Close vs Open Systems

Keynote talk:

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Concordia University, Montreal

Closed System?

What is a closed system?

In the physical sciences a closed system
- does not allow transfer of matter in or out of the system,
- the transfer of energy may be allowed.

In computing and system engineering:
- source code/design/process/formula/recipe are kept secret and/or patented
- does not allow replication, copying etc. using barriers, locks, legal system, force
- the intent is to have a product to sell or increasing accessible under licence
- since software is now used for controlling everything it is 'closed' by Un-accessible algorithms, source codes, copyrights, patents

Open System?

What is an open system?

A system that regularly exchanges input/output with its environment.

Open systems are characterized by:

  access to functions, goals, assessment and evaluation, and learning

In the physical systems open system have no borders, barriers, locks

- allows access in or out of the system,

In computing and system engineering:

- source code/design/process/formula/recipe are all accessible

https://en.wikipedia.org/wiki/Open-source_software

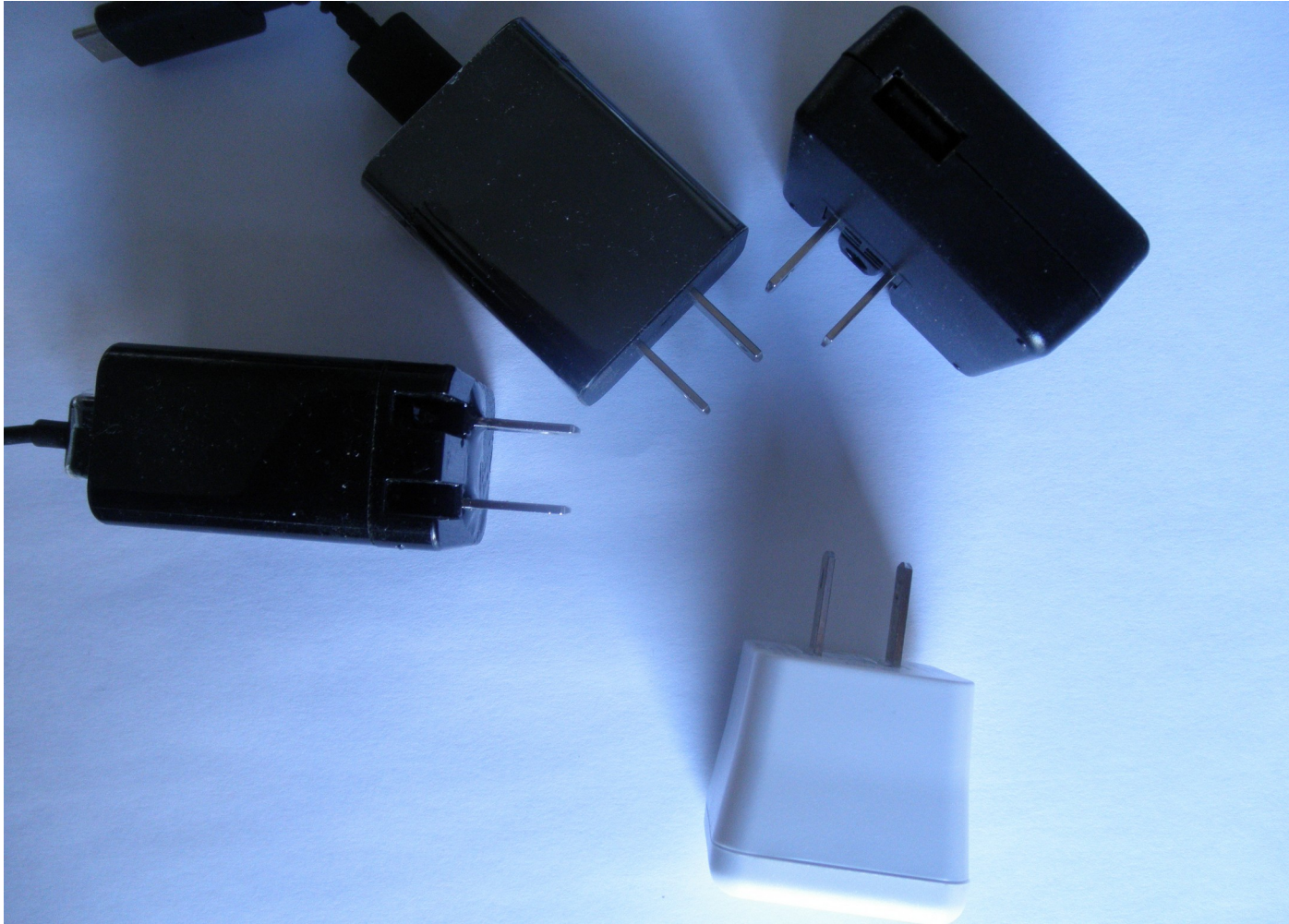https://managementhelp.org/misc/orgs-open-systems.pdf

Current state of affairs at the charger end: USB a standard

Current state of affairs at the device end:

The chargers

Recent headlines:

EU pushes for USB-C charging for all mobile phones

- chargers would be required to be sold separately
- fast charging technology would be harmonized to ensure chargers are fully interchangeable.
- all smart-phones, tablets, cameras, headphones, portable speakers etc.

Apple, among others, disagrees

Mantra: one type of connector **stifles innovation** rather than encouraging it

Repeated ad infinitum: by CEO's, bent politicians and their lackeys

Closed System

Each device manufacturer produces :
- their own chargers one for each device type,
- cables with perhaps USB at one end and
- a 'proprietary" charger-to-device connector at the other end

Consumers have innumerable charges and cables $$$€€€£££¥¥¥
Chargers are left plugged in –
   - power wasted
   - pollution
   - green houses gases

ALL go to waste every 2/3 years since a new system will lure them
PROVIDES profit for CEO's high salaries and bonuses

UNIX : an open system

1969: Initial development of an operating system on a DEC PDP-7 at Bell Labs
1975: V6 is distributed outside Bell; BSD unix was derived from V6
1983: GNU (Gnu is not Unix) and its kernel Hurd at MIT
1991: Linux was developed and put under the GNU General Public Licence

Derivatives of Unix: macOS (and iPhone OS – IOS), Solaris, etc

OS using the BSD/Linux: Android, IOS, Chrome OS

Most Android based devices include closed proprietary software and
 Google controls many aspects of the device including
        independent applications distribution

Apple controls all aspect of its device
and charges independent devloper a percent of their revenue

ALL THIS DERIVED FROM AN OPEN SYSTEM & CLOSED!!!!

Linux – open source

First kernel was released in 1991

In addition to the command mode, there exist many graphical interfaces
  some with virtual desktops and work space switcher. applications icons

Hundreds of distribution of Linux exist in various forms

  – Slackware(1992), Debain(1993), RedHat/Fedora(1994), Junx/Suse(1995),
    Enoch(1999), Arch Linux(2002), Puppy(2003), Android(2007)

Doesn't include IOS since it was based on BSD
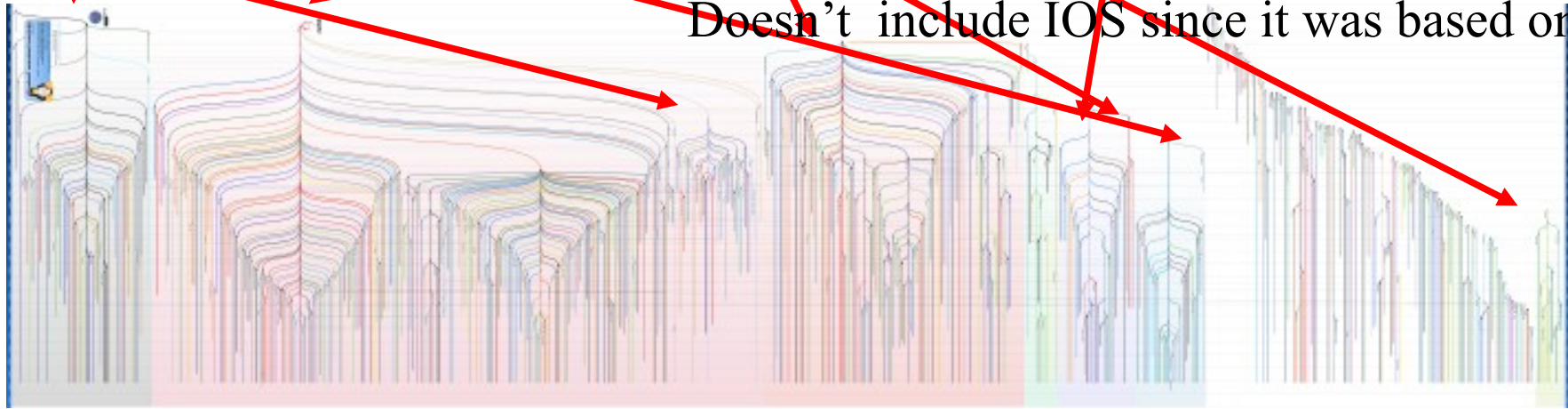
https://en.wikipedia.org/wiki/List_of_Linux_distributions

1950s

Development of the digital computers

1960

Concept of wide area network, ARPANET, packet transmission

1970s

TCP/IP protocol

Time sharing, multi-tasking

1980s -early

Commercialization of the internet and emergence of ISPs

1980s -late

Hypertext, HTML, HTTP

Intenet ➤➤➤ World Wide Web

Internet was started as a Usain defence initiative;
  expanded to include the EE and CS scientific community
Expanded to other science and technology domains in universities

Introduced:
file sharing (FTP),
text messaging,
  email systems were introduced
Search systems for files to be look for
 files to be downloaded by FTP
  were introduced and refined
  Archie$_1$(1987 McGill), Veronica,
Jughead

1 "archive" without the v.

Welcome to archie.icm.edu.pl

Archie Query Form 🔍

Search for:

Database:	⊙ Worldwide Anonymous FTP ○ Polish Web Index
Search Type:	⊙ Sub String ○ Exact ○ Regular Expression
Case:	⊙ Insensitive ○ Sensitive

Do you want to look up strings only (no sites returned):
  ⊙ NO   ○ YES

Output Format For Web Index Search: ○ Keywords Only
  ⊙ Excerpts Only
  ○ Links Only

[Search] [Reset]

Optional Search Parameters

You can use as many terms as you like in your query, as long as you separate them by spaces. By default, **Archie** inserts "OR" operators between all of the terms of your query. If you prefer, you can change the operator to "AND" by choosing these radio buttons:

○ OR ○ AND

You can also limit the search results to match a directory path (this is optional):

Or to exclude search results that match a directory path you don't want (this is also optional):

If you want to limit the search so that it only looks in certain domains (such as ca, edu or com), enter one or more in the following boxes:

Maximum Hits: 100

Maximum hits per string matched (valid for non-exact searches): 100

Maximum string matched (valid for non-exact searches): 50

Wersja polska | Help | Simple Search

Web, HTTP : Another example of an Open System

1941, Jorge Luis Borges: fiction - one of the inspiration for hypertext

1945, Vannevar Bush, "As We May Think" hypertext conjecture

Early method of sharing were Archie and cataloging was Wide-Area Information Servers

Hypretext was developed actively in the 1980s

1990 Archie, the first Internet search engine.

1993 the software for the Web developed a CERN was put in public domain

1993 World Wide Web Worm -1st search engine – not commercialized

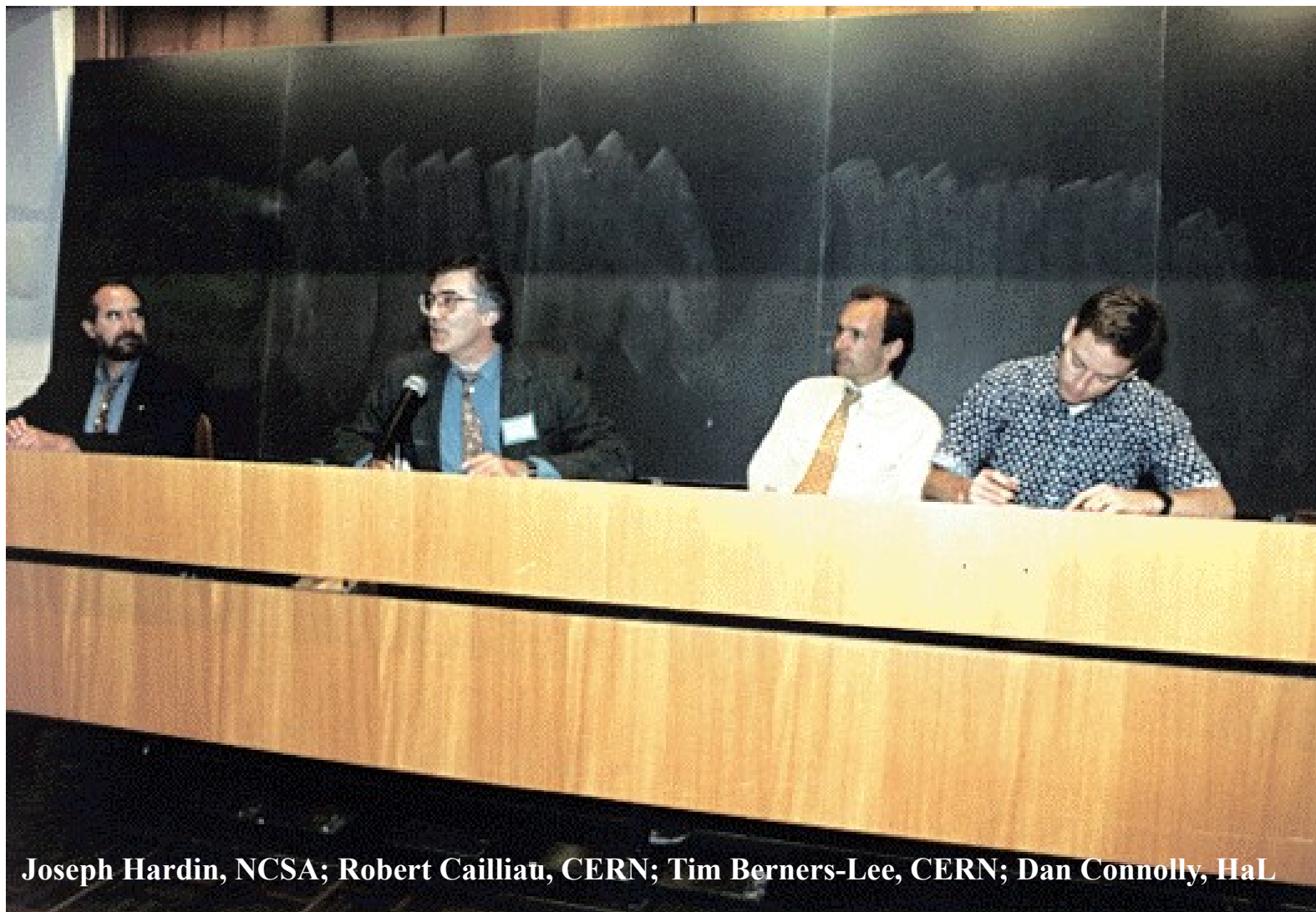1994 First WWW conf.:workshop on navigation(search engines)

1995 Lycos search Engine

Vannevar Bush, "As We May Think" , https://www.theatlantic.com/magazine/archive/1945/07/as-we-may-think/303881/
Bipin C. Desai, ``Report of the Navigation Issues Workshop", Comp. Networks & ISDN Systems, Vol. 27-2, Nov. 1994, p332-333

The start of the Web tsunami - the age of innocence

Joseph Hardin, NCSA; Robert Cailliau, CERN; Tim Berners-Lee, CERN; Dan Connolly, HaL

WWW I May 25 to 27, 1994 in Geneva, 380 attendees

WWW II in Chicago – Oct 17-20, 1994 1400 attendees

WWW III Damstadt, Germany April 1995   1800 attendees

Three meetings in one year! A big hurry to the dot com craze and crash

Why Closed Systems

Better control if there is no competition
Use patents, take overs, marketing, lobbying, courts for stifling cometition
Damage control/image making to continue

Failure of closed systems: Blackberry, Nokia

Attempt to open a system 'bundled" which created a closed system

Successful closed system :
Bundled system in two different formts
The so called 'fearsome' five all have different types of closed systems
The fearsome five label was given by a NYT columnist who writes about IT

Failure of Blackberry OS, Nokia – closed systems

These were the pioneer of the cell phone;
 BB former was a darling of the business community
 Nokia had a large consumer as well as professional base

However, BB failed to appreciate the consumer market
 - main force to drive the growth
 - problems in attracting new independent application(too closed)
 - realestate for QUERTY keypad was a waste

Even though Nokia developed a touchscreen version it lost its base
 Internal leadership problems at both of these companies
 The IOS and Android based systems
 - thanks to their zeolots, and
 - presence of the 'free' search, 'free' email offerings, took off!

Cell Phones and their OS

Blackberry

Nokia

EEE: Embrace, extend, and extinguish

Also called embrace, extend, and exterminate

This involves
- taking a standard product
- adding new proprietary features to it and
- prevent others to replicate the features (patents, litigation etc.) hence exterminate

This is the strategy used by marketer of closed systems

Used to control the internet, facilitated by the very organizations who were supposed to be neutral

https://en.wikipedia.org/wiki/Embrace,_extend,_and_extinguish

Market caps

	August 2021	August 2005	
BB(RIM):	5B	33B	0.15
Nokia	31B	70B	0.44
GE:	113B	362B	0.31
IBM:	126B	130B	0.97
Amazon:	1685B	18B	9.17
Apple:	2411B	43B	56.06
Facebook:	1005B	NA - did not exist!	
Google:	1800B	159B	11.32
Microsoft:	2142B	289B	7.41

Closed Systems - Cell Phones and their OS

The early leaders in the cell phone market hit the dust
 - the introduction of a monopolistic closed system par excellence
    used an already worshipping clientele in love with 'i"

  iPhone: In the beginning it was no better
- the introduction of it was staged and managed to avoid crashes
 The leaders, RIM and Nokia, at that time
- made wrong business decisions and
- targeted the wrong market
- downward spiral was dramatic: many studies have been published about it
  The result is that now there exist just two systems for mobile phones
       – both of them have a closed system for all intents and purposes

https://www.newyorker.com/business/currency/where-nokia-went-wrong

https://www.theglobeandmail.com/report-on-business/the-inside-story-of-why-blackberry-is-failing/article14563602/

Patents and litigation: *ball and chain for innovation*

Innovation and competition has been the victims of software patents used as "destructive weapons"

Apple and Google have at times spent more on patent litigation over intellectual property than on research and development,

Patents applications which are rejected are made over and over again until they are granted

Deep pockets and need to protect markets justify this

https://www.nytimes.com/2012/10/08/technology/patent-wars-among-tech-giants-can-stifle-competition.html

Closed or Open :　　　IOS, Android

Where as all devices powered by IOS are closed and is controlled by Apple

The 'reward" is to be able to have a 'seamless' use of any Apple device

Android, is based on Linux OS kernel an open source system
However, all devices using are bound to Googles control
Devices using Android have proprietary software –
    - such as Google Play controlled by Google

Android is hence not really open!
We already mentioned the legal battle between Apple and Google
  using Samsung was a proxy
 In a patent infringement judgment, a fine of over $1B was levied on
        Samsung - user of Android

The App Store Model

Revenue split between developers and Apple/Google on the App Store and Google Play

https://www.digitalinformationworld.com/2020/08/the-app-stores-business-model.html#postimages
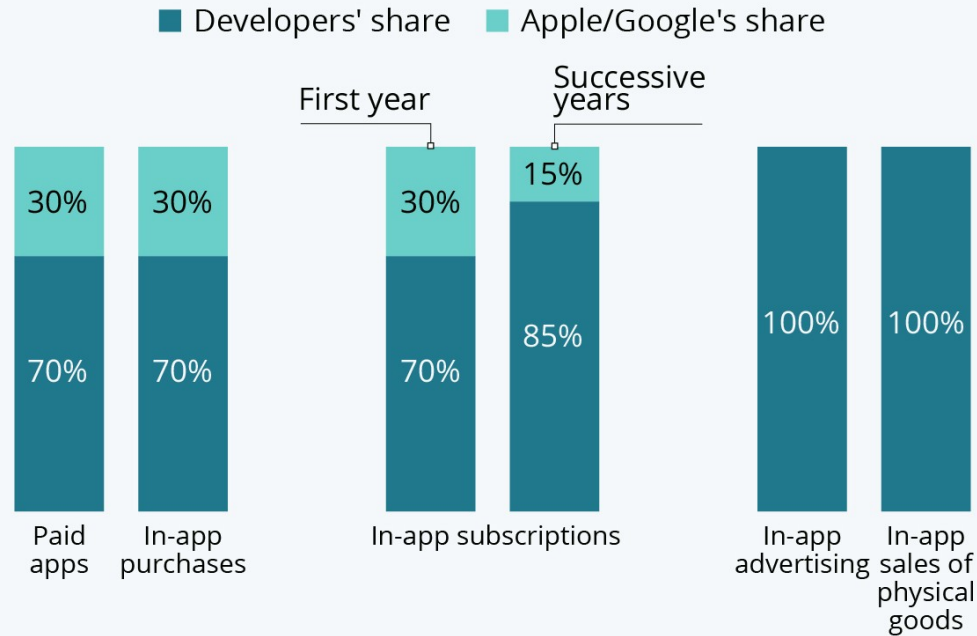
Windows

Microsoft started life as a supplier of a Basic interpreter in 1973

IBMs trouble with the justice department-   outsource the OS for their PC

 - an OS which was purchased by MicroSoft for $100K and rebranded

    gave MicroSoft a stronghold in the PC world

- PC/MS-DOS was introduced in early 1980s

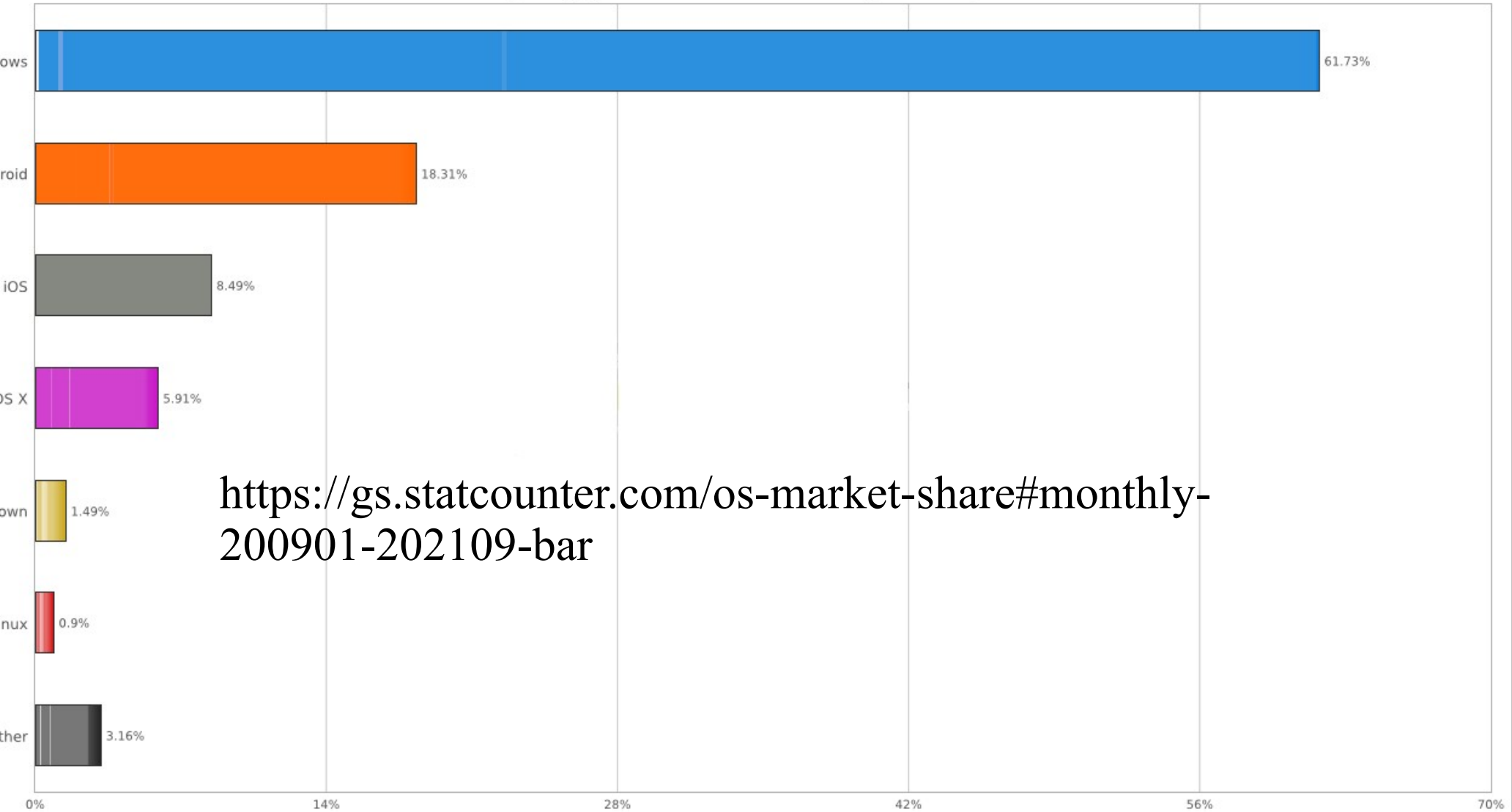Windows was a graphical extension of MS-DOS   - first version in 1985

Various versions of Windows have been released over the years

Windows is a closed system and most of the software is also MicroSoft

 few applications produced by independent vendors.

Still a poor interface – went from original to a copy of the one used for cell phone

Microsoft went from selling to licence their main application the Office set

An alternate open source suit exists for the Office set – LibreOffice

ows 61.73%

roid 18.31%

iOS 8.49%

OS X 5.91%

own 1.49%

nux 0.9%

ther 3.16%

0%   14%   28%   42%   56%   70%

https://gs.statcounter.com/os-market-share#monthly-200901-202109-bar

Repetition ad infinitum = not lies

Strategy used by autocrats, dictators, tyrants

Standardization stifles innovation

Standard sizes used doesn't prevent designers creativity

Open Unix/Linux have crated hundreds of variations
Include IoS, Android
dozens of interfaces
dozens of distribution methods

Continuous development
Updates on the fly – not requiring re-boots as in Windows

Android – non-free open system

A late comer to linux distribution(2005 by an independent company!)
- Not really a distribution
- Just in time
- Google market cap more than the those of BB & Nokia combined

A carrot for cell hardware manufacturer in the Orient

Another example of EEE!

Open with strings/chains attached!!

The Android mobile operating system is free for consumers and for
manufacturers to install, but manufacturers need a licence to install
Gmail, Google Maps and the Google Play store
- collectively called Google Mobile Services (GMS).

Android – a derivative of Linux non-free open system

The only Android that is free & open source is the "bare" Android system without Google Play(!!) store and other core Google services.

Google makes/saves billions of dollars as a result of the Android Trojan horse

Google acquired Android in 2005 for an estimated price of $50 million
2008 first Android smart-phone
Google paid $750 million for AdMob, a mobile-advertising startup, in 2010
Google fined €4.34B for anti-competitive practice of Android by EU Jul 2018
Google offered new licensing option for Android in EU Oct. 2018
Android users in EU to get a choice of 4 search engines.

Note: Here is how-to get rid of Google services from your android phone:
https://gizmodo.com/a-guide-to-using-android-without-selling-your-soul-to-g-1827875582

Innovation in Open System

Linux: as open as one can get for an Operating System
Started out with one version- today there are hundreds!
Windows and macOS have a single GUI and awkward method for
 desktop switching!
Linx distors have choice of GUIs:
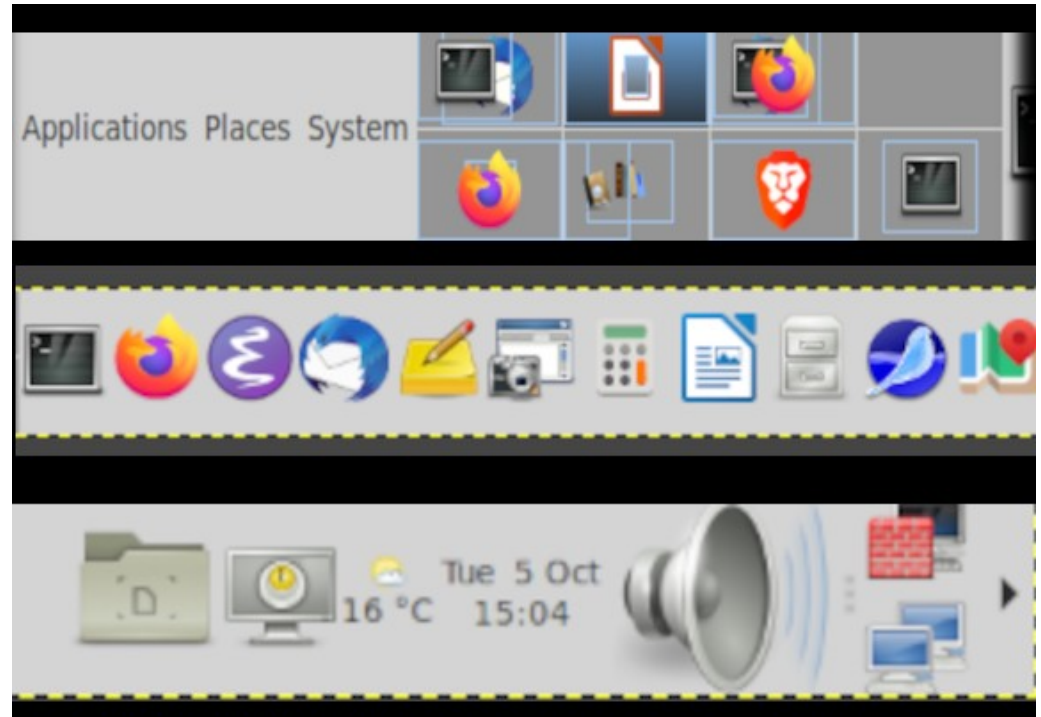DDE (Ubuntu)
Xfce (Linux Mint)
KDE-Plasma (various distros)
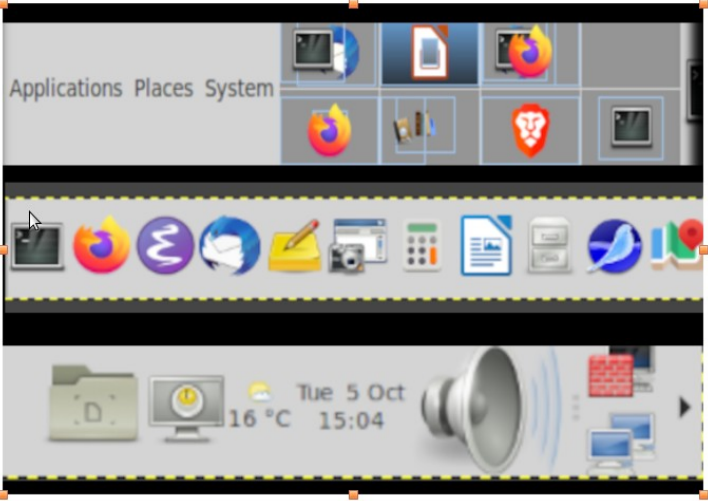Pantheon (Elementary OS)
Budgie (Solus)
Cinamon
LXDE/LXQt
Mate

Innovation in Open System

Linux: as open as one can get for an Operating System

Started out with one version- today there are hundreds!

Windows and macOS have a single GUI and awkward method for desktop switching!

Linx distors have choice of GUIS:

DDE (Ubuntu)

Xfce (Linux Mint)

KDE-Plasma (various distros)

Pantheon (Elementary OS)

Budgie (Solus)

Cinamon

LXDE/LXQt

Mate

Bipin C. DESAI

Facebook: perfect example of EEE

From wikipedia page:

- Zuckerberg built a website called "Facemash" **hot or cold** in 2003 at Harvard University.
- The site was sent to several campus groups but was shut down soon by Harvard administration.
- Zuckerberg faced expulsion and was charged with breaching security, violating copyrights and violating individual privacy.

Besides all the damage Facebook has done to democracies and peoples lives,
 It has supported autocrats, dictators, facilitated genocide,
 it has deprived people creating their own web presence and put roadblock
   to creating innovative tools for it

Open to anyone to spread any message
Closed to oversight   https://en.wikipedia.org/wiki/Facebook

Facebook: perfect example of EEE

Facebook and attempt to exterminate: attempt using Internet.org → Free Web
Zero rate service
   carriers charge nothing or very little for the data used
      for specific apps and web services
      for free Bing search but not Google(no tears for either of them!)
A threat to net neutrality,

In India, Reliance, a telecom company, along with
 Facebook wanted to provide 'free' web but failed to provide details of TOS
Attracted new users, but a great majority signed up were already internauts

– attempt failed   ▷ net neutrality

Imperial ambitions

Marcus Zuckerbergus
CONIVNGE ET IMPERA   connect and rule

http://www.economist.com/printedition/covers/2016-04-07/ap-e-eu-la-me-na-uk-0

facebook

Proxy Voting Instructions
Make your selection below.

Or, sign up here to **vote in person** at the meeting

Active - Not Voted

Vote by
May 26, 2017 11:59 p.m. EDT

Control #298 1287 0202 31203

Proposal(s)

1. DIRECTOR
MARC L. ANDREESSEN
ERSKINE B. BOWLES
S.D. DESMOND-HELLMANN
REED HASTINGS
JAN KOUM
SHERYL K. SANDBERG
PETER A. THIEL
MARK ZUCKERBERG

BOARD RECOMMENDATION: FOR

FOR ALL | WITHHOLD ALL

VOTE INDIVIDUALLY

NOMINEES WILL BE VOTED "FOR" UNLESS MARKED "WITHHOLD"

FOR   WITHHOLD

NO   AGAINST

Director	FOR	WITHHOLD
MARC L. ANDREESSEN	FOR	WITHHOLD
ERSKINE B. BOWLES	FOR	WITHHOLD
S.D. DESMOND-HELLMANN	FOR	WITHHOLD
REED HASTINGS	FOR	WITHHOLD
JAN KOUM	FOR	WITHHOLD
SHERYL K. SANDBERG	FOR	WITHHOLD
PETER A. THIEL	FOR	WITHHOLD
MARK ZUCKERBERG	FOR	WITHHOLD

Some issues with Facebook---- *deny, delay, deflect*

- Cambridge Analytica – influencing voters from Facebook data,
- inflation of video-viewing stats >>media companies to "pivot to video"
- data breaches,
- playing fast and loose with users' data
- role in enabling Russian interference - fake news
- contributing to a genocide in Myanmar – fake news spread by Junta
- by failing to effectively monitor hate speech on its platform
- feed users items that make them angry and hence increase 'engagment'
- Instagram is making kids miserable
- Facebook is worse than most other social media companies
- allow children to run up huge bills and refusing refunds to parents
      games: PetVille, Happy Aquarium, Wild Ones, Barn Buddy, Ninja games

Facebook whistle-blower[1]

Whistle-blower(Frances Haugen), ex-Facebook manager criticizes company,
    urges more oversight

One person controls 50% of the shares: accountable only to himself

At one point(2017), the share holder cannot vote against, only Withhold vote

The platform is designed to exploit negative emotions:
       which rivets users on the platform

The company knows it's causing harm to vulnerable people

Used by drug cartels and human traffickers but ignored by Facebook

The platform harm children, stroke division and weaken democracy

Company knows how to make the platform safer,
  but won't make the necessary changes
  put their astronomical profits before people(profits went up 17% in latest Q)

[1] Scheck, Purnell, Horwitz

Zuckerberg has promised to:
    restrict third-party access to Facebook data

Like any habitual sinner,
    he sins, seeks forgiveness in confession, and
then
    with that naughty boy expression pasted on his face,
    he goes forth and sins again.

Facebook has added one more D to their 3D(***deny, delay, deflect) + downplay***
  - in their offensive against the whistle-blower and her trove of documents
  - and added ***attack***
The new tact adopted by Zuck/Facebook is to become unapologetic

Facebook practices[0]:
  approach to hate speech
  approach to teenage mental health
  ignoring the use of the platform: by drug cartels, for human trafficking
  continue use algorithms which promotes hate speech
  no disciplinary action for VIP users
  allowing ethnic violence
  not reporting of shrinking user base in certain demographics

 - OSN NOT platforms, make them liable for their content
 - Follow the examples of Deborah Louise Douez[1] and Dylan Voller[2]
        -requires perseverance against big techs

[0] Milmo [1]Cocks, Chen [2]Schwartz

Gig economy

Killed by a SUV while delivering food for Caviar in bad weather
No insurance, no compensation, only lip service for life lost!

https://www.theatlantic.com/technology/archive/2018/06/gig-economy-death/561302/

IoT another closed system!

Cell phone

Closed OS devicc

IoT

Why an avalanche of IoT devices?
 - convenience
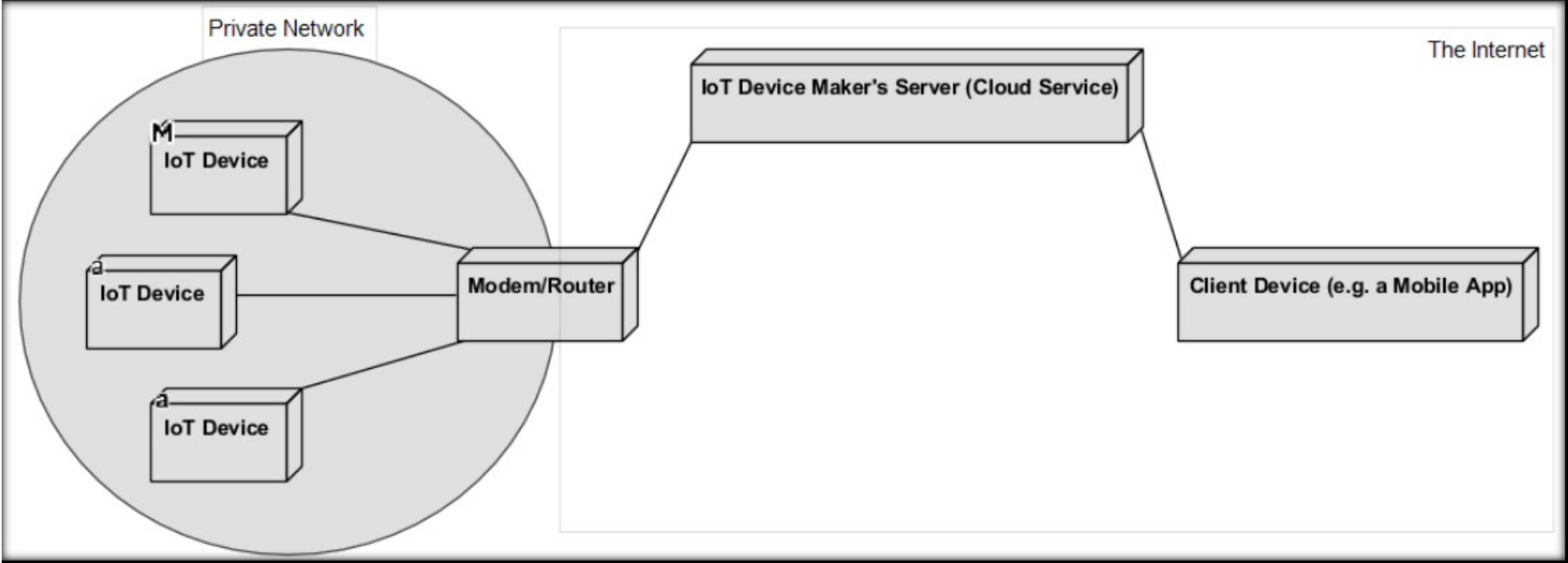 - remote accessibility

IoT have a major issue regarding
 - the security of access
 - control of the data generated
 - privacy

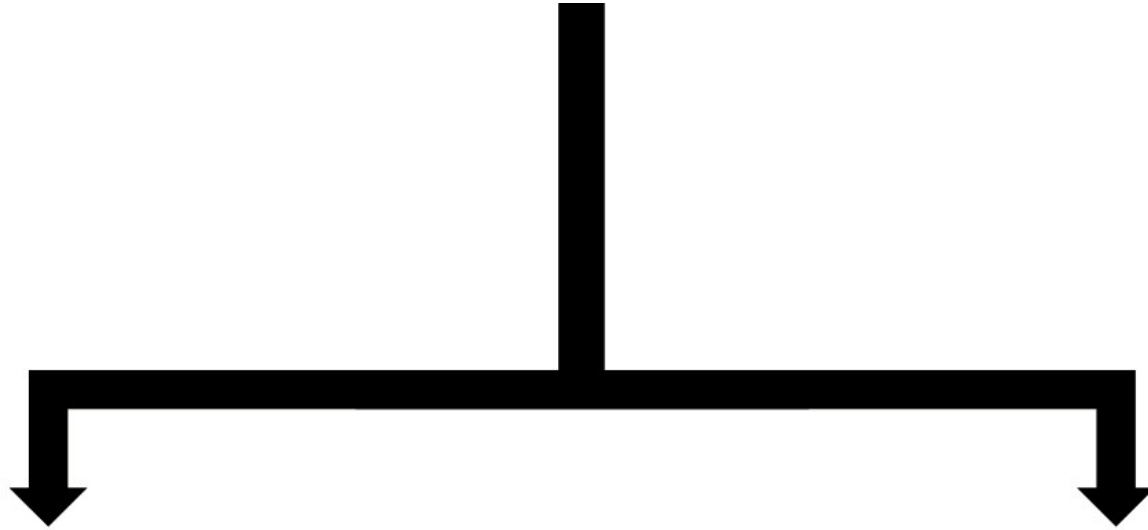Note: Mobile devices and even computing systems are after all IoT
They have a closed operating system
 - controlled by one of the fearsome five

IoT

IoT

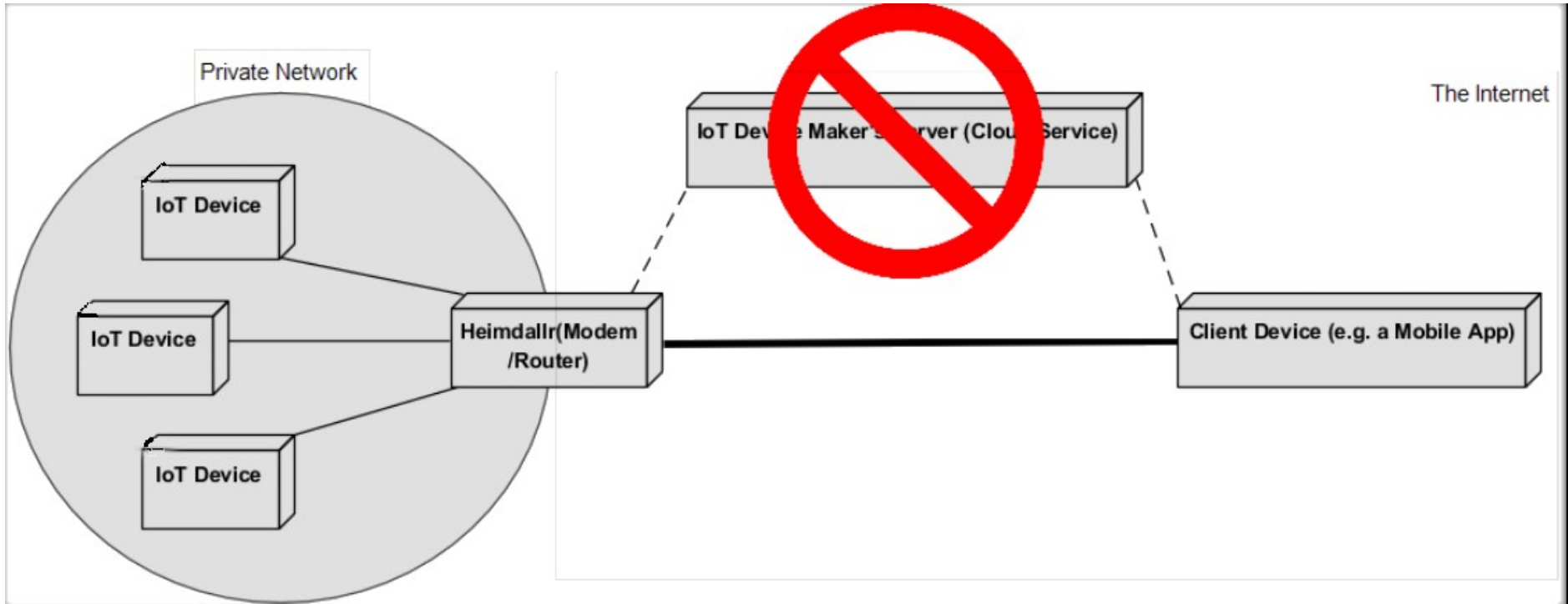Give Up The Data
Privacy

Give Up The Tech

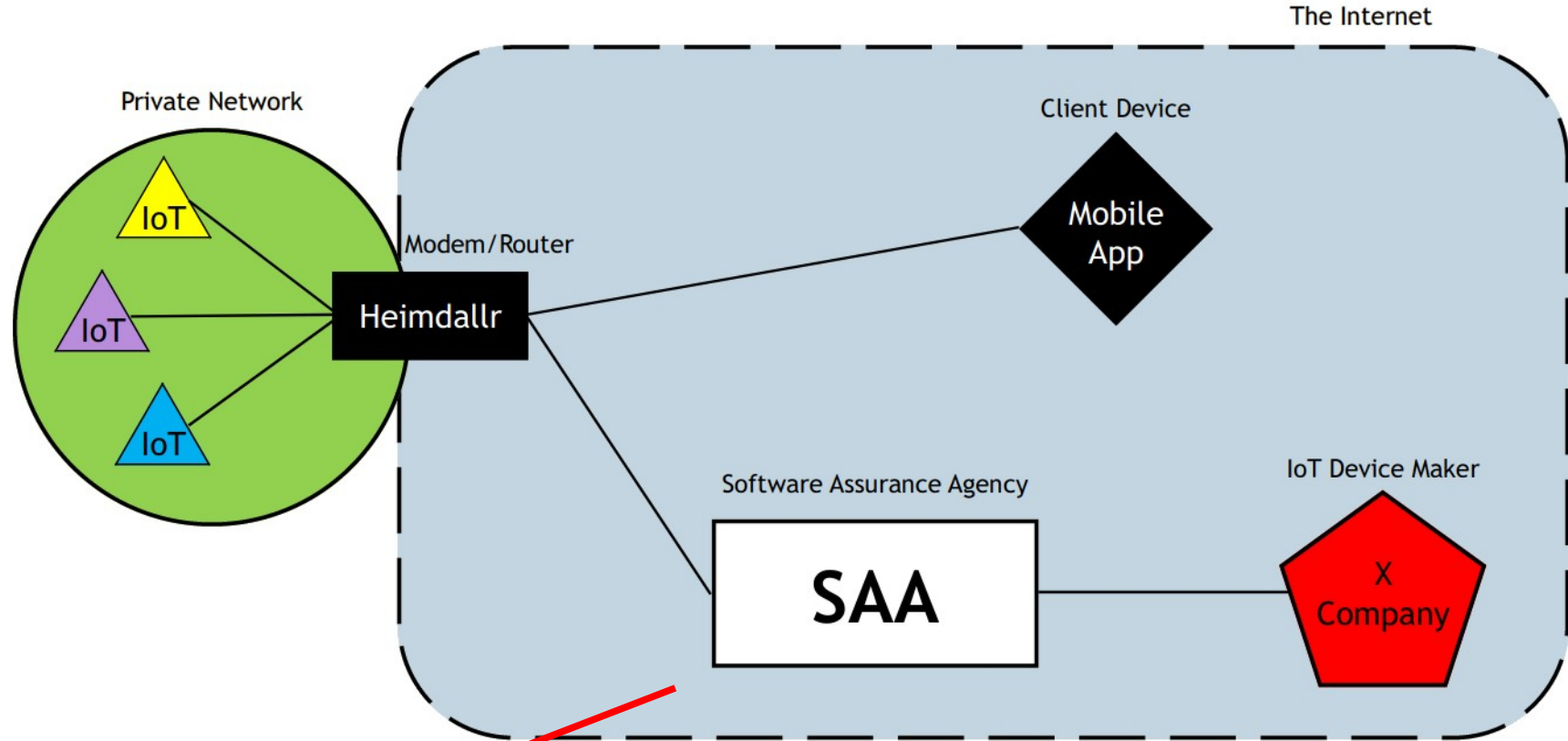Give Up The Data
Privacy

Give Up The Tech

HEIMDALLR

IoT

Heimdallr System Components

Non-profit independent public organization
NOT like W3 Consortium(dominated by stake-holders)

Ref; Aksoy, Desai

Time to liberate the internet and renew the web!

Public agency and public control to provide:
    email service
    new web service - paid by amount of data – serve text and images
                - NO VIDEO, NO SOUND
    essential services such as map and direction
    information service

Better elections practice
    Proportional representation
    Real separation of power: with absolute independence of
           administrative, judicial and legislative branches
    Reform of electoral financing, lobbying,
    Mandatory 'garden' leave between governmental and private sector jobs

Result of academic research(IP) in public domain, algorithms in any programming language
           – must not be patent able

Conclusion

All human endevours depend on the knowledge base of over milleneums

There was a contribution by each soul

However, we have not yet deviced an equitable system for sharing

There are always unscruplous people who want everthing

Open systems are an attempt
However, they should not be hi-jacked into Closed systems

It is our reponsibilty to address abuses is being done by some whistle-blowers

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- An Introduction to Database Systems, https://spectrum.library.concordia.ca/988586/
- Database Web Programming,   https://spectrum.library.concordia.ca/988529/
- Database Web Programming-Archive(Scripts etc.),
      https://spectrum.library.concordia.ca/988529/

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Kamil Franek, "How Google Makes Money from Android: Business Model Explained", Jan. 14, 2020, https://www.kamilfranek.com/how-google-makes-money-from-android/

Mobile Application Distribution Agreement (MADA not MAGA!). 2011, https://www.benedelman.org/docs/htc-mada.pdf

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Merci   Thank you

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