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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

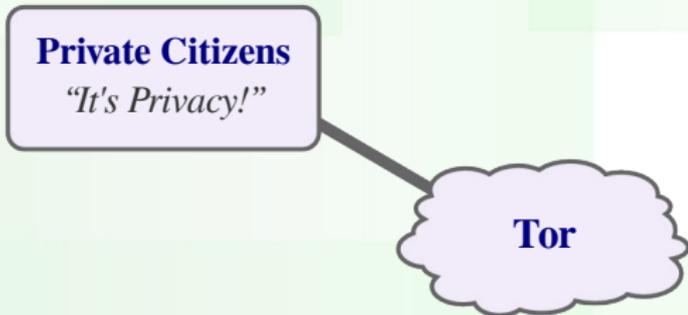
People need to hide in a crowd of other people.

”Anonymity loves company.”

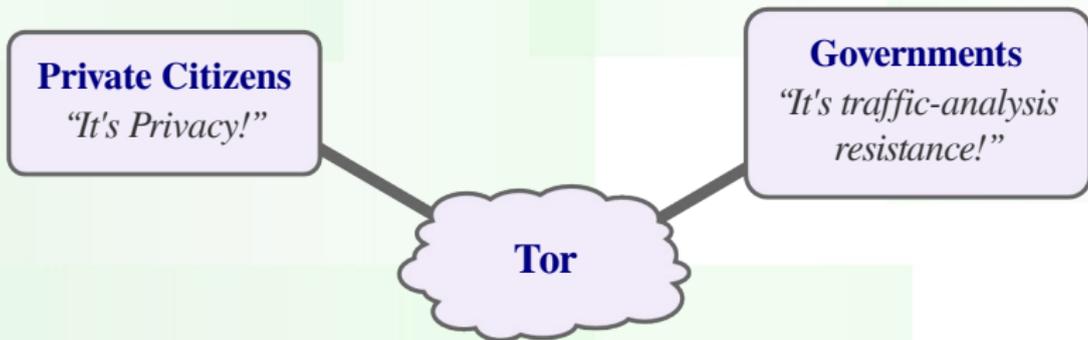
*Tor serves different interests for
different user groups:*

Tor

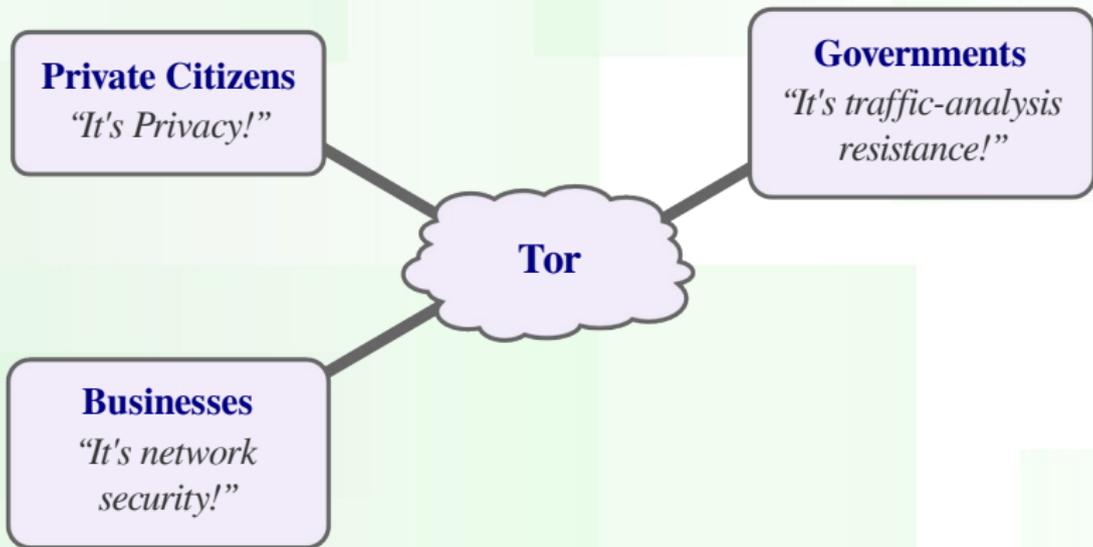
Tor serves different interests for different user groups:



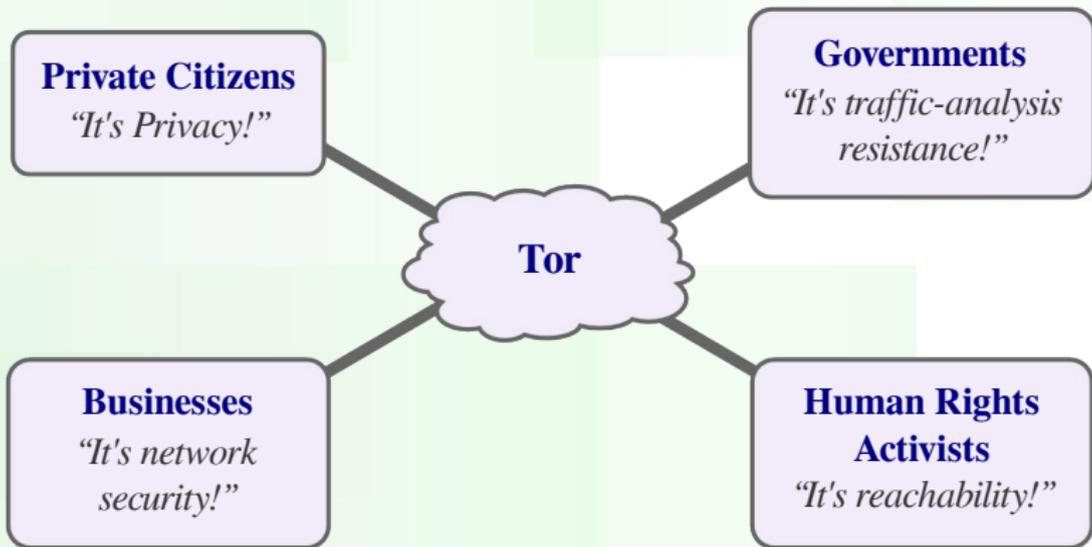
Tor serves different interests for different user groups:



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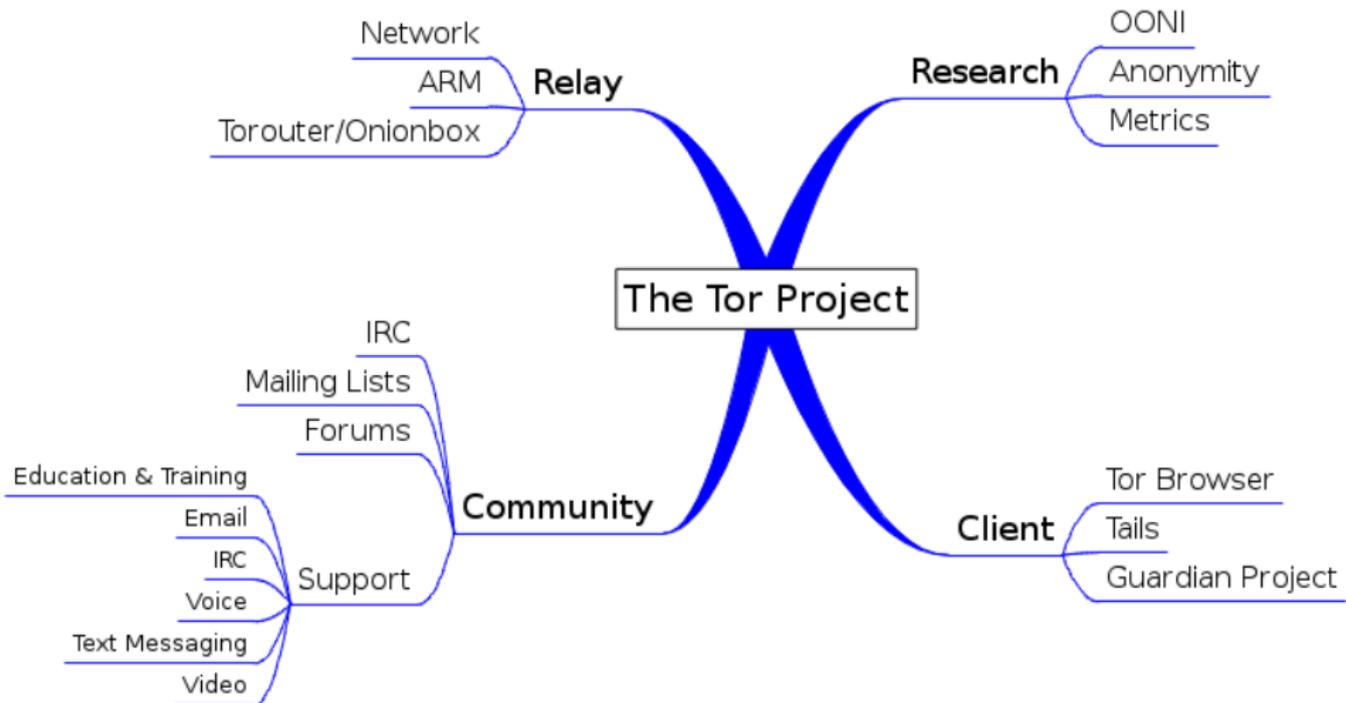


Tor serves different interests for different user groups:



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?

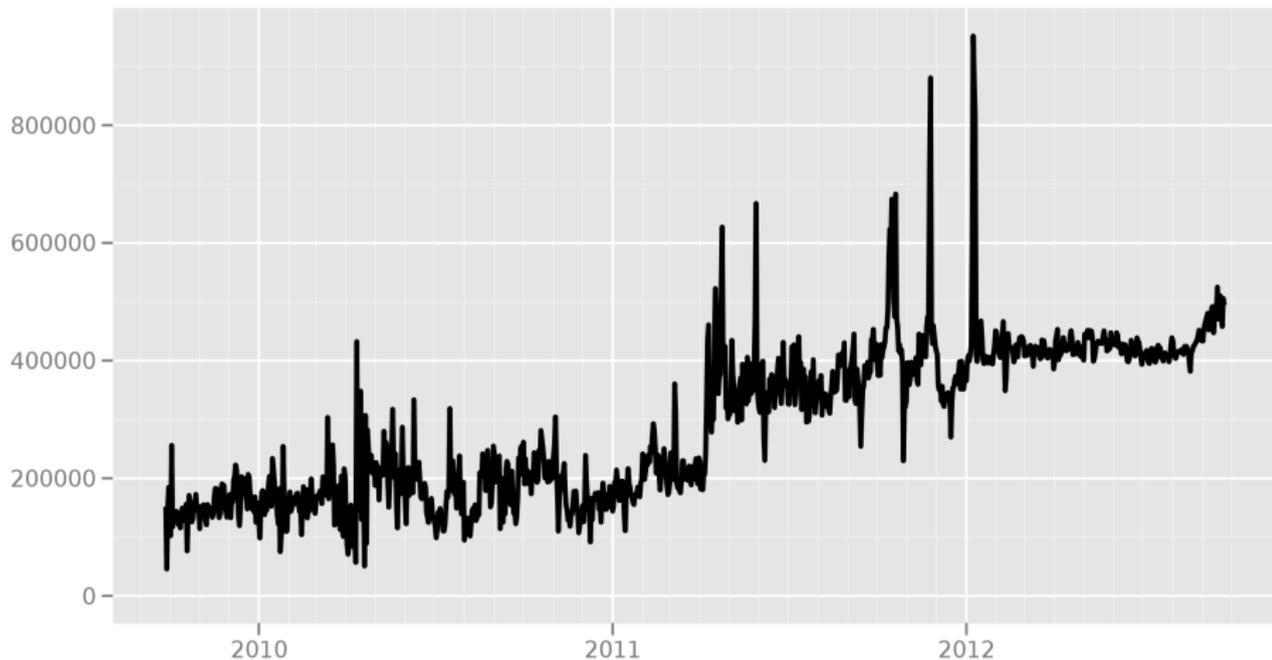
- Law Enforcement
- Abuse Victims
- Human Rights Activists
- Militaries
- Business Executives
- Normal People



An aerial, high-angle photograph of a massive crowd of people filling a large stadium. The crowd is dense and colorful, with many people wearing white shirts. The stadium's seating tiers are visible, and the crowd extends to the very edges of the frame. In the upper left, there is a large white text overlay. In the bottom right corner, there is a small navigation interface with a left arrow, the text '15 / 38', and a right arrow.

Estimated 500k to 1 million
daily users worldwide

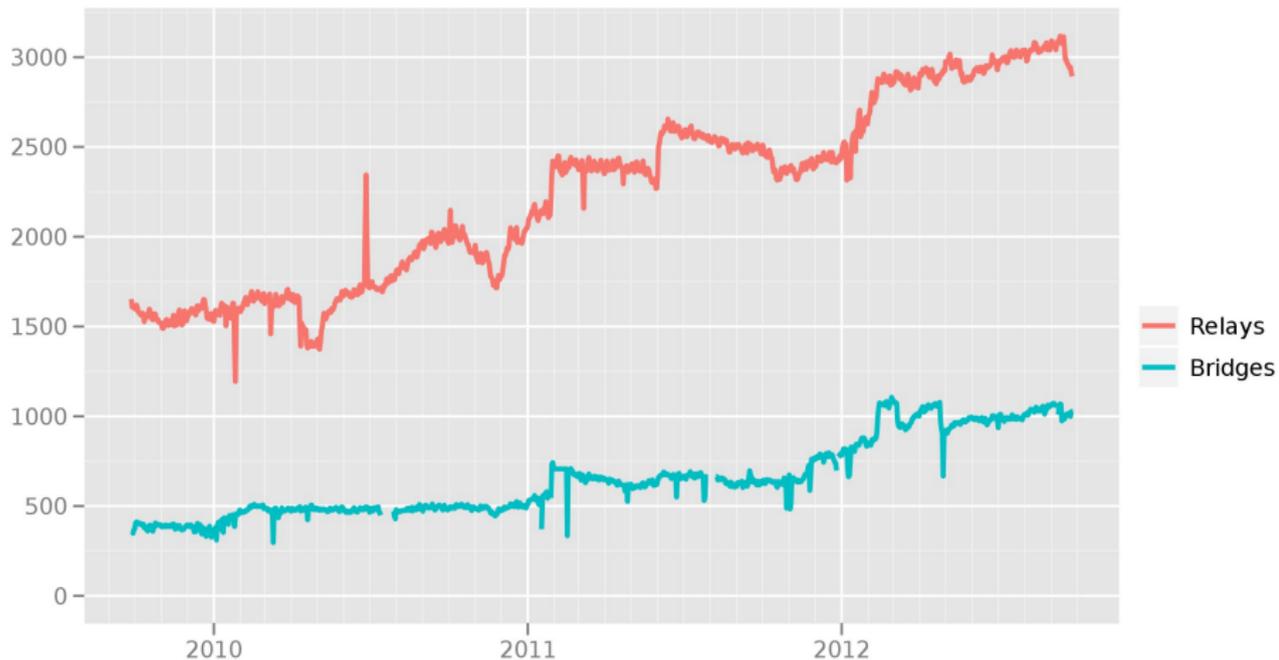
Directly connecting users from all countries



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

Country	Mean daily users
<u>United States</u>	61413 (14.25 %)
<u>Iran</u>	43994 (10.21 %)
<u>Italy</u>	38315 (8.89 %)
<u>Germany</u>	36488 (8.47 %)
<u>France</u>	28918 (6.71 %)
<u>Spain</u>	26733 (6.20 %)
<u>Brazil</u>	13183 (3.06 %)
<u>Syrian Arab Republic</u>	12584 (2.92 %)
<u>Russia</u>	11255 (2.61 %)
<u>United Kingdom</u>	10984 (2.55 %)

Number of relays



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

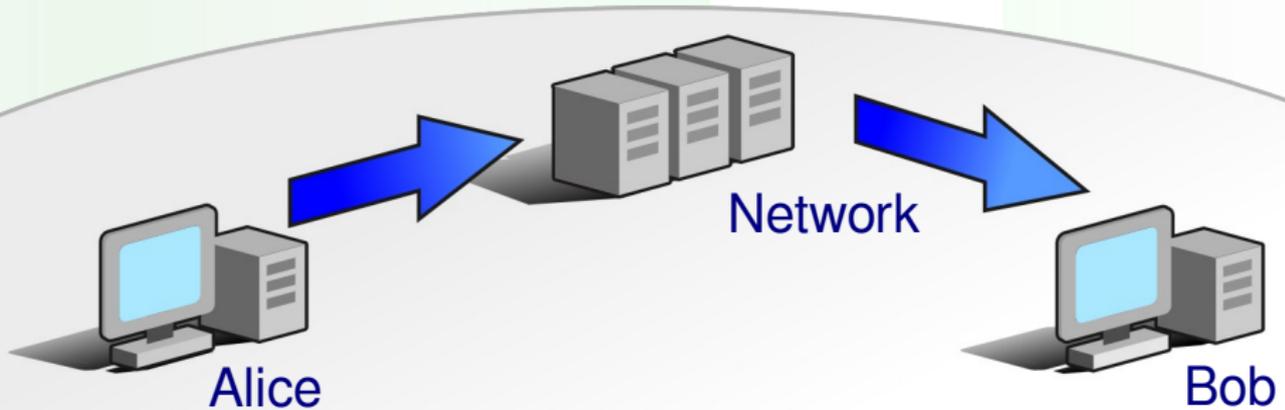
How is Tor different?

VPNs, HTTP/HTTPS proxies,
I2P, Freenet, Swarm,
Retros hare, Vanish

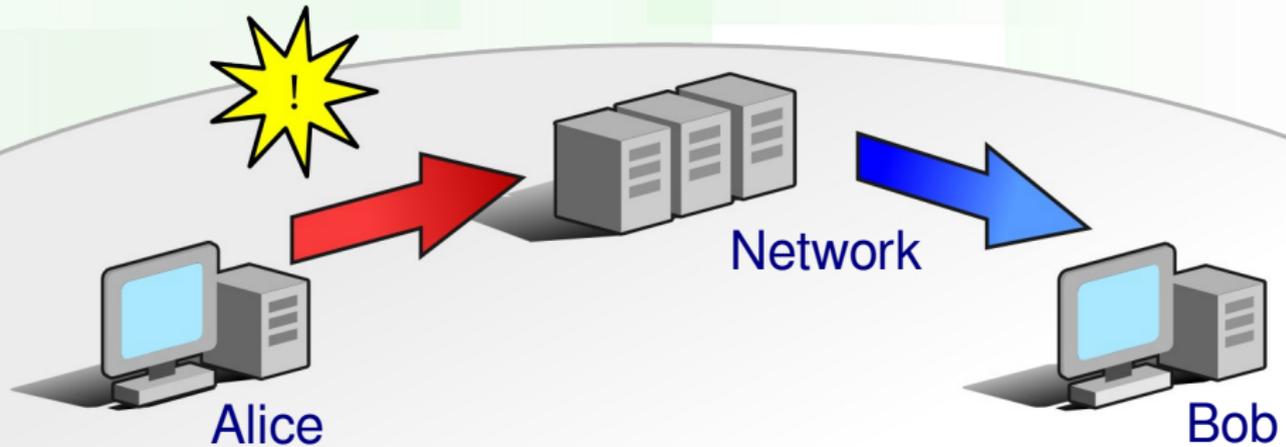
VS.

JonDos and Tor

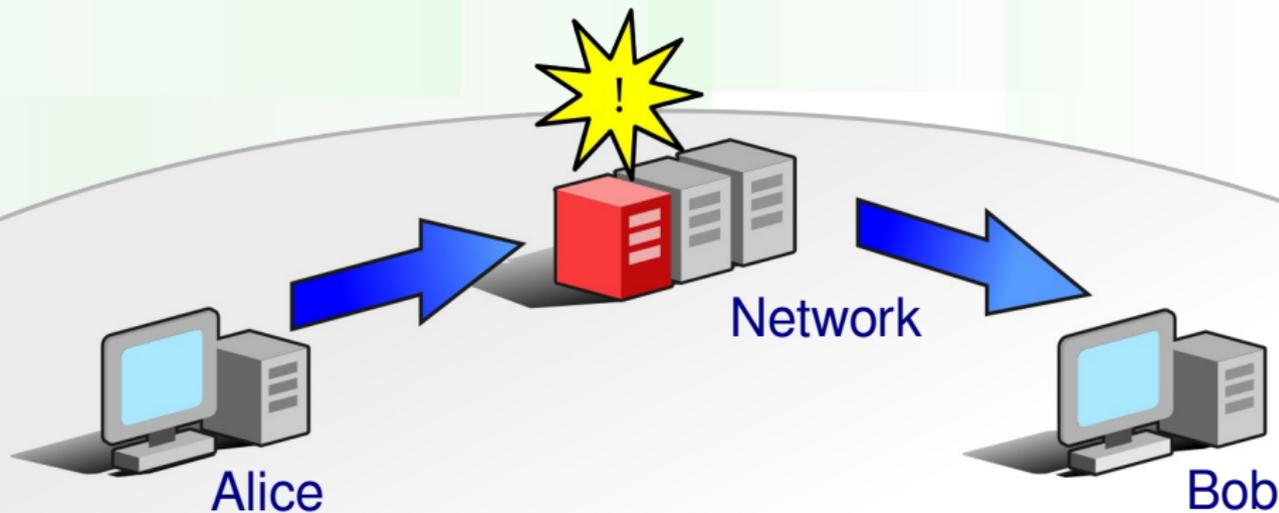
A Typical Internet Connection



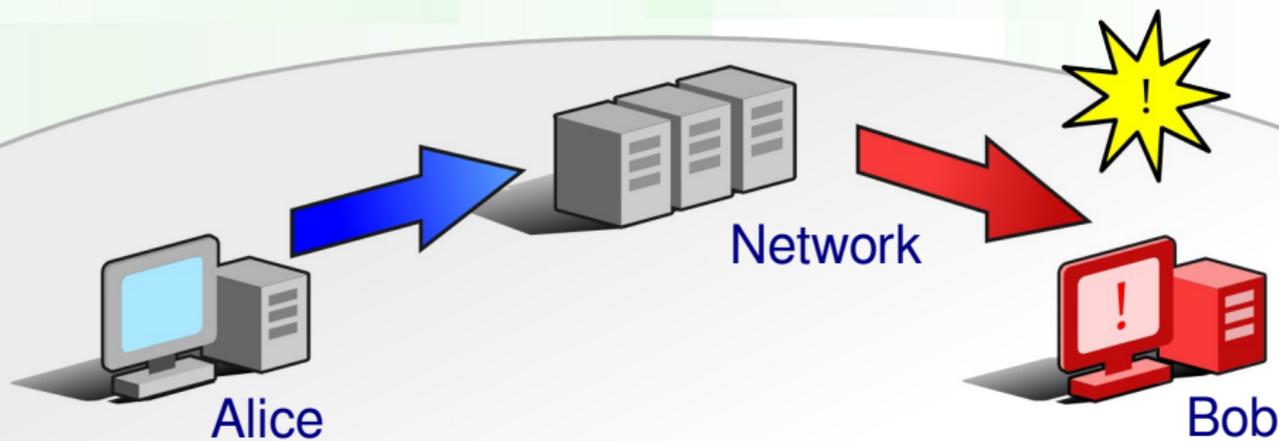
Alice might be watched.



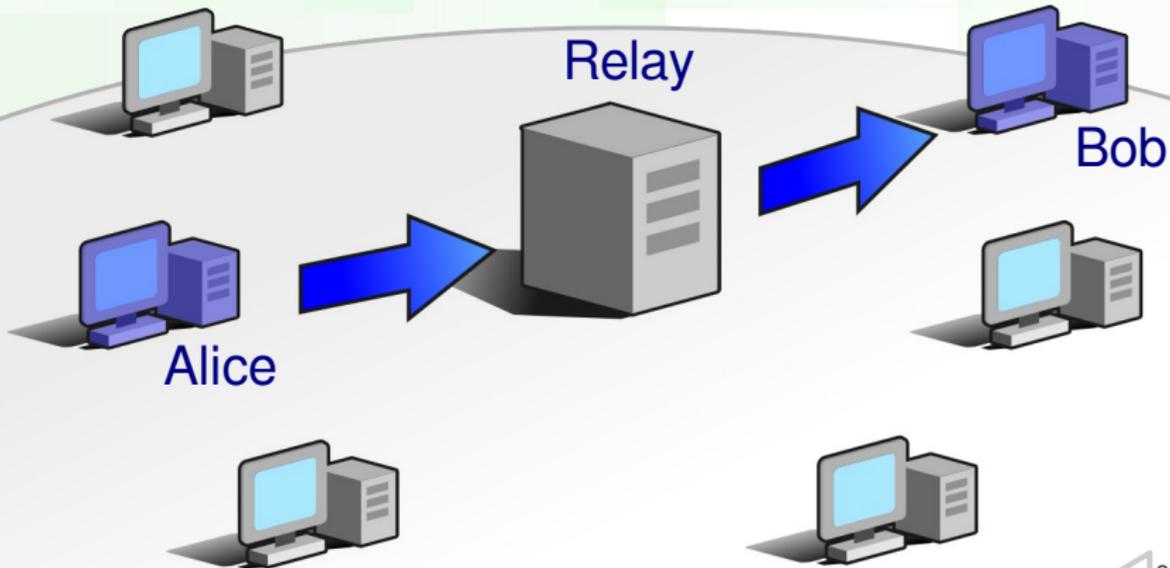
Parts of the network could be monitored.



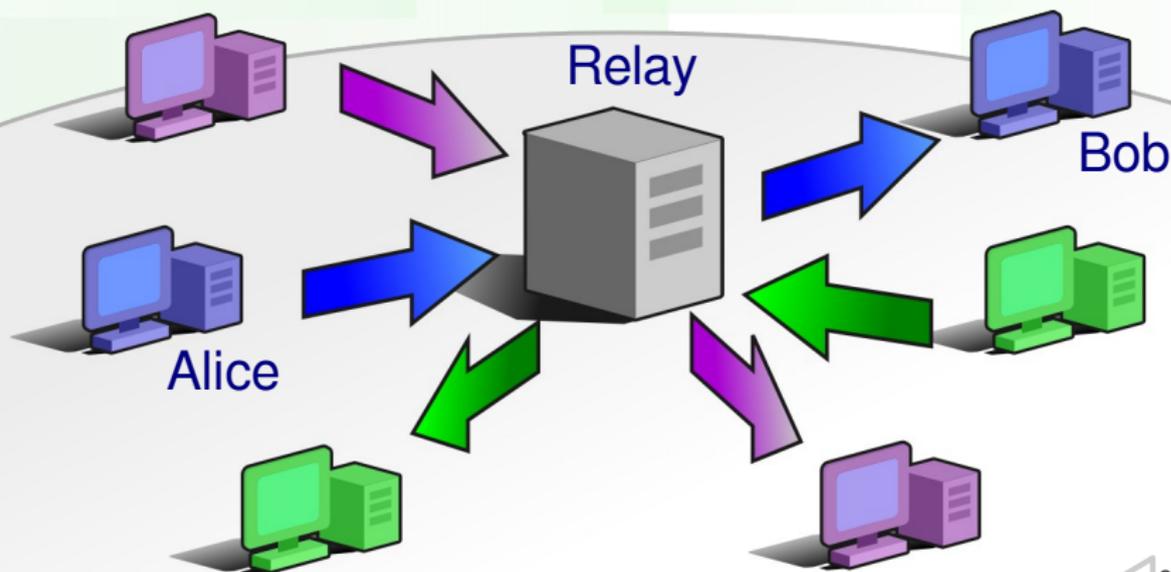
Bob could be compromised.



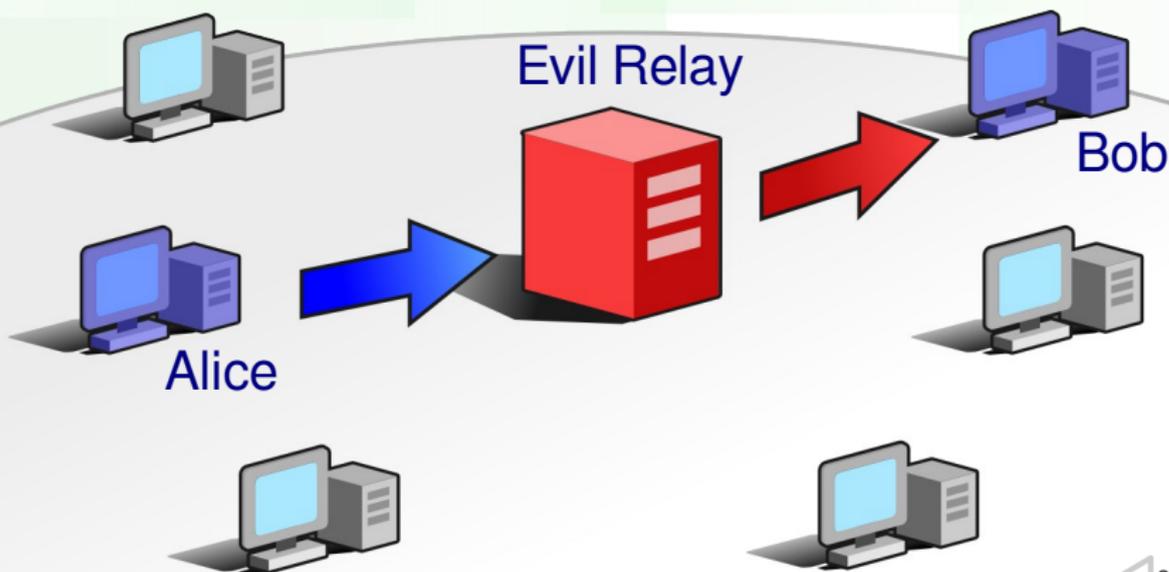
How is Tor Different?



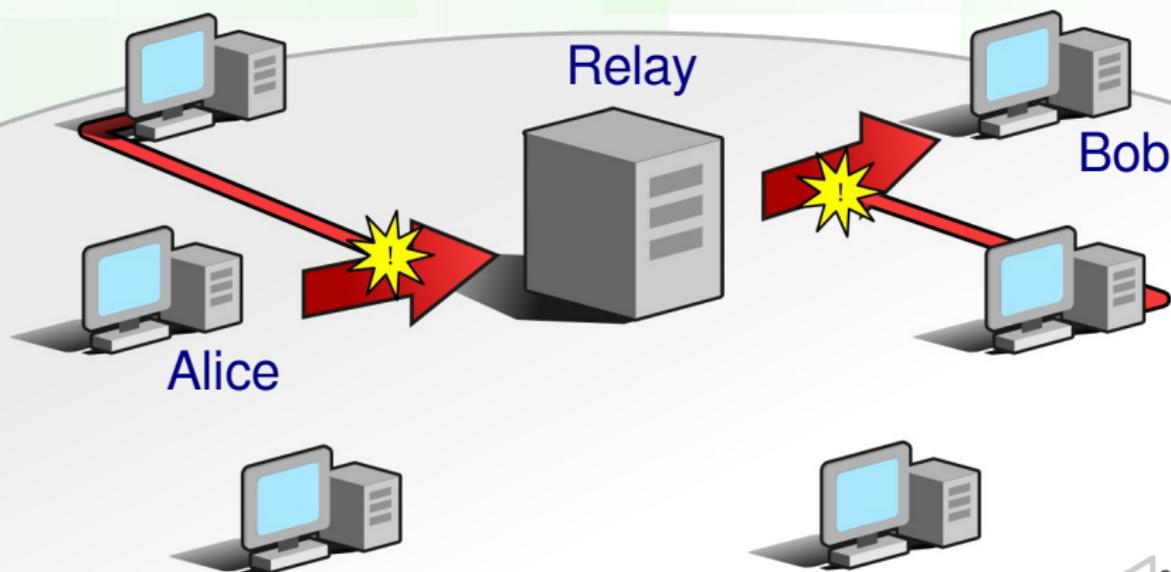
A Basic Relay System



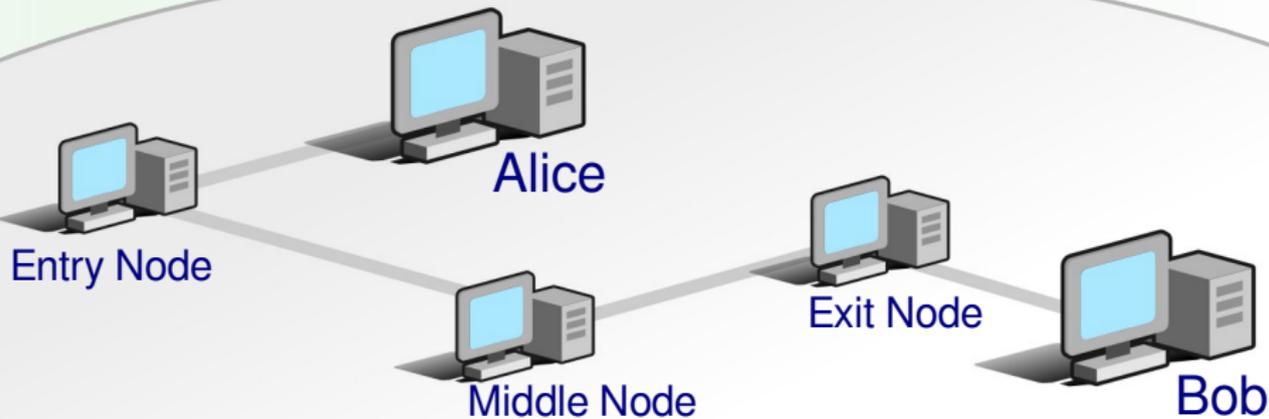
An Evil Relay



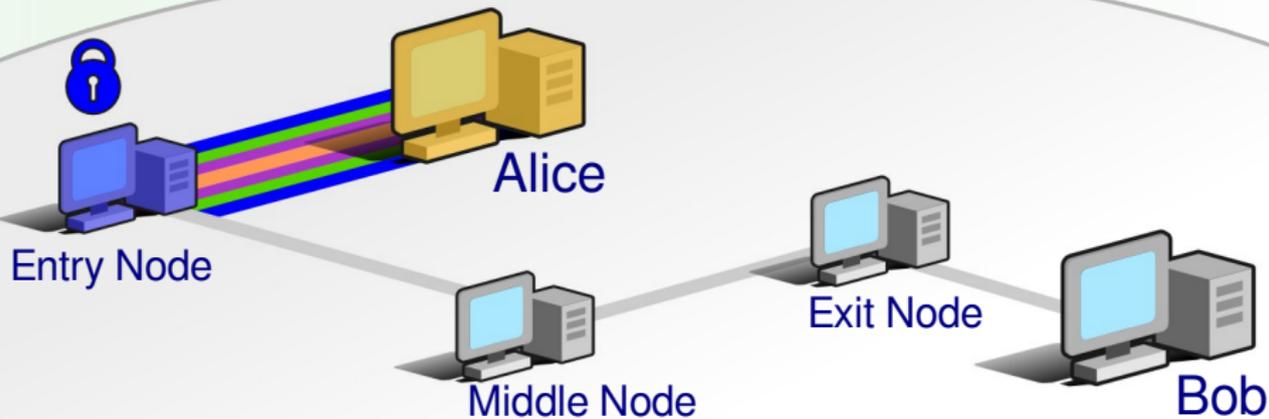
An Evil Network



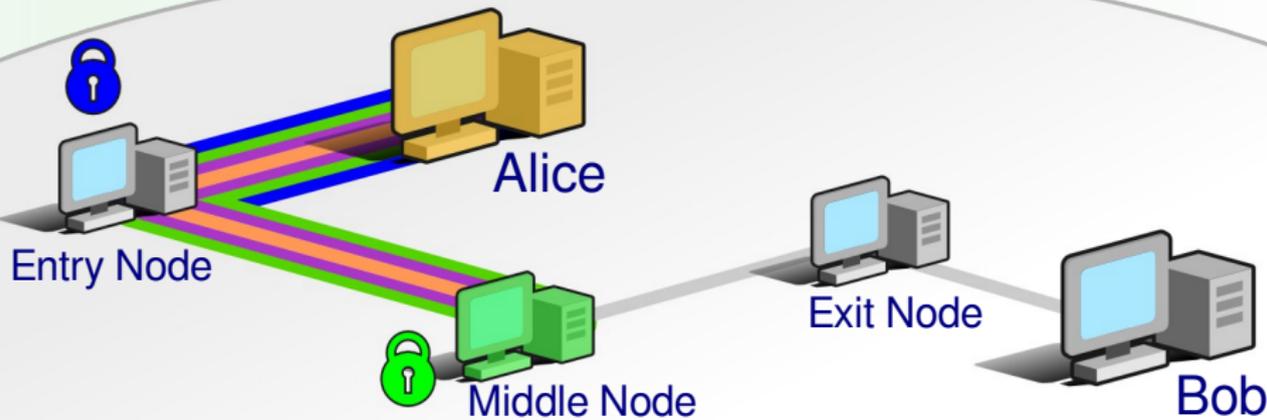
How Tor Works



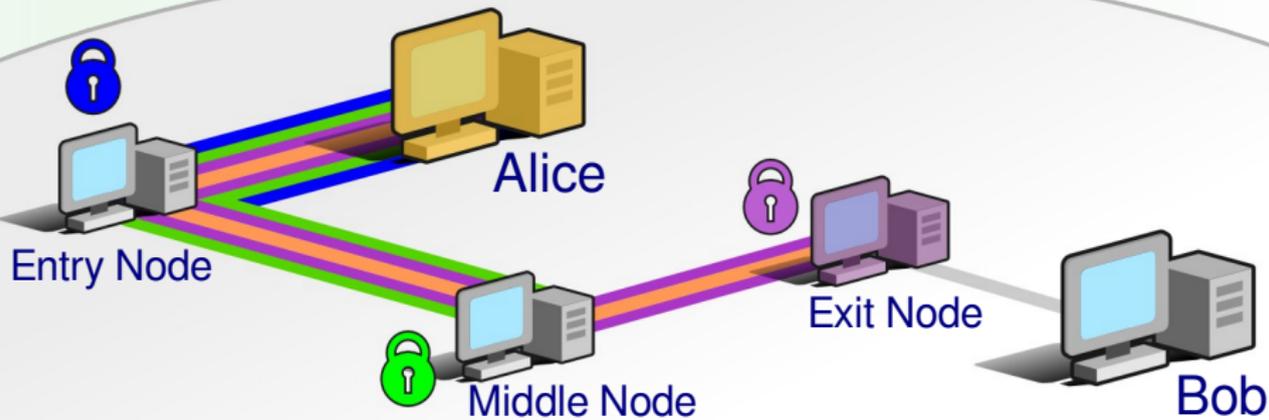
Alice connects to an Entry Node.



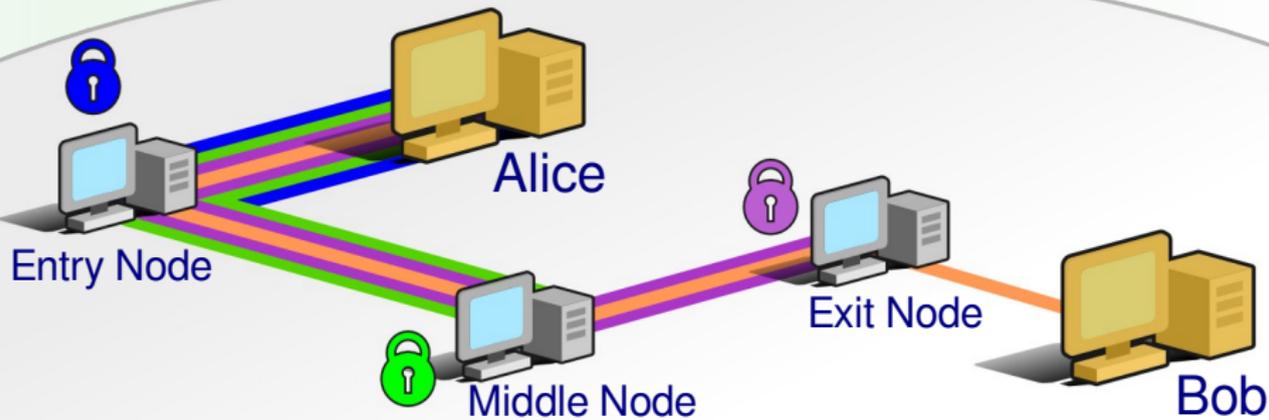
The data is routed through a Middle Node.



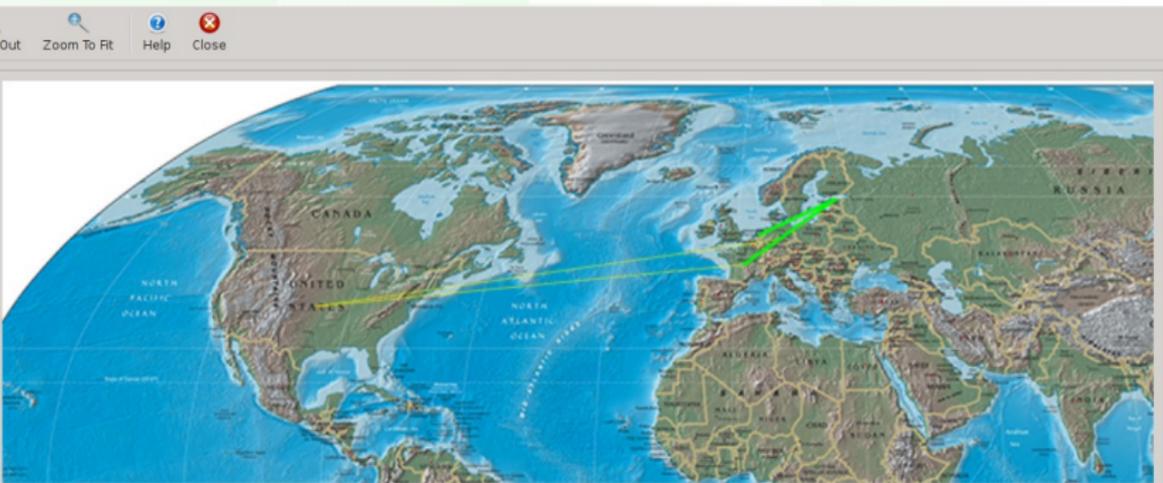
The data is routed through an Exit Node.



Alice's circuit to Bob is established.



Network Map



The screenshot shows a network map application interface. On the left is a list of relays, each with a small icon and a name. The main area is a world map with a green line connecting two relays across the Atlantic Ocean. Below the map is a connection list and a detailed view of the selected connection.

Relay List:

- chaoscomput...
- bolobolo2
- sofia
- gorz
- chaoscomput...
- chaoscomput...
- chaoscomput...
- bolobolo3
- wau
- bolobolo1
- TorLand2
- TorLand1
- BigBoy
- Ramsgate
- rainbowwarrior
- chomsky
- lumumba
- politkovskaja
- politkovskaja2
- tornodevienn...
- chaoscomput...
- chaoscomput...
- chaoscomput...
- chaoscomput...
- Kromyon1WH2A
- askk
- Unnamed
- svph3vat
- Unnamed
- kramse
- Faravahar2
- bach
- noiseexit01b
- raskin
- askk2
- bouazizi
- psilotorlu
- oilsv1
- hernsgaard
- Unnamed
- kimya
- xorox

Connection List:

Connection	Status
bwagnet.veebikaamera.chomsky	Open
bwagnet.spotlessmoon.chaos...	Open

bwagnet (Online)

Location: France
IP Address: 91.121.166.158
Platform: Tor 0.2.3.20-rc on Linux
Bandwidth: 4.36 MB/s
Uptime: 29 days 6 hours 9 mins 2 secs
Last Updated: 2012-09-19 09:21:32 GMT

veebikaamera (Online)

Location: Estonia
IP Address: 81.21.246.66

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

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