



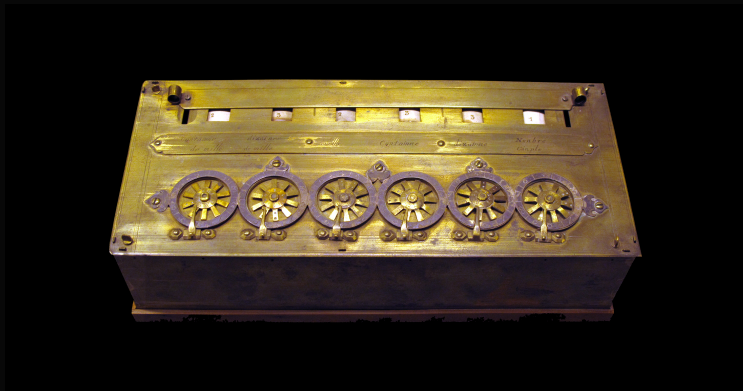
Souveraineté des données

Myxonautes

Université de Nîmes
septembre 2023

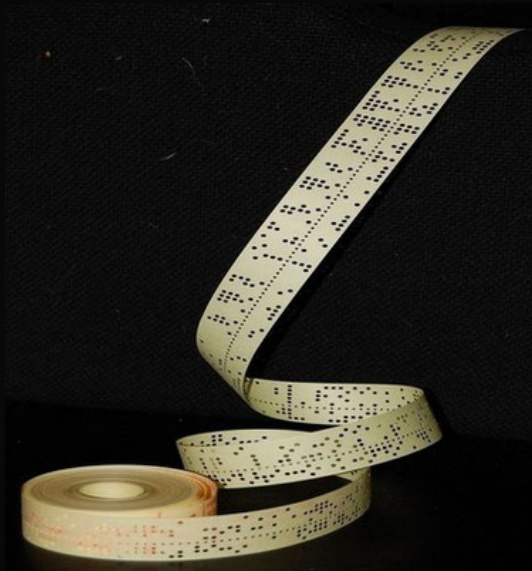
La machine qui met en ordre

1642 : la pascaline



La machine qui met en ordre

1725 : ruban perforé de Basile Bouchon



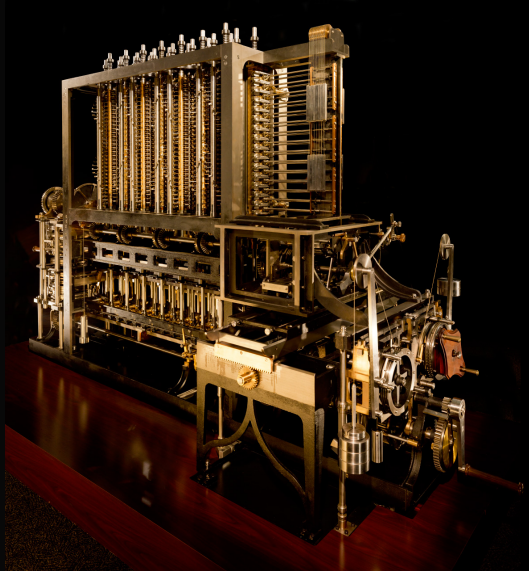
La machine qui met en ordre

1801 : métier Jacquard



La machine qui met en ordre

1834 : la machine analytique de Babbage



La machine qui met en ordre

1843 : Ada Lovelace, première programmeuse de l'histoire

[illegible]

La machine qui met en ordre

1890 : Herman Hollerith, invention de l'électromécanique



La machine qui met en ordre

1890 : Herman Hollerith, invention de l'électromécanique

1	1	3	0	2	4	10	On	S	A	C	E	a	c	e	g		EB	SB	Ch	Sy	U	Sh	Hk	Br	Rm
2	2	4	1	3	E	15	Off	IS	B	D	F	b	d	f	h		SY	X	Fp	Cn	R	X	Al	Cg	Kg
3	0	0	0	0	W	20			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A	1	1	1	1	0	25	A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
B	2	2	2	2	5	30	B	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
C	3	3	3	3	0	3	C	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
D	4	4	4	4	1	4	D	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
E	5	5	5	5	2		E	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
F	6	6	6	6	A	D	F	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Q	7	7	7	7	B	E	Q	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
H	8	8	8	8	a	F	H	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
I	9	9	9	9	b	c	I	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9



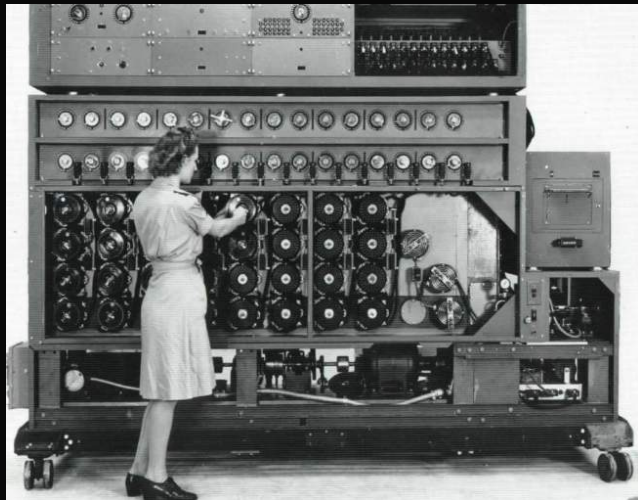
La machine qui met en ordre

2e guerre mondiale : Enigma



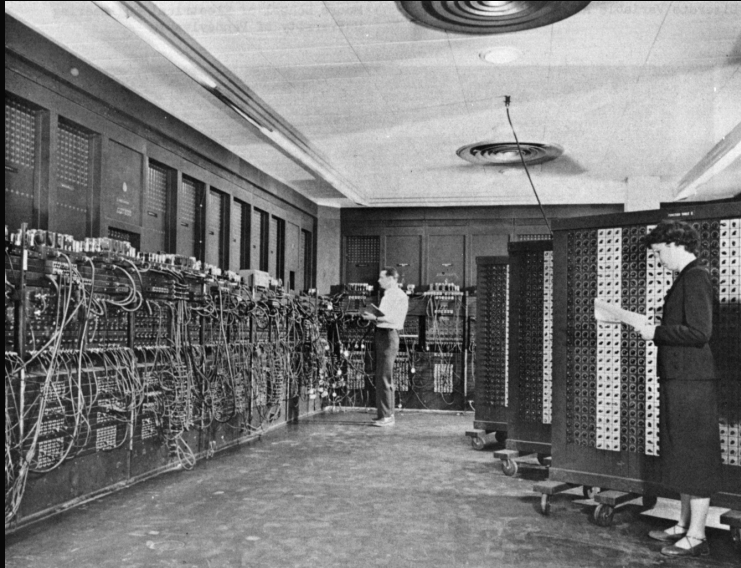
La machine qui met en ordre

2e guerre mondiale : décrypter Enigma, la machine de Turing



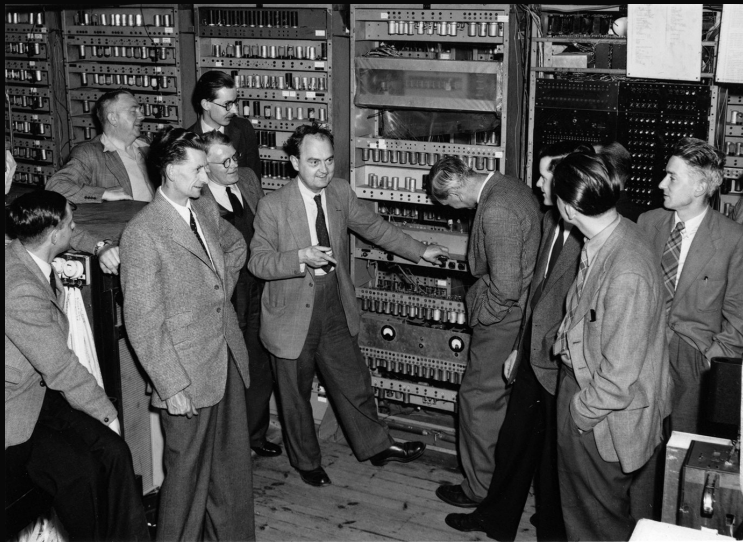
La machine qui met en ordre

1945 : premier calculateur entièrement électronique, l'ENIAC



La machine qui met en ordre

1949 : premier calculateur à programmes enregistrés, l'EDSAC



La machine qui met en ordre

1949 : premier ordinateur à programmes enregistrés, l'EDSAC



© SWNS.com

La machine qui met en ordre

1954 : premier assembleur

MONITOR FOR KREZ 1.4 9-14-60 TSC ASSEMBLER PAGE 2

```
CODE      0000      0000      0000      0000      0000      0000      0000      0000
CODE 0E 00 TO START      LDR      STACK

*****
* FUNCTION: INITA - Initialize ACIA
* INPUT: none
* OUTPUT: none
* CALLS: none
* DESTROYED: none

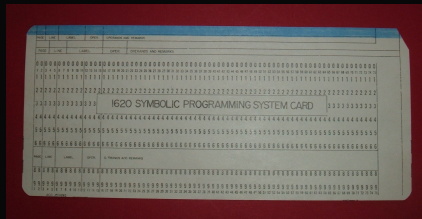
0010      0000      0000      0000      0000      0000      0000      0000
0011      0000      0000      0000      0000      0000      0000      0000
0000 0E 13      INITA      LDA A      00000000      00000000      00000000      00000000
0000 0E 00 04      STA A      ACIA
0000 0E 11      LDA A      00000000      00000000      00000000      00000000
0000 0E 00 04      STA A      ACIA
0000 0E 00 01      JMP      SIGROW      GO TO START OF MONITOR

*****
* FUNCTION: INCH - Input character
* INPUT: none
* OUTPUT: char in acc A
* CALLS: none
* DESTROYED: none
* DESCRIPTION: Get 1 character from terminal

0010 0E 00 04      INCH      LDA A      ACIA      GET STATUS
0010 07      AND A      00000000      00000000      00000000      00000000
0010 04 0A      BCC      0000      RECEIVE NOT READY
0010 0E 00 05      LDA A      ACIA+1      GET CHAR
0010 04 0F      AND A      0000      MASK PARITY
0010 0E 00 08      ORP      0000      ZERO A WTS
0010 0E 00 08      JMP      0000      0000 0000 0000 0000

*****
* FUNCTION: INRER - INPUT HEX DIGIT
* INPUT: none
* OUTPUT: Digit in acc A
* CALLS: INCH
* DESTROYED: none
* Returns to Monitor if not HEX Input

0010 0E 00 00      INRER      INCH      GET A CHAR
0010 0E 00 00      CMP A      0000      ZERO
0010 0E 00 11      JNE      0000      NOT HEX
0010 0E 00 19      CMP A      0000      NINE
0010 0E 00 0A      JNE      0000      GOOD HEX
0010 0E 00 01      CMP A      0000      NOT HEX
0010 0E 00 09      JNE      0000      NOT HEX
0010 0E 00 06      CMP A      0000      NOT HEX
0010 0E 00 07      AND A      0000      AND A-F
0010 0E 00 0F      ORP      0000      ORP A-F
0010 0E 00 0F      JMP      0000      RETURN ACIA1 TO DIGIT
0010 0E 00 0F      JMP      0000      RETURN TO CONTROL LOGIC
```



La machine qui met en ordre

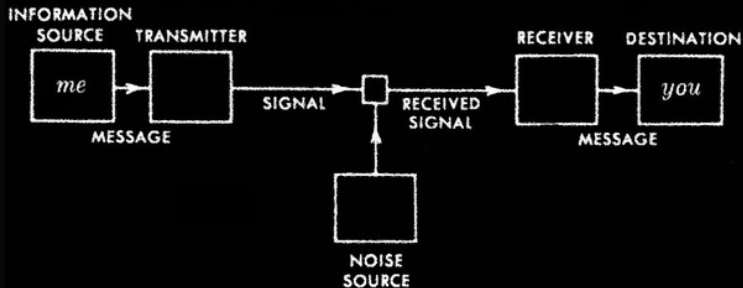
1951 : premier calculateur à l'architecture de John von Neumann, l'EDVAC



La machine qui met en ordre

1948 : Théorisation par Claude Shannon

The Mathematical Theory of Communication



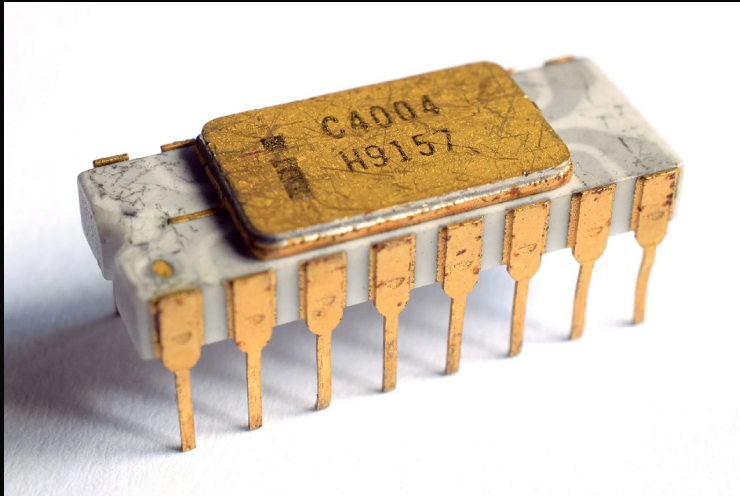
La machine qui met en ordre

1947 : premier transistor



La machine qui met en ordre

1971 : premier microprocesseur



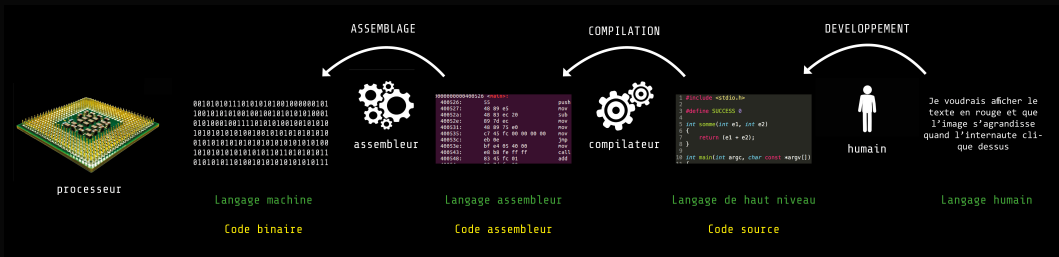
La machine qui met en ordre

1951 : Grace Hopper invente le premier compilateur



La machine qui met en ordre

1951 : le compilateur permet le développement de langages de hauts niveaux



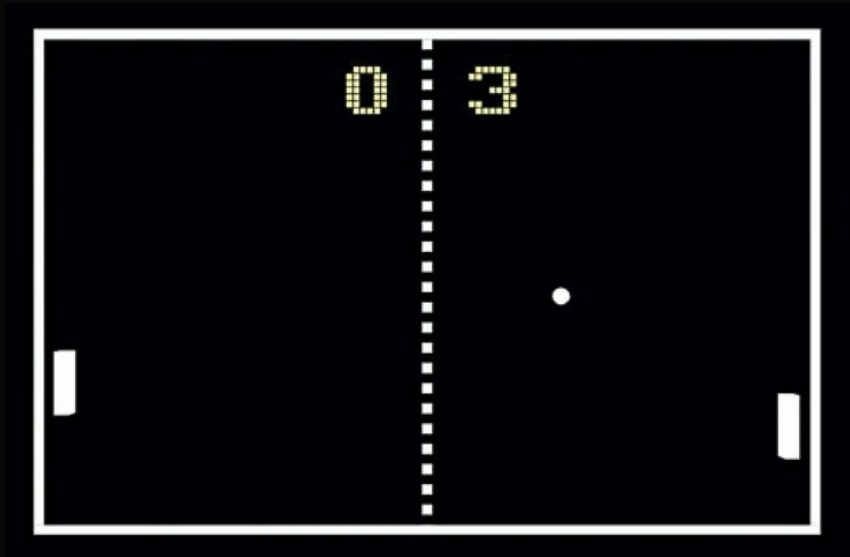
Nouveau territoire

La région à l'est de San Francisco est surnommée en 1971 Silicon Valley



La machine pour s'amuser

1972 : Atari lance le premier jeu d'arcade, Pong



Personal computer

1965 : Olivetti lance le premier ordinateur personnel, le Programma 101



Personal computer

1969 : Le gouvernement des États Unis attendent un procès à IBM pour sa politique anti concurrentielle



Personal computer

1976 : Bill Gates une "Lettre ouverte aux amateurs"

-2-

February 3, 1976

An Open Letter to Hobbyists

To me, the most critical thing in the hobby market right now is the lack of good software courses, books and software itself. Without good software and an owner who understands programming, a hobby computer is wasted. Will quality software be written for the hobby market?

Almost a year ago, Paul Allen and myself, expecting the hobby market to expand, hired Monte Davidoff and developed Altair BASIC. Though the initial work took only two months, the three of us have spent most of the last year documenting, improving and adding features to BASIC. Now we have 4K, 8K, EXTENDED, ROM and DISK BASIC. The value of the computer time we have used exceeds \$40,000.

The feedback we have gotten from the hundreds of people who say they are using BASIC has all been positive. Two surprising things are apparent, however. 1) Most of these "users" never bought BASIC (less than 10% of all Altair owners have bought BASIC), and 2) The amount of royalties we have received from sales to hobbyists makes the time spent of Altair BASIC worth less than \$2 an hour.

Why is this? As the majority of hobbyists must be aware, most of you steal your software. Hardware must be paid for, but software is something to share. Who cares if the people who worked on it get paid?

Is this fair? One thing you don't do by stealing software is get back at MITS for some problem you may have had. MITS doesn't make money selling software. The royalty paid to us, the manual, the tape and the overhead make it a break-even operation. One thing you do do is prevent good software from being written. Who can afford to do professional work for nothing? What hobbyist can put 3-man years into programming, finding all bugs, documenting his product and distribute for free? The fact is, no one besides us has invested a lot of money in hobby software. We have written 6900 BASIC, and are writing 8080 APL and 6800 APL, but there is very little incentive to make this software available to hobbyists. Most directly, the thing you do is theft.

What about the guys who re-sell Altair BASIC, aren't they making money on hobby software? Yes, but those who have been reported to us may lose in the end. They are the ones who give hobbyists a bad name, and should be kicked out of any club meeting they show up at.

I would appreciate letters from any one who wants to pay up, or has a suggestion or comment. Just write me at 1180 Alvarado SE, #114, Albuquerque, New Mexico, 87108. Nothing would please me more than being able to hire ten programmers and deluge the hobby market with good software.

Bill Gates

Bill Gates
General Partner, Micro-Soft



24/77

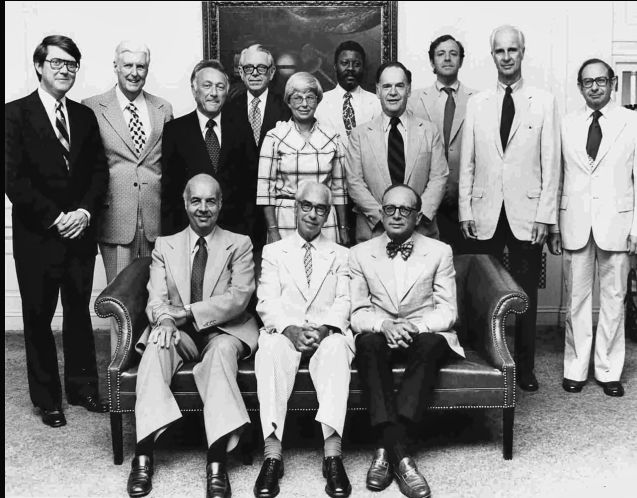
Personal computer

1977 : l'apple 2



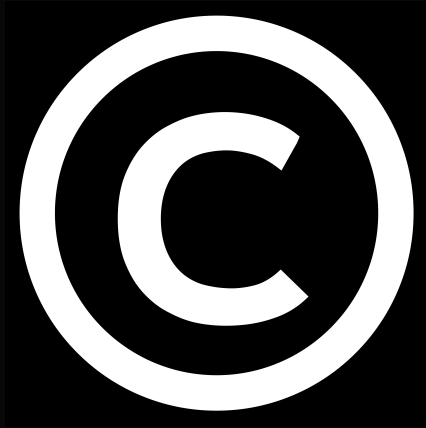
Personal computer

1978 : la Commission américaine sur les nouveaux usages technologiques des œuvres protégées par le droit d'auteur rend son rapport et recommande que les programmes d'ordinateur soient explicitement protégés par la loi sur le droit d'auteur



Personal computer

1980 : The Computer Software Copyright Act



Personal computer

1983 : IBM annonce à ses clients ne plus donner le code source avec les logiciels vendus



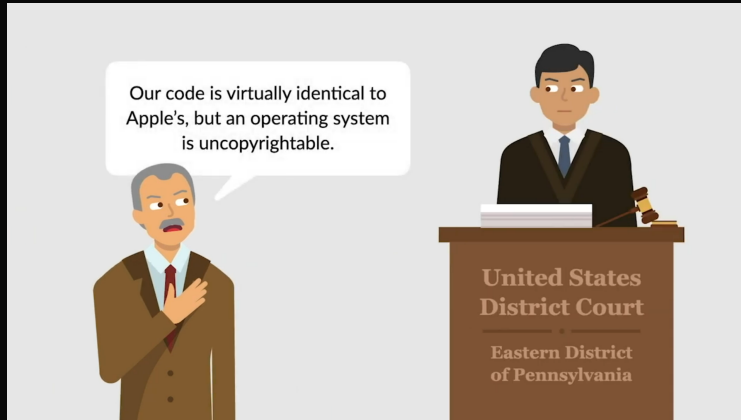
"DISTRIBUTION OF IBM LICENSED PROGRAMS AND LICENSED PROGRAM MATERIALS AND MODIFIED AGREEMENT FOR IBM LICENSED PROGRAMS Today

IBM is announcing that, for selected new IBM licensed programs and selected new versions and releases of currently available IBM licensed programs, certain licensed program materials may be either made available on a restricted basis or not available ; when the licensed program materials are not available, the licensed programs will be distributed in object code only. Restricted materials may include machine readable source code, microfiche, logic manuals, and selected basic materials."



Personal computer

1983 :procès d'Apple Computer, Inc. contre Franklin Computer Corp



Personal computer

1983 : Retro ingénierie interdite



Personal computer

1983 : Stratégie de la muraille de Chine



Naissance du libre

1978 : Tex, précurseur du logiciel libre



TEX



Personal computer

Entre les années 70 et 80 : le système d'exploitation UNIX devient propriétaire

```

*****
*                                     *
*                                     *
*               TM                   *
*            AT&T UNIX   pc         *
*                                     *
*          Loader Version 3.51      *
*                                     *
*                                     *
*    Copyright (C) 1985, 1986     *
*                                     *
*        AT&T                     *
*                                     *
*    All Rights Reserved          *
*                                     *
*****

Searching floppy disk...

Searching hard disk...
*****
*****
***** --

```



Naissance du libre

1983 : GNU is Not Unix



Naissance du libre

1985 : Free Software Foundation



Naissance du libre

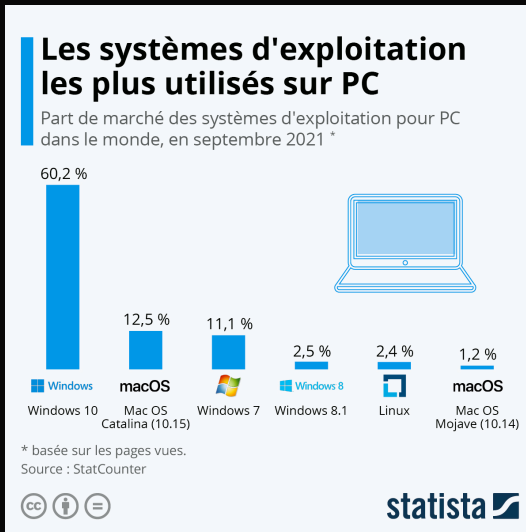
années 80 : le mouvement du copyleft émerge et crée la première licence généraliste en 1989,
la GNU GPL



Naissance du libre

1991 : Linux





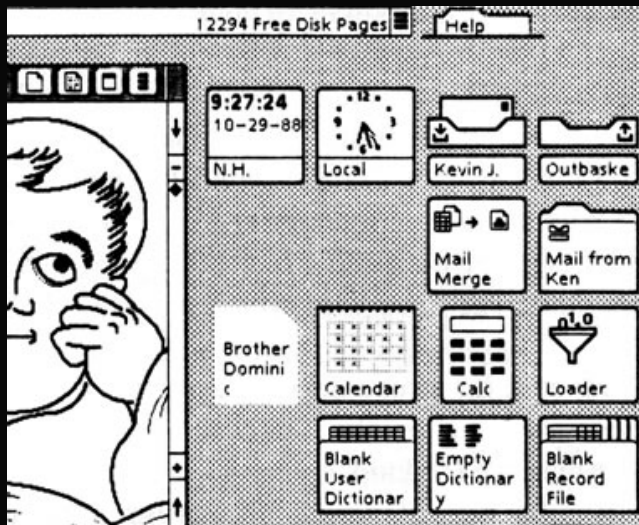
Naissance de l'open source

1998 : divergence politique



Personal computer

1980 : les laboratoires de recherche de Xerox imagine une interface graphique autour du concept de « manipulation directe »



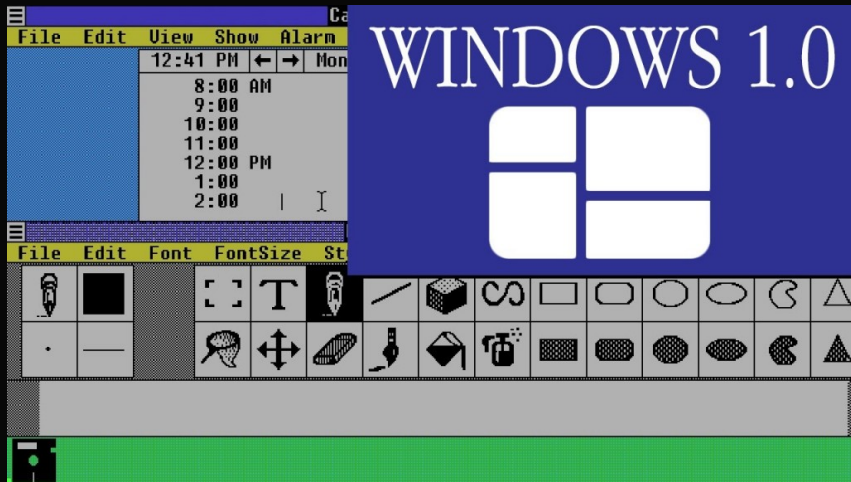
Personal computer

1984 : Macintosh



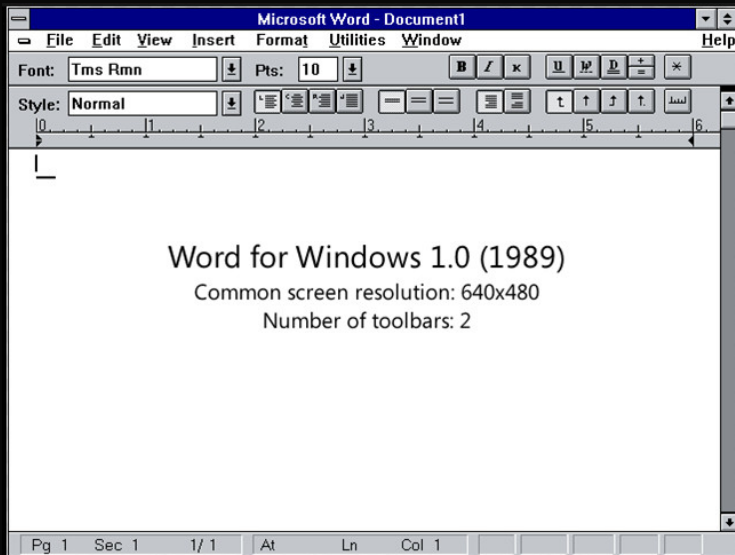
Personal computer

1985 : sortie de la première version du système d'exploitation Windows



Personal computer

1983 : première sortie de Word



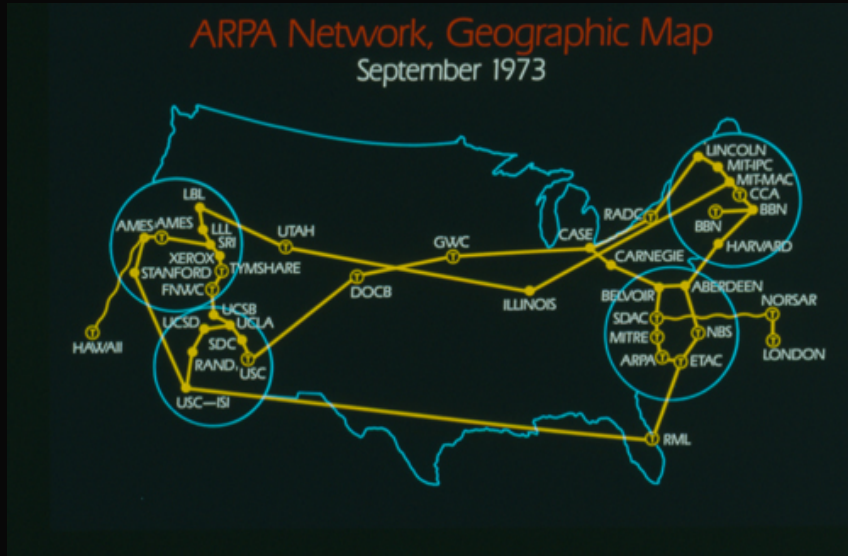
Personal computer

Années 90 : Windows monopolise le marché des systèmes d'exploitation



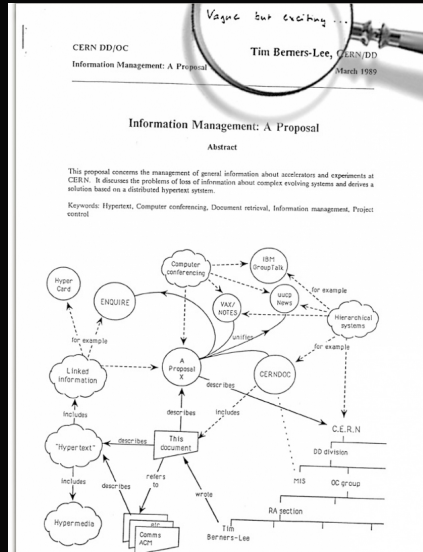
Naissance d'un réseau

1969 : Arpanet



Naissance d'un réseau

1989, le Britannique Tim Berners-Lee, informaticien du Conseil européen pour la recherche nucléaire (CERN) imagine le World Wild Web avec les trois concepts : HTTP, URL et HTML



Le réseau du labo au salon

1994 : création du navigateur Netscape, deux ans plus tard il sera utilisé par 90% des internautes



Révolution

1998 : Yahoo



Révolution

1999 : naissance de MSN Messenger



Krash boursier

2000 : éclatement de la bulle internet

LAST	CHG	%CHG	BID	OFFER	OPEN	HIGH	LOW	PID
329.00	-4.00	-1.20% ▼	328.00	329.00	332.00	336.00	329.00	333.00
12.20	-0.10	-0.81% ▼	12.20	12.30	12.30	12.40	12.20	12.3
17.30	0.60	3.59% ▲	17.30	17.40	16.80	18.0	16.70	17.0
22.50	-0.50	-2.17% ▼	22.40	22.50	22.90	23.00	22.50	23.0
25.50	0.50	2.00% ▲	25.40	25.50	25.00	25.25	24.80	25.0
112.00	-3.00	-2.61% ▼	112.00	113.00	114.50	115.00	112.00	113.0
14.84	0.10	2.11% ▲	14.84	14.85	14.82	14.94	14.80	14.9
239.00	-0.42%	▼	239.00	240.00	237.00	240.00	235.00	240.0
54.00	-2.05%	▲	54.00	55.00	53.00	55.00	52.00	54.0
2.48	-1.00	-4.29%	2.48	2.50	2.33	2.50	2.30	2.4
7.40	0.00	0.00%	7.40	7.50	7.30	7.50	7.20	7.4



Téléphone portable

2002 : Nokia 3410



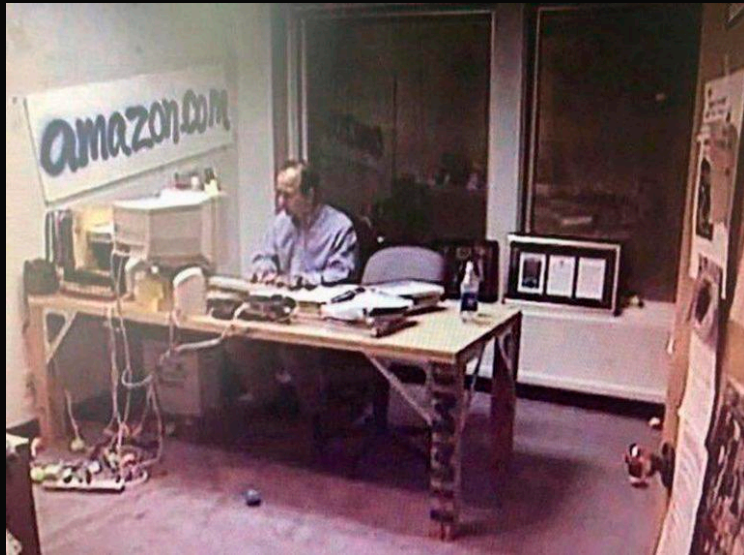
Smartphone

2007 : Sortie du premier Iphone



Les survivants (ou l'art de la disruption)

1994 : création d'Amazon par Jeff Bezos



Les survivants (ou l'art de la disruption)

Maîtriser les coûts de stockage et de transport



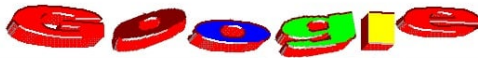
Les survivants (ou l'art de la disruption)

1996 : Google

Google Search Engine

This is a demo of the Google Search Engine. Note, it is research in progress so expect some downtimes and malfunctions. You can find the older [Backrub web page here](#).

Google is being developed by [Larry Page](#) and [Sergey Brin](#) with very talented implementation help by [Scott Hassan](#) and [Alan Sterenberg](#).



Search Stanford

<table border="0"><tr><td>10 results</td><td> clustering on </td><td> Search </td></tr></table>	10 results	clustering on	Search
10 results	clustering on	Search	

Search The Web

<table border="0"><tr><td>10 results</td><td> clustering on </td><td> Search </td></tr></table>	10 results	clustering on	Search
10 results	clustering on	Search	



Les survivants (ou l'art de la disruption)

Google impose aux fabricants l'installation de ses applications par défaut



Les survivants (ou l'art de la disruption)

1997 : Netflix

NETFLIXMember Sign In

WelcomeLearn MorePreview SelectionFree Trial

FREE Trial!

Rent all the DVDs you want for \$22 a month.

[Start Free Trial](#)



Have a Special Offer or Gift Subscription?
Enter Code

[Redeem](#)

[Torque](#)



[Girl with a Pearl Earring](#)



[Chasing Liberty](#)



[Lord of the Rings: The Return of the King](#)



[See more new releases](#)

Here's how it works:

1 Sign up and choose your movies.



2 Get them in the mail. Free shipping!



3 Return them and we'll send you more.





2004 : Facebook



Les lanceurs d'alerte

2011 : Alexandra Elbakyan créé Sci-Hub



Les lanceurs d'alerte

2013 : Aaron Swartz



Les lanceurs d'alerte

2013 : Edward Snowden



À code ouvert

Karen Sandler : Directrice de Software Freedom Conservancy



Manipuler l'opinion

2018 : Scandale Cambridge Analytica



Centralisation

dans les datas centers



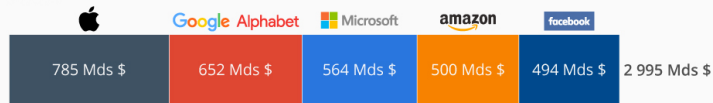
La concentration des données bénéficie aux entreprises

Ciblage publicitaire

Les GAFAM plus riches que la France

Comparaison de la capitalisation boursière des GAFAM au PIB de la France

GAFAM



PIB de la France en 2017*



* Estimation du FMI.



Données arrondies
Cours de clôture du 27 juillet 2017.
Sources : Yahoo! Finance, FMI

statista

La concentration des données bénéficie aux entreprises

Ciblage publicitaire



La concentration des données bénéficie aux entreprises

Ciblage publicitaire



	Google	Facebook	Apple	Twitter	Amazon	Microsoft
Name	✓	✓	✓	✗	✓	✓
Gender	✓	✓	✗	✗	✗	✓
Birthday	✓	✓	✗	✗	✗	✓
Phone Number	✓	✓	✓	✓	✓	✓
Email Address	✓	✓	✓	✓	✓	✓
Location	✓	✓	✓	✗	✓	✓
Relationship Status	✗	✓	✗	✗	✗	✗
Work	✓	✓	✗	✗	✗	✗
Income Level	✗	✓	✗	✗	✗	✗
Education	✓	✓	✗	✗	✗	✗
Race/Ethnicity	✗	✓	✗	✗	✗	✗
Religious Views	✗	✓	✗	✗	✗	✗
Physical Address	✗	✓	✓	✗	✗	✓
Facial Recognition Data	✗	✓	✗	✗	✗	✗

Political Views	✗	✓	✗	✗	✗	✗
Credit Cards	✗	✓	✗	✓	✓	✓
Government IDs (Such as Social Security and Driver's License Numbers)	✗	✗	✗	✗	✗	✗
IP Address	✓	✓	✓	✓	✓	✓
Your Emails	✓	✓	✓	✓	✓	✓
Your Contacts	✓	✓	✗	✓	✓	✓
Your Phone Calls	✗	✗	✗	✗	✗	✗
Your Chat Conversations/ Messages	✗	✓	✗	✓	✓	✓
Calendar Events	✓	✓	✗	✗	✗	✗
Search History	✓	✓	✗	✗	✓	✓
Videos Watched	✓	✓	✗	✓	✓	✓
Websites Visited	✓	✓	✗	✗	✓	✓
Browser Information	✓	✓	✗	✗	✓	✓
Video Uploads	✓	✓	✗	✗	✓	✓
Photo Uploads	✓	✓	✗	✗	✓	✓

Status Updates/Posts	✓	✓	✓	✗	✓	✗
Likes	✗	✓	✗	✗	✗	✗
Your Documents	✓	✓	✗	✗	✓	✓
Your Purchase History	✗	✗	✓	✗	✓	✓
Your Games	✗	✗	✓	✗	✗	✓
Your Books	✗	✗	✓	✗	✗	✓
Your Music	✗	✗	✓	✗	✗	✓
Your Fitness/Health Data	✗	✗	✗	✗	✗	✓
Ads You Click	✓	✓	✗	✗	✓	✓
What you've hidden from new feeds	✗	✓	✗	✗	✗	✗
The Devices You Use	✓	✓	✓	✓	✓	✓
Information About the Things Near Your Device (Wi-Fi, Bluetooth, etc.)	✗	✓	✓	✗	✗	✗
Voice Data	✗	✗	✗	✗	✗	✓
Gaming/Interactive Data	✗	✗	✗	✗	✗	✓

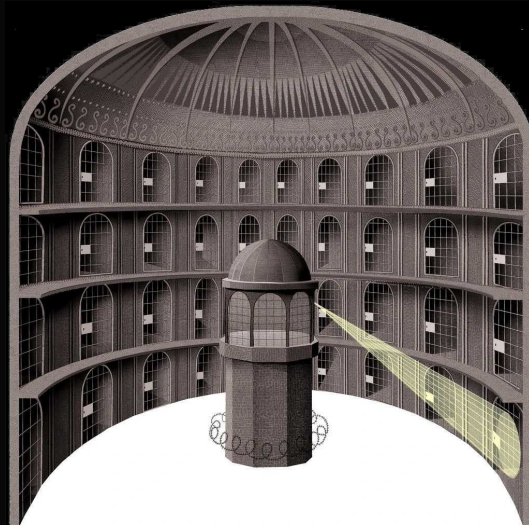
SECURITY BARON

Sources:
www.privacy.google.com | www.policy.google.com |
www.facebook.com | www.newseurope.com |
www.washingtonpost.com | www.apple.com | www.twitter.com |
www.facebook.com | www.bbc.com | www.amazon.com |
www.androidcentral.com | www.privacy.microsoft.com |
www.fox.com | www.fox.com | www.bbc.com



La concentration des données bénéficie à l'état

Vision panoptique

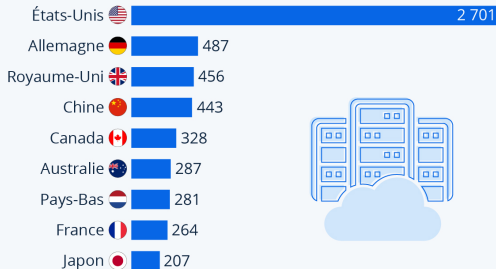


La concentration des données bénéficie aux états

les plus puissants

Les pays qui hébergent le plus de data centers

Nombre de centres de données recensés par pays en septembre 2022 *



* Sélection des pays avec plus de 200 data centers répertoriés.

Source : Cloudscene



statista



Solution

Les chatons



Solution

Trouver un chaton près de chez moi



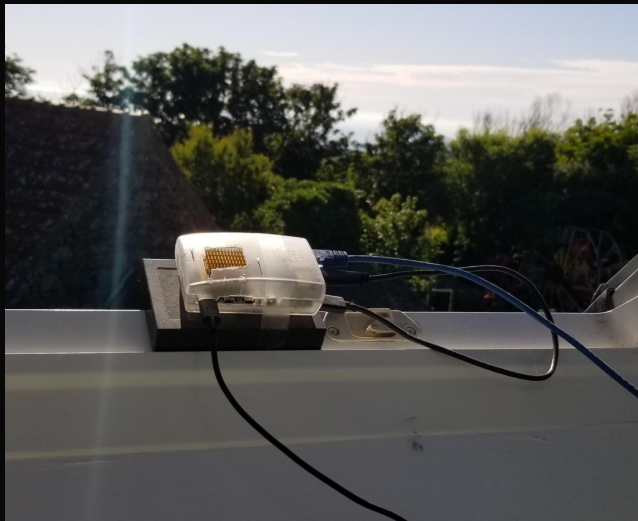
Solution

Serveur qui fait peur



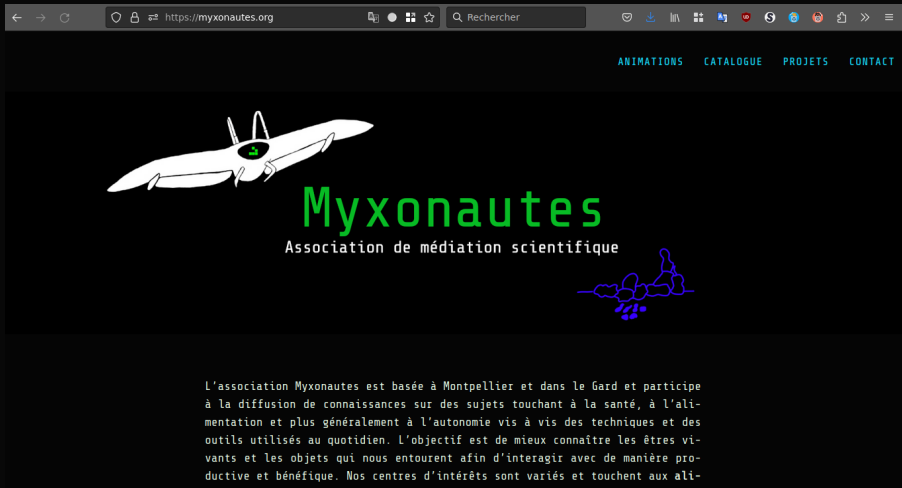
Solution

Serveur qui fait pas peur



Fonctionnement d'internet

Une page web dans un navigateur



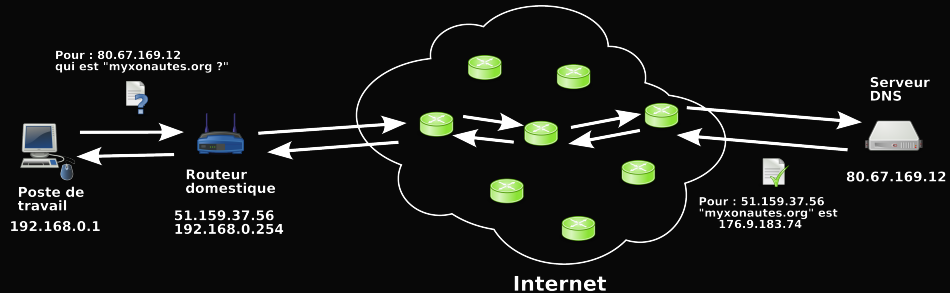
Fonctionnement d'internet

Sources d'une page web

```
← → ↺ view-source:https://myxonautes.org/ 🔍 Rechercher
1 <!DOCTYPE html>
2 <html lang="fr">
3   <head>
4     <meta charset="utf-8" />
5     <meta http-equiv="X-UA-Compatible" content="IE=edge">
6     <meta name="viewport" content="width=device-width, initial-scale=1.0, maximum-scale=1.0">
7
8     <meta name="description" content="L'association Myxonautes est basée à Montpellier et dans le Gard et participe à la diffusion de connaissances sur des sujets touchant à la sa
9     <meta property="og:description" content="L'association Myxonautes est basée à Montpellier et dans le Gard et participe à la diffusion de connaissances sur des sujets touchant.
10    <meta name="twitter:description" content="L'association Myxonautes est basée à Montpellier et dans le Gard et participe à la diffusion de connaissances sur des sujets touchant
11    <meta name="author" content="" />
12    <link href="https://myxonautes.org/imgs/favicon.png" rel="icon" type="image/x-icon"/>
13    <meta property="og:image" content="https://myxonautes.org/imgs/logo_text.png" />
14    <meta name="twitter:image" content="https://myxonautes.org/imgs/logo_text.png" />
15    <meta name="twitter:card" content="summary" />
16    <meta property="og:url" content="https://myxonautes.org/" />
17    <meta property="og:type" content="website" />
18    <meta property="og:site_name" content="" />
19
20    <meta name="generator" content="Hugo 0.111.3">
21
22    <link rel="canonical" href="https://myxonautes.org/" />
23    <link rel="alternate" href="https://myxonautes.org/index.xml" type="application/rss+xml" title="" />
24    <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/KaTeX/0.7.1/katex.min.css" integrity="sha384-wITov290syoIdJWVh32uETPVEtGigN07tktEgPv+uR2SE/mbQcG7ATL28aI9H0" cr
25    <link rel="stylesheet" href="https://myxonautes.org/lib/Fork-Awesome-1.2.0/css/fork-awesome.min.css">
26    <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css" integrity="sha384-BVY115IFek1dGmJRAKycuHAHRg320Mlcw7on3Rydg4Va+Pm5Tsz/K68vbdEJh4
27    <link rel="stylesheet" href="https://myxonautes.org/css/main.css" />
28    <link rel="stylesheet" href="https://fonts.googleapis.com/css?family=Lora:400,700,400italic,700italic" />
29    <link rel="stylesheet" href="https://fonts.googleapis.com/css?family=Open+Sans:300italic,400italic,600italic,700italic,800italic,400,300,600,700,800" />
30    <link rel="stylesheet" href="https://myxonautes.org/css/pygment_highlights.css" />
31    <link rel="stylesheet" href="https://myxonautes.org/css/highlight.min.css" /><meta property="og:title" content="" />
32    <meta property="og:description" content="" />
33    <meta property="og:type" content="website" />
34    <meta property="og:url" content="https://myxonautes.org/" /><meta property="og:image" content="https://myxonautes.org/featured_default.jpg"/>
35
36
37  </head>
38
39  <body>
40
41
42  <nav class="navbar navbar-default navbar-fixed-top navbar-custom">
43    <div class="container-fluid">
44      <div class="navbar-header">
45        <button type="button" class="navbar-toggle" data-toggle="collapse" data-target="#main-navbar">
```


Fonctionnement d'internet

La requête DNS



Fonctionnement d'internet

La requête HTTP

