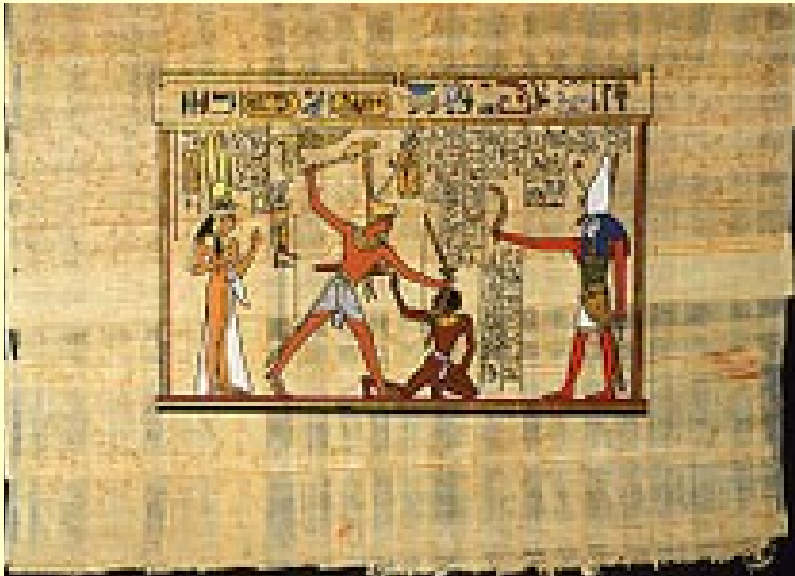# To boldly Go

WHERE

NO

¶

HAS

GONE

BEFORE

3.1415926535897932
3846264338327950 28
8419716939937510 58
2097494459230781 64
0628620899862803 48
2534211706798214 80
8651328230664709 38
4460955058223172 53
5940812848111745 02
8410270193852110 55
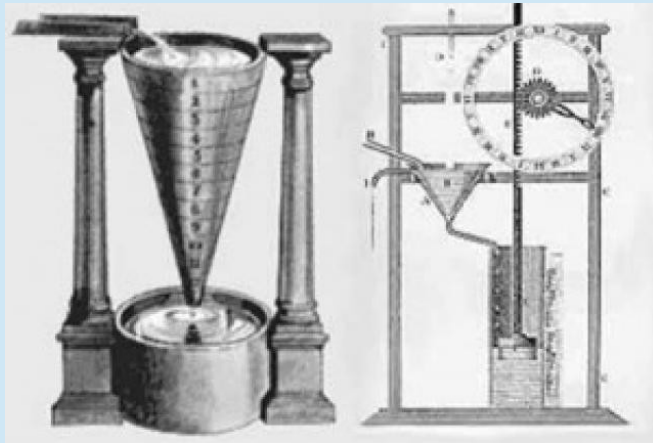5964462294895493 03
8196 ...

Egyptian inventions

- 1st written language ?
- Papyrus => paper
- Plow !
- Calendar ?
- ...
- ~3000 A.C ?

Greek inventions

- Water mill
- Odometer
- Alarm clock
- Geometry
- ...
- ~600 A.C.

George Stephenson

- June 9, 1781, in the coal mining village of Wylam, **England**.

- Designs the first steam locomotive in 1814.

Old Killingworth Locomotive, still in use.

Charles Babbage

- December 26, 1791 in London, **England.**

- The creator of the **first mechanical computer** that he began developing in **1822**.

- Invented and developed, but never completed, the **Difference Engine** (1820's) and the **Analytical Engine** (late 1830's).

- Considered a **father of computing**.

Countess Ada Lovelace

- December 10, 1815 in London, **England**.

- **Mathematician** and **writer**, chiefly known for her work on Charles Babbage's early mechanical general-purpose computer, the Analytical Engine.

- Designed the **first algorithm** intended to be carried out by a machine. She is the **first computer programmer** !
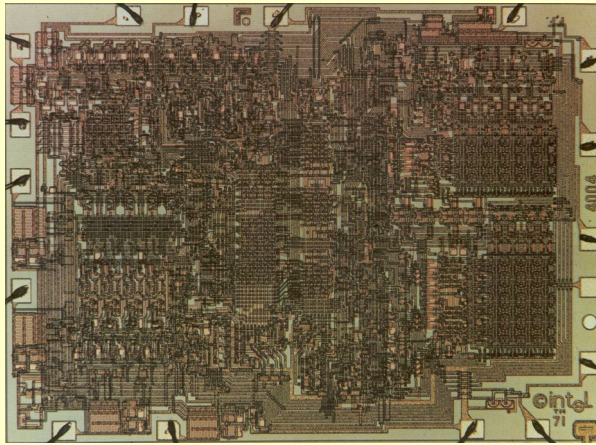
Grace Brewster Murray Hopper

- December 9, 1906

- American computer scientist and United States Navy Rear Admiral.

- One of the first programmers of the Harvard Mark I computer in 1944.

ICT Paleontology
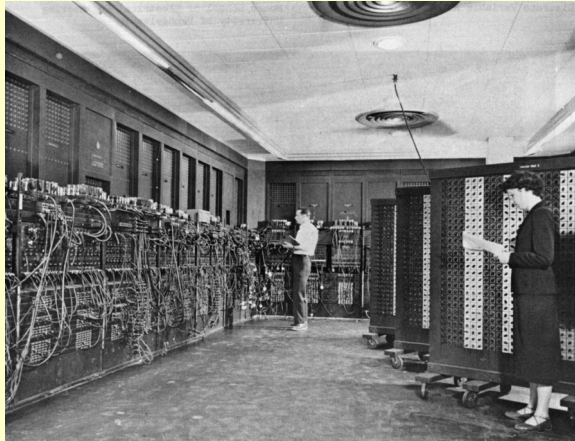
Intel 4004, 1971

- Only 2300 transistors
- 0,3 x 0,3cm size
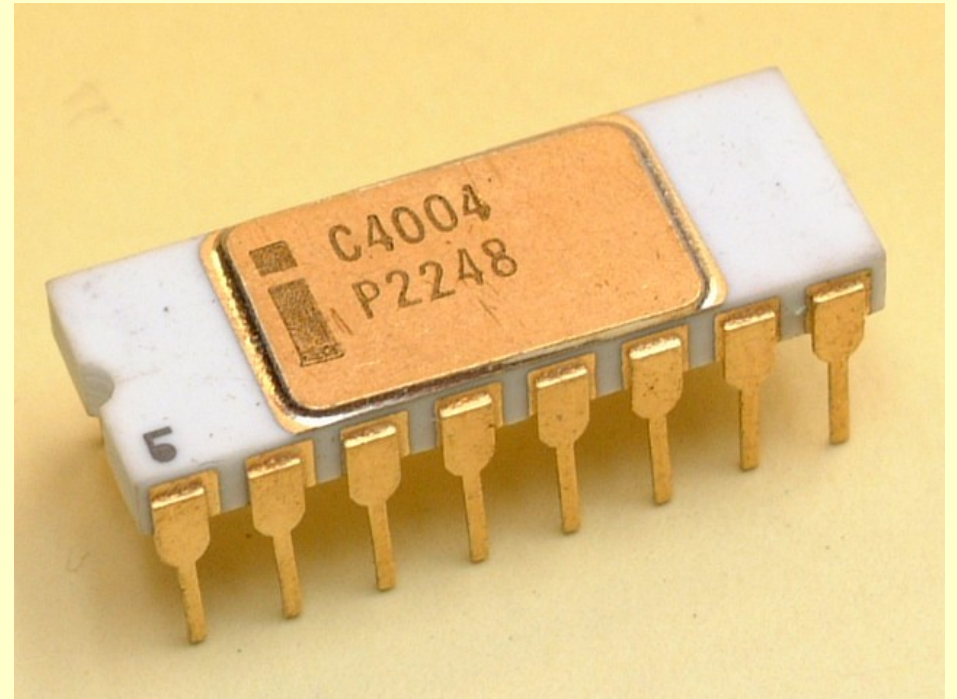
Microprocessor Transistor Counts 1971-2011 & Moore's Law
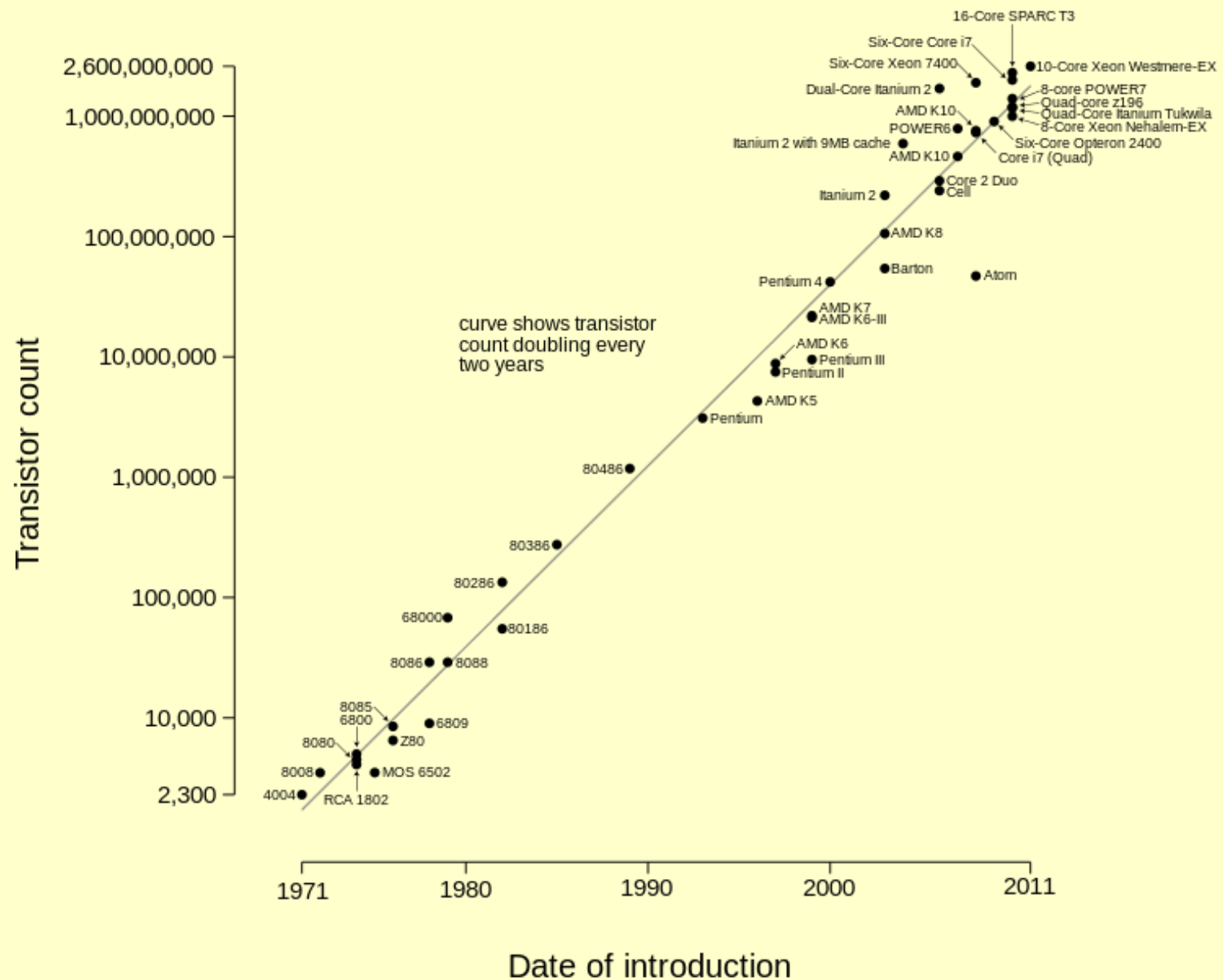
The 70's gave birth to personal computing ...

In the 80's :

Can you imagine loading your games via magnetic audio tapes in a cassette deck ?

Or plugging thick cards in the back of your computer to play a new game ?

Working the hardware the hard way was a fact of life !

But as the PC ...

- became mass adopted,

- it transformed into a central corner piece not only on the job but in every household.

- Heck, it became sort of mission critical !

Consumer goods spun off …

- … but hardware hacking was on its demise.

Eben Christopher Upton

- April 05, 1978, Pontypool, Wales, United Kingdom

- Informatician (University of Cambridge) & manager (Broadcom).

- 90's students in CS simply lack the skills compared to 80's students !

- Inventor of the ...

Raspberry Pi computerboard.

- Credit card size
- 35$
- HDMI
- 4x USB
- Audio out
- GPIO
- Raspbian Linux

- *Linus Torvald : rPi makes it possible to "afford failure"...*

Linus Benedict Torvalds

- December 28, 1969, Helsinki, Finland

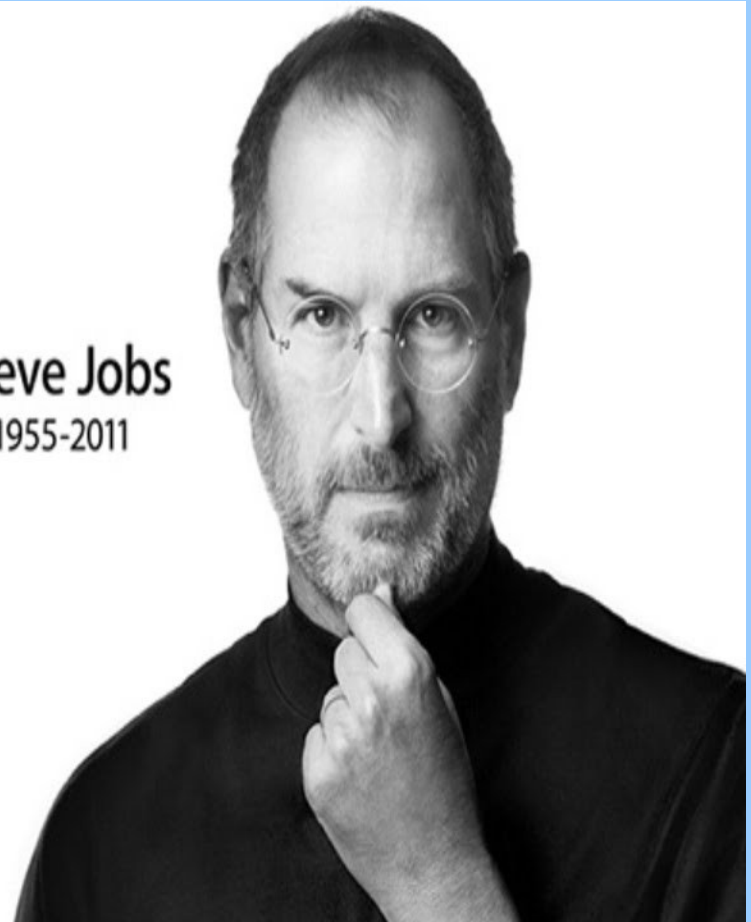- Releases first release of Linux in 1991
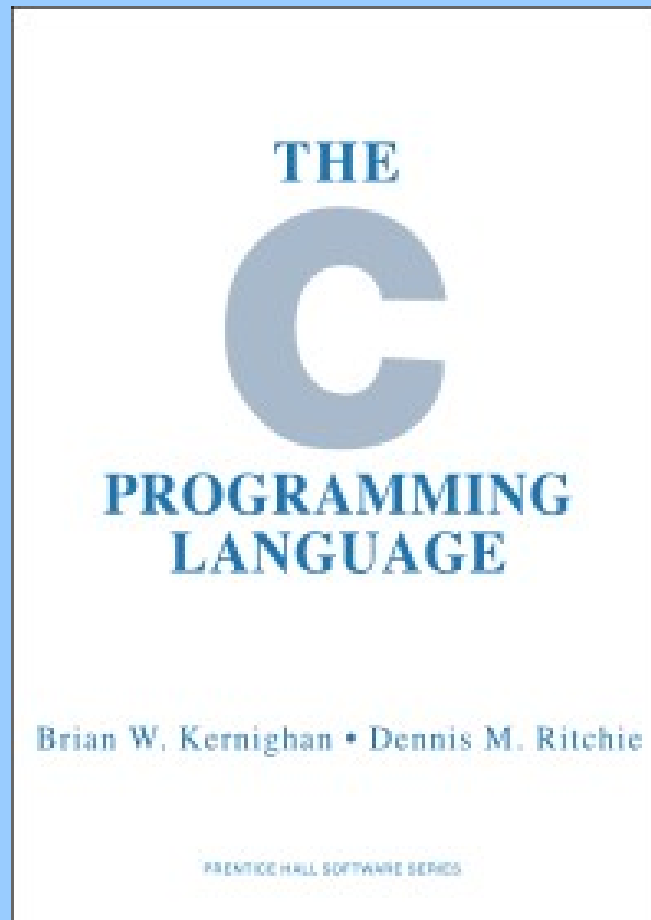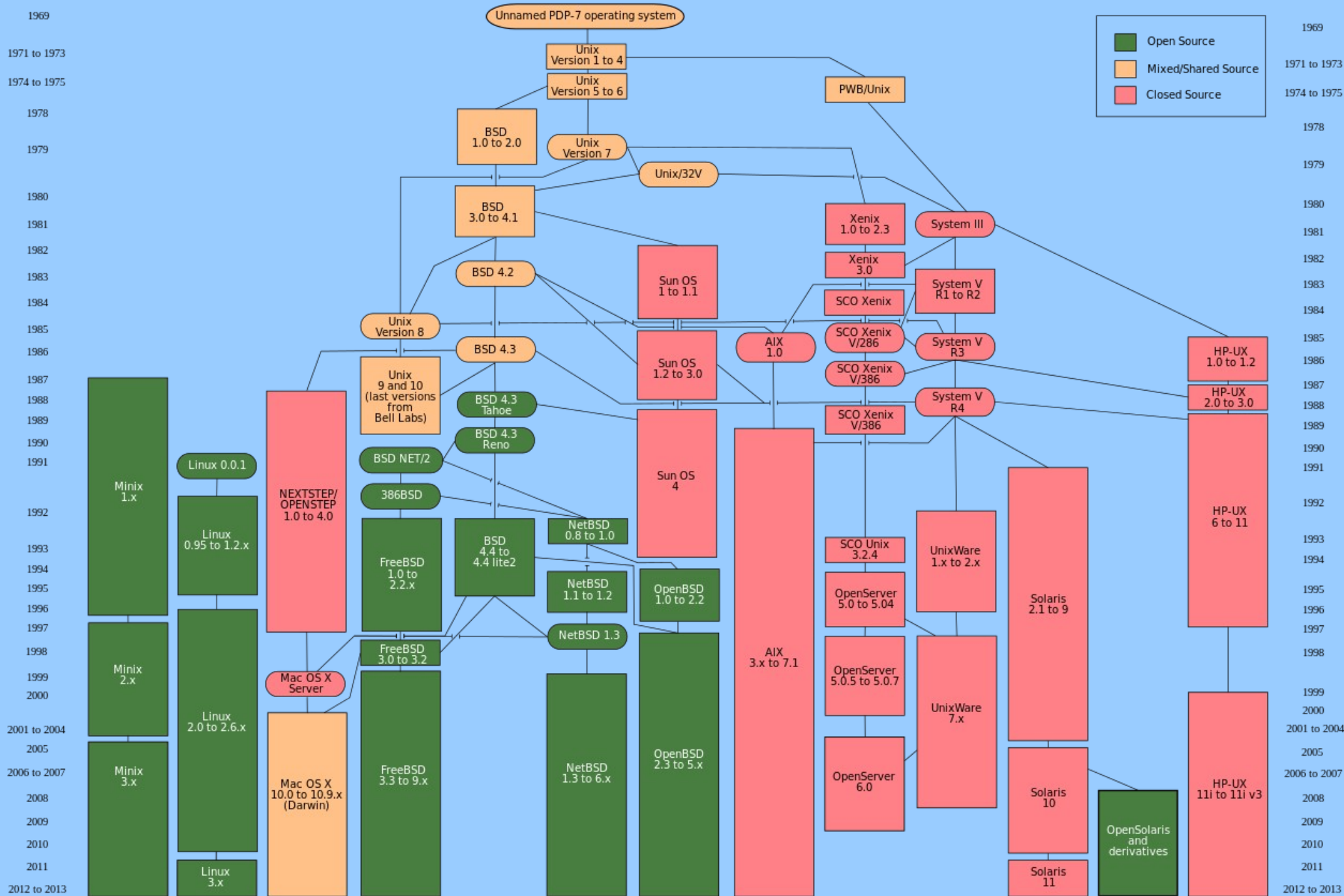
WT* = Dennis Ritchie ???

Dennis Ritchie designed ...

Dennis Ritchie designed ...

Unix history timeline diagram showing the evolution of Unix-based operating systems from 1969 to 2013.

Legend:
- Open Source
- Mixed/Shared Source
- Closed Source

Timeline (left and right margins): 1969, 1971 to 1973, 1974 to 1975, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001 to 2004, 2005, 2006 to 2007, 2008, 2009, 2010, 2011, 2012 to 2013

Systems shown:
- Unnamed PDP-7 operating system
- Unix Version 1 to 4
- Unix Version 5 to 6
- PWB/Unix
- BSD 1.0 to 2.0
- Unix Version 7
- Unix/32V
- BSD 3.0 to 4.1
- Xenix 1.0 to 2.3
- System III
- Sun OS 1 to 1.1
- BSD 4.2
- Xenix 3.0
- System V R1 to R2
- Unix Version 8
- SCO Xenix
- Sun OS 1.2 to 3.0
- AIX 1.0
- SCO Xenix V/286
- System V R3
- HP-UX 1.0 to 1.2
- BSD 4.3
- Unix 9 and 10 (last versions from Bell Labs)
- SCO Xenix V/386
- BSD 4.3 Tahoe
- System V R4
- SCO Xenix V/386
- HP-UX 2.0 to 3.0
- BSD 4.3 Reno
- Sun OS 4
- Linux 0.0.1
- Minix 1.x
- NEXTSTEP/OPENSTEP 1.0 to 4.0
- BSD NET/2
- 386BSD
- Linux 0.95 to 1.2.x
- NetBSD 0.8 to 1.0
- SCO Unix 3.2.4
- UnixWare 1.x to 2.x
- HP-UX 6 to 11
- FreeBSD 1.0 to 2.2.x
- BSD 4.4 to 4.4 lite2
- NetBSD 1.1 to 1.2
- OpenBSD 1.0 to 2.2
- Solaris 2.1 to 9
- Minix 2.x
- Mac OS X Server
- FreeBSD 3.0 to 3.2
- NetBSD 1.3
- OpenServer 5.0 to 5.04
- AIX 3.x to 7.1
- Linux 2.0 to 2.6.x
- Mac OS X 10.0 to 10.9.x (Darwin)
- FreeBSD 3.3 to 9.x
- NetBSD 1.3 to 6.x
- OpenBSD 2.3 to 5.x
- OpenServer 5.0.5 to 5.0.7
- UnixWare 7.x
- Minix 3.x
- OpenServer 6.0
- Solaris 10
- OpenSolaris and derivatives
- HP-UX 11i to 11i v3
- Linux 3.x
- Solaris 11

Rpi's as teaching aids ?

The cloud is an abstraction ...

- Really understanding how clouds work requires a lot of knowledge.

- Rpi's help in understanding its building blocks & fundamental concepts

- Rpi's help schools to travel on a light budget.

Playing is the highest form of research.

- Kittens play (poor mouse).
- Fighter pilots call the best player "Top Gun".
- Scientists call it "an experiment".

Powerfull analogies


```xml
 <?xml version="1.0" encoding="UTF-8"?>

<note>
  <to>Tove</to>
  <from>Jani</from>
 <heading>Reminder</heading>
  <body>Don't forget me this weekend!</body>
</note>
```

Let's get our hands dirty shall we ?

In Paris they simply stared when I spoke to them in French; I never did succeed in making those idiots understand their own language.

Mark Twain, *The Innocents Abroad,* 1869
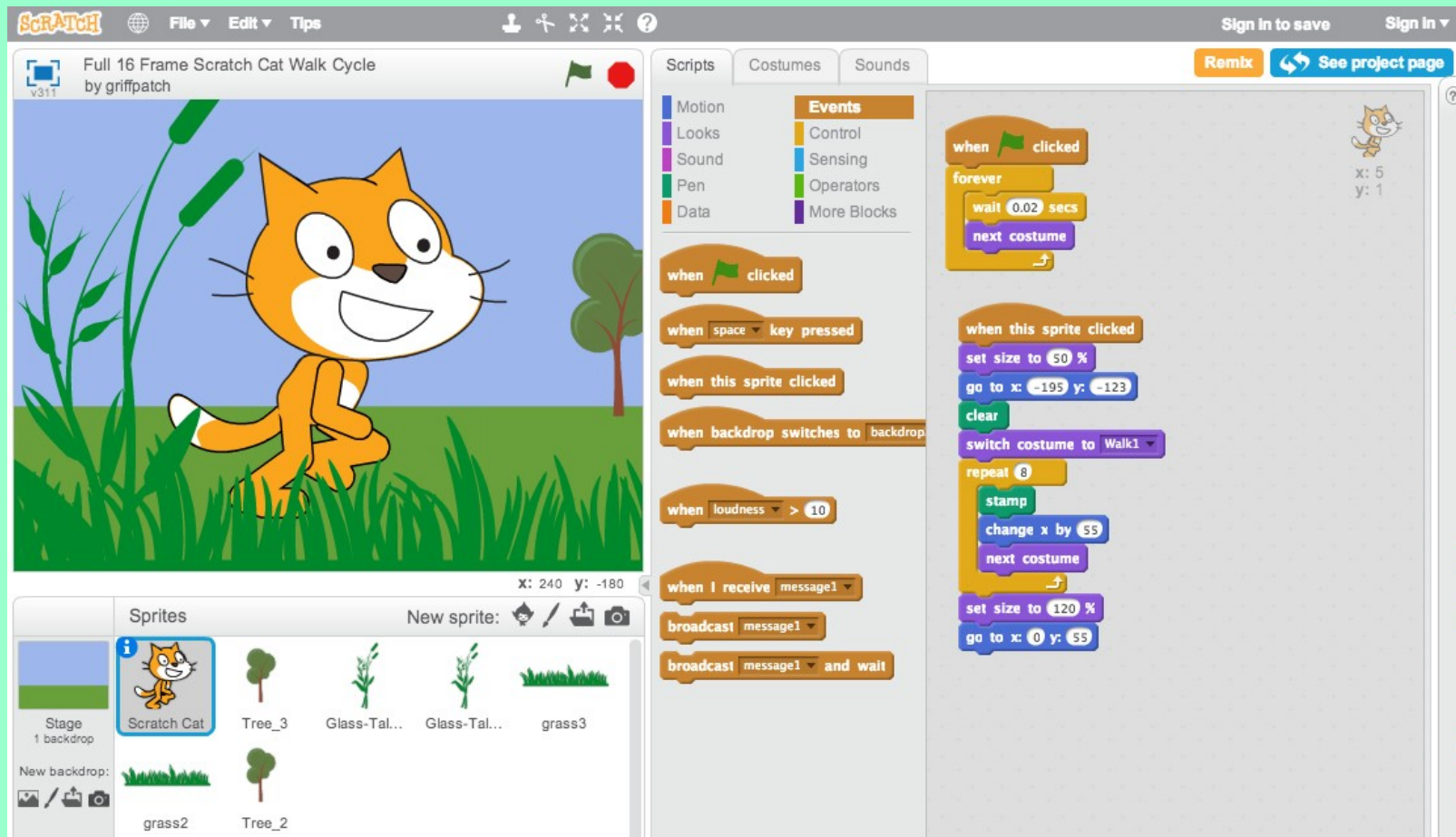
add A, B   a += b

Assembler   *C, Python*

10001100101000000

Binary

MIT's scratch !

Guido Van Rossum

- January 31, 1956, Haarlem, Netherlands

- Creator and "benevolent dictator of life" of Python, in 1989.

Internet of Things

- Bridge the gap between real world observations (probes, sensors, ...) and computational power.

- Connects distant end points transparantly

- No more grotesque application suites but decoupled applications in embedded devices exchanging & interacting via API's

My mission

- Motivate teachers to don't give up on the rat race called ICT.

- To advocate at least a bit of "Open Source" philosophy

- To bring children into contact with high-quality, low-price / low-noise technology.

- Contribute to knowledge sharing.

- To eliminate gaps between "have's" and "have not's'.

- To trigger awareness of the widening gap between high- & low tech savvyness.