

# VENABLE<sup>®</sup><sub>LLP</sub>

## Understanding the Dark Web

May 13, 2015



# Introduction

As rights holders and enforcement agencies beef up online enforcement, counterfeiters and other criminals are increasingly moving to the Dark Web to conduct their illicit activities.

Managers tasked with corporate security, and company brand and content protection need a basic understanding of what the Dark Web is, how cybercriminals, counterfeiters and IP thieves use it, and what to do about it.



# Outline

- I. What is the Dark Web?
- II. Key Terms
- III. Timeline
- IV. How does the Dark Web work?
- V. Why must companies understand the Dark Web better?
- VI. What threats to your company, brand and content are on the Dark Web?
- VII. What steps can companies take to address these threats on the Dark Web?
- VIII. Questions
- IX. Conclusion



# What is the Dark Web?

The part of the Internet that is hidden from view.

The screenshot shows the Silk Road anonymous market interface. At the top, it features the Silk Road logo (a camel) and the text "anonymous market". Navigation links include "messages 1", "orders 0", and "account \$0.00". A search bar is present with a "Go" button. On the right, there is a user greeting "Hi, [redacted]" and a "logout" link. A shopping cart icon shows "0" items.

**Shop by Category**

- Drugs 4,093
  - Cannabis 999
  - Dissociatives 78
  - Ecstasy 314
  - Opioids 354
  - Other 153
  - Precursors 18
  - Prescription 903
  - Psychedelics 586
  - Stimulants 390
- Apparel 82
- Art 5
- Books 768
- Collectibles 15
- Computer equipment 42
- Custom Orders 27
- Digital goods 369
- Drug paraphernalia 153
- Electronics 35
- Erotica 296
- Fireworks 5
- Food 4
- Forgeries 55
- Hardware 1
- Herbs & Supplements 11
- Home & Garden 6
- Jewelry 57

**Product Listings:**

- 5G Cocaine Pure Cristal Flakes**: \$41.94
- [28.0G] High Quality Crystal Meth**: \$188.72
- >>SPECIAL OFFER " BRAND SUBOXONE**: \$0.91
- alprazolam [Xanax] 100 x 1mg**: \$11.31
- Cocaine of high quality over 80% purity 25 gram**: \$190.12
- "Ethyphenidate" -2,5g- of the best racemic HCl qt**: \$6.18
- Colombian Cocaine Lady's and Gentleman 10G**: \$67.32
- 0.5g #3 Brown Heroin , good quality!**: \$7.52
- SESAMPINO @ SILKROAD 25-02-2012**
- 10 packs of [redacted] shipped worldwide**
- MAGIC STONE**
- BICUCIPAM "LIXIUM" Group (ALKALOID "BACICIPAM")**

**News**

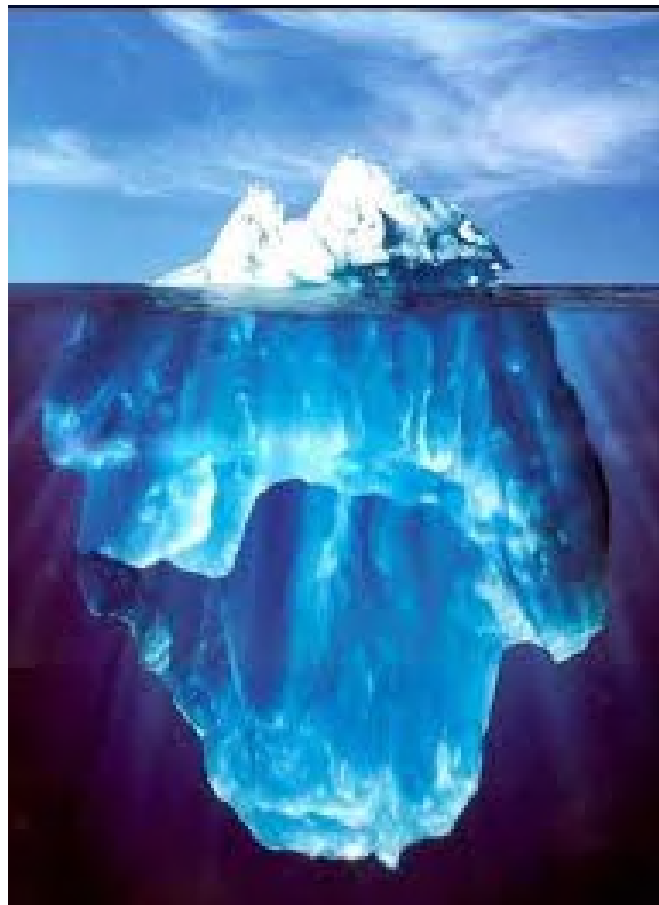
- Closing the Armory
- A brand new look for Silk Road!
- The gift that keeps on giving
- Who's your favorite?
- Acknowledging Heroes

\*<http://www.thehiddenwiki.net/purchasing-on-silk-road-a-trip-report/>



## Key Discussion Terms: Surface (Open) Web

Anything that can be indexed by a search engine like Google/Bing (i.e., linked content).



- 4% of www content.
- Easily accessed.
- Under government surveillance.

Data from <http://www.whoishostingthis.com/blog/2013/12/17/tor-deep-web/>.

# Example: Surface (Open) Web

Google search results for "cheap flights to san diego". The search shows approximately 16,400,000 results in 0.55 seconds. The top results include:

- San Diego \$142 RoundTrip - CheapOair.com**: Advertisement for CheapOair.com with a phone number (888) 516-7919. It promotes low fares and a best price guarantee.
- \$153 San Diego RoundTrip - OneTravel.com**: Advertisement for OneTravel.com with a 4.5-star rating. It highlights saving with low fares and a first-to-offer voice search.
- Flights to San Diego - More Choices. Great Deals**: Advertisement for Expedia.com.

KAYAK search results for flights to San Diego (SAN) from April 28 to May 5. The search is for Economy class, 1 traveler. The interface includes a bar chart showing flight deals from the United States to San Diego, with a peak in late April and early May. Below the chart, there are flight options from Spirit Airlines and Frontier.

Origin	Price
Sacramento	\$182
Portland	\$183
Seattle	\$177
Raleigh	\$240
Chicago	\$237
Fort Lauderdale	\$265
Austin	\$263
Oakland	\$160
San Jose	\$240
San Francisco	\$167
Fresno	\$159
Phoenix	\$221
Salt Lake City	\$177
Denver	\$98

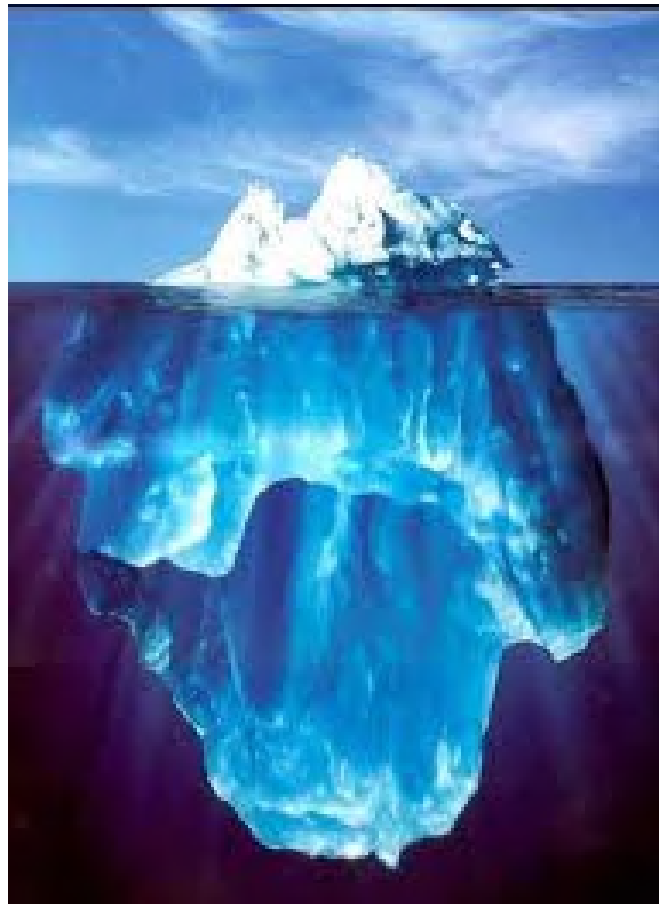
Origin	Price
Akron/Canton	\$375
Albany International	\$439
Albuquerque	\$214
Allentown-Bethlehem	\$393
Anchorage	\$332
Appleton Outagamie County	\$396
Arcata Eureka Airport	\$380
Ashville Regional	\$454
Aspen Pitkin County	\$520
Atlanta Hartsfield-Jackson	\$322
Atlantic City	\$442
Augusta Bush Field	\$383
Austin Bergstrom	\$248
Baltimore/Washington	\$283
Bangor	\$522
Baton Rouge Ryan	\$338
Bay City MBS International	\$460
Bellingham	\$220
Beard/Redmond	\$224
Bentonville Northwest Arkansas	\$329
Bilings Logan Intl	\$261
Birmingham-Broome County	\$428
Birmingham	\$360
Bismack	\$334
Bloomington-Normal	\$363
Bountville Tri Cities TN/VA	\$448
Bozou Air Term. Gowen Fld	\$216
Boston Logan International	\$312



# Key Discussion Terms:

## Deep Web

Any content that's not linked (i.e., cannot be indexed by search engines).



- 96% of www content (500x the size of the Surface Web).
- Can include harmless content like travel site search results and library catalogs.
- Also includes the “Dark Web.”

# Example: Deep Web

The screenshot shows the Kayak website interface for flight searches. At the top, the Kayak logo is on the left, and navigation links for 'HOTELS', 'FLIGHTS', 'CARS', and 'PACKAGES' are on the right. Below the navigation, there's a search bar with a price trend graph on the left. The search bar contains the following text: 'Washington (WAS)', 'San Diego (SAN)', 'Wed 4/29', 'Wed 5/6', and '1 adult, Econ...'. A red oval highlights this entire search bar area. To the right of the search bar is a 'Search' button. Below the search bar, there are filters for 'Include nearby' and 'Show ± 3 days'. The results are sorted by 'price (low to high)'. The first result is for Virgin America, priced at \$580, with a 'Select' button. The second result is for American Airlines, priced at \$373, with a 'Select' button. The American Airlines result shows a flight from DCA to SAN with a stop at CLT, and another flight from SAN to BWI with a stop at PHL. The page also includes a 'Create a price alert' button and a 'Show landing times' link.

Results from text box-based search on travel site not accessible via search engine (not linked).



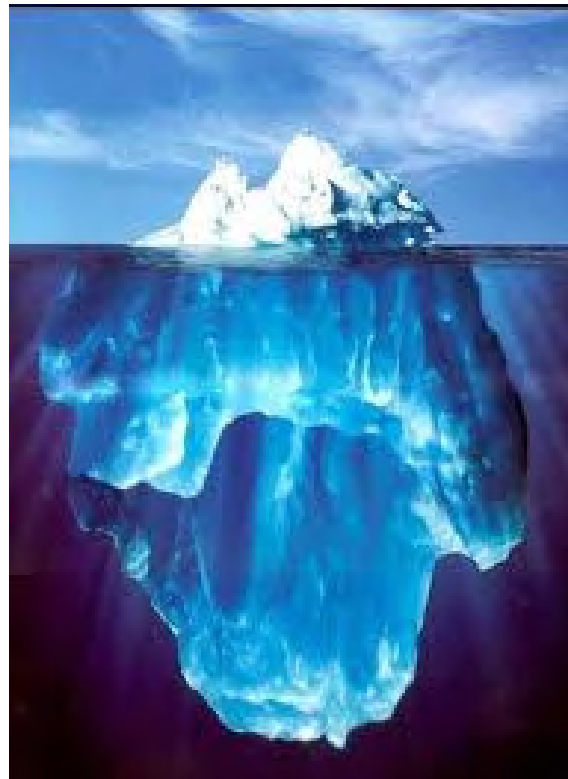


# Key Discussion Terms:

## Dark Web / Darknet

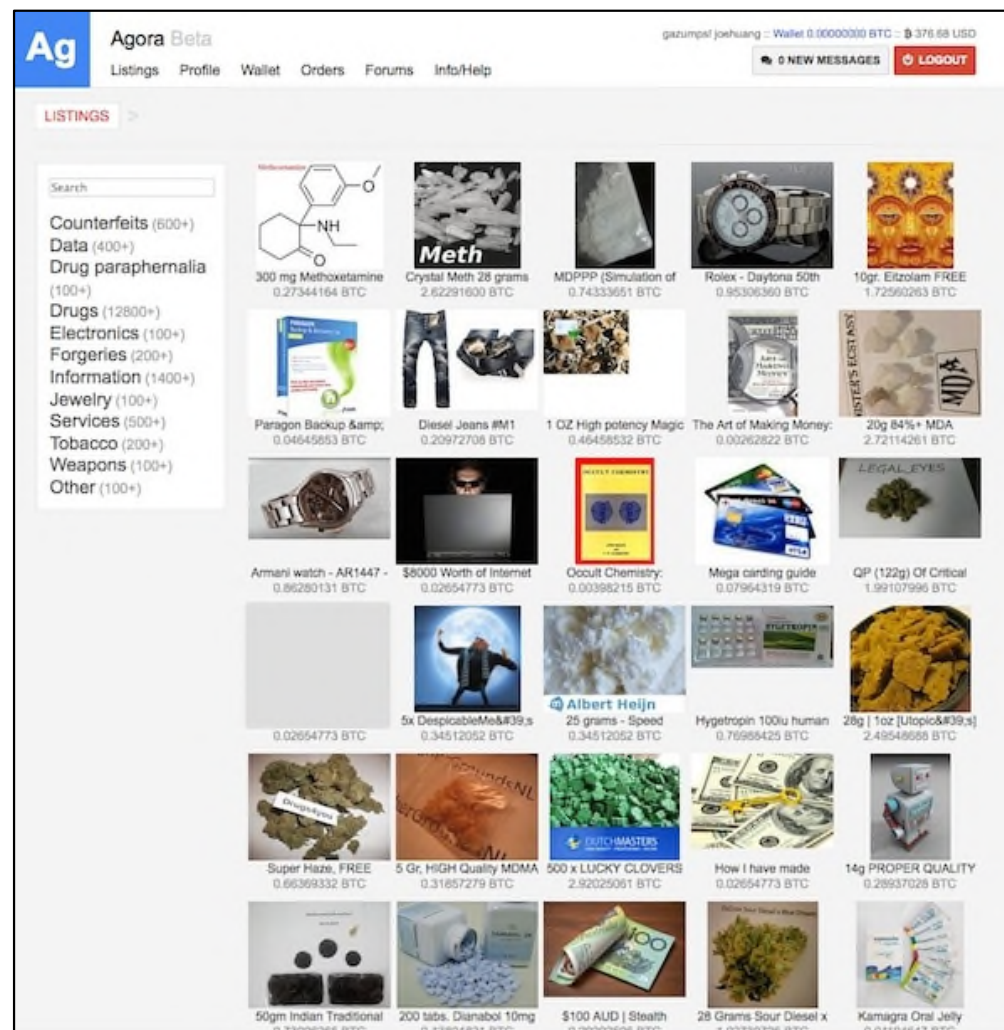
Anonymous web (i.e., the portion of the Deep Web that is not accessible via standard browsers).

A “darknet” is a private network, a collection of which form the “dark web.”



- Clandestine / Intentionally hidden from view.
- Provides anonymity (both for publishers and users).
- Difficult to navigate/monitor.

# Example: Dark Web / Darknet



The homepage of Agora, a popular dark market.

\*<http://www.coindesk.com/dark-markets-grow-bigger-bolder-year-since-silk-road-bust/>

# Key Discussion Terms:

## TOR

- Short for “The Onion Router” (TOR);
- The most famous anonymous network, which can be accessed using the TOR browser;
- TOR browser allows users to surf the dark web anonymously by directing traffic through a network of intermediaries (adding layers).



# Key Discussion Terms:

## Cryptocurrency

Medium of exchange based on cryptography; a type of digital currency (e.g., **Bitcoin**).



<http://silkroaddrugs.org/winning-bidders-in-the-silk-road-bitcoin-auction/>

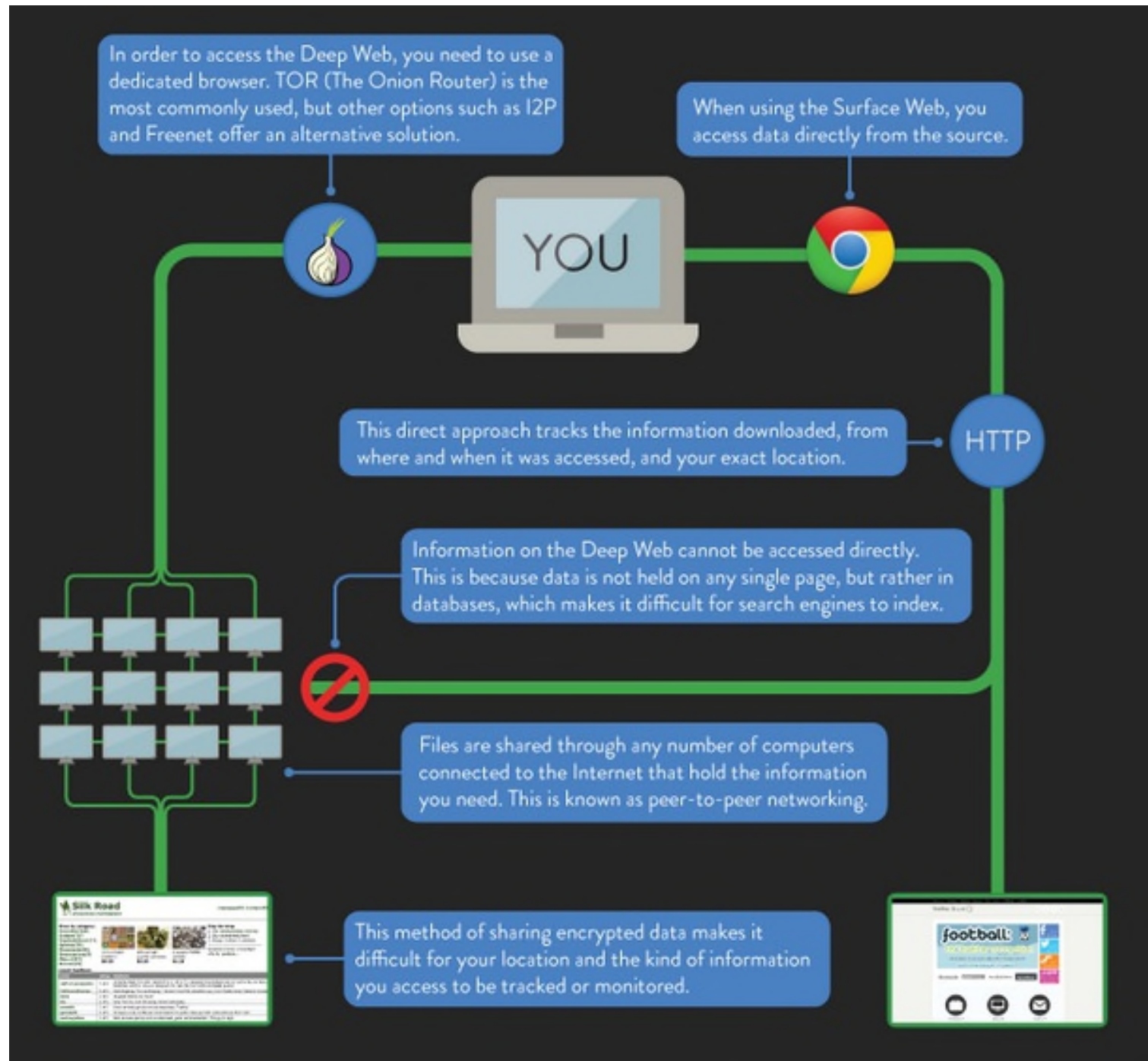
- Typically decentralized, as opposed to centralized systems like PayPal.
- Used by dark web markets; allow for anonymous transactions.

# Timeline of the Deep Web

- 2002 – Tor Network developed by US Naval Research Laboratory
- 2003 – The I2P peer-to-peer network developed
- 2006 – Tor becomes a non-profit organization
- 2009 – “Satoshi Nakamoto” started Bitcoin digital currency
- 2011 – Silk Road Market launches
- 2012 – Experts estimate earnings of \$22M for SR
- 2013 – Silk Road shut down (earnings > \$1B)
- 2014 – Other dark web markets proliferate (Agora, Evolution)
- 2015 – Ross Ulbricht sentenced to life; Evolution exit scam



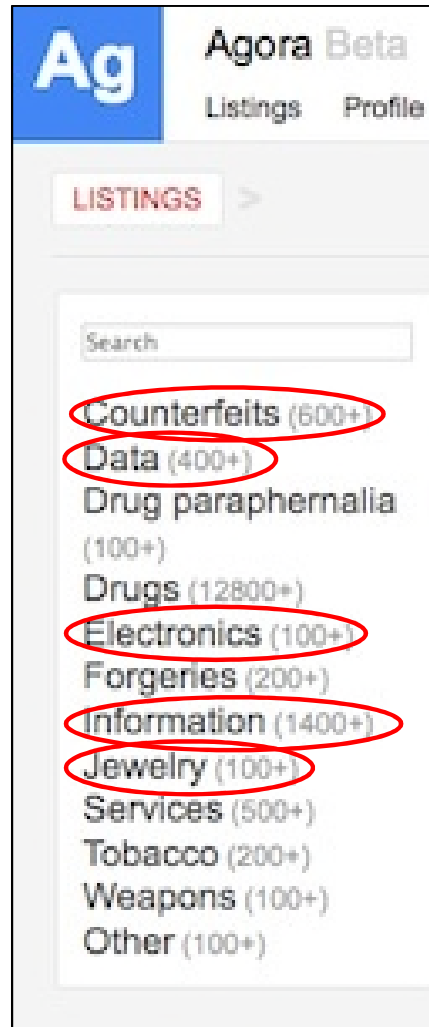
# How does the Dark Web work?



<http://www.whoishostingthis.com/blog/2013/12/17/tor-deep-web/>



# What threats to your company, brand, and content are on the Dark Web?



Consumer data, counterfeit goods, trade secrets, etc. often sold on dark web markets.



Sample of items found on Agora homepage


\*<http://www.coindesk.com/dark-markets-grow-bigger-bolder-year-since-silk-road-bust/>

## Index for Agora

Note: "Counterfeits" usually refers to counterfeit currency, identification documents, and manufacturer's coupons..

# More Dark Web Market Listing Examples

**FAST Darkweb 3d printing**



<b>Seller</b>	darkmeme <small>100%</small>
<b>Price</b>	1 USD
<b>FE</b>	No
<b>Shipping from</b>	United States
<b>Shipping to</b>	United States
<b>Currency</b>	Bitcoin
<b>Quantity</b>	1
1 USD - Free - 9 days	

[Buy It Now](#)

**Description**

PM and I will make a custom listing.


Can print in PLA Or NYLON(warping occurs but doesn't effect part much)

Print in 8 x 8in build platform

Anything from guns to skimmers

Most require cleaning up, will clean up for extra, prints are made to be FAST

**2x Netflix Accounts Lifetime Warranty**



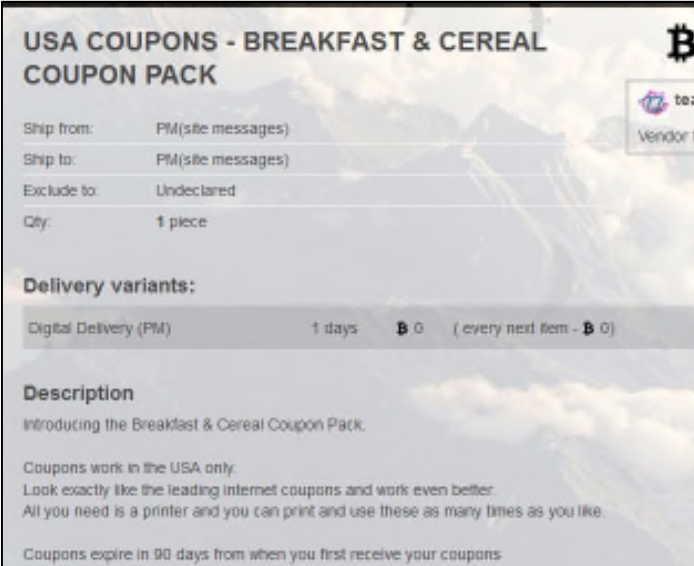
<b>Seller</b>	TheJob
<b>Price</b>	1 USD
<b>FE</b>	Yes
<b>Digital item</b>	Yes
<b>Currency</b>	Bitcoin
<b>Quantity</b>	1

[Buy It](#)

**Feedbacks**

Feedback	Price
Okay! Thx 2x Netflix Accounts Lifetime Warranty	1.49 USD
AAA + legit 2x Netflix Accounts Lifetime Warranty	1.49 USD
Amazing seller. Received my order in less than an hour. Very very satisfied. 2x Netflix Accounts Lifetime Warranty	0.37 USD

**USA COUPONS - BREAKFAST & CEREAL COUPON PACK**



Ship from: PM(site messages)

Ship to: PM(site messages)

Exclude to: Undeclared

Qty: 1 piece

**Delivery variants:**

Digital Delivery (PM) 1 days **฿ 0** (every next item - **฿ 0**)

**Description**

Introducing the Breakfast & Cereal Coupon Pack.

Coupons work in the USA only.  
Look exactly like the leading internet coupons and work even better.  
All you need is a printer and you can print and use these as many times as you like.

Coupons expire in 90 days from when you first receive your coupons

\*<http://www.businessinsider.com/dark-web-whats-for-sale-2015-4>



## More Dark Web Market Examples



Fake Nike Air Yeezy II Red October Version (Bigdeal on Agora) Dec. 2014

Fake Christian Louboutin Flats (FoxyGirl on Evolution) Dec. 2014



# What steps can companies take to address the threats on the Dark Web?

## Peel back the onion layers...

- Internal Awareness and Education. Invest in building in-house knowledge.
- Expand online monitoring efforts to include intelligence gathering and enforcement activities that cover dark web markets.
- Work with knowledgeable cyber-investigators and counsel



# Question & Answer



# Contact Information

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