

An Analysis of Twitter Spam Accounts

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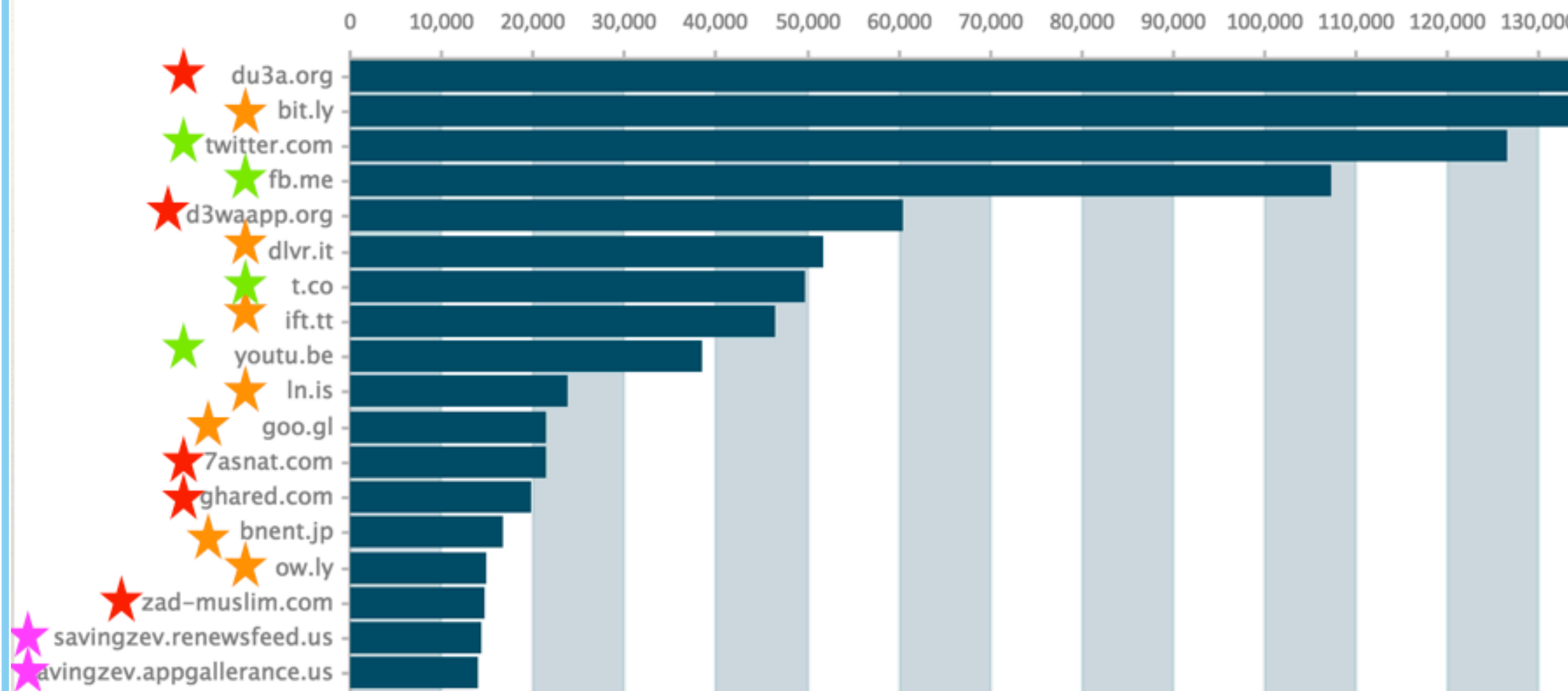
How do we detect spammers?



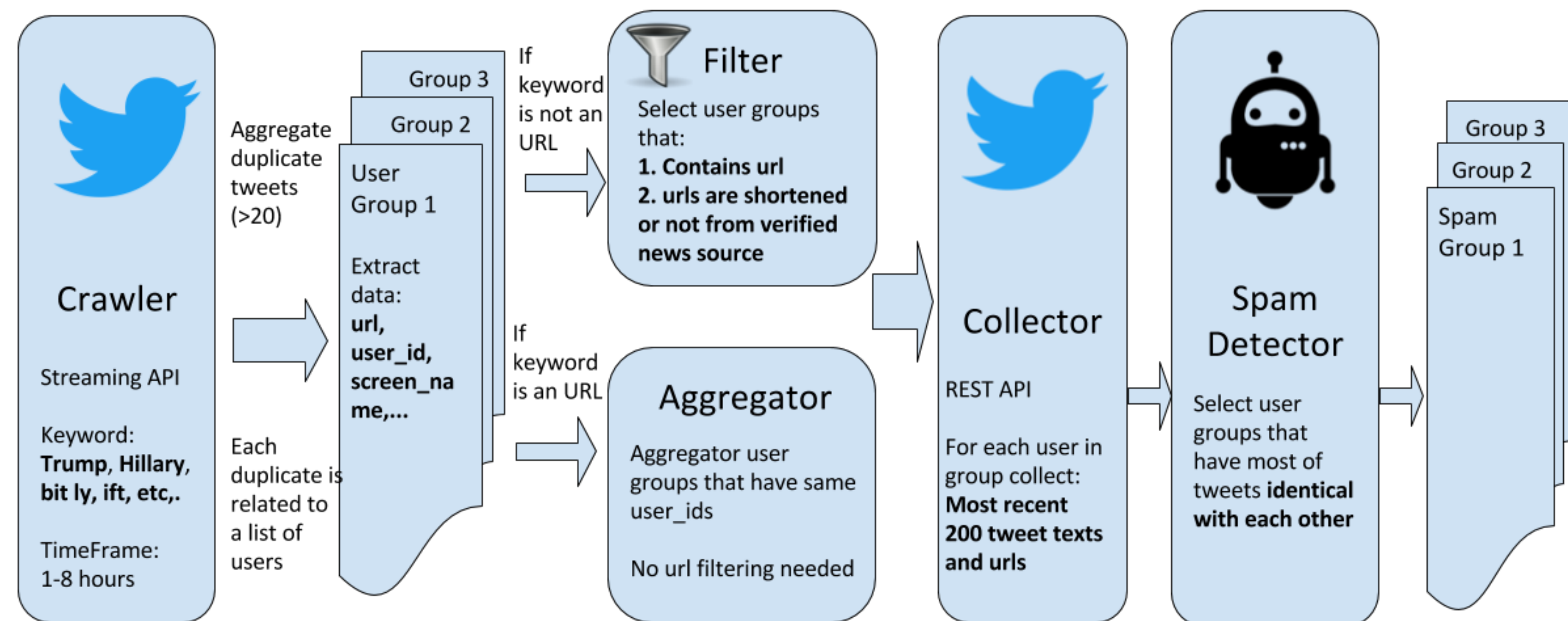
- **Problem:** 9%-15% of Twitter accounts are spammers.
- **Goal:** Identify Twitter spammers using **shortened URLs** and **duplicate content**.

★ Arabic Botnet ★ News spam ★ URL shorteners ★ Good(Twitter, FB)

Real Time Twitter Stream URL Top100



Real time top URLs on Twitter Stream, shortened URLs are the most popular.



Pipeline of our spam detection protocol.

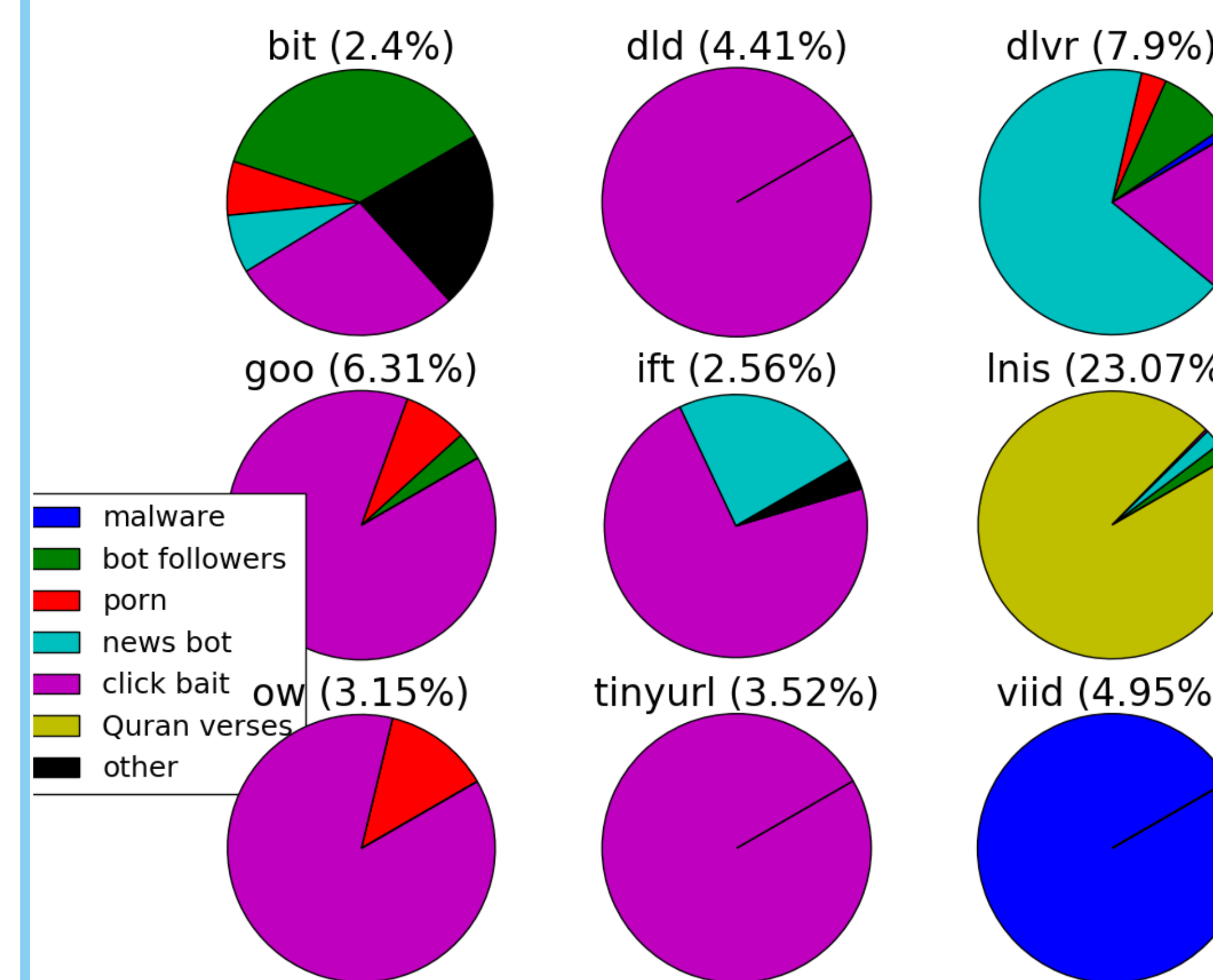
Twitter Spam Monitor		Select another url -	Current URL: viid	Current group id: 1
spam_group_id	total_user	top_one_website		
1	29	truthfeed.com		
2	40	v.gd		
3	82	www.redtube.com		
4	526	twitter.com		

id	screen_name	statuses_count	friends_count	followers_count	lang	verified	created_at	profile
1	754802590664290304	Polititc_KV	32507	569	214	false	2016-07-17 22:18:55	
2								
3	787961053535698944	TrumpLoves_Amer	14209	3289	6162	false	2016-10-17 10:18:49	
4								
5	790601488599027712	Trump_Ameri16	15063	944	2655	false	2016-10-24 17:10:58	
6								
7								

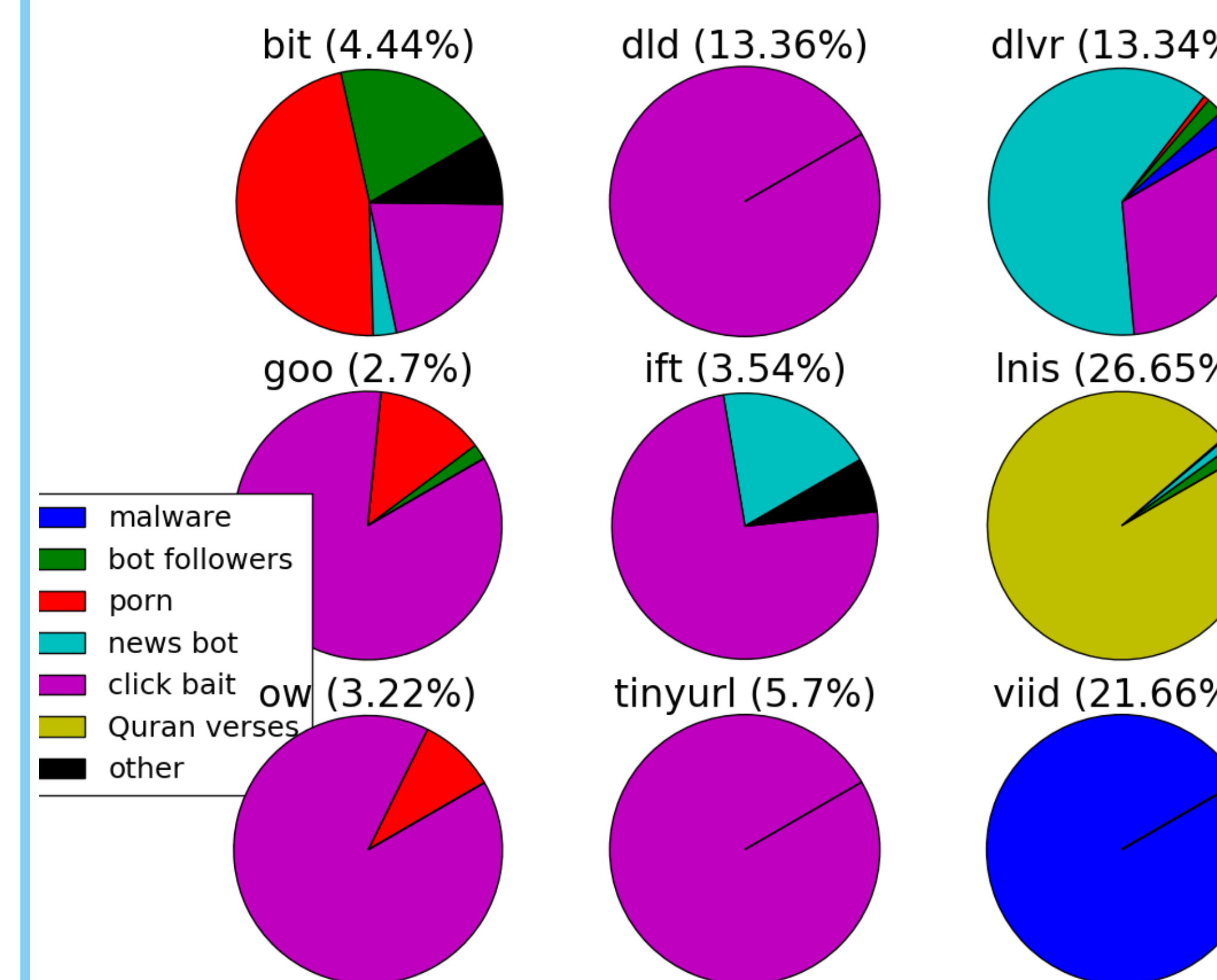
A group of fake Trump supporters visualized by our Twitter Spam Monitor.

Who are the spammers?

- **Datasets:** Tweets from 9 most popular URL shortening services.
- **Results:** Percentages of spam tweets vary from 3% to 27% among 9 datasets, with an average of 10.51%.
- **Click bait** is the No.1 source of spam.



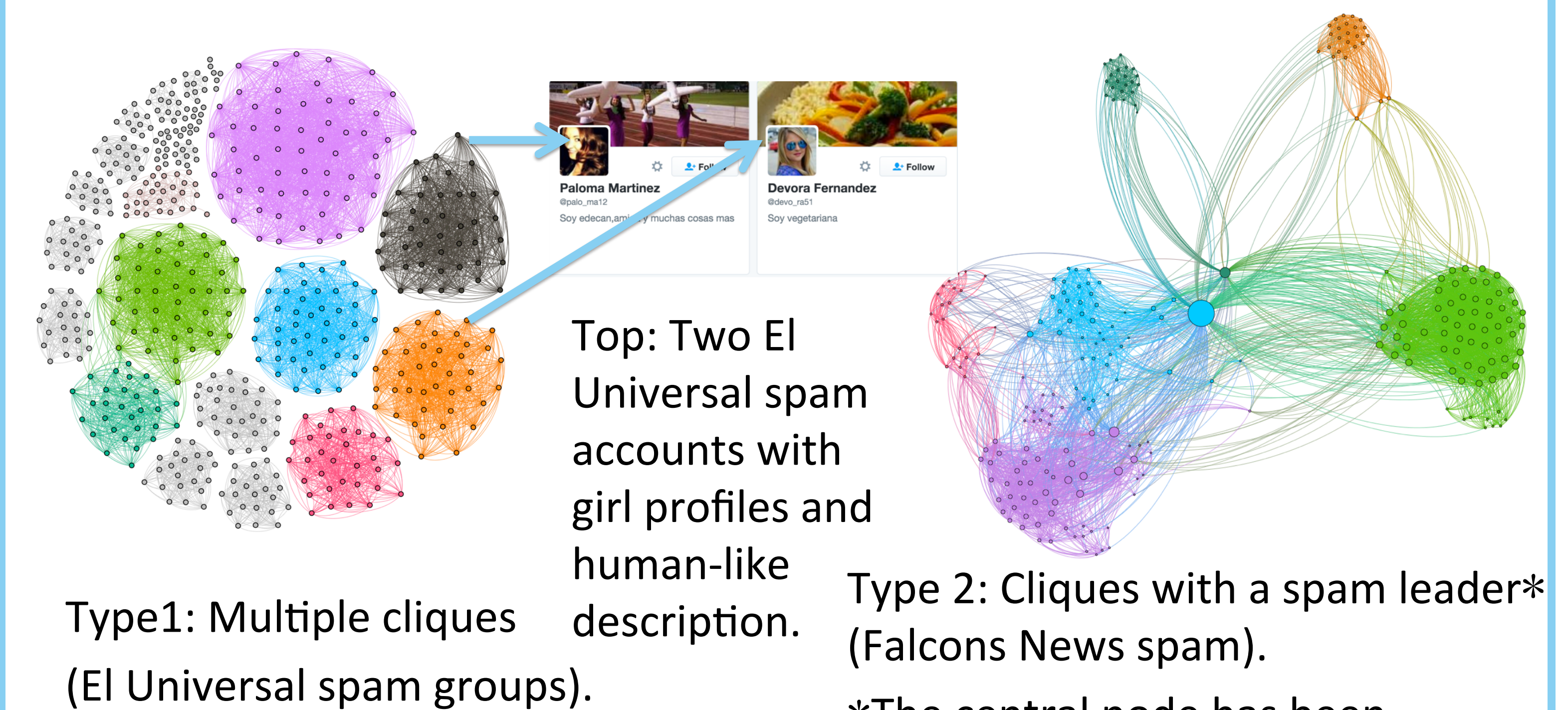
Top: Breakdown of spammers for 9 popular URL shortening services based on the number of spam accounts; number in parenthesis is percent of spammers among all users.



Top: Breakdown of spam tweets for 9 popular URL shortening services based on the number of spam tweets; number in parenthesis is percent of spam tweets among all tweets.

What do spammers look like? Who do they follow?

- Spammers have human-like, deceptive profiles.
- Spammers have various social network patterns (graphs below).

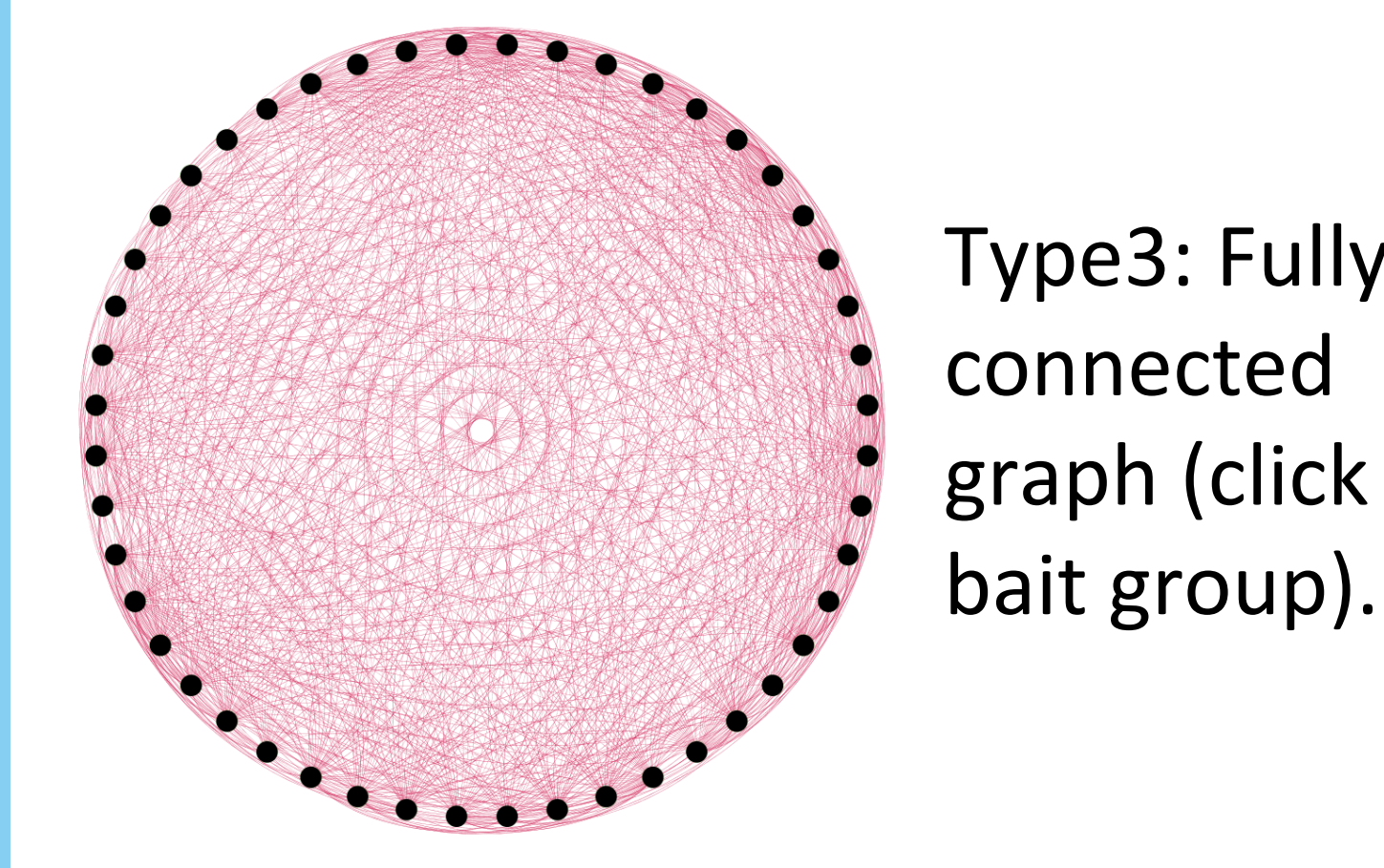


Type1: Multiple cliques (EI Universal spam groups).

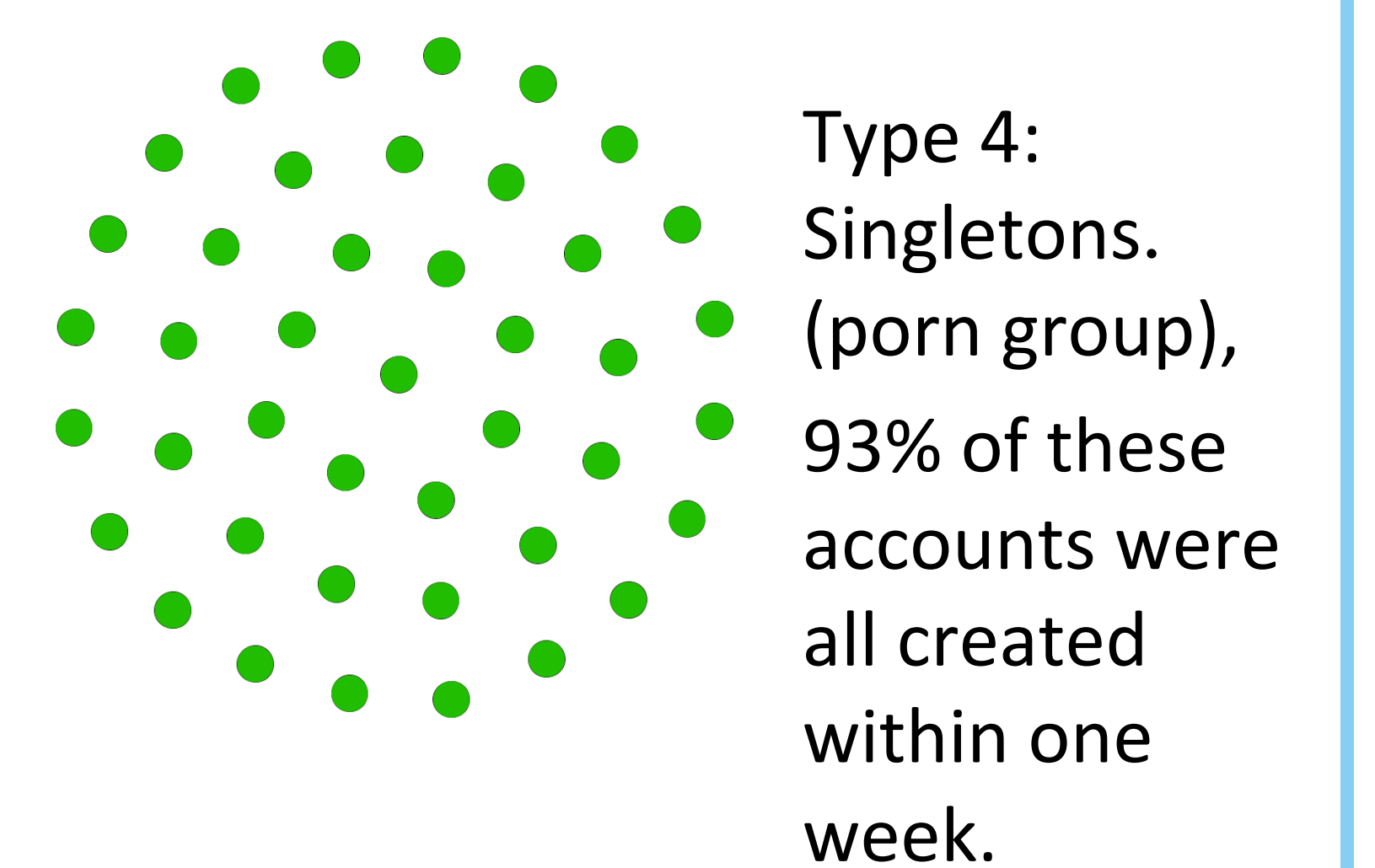
Top: Two EI Universal spam accounts with girl profiles and human-like description.

Type 2: Cliques with a spam leader* (Falcons News spam).

*The central node has been suspended by Twitter.



Type3: Fully connected graph (click bait group).



Type 4: Singletons. (porn group), 93% of these accounts were all created within one week.



Left: Word cloud of one account from Type3 click bait group. Words are based on 200 most recent tweets.

Conclusions

- ➊ Spam account for 5% - 27% of all tweets generated from URL shortening services.
- ➋ Our Spam detector can identify and visualize 10,000 spam accounts everyday.

References

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