

Networking and Policy



Georgios Smaragdakis



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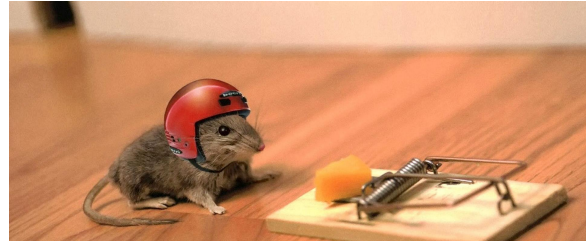
The first 60 years were the easy ones!



**..We will spend the next 60 years to fix the
problem**



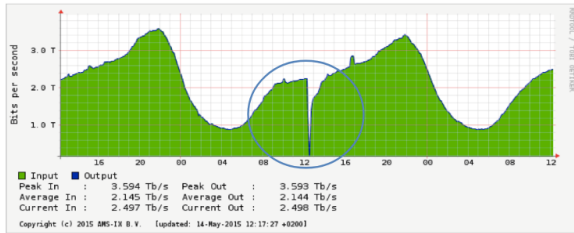
Do we miss the big picture?



Division of Labor Tragedy?



The Internet and the Web: Victims of their own Success



KrebsOnSecurity ~~as a~~ Target

In-depth security news and investigation

KrebsOnSecurity Hit With Record DDoS

...nesday evening, KrebsOnSecurity.com was the target of an extremely large and ...outed denial-of-service (DDoS) attack designed to knock the site offline. The ...eceeded thanks to the hard work of the engineers at Akamai, the company that ...rom such digital sieges. But according to Akamai, it was nearly double the ...t attack they'd seen previously, and was among the biggest assaults the Inter...essed.

Hackers Hit Dozens of Countries Exploiting Stolen N.S.A. Tool

Leer en español

By NICOLE PERLROTH and DAVID E. SANGER MAY 12, 2017



The Internet Under Crisis Conditions

Learning from September 11

NATIONAL RESEARCH COUNCIL OF THE NATIONAL ACADEMIES

The New York Times

Facebook and Cambridge Analytica: What You Need to Know as Fallout Widens

By Kevin Granville

March 19, 2018



Leer en español



Cambridge Analytica, a political data firm hired by President Trump's 2016 election campaign, gained access to information on 50 million Facebook users as a way to identify the personalities of American voters and influence their behavior.
Elise Amendola/Associated Press

...th Service hospital in London on ...k, causing failures to computer sy

Privacy



Next big challenge:

How to audit compliance?

- **Chaotic Web**
- **Divided Web**
- **Invisible backend**

Privacy



Should we break up Facebook or solve the real problems?

- **Portable data?**
- **Right to forget?**

Protect the Internet as a Critical Infrastructures



DHS and **ENISA** have characterized peering

infrastructures as critical infrastructures – in the same category as nuclear reactors and power powerhouses. [An Annex to the National Infrastructure Protection Plan, 2010, 2015; Critical Infrastructures and Services, Internet Infrastructure: Internet Interconnections, 2010]

Internet Exchange Points: Typical SLA 99.9%

Colocation facilities: Typical SLA 99.999% (

Next big challenge:

- **Audit?**
- **Resilience Analysis?**
- **Redundant Design?**

¹ <https://ams-ix.net/services-pricing/service-level-agreement> ²<http://www.te>

Security and Trust: Did we forget something in the Internet design?

BBC

Your account

News

Sport

Weather

Shop

Reel

Travel

Mo

NEWS

Home

Video

World

UK

Business

Tech

Science

Stories

Entertainment & Arts

US & Canada

Trump declares national emergency over IT threats



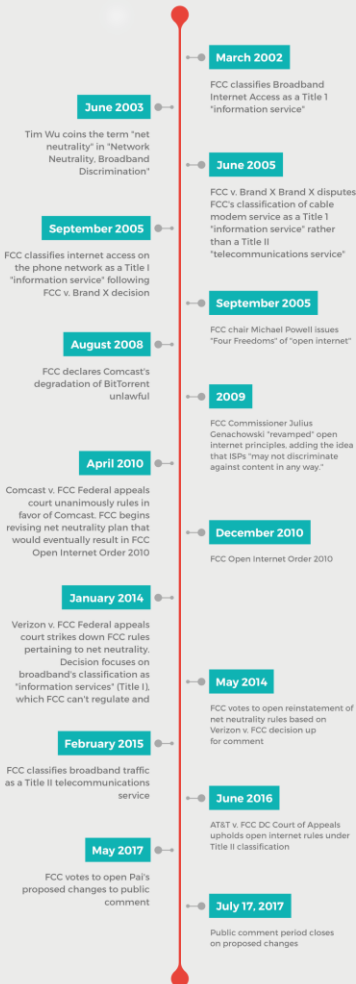
HUAWEI

Next big challenge:

How to measure trust?

Net Neutrality

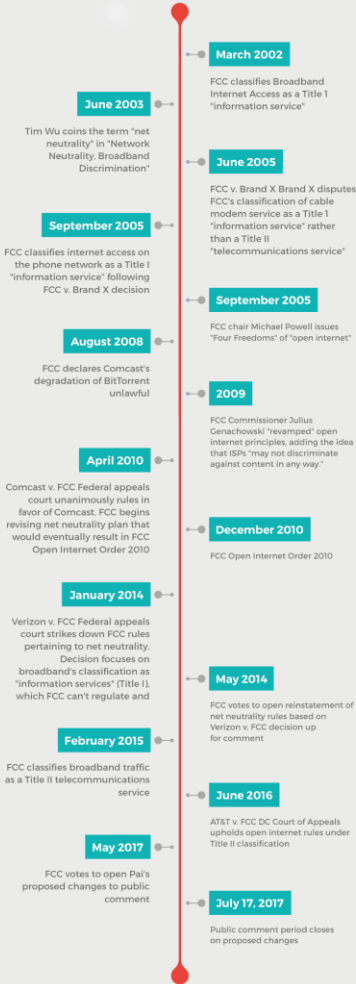
A 15-year long battle



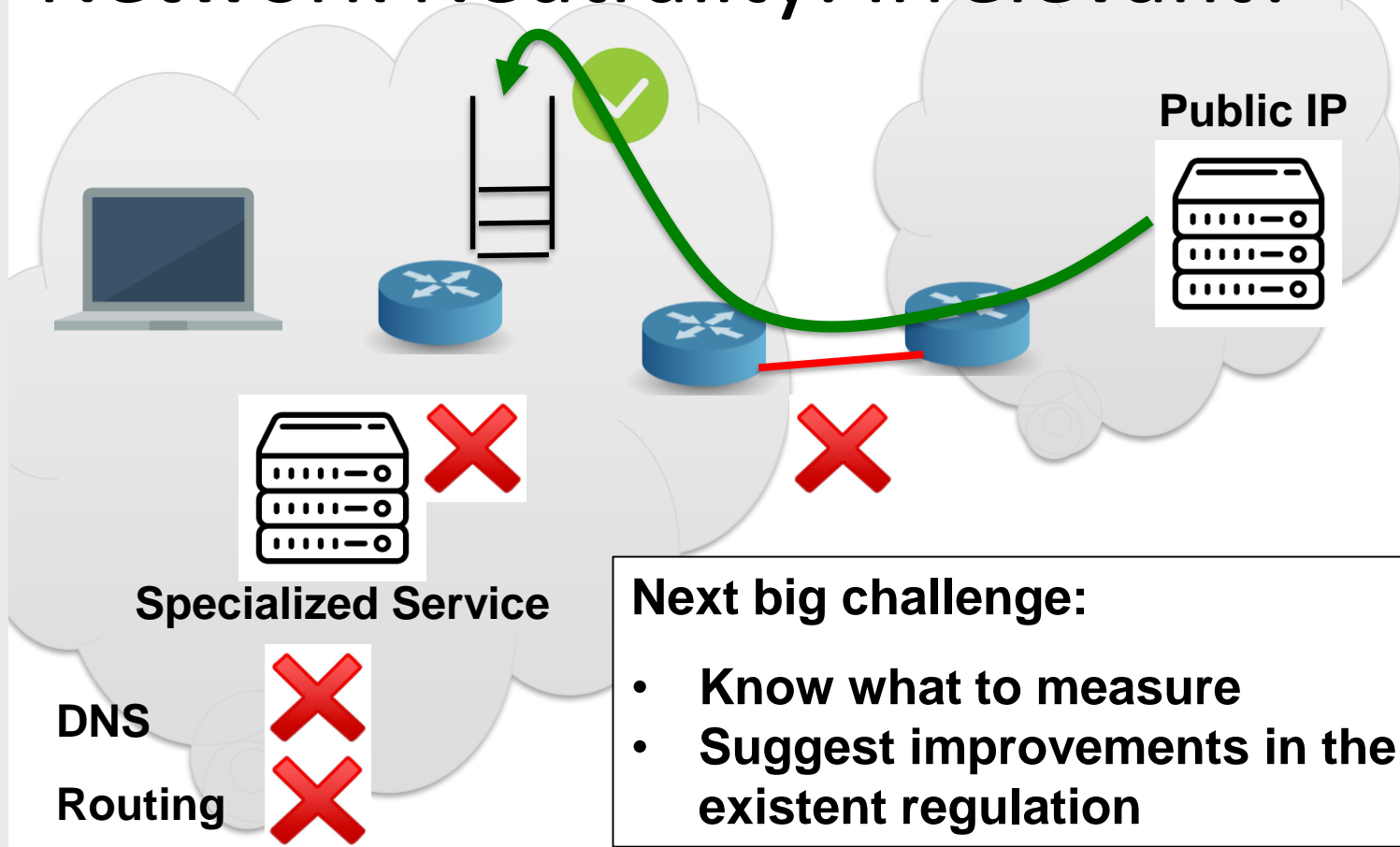
Network Neutrality: Irrelevant?

Net Neutrality

A 15-year long battle



Network Neutrality: Irrelevant?



Next big challenge:

- Know what to measure
- Suggest improvements in the existent regulation

Towards Informed Internet Policy

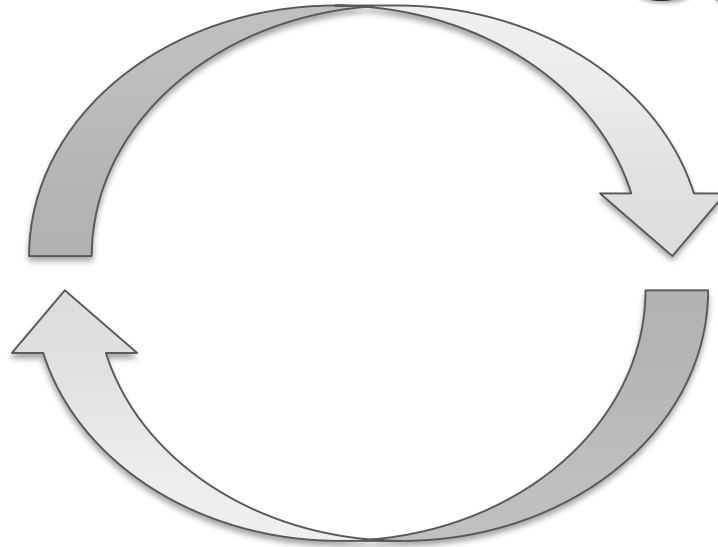
Technology

Berlin

**WEIZENBAUM
INSTITUTE**



**BERKMAN
KLEIN CENTER**
FOR INTERNET & SOCIETY
AT HARVARD UNIVERSITY



Policy



Internet Policy
Research
Initiative



Action 1: Education

We need:

- Computer engineers who understand the societal impact of their work
- Lawyers who write program in python
- Politicians/regulators with PhD in computer security
- Managers who are awarded bonus based on the sustainability of the corporation
- NEW colloquia and initiatives

Action 2: In search for Hard Evidence (funding, tools, maintenance, business models)



OONI

Open Observatory of Network Interference

A free software, global observation network for detecting censorship, surveillance and traffic manipulation on the internet

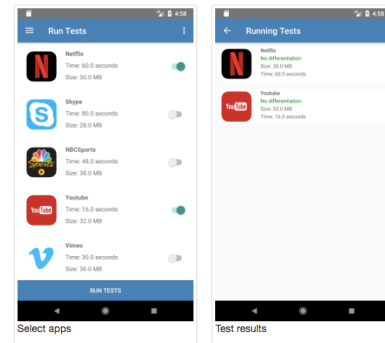


Max Planck Institute for Software Systems

Glasnost: Test if your ISP is shaping your traffic

Wehe

Screen shots (Android)



The Matter of Heartbleed

*Zakir Durumeric¹, James Kasten¹, David Adrian¹, J. Alex Halderman¹, Michael Bailey^{1,2}

*Frank Li³, Nicholas Weaver^{3,4}, Johanna Amann⁴, Jethro Beekman³, Mathias Payer^{3,5}, Vern Paxson^{3,4}

Analysis of SSL Certificate Reissues and Revocations in the Wake of Heartbleed

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Understanding the Mirai Botnet

Manos Antonakakis^o Tim April^z Michael Bailey[†] Matthew Bernhard^o Elie Bursztein^o
Jaime Cochran^o Zakir Durumeric^o J. Alex Halderman^o Luca Invernizzi^o
Michalis Kallitsis[§] Deepak Kumar[†] Chaz Lever^o Zane Ma^{†*} Joshua Mason[†]
Damian Menscher^o Chad Seaman^z Nick Sullivan^o Kurt Thomas^o Yi Zhou[†]

ZMap: Fast Internet-Wide Scanning and its Security Applications

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Action 3: Interaction among all the Stakeholders

- Which is the best organizational structure to improve decisions about the design and regulation in the Internet and the Web?
- International collaboration for sustainable Internet and Web?
- Embrace Technological Responsibility

Networking and Policy



Thank you!