

Who is next?

Analysis of cyber attacks reported between 2017-2018



Equifax Says Cyberattack May Have Affected 143 Million in the U.S.

By [Tara Siegel Bernard](#), [Tiffany Hsu](#), [Nicole Perlroth](#) and [Ron Lieber](#)

Sept. 7, 2017



Technology

Uber Paid Hackers to Delete Stolen Data on 57 Million People

By [Eric Newcomer](#)

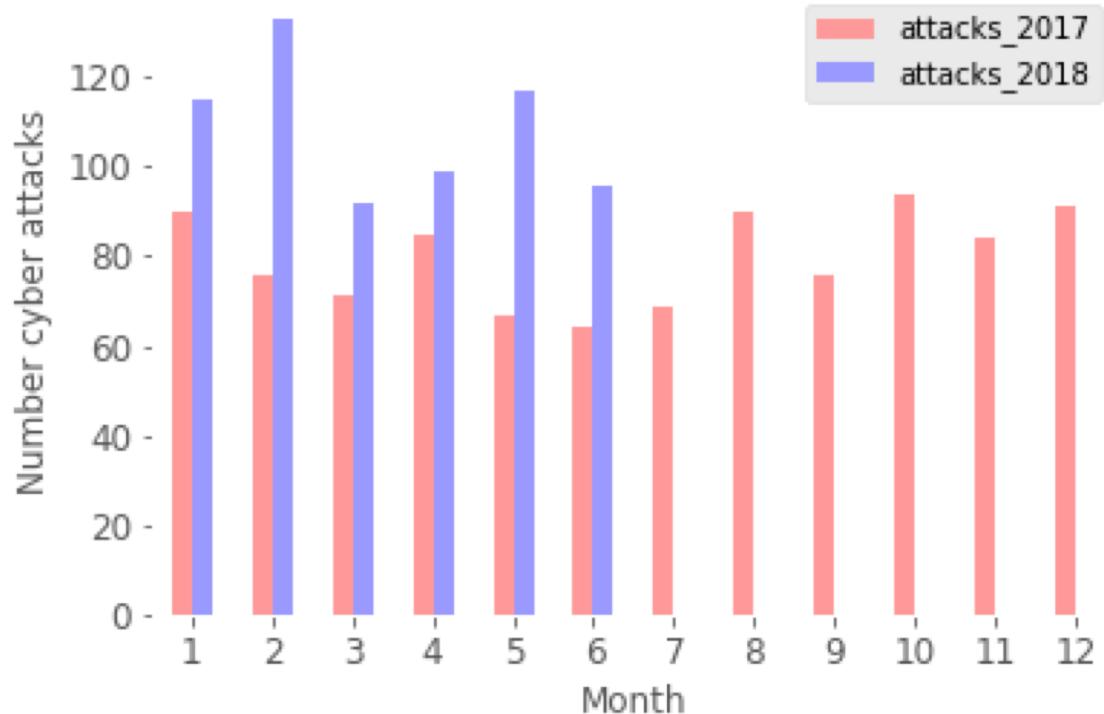
November 21, 2017, 4:58 PM EST *Updated on November 21, 2017, 10:21 PM EST*

Hackmageddon

- ❖ scraped www.hackmageddon.com to collect information on:
 - ❖ Date of attack
 - ❖ Target
 - ❖ Target_class (industry category)
 - ❖ Type of attack
 - ❖ Country
 - ❖ Summary
 - ❖ Type of attack(crime, espionage, hacktivism, warfare)

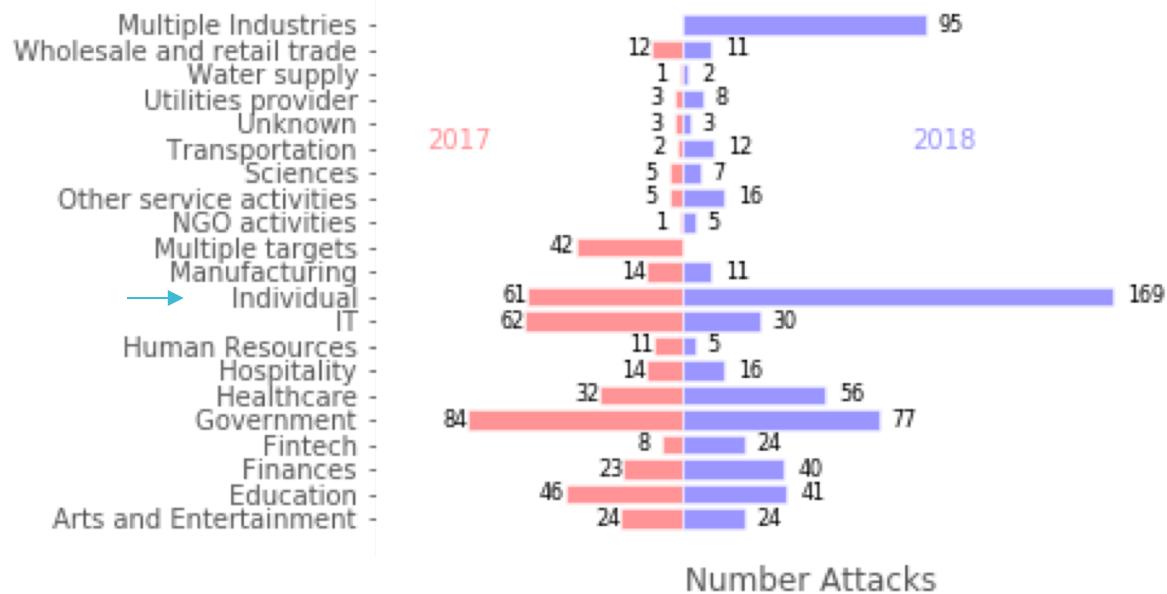
date	attack	attack_class	author	country	description	target	target_class	url	target_co
2018-01-01	Unknown	CC	NaN	UK	2018 begins with a new round of Fappening leak...	Faye Brookes	Individual	http://news.softpedia.com/news/the-2018-fappen...	
2018-01-01	Malware	CC	NaN	US	Rockingham County Schools servers are compromi...	Rockingham County Schools	Education	https://www.databreaches.net/nc-emotet-malware...	
2018-01-02	Unknown	CC	Andariel	KR	Bloomberg reveals that a hacking unit called A...	Unnamed South Korean Company	Unknown	https://www.bloomberg.com/news/articles/2018-0...	
2018-01-02	SQLi?	CC	@0x55Taylor	US	A hacker using the twitter handle @0x55Taylor	thefly.com	IT	https://www.cyberwarnews.info/2018/01/02/clear...	

Trend of increasing cyber attacks for 2018

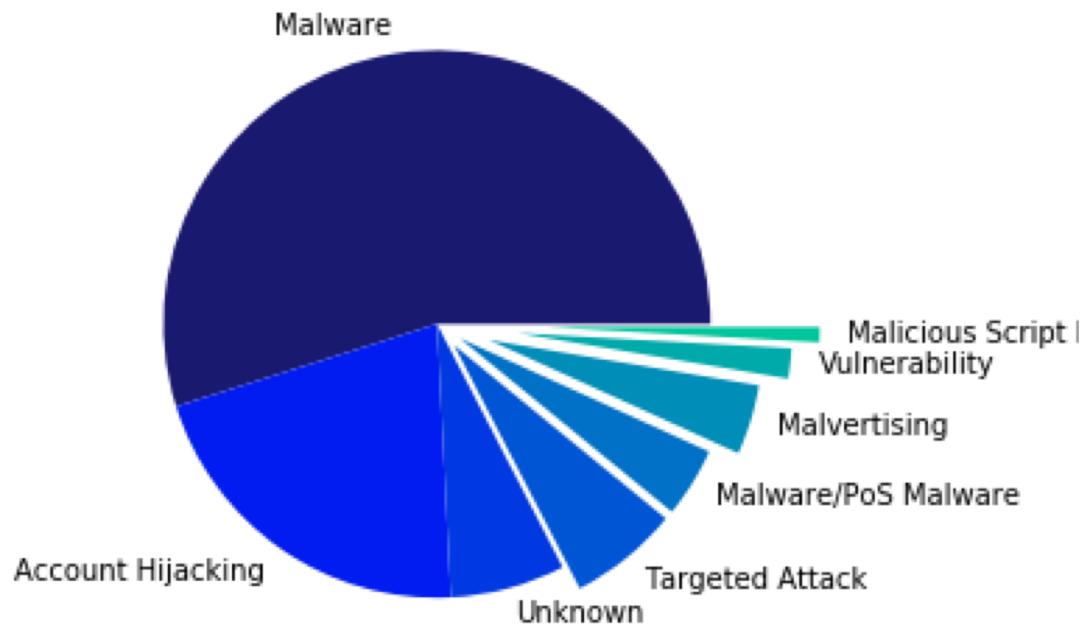


Top 5 categories affected:

Individuals
Healthcare
Fintech
Finances
Multiple



Main attack on individuals: **MALWARE**

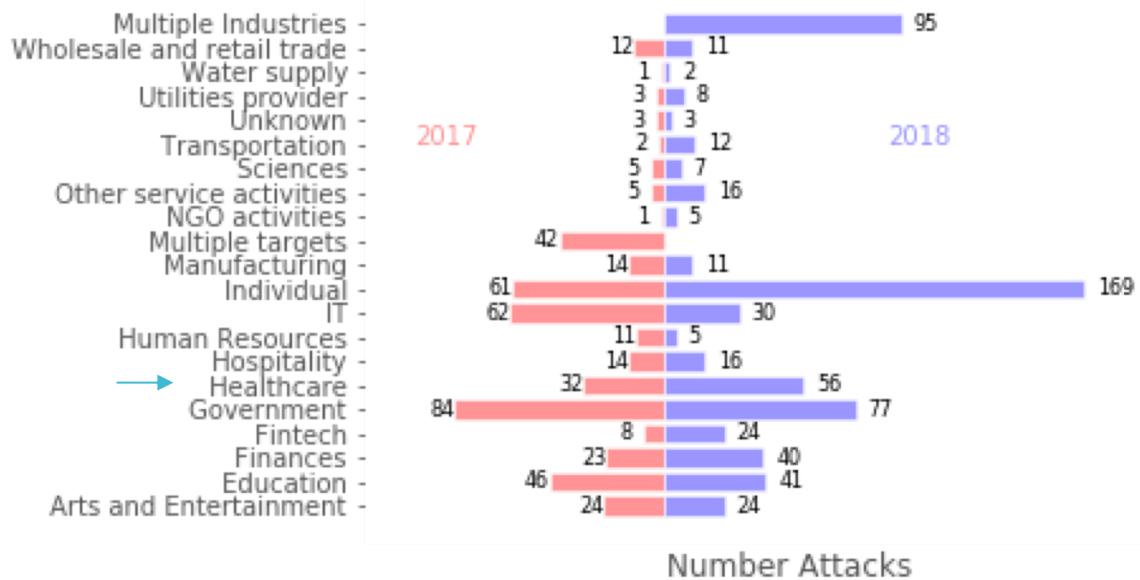


Individuals: WordCloud



Top 5 industries affected:

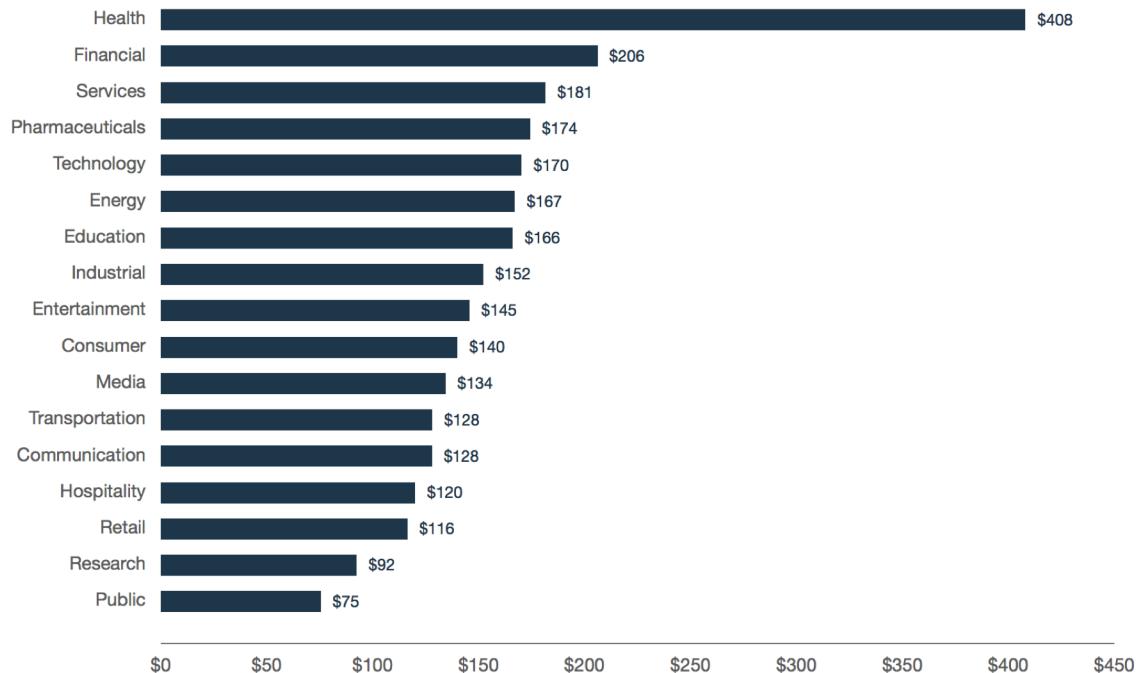
Individuals
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Multiple



Data breach costs are highest for healthcare industry

Figure 7. Per capita cost by industry sector

Measured in US\$



Glassdoor

- ❖ identified companies/organizations with healthcare sector from hackmageddon dataset
- ❖ scraped www.glassdoor.com to collect information on:
 - ❖ Company name
 - ❖ Category
 - ❖ Revenue
 - ❖ Employees

company	industry	revenue	employees	name	min_USD	max_USD	min
Private	Unknown	1 - 5	1 to 50	Metropolitan Urological Specialists	million	million	1
Nonprofit Organization	Unknown	5 - 10	51 to 200	Family Service	million	million	5
Nonprofit Organization	Health Care Services & Hospitals	500-1	5001 to 10000	Lexington Medical Center	billion	billion	500
Private	Health Care Services & Hospitals	25 - 50	501 to 1000	Citizens Memorial Healthcare	million	million	25
Government	Insurance Carriers	5 - 10	10000+	NHS	million	million	5
Nonprofit Organization	Health Care Services & Hospitals	NaN	5001 to 10000	Verity Health System	NaN	NaN	NaN
Hospital	Health Care Services & Hospitals	100 - 500	1001 to 5000	Campbell County Memorial Hospital	million	million	100
Nonprofit Organization	Health Care Services & Hospitals	2 - 5	10000+	Sentara Healthcare	billion	billion	2
College / University	Colleges & Universities	10 - 25	51 to 200	University of Maryland School of Medicine	million	million	10
Government	Health Care Services & Hospitals	500-1	10000+	Barts Health NHS Trust	billion	billion	500

Revenue and
number of
employees
are
dependent

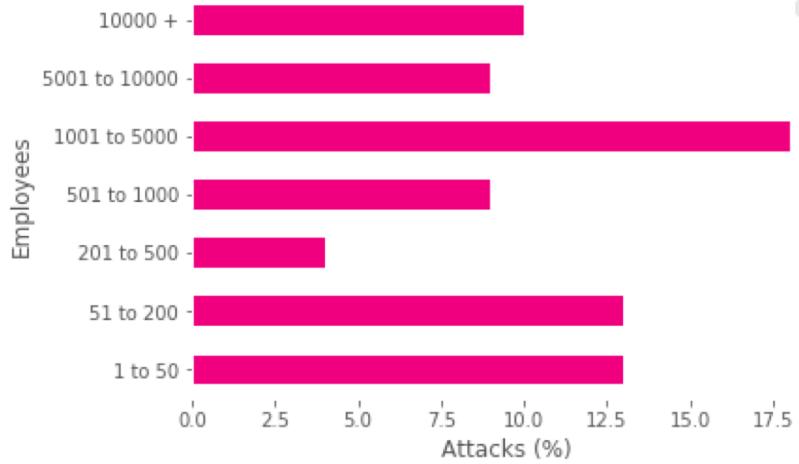
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Chi –sq test : p<0.001

Healthcare: WordCloud

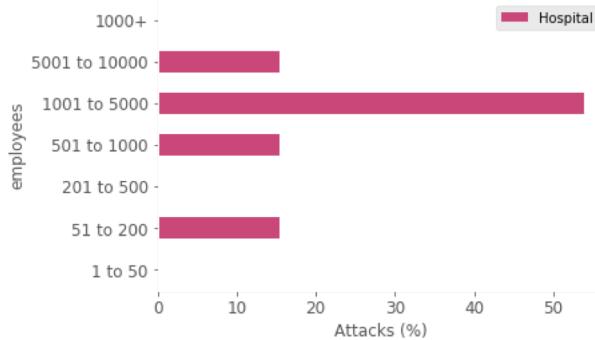


Healthcare: Attacks by employees



Healthcare: Attacks by category employees

Hospitals

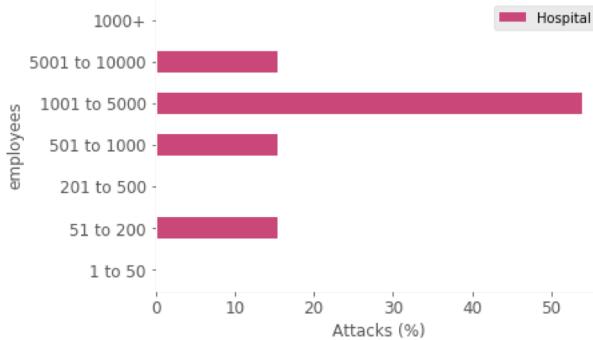


Private companies

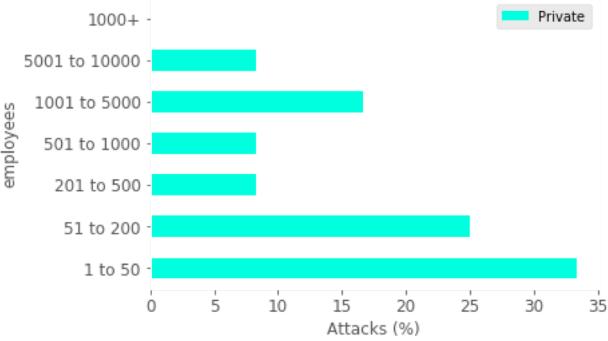
Nonprofits

Healthcare: Attacks category by employees

Hospitals



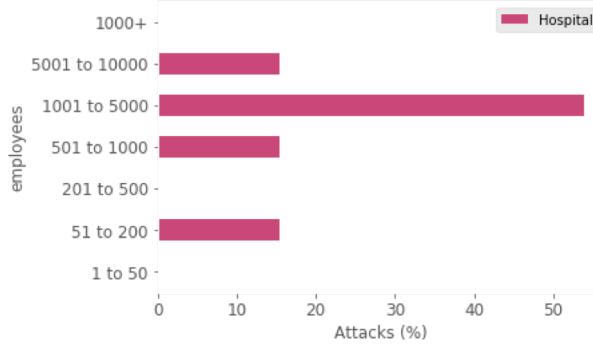
Private companies



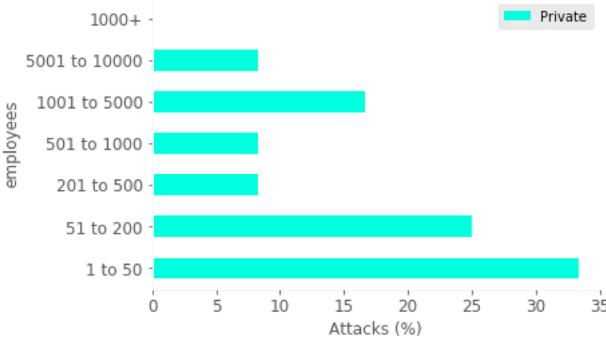
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Healthcare: Attacks category by employees

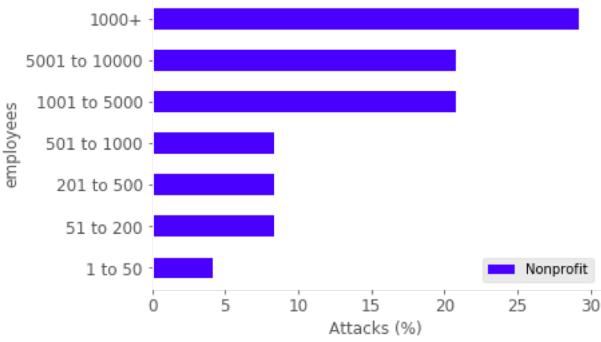
Hospitals



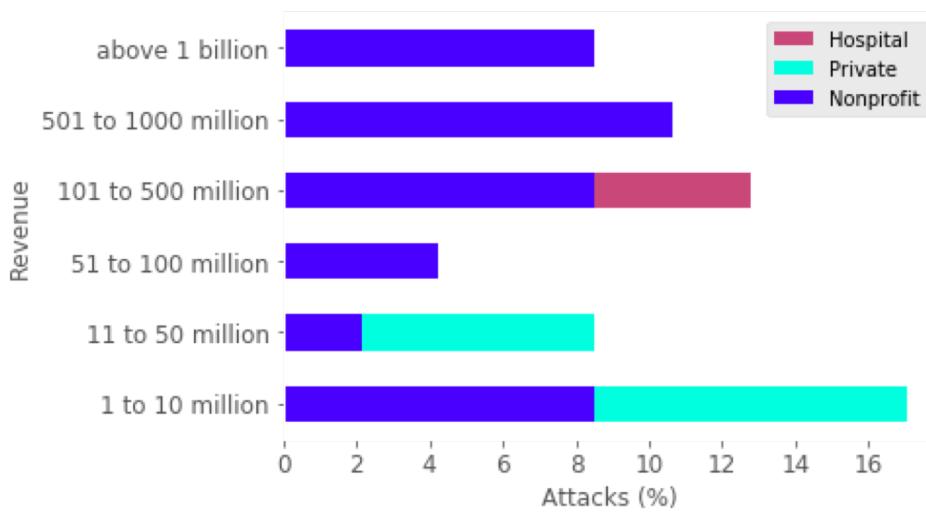
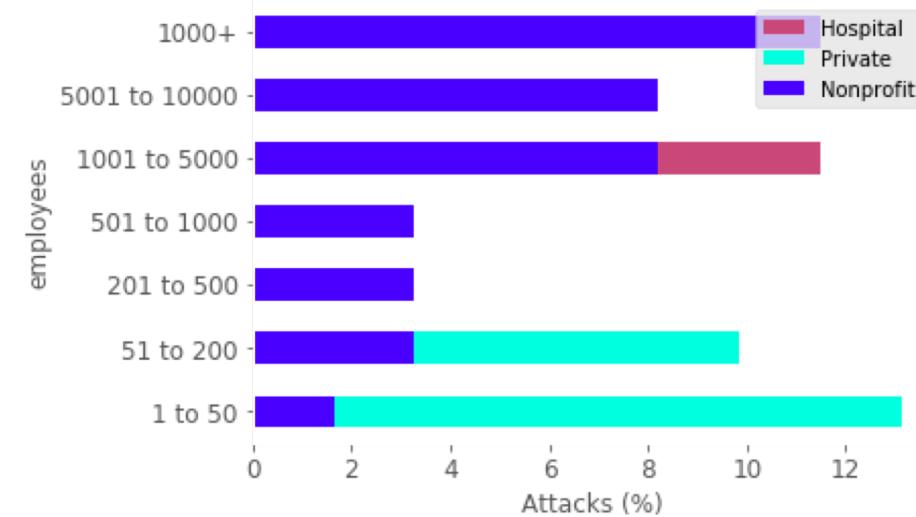
Private companies



Nonprofits



Relationship between employees and revenue



Conclusions

Individuals

- ❖ Every individual using the internet is a potential target
 - ❖ App downloads, email accounts
- Tip: avoid free wi-fi and useless apps**

Healthcare

- ❖ Hospitals, small private companies, and large non-profits are main targets
 - ❖ Phishing emails to employees
- Tip: scale up cyber security training for employees**

- ❖ Ransomware is becoming more popular
- Tip: scale up cyber security investment!**

- ❖ **Unsupervised Machine Learning for clustering to identify predictors**