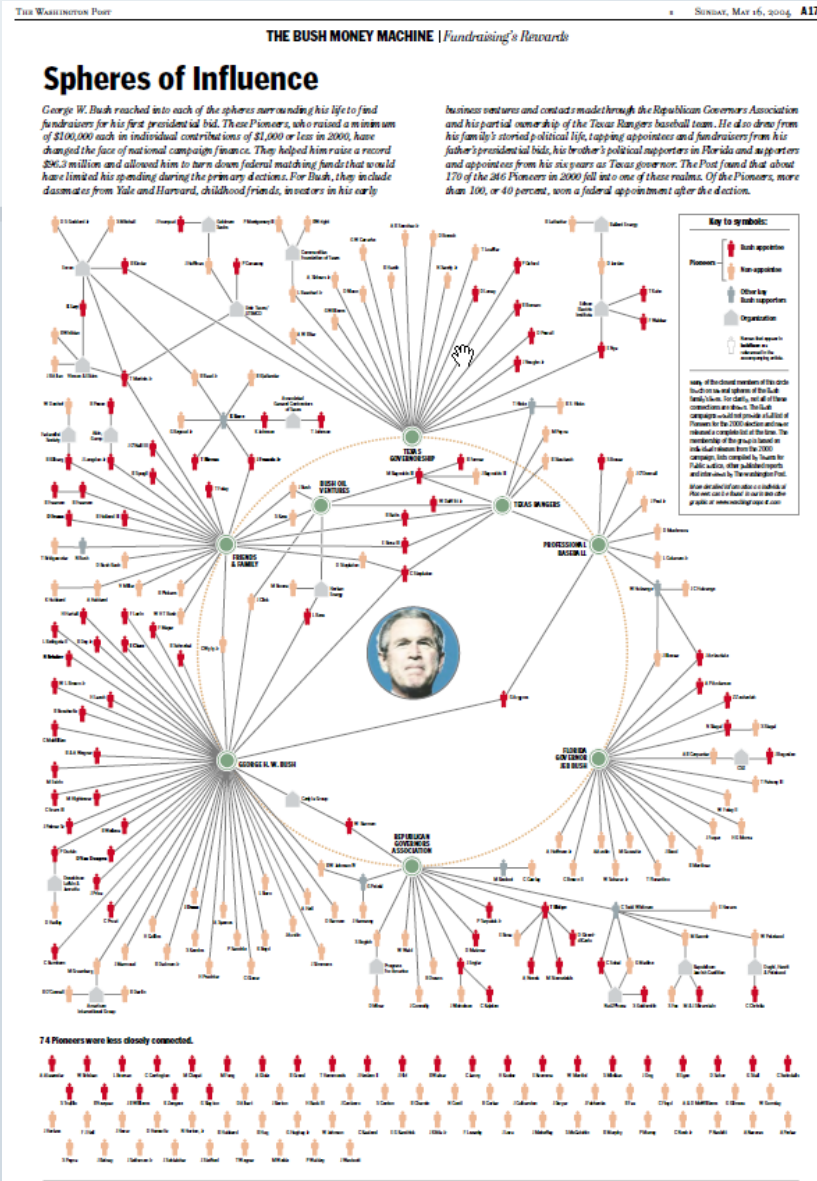
The Washington Post

Data: Built database of George W. Bush "Pioneers" – those who raised more than $100,000 to his 2000 presidential campaign.

Findings: Network showed who were the key Pioneers in the Bush campaign, who they were connected to, and what each Pioneer gained, if anything, from his or her association with Bush, such as ambassadorships and other federal appointments. Bush raised $96.3 million, a record at that time. More than 100, about 40%, of the Pioneers received some federal appointment after the election.

Is it difficult?

At its simplest level, network analysis is very intuitive.

Some basics:

Networks can be **undirected** (e.g. X and Y went to the same school) or **directed** (e.g. donor X gave money to candidate Y).

Network theorists have devised **layout algorithms** to draw network graphs; you can also lay out your network manually.

Clustering algorithms can be used to group similar nodes together, based on their pattern of connections – you can think of them as "clique finders."

The science bit: network metrics

Degree is a simple count of the number of connections for each node. For directed networks, it is divided into **In-degree**, for the number of incoming connections, and **Out-degree,** for outgoing connections.

Eigenvector centrality accounts not only for the node's own degree, the also the degrees of the nodes to which it connects.

Betweenness centrality essentially reveals how important each node is in providing a "bridge" between different parts of the network. It highlights the nodes that, if removed, would cause a network to fall apart.

Closeness centrality is a measure of how close each node is, on average, to all of the other nodes in a network. It highlights the nodes that connect to the others through a lower number of edges – think Kevin Bacon Game.

NodeXL: a simple tool for network analysis

Download the template from [NodeXL site](), then open:

Type in an edge list, and calculate network metrics

Add more data: a new column for the gender of each friend

Incorporate attributes from the data into the network graph

The resulting friends network:
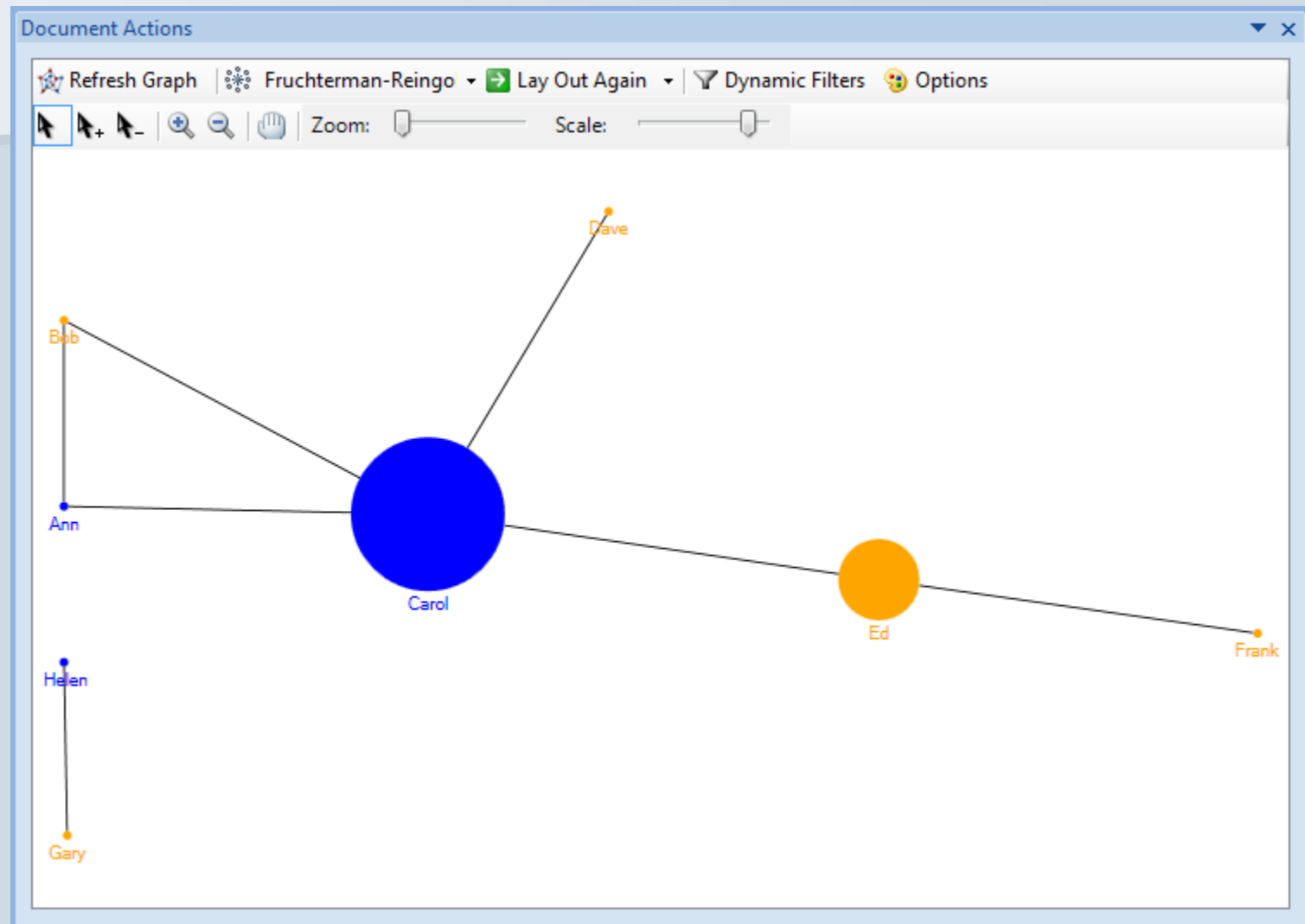
Learn NodeXL at NICAR 2012

DEMO: 9am Friday
PowerPivot and NodeXL: This is not your father's Excel

HANDS-ON: 11am Friday
Network analysis with NodeXL
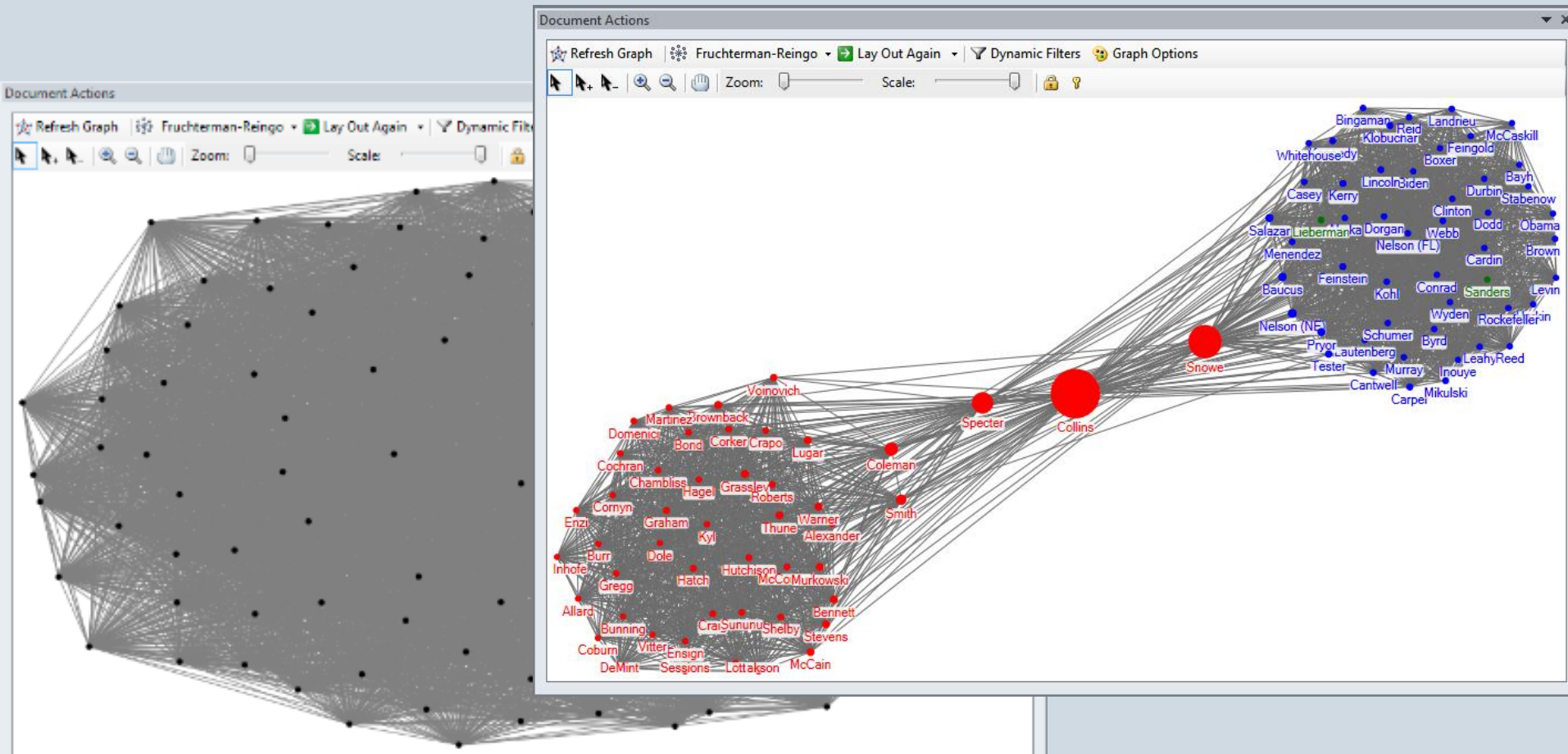
Denton Record-Chronicle

Grand jury system questioned

'Pick-a-pal' selection process stacks group with political players

By Lowell Brown
and Peggy Heinkel-Wolfe
Staff Writers

The grand jury that indicted a man who often criticizes local government had multiple ties to City Hall and to the victim of the alleged crime, a *Denton Record-Chronicle* investigation found.

Bob Clifton, a retired businessman, once branded a vexatious litigant by a visiting judge after he filed four lawsuits against the city in two years, stands accused of asking Mayor Mark Burroughs to pay him to abandon the 2010 mayor's race.

One grand jury member who indicted Clifton heads a city department.

One was a former mayor.

One served on Burroughs' re-election committee.

Four had donated to at least one of Burroughs' mayoral campaigns.

And despite a state law meant to ensure that grand juries reflect the county's demographic and geographic makeup, most members of the grand jury that indicted Clifton and 600 other people last year were white males, residents of Denton, or both. More than 530,000 people live elsewhere in Denton County, yet 11 of the 12 grand jurors live in Denton, Corinth and Argyle — cities with a combined population of less than 137,000. Women and racial minorities were also underrepresented.

The *Record-Chronicle* investigated

the grand jury array after reporting that two members — former Mayor Perry McNeill and David Gosdin, husband of the current mayor pro tem, Pete Kamp — were asked by the district attorney to abstain because their names would come up as part of the evidence in the case.

The findings raise questions about the fairness of grand jury selection under the "key-man" system, a method used throughout much of Texas whereby an appointed commission —

See **GRAND JURY** on **4A**

Our story's main characters

File Edit View Document Tools Window Help

1 / 1   74.8%   Find

LOCAL

4A   Sunday, October 16, 2011   Denton Record-Chronicle

" It's the judge picking five friends who then pick their friends, and the judge picks 12 people from that. **The jury is basically going to look like the judge.** It typically doesn't represent a cross-section of the community." — Jim Harrington, Austin attorney

From Page 1A
Grand jury

not random selection — determines who sits on grand juries.

The U.S. Supreme Court has long held the key-man system is constitutional but vulnerable to abuse. Court rulings and academic studies have found the system tends to favor the powerful and disenfranchise racial minorities, the poor, women and the young. Those factors led most states and the federal government to abandon the system in favor of a more random process.

"The big disadvantage of the key-man system is the disenfranchisement of a large section of the population," said Greg Hurley, an analyst with the Center for Jury Studies, part of the National Center for State Courts, a nonprofit court improvement organization.

"Due to that, there have been a number of cases that struck it down in many jurisdictions."

Burroughs   Clifton

charges, saying he approached Burroughs during the 2010 election to try to settle an outstanding lawsuit, not to ask for money to leave the race.

Burroughs, a lawyer, said he was unaware of how grand jurors are chosen, adding that he played no role in the selection process.

In jury trials, potential jurors are questioned to weed out those with conflicts of interest, but grand jurors face no such scrutiny. By law, anyone can challenge the makeup of a grand jury, but the challenge must come before the grand jury is impaneled.

Clifton's attorney, Charles Orsburn, challenged the grand jury's makeup months after the

tioned their names, Beck said. They also asked the remaining grand jurors if they knew Burroughs or Clifton, and four said they did and were given a chance to abstain, she said.

"None of them wanted to abstain," Beck said. "We did not know, nor did we explore, how they knew them [Burroughs or Clifton]. The things you're revealing to us, we did not know and they did not volunteer."

The finding that there was no evidence Clifton committed bribery was an excerpt of a Denton County sheriff's report and didn't reflect other evidence gathered by the state, Beck said.

Unlike in some criminal cases, Clifton had not been arrested or charged with a crime before the indictments. Prosecutors wanted a grand jury to decide probable cause in the case because it involved a public figure, Beck said.

"We wanted to put that distance between us and have a neutral, independent body

Burroughs told the *Record-Chronicle* he did not recall making those comments.

"That must have been his [the investigator's] language or his interpretation," Burroughs said. "That has nothing to do with me."

In a January interview, Clifton said Burroughs had targeted him since 2008, when Clifton distributed a series of mailers attacking Burroughs' first mayoral campaign over potential conflicts of interest. Sawko & Burroughs earns money from collecting delinquent taxes for area cities including Denton.

Burroughs sued Clifton over the 2008 mailers, saying he violated the law by failing to disclose who paid for them. Clifton later filed finance-disclosure reports and paid a $200 fine to settle a state ethics investigation, but Burroughs never dropped the lawsuit.

Burroughs, in a June 2010 interview, said the state ethics investigation was limited and

different parts of the county.

The commission compiles a list of 15 to 40 potential grand jurors, and the court uses the list to impanel the 12 grand jurors and two alternates needed for each three-month grand jury term. The grand jurors are supposed to represent a broad cross-section of the population, including such factors as race, sex and age, according to state and federal law.

To comply with the law, Shipman said he instructs the commissioners to nominate a diverse group. Once the group is summoned, however, Shipman said he allows potential grand jurors to opt out if they meet one of the exemptions under the law or if service could be a hardship for them.

Austin lawyer Jim Harrington, whose lawsuit over a lack of minorities on grand juries in Hidalgo County in the 1970s helped lead to the change in state law, said the key-man system tends to exclude everyone but white

but weren't called on to serve.

Shipman could not recall details of the selection but believed he picked the first 12 people who were both eligible and willing to serve, he said. He did not know Clifton's case was coming before that grand jury when he assembled it, he said.

Some of those involved had donated money to Shipman's judicial campaigns.

Campaign finance reports show Shipman has received $450 from Burroughs and his law firm, Sawko & Burroughs, since 2005. The reports also show past donations from one of the grand jurors, Kay Copeland, and the law firm of Alagood & Cartwright P.C. Scott Alagood, a partner in the firm, is married to grand juror Dawn Alagood.

Shipman said the donations were irrelevant and represented a fraction of the $100,000 to $150,000 cost of running a successful race for district judge.

Hopkins defended the com-

The grand jury

juna.

Shipman did not believe there was anything unusual about the grand jury that indicted Clifton.

"It was made up just like any other grand jury," he said. "The same process is used that's used year-in, year-out [and] month-in, month-out all over the state of Texas, as prescribed by the Legislature."

Potential conflicts of interest

The *Record-Chronicle* reported in January that the grand jury included former Mayor McNeill and Gosdin, the husband of Mayor Pro Tem Pete Kamp. McNeill, Kamp and Burroughs were targets of a Clifton-backed lawsuit accusing the city of allowing term limit violations in 2008.

Clifton and McNeill were also political rivals in 2006 as two of the three candidates for mayor, in a race McNeill won.

Both McNeill and Gosdin have said they abstained from the Clifton case because of potential conflicts of interest.

But the *Record-Chronicle's* investigation of court documents, campaign finance reports and other public records found the potential for conflicts ran wider than previously known.

Also, the grand jury indicted Clifton even though a Denton County sheriff's investigator determined twice that there was no evidence Clifton committed bribery — a conclusion echoed by a representative from the district attorney's office, according to sheriff's reports obtained by the newspaper. The grand jury also indicted Clifton on a charge of tampering with a governmental record, alleging that he used a false address to run for mayor.

Clifton is still awaiting trial. He faces up to 20 years in prison if found guilty of bribery. The tampering charge, a Class A misdemeanor, carries up to a year in jail and a $4,000 fine.

Clifton has denied the

The grand jury system historically was an attempt to ensure prosecutions were free of political influence, Orsburn said.

"This case shows it can be turned on its head and can be used for the very evil it was originally conceived to prevent," he said.

The district attorney's office presents cases to the grand jury but plays no role in selecting grand jurors, said Jamie Beck, first assistant district attorney.

In Clifton's case, prosecutors asked McNeill and Gosdin to abstain because they planned to play a recording that men-

SIGNING IN

Grand jurors signed in the day they heard the case involving Bob Clifton. One grand juror, Fran Hannah, was absent. Two others, Perry McNeill and David Gosdin, were asked by the district attorney's office to recuse themselves when the Clifton case was presented.

FILED
DEC 16 2010
DISTRICT CLERK, Denton County, Texas

Date 12/16/10
Grand Jury
Sign-In

Please sign and print your name below

1. ... BO COE
2. JACK MILLER
3. Dawn Alagood
4. Perry R. McNeill
5. Eva Poole
6. Jerry Falbo
7. Charlie Parker
8. Sandra M. Fickey
9. KAY C. COPELAND
10.
11. David Gosdin
12.

lawyer at Burroughs firm approached her with evidence that Clifton was not living in Denton.

Burroughs was in regular contact with Sheriff Benny Parkey and investigators between March and July of last year, according to investigators' reports. At one point, Burroughs asked an investigator to delay filing the bribery case until the city filed the tampering case because "he felt that it would appear that he, the county and the city of Denton were conspiring against Bob Clifton," the investigator wrote.

usually picked from voter rolls, motor vehicle lists or other databases.

Texas used the key-man system exclusively until 1979, when the Legislature started allowing state district judges to choose whether to select grand jurors through an appointed commission or a more random process.

Denton is among the counties that use a commission, where a judge appoints three to five commissioners to pick potential grand jurors. Among other requirements, commissioners are supposed to be "intelligent citizens" who live in

Court.

The commission included two Denton residents, George Hopkins and Jeff King, along with Ricky Grunden of Krum, Johnny Hunter of Pilot Point and Roberta Brazil of Carrollton.

Shipman could not recall how he selected commissioners for that term, saying the typically picks acquaintances or former grand jurors with good reputations in the community.

Records show Brazil did not participate in selecting grand jurors. Reached by phone, Brazil said the judge excused her from service because she had recently started a new job.

Two of the four remaining commissioners had political ties to Burroughs, Kamp or council member James King, the twin brother of grand jury commissioner Jeff King. James King served on Burroughs' 2008 campaign committee and his wife, Melinda, served on Burroughs' re-election committee last year.

Jeff King, who runs an insurance agency with his brother, said James King had "no bearing whatsoever" on the process and did not suggest names for the grand jury.

"There were no outside influences," Jeff King said.

Hopkins served on Kamp's 2010 re-election committee and donated $100 each to Kamp, James King and Burroughs that year, according to campaign finance reports. Hopkins' wife, Jane Hopkins, served as Kamp's campaign treasurer.

George Hopkins downplayed the connections, saying he and his wife have supported many candidates over the years.

The commissioners produced a list of 40 potential grand jurors, who were summoned to court for final selection. Of the 12 selected by Shipman, only five had no obvious ties to Burroughs or the city government.

Two alternates were selected

potential grand jurors were suggested by more than one commissioner.

"Our job was to get an impartial bunch," Hopkins said. "I think when you have a system such as we have, you're going to be inclined to wind up with names of people that you know or know of."

He never got the impression there was an agenda behind any of the commissioners' picks, Hopkins said. He and other commissioners interviewed for this story said they did not know which cases were coming before the grand jury when they recommended names to the judge.

"It was entirely random," Jeff King said.

King said the court provided commissioners a list of names to choose from, and he thought the list was based on voter rolls. Two other commissioners, Hopkins and Grunden, said they simply suggested names and didn't use voter rolls.

Hunter could not be reached for comment.

The political connections extended to many of the grand jurors. Some had more than one connection, including Gosdin, who is married to Kamp and served on Burroughs' 2010 re-election committee.

Gosdin declined to comment.

Another grand juror, Jack Miller, is a former mayor and a Burroughs donor whose wife, Evelyn Miller, served on Burroughs' re-election committee.

Jack Miller said he considered abstaining from Clifton's case but decided he could be impartial.

"I explained [to the district attorney's office] that I'd served as mayor of Denton and I was asked could I be objective," Miller said. "The answer was yes and it still is."

The grand jury also included Sue Fickey of Corinth and

Basic demographics

Continued from Page 4A

Marc Moffitt of Denton, who each donated money to Burroughs' 2008 campaign, and Charles Parker of Denton, a Burroughs committee member and donor.

Pickey said her $100 donation to Burroughs' 2008 campaign did not impair her ability to judge a criminal case in which Burroughs is the alleged victim.

Moffitt is a candidate for county tax assessor and is pictured on his campaign website posing with political figures including Burroughs.

In interviews, Moffitt and Parker each described Burroughs as a friend. They said their friendship did not prevent them from being fair judges in Clifton's case, although Parker said he considered abstaining because of the friendship.

"If there's a suggestion that there may be some groupthink that takes place in the grand jury, I would strongly disagree with that statement," Moffitt said.

Unanimous votes

Court records show grand juror Fran Hannah was absent Dec. 16, the day the district attorney's office presented Clifton's case. Hannah, a real estate agent, said she would have abstained had she been there because she once showed houses to Clifton.

With Gosdin and McNeill abstaining and Hannah absent, that left nine grand jurors to hear Clifton's case, meaning the votes to indict had to be unanimous. By law, at least nine grand jurors must approve an indictment.

"We had a lot of different opinions about the cases that came in except for the one about [Clifton]," grand juror Ed Coe said. "I asked a few questions because I thought,

'Well, this, this and this.' He was so in the wrong on this that it really — he was so blatantly a bogus candidate, and I didn't have any personal interest or involvement or anything. He clearly wasn't eligible and just wanted to stir things up."

Other grand jurors either declined to comment or could not be reached.

"I am going to abide by the district attorney, who stated that everything that was done in the grand jury was secret," said Denton libraries director Eva Poole, a grand juror whose employer, the city of Denton, has been the target of multiple Clifton-backed lawsuits.

The pool of candidates not selected for the grand jury included at least two former Denton City Council members: Bob Montgomery and Guy McElroy, another member of Burroughs' re-election committee. Also in the pool was Denton photographer Walter Eagleton, a Burroughs committee member who ran for City Council in 2005 against Clifton and four other candidates.

Beyond political ties, many of those involved are members of common community boards or social clubs, including the Denton Public School Foundation and the Ariel Club, a Denton women's club.

Shipman would not say whether he thought the make-up of the grand jury was fair to Clifton.

"If it were going to be a petit jury, deciding the guilt or innocence, a lot of those connections would have been explored by the attorneys probably," Shipman said. "With a grand jury, where the focus is on probable cause, you don't have the opportunity — because you don't know what cases are coming up in front of the grand jury — to do that same evaluation."

Even in a trial jury, most of the connections found by the

Record-Chronicle would not automatically disqualify someone from service, Shipman said.

"The fact that somebody gave Burroughs $100 in his re-election campaign is not going to be an automatic disqualification if he's the victim in a case," Shipman said. "The question is going to be, '[Is there] anything about your relationship with Mr. Burroughs that would keep you from being fair and impartial?'"

'A convenient system'

Key-man jury selection was

GRAND JURY DEMOGRAPHICS

The Texas Code of Criminal Procedure requires that a grand jury be selected to "represent a broad cross-section of the population of the county, considering the factors of race, sex and age." According to the 2010 U.S. Census, Denton County is 49.9 percent male and 50.1 percent female. The fall 2010 grand jury was made up of seven men and five women, or 58 percent male and 42 percent female. The median age of the grand jury was 59.9 years old. Below are the county's racial demographics** and how they might populate a representative grand jury compared to the same demographics of the 2010 grand jury.

	DENTON COUNTY	REPRESENTATIVE GRAND JURY	ACTUAL GRAND JURY
White: 75%	75%	75%	84%
Black: 8%	8%	8%	8%
Asian: 8%	7%	8%	0%
Other: 8%	6%	8%	0%
Two or more: 0%	3%	0%	0%
American Indian: 0%	1%	0%	8%*
Hawaiian/Pac. Islander: 0%	0%	0%	0%

*One grand jury member self-identifies as a member of the Cherokee Nation.
**Percentages include Hispanics who are not categorized by race in the U.S. census.

SOURCES: 2010 U.S. census, Denton County clerk, staff research   Staff graphic

common in the U.S. when only white male property owners could vote. It was gradually replaced in most states with more inclusive methods, according to the American Judicature Society, an independent fair-justice organization in Des Moines, Iowa.

Congress eliminated the key-man system in federal courts through the Jury Selection and Service Act in 1968.

Judges in Travis, Harris and Bexar counties have chosen grand jurors randomly, according to news reports.

District Judge for the 399th

District Court of Bexar County for 11 years, Juanita Vasquez-Gardner oversees one to two grand juries in her court each year. The people who serve are selected through the same process as petit juries and are reflective of the community, she said.

Those who are selected as grand jurors sometimes find it easier to serve because they can work around the grand jury's more predictable schedule, which is three hours two mornings a week for two months, she said. For many the pay is not a hardship either, because the $40 per day works out to be $13 an hour.

Melissa Barlow Fischer, administrative attorney with the criminal courts in Bexar County, said judges there have not used the "pick-a-pal" system in years.

"It's a lot more difficult to do it right, in my opinion," Fischer said.

Recently, a newly elected judge wanted to use the key-man system instead of the random selection other judges use, Fischer said. One of the staff attorneys, Ana Amici, reviewed the matter with the judge.

"It's an antiquated system," Amici said.

In addition, when using key-man, the state's requirements to build a grand jury that reflects the community are strict.

"The judge finally said it was too much work in order to avoid problems later," Amici said, adding that unlike problems with a petit jury, problems with a grand jury can affect not just one problematic case, but hundreds of indictments.

No single organization tracks which judges use the key-man system in Texas, according to state officials and legal organizations.

"They use it because it's a convenient system," said Larry

Karson, a University of Houston-Downtown criminal justice lecturer who authored a 2006 study that found disparities in the key-man system in Harris County. "It wasn't done with the intention to corrupt justice. It was done because that's how we did it and it was more efficient."

Grand jurors in Denton County get paid $34 a day and must be willing to devote every Thursday for three months, which could be a hardship for many people. Under state law, grand jurors must be literate, of "sound mind" and "good moral character," and have no felony or misdemeanor theft convictions.

People who meet those qualifications can avoid service if they are over age 70, a parent of a child younger than 18, a student or have another "reasonable" excuse, according to the law.

"By using key man, it was a way to cut through the chaff to get to the wheat of those willing to serve," Karson said.

Karson's study of Harris County grand jury commissioners in 2002 and 2003 found that more than half were directly connected to the criminal justice system as court employees, lawyers, probation officers, bail bondsmen, or retired or current law enforcement. He also found Hispanics were underrepresented on grand juries.

Karson said he believes Texas should follow most states and abandon the key-man system.

"They have managed" without it, he said. "Texas should manage, too."

LOWELL BROWN can be reached at 940-566-6882. His e-mail address is lmbrown@ dentonrc.com.
*PEGGY HEINKEL-WOLFE can be reached at 940-566-6881. Her e-mail address is pheinkel-wolfe@dentonrc.com.*

> We had a lot of different opinions about the cases that came in except for the one about [Clifton]. … He was so in the wrong on this that it really — **he was so blatantly a bogus candidate,** and I didn't have any personal interest or involvement or anything." — Ed Coe, grand juror
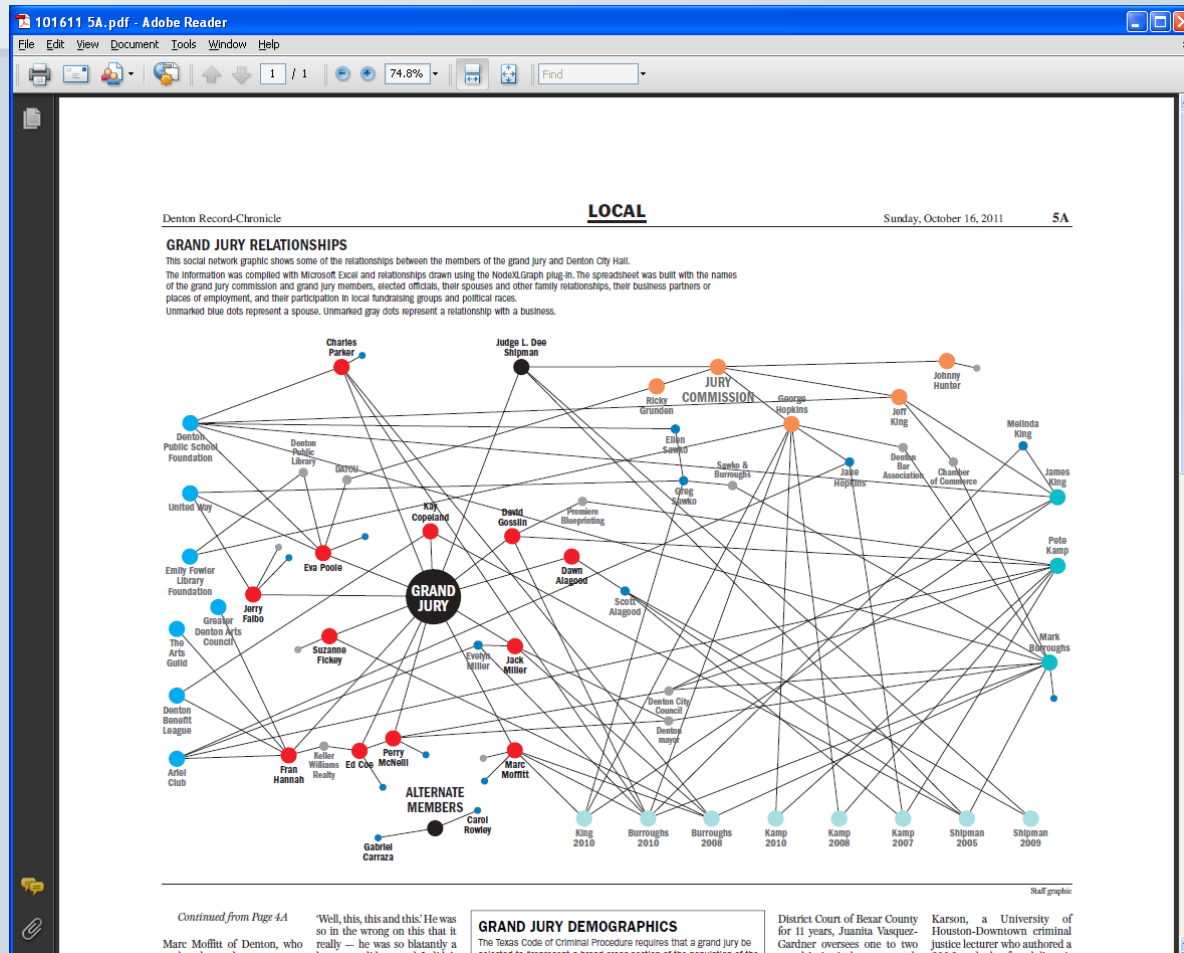
The first network graph

The first network graph we showed to the editors
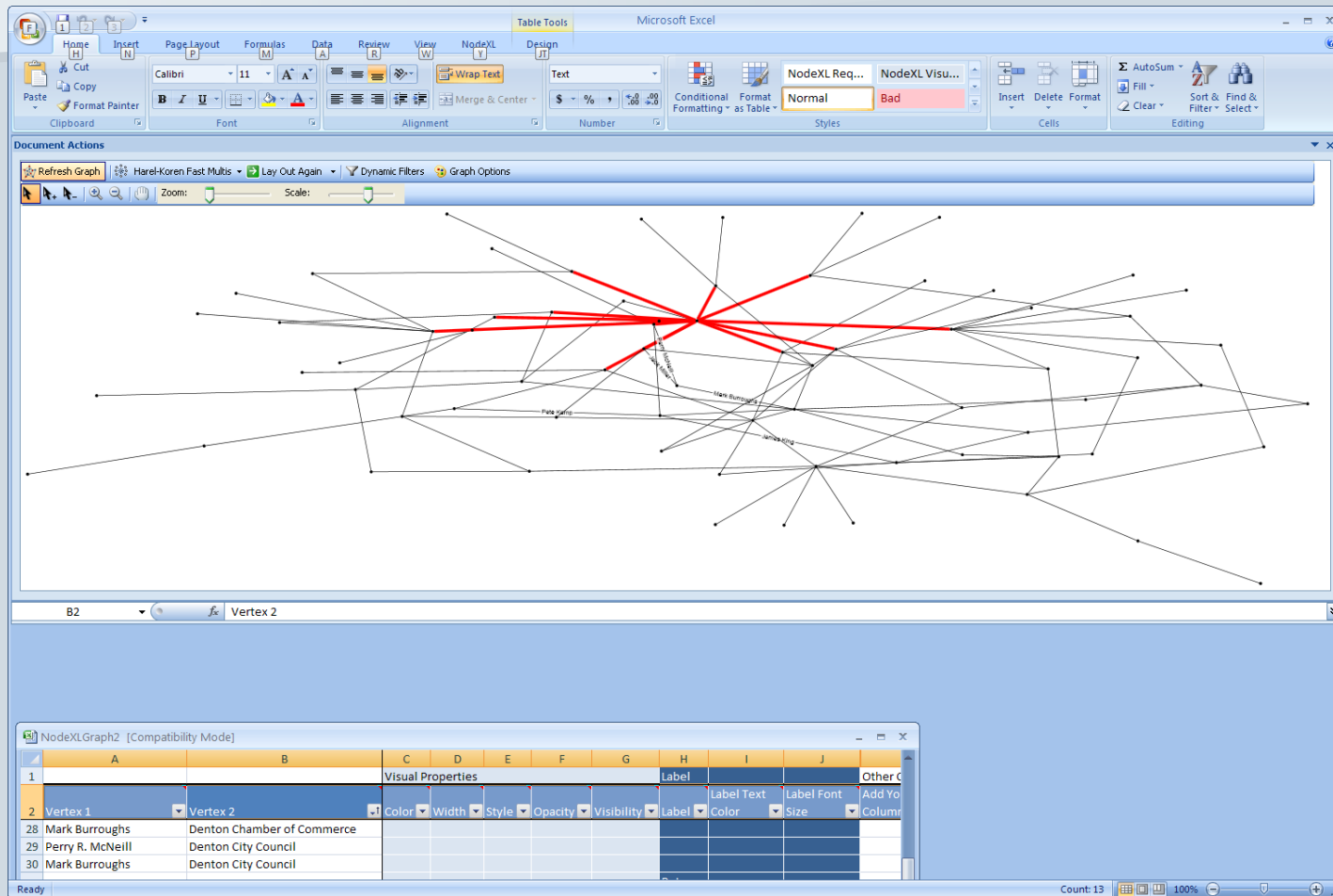
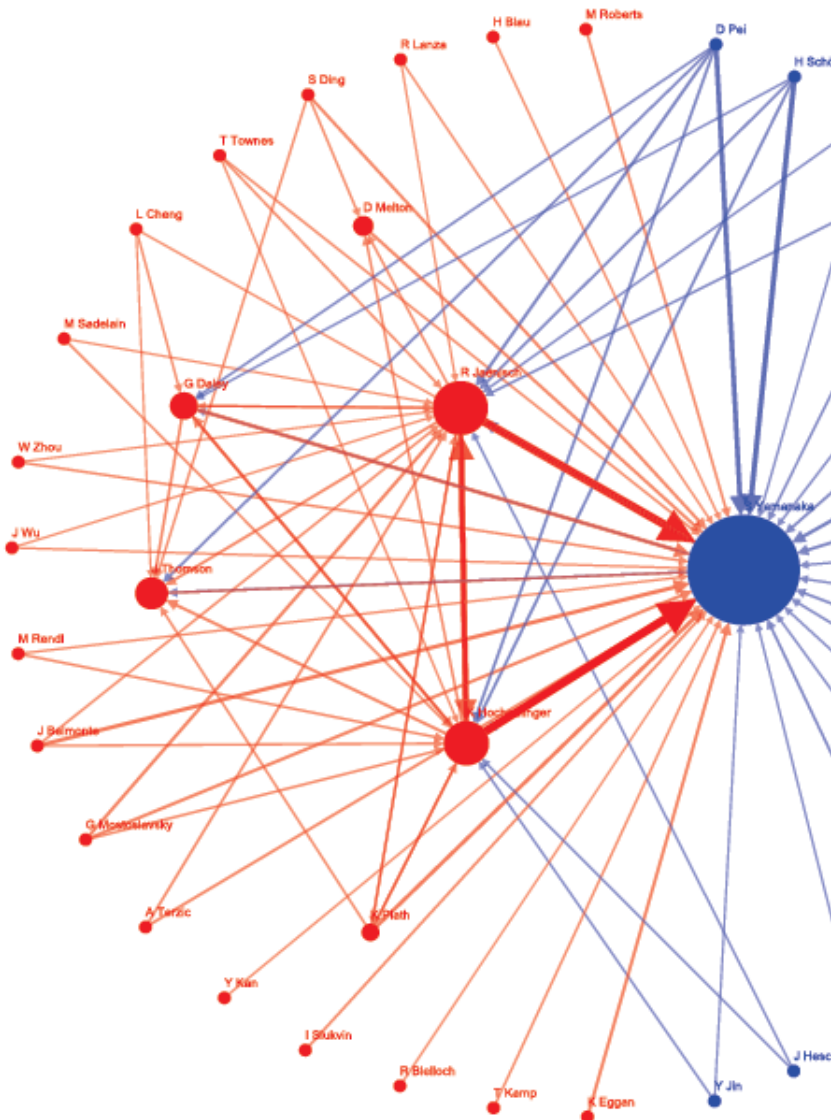# The second network graph we showed to the editors
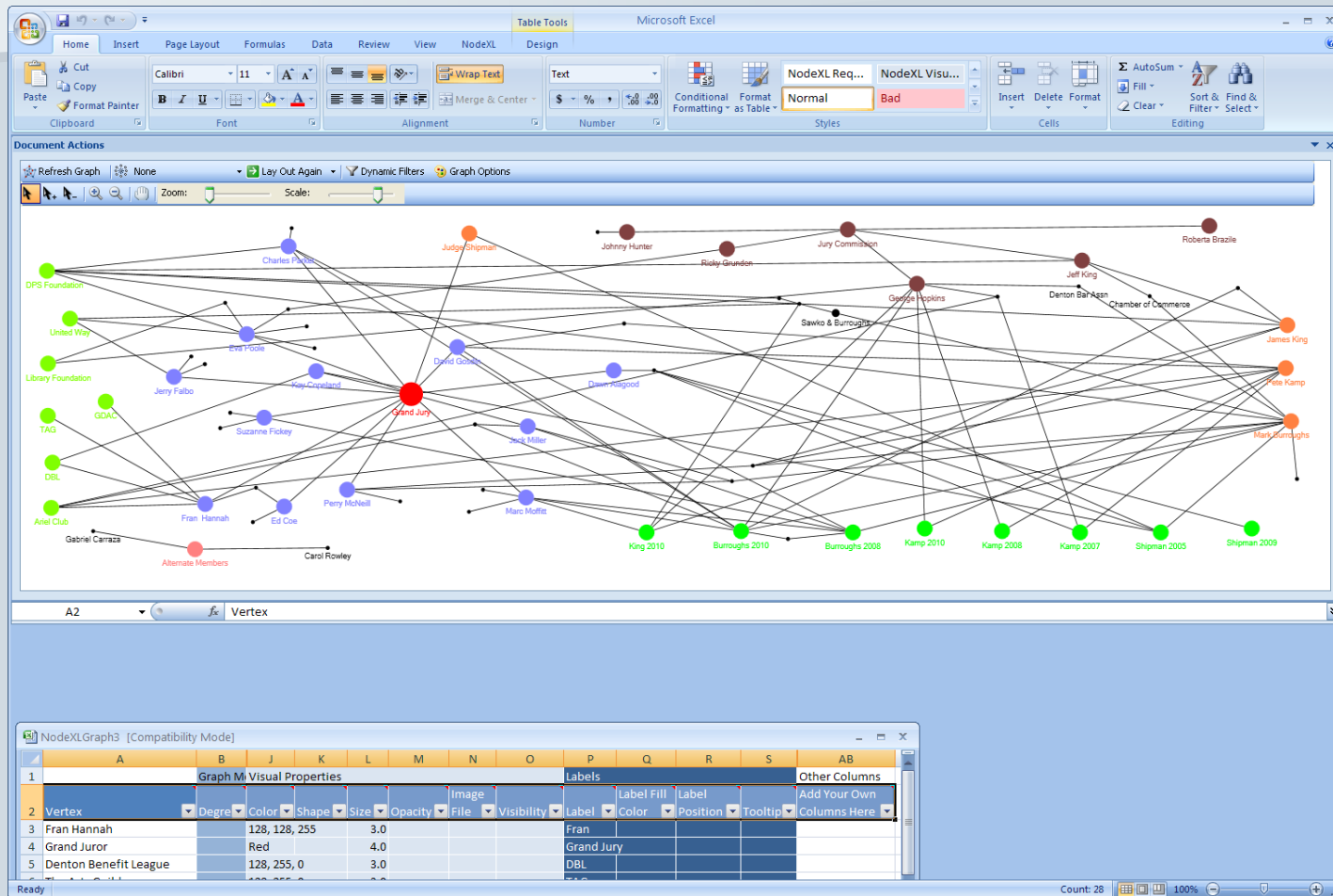
The published network graph
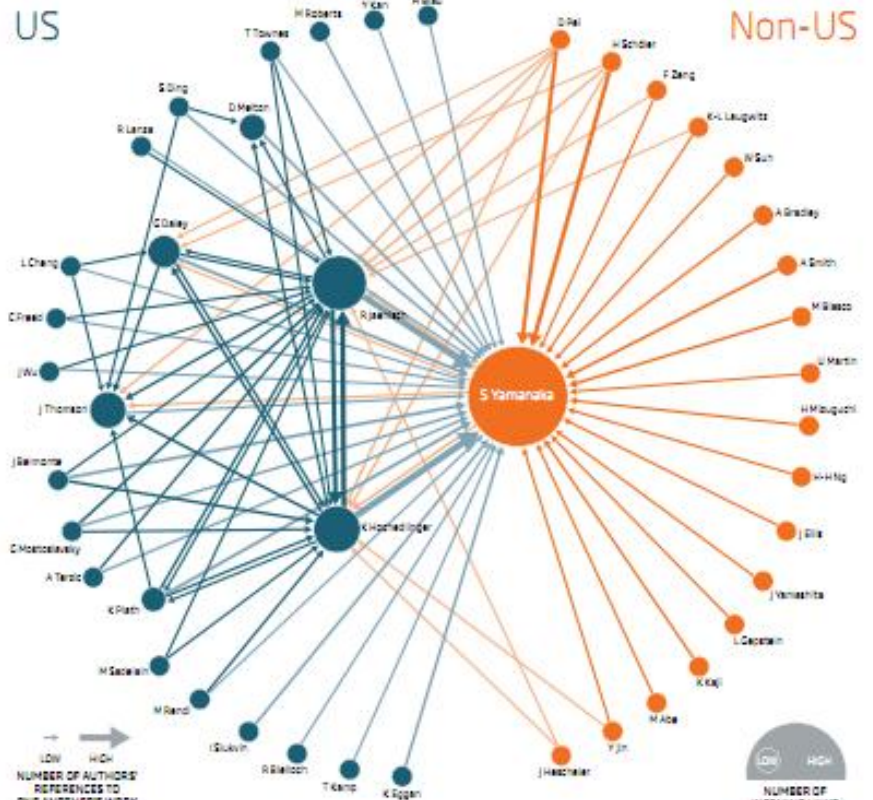
Example: citations in stem cell research

Network analysis of online social media
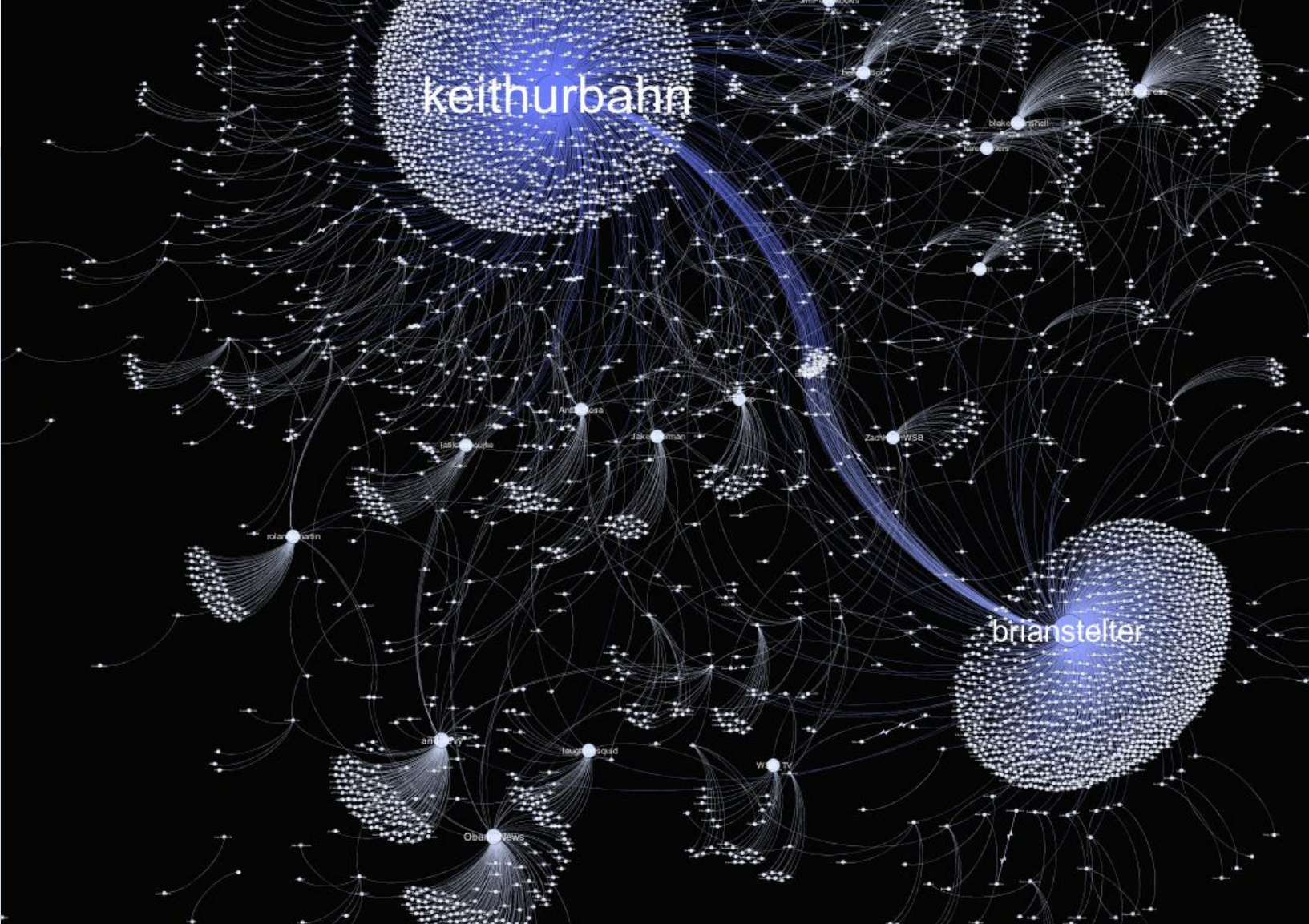
NodeXL can query APIs of online social media and import data

Occupy vs Tea Party: what their Twitter networks reveal

15:21 17 November 2011

Twitter

Peter Aldhous, San Francisco bureau chief

According to some political commentators, Occupy Wall Street is the left's answer to the Tea Party - driven by a similar anger towards elites. But the social networks of people tweeting about the two movements suggest that they have rather different dynamics.

Those tweeting about the Tea Party emerge as a tight-knit "in crowd", following one another's tweets. By contrast, the network of people tweeting about Occupy consists of a looser series of clusters, in which the output of a few key people is being vigorously retweeted.

The Occupy network also has many casual unconnected tweeters, shown to the bottom right of the diagram below. Whether Occupy takes off as a coherent movement may depend on its success in bringing these potential recruits into the fold.
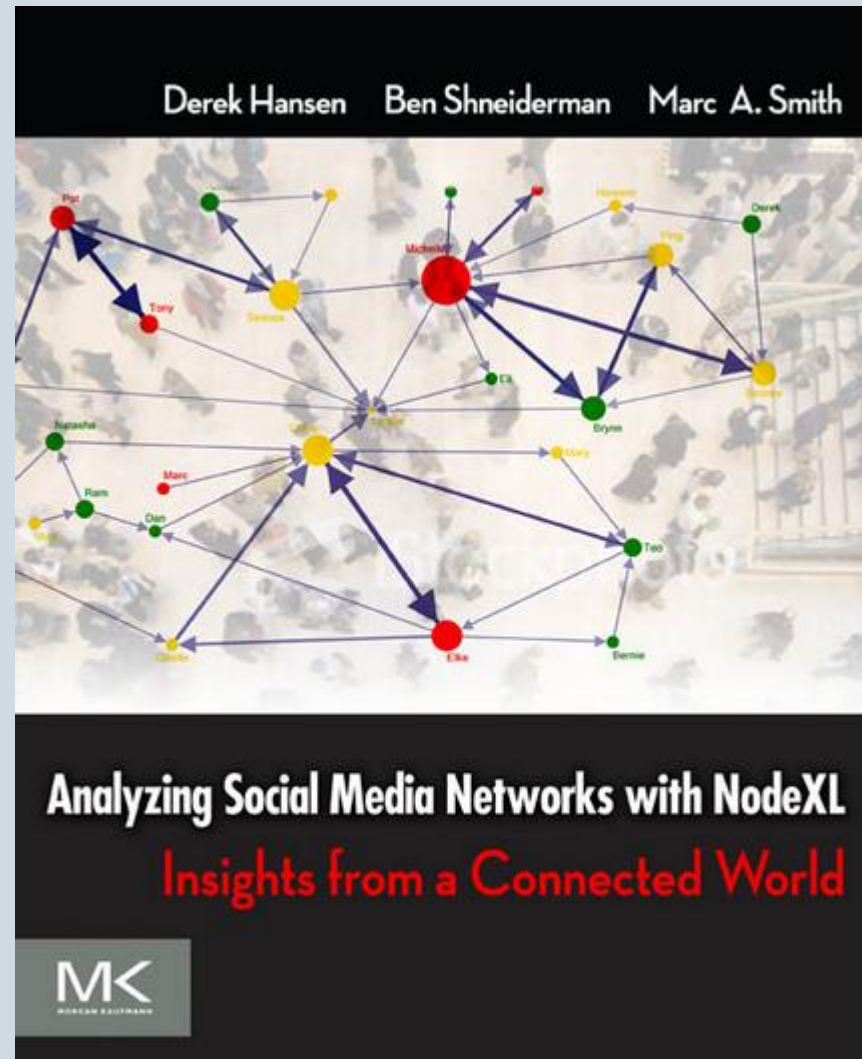
Example: Occupy vs Tea Party on Twitter
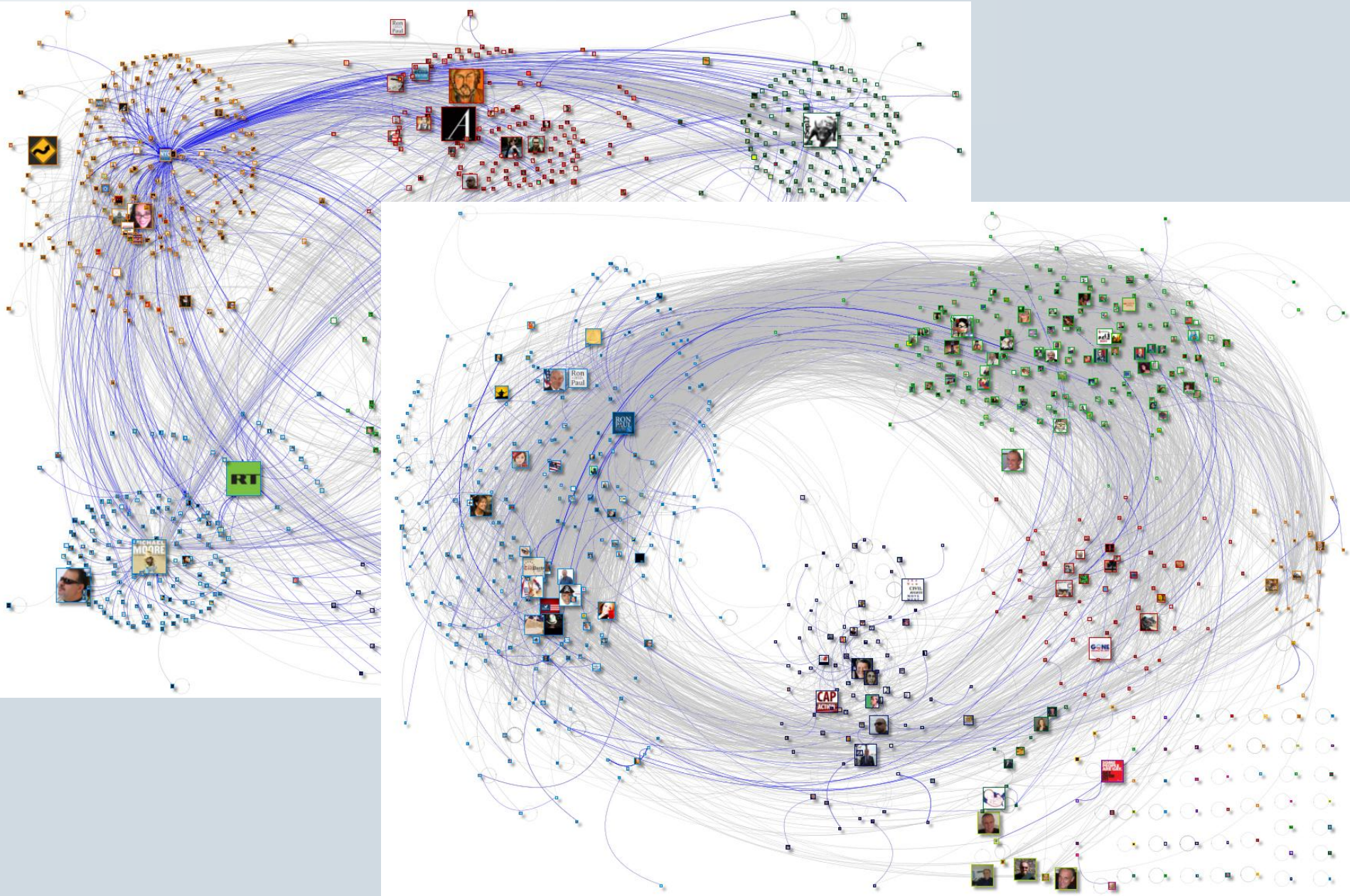
Learn more

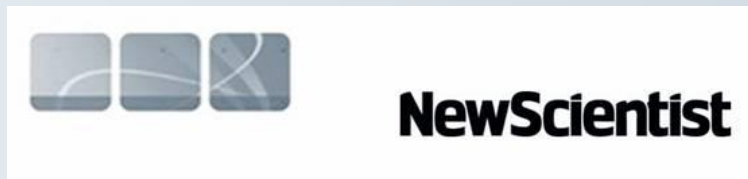Tutorial: [Analyzing Social Media Networks: Learning By Doing With NodeXL](#)

Book: [Analyzing Social Media Networks with NodeXL: Insights From A Connected World](#)

Network Analysis For News

CAR meeting, St Louis, Feb 23 2012

Peter Aldhous

peter@peteraldhous.com

Peggy Heinkel-Wolfe

pheinkel-wolfe@dentonrc.com