

# DEFCON 22

**You're Leaking  
TRADE SECRETS**



**Michael Schrenk** @mgschrenk · Aug 7

The difference between BlackHat and #DEFCON in one picture.

[pic.twitter.com/IJLyMyrGgZ](http://pic.twitter.com/IJLyMyrGgZ)

Reply Delete Favorite

Flag media

9:11

Saturday, August 9



**Echofon** 11m ago



The difference between BlackHat and #DEFCON in one picture.  
<http://t.co/IJLyMyrGgZ>

slide to view

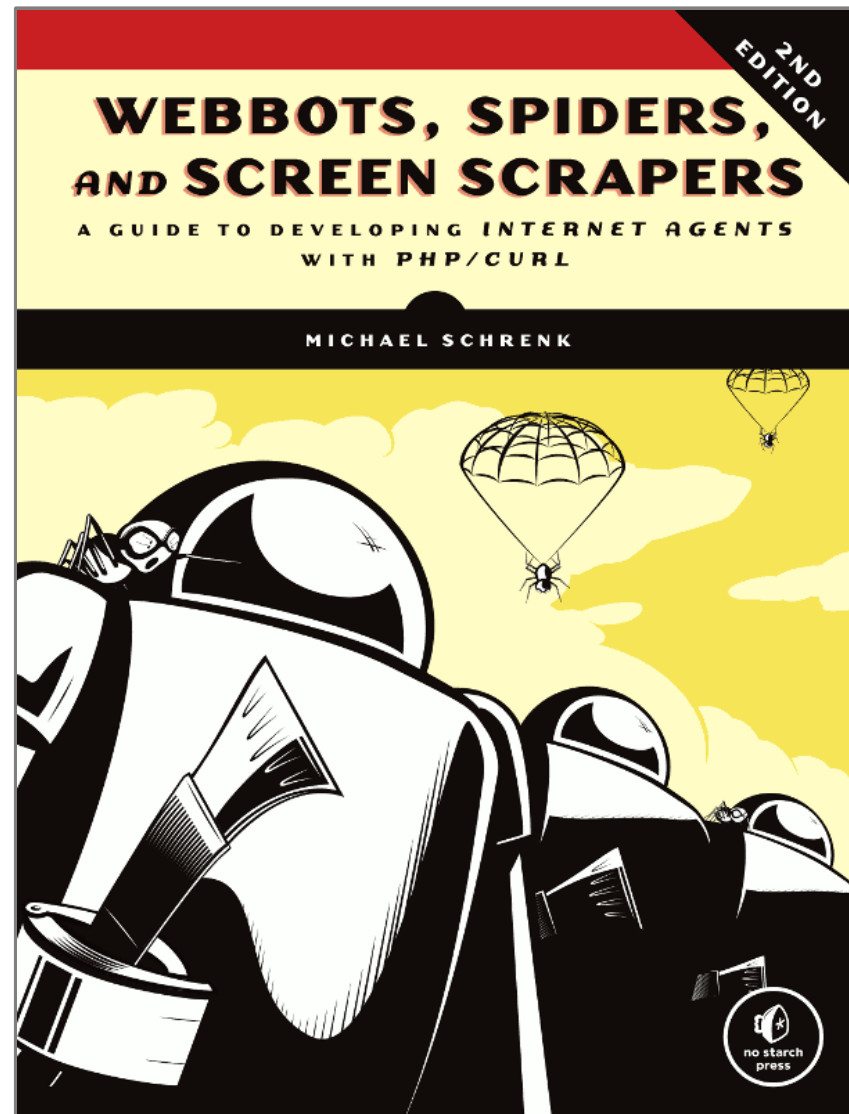
# Michael Schrenk

twitter:

*@mgschrenk*

facebook:

*facebook.com/webbots*



**This is a story about**

Organizational  
Privacy

Individuals unintentionally  
leak **identity**

Individuals unintentionally  
leak **identity**

Organizations unintentionally  
leak **trade secrets**

# Spoiler Alert:

Not all online information is:  
Read by the intended audience



# **Spoiler Alert:**

Not all online information is:

Read by the intended audience

Used as intended

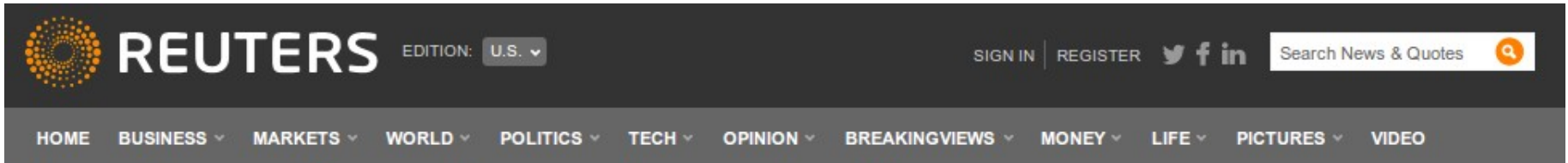
Individuals are aware  
of the need for **personal**  
privacy

Individuals are aware  
of the need for **personal**  
privacy

Organizations are less aware  
of the need for  
**organizational** privacy

The difference in awareness is largely due to the media, and how they cover privacy stories

# Articles on Trade Secrets only focus on crimes



## Ex-Microsoft employee charged with leaking trade secrets to blogger

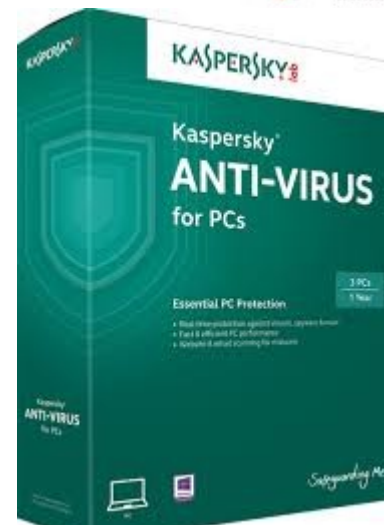
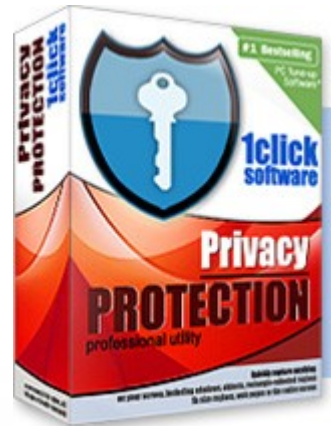
Thu Mar 20, 2014 9:12am EDT

1 COMMENTS |  Tweet 29 |  Share 9 |  Share this |  +1 3 |  Email |  Print



These stories focus on news but don't teach lessons

# Personal privacy stories create many customers for a host of advertisers



# Personal privacy stories create great content

**Teen's Facebook post costs father \$80k**

# Personal privacy stories create great content

## Teen's Facebook post costs father \$80k

COMMENT (10) Email 1 Share 190 Tweet



### Daughter's Facebook Brag Costs Her Family \$80,000

By Elke Solé, Shine Staff | Parenting - Fri, Feb 28, 2014 11:43 AM EST



...rather the \$80,000 settlement he won in a discrimination lawsuit.

According to the Miami Herald, Patrick Snay, 69, was the headmaster at Gulliver Preparatory School in Miami for several years, but in 2010, the school didn't renew his contract. Snay sued his former employer for age discrimination and won a settlement of \$80,000 in

*“Mama and Papa... won the case against Gulliver. Gulliver is now officially paying for my vacation to Europe this summer.*

***S\*CK IT.”***





# Personal privacy stories create great content



Selfie  
geotags  
reveal  
location of  
soldier

# Personal privacy stories create great content

A photograph of a soldier in a military uniform, smiling broadly while eating a slice of watermelon. The image is overlaid with a semi-transparent red rectangle.

**These stories teach  
Important lessons**

Selfie  
geotags  
reveal  
location of  
soldier

# In this talk...

- Define “trade secrets”
- Examples: **unintentional** leaks
- Online business intelligence
- What can be done to minimize **unintentional** leaks

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- ◆ Define “trade secrets”
- ◆ **Examples: unintentional leaks**
- ◆ Online business intelligence
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# What is a Trade Secret?

- Don't need to be published
- Have no expiration dates
- Protected by the UTSA  
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- Anyone can use another's trade secret if discovered

# Trade Secrets are “special” intellectual property

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# What is the value of a Trade Secret?

Once a trade secret is established, the owner may prevent other parties from misappropriating the trade secret

# Trade Secrets Examples

## Recipes & Formulas



The recipe for  
Coca-Cola



The formula for  
Chanel No. 5

# Trade Secrets Examples Processes



Patents describe GM's inventions, but the implementation of those ideas are trade secrets

# Data as Trade Secrets

Employee lists, Supplier contacts, Customer lists, Funding sources, Expansion plans, Marketing plans, New product planning, Pricing strategies, Supplier issues, Labor issues, Sales rates, Inventory turnover rates, Slow merchandise, Fast merchandise, IT infrastructure changes, Security information,



# Data as Trade Secrets

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**This list unique  
for every industry**

# Data as Trade Secrets

## Facebook responds to European Union privacy laws

The screenshot shows the ZDNet website interface. At the top left is the ZDNet logo. To its right is a search bar labeled 'Search ZDNet'. Below the logo are navigation links: Home, White Papers, Hot Topics, Downloads, Reviews, and Newsletters. On the far right of this bar are 'Log In' and 'Join ZDNet' with a user profile icon. A secondary navigation bar below contains links for 'US Edition', 'Research', 'Tablets', 'Windows XP', 'Internet of Things', 'IT Security', 'BYOD', 'CXO', 'Apple', and 'All Writers'. The main content area features the article title 'Facebook: Releasing your personal data reveals our trade secrets' in a large serif font. Above the title is the topic 'Data Centers' and 'Follow via:' with RSS and email icons. Below the title is a summary: 'Facebook says it is not required to give you a copy of some of your personal data as it could adversely affect the company's trade secrets and intellectual property.' The author's name 'Emil Protalinski for Friending Facebook' and the date 'October 12, 2011 -- 11:27 GMT (04:27 PDT)' are listed. A 'Follow @emilprotalinski' button is present. At the bottom, an update states: 'I followed up with both organizations. See Facebook: The law reasonably states you can't have all your data and Europe versus Facebook: The law protects program logic, not data.'

# Data as Trade Secrets

## Facebook responds to European Union privacy laws

### The trade secrets Facebook wanted to protect

- 1) Pokes are kept even after the user "removes" them.
- 2) Facebook is collecting data about people without their knowledge. This information is used to substitute existing profiles and to create profiles of non-users.
- 3) Tags are used without the specific consent of the user. Users have to "untag" themselves (opt-out). Note: Facebook has announced changes for this.
- 4) Facebook is gathering personal data e.g. via its iPhone-App or the "friend finder". This data is used by Facebook without the consent of the data subjects.
- 5) Postings that have been deleted showed up in the set of data that was received from Facebook.
- 6) Users cannot see the settings under which content is distributed that they post on other's pages.
- 7) Messages (incl. Chat-Messages) are stored by Facebook even after the user "deleted" them. This means that all direct communication on Facebook can never be deleted.
- 8) The privacy policy is vague, unclear and contradictory. If European and Irish standards are applied, the consent to the privacy policy is not valid. Facebook tried improving it earlier this year.
- 9) The new face recognition feature is an disproportionate violation of the users right to privacy. Proper information and an unambiguous consent of the users is missing.
- 10) Access Requests have not been answered fully. Many categories of information are missing.
- 11) Tags that were "removed" by the user, are only deactivated but saved by Facebook.
- 12) In its terms, Facebook says that it does not guarantee any level of data security.
- 13) Applications of "friends" can access data of the user. There is no guarantee that these applications are following European privacy standards.
- 14) All removed friends are stored by Facebook. This was reconfirmed recently.
- 15) Facebook is hosting enormous amounts of personal data and it is processing all data for its own purposes. It seems Facebook is a prime example of illegal "excessive processing".
- 16) Facebook is running an opt-out system instead of an opt-in system, which is required by European law.
- 17) The Like Button is creating extended user data that can be used to track users all over the Internet There is no legitimate purpose for the creation of the data. Users have not consented to the use.
- 18) Facebook has certain obligations as a provider of a "cloud service" (e.g. not using third party data for its own purposes or only processing data when instructed to do so by the user).
- 19) The privacy settings only regulate who can see the link to a picture. The picture itself is "public" on the internet. This makes it easy to circumvent the settings.
- 20) Facebook is only deleting the link to pictures. The pictures are still public on the internet for a certain period of time (more than 32 hours).
- 21) Users can be added to groups without their consent. Users may end up in groups that lead other to false impressions about a person.
- 22) The policies are changed very frequently, users do not get properly informed, they are not asked to consent to new policies.

**The Internet has  
changed how  
Business Intelligence  
is collected**

# Prior to 1995, trade secrets were discovered like this

You're Leaking Trade Secrets



# Prior to 1995, trade secrets were discovered like this



Mitch Modell, on the television show, Undercover Boss

# The Internet has changed Business Intelligence

## Before 1995

There were a limited number of sources

BI was a time consuming, manual, & expensive process

It required physical contact

Often required researchers to identify themselves

## After 1995

The number of Business Intelligence sources is unlimited

Automated collection, repeated – trends can be analyzed in real-time

Can be done remotely

Can (usually) be done anonymously

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# Secrets found online are immediately actionable

You're Leaking Trade Secrets



# The Internet has changed Business Intelligence

Through the eyes of a hacker,  
anything you put online is potential  
Business Intelligence.

# Web page updates create databases of information

Every industry has it's own cases.

Here are a few that anyone from any industry can relate.

# Monitored retail websites leak trade secrets

## What online retailer thinks

I need to keep my online store up to Date.

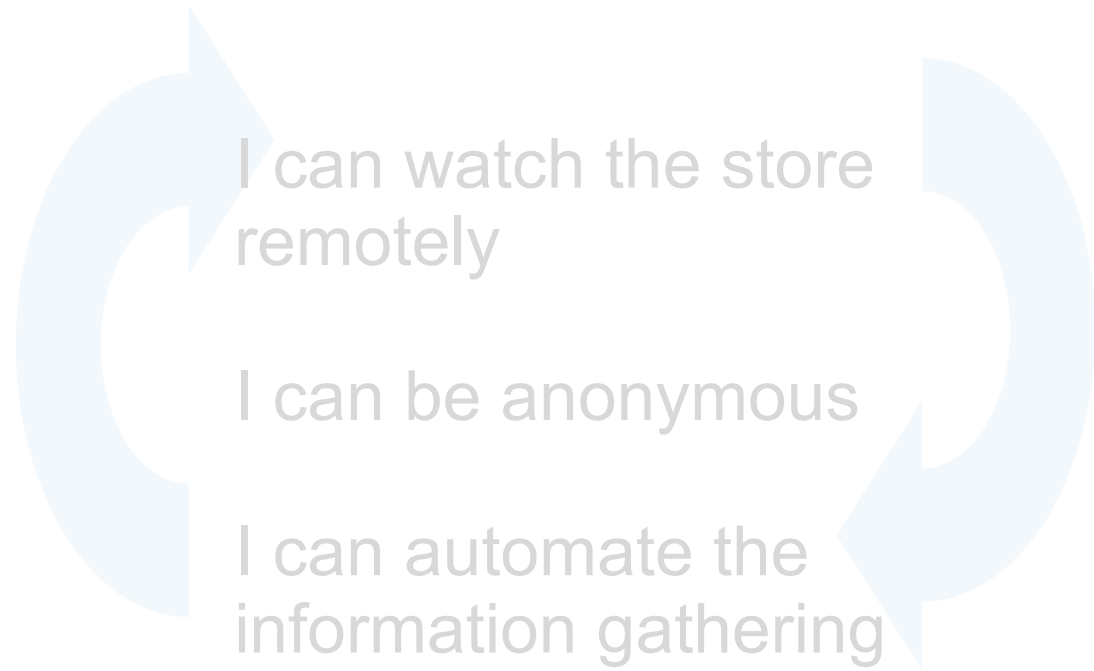
I need to keep up with competitor pricing changes.

## What a hacker thinks

I can watch the store remotely

I can be anonymous

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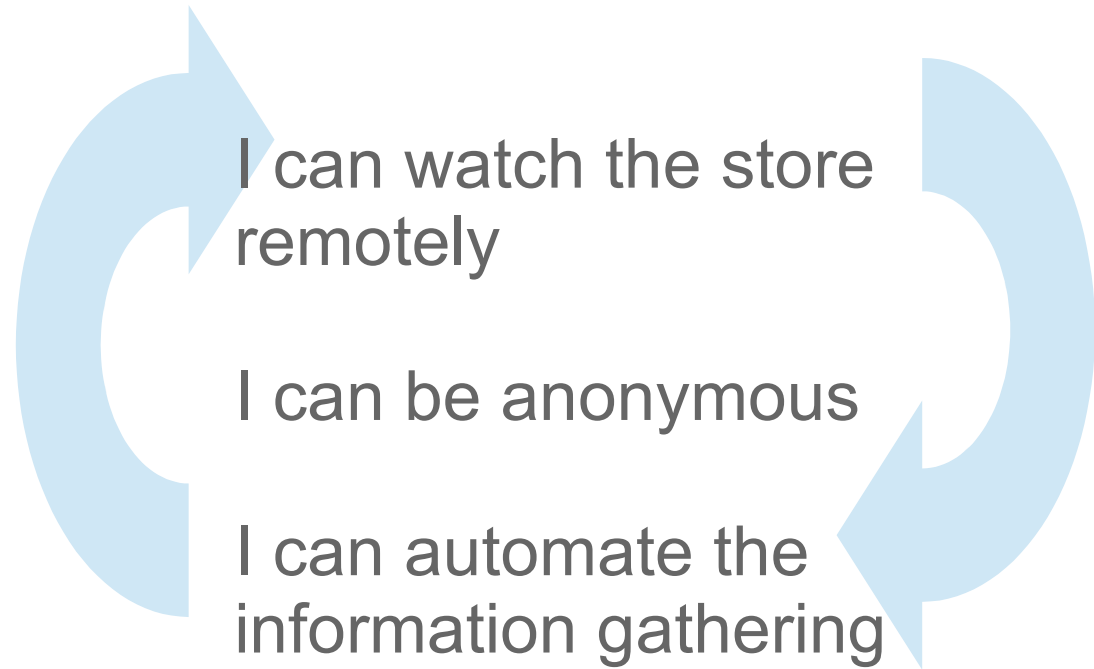
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# Monitored retail websites leak trade secrets

A monitored retail site, monitored over time, can leak...

- Pricing strategies
- Inventory strategies
- Supplier issues
- Supplier sources

# Monitored retail websites leak trade secrets

The problem of leaking trade secrets is much worse for retailers that sell specific items.

- Real estate websites
- Esty crafters
- eBay merchants
- Used book stores
- 3rd party Amazon retailers
- Car dealerships
- Sellers of collectibles

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- This group includes everyone selling uniquely identifiable goods**
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# Monitored retail websites leak trade secrets

Businesses that sell specific items online, disclose their entire sales records

When you monitor this information over a period of time...

# Monitored retail websites leak trade secrets

Businesses that sell specific items online, disclose their entire sales records

**You essentially have  
enough information  
to do their accounting**

When you monitor this information over a period of time...

# Monitored job postings leak strategic planning

## What HR thinks

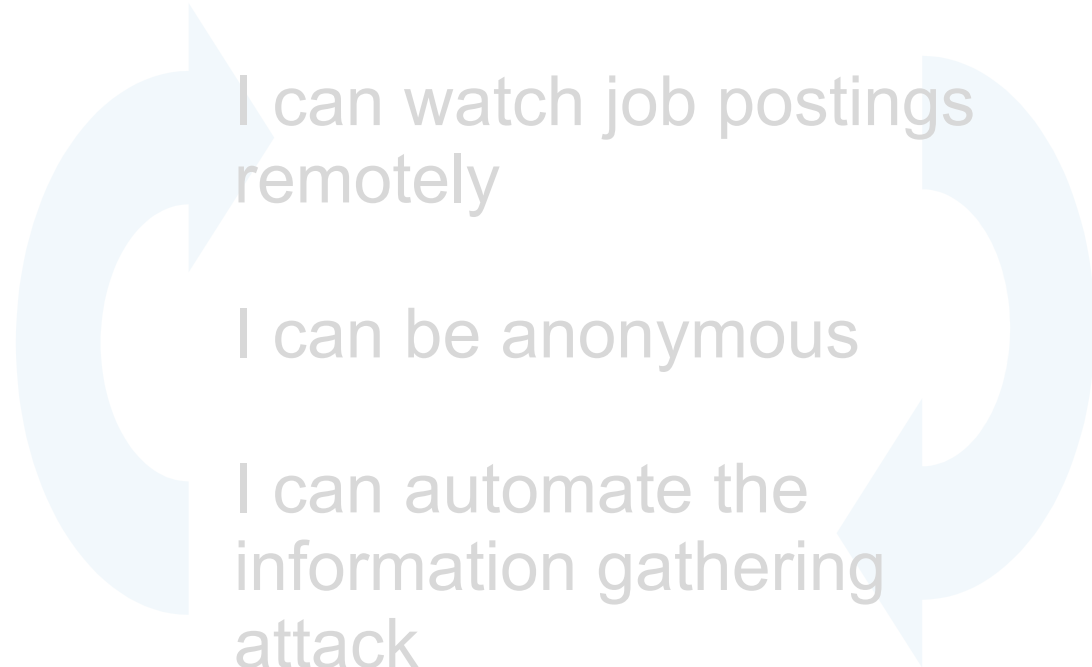
I'm going to post 250  
Job postings this year

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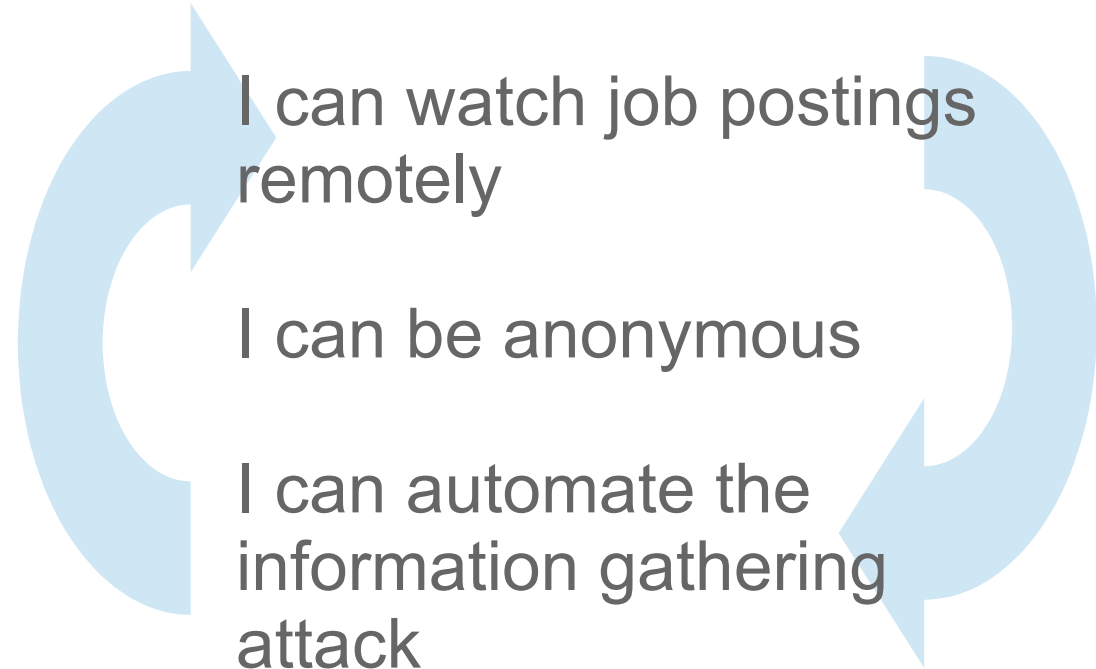
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# Monitored job postings leak strategic planning

Even good job postings can be problematic

## Service Desk Delivery Level 1

|   |                         |                          |                                  |
|---|-------------------------|--------------------------|----------------------------------|
| <b>Job ID</b>                                   | GPSD-0638663            | <b>Job type</b>          | Full-time Regular                |
| <b>Work country</b>                             | Costa Rica              | <b>Position type</b>     | Professional                     |
| <b>Work city</b>                                | Heredia                 | <b>Posted</b>            | 25-Feb-2014                      |
| <b>Travel</b>                                   | No travel               | <b>Job area</b>          | Operations (all other)           |
| <b>Business group</b>                           | Global Process Services | <b>Job category</b>      | Human Resources                  |
|   | Delivery                |                          |                                  |
| <b>Business unit</b>                            | HRSolns&Del             | <b>Job role</b>          | HR Contact Center Representative |
|   |                         | <b>Job role skillset</b> | General                          |
| <b>Commissionable/Sales-Incentive jobs only</b> | No                      |                          |                                  |

### Job description

**Responsibilities:** Provide live inbound telephone Help Desk support consulting for products to end user and business customers Performing callbacks as required Identify hardware/software problems and offer solutions for IBM or customer accounts. **Skills Required:** Excellent communication and customer service skills Solid understanding of system resources and allocation Minimum key boarding speed of 30 WPM Flexible work style - ability to work shifts and weekends Professional work attitude, ability to learn Strong knowledge of Operating Systems (e.g. Current Windows OS, Mac OS and Linux OS) Hardware knowledge Proficiency in navigating and configuring the OS Proficient with IBM productivity software (Lotus Notes, etc.) Ability to function in multiple accounts with multiple skill set requirements.

### Required

- High School Diploma/GED
- At least 1 year experience in Customer Service Experience
- At least 1 year experience in Technical Knowledge
- Portuguese: Fluent

### Preferred

- English : Intermediate

# Monitored job postings leak strategic planning

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You're Leaking Trade Secrets

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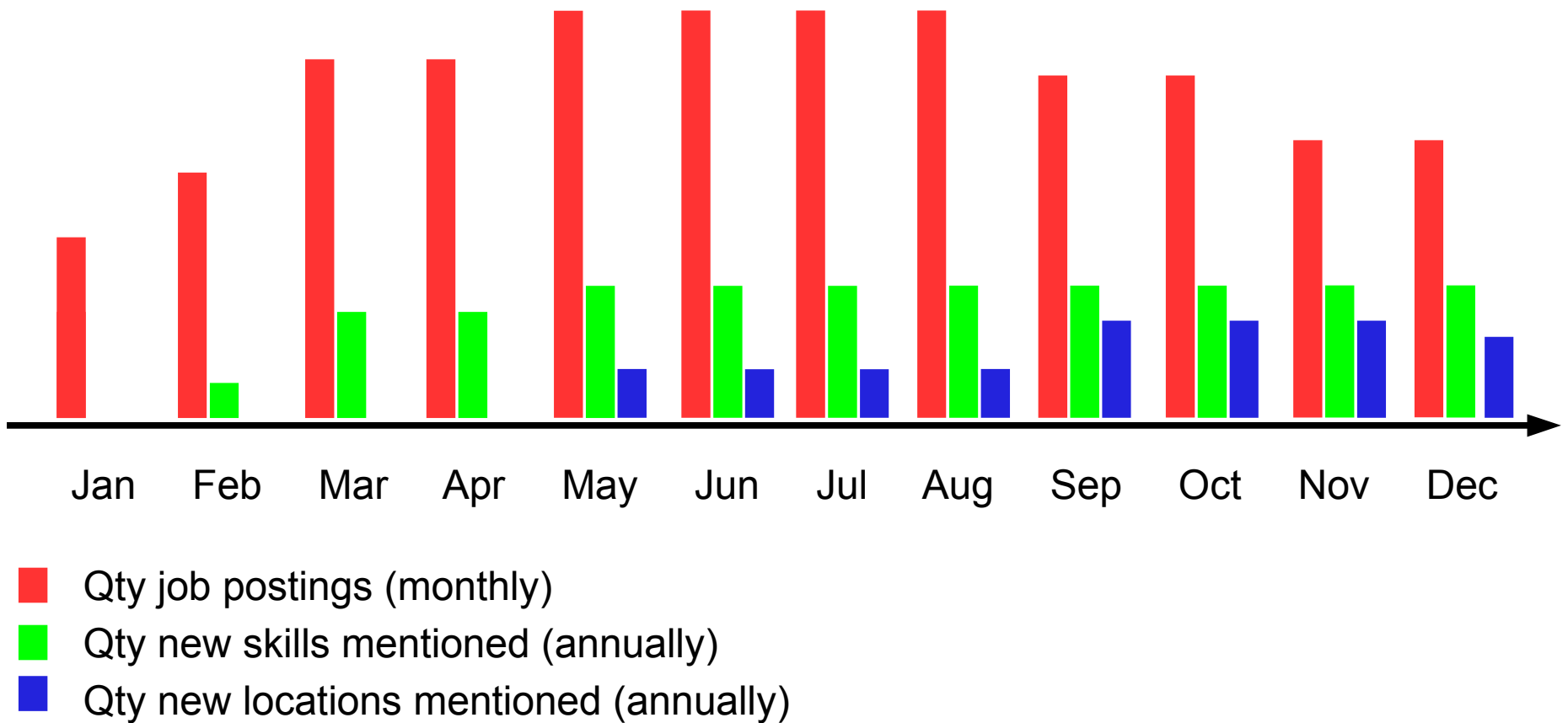
**Annotations:**

- Blue arrow: I can watch job postings remotely
- Blue arrow: I can be anonymous
- Blue arrow: I can automate the information gathering attack
- Red speech bubble: New Skill?



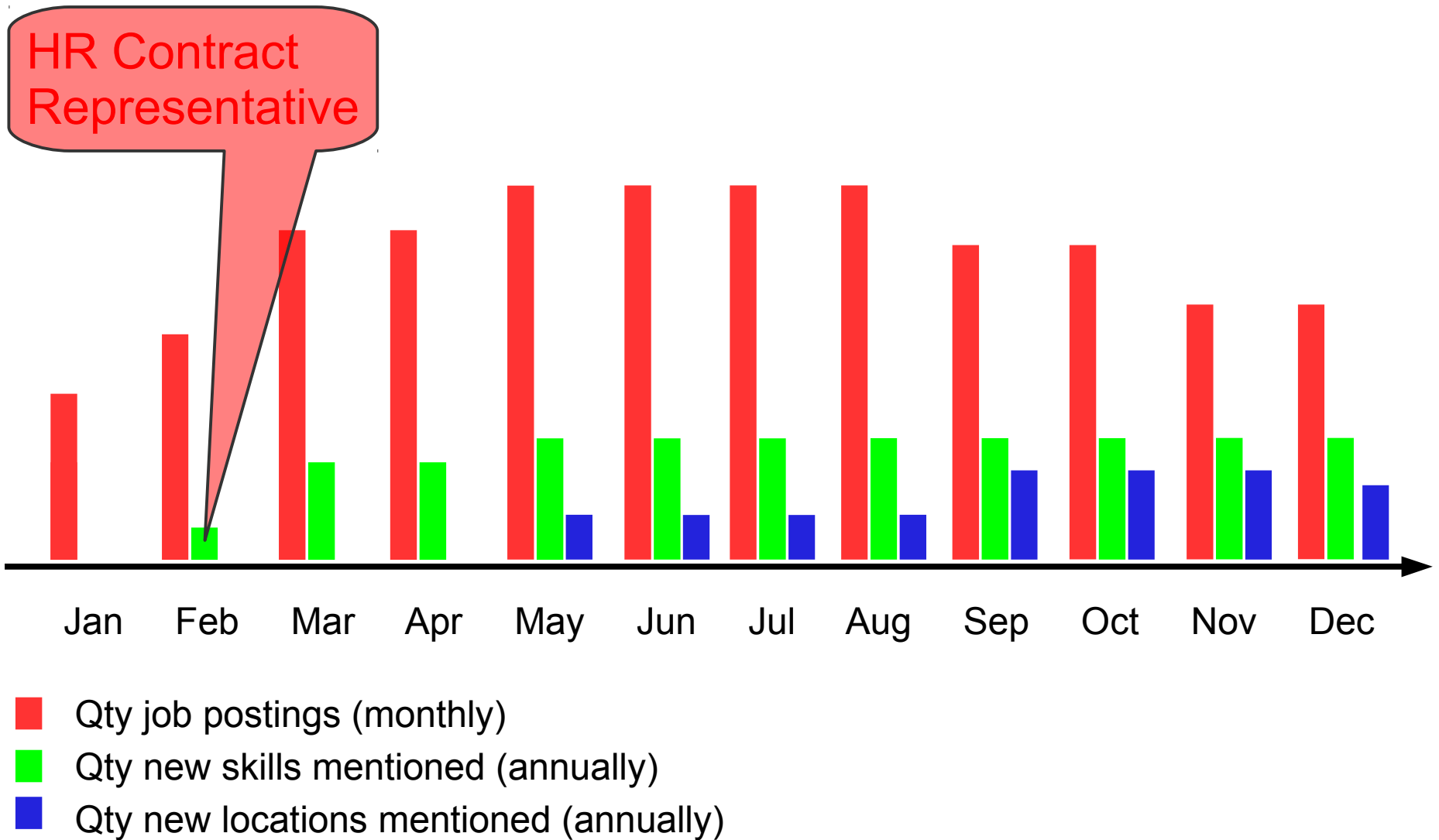
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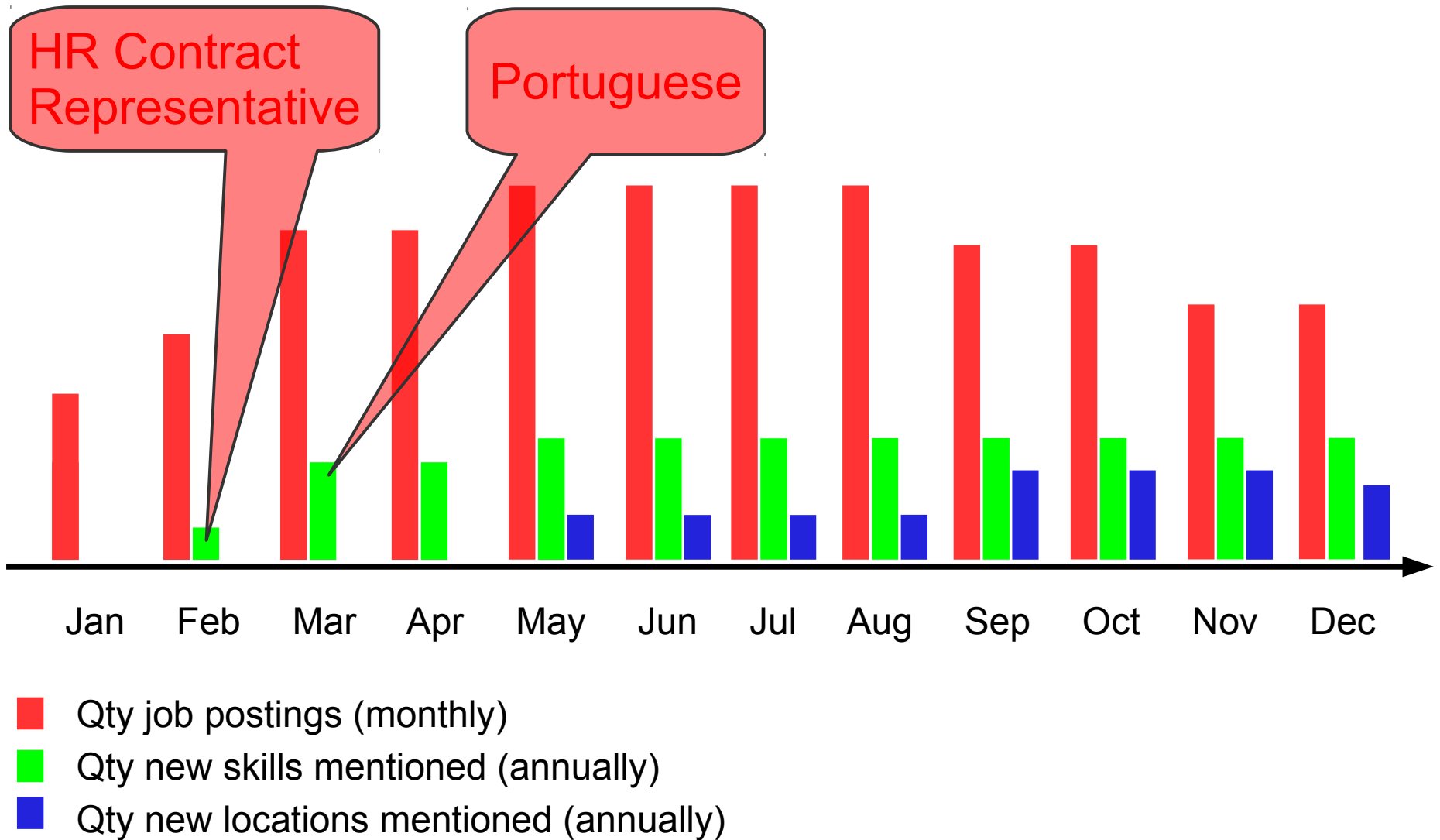
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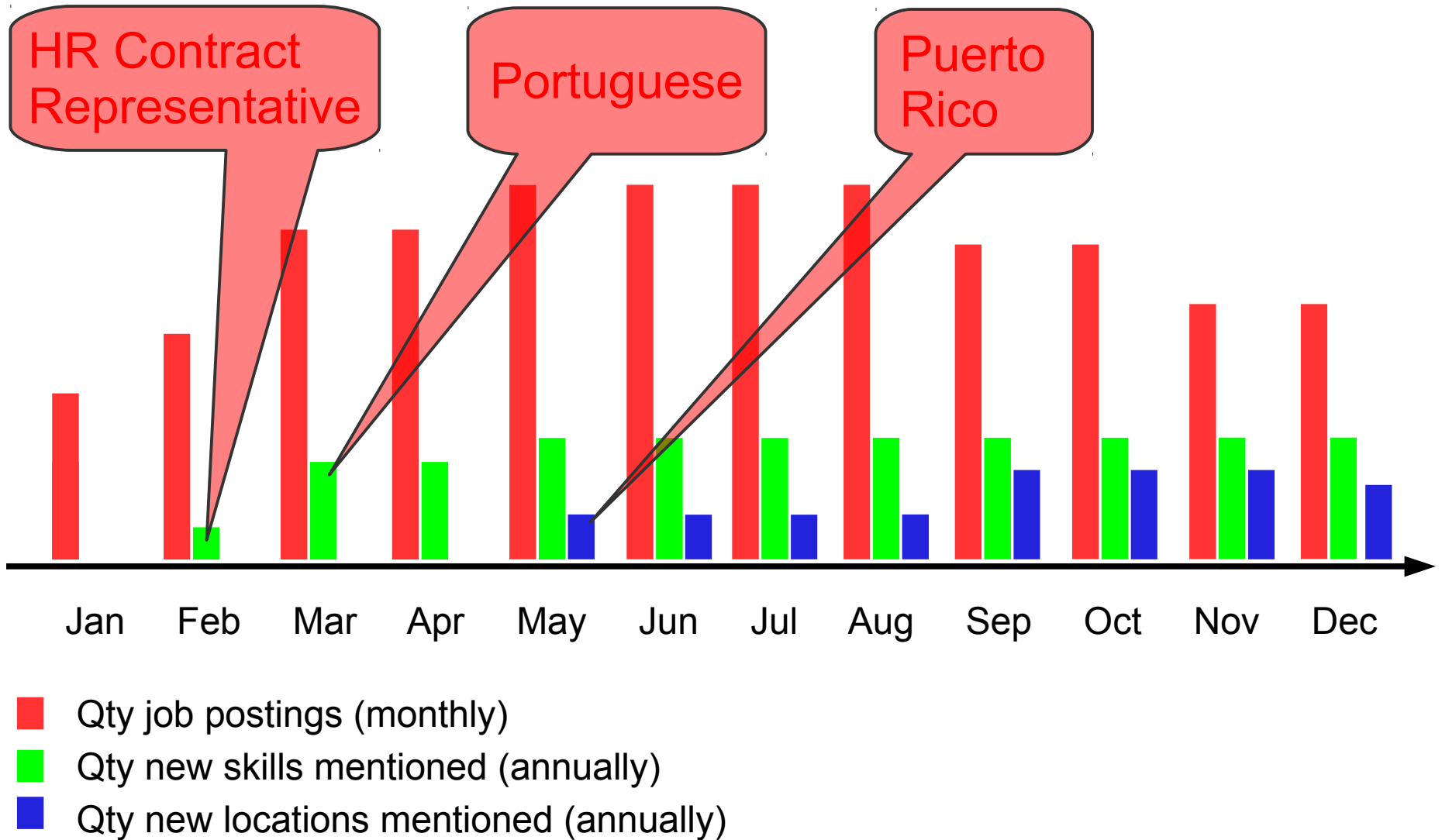
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# Monitored job postings leak strategic information

## What HR thinks

I'm going to advertise the vacancy we have for an IT Help Desk professional.

## What a hacker thinks

I can “read between the lines” to learn how to compromise a computer network, and discover trade secrets.

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# Job posting: Leaked security info

RECREATION

## Job Overview

**Company** ACME Legal Firm

**Location** Minneapolis, MN

**Status** Full time, Employee

**Job Category** Information  
Technology

## Company Overview

ACME Law Firm is a national legal firm that specializes in Acquisitions. We're based in Minneapolis with affiliate offices in New York, Los Angeles, San Francisco and Chicago.

We are proud to represent our [client list](#).

## Job Description

### Summary:

We have an immediate opening for a IT Help Desk professional with a mastery of Windows networking and remote access tools like PC Anywhere and phone dial-in systems.

### Responsibilities include:

In addition to solving network access problems from our attorneys working remotely, you will also be responsible for network security, software installation, license management and policy development.

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They're announcing that they have secrets.

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We know the type of secrets they have.

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No one is watching the store...!

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In addition to solving network access problems from our attorneys working remotely, you will also be responsible for network security, software installation, license management and policy development.

They're leaking a specific method to compromise their network

# Job posting: Leaked security info

RECREATION

## Job Overview

**Company** ACME Legal Firm

**Location** Minneapolis, MN

**Status** Full time, Employee

**Job Category** Information  
Technology

Their leaking that they have problems doing remote access.

## Company Overview

ACME Law Firm is a national legal firm that specializes in Acquisitions. We're based in Minneapolis with affiliate offices in New York, Los Angeles, San Francisco and Chicago.

We are proud to represent our [client list](#).

## Job Description

### Summary:

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# Job posting: Leaked security info

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**Company** ACME Legal Firm

**Location** Minneapolis, MN

**Status** Full time, Employee

**Job Category** Information Technology

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## Job Description

### Summary:

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This person probably works alone and is overwhelmed.

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RECREATION

## Job Overview

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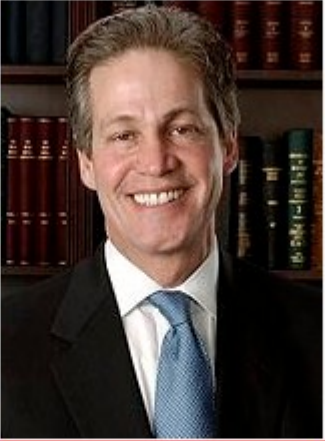

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So what could possibly go wrong?




# Sometimes databases are left in plain sight (MN Senatorial election 2006)

|                     |   |  |   |
|---------------------|---|--|---|
|                     |  |  |  |
| <b>Nominee</b>      | Al Franken  | Norm Coleman   | Dean Barkley  |
| <b>Party</b>        | DFL   | Republican   | Independence  |
| <b>Popular vote</b> | 1,212,629   | 1,212,317  | 437,505   |
| <b>Percentage</b>   | 41.99%  | 41.98%   | 15.15%  |

This was an extremely close election  
Any leaked secrets could change the outcome



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You're Leaking Trade Secrets



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Dean Barkley


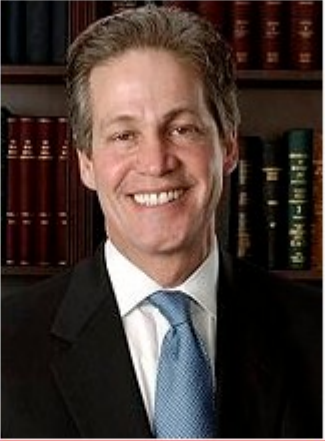

Independence

437,505<sup>1</sup>

15.15%

A portrait of Dean Barkley, a man in a dark suit and tie, smiling. Below the portrait is a yellow bar, followed by the name "Dean Barkley" in blue, "Independence" in blue, "437,505<sup>1</sup>" in grey, and "15.15%" in grey.

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Al Franken defeated Norm Coleman by 312 votes (after six months in court) court

There were multiple charges of hacking made by the Coleman campaign prior to the election

# Sometimes databases are left in plain sight (MN Senatorial election 2006)



The Coleman campaign left a database of donors (and their credit card numbers) sitting in an unprotected directory of their web server\*.

\*Adria Richards



# Monitored DNS records leak future strategic plans

## What Marketing thinks

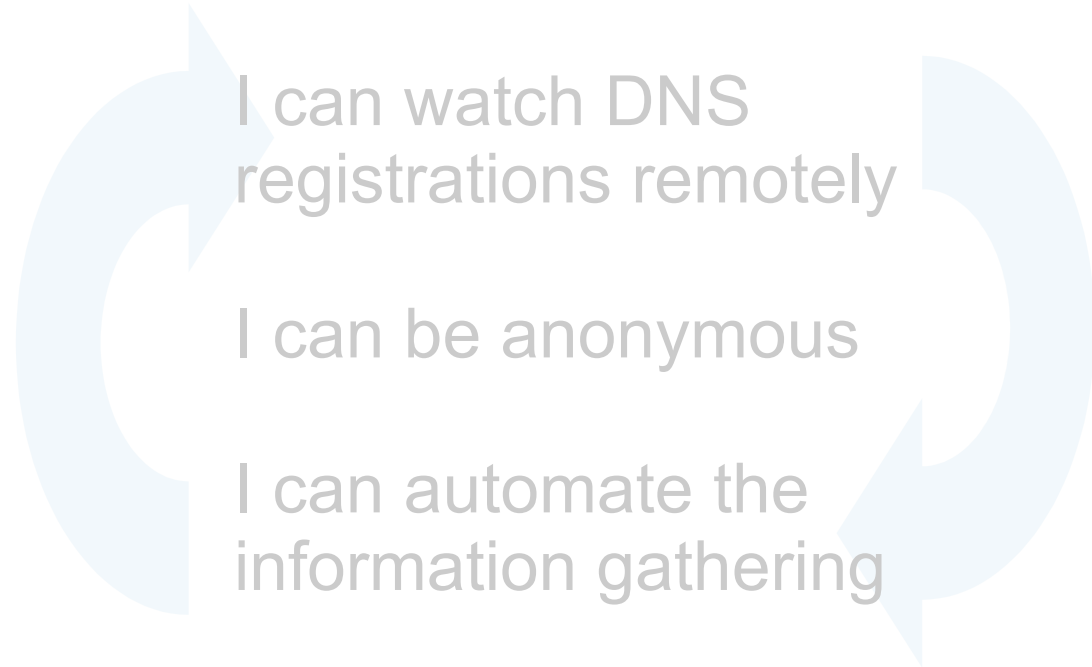
I need to register domain names for a new products

## What a hacker thinks

I can watch DNS registrations remotely

I can be anonymous

I can automate the information gathering



# Monitored DNS records leak future strategic plans

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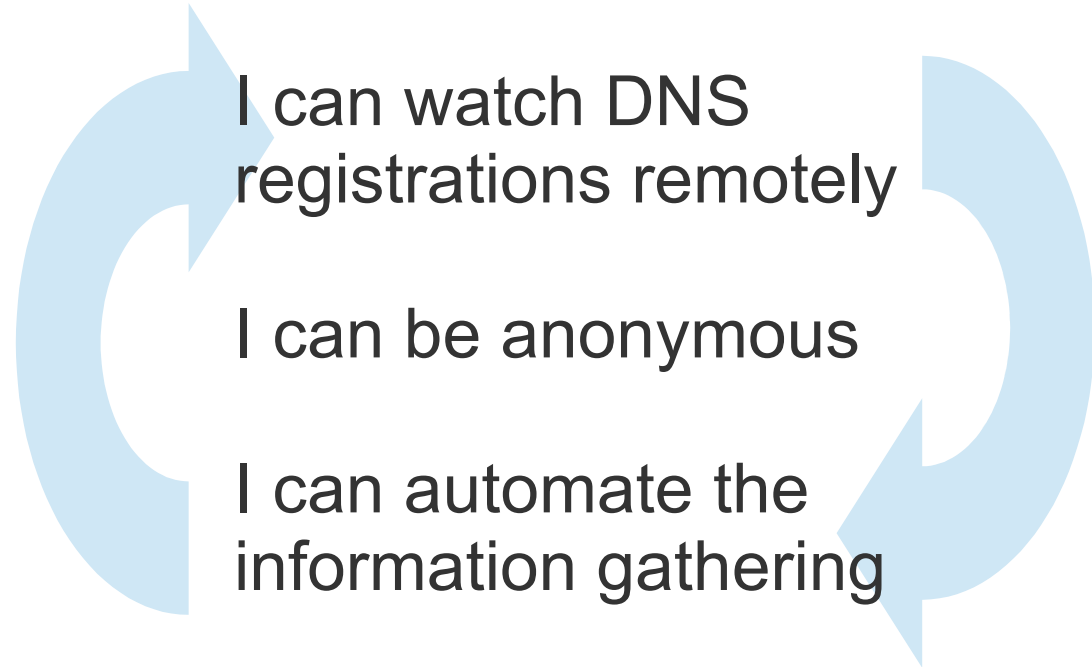
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# Monitored DNS records leak future strategic plans

And, if you can't hack it, You can buy it.

## Apple.com Whois Record

**Whois Record** | Site Profile | Registration | Server Stats | For Sale

Reverse Whois: "Apple Inc." is associated with about **4,544 other domains**

Email Search: [domains@apple.com](mailto:domains@apple.com) is associated with about 4,119 domains  
[apple-noc@apple.com](mailto:apple-noc@apple.com) is associated with about 3,619 domains  
[admin@internationaladmin.com](mailto:admin@internationaladmin.com) is associated with about 593,219 domains

### "APPLE INC." - Reverse Whois Lookup

Find any domain(s) with a Whois record that matches these criteria: [How does this work?](#)

Registrant (Owner) | Exactly Matching | 

[Expand Your Search](#) | [Narrow Your Search](#) | [Search](#)

**Report Price \$749**  
[How is this calculated?](#)  
[Buy Now](#)

Your Report Contains:  
1,518 .coms  
803 .nets  
1,118 other gTLDs  
1,553 ccTLDs  
[Add history and get:](#)  
650 Historical .coms  
99 Historical .nets  
133 other gTLDs  
177 ccTLDs  
Our records show 4,992

| Domain Name    | Create Date | Registrar |
|----------------|-------------|-----------|
| 1 ..... 0. tel | 2013-10-23  | --        |
| 1 ..... 3. tel | 2013-10-23  | --        |
| 1 ..... 3. tel | 2013-10-23  | --        |
| 1 ..... 6. tel | 2013-10-23  | --        |
| 1 ..... e. tel | 2013-10-23  | --        |

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Registrar History: [4 registrars](#)

IP History: [104 changes](#) on 11 unique IP addresses over 10 years.

Whois History: [3,747 records](#) have been archived since 2001-02-22 .

Reverse IP: [7 other sites](#) hosted on this server.

 [Join DomainTools](#) to start monitoring this domain name

 Preview the complete [Domain Report for apple.com](#)

Mar 17, 2014, 4544 domains

Domain Name: apple.com  
Registry Domain ID: 1225976\_DOMAIN\_COM-VRSN  
Registrar WHOIS Server: whois.corporatedomains.com  
Registrar URL: www.cscprotectsbrands.com  
Updated Date: 2013-11-27 04:36:25 -0500  
Creation Date: 1987-02-19 00:00:00 -0500  
Registrar Registration Expiration Date: 2021-02-20 00:00:00 -0500  
Registrar: CSC CORPORATE DOMAINS, INC.  
Registrar IANA ID: 299  
Registrar Abuse Contact Email: [admin@internationaladmin.com](#)  
Registrar Abuse Contact Phone: +1.8887802723  
Domain Status: clientTransferProhibited

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Registrar IANA ID: 299  
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# Monitored DNS records leak historic thinking



At a recent Data Journalism workshop, I asked a group of Investigative Journalists to discover the first documented proof of Sarah Palin's Presidential aspirations.

# Monitored DNS records leak historic thinking

Jay Griffin was Sarah Palin's Political Advisor.

Registrant:

JAY GRIFFIN  
P O BOX 230068  
ANCHORAGE, AK 99523-0068  
US

Registrar: NAMESDIRECT

Domain Name: PALINFOFPRESIDENT.COM

Created on: 24-AUG-07

Expires on: 25-AUG-11

Last Updated on: 05-AUG-10

Administrative, Technical Contact:

Griffin, Jay [domains@abcguides.com](mailto:domains@abcguides.com)

P O Box 230068

Anchorage, AK 99523-0068

US

[000-000-0000](tel:000-000-0000)

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She was interviewed for the Vice Presidential role on 25-AUG-08

# Employees inadvertently leak trade secrets outside of work

## What an HR Director thinks

This company is only as great as its employees

To succeed I need to hire, train and retain the best

My employee list is a trade secret

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What a hacker thinks



# Employees inadvertently leak trade secrets outside of work

You're Leaking Trade Secrets

What an HR Director

What a hacker thinks

Within minutes I can discover who all your Business Development people are

as great as its employees

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# Employees inadvertently leak trade secrets outside of work

What an HR Director

What a hacker thinks

Within minutes I can discover who all your Business Development people are

as great as its employees

To succeed I need to hire, train

Within a few more minutes I can triangulate with Twitter to discover who your clients are

My employee list is a trade secret



# You can't keep employees from using social media



The screenshot shows the Techdirt website interface. At the top, the Techdirt logo is on the left, and navigation links for 'Techdirt', 'Wireless News', 'Innovation', 'Case Studies', and 'Startups' are in the center. Below these are links for 'Main', 'Submit a Story', and 'RSS'. The article title is 'Discovering Names Of Secret NSA Surveillance Programs Via LinkedIn' by Mike Masnick, dated June 18th 2013 at 3:40am. The article text discusses how a LinkedIn search revealed NSA surveillance program names like NUCLEON, MARINA, and MAINWAY. A quote from a LinkedIn profile lists various intelligence tools and resources. The article is shared on Flattr.

techdirt

Techdirt Wireless News Innovation Case Studies Startups

Main Submit a Story RSS

<< Is Encryption Effective Against Snooping?... 'Gears Of War' Designer: Used Games... >>



**Discovering Names Of Secret NSA Surveillance Programs Via LinkedIn**

from the *oh-look-at-that...* dept

So, over the weekend, the Washington Post **revealed** some of the code names for various NSA surveillance programs, including NUCLEON, MARINA and MAINWAY. Chris Soghoian has **pointed out** that a quick LinkedIn search for profiles of people in Maryland with codenames like MARINA and NUCLEON happen to turn up **profiles like this one** which appear to reveal more codenames:

*+Skilled in the use of several Intelligence tools and resources: ANCHORY, AMHS, NUCLEON, TRAFFICTHIEF, ARCMAP, SIGNAV, COASTLINE, DISHFIRE, FASTSCOPE, OCTAVE/CONTRAOCTAVE, PINWALE, UTT, WEBCANDID, MICHIGAN, PLUS, ASSOCIATION, MAINWAY, FASCIA, OCTSKYWARD, INTELINK, METRICS, BANYAN, MARINA*

TRAFFICTHIEF, eh? WEBCANDID? Hmm... Apparently, NSA employees don't realize that information they post online can be revealed.

Too Much Free Time  
by Mike Masnick  
Tue, Jun 18th 2013  
3:40am

1  
Flattr

# Use corporate social media accounts for marketing, etc.



Social Media accounts  
are becoming  
Intellectual Property

# Recommendations

You can't avoid many of these leaks

Regulatory information

Public notices for licensing



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Be aware that your competition has the same issues

# Recommendations

You can't avoid many of these leaks

Regulatory information

Public notices for licensing

Be aware that your competition has the same issues

Think about what could happen if your web site is monitored and changes databased

# Recommendations

Use DNS registration proxies

# Recommendations

Use DNS registration proxies

Don't host your own corporate website

# Recommendations

Make people realize that organizational privacy benefits everyone

# Recommendations

Make people realize that organizational privacy benefits everyone

Have enforceable policies

# Recommendations

Make people realize that organizational privacy benefits everyone

Have enforceable policies

Audit **EVERYTHING** that you publish

# Recommendations

Don't disclose organizational information on every job posting



# Recommendations

Don't disclose organizational information on every job posting

Use cookies to track competitors coming to your website

# Recommendations

Don't disclose organizational information on every job posting

Use cookies to track competitors coming to your website

Turn your website into a recruiting site when competitors visit.

# DEFCON 22

**You're Leaking  
TRADE SECRETS**

**Thank you**