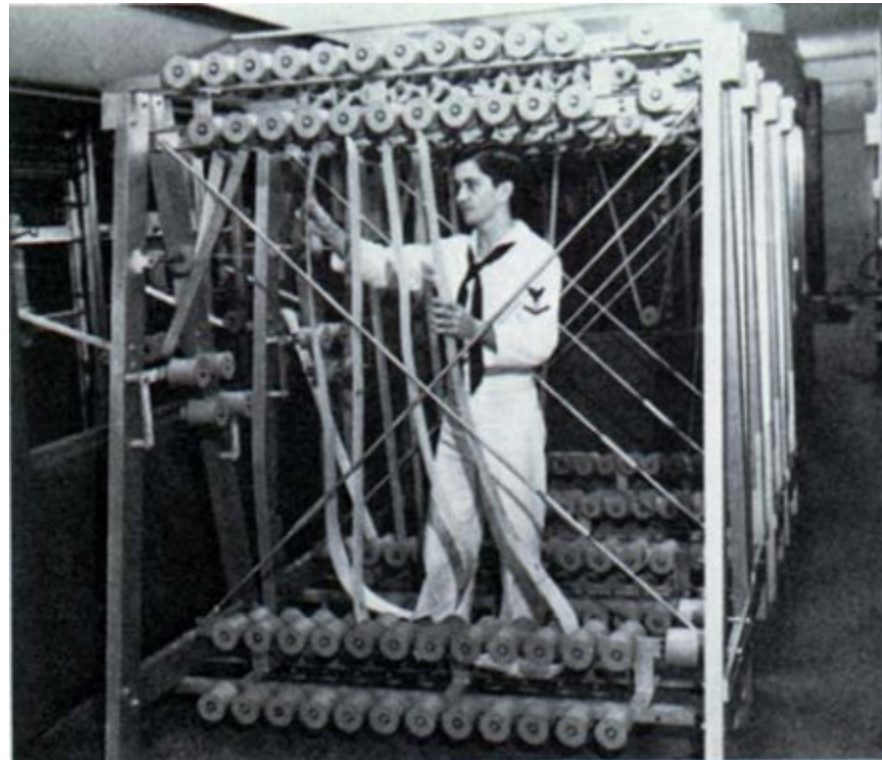# Once upon a time …

A mechanic at
his daily work …

Immense

Mark I

length 16m

height 2,50m

765.000 components

650 km wires

WWII "Manhattan"

Calculation of implosions

WWII – the Navy

Salvo-calculations

WWII – ENIGMA

Uncrackable German coding machine

Hardware

At first relais,
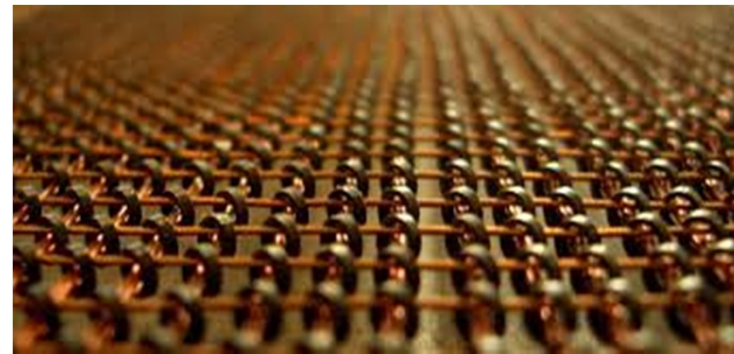very much of them …

then electrotubes,
very much of them
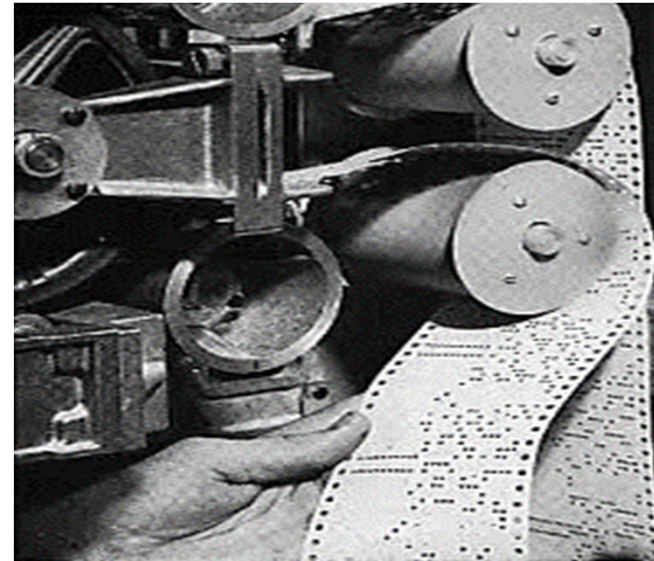
Hardware

Then magnetcores, very much of them

Followed by transistors, very much of them

Data carriers

Punched tape

Extremely vulnerable

Punched card

Still very vulnerable

Data carriers

Magnetic tape
only serial access

Magnetic disk
Random access

Punched-cards sorting machine

Assembler: Lowlevel Programming

Generates machine language

Varies per computer

Compiler: Highlevel Programming

Generates
assembler-code

1952 First compiler
"FlowMatic"
by Grace Hopper

1959: COBOL

Thanks to DoD…

COBOL

Report to

CONFERENCE on DATA

SYSTEMS LANGUAGES

Including

INITIAL SPECIFICATIONS
for a COMMON BUSINESS
ORIENTED LANGUAGE (COBOL)
for Programming
Electronic Digital Computers

DEPARTMENT OF DEFENSE   APRIL 1960

1959

Eisenhower
president

1959

Kennedy running

1959

Revolution

Fidel Castro

1959

No Berlin
wall yet

Deadlock

NO COBOL NO BID

First COBOL compilation

1961

A COBOL program
compiled at
two computers

1962 COBOL arrives in Europe

- in The Netherlands
- 2 teachers
- 16 students

If it's a good idea... go ahead and do it. It is much easier to apologize than it is to get permission.

1969 Microprocessors

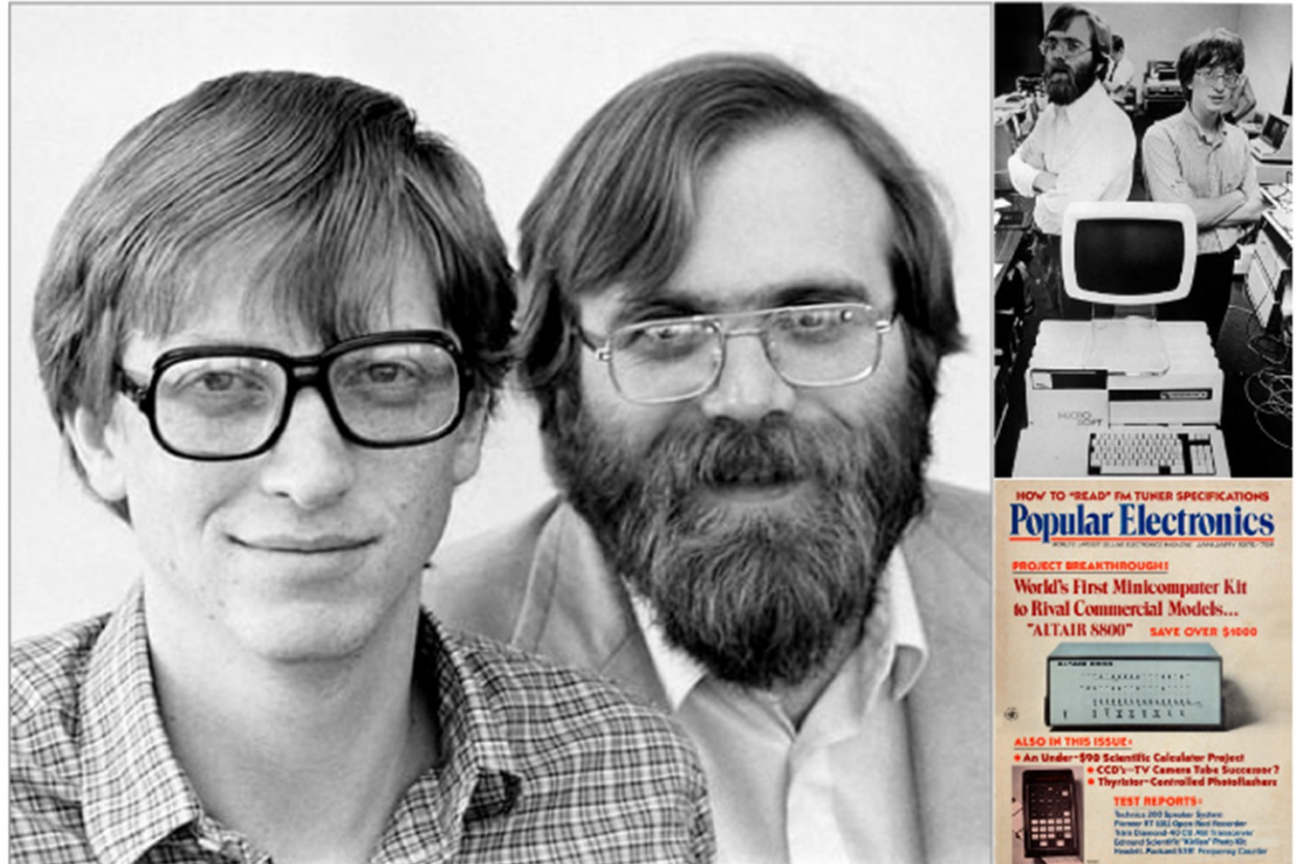Scale-decrease

Used in

Apollo AGC

25% COBOL

And more ...

1975

Microsoft

April 4, 1975:
Bill Gates & Paul Allen form "Micro-soft" partnership

And more ...

1976

Apple

And only in 1998

Google
(originally
Googol)

Today's Ratio

COBOL : GOOGLE

7 : 1

Surprisingly after 58 Years

COBOL

Alive

and

kicking!

25 billion financial transactions / day
(13 x / day)
70-80% in COBOL

Creditcards

ATM's

Tickets

Banking

Mobile phones

Stockmarkets

Taxes

Insurances

Impressive figures

300 billion COBOL lines   300.000.000.000

5 billion new lines aeach year   5.000.000.000

Total investment 2 trillion $ 2.000.000.000.000

And ...

1.500.000 COBOL developers

Impressive figures

You just don't
throw that away

1945

End of WW II

Explosion of data

- production
- Bank accounts
- transport and logistics
- government
- trading
- insurances

Worldwide communications

More cars

More telephones

Worldwide communications

More TV's and
TV-stations

New: satellites
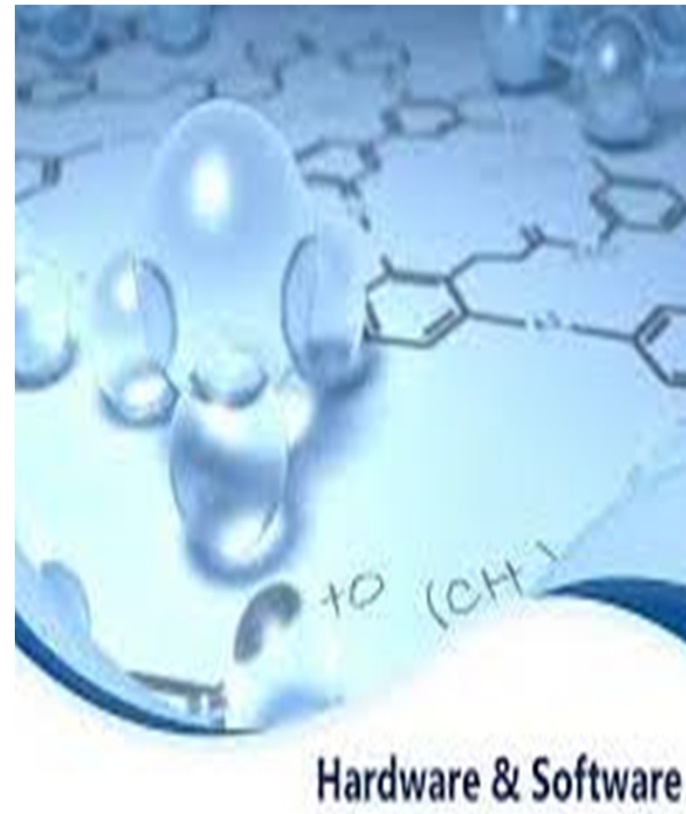
Travelling
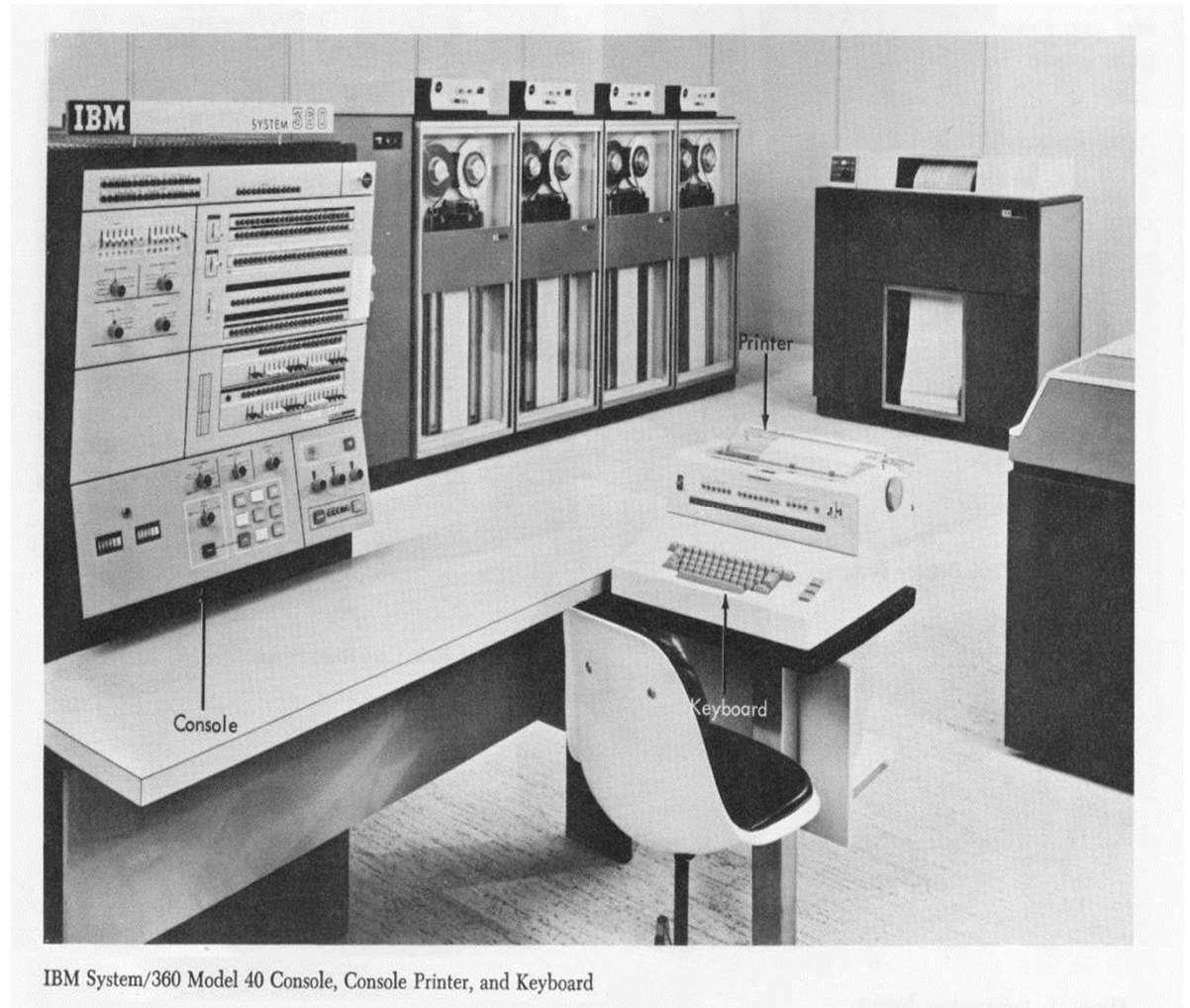
Travel-agencies

Airlines

Railways

Hospitality

A growing need

– new hardware

– robust software

   . fast

   . data-driven

   . reliable

Hardware & Software
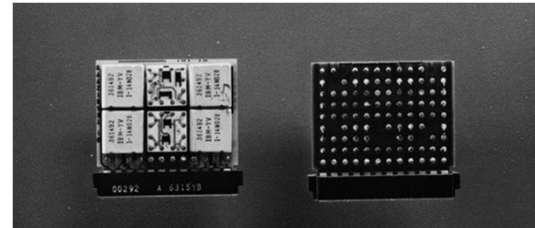
Hardware

1964:

IBM announces

System 360

IBM System/360 Model 40 Console, Console Printer, and Keyboard

Break through

a. New technology

b. Smaller

c. Modular

Software: COBOL

Fast to learn

Robust

Reliable

Four unique characteristics

1. record-structuring
2. mass data-processing
3. decimal calculating
4. report generating

1981 IBM-PC

- Soon very popular

- sales far beyond
  estimations

- PC = IBM

Software for PC's

1981

1st MS-DOS

Software for PC's

1985 1st WINDOWS
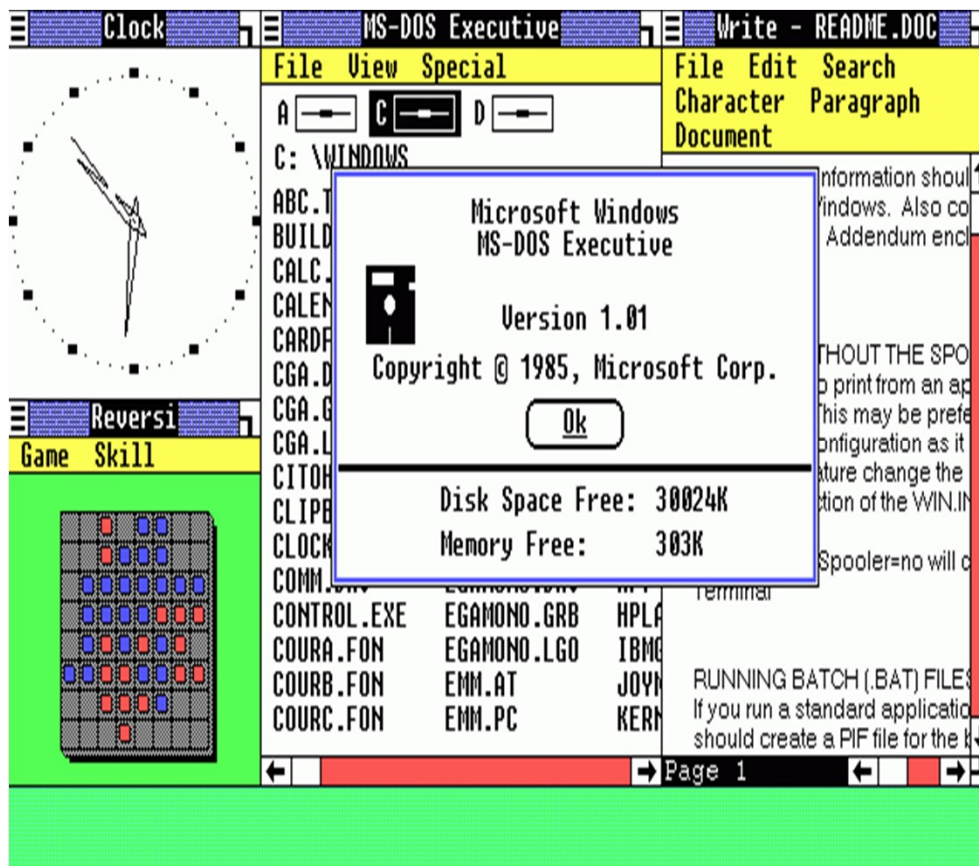
Software for PC's

1990 1st WORD,
   EXCEL

November 19, 1990:

Office for Windows

Microsoft Word for

The Microsoft Office
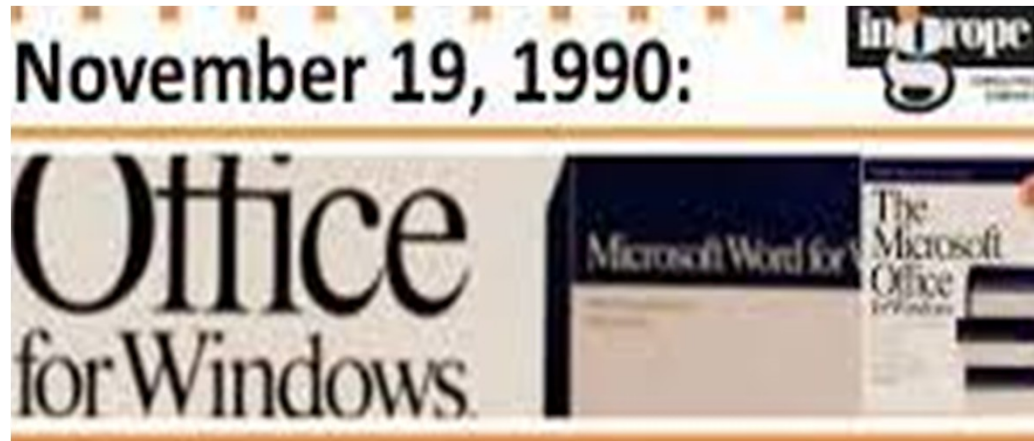
Microsoft Office for Windows is released otherwise known as "Office 1.0". Office 1.0 contains Word 1.1, Excel 2.0 and Powerpoint 2.0.

COBOL not sexy anymore

COBOL-scriber's image

Y2K

Catastrophic?

Real problem?

Hoax?
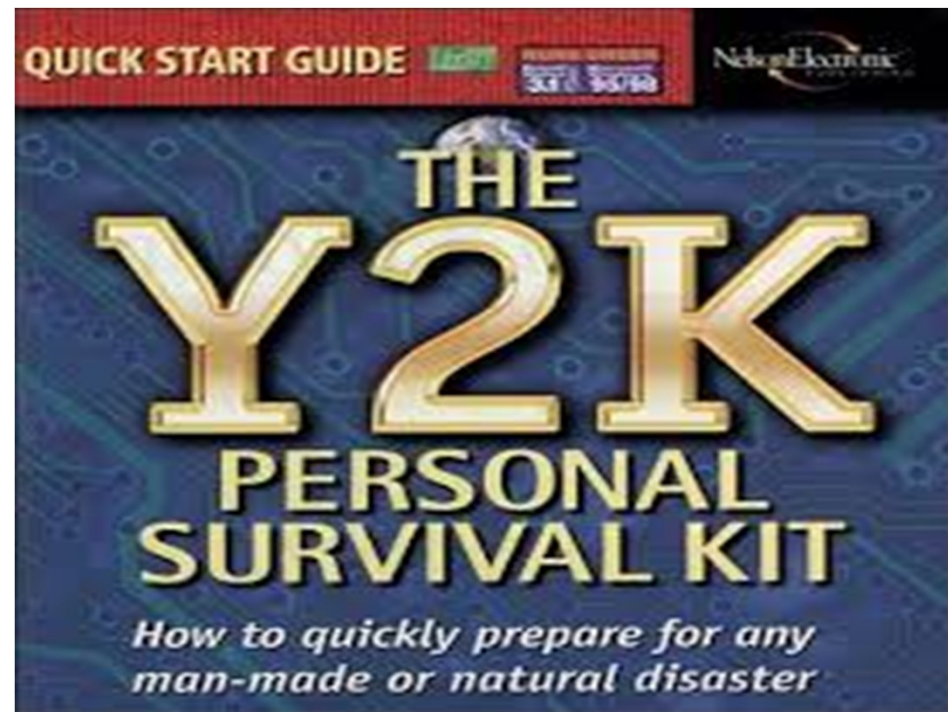
GETTING OLDER

And remain yourself

Developments

From primitive to advanced

From simple to complex

Boring

Admit it... Life Would be Boring Without me

With deep sadness ...

Criminal act

Old, so ...

Useless!

Get out!

Never again!

Or ...?

Metric versus Imperial

Meter: light in vacuum
in 1/299.792.458 sec

Inch: 2,54 cm

To switch or not to switch

- too expensive
- keep your investments
- hardly any ROI
- current system is efficient
- no real improvements

Effective AND good

Stick to what you have

Don't stay where you are tolerated, go where you are celebrated.
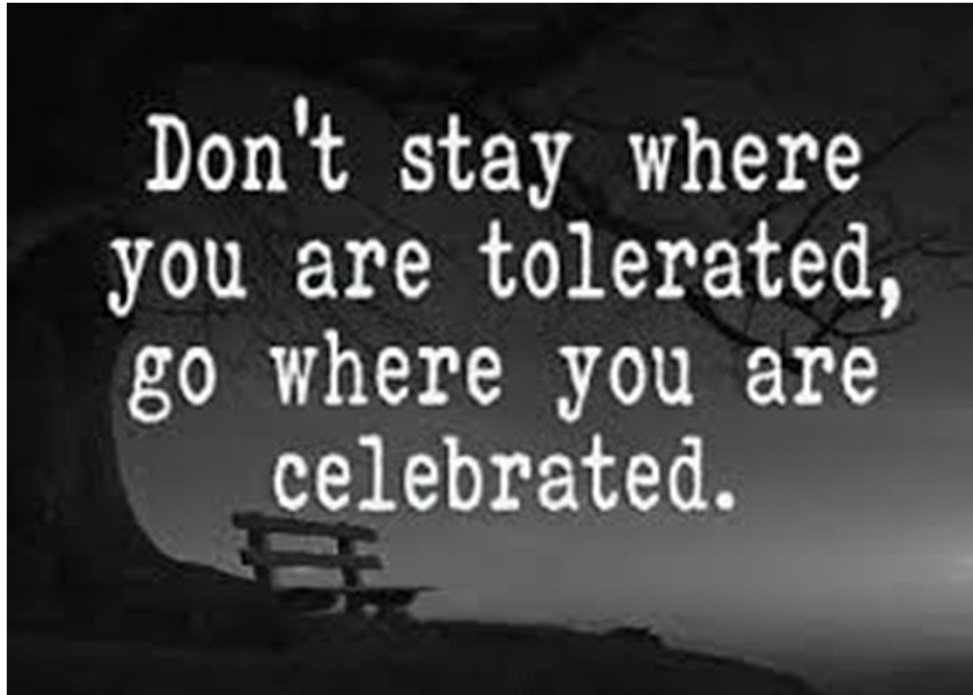
Shortage

COBOL
programmers:
becoming scarce
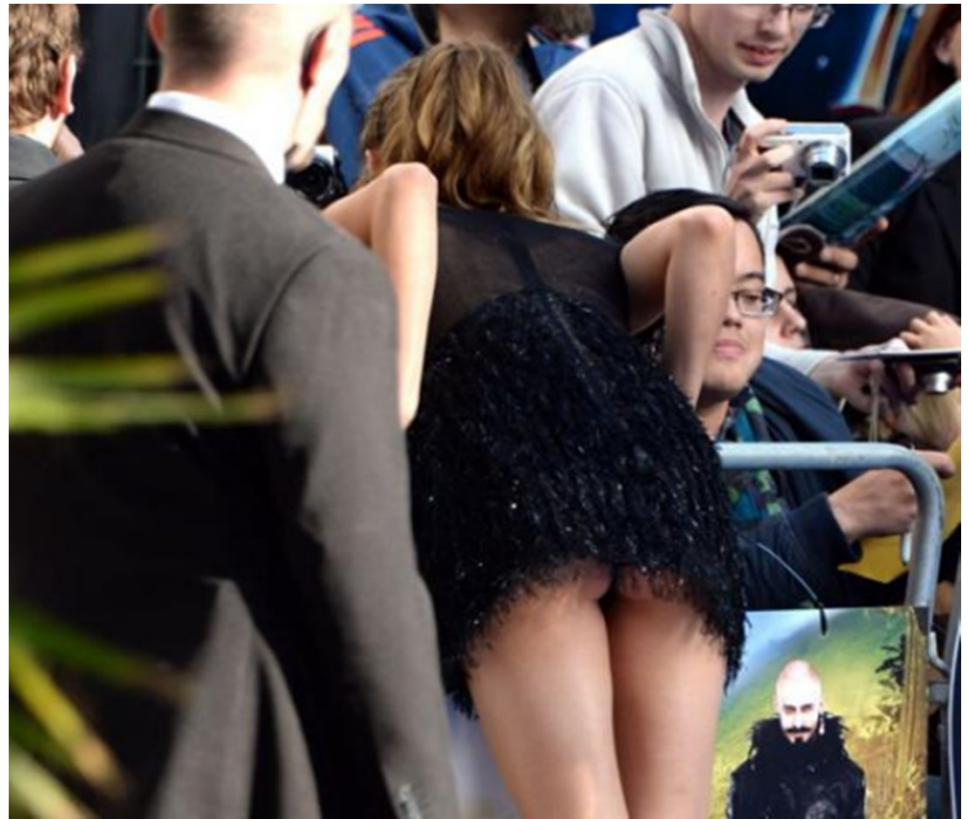
Comeback

- – Necessary
- – Business along
  with education
  authorities

Pimping

– Change position

– Improve earnings

– User groups

Migration
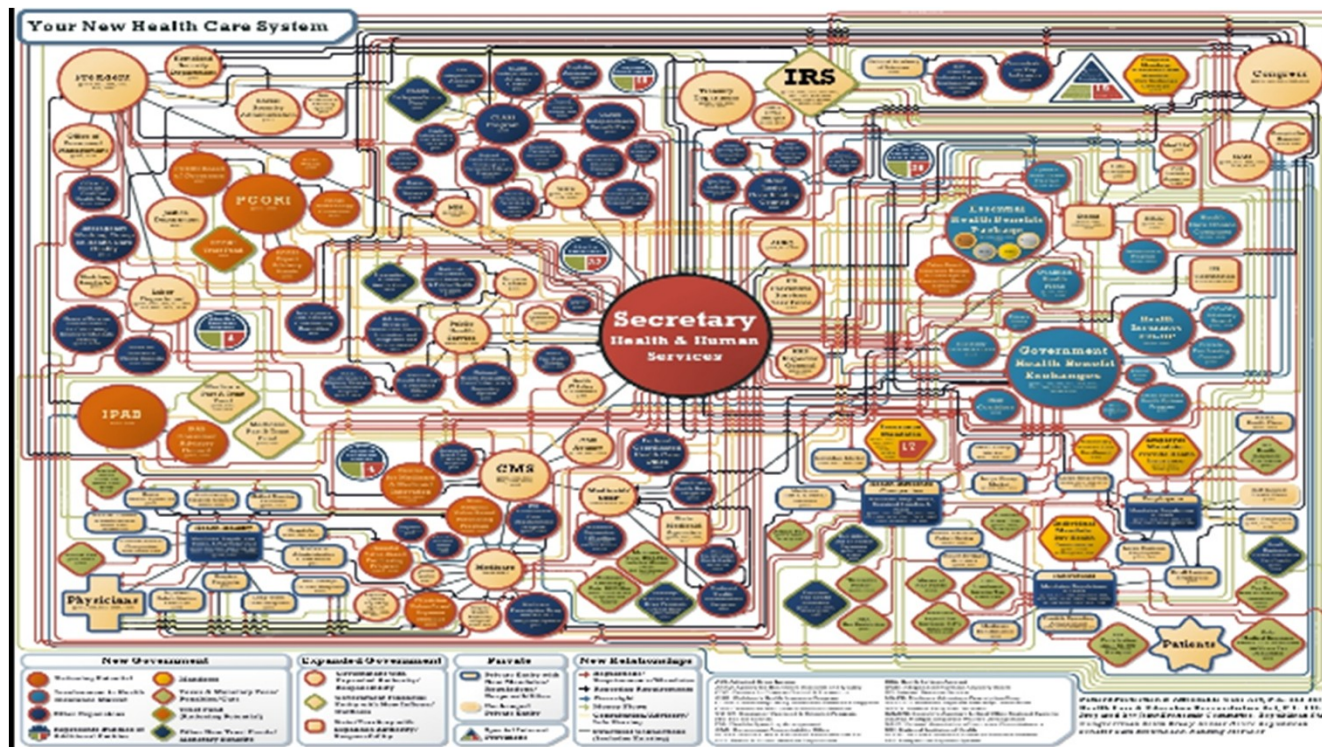
Is your system really that bad?

Migration

Performance

. response-times

. use of resources

. availability

. data management

Migration

Complexity = diversity * dependency

Migration

Replacing ...

or upgrading?

Migration

– Lasting
COBOL support

– Lifecycle
COBOL-market:
long and strong

Migration

Pre-analysis:

. duplicates

. unused routines
. inefficiënt coding

Migration

Code-translation:

– inefficiencies being copied

– new inefficiencies

– more complex results

– increased maintenance

Conclusions

COBOL remains the fundament

– investments
– committed vendors
– COBOL in 2050 still
         popular!

Special care:

shortage of programmers

Conclusions

Consider migration when:

. Change of database-systems
. Change of functionality
. Hardware adjustment
. Integration of companies

Conclusions

Migration risks:

– equal or less functionality

– maintenance problems

– increased runtime

– no added value

Conclusions

COBOL replaced?

- In the long run
- Not by just one language

At the origin of IT: COBOL

- never matched
- no successor yet

Future

There is enough work to be done!

You only live once - but if you work it right, once is enough.

Joe E. Lewis

BrainyQuote