



Manuel Guerra y Fco J. Rodriguez



GOBIERNO
DE ESPAÑA

MINISTERIO
DE INDUSTRIA, ENERGÍA
Y TURISMO

10 incibe

TRABAJANDO POR
LA CONFIANZA DIGITAL

CyberCamp.es

Ponentes



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Instituto Nacional de Ciberseguridad
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Unidad de Investigación Tecnológica
de la Policía Nacional

Disclaimer



Disclaimer

Este taller esta creado con fines educativos e informativos.

No nos hacemos responsables del mal uso que puedan dar al mismo.

Objetivo del Taller



- Visión diferente de la proporcionada por los Medios de Comunicación
- Fin principal: Proporcionar Privacidad y Anonimato
- Desmitificar falsos mitos
- Enseñar la parte teórica y práctica del uso de TOR

Estructura del Taller



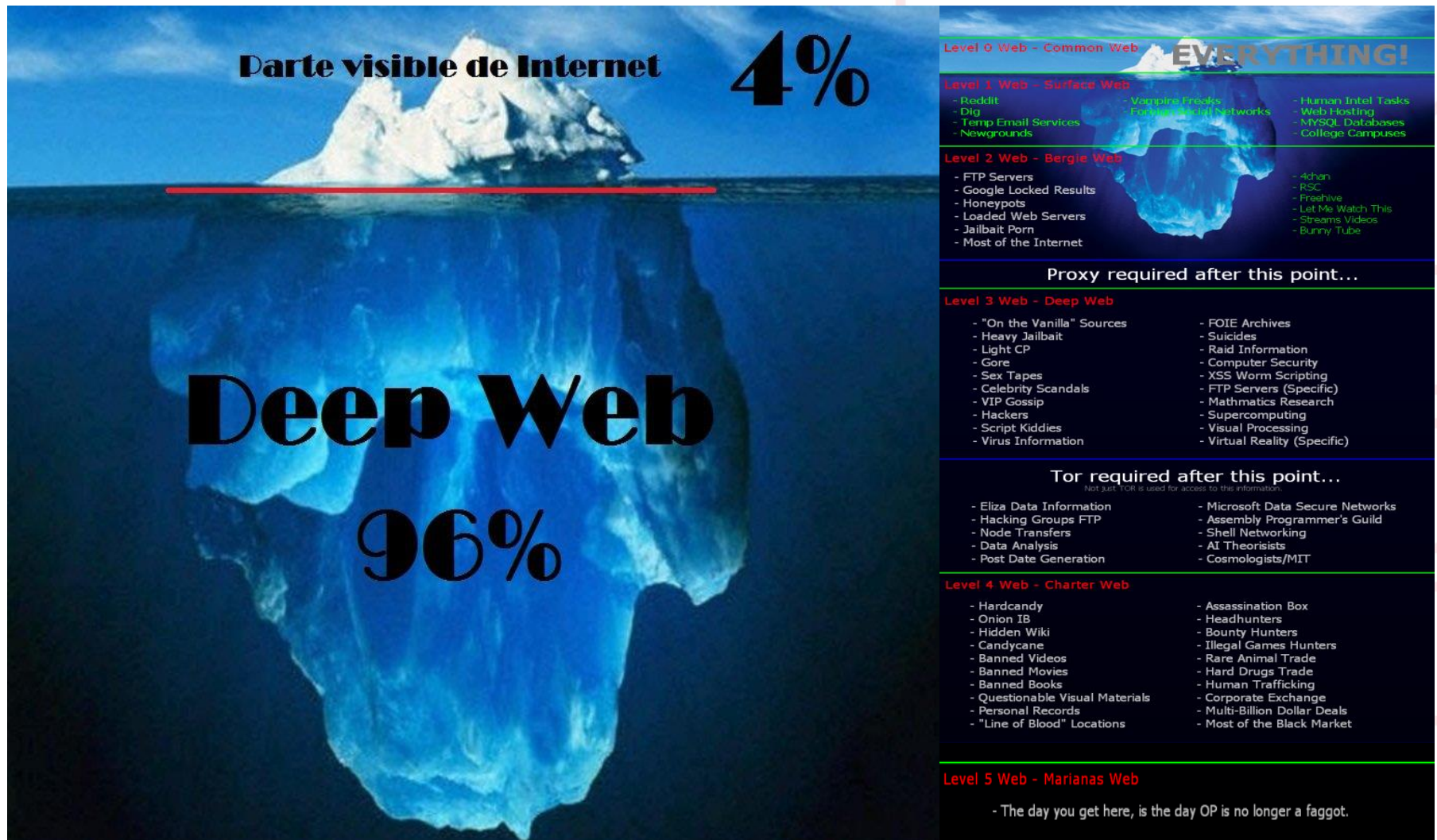
1. Introducción a las redes anónimas
2. Nodos, Circuitos y Descriptores
3. Hidden Services
4. Usos Avanzados

Bloque 1



Introducción de las redes anónimas

Todos conocemos esta imagen



Empieza la cuenta atras



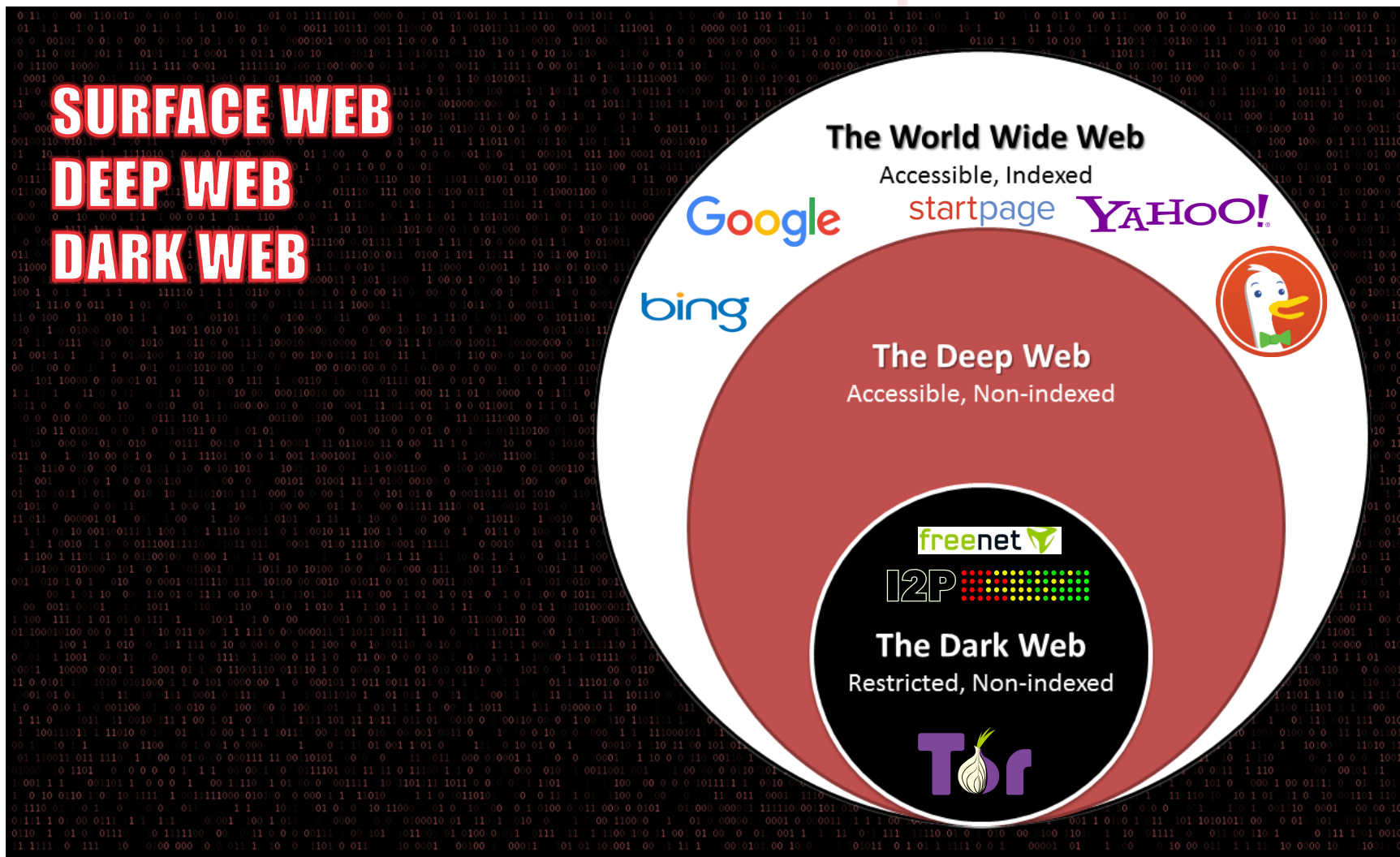


Desaprender.



Empecemos de nuevo ...

Surface / Deep / Dark Web

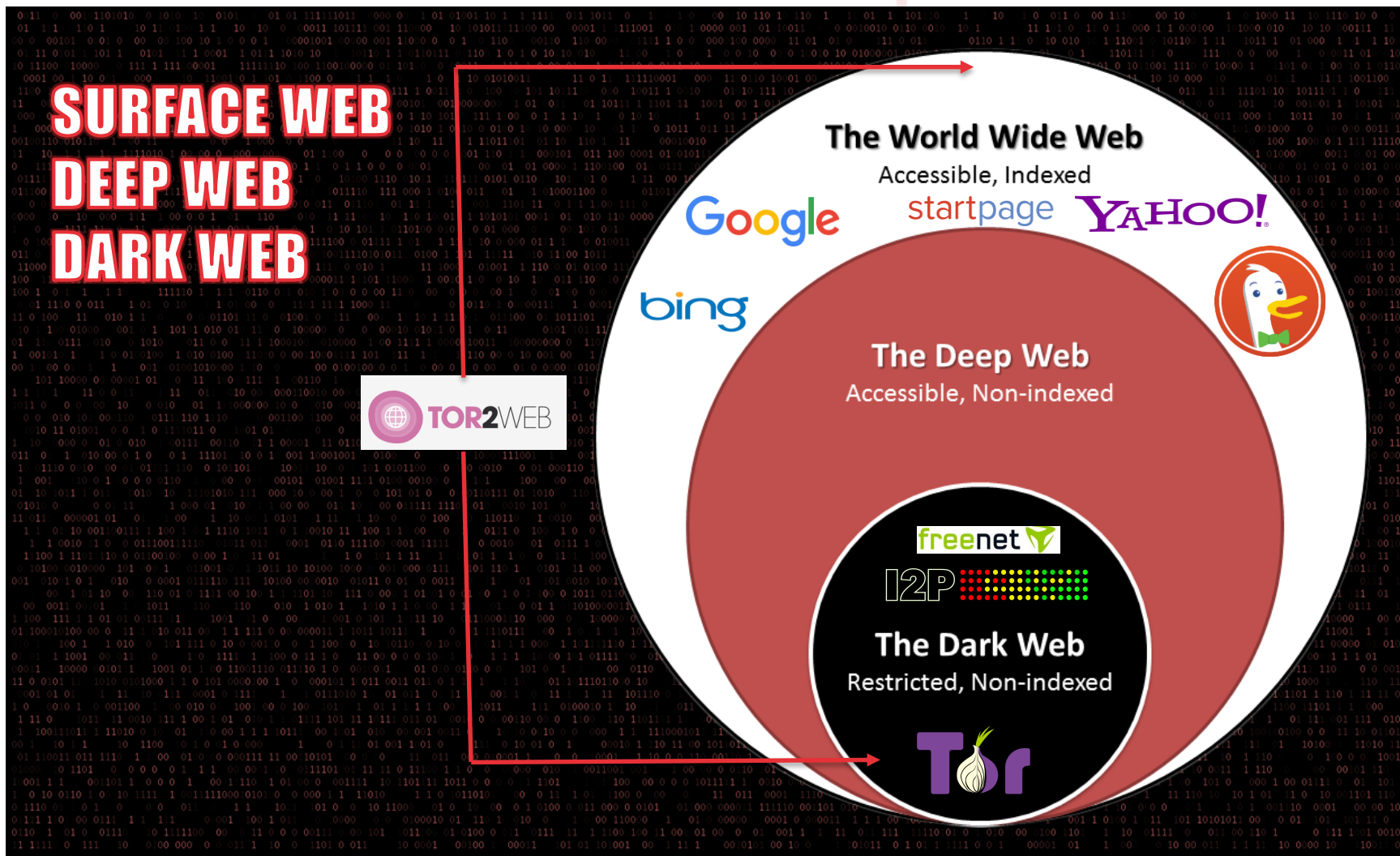


Deep Web



- Páginas web Dinámicas
- Páginas bloqueadas (Capcha, pragma no-cache, Robots.txt)
- Sitios no linkados o enlazados
- Sitios Privados (Acceso mediante usuario y contraseña)
- Páginas que el buscador decidió no indexar
- Documentos con formatos no indexables
- Indexados, pero no accesibles con criterios de búsqueda convencionales
- Sitios con nombres de dominio no controlados por IANA (Emercoin, Namecoin, name.space...)

Proxy Web Tor2Web

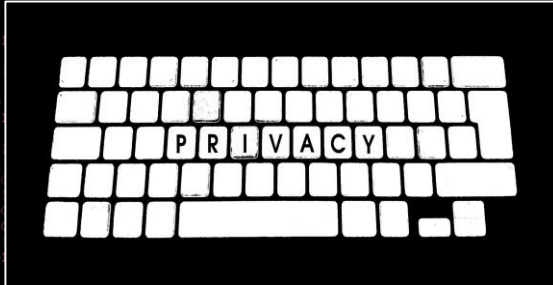


Desmintiendo el Iceberg

4% Surface Web
96% Deep Web

FALSE

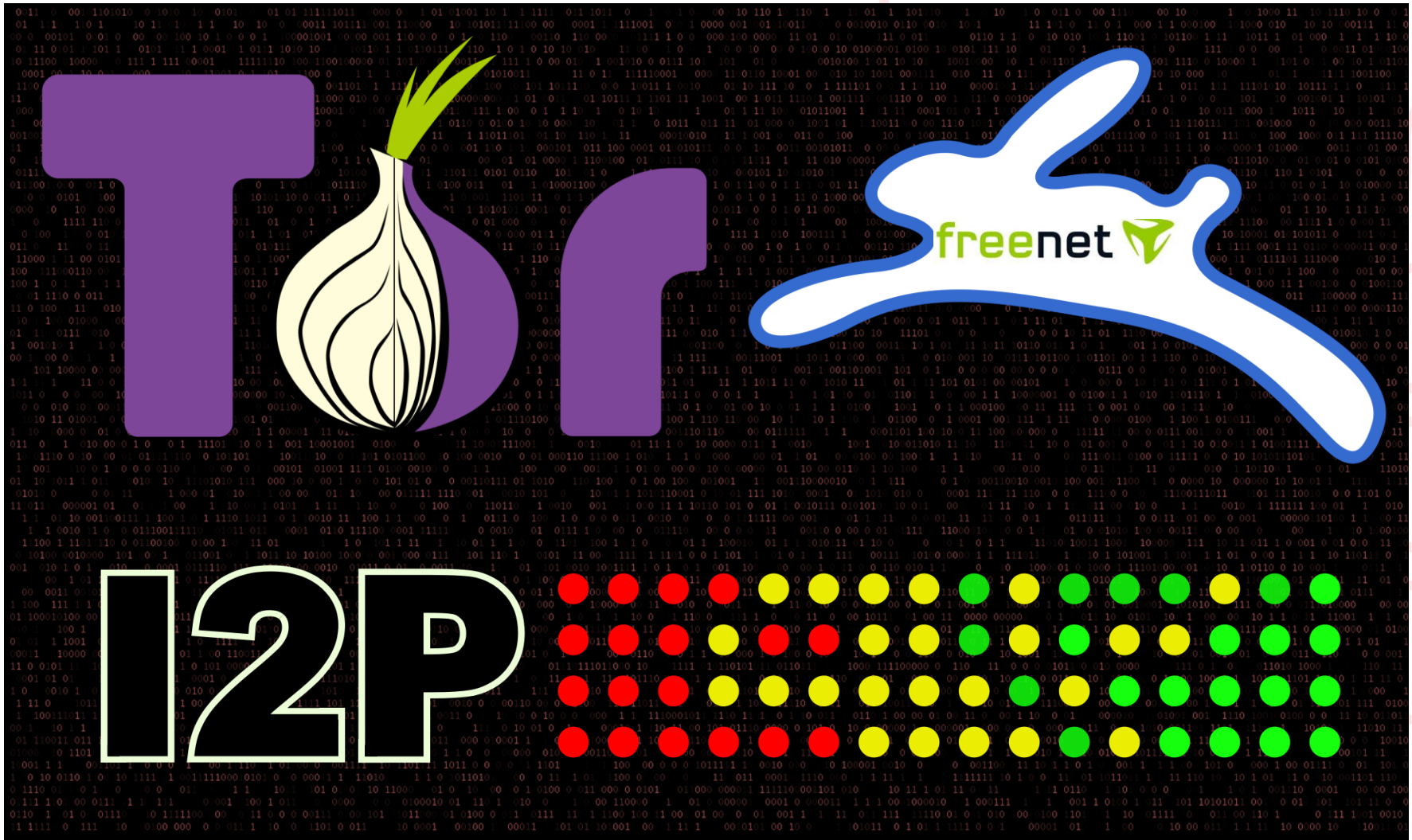
Las 2 caras de la moneda: usos de TOR



**Actividades
criminales**

CENSURA

Redes anónimas más conocidas



Cronología redes anónimas



TIMELINE OF THE DEEP WEB

The Freenet network started hosting static content.

The I2P peer-to-peer network was developed from the Freenet network.

The Tor network was developed by the U.S. Naval Research Laboratory.

2000

2002

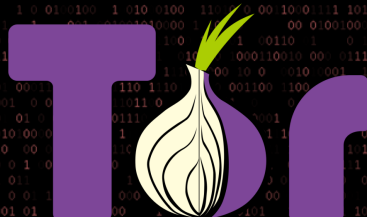
2003

Outproxy/Inproxy

Red Anónima

Servicios

Internet



Red Anónima

Servicios

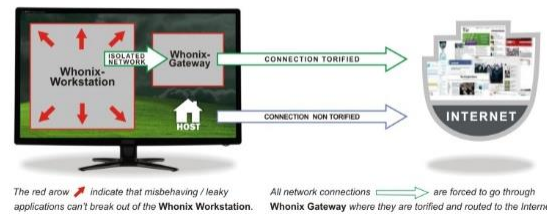
Otras redes y herramientas



Distribuciones Linux



Whonix Anonymous Operating System



QUBES OS
A REASONABLY SECURE OPERATING SYSTEM



<https://www.anonabox.com/>

Lightweight Portable Security



Tor-ramdisk

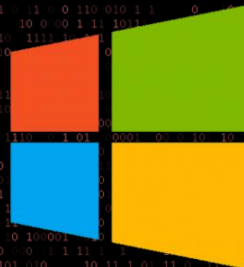
TORRIDE

Routers con VPN -TOR / OnionPi / Tor Phone



Enrutar tráfico por TOR

Gateway
Access Point
Iptables
Anonym8 - Linux
TorGhost – Linux
RedSocks – Linux
Tallow – Windows
Tortilla – VM



Aplicaciones por Tor



Privoxy
Polipo

Aplicación

XXXXX

Socks5

Aplicación

Proxy Web

Socks5

Torsocks
Proxychains

Torificar aplicaciones. Peticiones DNS Seguras.

Rechaza UDP

TOR en IOS y Android

Orbot: Tor on Android

 <https://torproject.org>

 <https://guardianproject.info>



Orfox A Tor Browser for Android



Onion Browser

De Mike Tigas

Abre iTunes para comprar y descargar Apps.



Ver en iTunes

+ Esta App se ha desarrollado tanto para iPhone como para iPad

0,89 €

Categoría: [Utilidades](#)

Actualizado: 03/07/2013

Descripción

Onion Browser is a Tor-capable web browser

Featured in: Salon, ProPublica, prism-break, Guardian, Cult of Mac, MSNBC, Geek.com

"A Mobile Browser For The Truly Paranoid" – T

"Attention dissidents, free-thinkers or just pe and not get caught." – Cult of Mac

"...if you're going to be your freaky online-se

- Internet access tunneled over the Tor onion
- Websites do not see your real IP address.
- Your connection is encrypted before it leave who share a WiFi connection with you.

Red Onion – Tor-powered web browser for anonymous browsing and darknet

Por Omar Mody

[Ver más de este desarrollador](#)

Abre iTunes para comprar y descargar Apps.



Ver en iTunes

+ Esta App se ha desarrollado tanto para iPhone como para iPad

1,99 €

Categoría: [Utilidades](#)

Actualizado: 18/03/2016

Versión: 2.2

Tamaño: 49.8 MB
Idiomas: Español, Alemán, Chino tradicional, Francés, Inglés

Desarrollador: Omar Mody
© Gplex

Debes ser mayor de 17 años para descargar esta aplicación.
Acceso web no restringido

Descripción

Red Onion is a unique browser that lets you access the Internet privately and anonymously. With Red Onion you can bypass corporate, school, public wifi internet filters and access the entire Internet without restrictions with complete security. Not only that with the built downloader you can freely download without ever revealing your true identity or

[Sitio web de Omar Mody](#) [Soporte técnico de Red Onion – Tor-powered web browser for anonymous browsing and darknet](#)

... Más

Lo nuevo en la versión 2.2

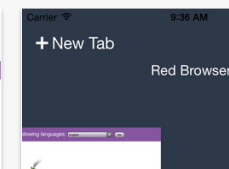
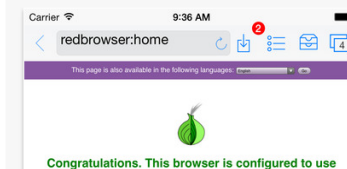
With this update we are adding some requested features and changing some default settings to make the app more secure and feature rich.

– Ability to block HTTP referrer

... Más

Capturas de pantalla

iPhone | iPad



Origen de TOR



Proyecto Onion Routing (Laboratorio de investigación naval de EEUU)

Patrocinado por la EFF (Electronic Frontier Fountation) hasta nov 2005

Tor project (Sin animo de lucro para la investigación y educación)

Tor (The Onion Router) ha conseguido que la ICANN le **conceda el TLD .onion**, haciéndose así dueña del dominio .onion. Onion es cebolla en inglés, y esta palabra hace mención a la forma de enrutar que emplea la red Tor, denominado **enrutado cebolla**.

[a-z 2-7] x 16.onion
dfhe345cnvkf8756.onion

Obtener TOR. Alternativa GetTOR.Otros

What is GetTor?

GetTor is a service that provides alternative methods to download the Tor Browser, especially for people living in places with high levels of censorship, where access to Tor Project's website is restricted.



How does it work?

The idea behind GetTor is very simple:

Step 1: Send a request to GetTor specifying your operating system (and optionally your locale).

Step 2: GetTor will send you back a reply with links to download Tor Browser from our [supported providers](#).

Step 3: Download Tor Browser from one of the providers. When done, check the integrity of the downloaded files.

Step 4: If required, [get some bridges](#)!

Channels

You can make requests to GetTor using different channels of communication and different locales. At the present moment, we support the following locales: English (en), Farsi (fa), Chinese (zh), Turkish (tr), and the following channels:

Email: you can make a request sending an email to gettor@torproject.org

Quick example:

To get links for downloading Tor Browser in Farsi for Windows, send an email to gettor+fa@torproject.org with the word windows in the body of the message.

XMPP: you can make a request sending a message to [gettor@torproject.org](xmpp:torproject.org)

Quick example:

To get links for downloading Tor Browser in Chinese for Linux, send a message to [gettor@torproject.org](xmpp:torproject.org) with the words linux zh on it.

Twitter: you can make a request sending a direct message to [@get_tor](https://twitter.com/get_tor)

Quick example:

To get links for downloading Tor Browser in English for OS X, send a direct message to [@get_tor](https://twitter.com/get_tor) with the word osx on it (you don't need to follow the account).



Apt-get
Yum

Sources

<https://gettor.torproject.org/>

Guía Oficial TOR



Tor Browser User Manual

About Tor Browser

Learn what Tor Browser can do to protect your privacy and anonymity

Downloading

How to download Tor Browser

Running Tor Browser for the first time

Learn how to use Tor Browser for the first time

Circumvention

What to do if the Tor network is blocked

Managing identities

Learn how to control personally-identifying information in Tor Browser

Onion Services

Services that are only accessible using Tor

Secure Connections

Learn how to protect your data using Tor Browser and HTTPS

Security Slider

Configuring Tor Browser for security and usability

Updating

How to update Tor Browser

Plugins, add-ons and JavaScript

How Tor Browser handles add-ons, plugins and JavaScript

Troubleshooting

What to do if Tor Browser doesn't work

Uninstalling

How to remove Tor Browser from your system

tb-manual.torproject.org

Emulando TOR: Shadow y Chutney

an open-source network simulator/emulator hybrid

**runs real applications like Tor and Bitcoin
over a simulated Internet topology**

light-weight, efficient, scalable, parallelized, controllable, deterministic, accurate, modular, and more!



<https://gitweb.torproject.org/chutney.git>

Sigaint / OnionShare / Tor Messenger



<https://onionshare.org/>



Tor
MESSENGER



<http://sigaintevyh2rzvw.onion/>
<http://torbox3uiot6wchz.onion/>

Vulnerabilidades en TOR



Hidden Services Need Some Love

<https://blog.torproject.org/blog/hidden-services-need-some-love>

Práctica

Instalación de Tor Browser. Instalación Instancia TOR

Práctica

Configuración Red TOR y Nivel de Seguridad en Tor Browser

Práctica

Tor-resolve

Práctica

Proxychains y Torsocks

Práctica

Torificando una consola

Práctica

Punto de acceso TOR

Bloque 2



Nodos, Circuitos y Descriptores

Autoridades de directorio

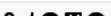
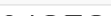


Tor es una red centralizada y gestionada por un conjunto de servidores confiables.

Autoridades de directorio:

- Garantizan el correcto funcionamiento de la red
- Gestionan la configuración de la red.
- Gestionan Rendimiento de la red
- Aportan Estadísticas
- Generan el documento de consenso (Información nodos que forman la red TOR)

flag:Authority

Nickname	Bandwidth	Uptime	Country	IP	Flags	ORPort	DirPort	Type
dizum	2.46 MB/s	10d 23h		194.109.206.212		443	80	Relay
maatуска	51.2 KB/s	18d 21h		171.25.193.9		80	443	Relay
Bifroest	472.35 KB/s	18d 2h		37.218.247.217		443	80	Relay
dannenberg	2.1 MB/s	1d 20h		193.23.244.244		443	80	Relay
tor26	76.8 KB/s	17d 20m		86.59.21.38		443	80	Relay
Faravahar	514.84 KB/s	4d 14h		154.35.175.225		443	80	Relay
moria1	512 KB/s	9d 11h		128.31.0.34		9101	9131	Relay
longclaw	38.91 KB/s	3d 23h		199.254.238.53		443	80	Relay
gabelmoo	40.96 KB/s	9d 21h		131.188.40.189		443	80	Relay

Flags asignadas a nodos

Authority
Exit
Fast
Guard
HSDir
Running
Stable
Named
Unnamed
Valid V2dir

Aggregate Network Statistic Summary | Graphs / Details

Total Bandwidth of displayed Routers [GBytes/s]	2.993	
Total Number of Routers	7151	100%
Routers in Current Query Result Set	930	13.01%
Total Number of 'Authority' Routers	9	0.1%
Total Number of 'Bad Directory' Routers	0	0%
Total Number of 'Bad Exit' Routers	4	0.1%
Total Number of 'Exit' Routers	930	13%
Total Number of 'Fast' Routers	5969	83.5%
Total Number of 'Guard' Routers	2398	33.5%
Total Number of 'Hibernating' Routers	2	0%
Total Number of 'Named' Routers	0	0%
Total Number of 'Stable' Routers	6021	84.2%
Total Number of 'Running' Routers	7151	100%
Total Number of 'Valid' Routers	7151	100%
Total Number of 'V2Dir' Routers	4733	66.2%
Total Number of 'Directory Mirror' Routers	4733	66.2%

<http://blog.kamaluk.com/post/60948276326/tor-flags>

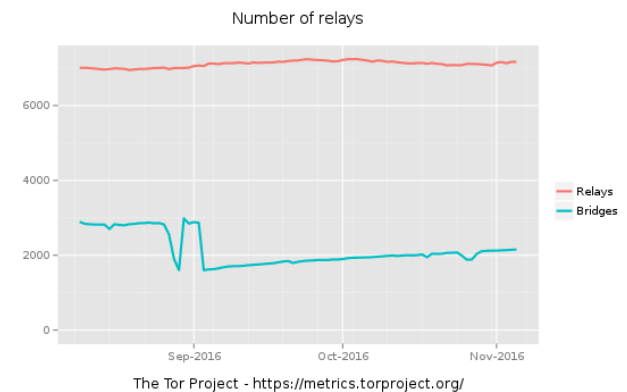
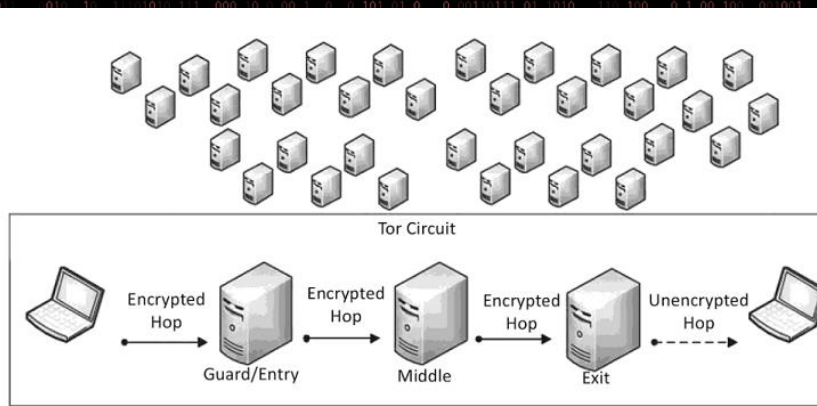
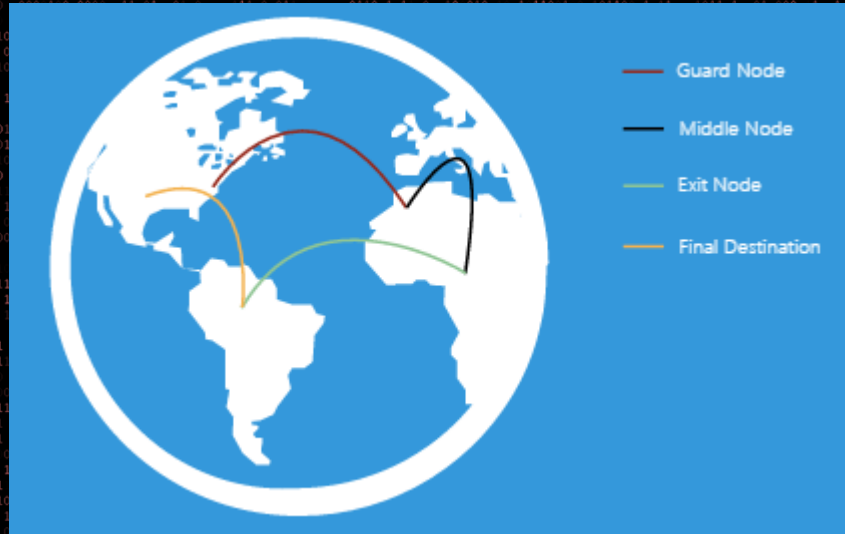
Tipos de repetidores / Nodos

Guard/Entry Node

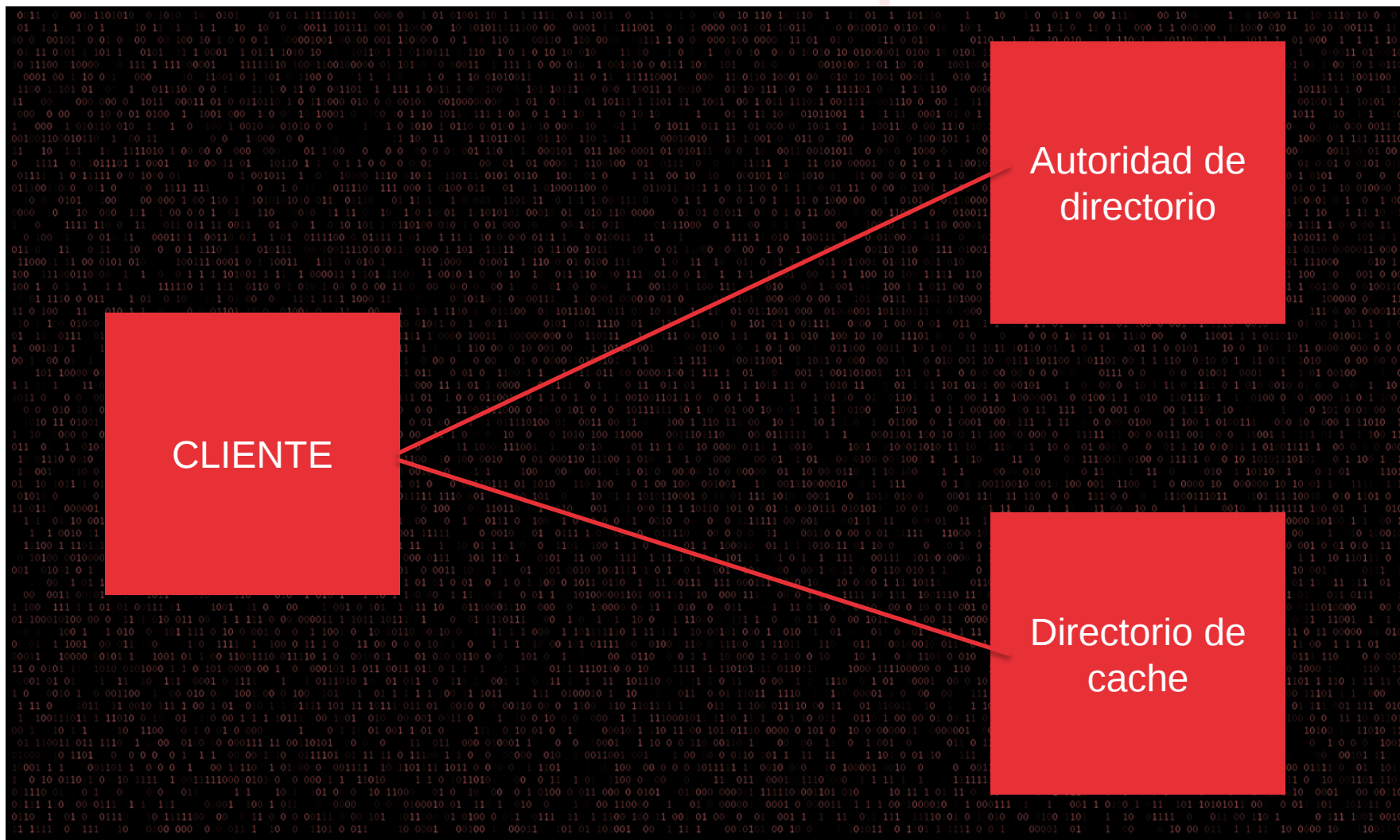
Middle Node

Exit Node

Bridge



Directorios de cache



Mapeados de Nodos a nivel Mundial

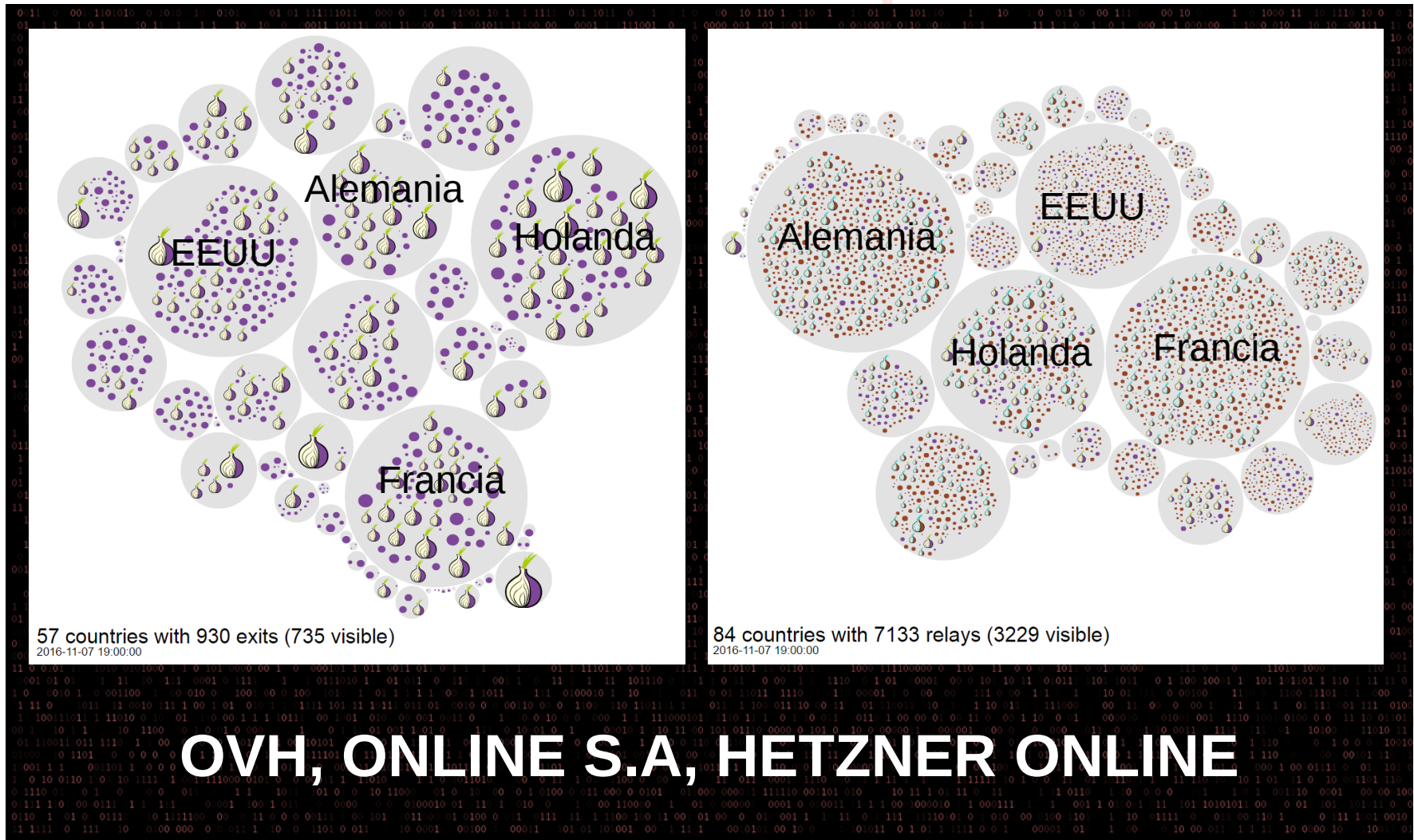


TorFlow



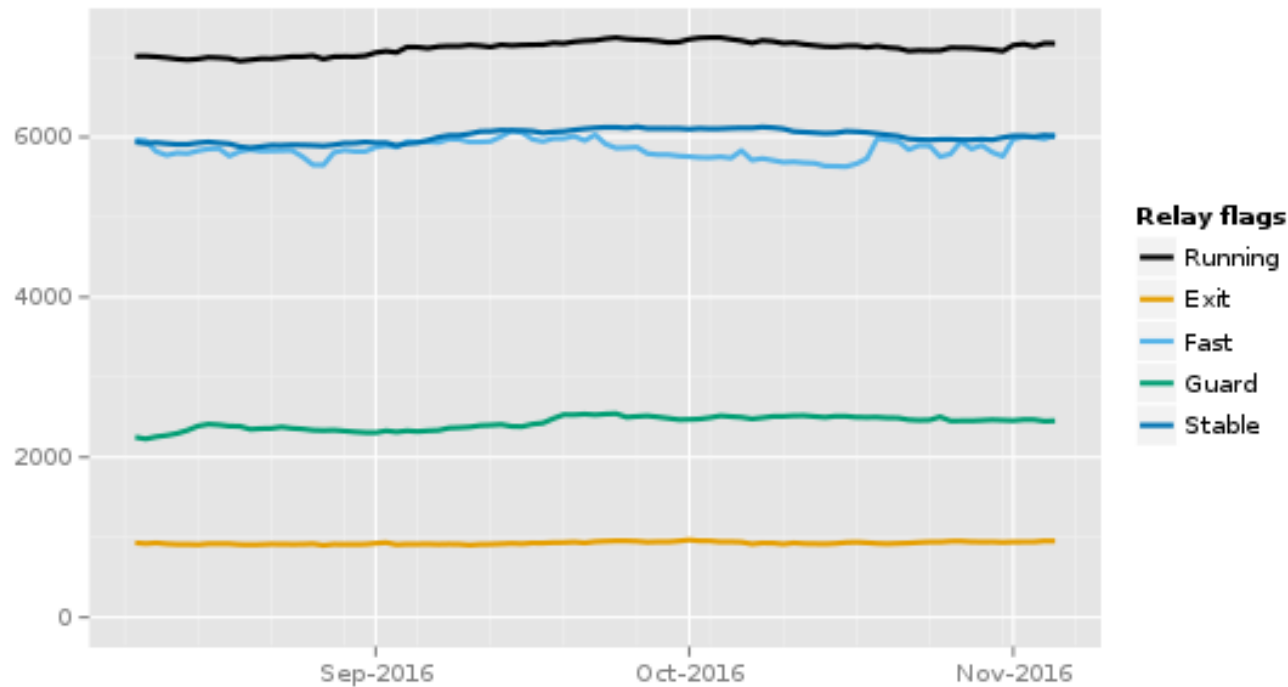
<https://torflow.uncharted.software/>

Estadísticas de Nodos por Países / ASN



Estadísticas de tipos de nodos

Number of relays with relay flags assigned



The Tor Project - <https://metrics.torproject.org/>

Auditoria de Nodos. Tortazo



Modo "Onion Repository" en Tortazo

- Genera y procesa direcciones onion de forma incremental o aleatoria.
- Descubre servicios ocultos en la web profunda de TOR.
- Los servicios descubiertos se almacenan en base de datos.

Framework de auditoría de nodos y hidden services de TOR

Práctica

El fichero torrc

Práctica

Configuración de TOR como Servicio (Repetidor Interno)

Práctica

**Obtención de Nodos en TorStatus /
Dan.me.uk**

Práctica

Servicio Atlas de Tor Project

Bloqueo de TOR: Bridges



BridgeDB

The Tor Project

Here are your bridge lines:

194.132.208.141:15214 3122D4252F05F55189F251B1BBDE17D85A669EAA

194.132.208.197:10146 7EEE626B3059B554991A4B66AFA3F516F4E2553D

104.245.235.58:443 C3977E5D054D409080E340593ABC1ECB8360EDB2



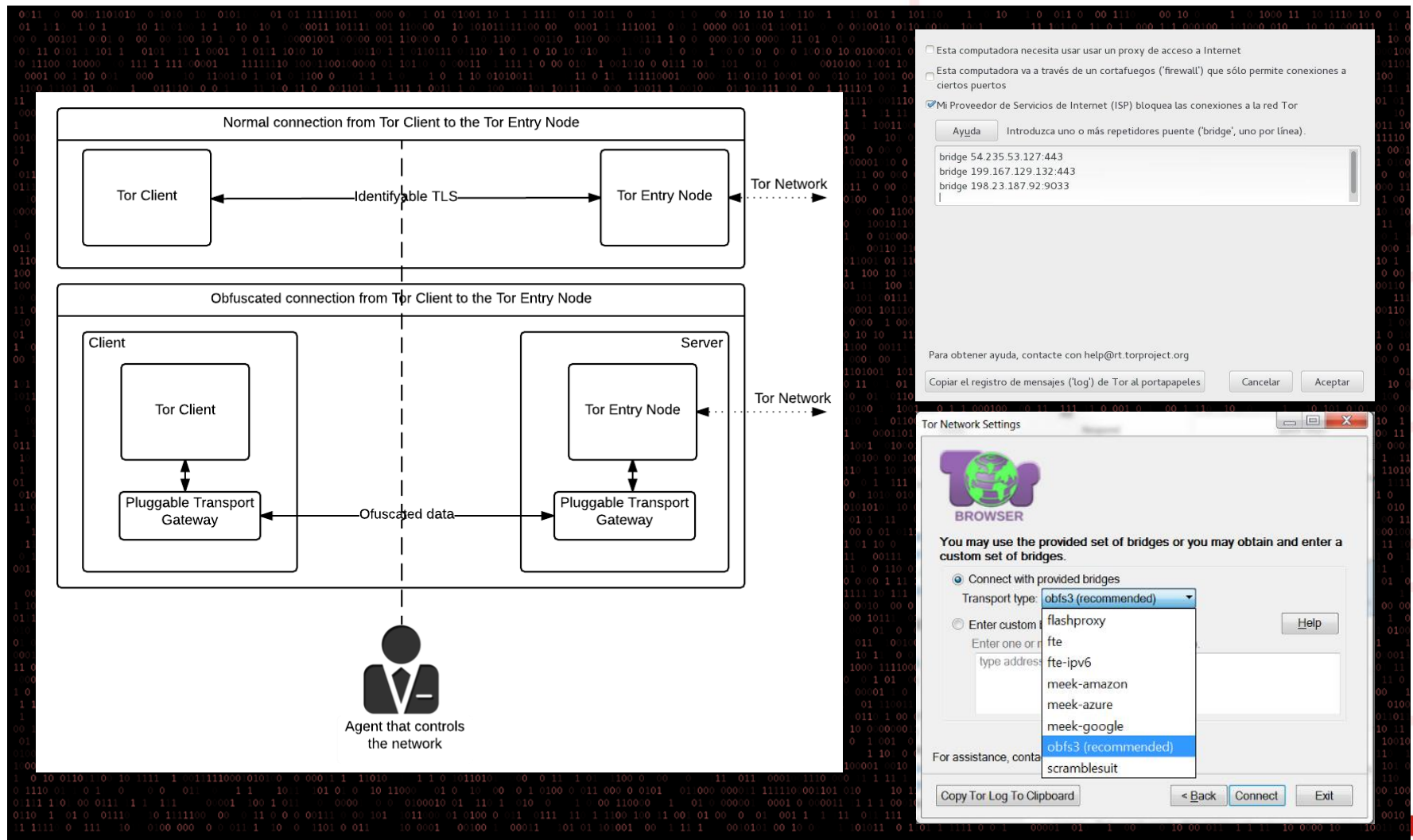
Select All



Show QRCode

bridges@torproject.org

Bloqueo de TOR: Pluggable Transport



Bloqueo de TOR: Proxy



TOR + PROXY

Usuario -----TOR-----BLOQUEO-----Servidor

Usuario -----TOR-----Proxy-----Servidor

Práctica:

**Solicitar Bridges: BrigdesDB y
bridges@torproject**

Práctica

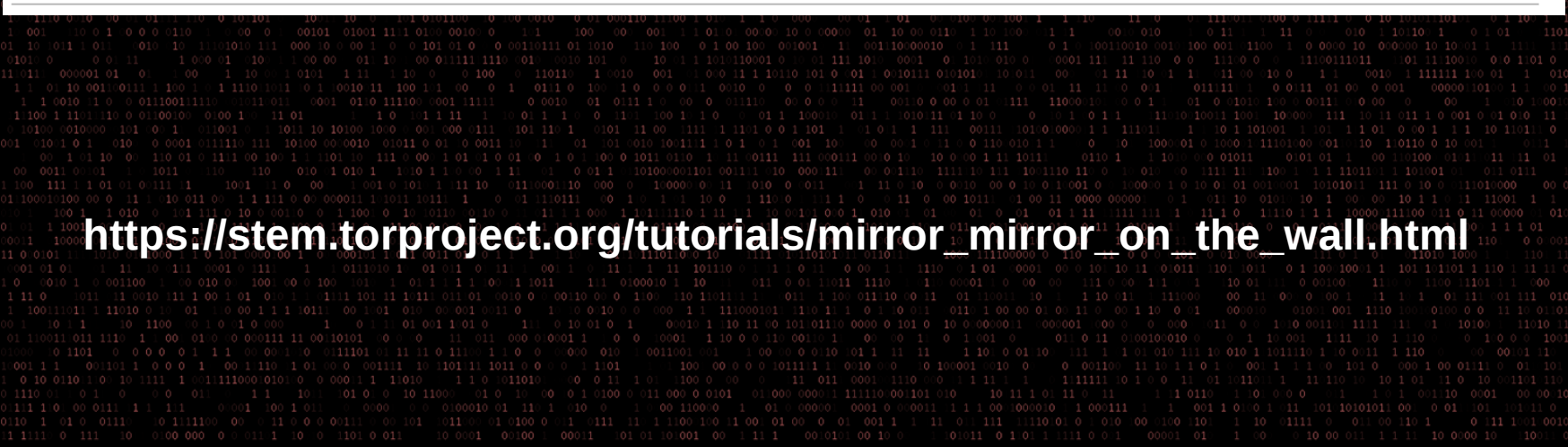
Usar Bridges con TOR

Práctica

TOR como Bridge

Práctica

Ofuscación de Tráfico: Pluggable Transport

The image shows a close-up, slightly blurred view of a brick wall. The bricks are reddish-brown and arranged in a standard running bond pattern. The mortar is a lighter, greyish color. In the center of the image, a URL is overlaid in a large, white, sans-serif font. The URL is "https://stem.torproject.org/tutorials/mirror_mirror_on_the_wall.html". The text is clear and legible against the textured background of the wall.

https://stem.torproject.org/tutorials/mirror_mirror_on_the_wall.html

Práctica

Análisis de Descriptores en Local

Práctica

CollectOR

Práctica

Exonerator

Práctica



Práctica

Compass

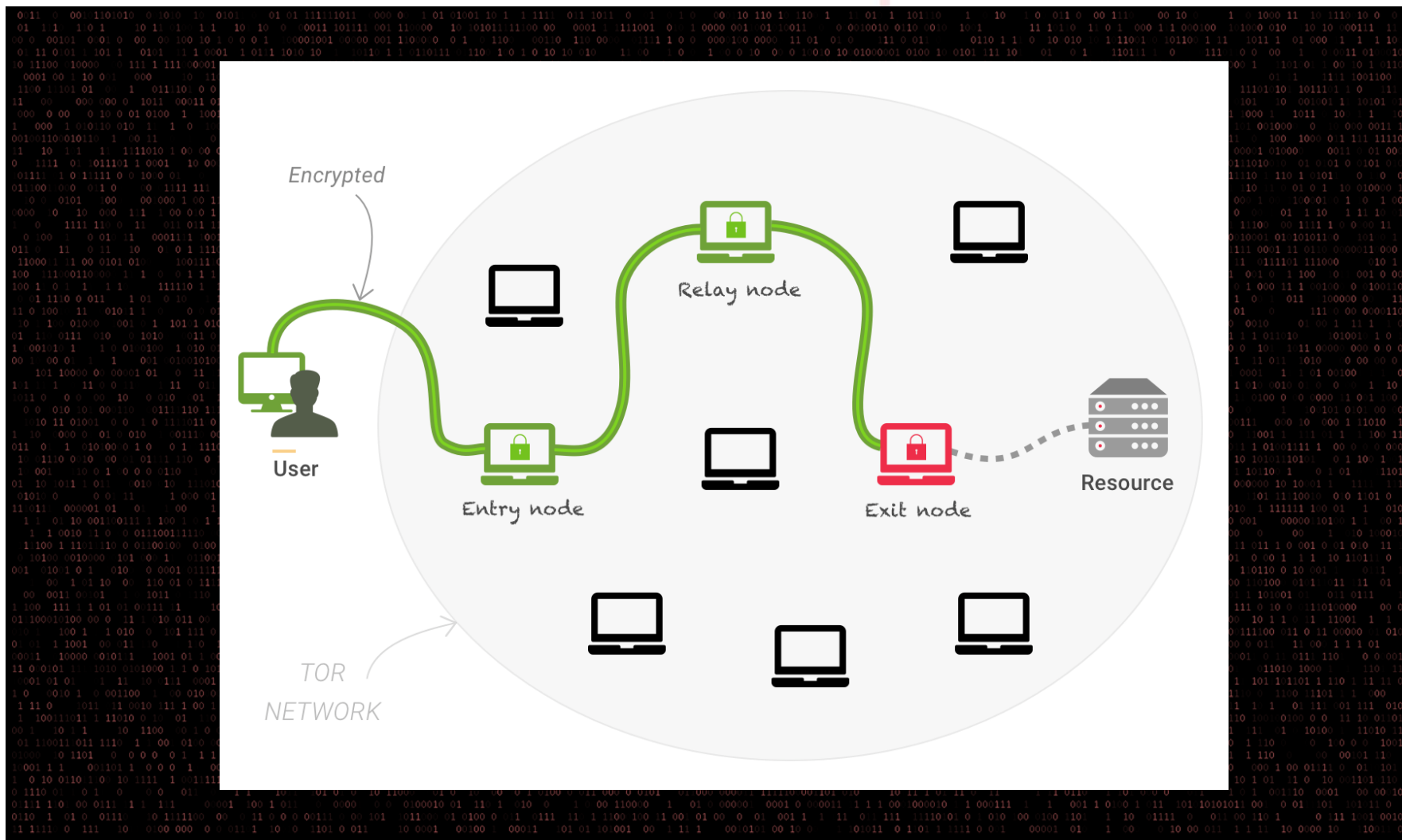
Práctica

ANOnionoo

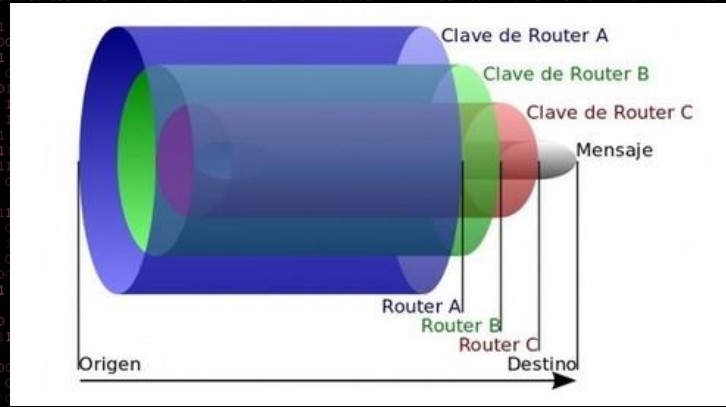
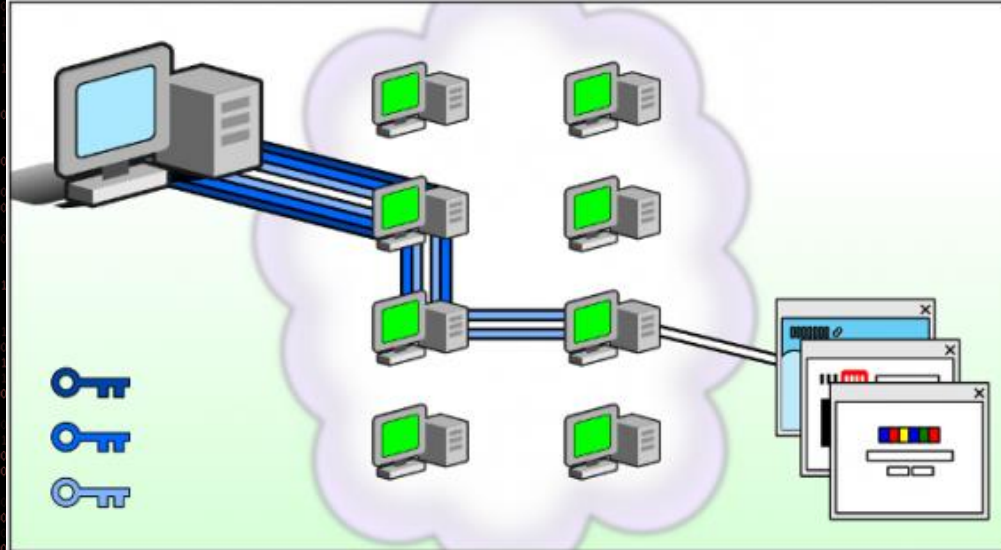
Práctica

Ooni Explorer

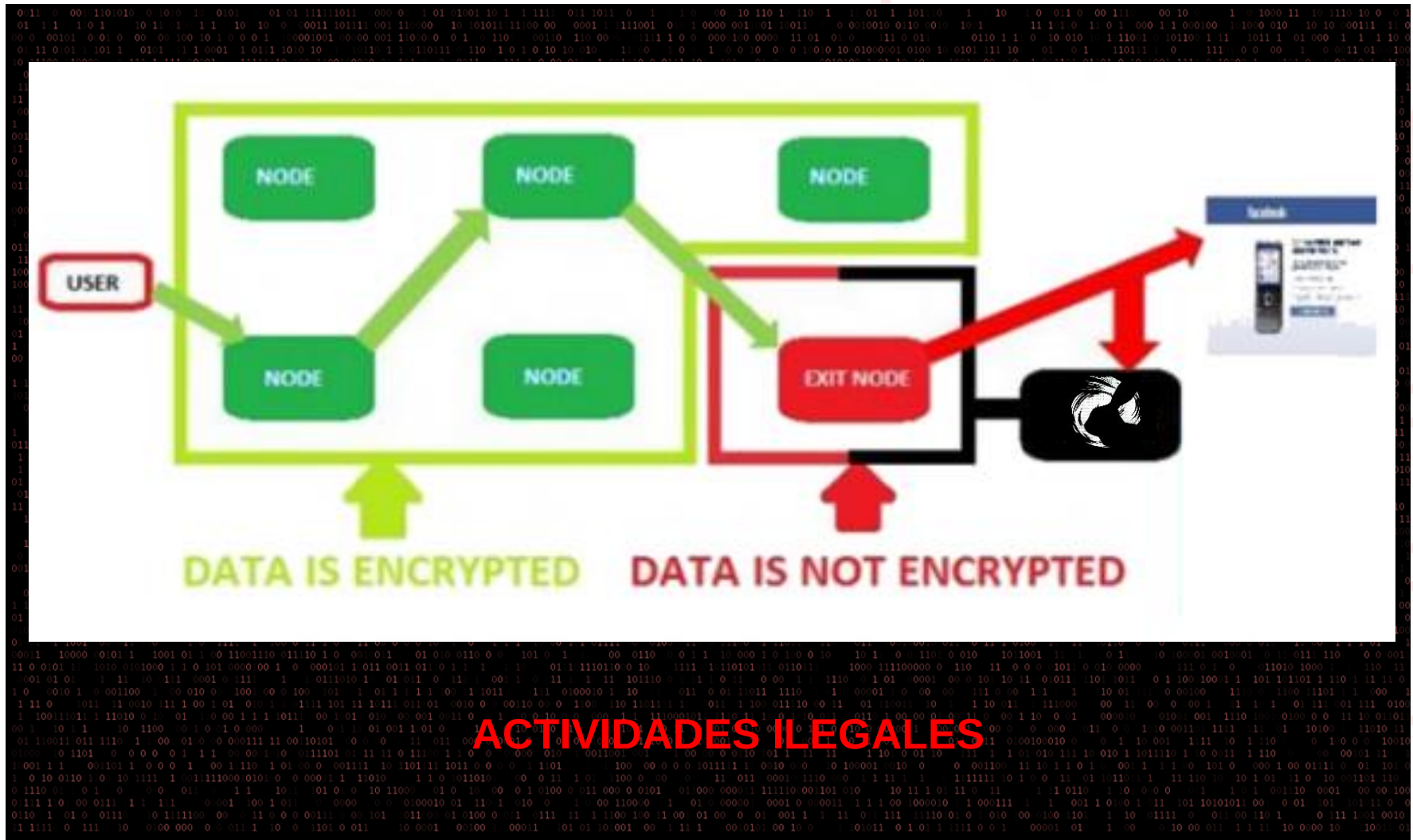
Circuitos por defecto



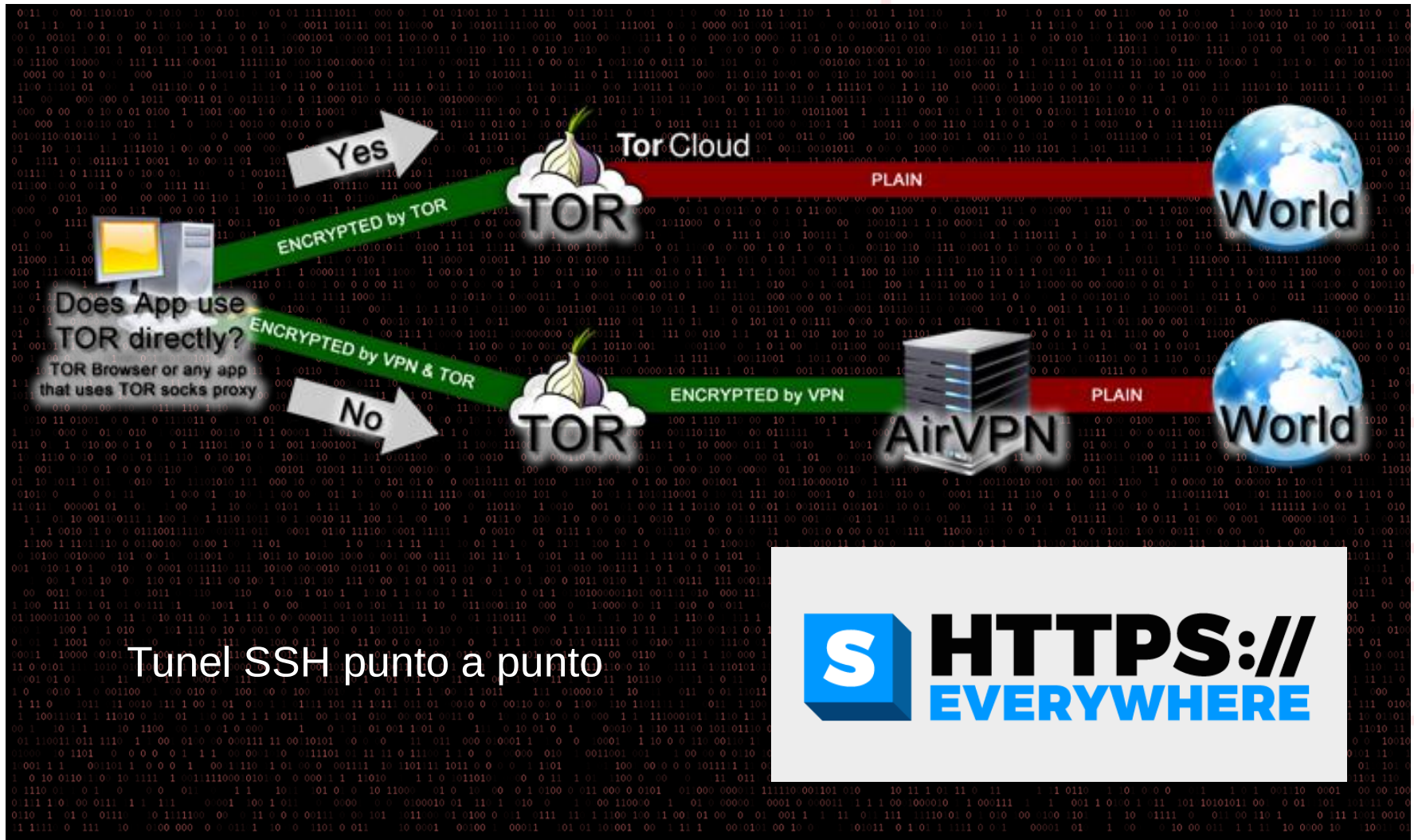
Cifrado de información



Problemática del nodo de salida



HTTPS/SSH/VPN sobre TOR



Práctica

Cambiar duración de los Circuitos

Práctica

Elegir nodos de entrada y salida

Práctica

Selektor - TorTunnel

Bloque 3



Hidden Services

Hidden Services. Servicios expuestos en TOR



TCP

HTTP

HTTPS

FTP

TELNET

POP3

SMTP

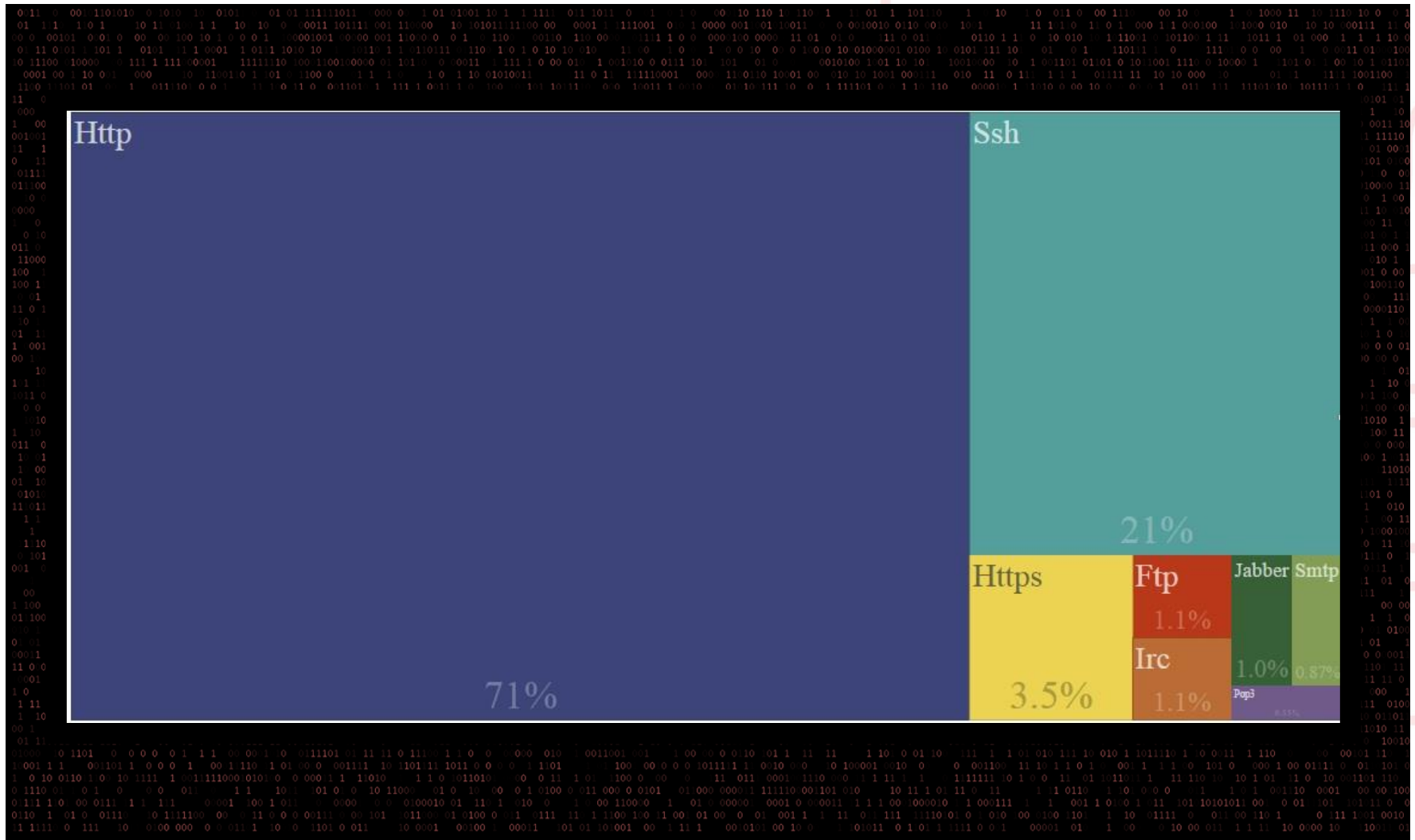
JABBER

XMMP

IRC

GOPHER

Resultado estudio 200.000 Onion



Donde se despliegan los Hidden Services



No DNS. Hidden Service Directory. DHT



Buscadores / Acceso a TOR desde Proxy Web



AHMIA.FI - MSYDQSTLZ2KZERDQ.ONION

AHMIA

Search

Ahmia searches hidden services on the Tor network. To access these hidden services, you need the [Tor browser bundle](#). Abuse report abuse material if you find it in the index. It will be removed as soon as possible.

For more about Ahmia, see [indexing information](#), [contribute to the source code](#), [@AhmiaNews](#) on Twitter, Bitcoin address: 3CMc52oegWqorFSBcKaUGHkZQMFLP43s
Onion service: msydstlz2kzerdg.onion

**PHYSICAL GOLD AND SILVER.
PRIVATE OFFLINE STORAGE IN SINGAPORE**

Onion Dir

aaautwvpt2zktxwng.onion

Home Add About Search

Categories:

- Hosting
- Forums
- Private Sites
- Communication

OnionDir

by anno006

Greetings,

nk directories of the Deep Web. Everyone can what other people had to say about particular

TORCH - TOR SEARCH OF DEEP WEB LINKS

HOME PAGE SITE INFO ADD NEWS ONION DIR CONTACT

URL or Search

TORCH: The Best TOR search engine which you can use

.to
.cab
.city
.link

Dirección onion +

Cibercrimen en TOR



Product Search

Search for:

Search

[Search Descriptions](#)
[Free Shipping Option](#)
[POWER SEARCH](#)

Store Directory

[Firearms](#)
[Special Deals](#)
[Ammunition](#)
[Accessories](#)
[Live Auctions](#)
[Gift Cards](#)
[Team Bids](#)

Manufacturers

View all items by any one manufacturer by searching or selecting it from the dropdown

Select a Manufacturer

Buy with Confidence

Customers

Since 2003

Currently Online

99.8% eBay Feedback

99% Customer Feedback

[Norton](#)
[eSRI](#)
[Secure](#)

[ID Theft Protection](#)
[Purchase Guarantee](#)
[Lowest Price Guarantee](#)

Current Best Sellers

View by Caliber

View Top 100

 \$319.00 Slip Free	 \$117.00 Slip Free	 \$319.00 Slip Free	 \$117.00 Slip Free
 \$299.00 Slip Free	 \$827.00 Slip Free	 \$456.00 Slip Free	 \$509.00 Slip Free
 \$536.00 Slip Free	 \$256.00 Slip Free	 \$189.00 Slip Free	 \$252.00 Slip Free

Best Ammo Deals [Select A Caliber](#)

2FORCE.CC

1st HAND DUMPS

DUMPS & CVV2

FERNANDOGOODS.CLUB FERNANDOCLUB.CN

Darknet Home

Hello World !! - Darknet Forums New members will introduce them self here .	1,361 DISCUSSIONS	3,766 MESSAGES	Latest: Good cvv shops/sites Reel, Today at 6:39 AM
Darknet News & Announcement Only Staff can post here the latest news and announcement about the darknet forums.	42 DISCUSSIONS	386 MESSAGES	Latest: " Adversive With Us " Trojan dumps, Yesterday at 10:38 PM
Apply For Staff - Carding Forum If you want to be a part of Darknet staff then make a request in this section .	49 DISCUSSIONS	216 MESSAGES	Latest: money transfer agent in nee... synthwango, Yesterday at 10:54 PM
Help Desk Request For Any kind of Help about hacking and carding or forum related issues .	164 DISCUSSIONS	384 MESSAGES	Latest: Need help getting my twitter... weirdness, Yesterday at 7:07 PM

BLAST

BLAST is a no-nonsense instant concentration fix that takes you back to the almost forgotten days when you only had to deal with one thing at a time.

4 caps - € 2.95

Add to cart

Energy-E (Happy Caps)

It's all in the name. With Energy-E you'll feel charges up and uninhibited throughout the night. Why party till you drop when you can party non-stop!

4 caps - € 9.50

Add to cart

Space-E (Happy Caps)

Space-E contains a unique blend of powerful ingredients to fuel your party needs. Formulated with Neutelan-Bio, Woodrose and amino acids to produce a boost of energy with a nice.

4 caps - € 9.50

Add to cart

Energy-Hit

The ultimate mix of herbs that have been used for ages for increasing energy level and other essential dietary supplements. Any time of the day, when you're feeling a bit...

60 tabs - € 14.95

Add to cart

Flower Power

Flower Power is a herbal energizer that makes you want to dance and party all night long. Based on only natural ingredients, Flower Power gives you a happy energy boost.

0 caps - € 14.50

Add to cart

Dance-E (Happy Caps)

Dance-E contains a unique blend of powerful ingredients to keep you dancing until the early morning hours.

4 caps - € 9.50

Add to cart

Euphor-E (Happy Caps)

The Euphor-E (L&E) is a blend of ingredients that will give you a special and happy sensation. Party all night and more with Euphor-E.

4 caps - € 9.50

Add to cart

Crazy Jacks

Happy you dancing all night long! Take 3 capsules on an empty stomach and party for 4 to 7 hours. Contains 6 capsules for 2 doses.

6 caps - € 14.50

Add to cart

Fat & Burn-B

Fat & Burn-B is among the newest generation of fat burners that is reminiscent to the classic ECA stacks. Fat & Burn-B is not only the ideal weight loss...

60 caps - € 29.95

Add to cart

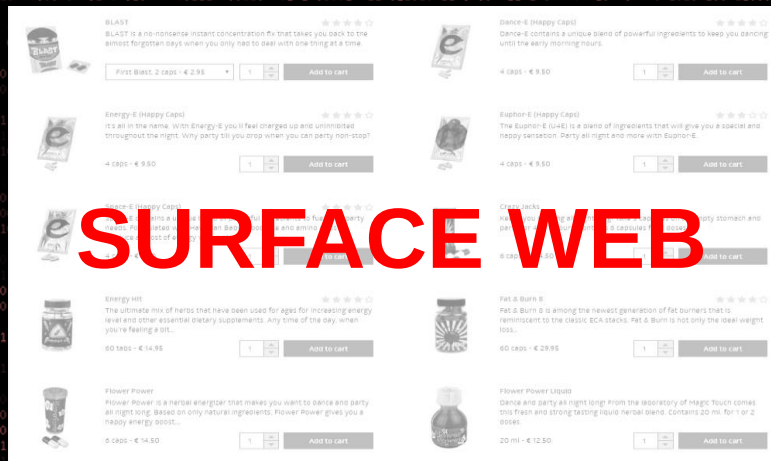
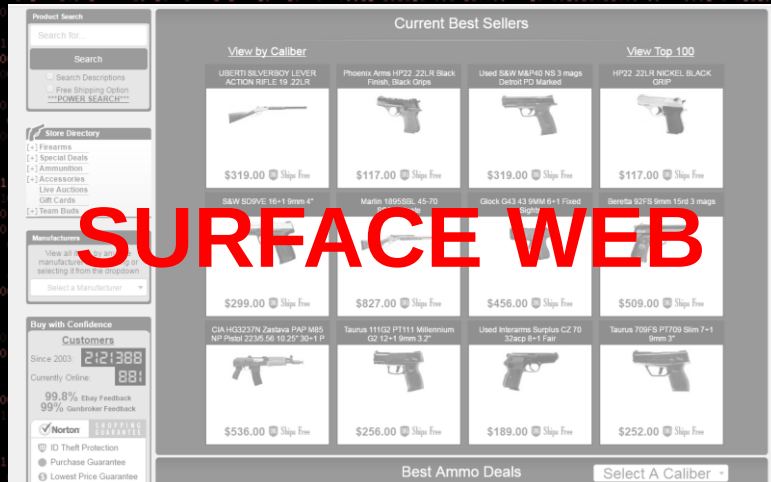
Flower Power Liquid

Dance and party all night long from the laboratory of Magic Touch comes this fresh and strong tasting liquid herbal blend. Contains 20 ml. for 1 or 2 doses.

20 ml - € 12.50

Add to cart

Cibercrimen en TOR / Surface WEB



Dificultad de obtener nuevos Hidden Services

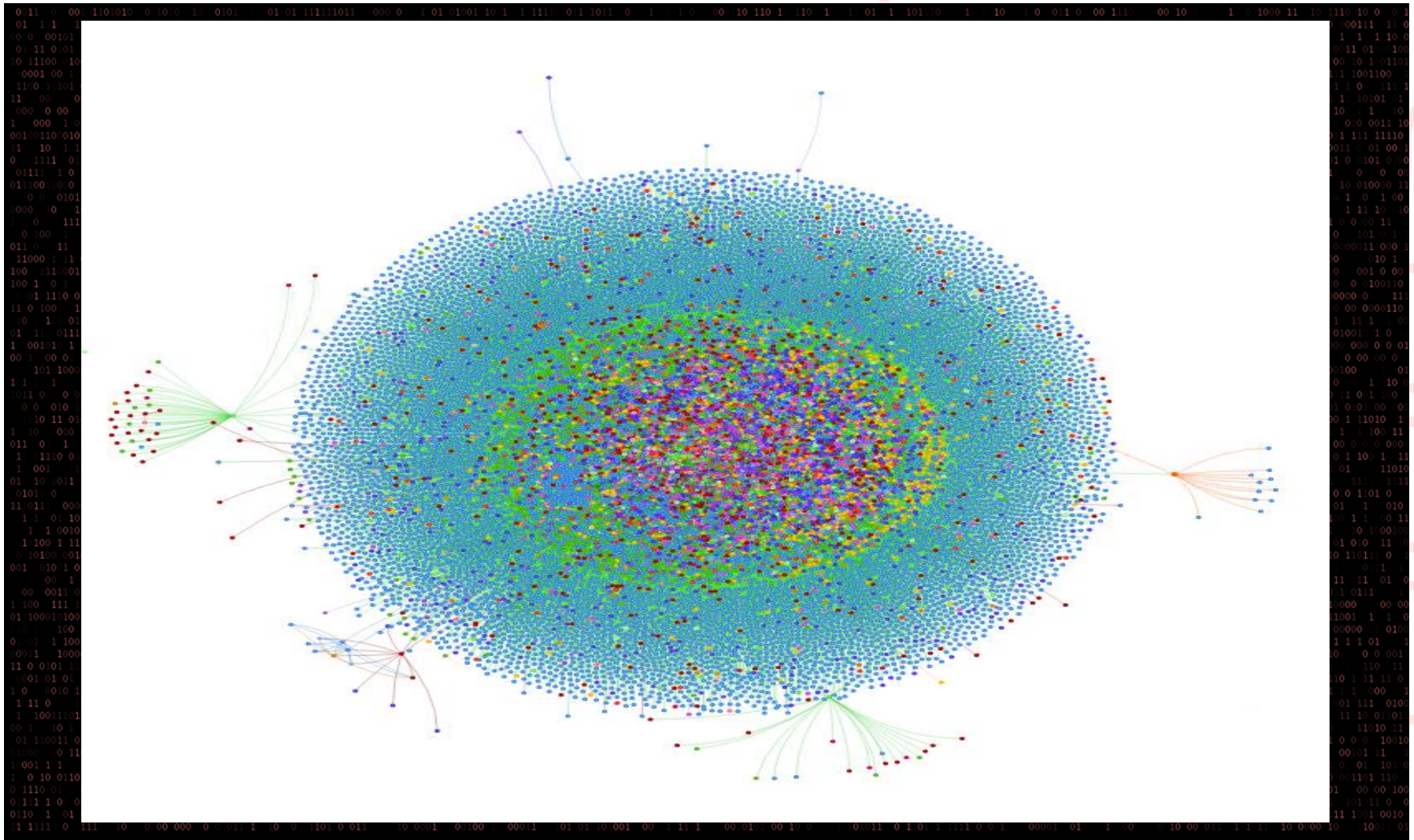


Direcciones publicadas
Hidden Wiki
Proporcionadas forma privada
Descubrimiento por Fuerza bruta ???

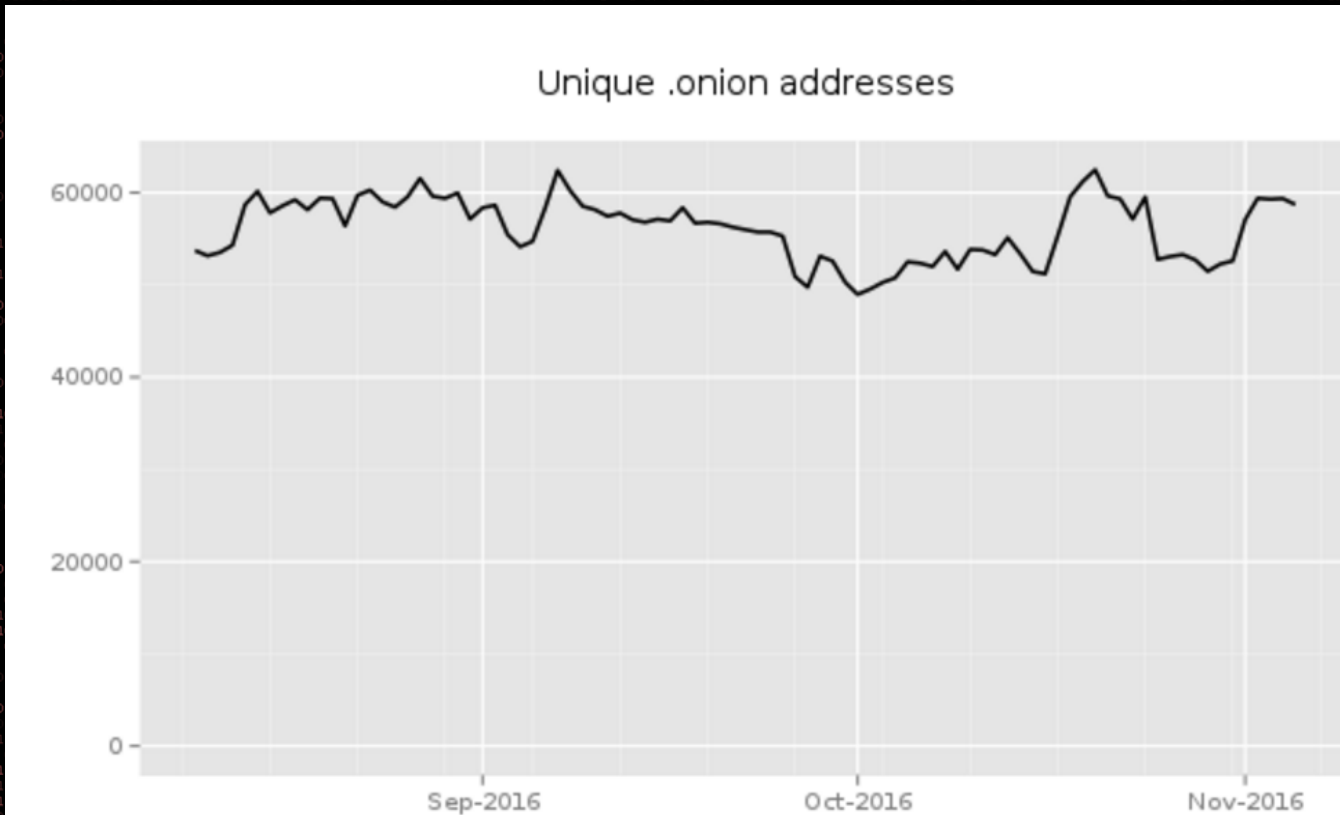
a-z 2-7 x 16

32^{12} Direcciones
65535 Puertos

Relación Hidden Services Web detectados



Gráfica Onions en TOR



The Tor Project - <https://metrics.torproject.org/>

Errores de configuración Despistes del administrador



```
2016/04/04 23:18:59 Scanning [redacted] onion...
2016/04/04 23:19:04 Detected Apache mod status Exposed...Alert!
2016/04/04 23:19:04 Server Version: Apache/2.4.7 (Ubuntu) PHP/5.5.9-1ubuntu4.14
2016/04/04 23:19:04 Searching for co-hosted Services:
2016/04/04 23:19:04 Alert! Found Colocated Service: [redacted] on
2016/04/04 23:19:04 Alert! Found Colocated Service: [redacted]
2016/04/04 23:19:04 Alert! Found Colocated Service: [redacted] onion
2016/04/04 23:19:09 Detected Open Directory / [redacted] ...Alert!
2016/04/04 23:19:09 Found image [redacted] logonew.jpg
2016/04/04 23:19:09 Alert! Found Exif TagExif Version: Exif Version 2.1
2016/04/04 23:19:09 Alert! Found Exif TagPixel X Dimension: 1100
2016/04/04 23:19:09 Alert! Found Exif TagResolution Unit: Inch
2016/04/04 23:19:09 Alert! Found Exif TagY-Resolution: 72.0000
2016/04/04 23:19:09 Alert! Found Exif TagCompression: JPEG compression
2016/04/04 23:19:09 Alert! Found Exif TagDate and Time: 2014:11:26 19:11:13
2016/04/04 23:19:09 Alert! Found Exif TagSoftware: Adobe Photoshop CS6 (Windows)
2016/04/04 23:19:09 Found image [redacted] logonew2.jpg
2016/04/04 23:19:09 Alert! Found Exif TagCompression: JPEG compression
2016/04/04 23:19:09 Alert! Found Exif TagDate and Time: 2014:12:24 16:14:50
2016/04/04 23:19:09 Alert! Found Exif TagOrientation: Top-left
2016/04/04 23:19:09 Alert! Found Exif TagPhotometric Interpretation: RGB
```

Auditoria de nuestros Hidden Service



```
socat TCP4-LISTEN:7000,reuseaddr,fork  
SOCKS4A:127.0.0.1:facebookwwcorei.onion:80,socksport=9150
```

W3f
Nikto
Acunetix
Otras

Práctica

Personalizar nombre Onion

Práctica

Tor como Hidden service

Práctica

Onion con distintos servicios

Práctica

Servicio Onion con múltiples direcciones

Bloque 4



Uso Avanzado

Acceso Programático con Stem y TXTorCON



Stem Docs

WELCOME TO STEM!

[Home](#) [Tutorials](#) [API](#) [Development](#) [Contact](#)

Welcome to Stem!

Stem is a Python controller library for **Tor**. With it you can use Tor's **control protocol** to script against the Tor process, or build things such as **arm**. Stem's latest version is **1.5.0** (released November 14th, 2016).

 Tutorials

 FAQ

 Bug Tracker

 API

 Change Log

 Download

 python™

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Tor Control Protocol / ARM



- 3.1. SETCONF
- 3.2. RESETCONF
- 3.3. GETCONF
- 3.4. SETEVENTS
- 3.5. AUTHENTICATE
- 3.6. SAVECONF
- 3.7. SIGNAL
- 3.8. MAPADDRESS
- 3.9. GETINFO
- 3.10. EXTENDCIRCUIT
- 3.11. SETCIRCUITPURPOSE
- 3.12. SETROUTERPURPOSE
- 3.13. ATTACHSTREAM
- 3.14. POSTDESCRIPTOR
- 3.15. REDIRECTSTREAM
- 3.16. CLOSESTREAM
- 3.17. CLOSECIRCUIT
- 3.18. QUIT
- 3.19. USEFEATURE
- 3.20. RESOLVE
- 3.21. PROTOCOLINFO
- 3.22. LOADCONF
- 3.23. TAKEOWNERSHIP
- 3.24. AUTHCHALLENGE
- 3.25. DROPGUARDS

```
arm - (Linux: ...) Tor 0.2.2.35 (recommended) cpu: 0.0% tor, 4.0% arm mem: 17 MB (0.4%) pid: 26348 uptime:
Relaying Disabled, Control Port (open): 9051
press 'n' for a new identity

page 2 / 5 - m: menu, p: pause, h: page help, q: quit
Connection Details:
address: 31.172.30.3
Locale: ch fingerprint: CFA48FC3E843DFF01A026EC77010A057E8C2FF0
nickname: chaoscomputerclub20 orport: 443 dirport: 88
published: 06:35:03 2012-05-29 os: Linux x86_64 version: 0.2.3.15-alpha
flags: Exit, Fast, Named, Running, V2Dir, Valid
exit policy: accept 22, 43, 53, 79-81, 88, 443, 465, 563, 587, 706, 873, 993, 995, 1194, 1533, 2947, 3386, 3690, 4321, 5031, 5222-5223, 8008, 8088, 8443, 9418, 9420-9422...
contact: J. Random Hacker <anonymizer@ccc.de>

Unamed --> chaoscomputerclub18 Purpose: General, Circuit ID: 15 2.5m (CIRCUIT)
RedDragon 97350888345E570F807B600AE8B0217E9903E87 30.229.70.51 (us) 1 / Guard
PPrivCom012 08218381C09F1D7795FF207116B8B5106AA3E60E 84.19.178.6 (de) 2 / Middle
chaoscomputerclub18 A06C2377E01611F56C33F84B84AE663A1DA5B383 31.172.30.1 (ch) 3 / Exit

Unamed --> chaoscomputerclub20 Purpose: General, Circuit ID: 6 2.5m (CIRCUIT)
meiner 414AC552E2B0AFD9306E7AACF5911C1E10688493 188.192.250.79 (de) 1 / Guard
Polarbear 67B567E229E73FB2A41C41B508141D2D0104E585 62.75.170.157 (de) 2 / Middle
chaoscomputerclub20 CFA48FC3E843DFF01A026EC77010A057E8C2FF0 31.172.30.3 (ch) 3 / Exit

Unamed --> chaoscomputerclub5 Purpose: General, Circuit ID: 4 2.5m (CIRCUIT)
meiner 414AC552E2B0AFD9306E7AACF5911C1E10688493 188.192.250.79 (de) 1 / Guard
IEDitTheConfigNow F77524DC7A50D10F096EAF9C9852E9EC792990800 94.23.229.97 (fr) 2 / Middle
chaoscomputerclub5 A9C039A5F02FCA06303CFAABE25C5912C63826 80.237.226.75 (de) 3 / Exit

Unamed --> Kiruna Purpose: General, Circuit ID: 5 2.5m (CIRCUIT)
meiner 414AC552E2B0AFD9306E7AACF5911C1E10688493 188.192.250.79 (de) 1 / Guard
default 22E3B4219AECC5D0F98B34E9FE2FE4357674FD9FF 24.22.244.226 (us) 2 / Middle
Kiruna 9800326017CEFC4CB8F4089FBABE767DC8D059AF 193.11.164.242 (se) 3 / Exit

arm - phobos (Linux 3.16.0-4-amd64) Tor 0.2.7.5 (recommended)
justanotherrelay - 51.174.120.162:443, Control Port (cookie): 9051
cpu: 20.0% tor, 4.7% arm mem: 77 MB (1.9%) pid: 889 uptime:
fingerprint: 583F17298E905D1D1BCF8EB49DAEBE5939B51FD70
flags: Fast, Running, Stable, Valid

page 1 / 5 - m: menu, p: pause, h: page help, q: quit
Bandwidth (limit: 8.7 MB/s, burst: 12.6 MB/s, measured: 818.0 B/s):
Download (524.9 KB/sec): Upload (526.9 KB/sec):
943 942
628 628
314 314
0 0
avg: 2.3 MB/sec, total: 15.0 GB avg: 2.3 MB/sec, total: 15.1 GB

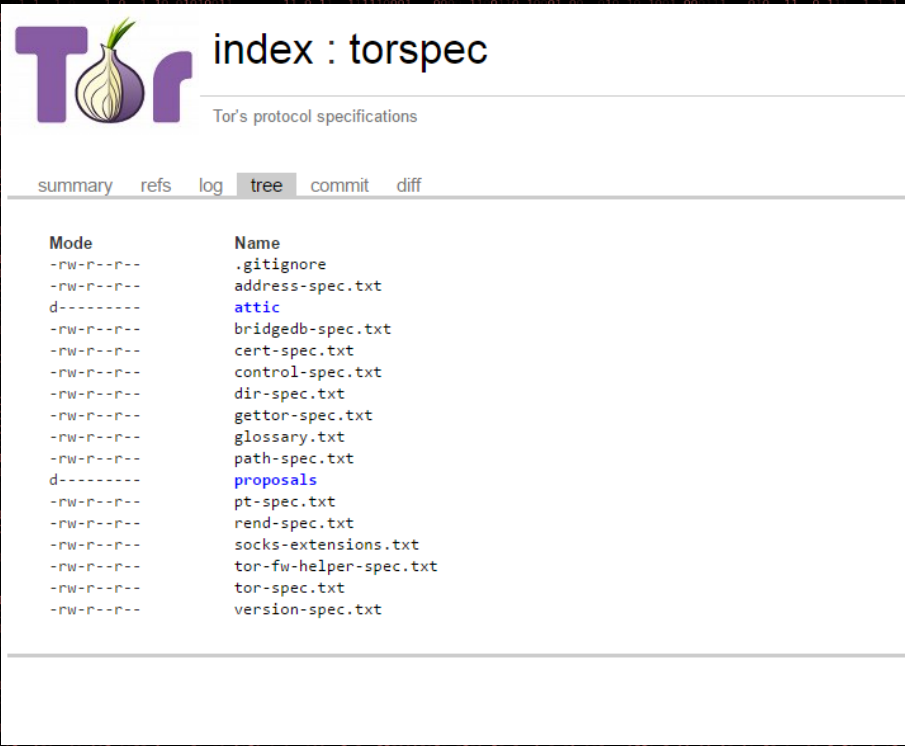
Events (TOR/ARM NOTICE - ERR):
09:58:09 [ARM NOTICE] Read the last day of bandwidth history from the state file (22
minutes is missing)
```

TOR-ARM

Práctica

Tor Control Protocol / ARM

Para más información: Torspec



The screenshot shows the 'index : torspec' page for 'Tor's protocol specifications'. It features a navigation bar with links: summary, refs, log, tree (selected), commit, and diff. Below the navigation bar is a table listing files with their modes and names:

Mode	Name
-rw-r--r--	.gitignore
-rw-r--r--	address-spec.txt
d-----	attic
-rw-r--r--	bridgedb-spec.txt
-rw-r--r--	cert-spec.txt
-rw-r--r--	control-spec.txt
-rw-r--r--	dir-spec.txt
-rw-r--r--	getter-spec.txt
-rw-r--r--	glossary.txt
-rw-r--r--	path-spec.txt
d-----	proposals
-rw-r--r--	pt-spec.txt
-rw-r--r--	rend-spec.txt
-rw-r--r--	socks-extensions.txt
-rw-r--r--	tor-fw-helper-spec.txt
-rw-r--r--	tor-spec.txt
-rw-r--r--	version-spec.txt

Overlaid on the bottom of the screenshot is the URL: <https://gitweb.torproject.org/torspec.git/tree>



¿ PREGUNTAS ?



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**Gracias por
su atención**



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