

# European digital sovereignty and open source

FOSDEM 2022

*Vittorio Bertola – 6 February 2022*





# Who am I

Internet engineer and free software activist since 1995

Also experience in startups, Internet policy, politics

Loves Perl but doesn't sleep with it any more

Involved in Internet governance since ages

Currently head of policy at **Open-Xchange**



German open source software company

Maker of



WHEN YOU PIRATE MP3S,  
YOU'RE DOWNLOADING  
**COMMUNISM**



A REMINDER  
*from the*

**Recording Industry Association of America**

## Disclaimer

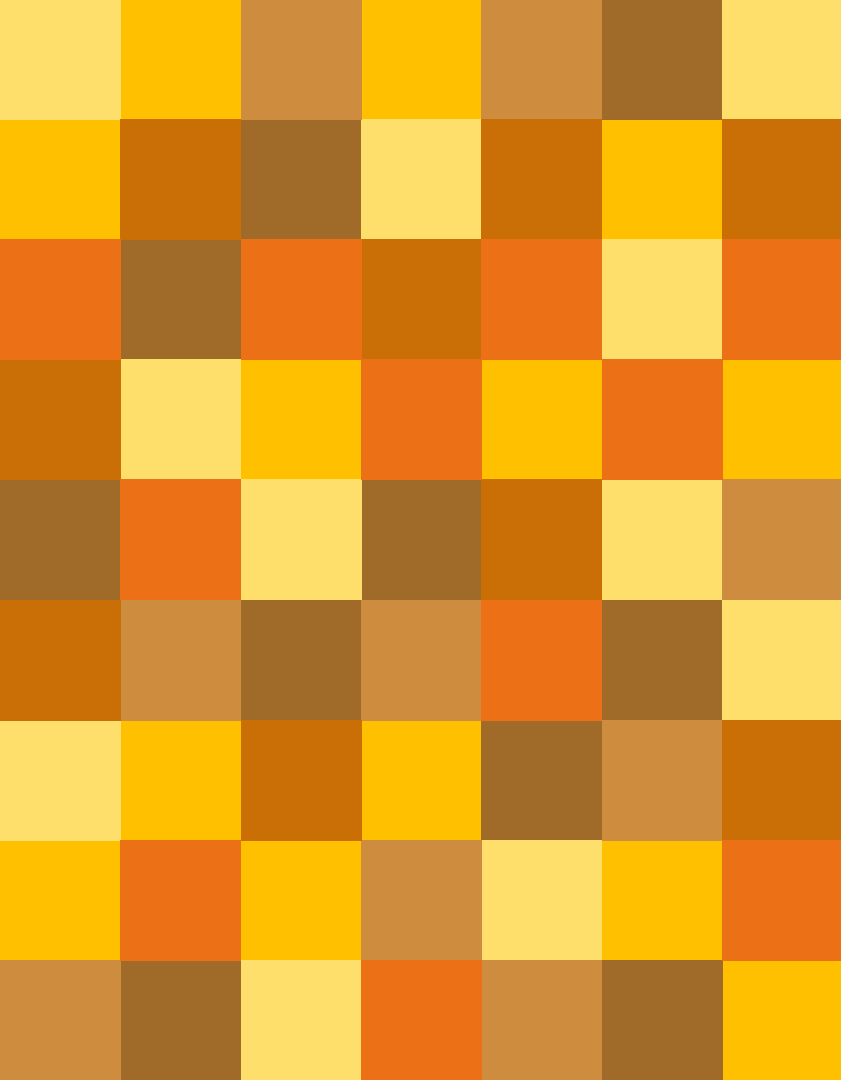
I do not hate Google,  
Microsoft etc, or the U.S.

I do not want to «put the  
Internet under control»

I do not like censorship

I do not hate capitalism

This is not a plot – just  
business and geopolitics

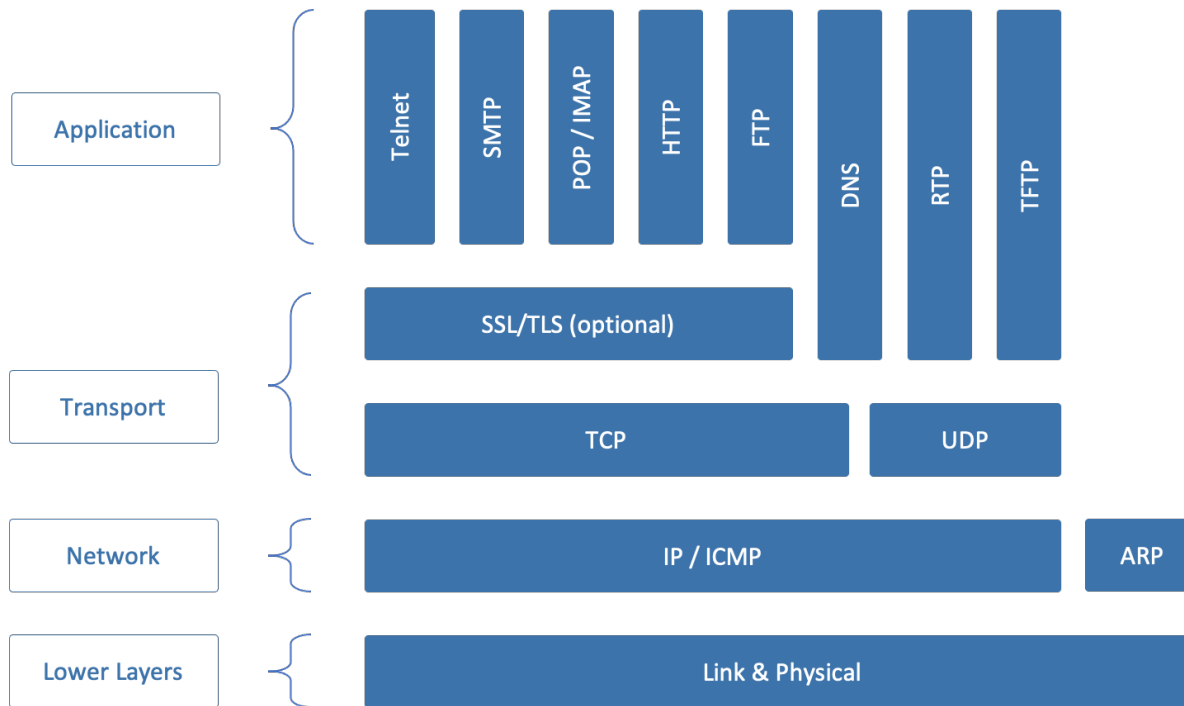


# 1.

Welcome to the  
Hotel California







*The Internet!*

### 3. General Design Issues

Network Working Group  
Request for Comments: 1958  
Category: Informational

Architectural Principles of the Internet

B. Carpenter, Editor  
IAB  
June 1996

Standardization



Interoperability



Modularity



3.1 Heterogeneity is inevitable and must be supported by design. Multiple types of hardware must be allowed for, e.g. transmission speeds differing by at least 7 orders of magnitude, various computer word lengths, and hosts ranging from memory-starved microprocessors up to massively parallel supercomputers. Multiple types of application protocol must be allowed for, ranging from the simplest such as remote login up to the most complex such as distributed databases.

3.2 If there are several ways of doing the same thing, choose one. If a previous design, in the Internet context or elsewhere, has successfully solved the same problem, choose the same solution unless there is a good technical reason not to. Duplication of the same protocol functionality should be avoided as far as possible, without of course using this argument to reject improvements.

3.3 All designs must scale readily to very many nodes per site and to many millions of sites.

3.4 Performance and cost must be considered as well as functionality.

3.5 Keep it simple. When in doubt during design, choose the simplest solution.

3.6 Modularity is good. If you can keep things separate, do so.

# Federated services: Email

All email services are compatible and interoperable

Any email address can write to any other email address from any provider

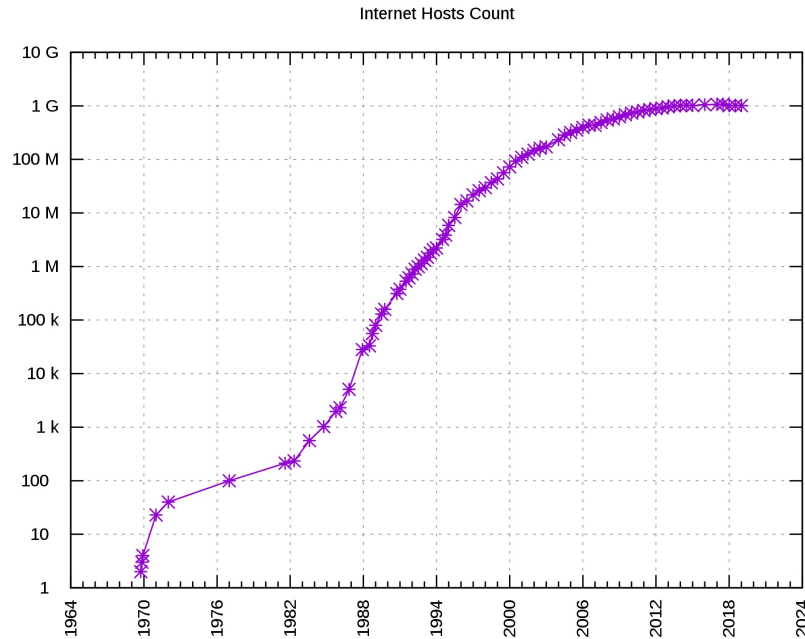
Anyone can offer email services

All standards are open and public

There are many free software implementations



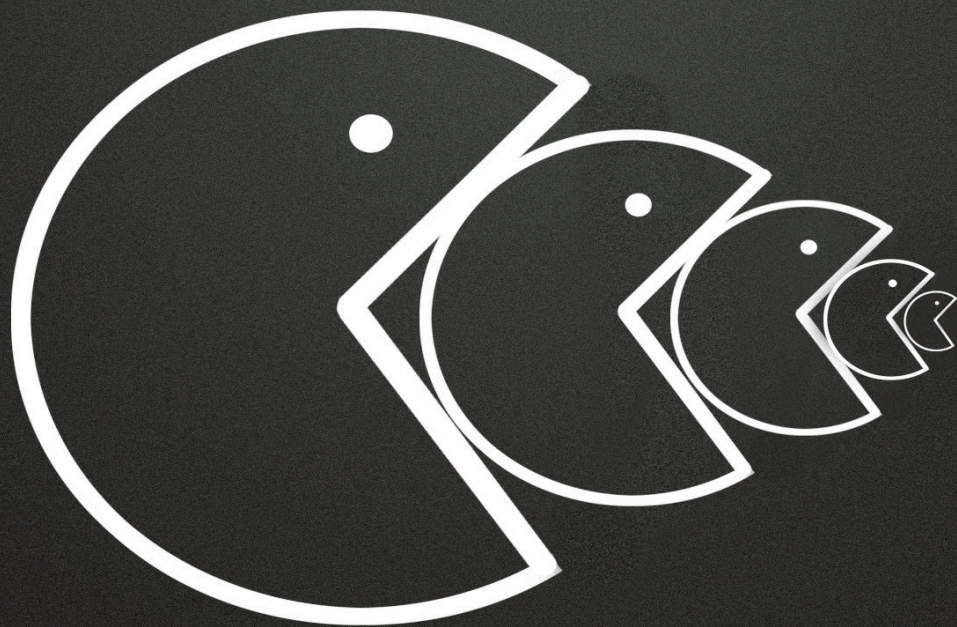
# Success!



Source: Internet  
Systems Consortium  
survey of IPv4  
Internet hosts















android



Social



Facebook



Twitter



Skype



Nachrichten



Messenger



WhatsApp



Snapchat



Instagram



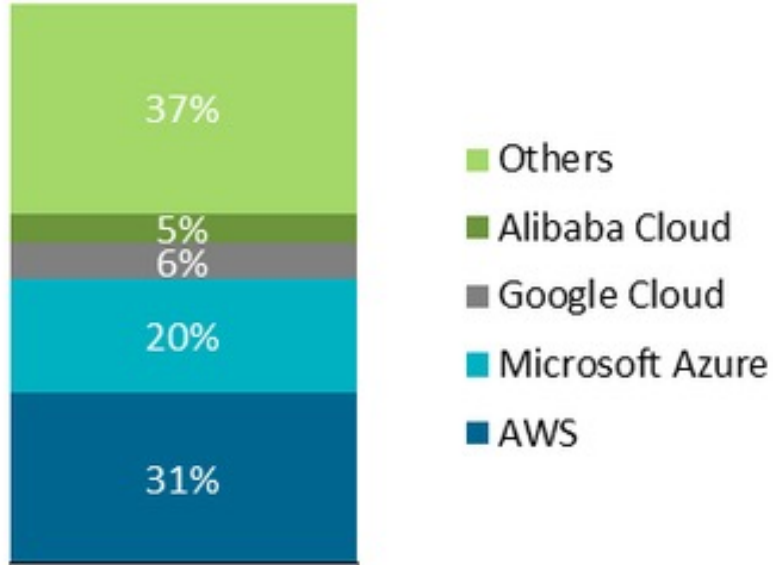
Periscope



ios



US\$34.6 billion  
Growth: 31.4%



Q2 2020

Source: Canalys estimates, July 2020



There is no cloud  
it's just someone else's computer

# THE LARGEST COMPANIES BY MARKET CAP

The oil barons have been replaced by the whiz kids of Silicon Valley



Top 5 Publicly Traded Companies (by Market Cap)



Tech



Other

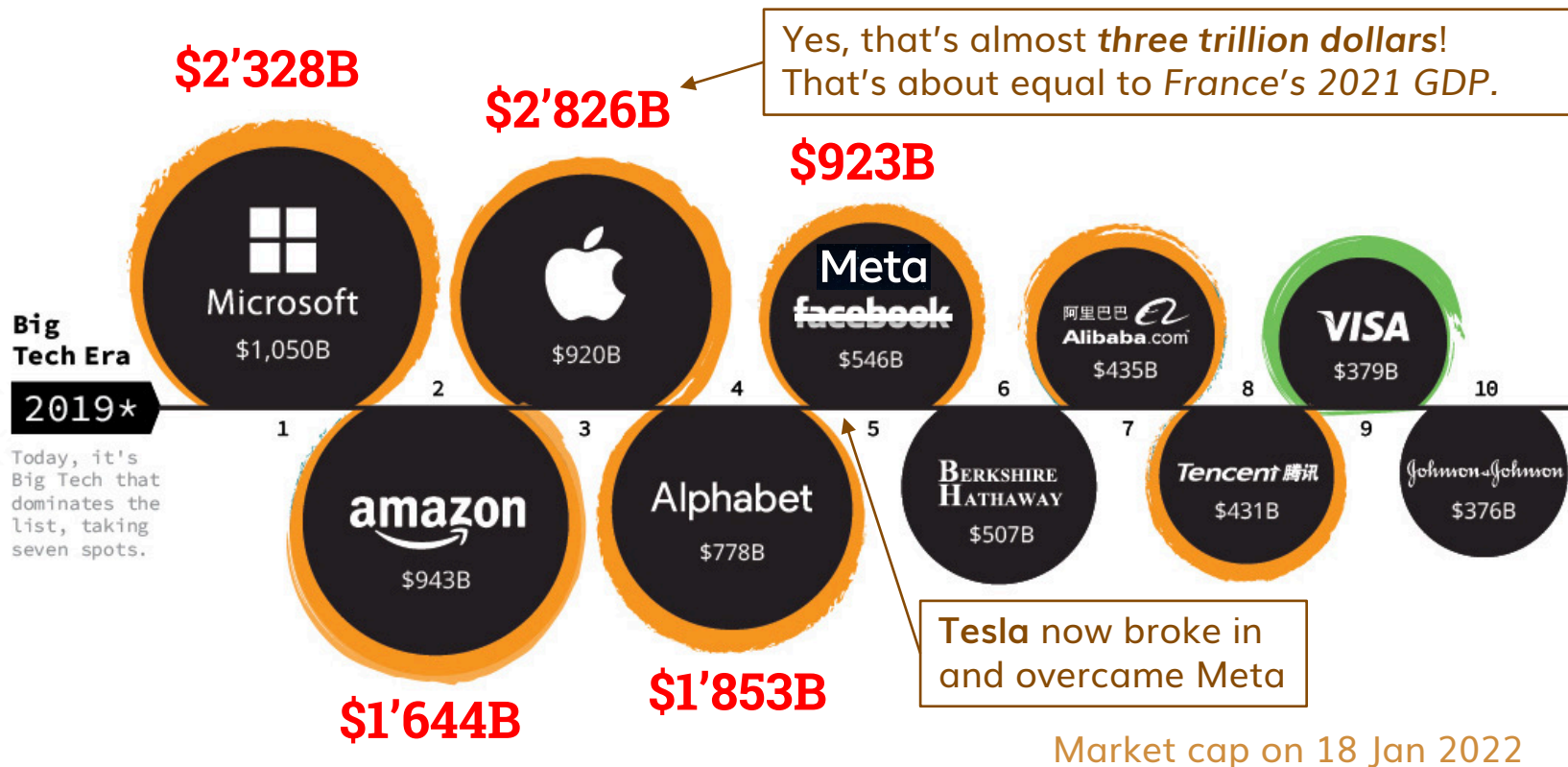


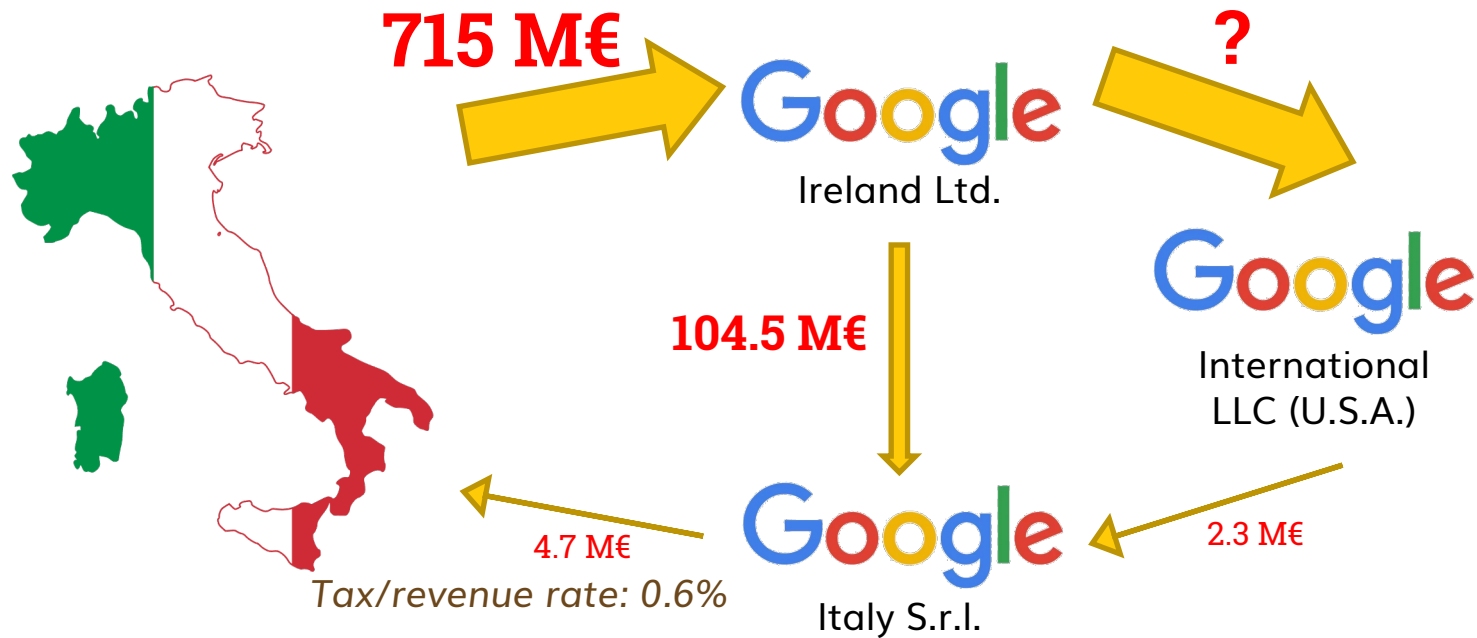
## Big Tech Era

2019\*

Today, it's Big Tech that dominates the list, taking seven spots.







### *Google's Italian advertising revenues in 2018*

(Sources: AGCOM, balance sheets – Credits: Altreconomia)

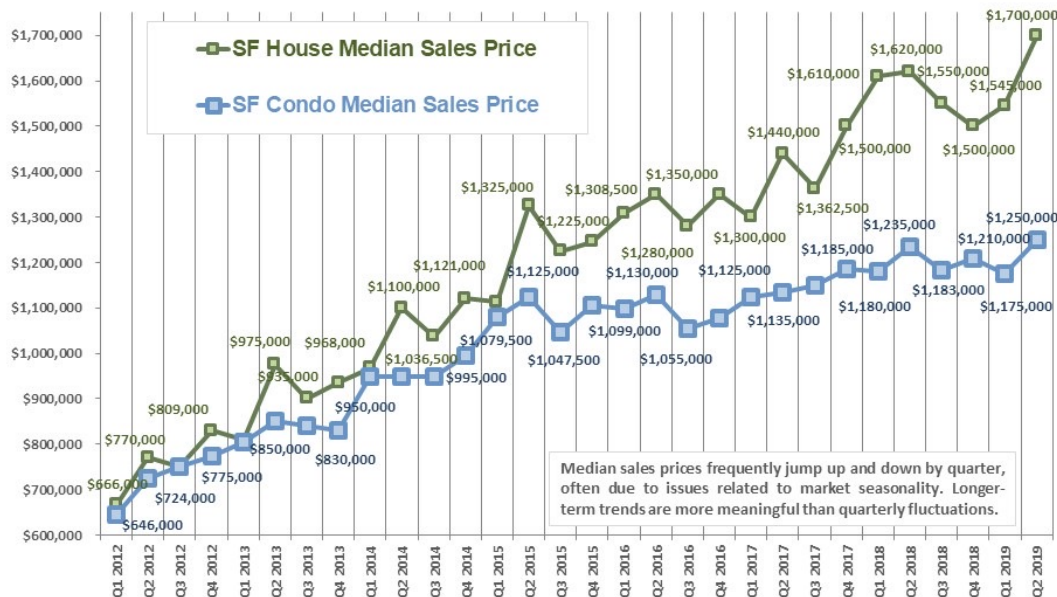


Median house  
price in San  
Francisco =  
**+155%** in  
7 years  
(2012-2019)

## San Francisco Home Price Appreciation

Median House & Condo Sales Prices, 2012 – Present, by Quarter

Sales reported to  
MLS by 7/3/19.



Median sales price is that price at which half the sales occurred for more and half for less. It is a general statistic affected by factors other than changes in fair market value. Data from sources deemed reliable, but may contain errors and subject to revision. Late reported sales may change the median prices graphed for the latest quarter, typically to an insignificant degree.

COMPASS



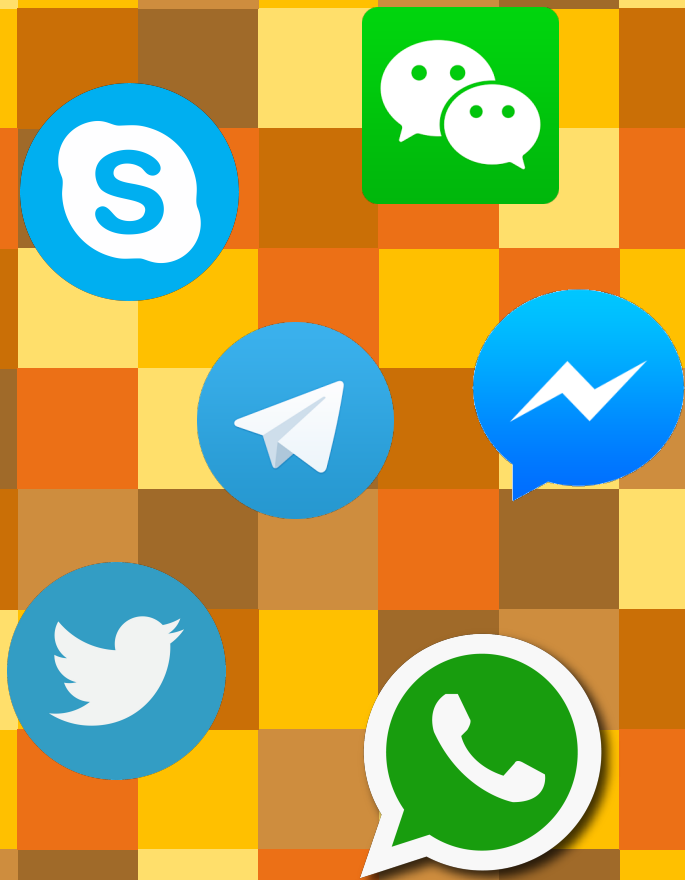
- 
1. Platform
  2. Silo
  3. Lock-In
  4. Trojan Horse
  5. Control
  6. One-stop
  7. Over-the-top
  8. Closed

Monopoly Records

...you can check out any time you like,  
but you can never leave!

*Hotel  
California*





# Siloed services: Instant messaging

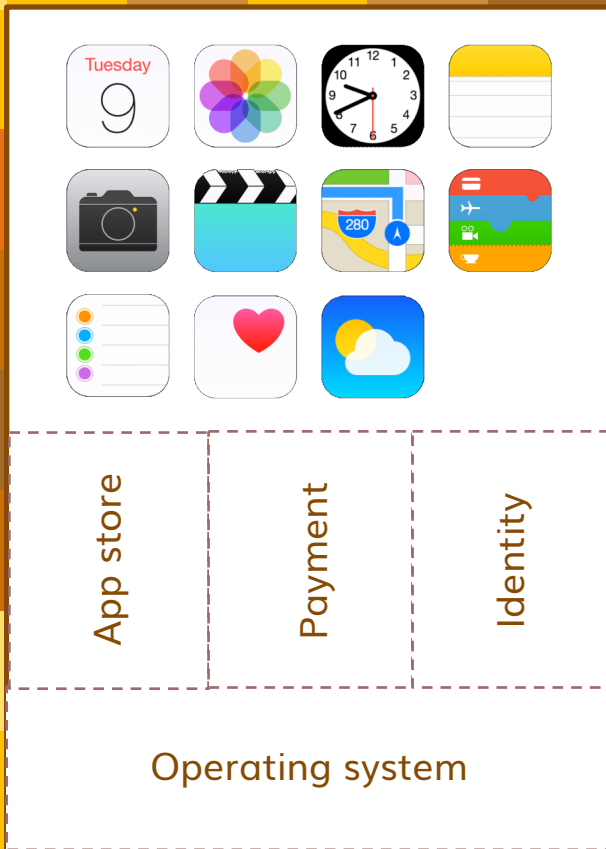
Each IM service is a walled garden

You cannot communicate with users of other IM services – you need an account on each service

If you move, you lose your contacts and history – you are locked in

Only a few IM services can exist – you cannot compete or run yours

Either standards are closed, or deployments are closed



# Bundled services: Mobile OS and apps

**Bundling:** The platform merges services and applications together

**Pre-installation:** All the apps come pre-installed with the OS

**Defaults:** The system will by default use or suggest the platform's own version of the service

**Integration:** The platform's version has better access to the system and works better

I am free and open  
for everyone –  
except for *Huawei!*



ANDROID



Social



Your app must  
use my payment  
system – and  
give me 30%!



iOS



I will buy out any  
startup that could  
ever *challenge me!*

# Why do we even have mobile app stores?

We never really had app stores on computers

In some cases we have package managers

- They never asked for money

- They never prevented installing applications through other channels

- They never prevented installing applications that didn't have their approval

Nobody would say that computer programs are less secure, private, successful or innovative because of the lack of monopolistic app stores

## Introduction

### Introduction

#### Before You Submit

1. Safety
2. Performance
3. Business
4. Design
5. Legal

#### After You Submit

The guiding principle of the App Store is simple—we want to provide a safe experience for users to get apps and a great opportunity for all developers to be successful. We do this by offering a highly curated App Store where every app is reviewed by experts and an editorial team helps users discover new apps every day. For everything else there is always the open Internet. If the App Store model and guidelines are not best for your app or business idea that's okay, we provide Safari for a great web experience too.

On the following pages you will find our latest guidelines arranged into five clear sections: Safety, Performance, Business, Design, and Legal. The App Store is always changing and improving to keep up with the needs of our customers and our products. Your apps should change and improve as well in order to stay on the App Store.

A few other points to keep in mind:

- We have lots of kids downloading lots of apps. Parental controls work great to protect kids, but you have to do your part too. So know that we're keeping an eye out for the kids.

*...they do it for the kids.*

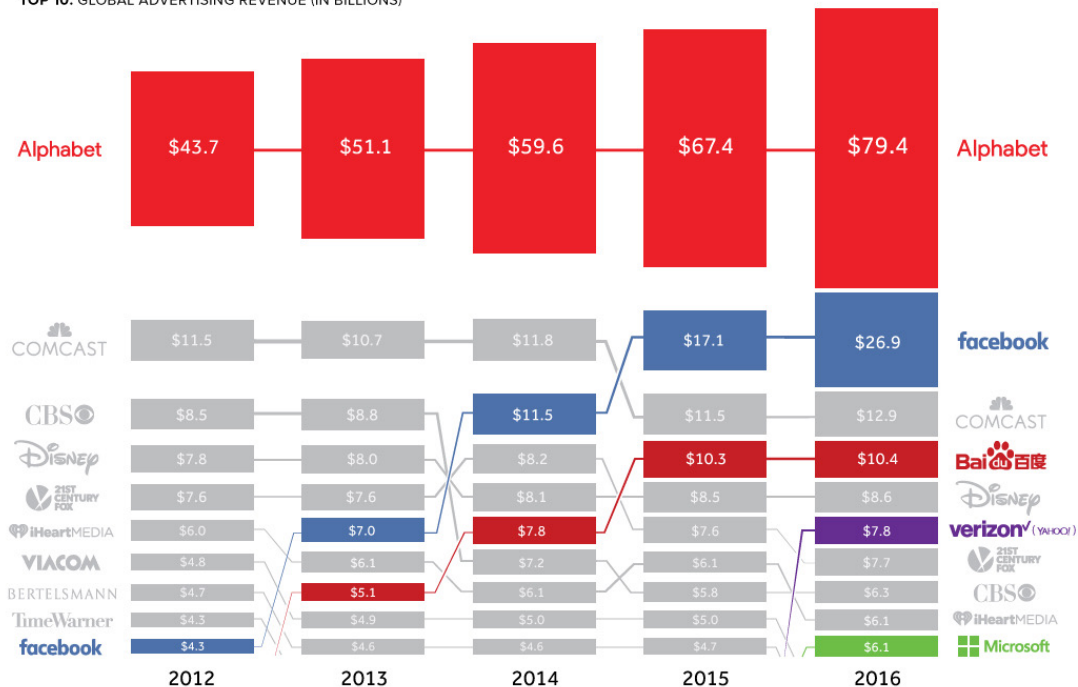
# This is not just a matter of money

1. Surveillance of citizens
2. Privacy
3. Political power over collective choices
4. Control of access to the public opinion
5. Jurisdiction
6. National security

# THE TECH TAKEOVER OF ADVERTISING

Legacy media brands are falling hard and fast

TOP 10: GLOBAL ADVERTISING REVENUE (IN BILLIONS)



SOURCE: Bloomberg, Zenith Media

visualcapitalist.com



# «Surveillance capitalism» is the main business model

Even non-personal, aggregated  
information is the key to success

- Best product placement and pricing
- Estimation of credit risk
- Optimization of cloud infrastructure
- Aggregated mobility patterns
- Traffic information from every phone

Advertising  
Google Properties

**70.4%** \$96.3B

Google YouTube



Google Maps

\$55.0B **98.5%**



facebook Ads



# How Google and Apple outflanked governments in the race to build coronavirus apps

Tech giants played hardball in forcing policymakers to fall in line with their approach to building digital tracking tools.

By **MARK SCOTT, ELISA BRAUN, JANOSCH DELCKER AND VINCENT MANANCOURT** |  
5/15/20, 5:25 AM CET | Updated 5/16/20, 5:51 AM CET

In the digital fight against COVID-19, Big Tech squared off against governments — and won.

# Angela Merkel attacks Twitter over Trump ban

Russian dissident Alexei Navalny echoes criticisms levelled by German chancellor's spokesman



Angela Merkel with Donald Trump in 2017. Through her spokesman, Germany's chancellor said free speech was a 'fundamental right of vital importance' © Jonathan Ernst/Reuters

**Guy Chazan** in Berlin, **Henry Foy** in Moscow and **Hannah Murphy** in San Francisco

JANUARY 11 2021

1023

Angela Merkel, German chancellor, has sharply criticised Twitter's decision to ban US president Donald Trump, calling it a "problematic" breach of the "fundamental right to free speech".

Source:  
Financial  
Times



NEWS

## Wikileaks: NSA spied on UN Secretary General, Merkel

Wikileaks has released new documents alleging the NSA intercepted communications between Ban-Ki Moon and Merkel. The secret releases also include allegations of spying on Israeli, Italian and French leaders.

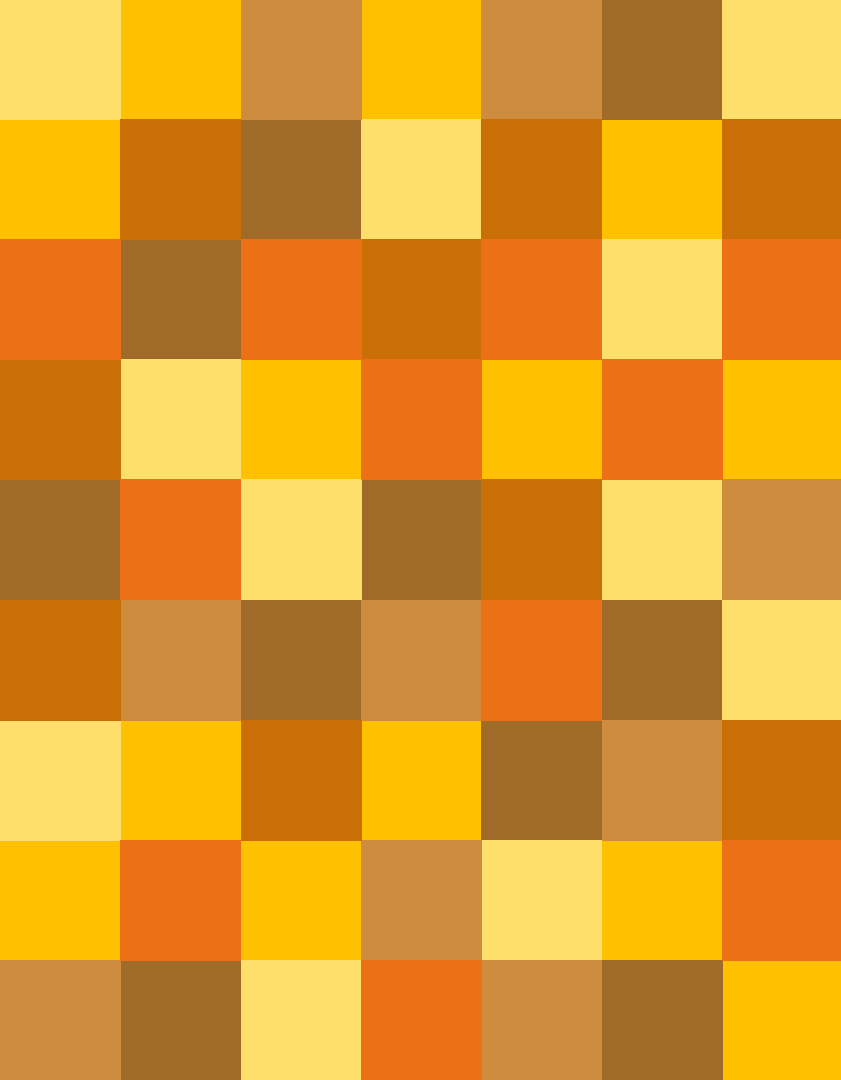


Source:  
Deutsche  
Welle

# The CLOUD Act



Any U.S. company is mandated by law to share with the U.S. law enforcement agencies any personal information of non-U.S. citizens that it has access to, even if hosted outside of the U.S.



# 2.

This could be heaven  
or this could be hell

The slide features a decorative border composed of a grid of squares in various shades of yellow, orange, and brown. The text is centered within a white rectangular area.

*The Internet was built over  
(and successful thanks to)  
a few innovative  
technical + policy principles*



# Permissionless innovation

No advance authorization or license is required to deploy new content, new devices, new technology, new services over the Internet



*(Source of the picture: IETF blog)*

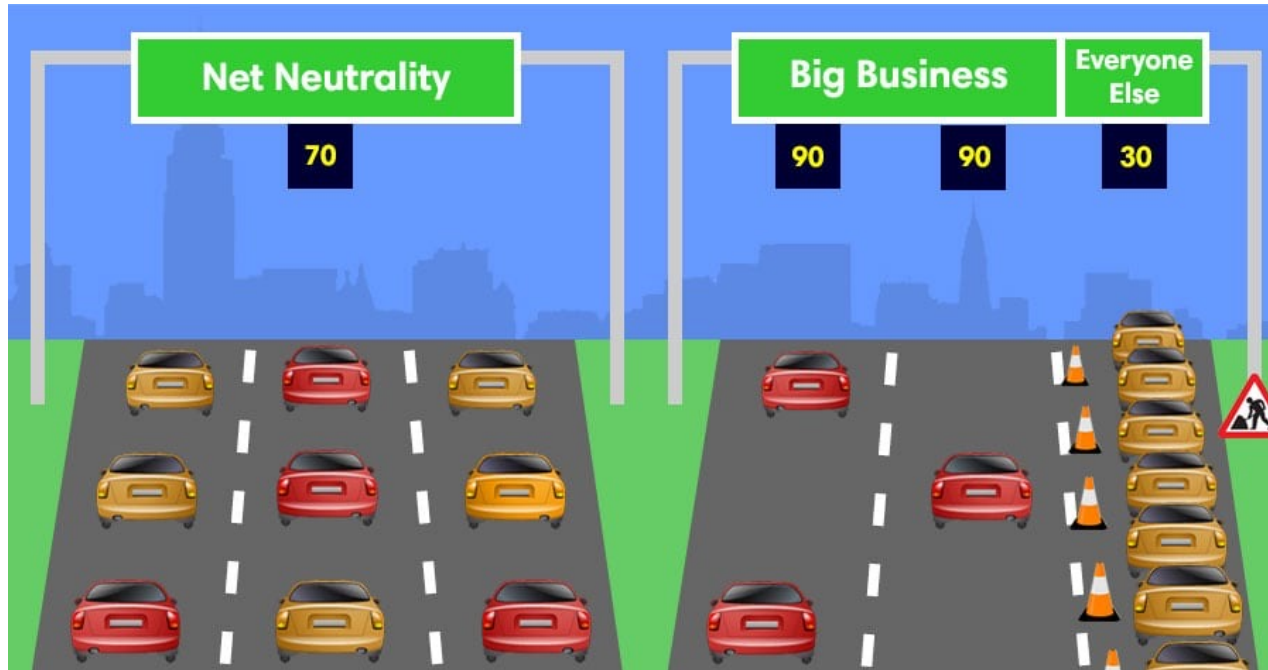


# Internet vs Telcos

«Permissionless innovation»  
was conceived as the  
opposite of traditional  
telecommunication  
regulation



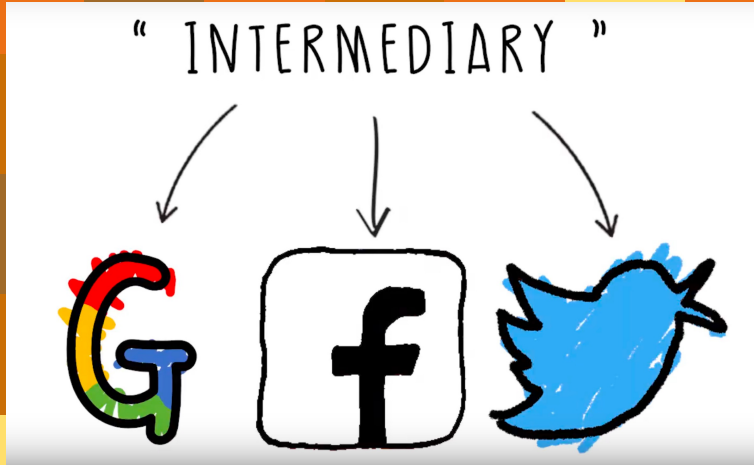
This allowed the Internet to grow much  
more quickly than traditional PSTN and  
replace it



## Network neutrality

*A way to prevent telcos from «gatekeeping» Internet services*

# Intermediary liability exemption



Platforms distributing user-generated content are not legally responsible for it (at least until flagged)

*A  
DECLARATION  
OF THE  
INDEPENDENCE  
OF  
CYBERSPACE  
BY JOHN PERRY-BARLOW*



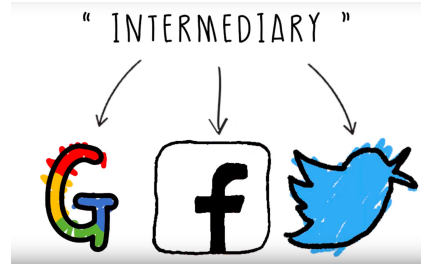
Governments and national laws are not welcome

«The Internet thrives because it is global and unregulated»

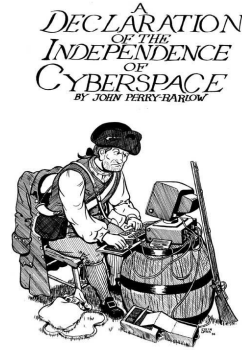
«The Internet defeats bad governments and brings democracy to the world»



«We can do anything  
we want to preserve  
our dominant position  
and our revenues»



«We can spread out  
fake news,  
propaganda, abusive  
material and make  
money out of it»



«We are  
above the law»

# Encrypt everything



A reaction to Snowden

Official IETF guideline

Big platforms make  
encryption (e.g. HTTPS)  
a requirement

Organized lobbying  
against law proposals  
constraining encryption





*Encryption is a good thing*

*You should encrypt  
your communications*

*State-run backdoors in encryption  
are a bad idea*

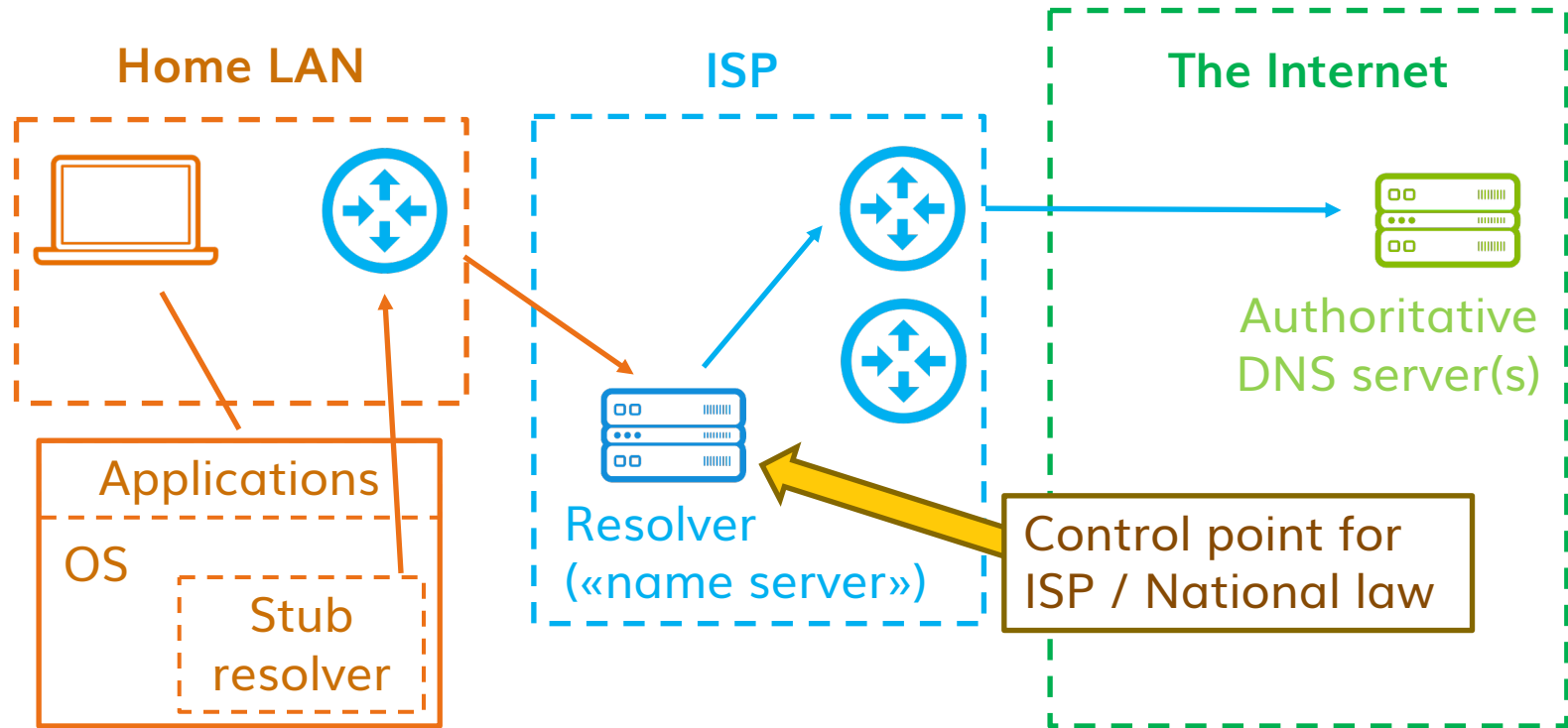
A decorative border composed of a grid of squares in various shades of yellow, orange, and brown, surrounding a central white rectangle.

*More encryption  
always brings  
more privacy and freedom*



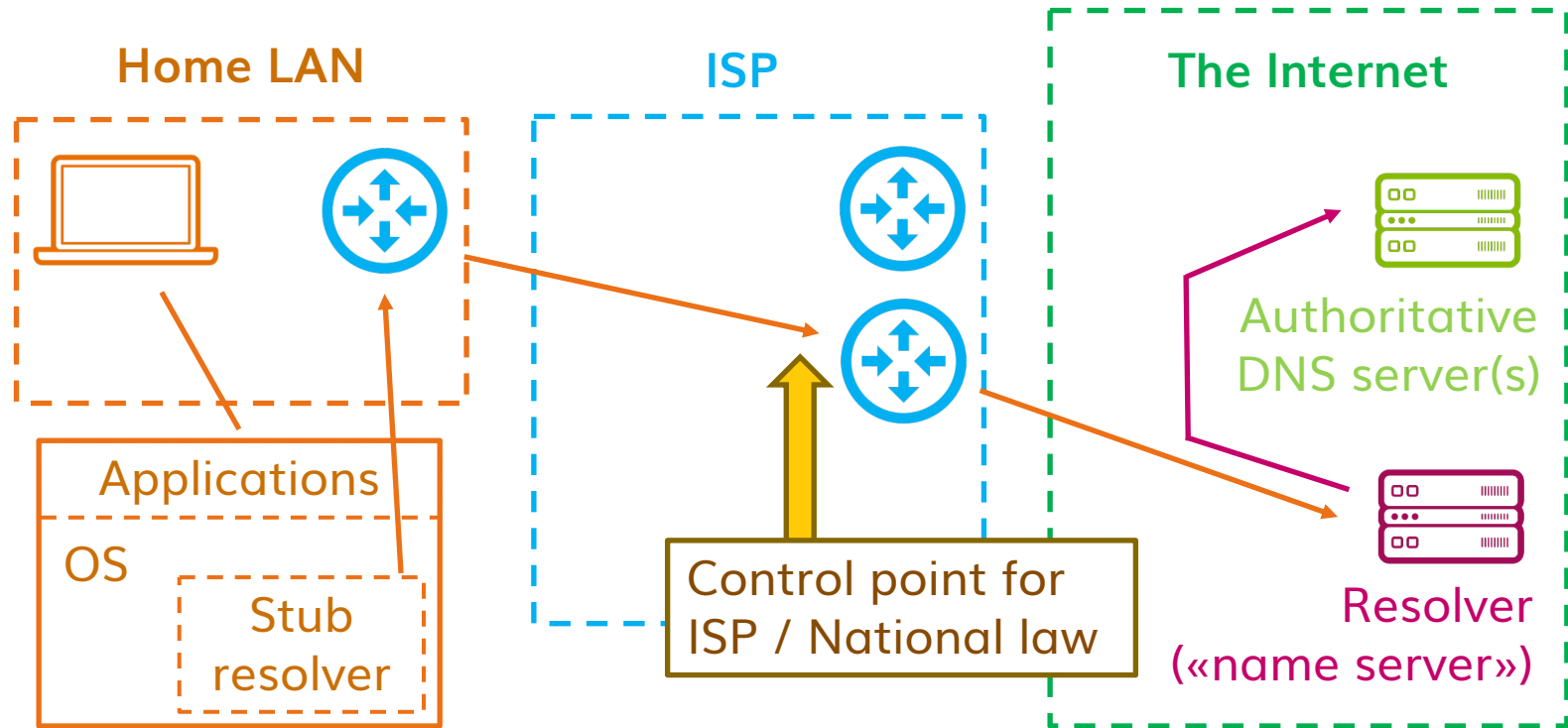
*More regulation  
always brings  
more privacy & freedom*

**A SIMPLISTIC IDEA**



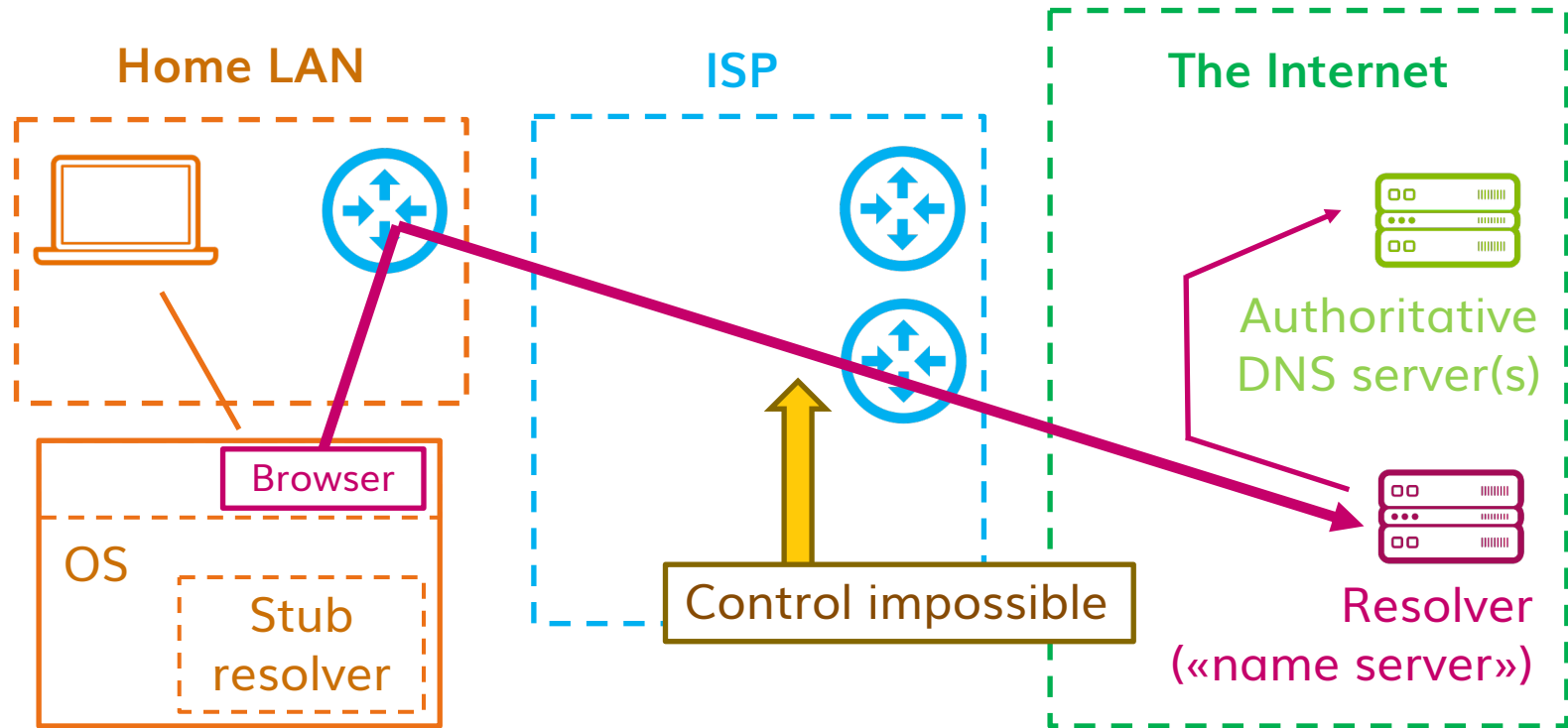
*Local DNS resolution*





*Remote DNS resolution (unencrypted)*





*Remote DNS-over-HTTPS resolution*

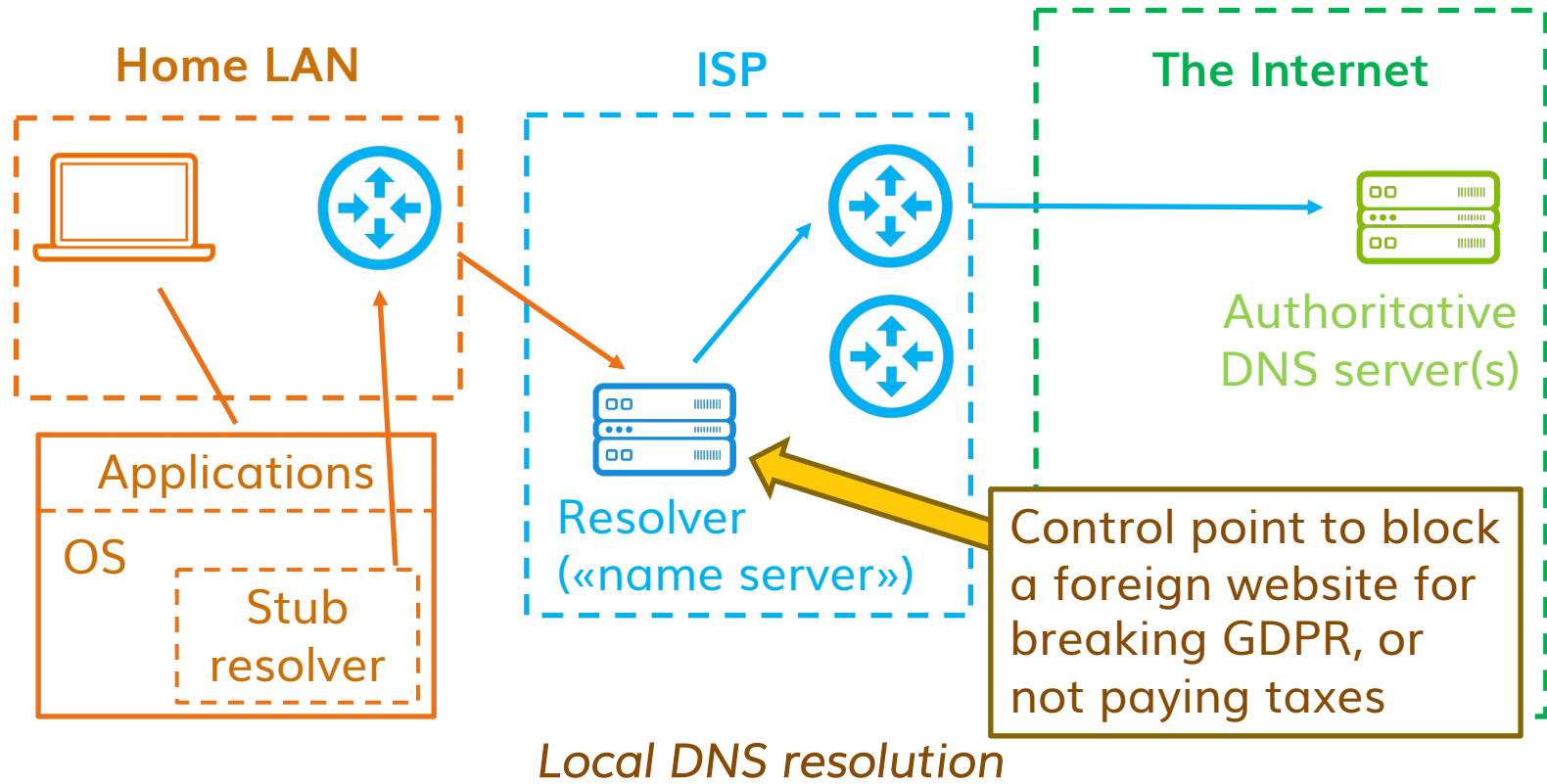
# Local control is not always bad

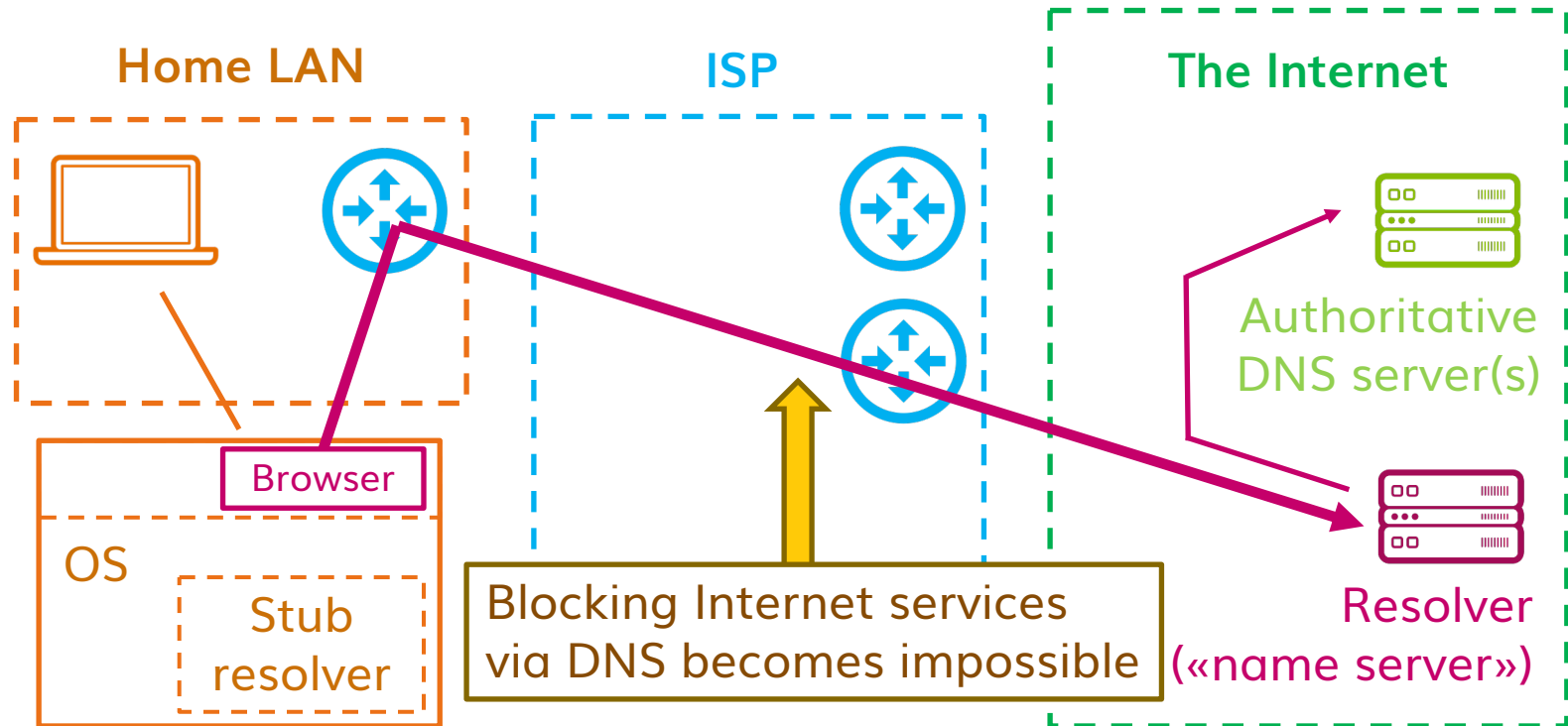
1. Blocking malware and phishing
2. Detecting active botnets
3. Providing parental controls
4. Blocking child sexual abuse material
5. Blocking fixed gambling websites,  
counterfeit shops, illegal pharmacies...

...but still, some think that privacy and individual freedom should always prevail

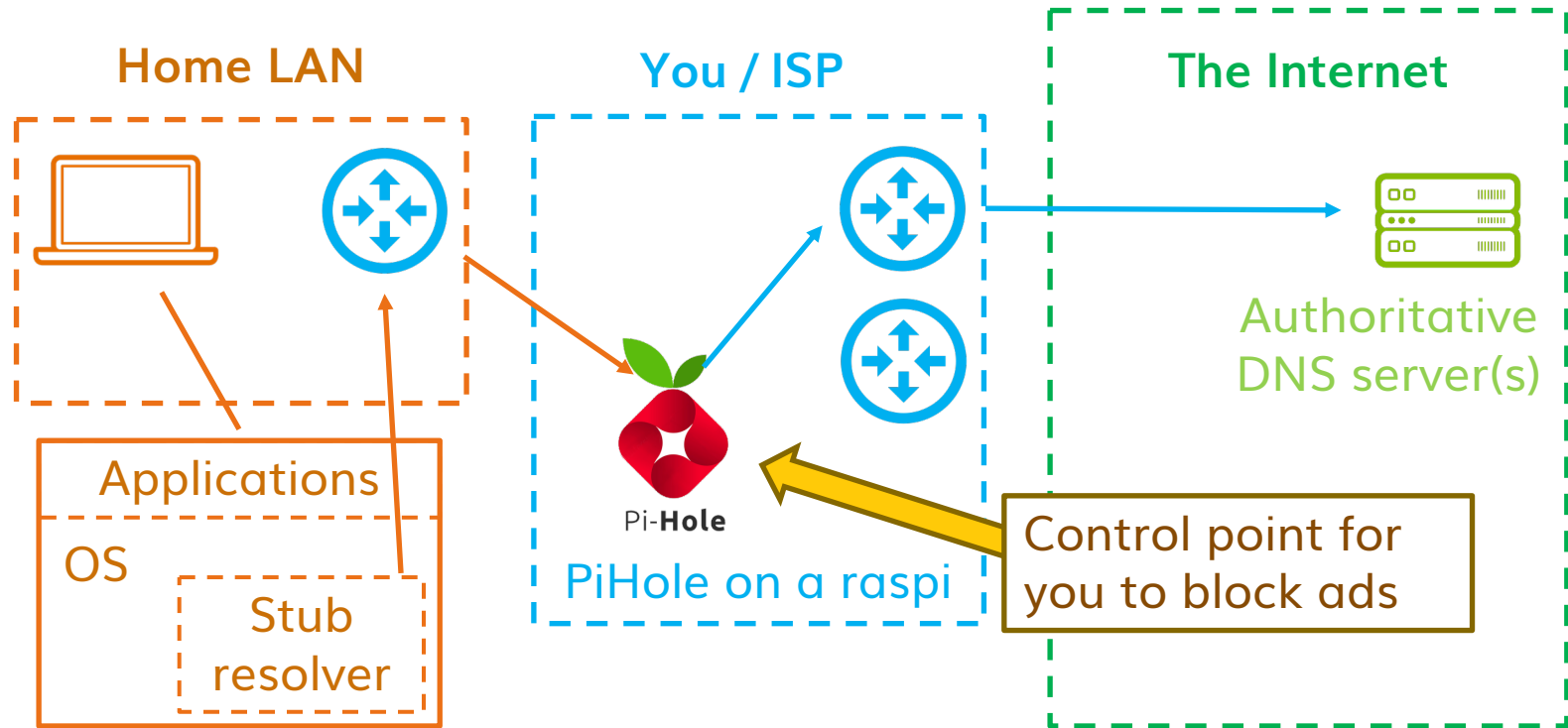
A decorative border composed of a grid of squares in various shades of yellow, orange, and brown, surrounding a central white rectangular area.

*Is this really only about  
privacy and freedom?*



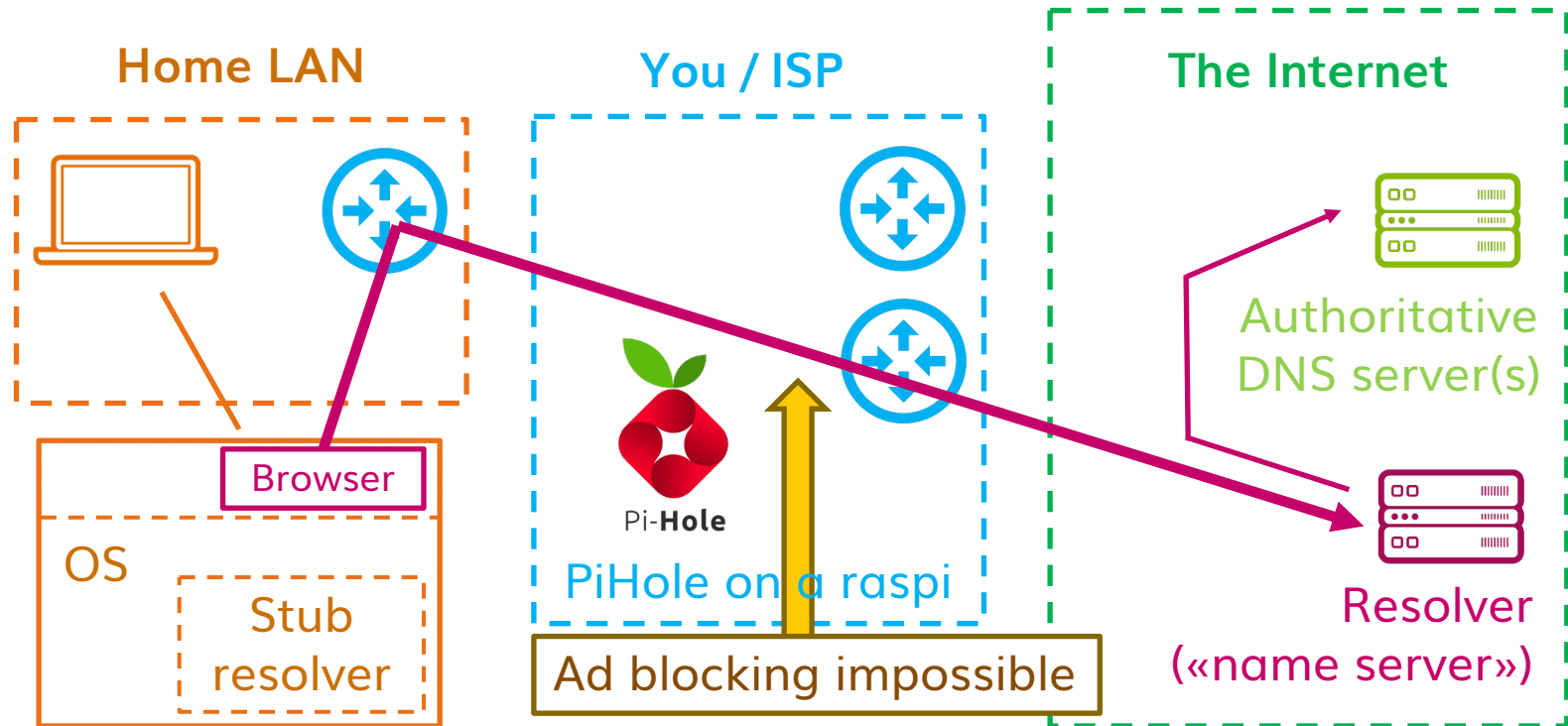


*Remote DNS-over-HTTPS resolution*



*Local DNS resolution*

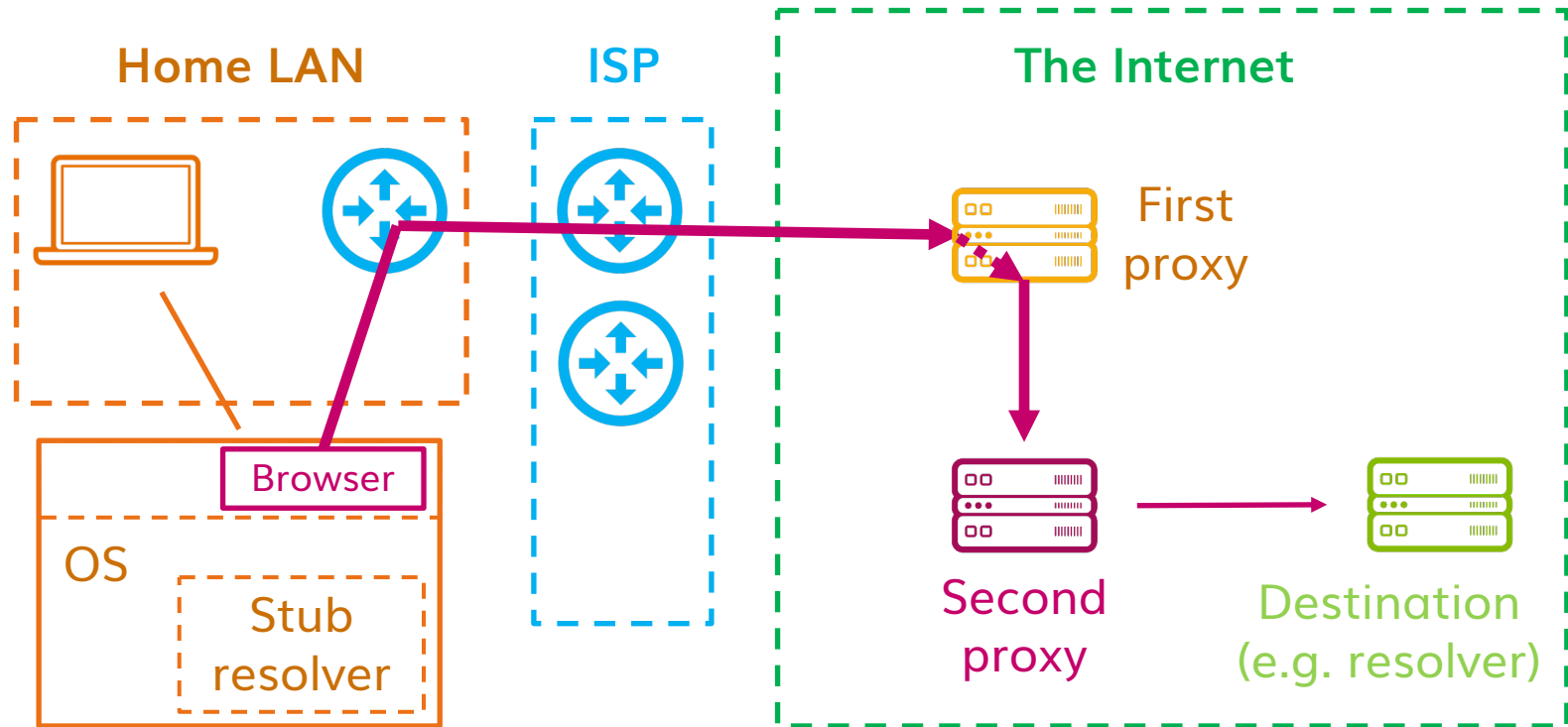




*Remote DNS-over-HTTPS resolution*

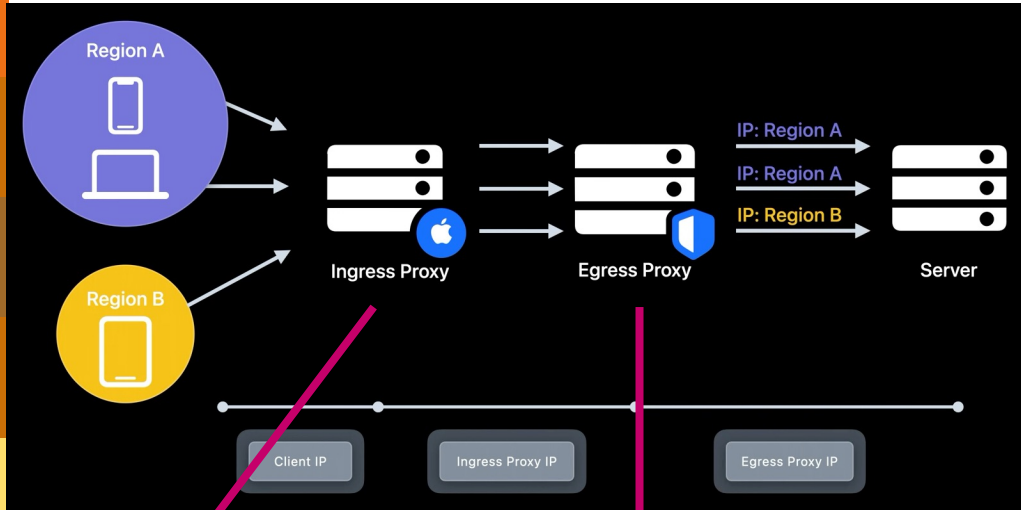
A decorative border composed of a grid of squares in various shades of yellow, orange, and brown, surrounding a central white rectangle.

*Plus, all traffic now  
becomes centralised in  
fewer, bigger global service  
providers in the cloud*



*The «oblivious» connection model*

## Apple's iOS 15 implementation



Apple

Cloudflare, Fastly, Akamai...

Second proxy  
provided by  
private CDN  
operators under  
contract with Apple

Not on by default  
(yet)

# A double-edged sword

## Pros

It prevents your ISP and your government from tracking or blocking you

It reduces what websites see about you

It offers you an in-built VPN

## Cons

You can't choose your proxy operators

Now all your Internet traffic goes through Apple

Who guarantees that Apple and their supplier will never cross-match your metadata?

A decorative border composed of a grid of squares in various shades of yellow, orange, and brown, surrounding a central white rectangle.

*Encryption really is  
about control*





# The Internet of other people's things

We are filling our homes with devices that send back encrypted data all the time

We have no control over what they send

Even if there are laws to protect us, it is increasingly impossible to enforce them

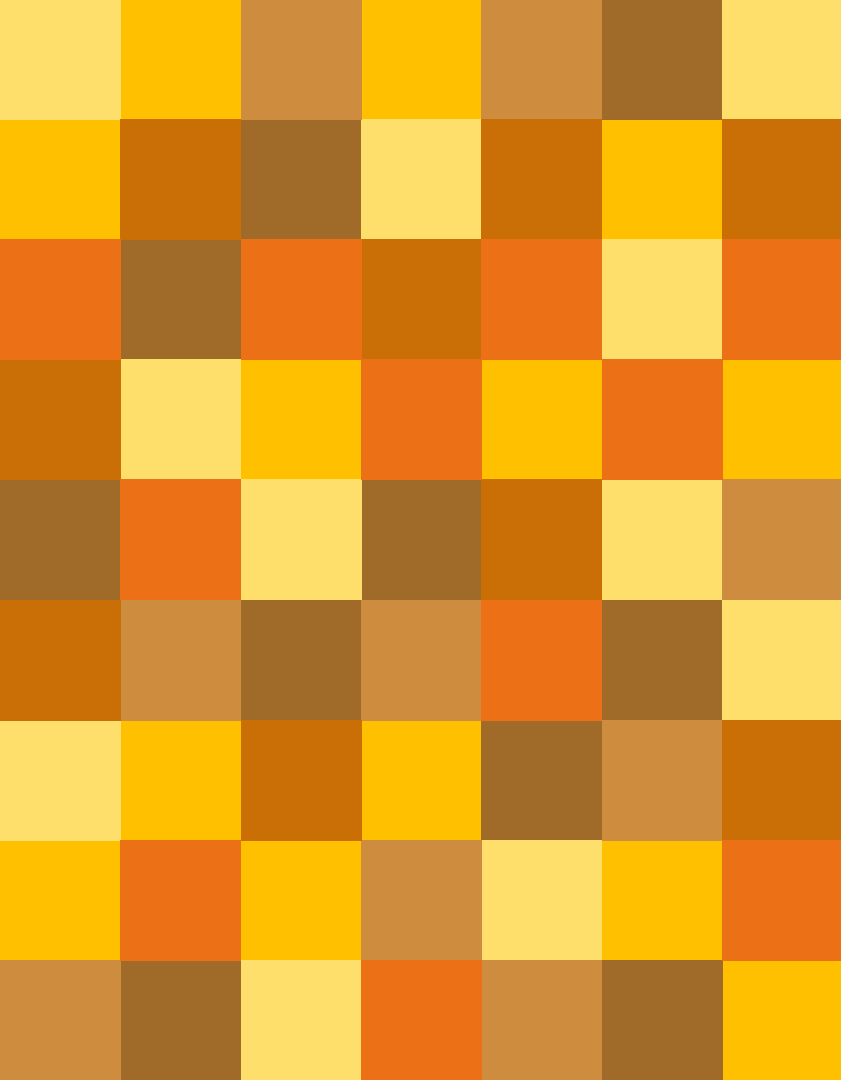


From «The lives of others», 2006

//

*I can vote for my  
government.*

*Can I vote for  
Facebook's CEO?*



# 3.

Last thing I remember  
I was running for the  
door

# Shaping Europe's Digital Future

Europe's digital sovereignty:  
From rulemaker to superpower  
in the age of US-China rivalry

Essay Collection  
Carla Hobbs (ed.)  
30th July, 2020

© Xavier Lejeune / European Union, 2020 - ©

# Digital sovereignty

## Autonomy

Be self-sufficient  
Not depend on foreign  
products for everyday life  
Develop a local digital  
industry, economy,  
knowledge base

## Sovereignty

Be able to set and  
enforce rules for  
Internet services  
Collect tax  
Not be subject to actions  
by foreign powers

# Open source is fit for Europe



Europe is an archipelago  
of countries, languages,  
societies, markets

It works by horizontal  
cooperation

It does not produce  
GAFAMs, but alliances of  
SMEs

# An effective alliance



Freely accessible  
technology

Cooperative  
development

Open standards



Competition and  
consumer defense

Enforcement of  
rules

Funding



# We need regulated openness

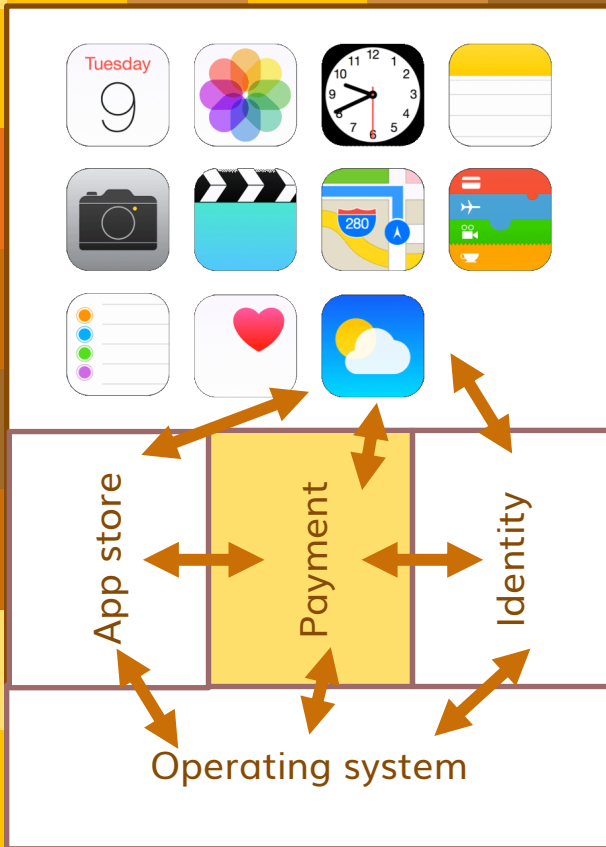
1. We need the technical building blocks that enable competition
  - Open standards
  - Federation mechanisms for identity and trust
  - Multiple implementations, including some open source ones
2. We need regulation mandating dominant players to use them
  - Dominant players have a business interest not to interoperate with competitors
  - Interoperability requirements are needed

# The remedy: interoperability

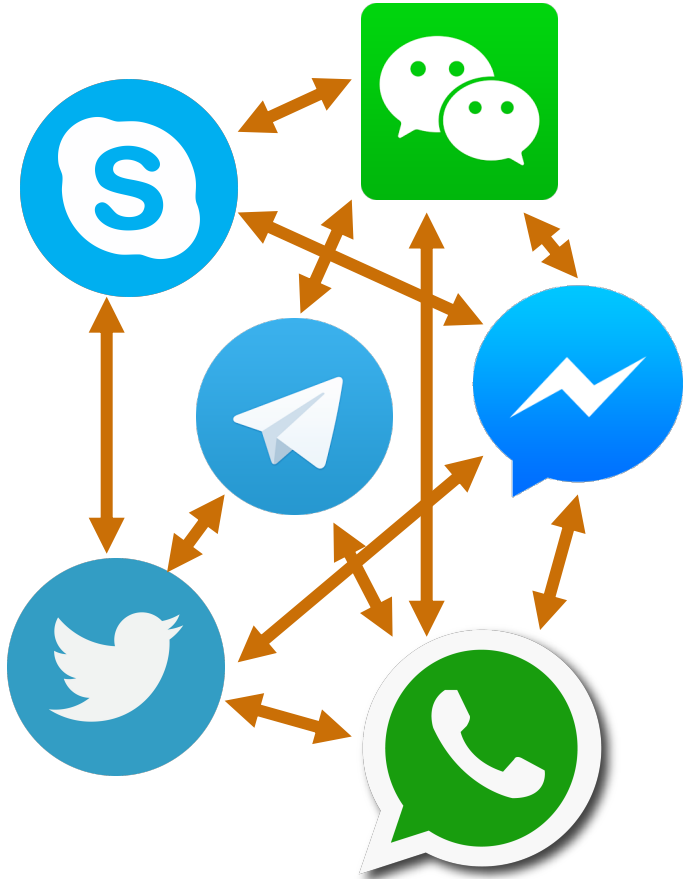
Let's get back to the original Internet principles

If modules are separated and their interfaces are standardized, then it is possible to replace individual modules seamlessly with competing implementations

You also have to ensure that replacing modules is not made hard for the user (pre-installation, defaults, dark patterns...)



# Interoperable apps



Dominant platforms should be required to interoperate with competitors

Users could choose any app and service provider and interact with users of all apps

New entrants would have a chance to succeed

This would enable competition and promote private, user-friendly services

# Europe's requests to big tech

1. Pay taxes here
2. Stop tracking and profiling our citizens
3. Share your aggregated datasets
4. Do not steal our startups
5. Do not kill our competition through your dominant positions
6. Stop spreading fake news and illegal content while making money out of it
7. Let our police intercept criminals

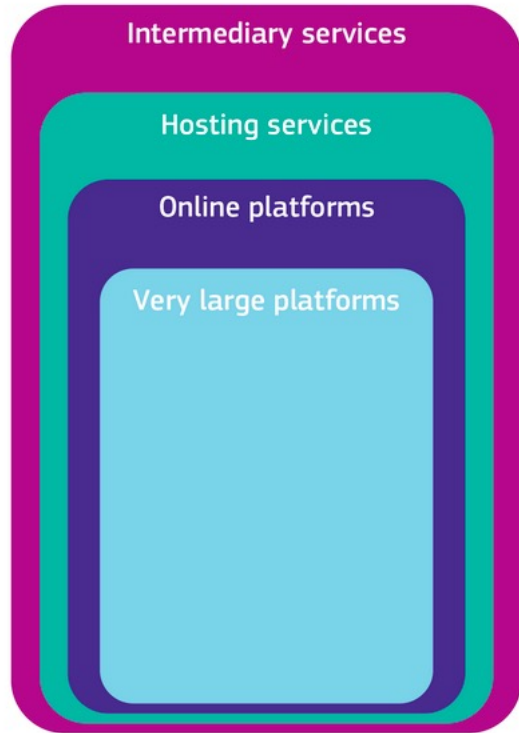
# Coming soon (hopefully)

1. Digital Services Act
  - Rules and liability on content
  - Accountability in advertising and in moderation
2. Digital Markets Act
  - New competition tool
  - Blacklist of business practices
  - Interoperability requirements
3. Data Governance Act
  - Rules for open access to public data

# Coming soon (hopefully)

4. Computer Chips Act
  - Promote European chip factories
5. Minimum Corporate Tax Directive
  - Reduce profit offshoring
6. eIDAS Regulation Revision
  - Open public identities (maybe)
7. GAIA-X
  - Common cloud standards for portability
  - Common data ontologies for interaction

# Digital Services Act



Old E-commerce Directive  
(«mere conduit» principle)

GDPR-style global reach

Additional requirements for  
non-SME «online platforms»:  
recourse, KYBC, flaggers...

VLOPs – over 45M users:  
transparency/accountability,  
advance risk management,  
choice of content curation

# Digital Markets Act



Under  
negotiation

Aimed at (business) users of specific platform services

Affects global «gatekeeper» online platforms

- Over 8B€ turnover
- At least 3 EU countries
- Over 45M consumers
- Over 10k business users

New anti-trust instrument for non-traditional dominant positions



# Digital Markets Act



Under  
negotiation

Covered services:

- ☐ Marketplaces
- ☐ Search engines
- ☐ Social media
- ☐ Video sharing
- ☐ Instant messaging
- ☐ Operating systems
- ☐ Cloud computing
- ☐ Advertising by the above
- ☐ *Browsers*
- ☐ *Voice assistants*
- ☐ *Smart TVs*

# Digital Markets Act's «must not» (Art. 5)

1. Forced data integration across services
2. Exclusivity/best price clauses
3. Mandatory bundling of services
4. Clauses against public recourse
5. Mandatory use of own identity system
6. Intransparent advertising pricing

# The DMA's anti-bundling clauses

*(as of mid December 2021 – Text approved by the Parliament)*

Art. 5.1(e) – Must allow business users to use their service without the ancillary ones

Art. 5.1(f) – Must allow business users to use only one of their services without the others

Art. 5.1(gb) – Must prompt end-users to choose from a list at installation; must not prevent uninstallation of own apps

# The DMA's interoperability clauses

*(as of mid December 2021 – Text approved by the Parliament)*

Art. 6.1(f) – Equal access to OS features;  
interoperability for ancillary services for business  
users (payments, identification, delivery, ads...)

Art. 6.1(fa) – Interoperability for instant  
messaging

Art. 6.1(fb) – Interoperability for social media

Art. 6.1(h) – Real-time data portability

# Digital Markets Act



The Commission's proposal was widely discussed

The Parliament approved it on 15.12 with 229 amendments

Dialogues ongoing to reconcile EP, EC and Council versions

French presidency pushing

Could be finally approved mid 2022

# Thanks!

Any questions?

You can find me at

@vittoriobertola

vittorio.bertola@open-xchange.com



*Credits: Original presentation template by SlidesCarnival modified by myself*

*License: This presentation is distributed under a Creative Commons CC-BY-SA license*

*Advance presentation recorded with OBS Studio*