

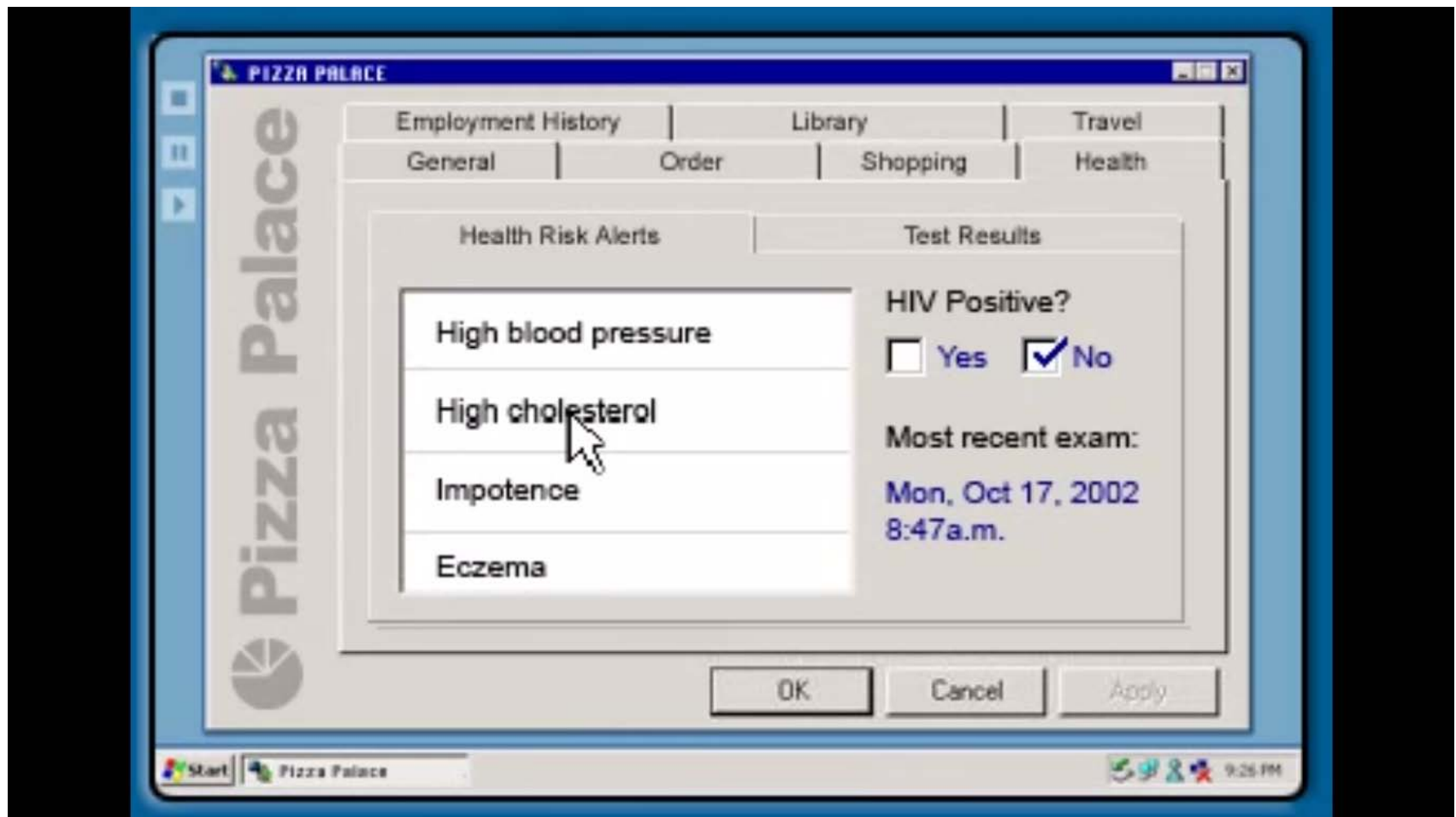
CYBER SECURITY-PRIVACY
CAN YOU PROTECT YOURSELF IN
CYBERSPACE?
REALLY????

Dr. Levent Ertaul, CSU EASTBAY

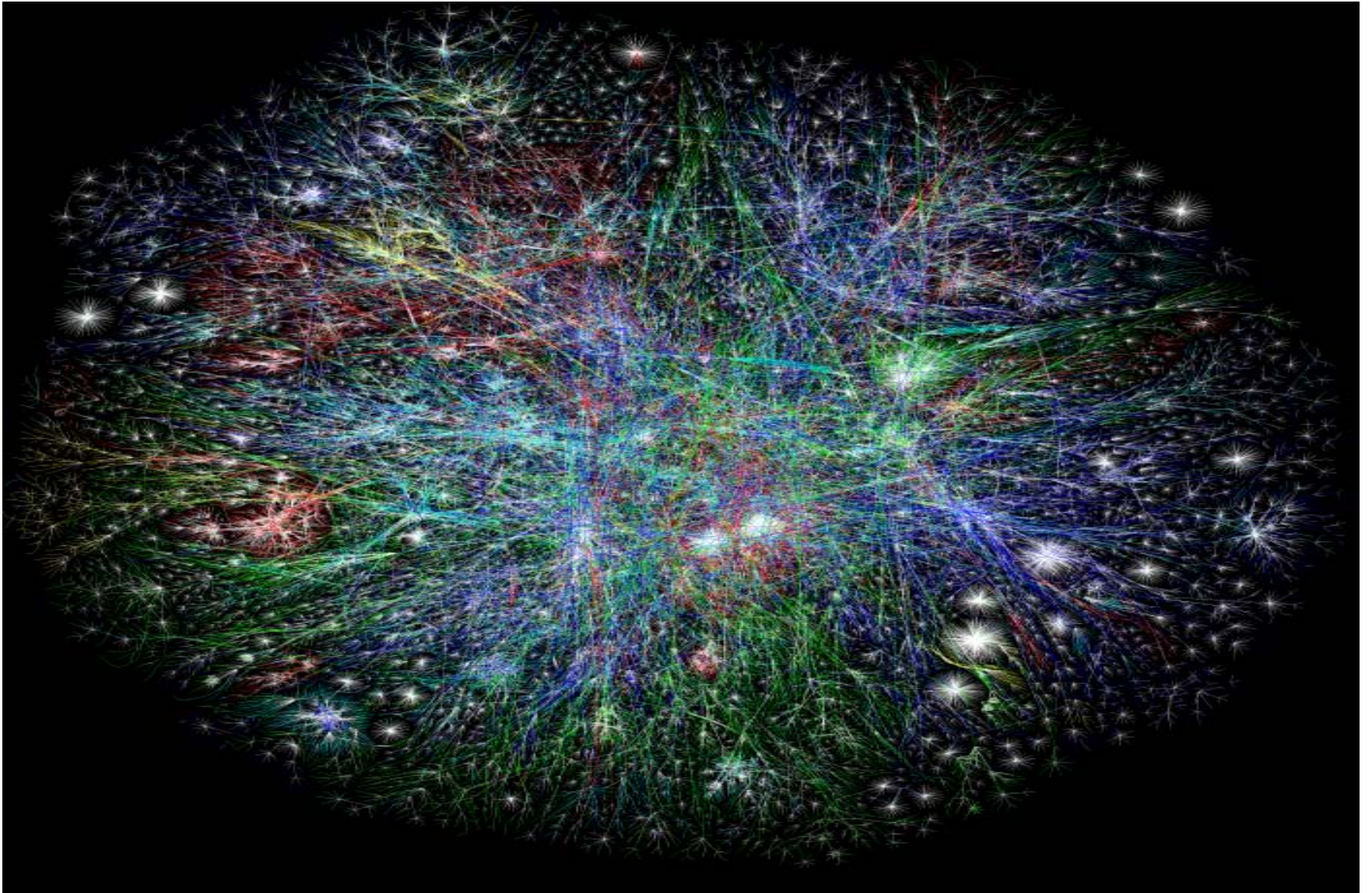
WHO WANTS THE LIVE IN A GLASS HOUSE?



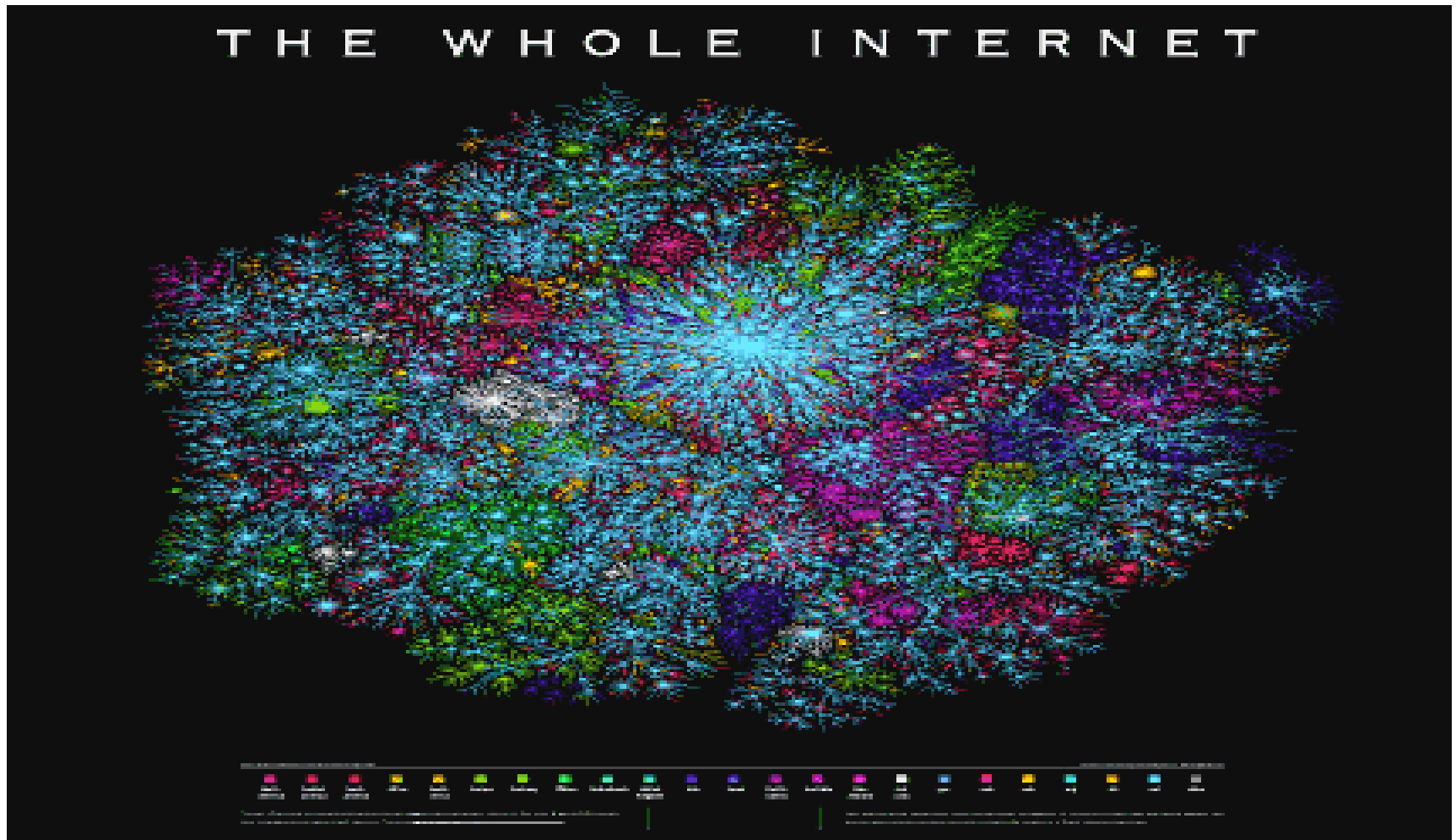
WHO WANTS THE LIVE IN THIS FUTURE?



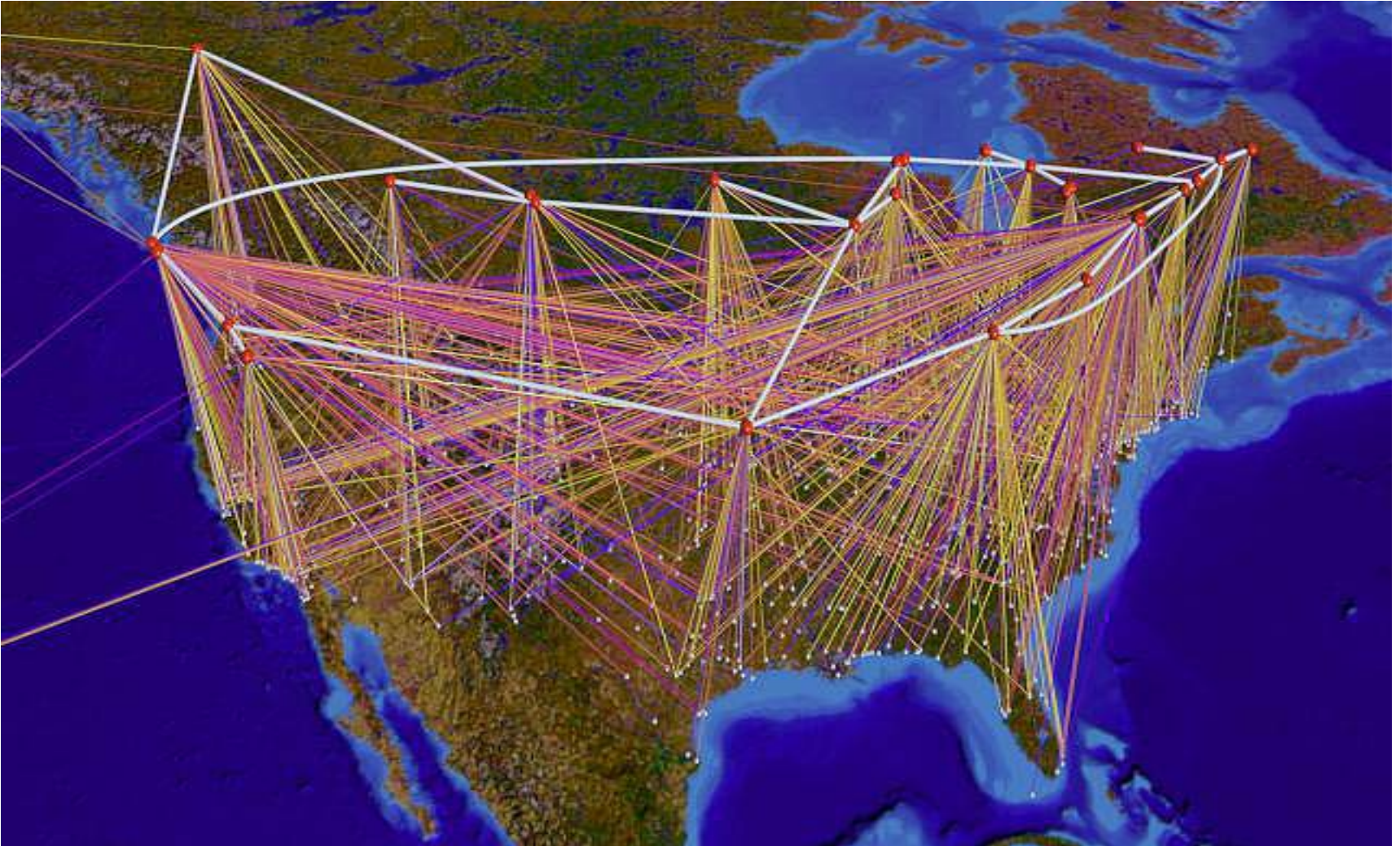
CYBER SPACE



CYBER SPACE: A Dangerous Place?



CYBER SPACE: USA's Infrastructure- Partial



CYBER SPACE: Global Traffic

1¢ **14¢**
FIXED-LINE MOBILE

Per-minute wholesale cost to send an international call to Switzerland.

27%

TRAFFIC SENT AS VOIP
Share of total international voice traffic transported as VoIP by carriers in 2009.

4/5

WIRELESS WORLD
Share of phones worldwide that are mobile.

12%

SKYPE VS. THE WORLD
Total international Skype traffic as a percentage of world-wide international voice traffic in 2009, approximately 33 billion minutes.

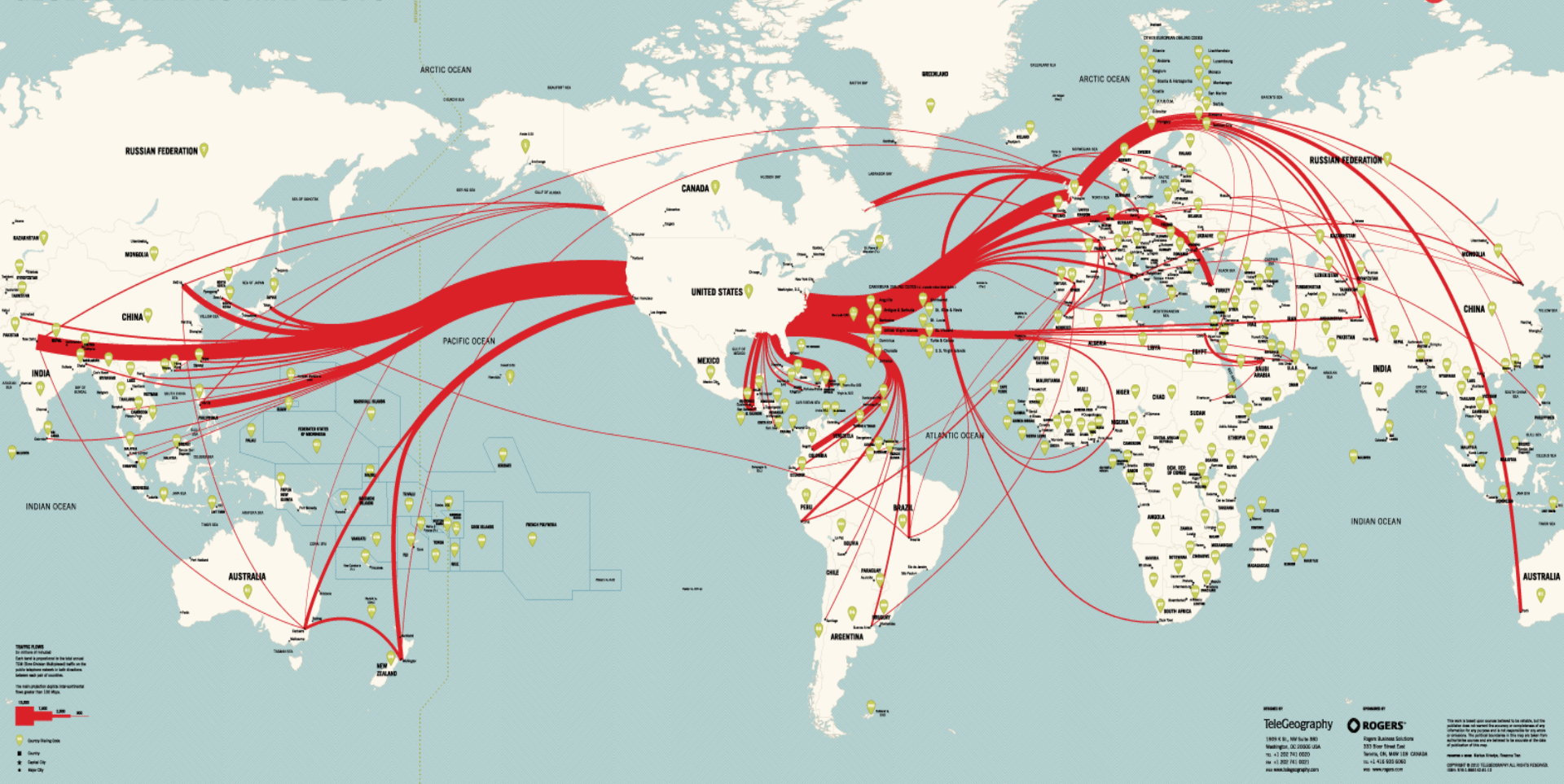
0.1
FIXED-LINE

4.1
MOBILE

Billions of new subscribers added since 2000.

GLOBAL TRAFFIC MAP 2010

TeleGeography **ROGERS™**



MINUTES & VOLUME

Voice traffic has grown at a remarkable 13.7% annually since 2000.

13.7%

14.9%

PRICING & REVENUES

Thanks to robust competition, international call rates fell 14.9% annually since 2000.

WHOLESALE TRAFFIC AND REVENUE BY DESTINATION REGION 2009

Thanks to robust competition, international call rates fell 14.9% annually since 2000.

USERS & TECHNOLOGY

Mobile phones have replaced the telephone in many developing countries.

MOBILE AND FIXED SUBSCRIBER GROWTH 2007-09

Mobile phones have replaced the telephone in many developing countries.

TELECOMS BY TECHNOLOGY 2009

Mobile phones have replaced the telephone in many developing countries.

TELECOMS BY TECHNOLOGY 2009

Mobile phones have replaced the telephone in many developing countries.

TELECOMS BY TECHNOLOGY 2009

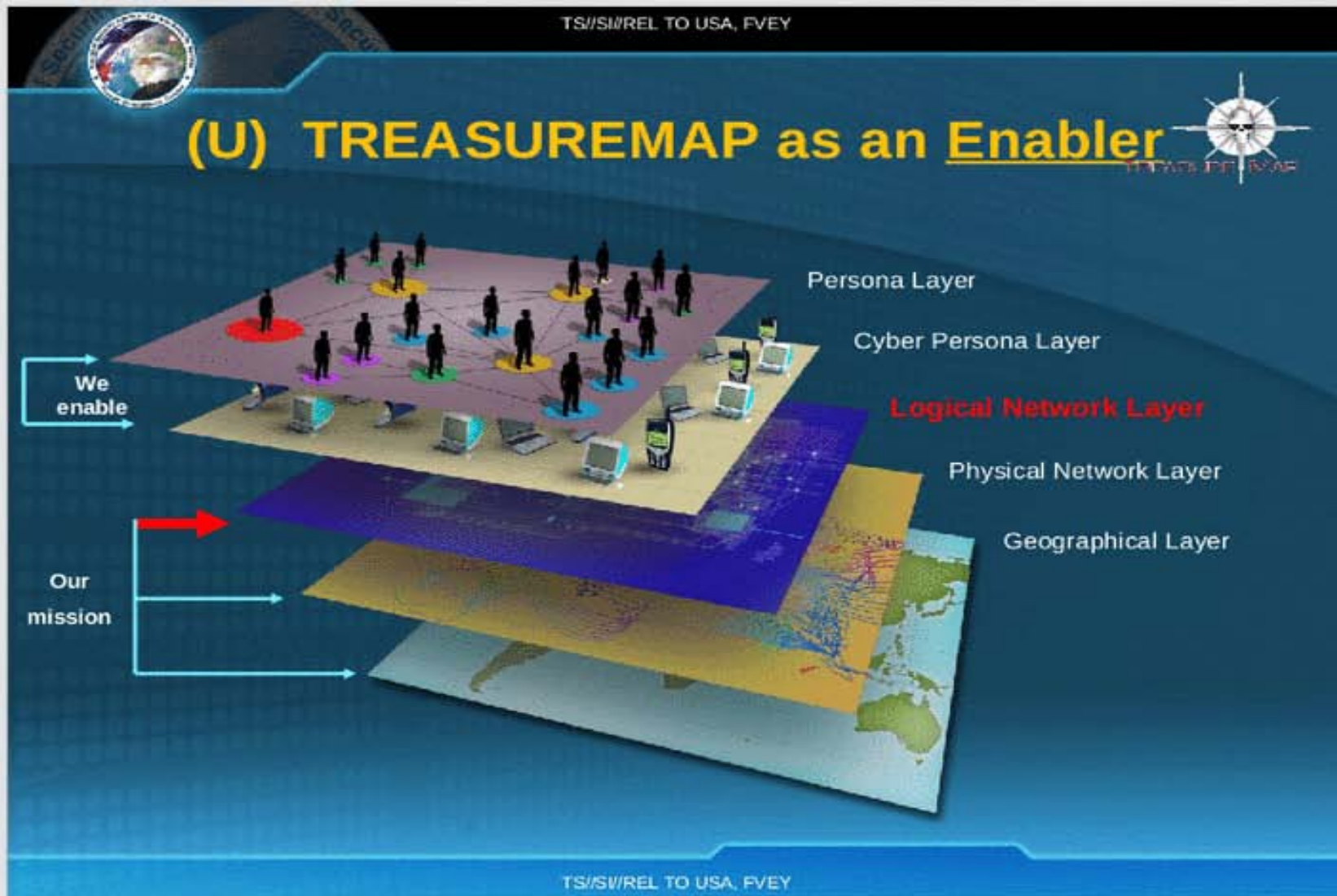
Mobile phones have replaced the telephone in many developing countries.

TeleGeography
1979 • 800 • 767-7676
1000 • 767-7676
1000 • 767-7676
1000 • 767-7676

ROGERS™
Rogers Business Solutions
1000 • 767-7676
1000 • 767-7676
1000 • 767-7676
1000 • 767-7676

This work is based upon research conducted by TeleGeography, Inc. and is intended to provide a general overview of the telecommunications industry. It is not intended to be used as a basis for investment decisions. The information contained herein is subject to change without notice. The information contained herein is not intended to be used as a basis for investment decisions.

SCOPE OF CYBER SPACE



VULNARABILITES OF CYBER SPACE: Instantaneous Action at a Distance



VULNARABILITES OF CYBER SPACE:

Asymmetries of Cyber Space



VULNARABILITES OF CYBER SPACE:

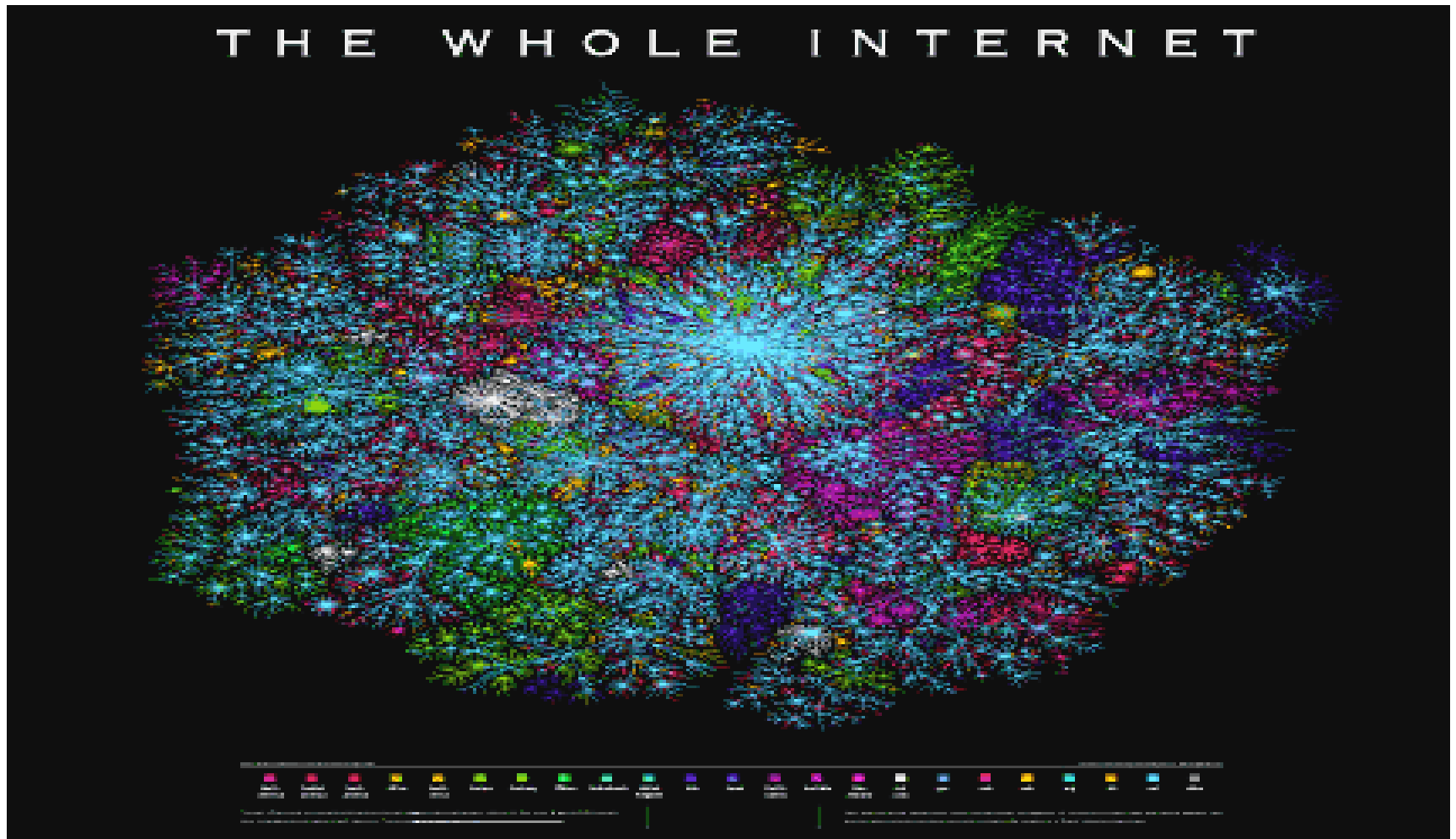
Anonymity



"On the Internet, nobody knows you're a dog."

VULNARABILITES OF CYBER SPACE:

Lack of Borders



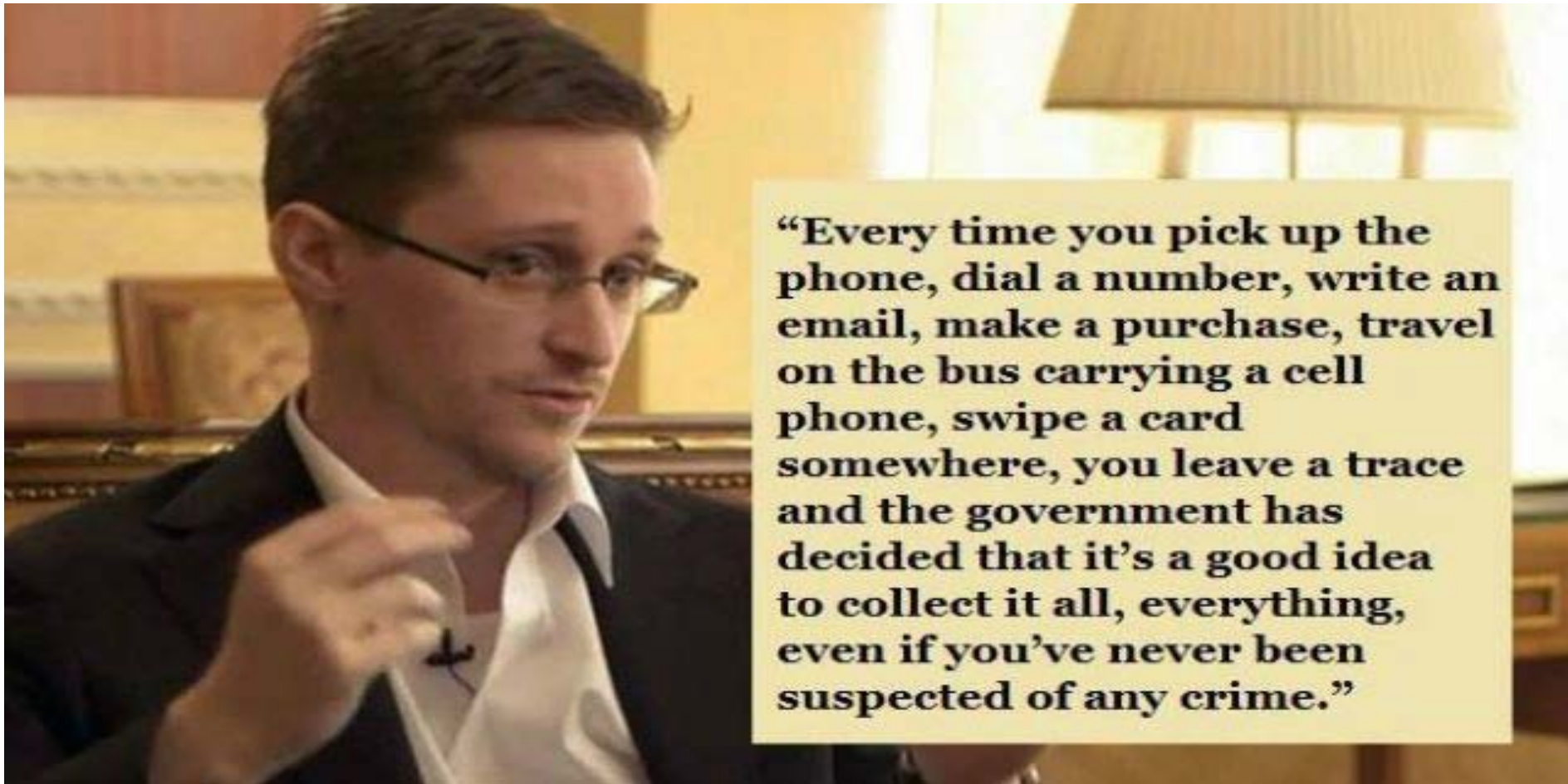
VULNARABILITES OF CYBER SPACE:

Difficulty of Distinction



PRIVACY: Who is after your private Data

GOVERNMENT



“Every time you pick up the phone, dial a number, write an email, make a purchase, travel on the bus carrying a cell phone, swipe a card somewhere, you leave a trace and the government has decided that it’s a good idea to collect it all, everything, even if you’ve never been suspected of any crime.”

PRIVACY: Who is after your private Data

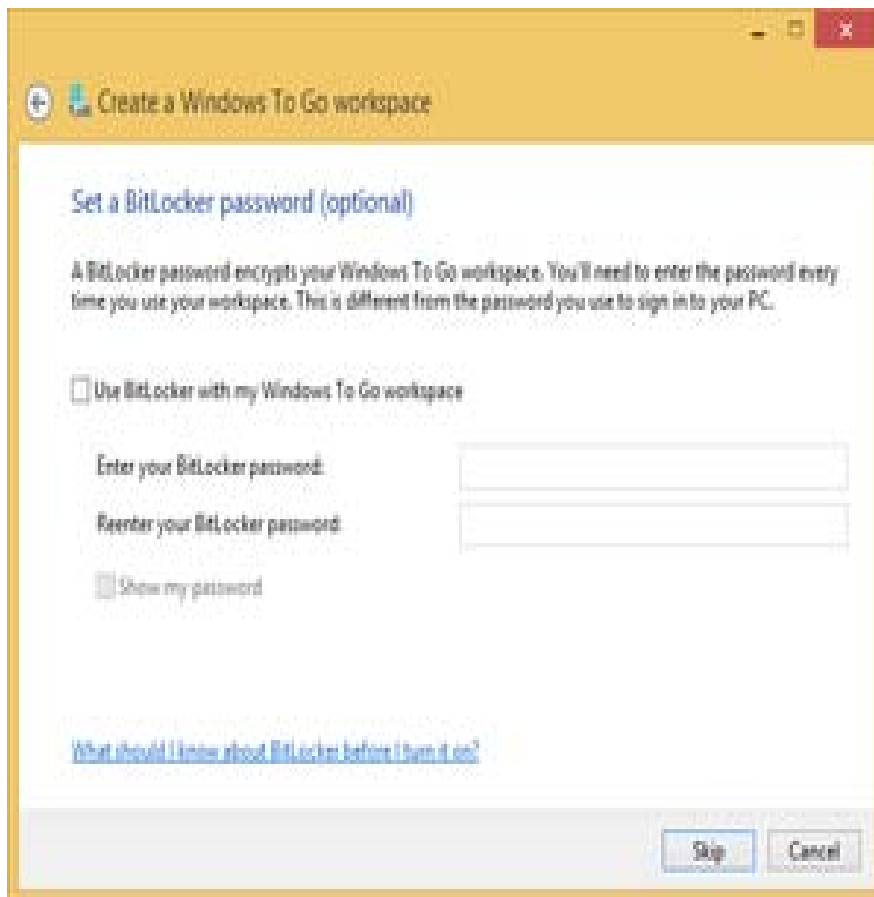
CORPORATIONS



WE COOPERATE WITH
CORPORATE SURVEILLANCE
BECAUSE IT PROMISES US
CONVENIENCE, AND WE
SUBMIT TO GOVERNMENT
SURVEILLANCE BECAUSE IT
PROMISES US PROTECTION.

PRIVACY:HOW CAN YOU PROTECT YOURSELF

HDD ENCRYPTION-Bit Locker, PGP



Pretty

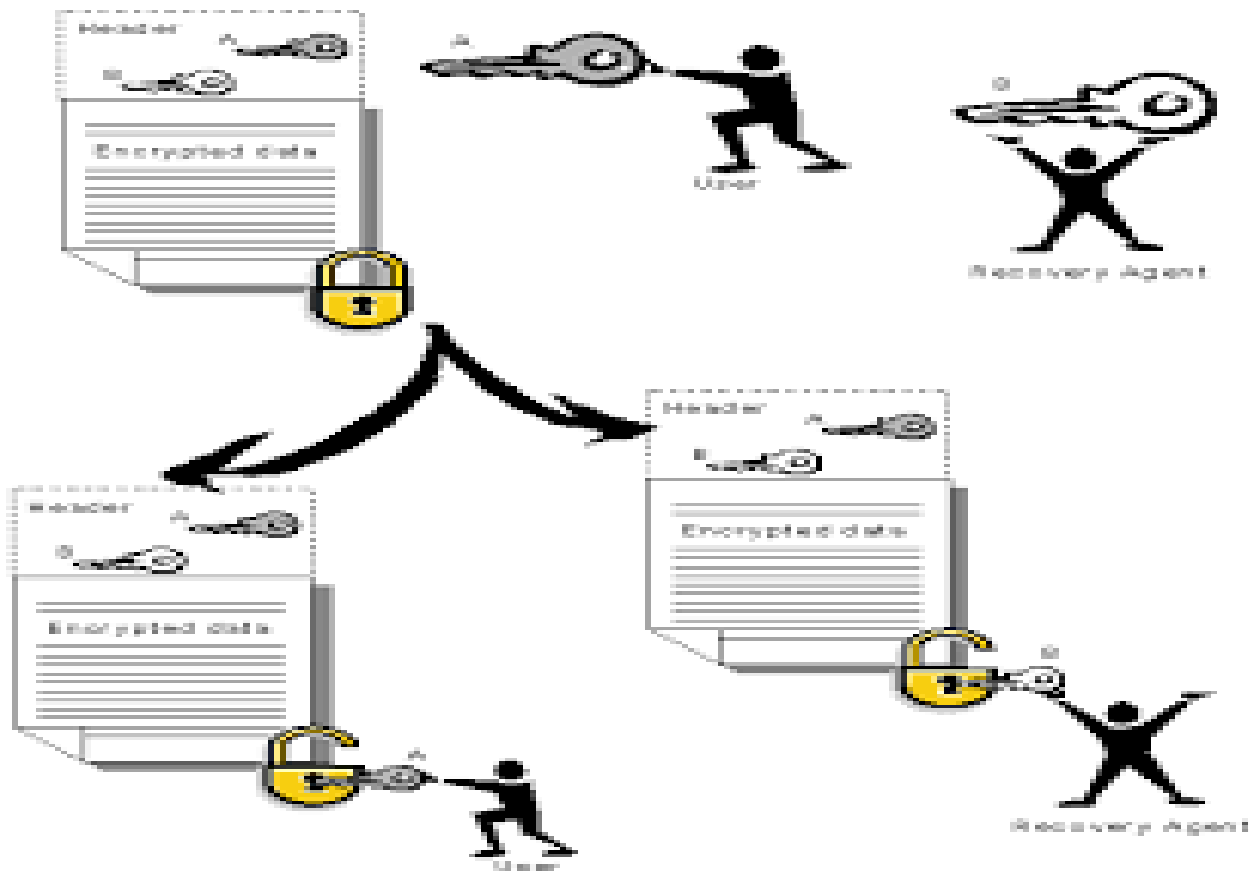
Good

Privacy



PRIVACY:HOW CAN YOU PROTECT YOURSELF

FILE ENCRYPTION- EFS, FILEVAULT (MAC)



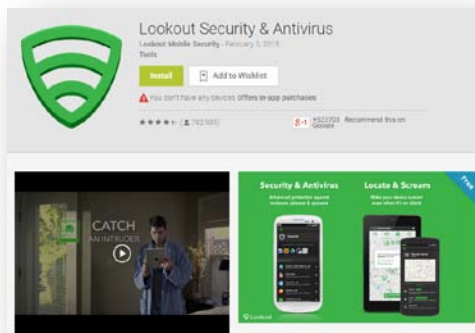
PRIVACY:HOW CAN YOU PROTECT YOURSELF

SECURE E-MAIL: S-MIME, PGP, [MAILVELOPE](#), [GMAIL-STAKE](#)



PRIVACY:HOW CAN YOU PROTECT YOURSELF

ANTIVIRUS-MALWARE- SPYWARE-FIREWALLS



PRIVACY:HOW CAN YOU PROTECT YOURSELF

PASSWORD MANAGEMENT- LastPass - Keeper



PRIVACY:HOW CAN YOU PROTECT YOURSELF

DELETING DATA- ERASER



PRIVACY:HOW CAN YOU PROTECT YOURSELF

SECURE CLOUD STORAGE- SPIDEROAK



PRIVACY:HOW CAN YOU PROTECT YOURSELF

SECURE PRIVATE BROWSING- TOR



The image is a screenshot of the Tor Project's official website. At the top, there is a navigation bar with links for 'Home', 'About Tor', and 'Documentation'. The 'Home' link is highlighted. Below the navigation bar is the Tor logo, which consists of the word 'Tor' in a stylized purple font with a small onion icon integrated into the letter 'o'. The main content area has a green background with diagonal stripes. On the left, there is a section titled 'Anonymity Online' with the text 'Protect your privacy. Defend yourself against network surveillance and traffic analysis.' Below this text is a purple button with the text 'Download Tor' and a small onion icon. To the right of the button, there is a list of three bullet points: 'Tor prevents anyone from learning your location or browsing habits.', 'Tor is for web browsers, instant messaging clients, remote logins, and more.', and 'Tor is free and open source for Windows, Mac, Linux/Unix, and Android.' Below the main content area, there are two columns of text. The left column is titled 'What is Tor?' and contains the text 'Tor is free software and an open network that helps you defend against a form of network'. The right column is titled 'Why Anonymity Matters' and contains the text 'Tor protects you by bouncing your'.

[Home](#) [About Tor](#) [Documentation](#)

Tor

Anonymity Online

Protect your privacy. Defend yourself against network surveillance and traffic analysis.

 [Download Tor](#)

- Tor prevents anyone from learning your location or browsing habits.
- Tor is for web browsers, instant messaging clients, remote logins, and more.
- Tor is free and open source for Windows, Mac, Linux/Unix, and Android

What is Tor?

Tor is free software and an open network that helps you defend against a form of network

Why Anonymity Matters

Tor protects you by bouncing your

PRIVACY:HOW CAN YOU PROTECT YOURSELF

SECURE PRIVATE SEARCH ENGINE- DUCK DUCK GO



DuckDuckGo

PRIVACY:HOW CAN YOU PROTECT YOURSELF

SECURE WIRELESS CONNECTION-WPA2

Gateway > Connection > x

1/wireless_network_configuration_edit.asp

California State Univ... Yahoo! Bank of America | H... Wells Fargo - Perso... Health insurance for... HÜRRİYET - TÜRKİY... Google

Status

XFINITY Network

Local IP Network

Wi-Fi

Firewall

Software

Hardware

Wizard

Connected Devices

Parental Control

Advanced

Troubleshooting

Private WiFi Network Configuration (2.4 GHz)

Wireless Network: **Enabled** Disabled

Network Name (SSID): L1A0R1A0

Mode: 802.11 g/n

Security Mode: WPAWPA2-PSK (TKIP/AES) (recommended)

Channel Selection: WEP 64 (risky)
WEP 128 (risky)
WPA-PSK (TKIP)
WPA-PSK (AES)
WPA2-PSK (TKIP)
WPA2-PSK (AES)
WPAWPA2-PSK (TKIP/AES) (recommended)

Channel:

Network Password:

Show Network Password: ☐

WPA2 requires a 8-63 ASCII character or a 64 hex character password. Hex means only the following characters can be used: ABCDEF0123456789.

Broadcast Network Name (SSID): ☒ Enabled

SAVE SETTINGS RESTORE DEFAULT SETTINGS

THE CONSTITUTION AND CYBERSPACE

FOURTH AMENDMENT

The [Fourth Amendment](#) of the [U.S. Constitution](#) provides, "[t]he right of the people to be secure in their persons, houses, papers, and effects, against [unreasonable searches and seizures](#), shall not be violated, and no [Warrants](#) shall issue, but upon [probable cause](#), supported by Oath or affirmation, and particularly describing the place to be [searched](#), and the persons or things to be [seized](#)."

The ultimate goal of this provision is to protect people's [right to privacy](#) and freedom from arbitrary governmental intrusions.

The protection under the [Fourth Amendment](#) can be waived if one voluntarily [consents](#) to or does not object to evidence collected during a [warrantless search or seizure](#).

Private intrusions not acting in the color of governmental authority are exempted from the [Fourth Amendment](#).

GOOGLE PRIVACY POLICY



DATA COLLECTED BY APPS: EXAMPLE



Take pictures and videos

Record audio

Location information (Approximate, Precise)

Read your Web bookmarks and history

Modify or delete contents of your SD card

Control NFC

Add or remove accounts

Change your audio settings

Read sync settings

Install shortcuts

Access Mobile Device Management (MDM) content providers

CONCLUSIONS

**“I AM REGULARLY ASKED WHAT THE AVERAGE
INTERNET USER CAN DO TO ENSURE HIS
SECURITY. MY FIRST ANSWER IS USUALLY
'NOTHING; YOU'RE SCREWED'.”**

BRUCE SCHNEIER