The Tor Project, Inc.

501(c)(3) non-profit organization dedicated to the research and development of technologies for online anonymity and privacy
People need to hide in a crowd of other people.

“Anonymity loves company.”
Tor serves different interests for different user groups:
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Private Citizens
“It’s Privacy!”
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- **Private Citizens**
  “It's Privacy!”

- **Governments**
  “It's traffic-analysis resistance!”
Tor serves different interests for different user groups:

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**Businesses**
“It's network security!”

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- **Private Citizens**
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- **Businesses**
  “It's network security!”

- **Human Rights Activists**
  “It's reachability!”
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
Estimated 500k to 1 million daily users worldwide
Directly connecting users from all countries

The Tor Project - https://metrics.torproject.org/
<table>
<thead>
<tr>
<th>Country</th>
<th>Mean daily users</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>61413 (14.25 %)</td>
</tr>
<tr>
<td>Iran</td>
<td>43994 (10.21 %)</td>
</tr>
<tr>
<td>Italy</td>
<td>38315 (8.89 %)</td>
</tr>
<tr>
<td>Germany</td>
<td>36488 (8.47 %)</td>
</tr>
<tr>
<td>France</td>
<td>28918 (6.71 %)</td>
</tr>
<tr>
<td>Spain</td>
<td>26733 (6.20 %)</td>
</tr>
<tr>
<td>Brazil</td>
<td>13183 (3.06 %)</td>
</tr>
<tr>
<td>Syrian Arab Republic</td>
<td>12584 (2.92 %)</td>
</tr>
<tr>
<td>Russia</td>
<td>11255 (2.61 %)</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>10984 (2.55 %)</td>
</tr>
</tbody>
</table>
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

Network

Alice

Bob
Alice might be watched.
Parts of the network could be monitored.
Bob could be compromised.
How is Tor Different?

Alice → Relay → Bob
A Basic Relay System
An Evil Relay

Alice

Evil Relay

Bob
An Evil Network

Alice

Relay

Bob
How Tor Works

Alice
Middle Node
Exit Node
Bob
Entry Node
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


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