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The Tor Project, Inc.

501(c)(3) non-profit organization
dedicated to the research and
development of technologies for
online anonymity and privacy



Anonymous Communication

People need to hide in a crowd of other people.

“Anonymity loves company.”

*Tor serves different interests for
different user groups:*



Tor serves different interests for different user groups:

Private Citizens

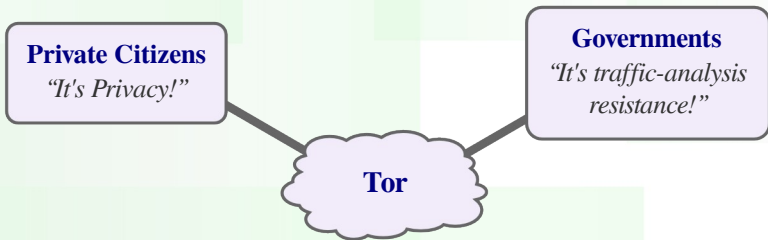
"It's Privacy!"



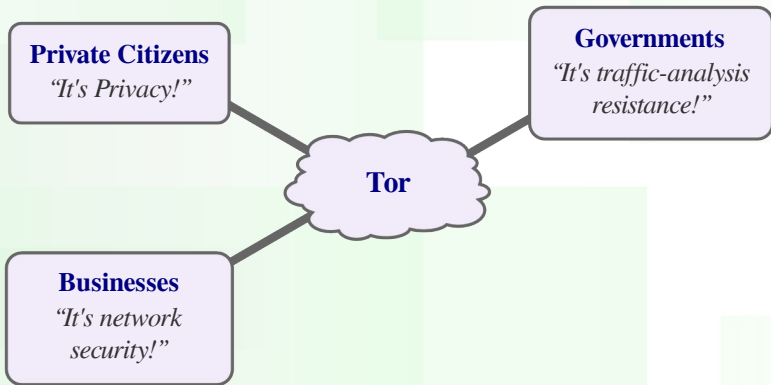
Tor

A diagram consisting of a light purple rounded rectangle on the left containing the text 'Private Citizens' and 'It's Privacy!'. A black line connects the bottom right corner of this rectangle to a light purple cloud shape on the right. Inside the cloud is the word 'Tor'.

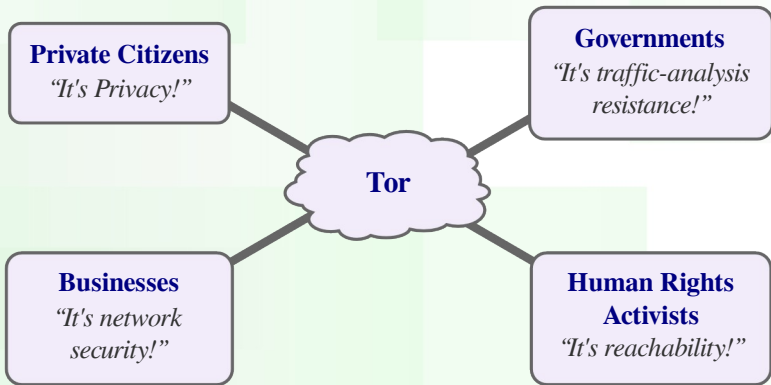
Tor serves different interests for different user groups:



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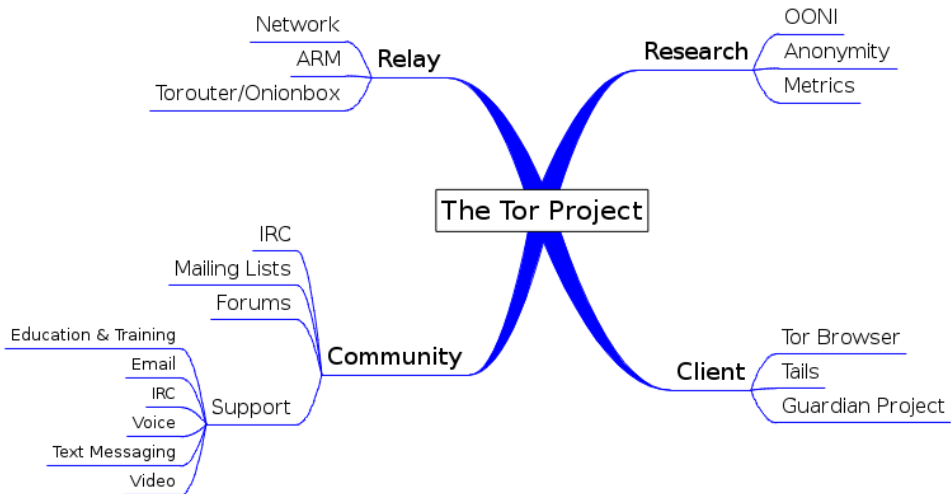


Tor serves different interests for different user groups:



What is Tor?

- Online anonymity software and network
- Open source, freely available
- 3-clause BSD licensed
- CC-BY-3.0 Documentation and media



What is Tor?

Active research environment:

*National Science Foundation,
University of Waterloo, UMN,
Georgia Tech, Princeton, UIUC,
Drexel, Boston Univ, Naval Research
Lab, UC-London, Indiana Univ.,
Univ. of Cambridge*

What is Tor?

Increasingly diverse toolset:

*Tor, Tor Browser Bundle, Tails LiveCD,
Tor Weather, Tor auto-responder,
Secure Updater, Orbot, Torora, Tor
Check, Arm, Nymble, Tor Control, and
so on.*

Current Projects

Knight Foundation

Internews Network

SRI International

Broadcasting Board of Governors

National Science Foundation

Radio Free Asia

Swedish International Development and Cooperation
Agency

Who Uses Tor?

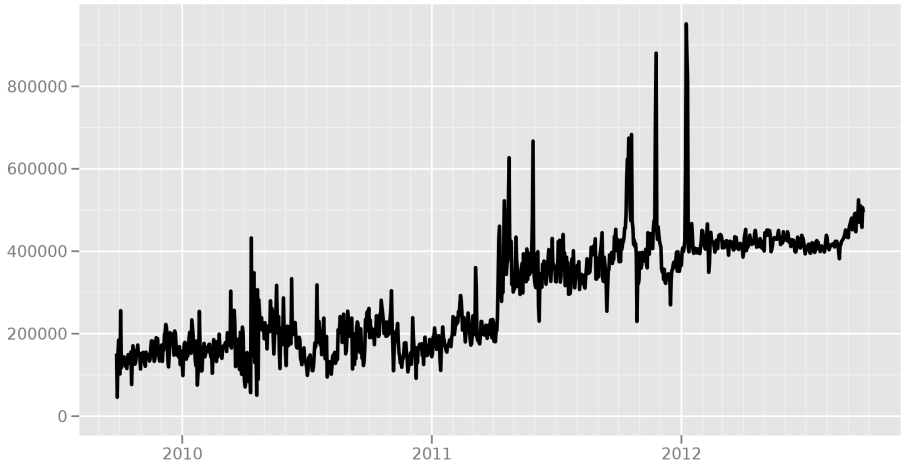
- Law Enforcement
- Human Rights Activists
- Business Executives
- Abuse Victims
- Militaries
- Normal People



An aerial photograph of a massive crowd filling a large stadium. The crowd is dense and colorful, with many people wearing bright clothing. The stadium's seating tiers are visible, and the crowd extends across the entire frame. In the bottom right corner, there is a small navigation bar with a yellow triangle pointing left, the text '15 / 38', and a yellow triangle pointing right.

**Estimated 500k to 1 million
daily users worldwide**

Directly connecting users from all countries



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

Country**Mean daily users**[United States](#)

61413 (14.25 %)

[Iran](#)

43994 (10.21 %)

[Italy](#)

38315 (8.89 %)

[Germany](#)

36488 (8.47 %)

[France](#)

28918 (6.71 %)

[Spain](#)

26733 (6.20 %)

[Brazil](#)

13183 (3.06 %)

[Syrian Arab Republic](#)

12584 (2.92 %)

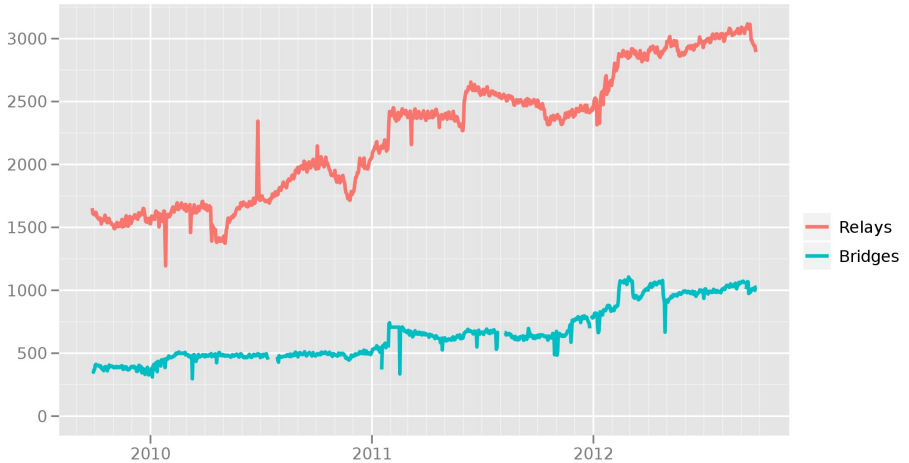
[Russia](#)

11255 (2.61 %)

[United Kingdom](#)

10984 (2.55 %)

Number of relays



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

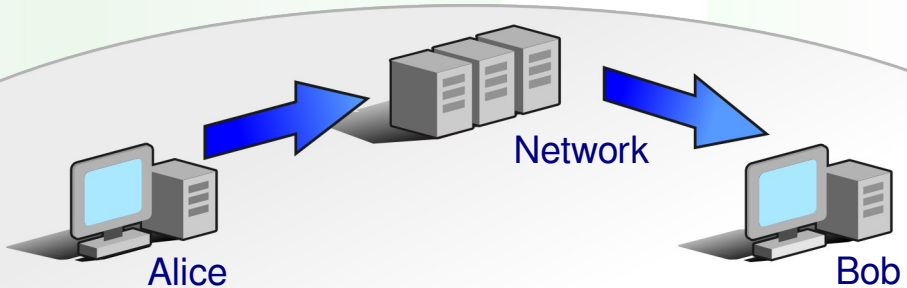
How is Tor different?

VPNs, HTTP/HTTPS proxies,
I2P, Freenet, Swarm,
Retroshare, Vanish

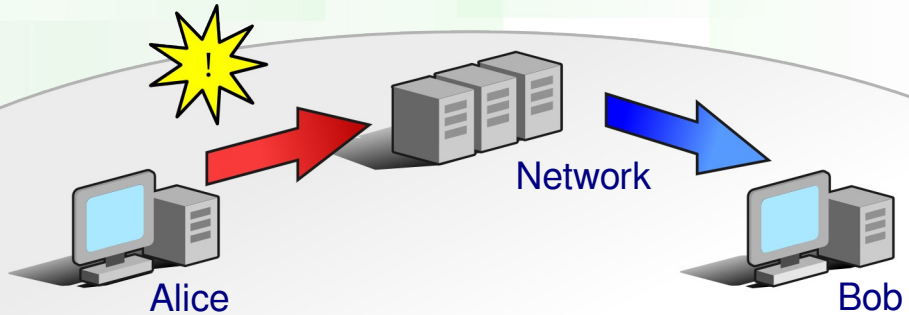
vs.

JonDos and Tor

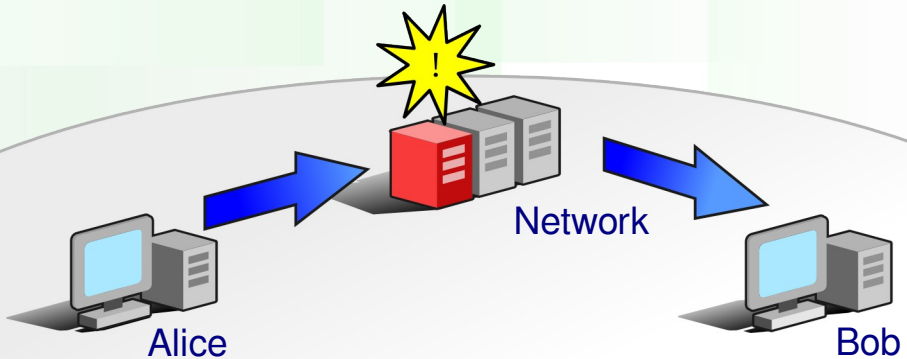
A Typical Internet Connection



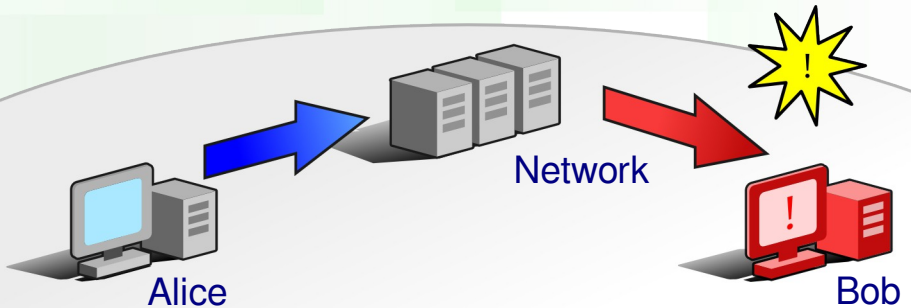
Alice might be watched.



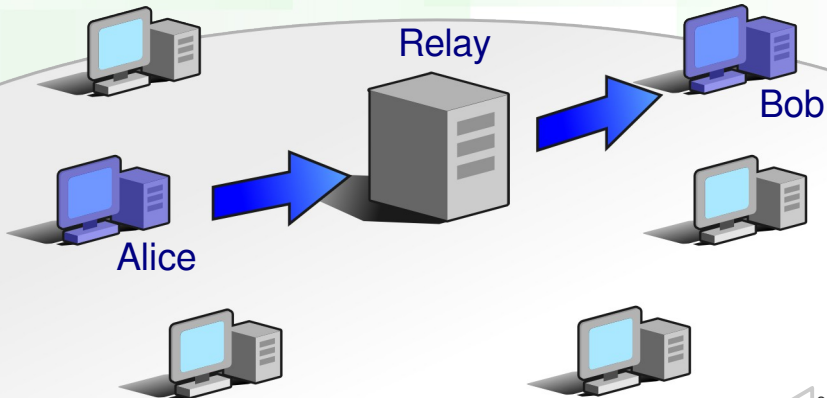
Parts of the network could be monitored.



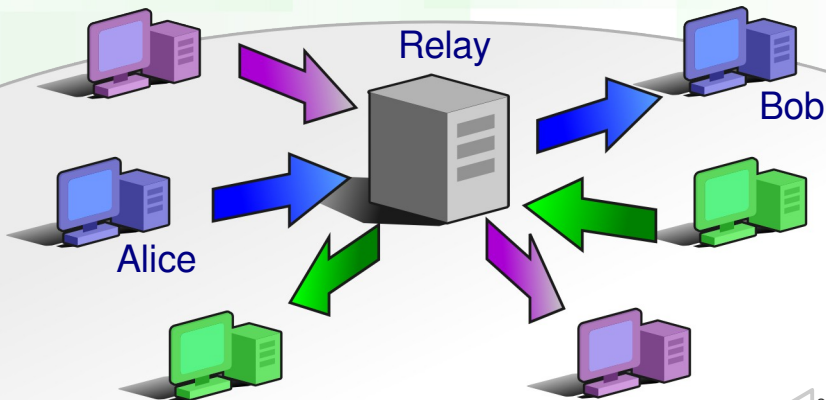
Bob could be compromised.



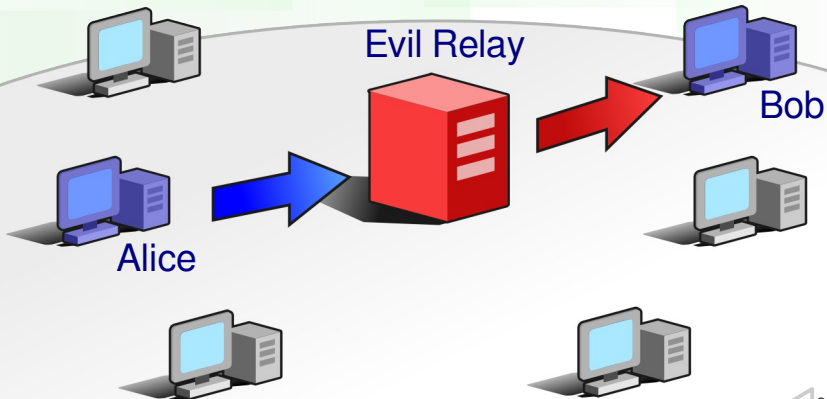
How is Tor Different?



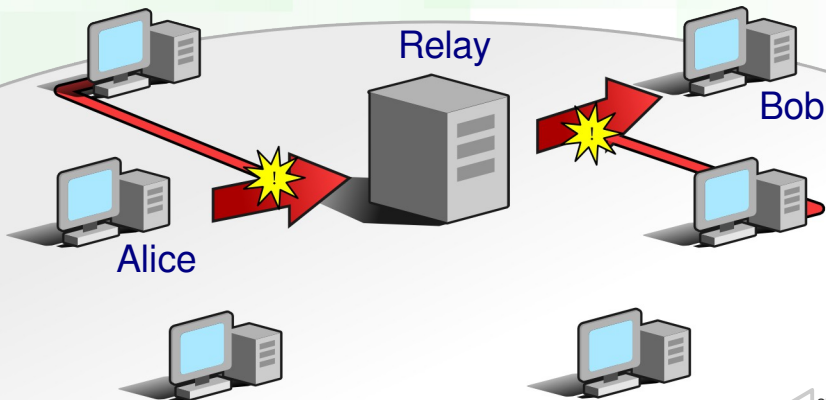
A Basic Relay System



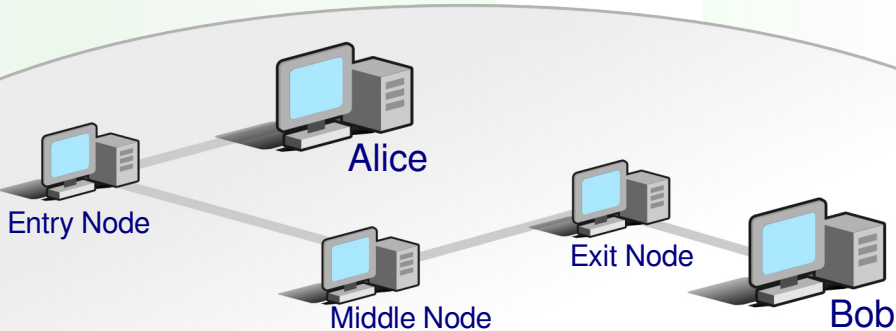
An Evil Relay



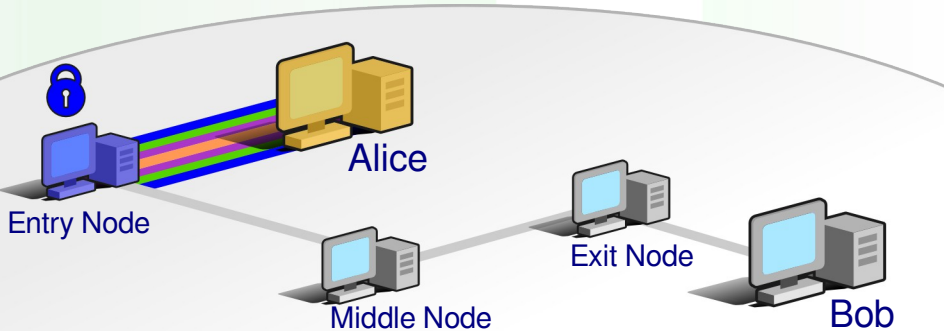
An Evil Network



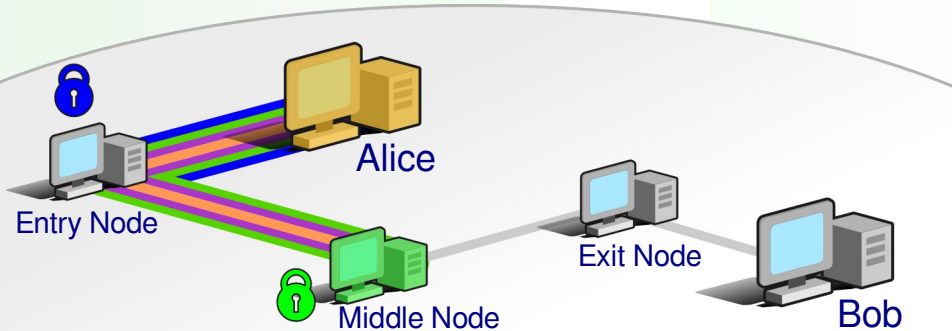
How Tor Works



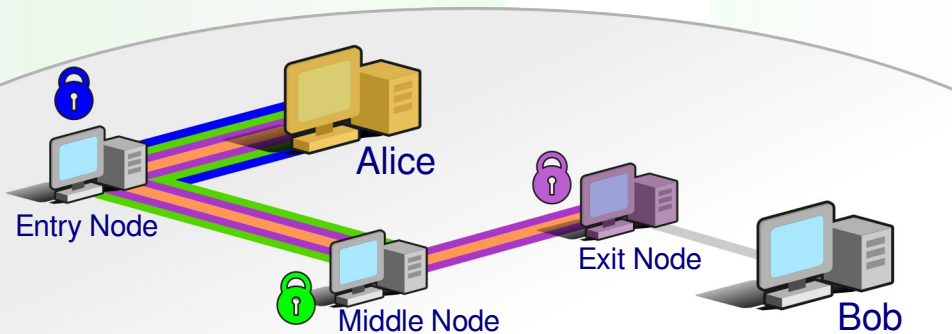
Alice connects to an Entry Node.



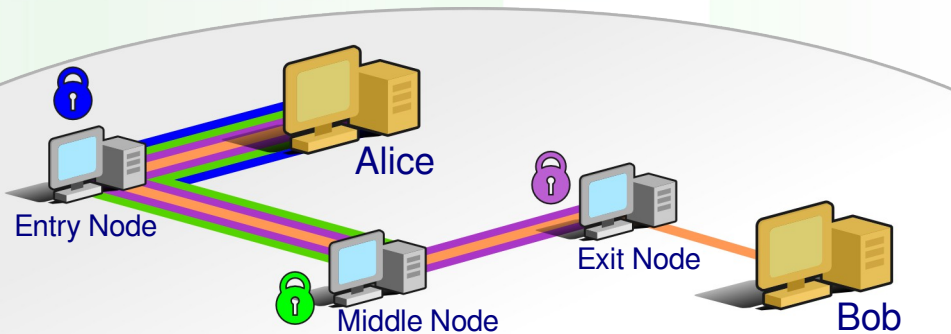
The data is routed through a Middle Node.



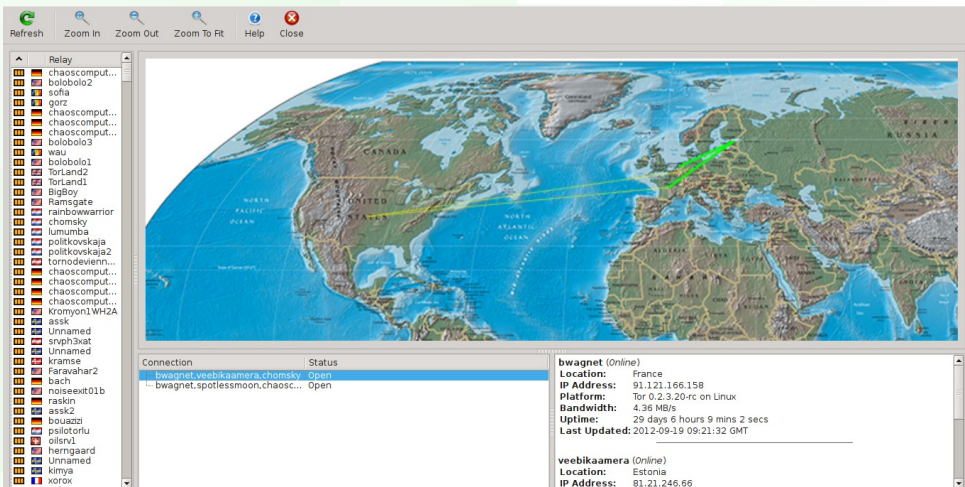
The data is routed through an Exit Node.



Alice's circuit to Bob is established.



Network Map



Metrics

- Measuring the Tor Network anonymously
- NSF grant for research
- Archive of hourly consensus, ExoneraTor, VisiTor
- Metrics portal:

<https://metrics.torproject.org>

Future Directions

- Realtime Voice and Video over Tor
- Greatly improving usability, security, and anonymity of Tor Browser and Tails
- Making Tor undetectable on the wire
- IPv6 compatibility
- Crypto upgrade
- Distributed Directory Authorities

Mobile Operating Systems

- Entirely new set of challenges for something designed to know where you are at all times.
- Orbot: Tor on Android.
<https://guardianproject.info/apps/>
- Tor on iphone, maemo/meego, symbian, etc
- Tor on Windows CE. For example:
<http://www.gsmk.de>
- Guardian Project,
<https://guardianproject.info/>

Even more info:

Visit us at

<https://www.torproject.org/>
for more information, links, and ideas.

Credits and Thanks

- ▶ ***Danger!***, <http://flickr.com/photos/hmvh/58185411/sizes/o/hmvh>, CC-BY-SA.
- ▶ ***500k***,
<http://www.flickr.com/photos/lukaskracic/334850378/sizes/l/>
Luka Skracic, used with permission.
- ▶ ***Illustration and Design:*** J.M.Todaro – <http://jmtodaro.com>