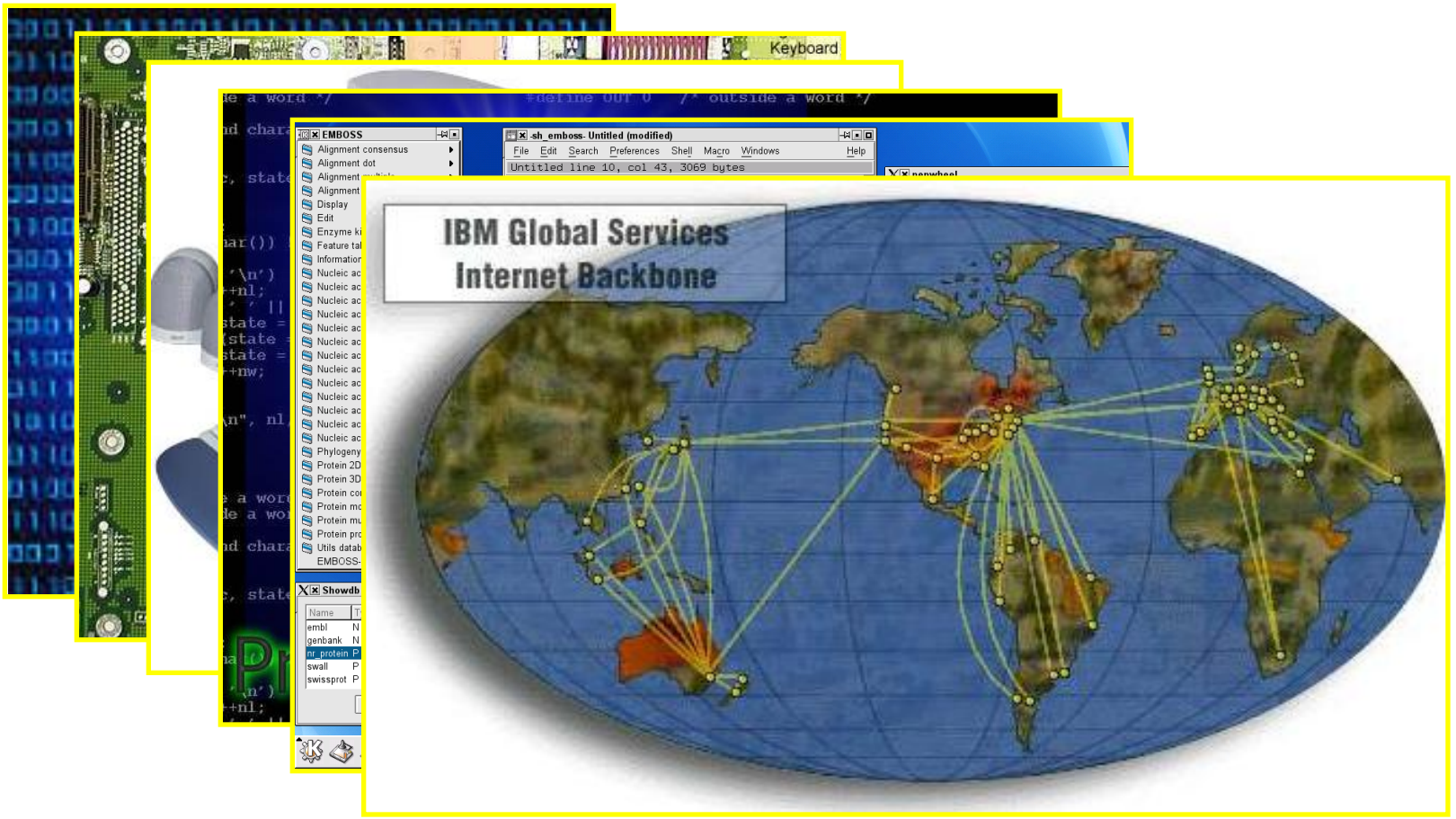
Introduction:
Computer Science - What is it?

- **Science of 'abstraction':**
  - obtaining *external* properties of an entity, by hiding its *internal* details.

Introduction:
Computer Science - What is it?

- **Abstraction... on abstraction... on...**



Computer Science in relation to desktop PC...

2. Software
(Operating Systems, Programming, ...)

4. Potential of Computers
(A.I., Theory of Computation, …)

3. Data Organization
(Data Structures, File Structures, Databases, …)

1. Machine Architecture
(Data Storage, Data Manipulation, ...)

The origin of computing machines

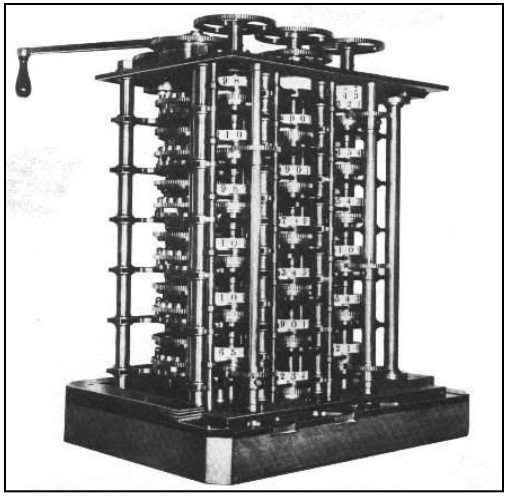
- First Computing device: Abacus
- Mechanical Devices before the invent of Electricity
  - Efforts by Pascal, Leibuiz and Charles babbage
  - Babbage's machine was programmable
    - Augusta Ada is considered first programmer

    After the invention of electricity
    - 1944- **Mark I** at Harvard university
    - Obsoleted soon, because work on vacuum tube technology has been done to construct Electronic Digital Computers

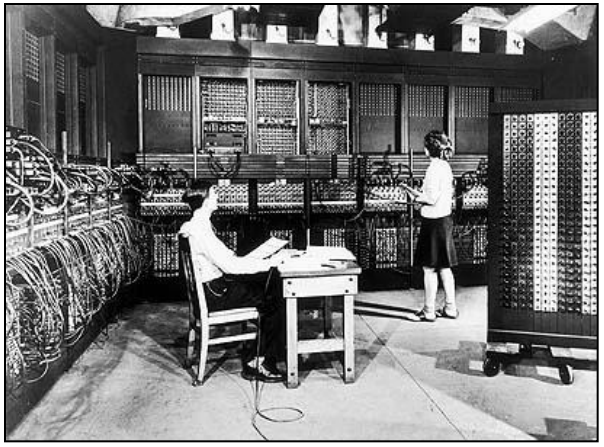
      1945- **ENIAC**- Electronic Numerical Integrator Calculator
    - 1981- **PC**- IBM first personal Computer, software by Microsoft

Central issues identical in the past...

- Abacus (ca. 50 BC)



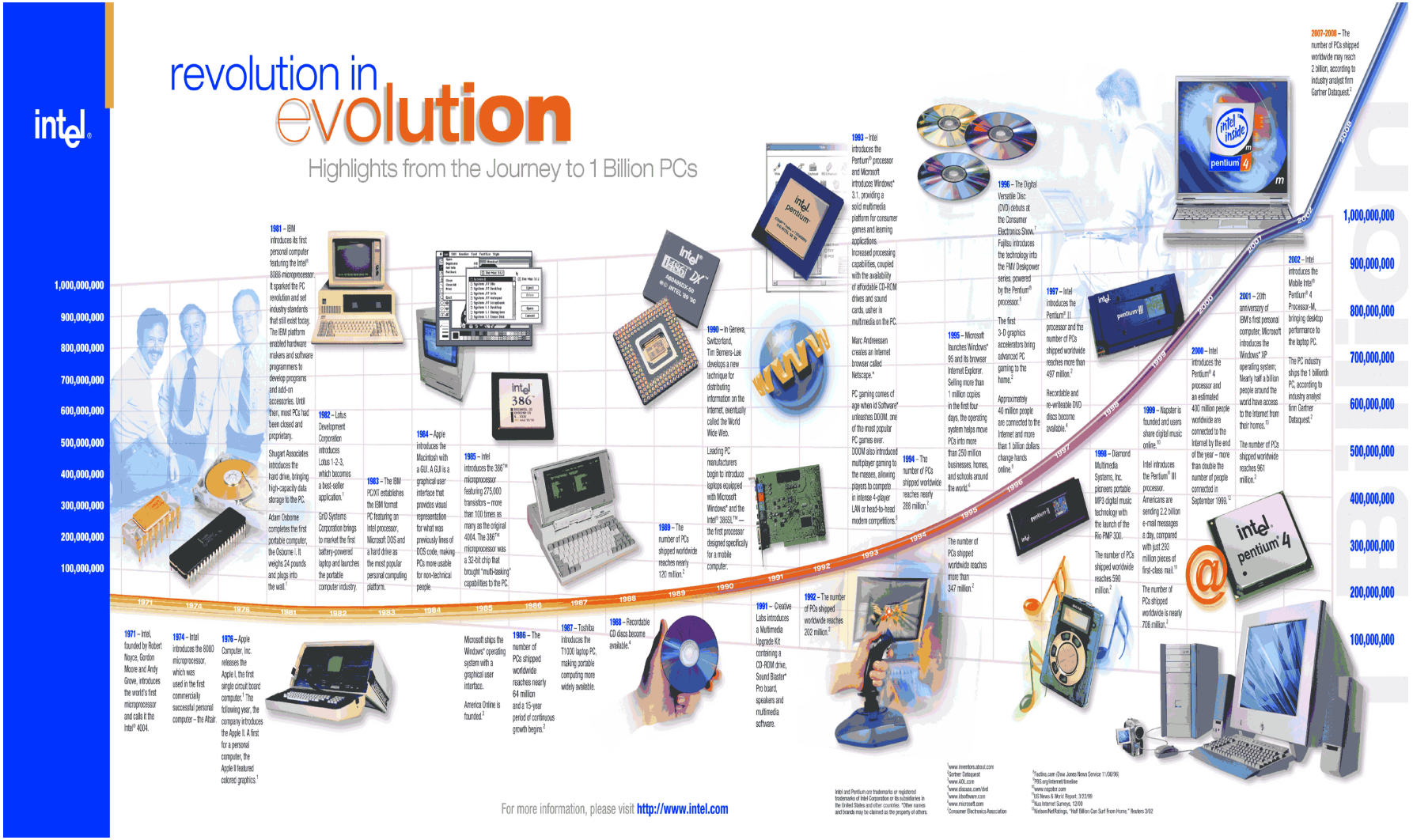
- Difference Engine (Babbage, ca. 1822)



- ENIAC (Univ. of Pennsylvania, 1945)

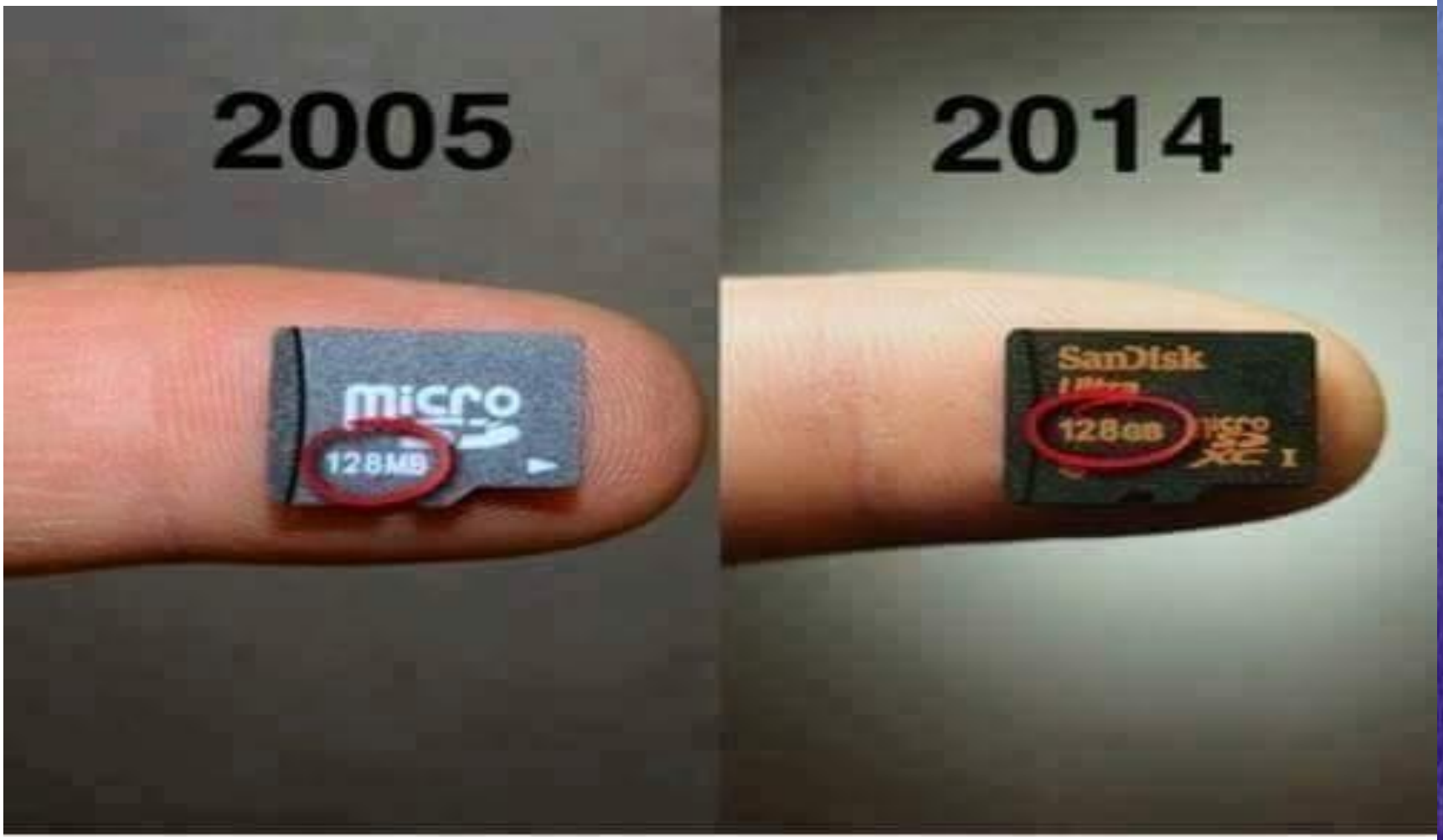
The Evolution of Computers: Then & Now

Time Line of Intel Processor



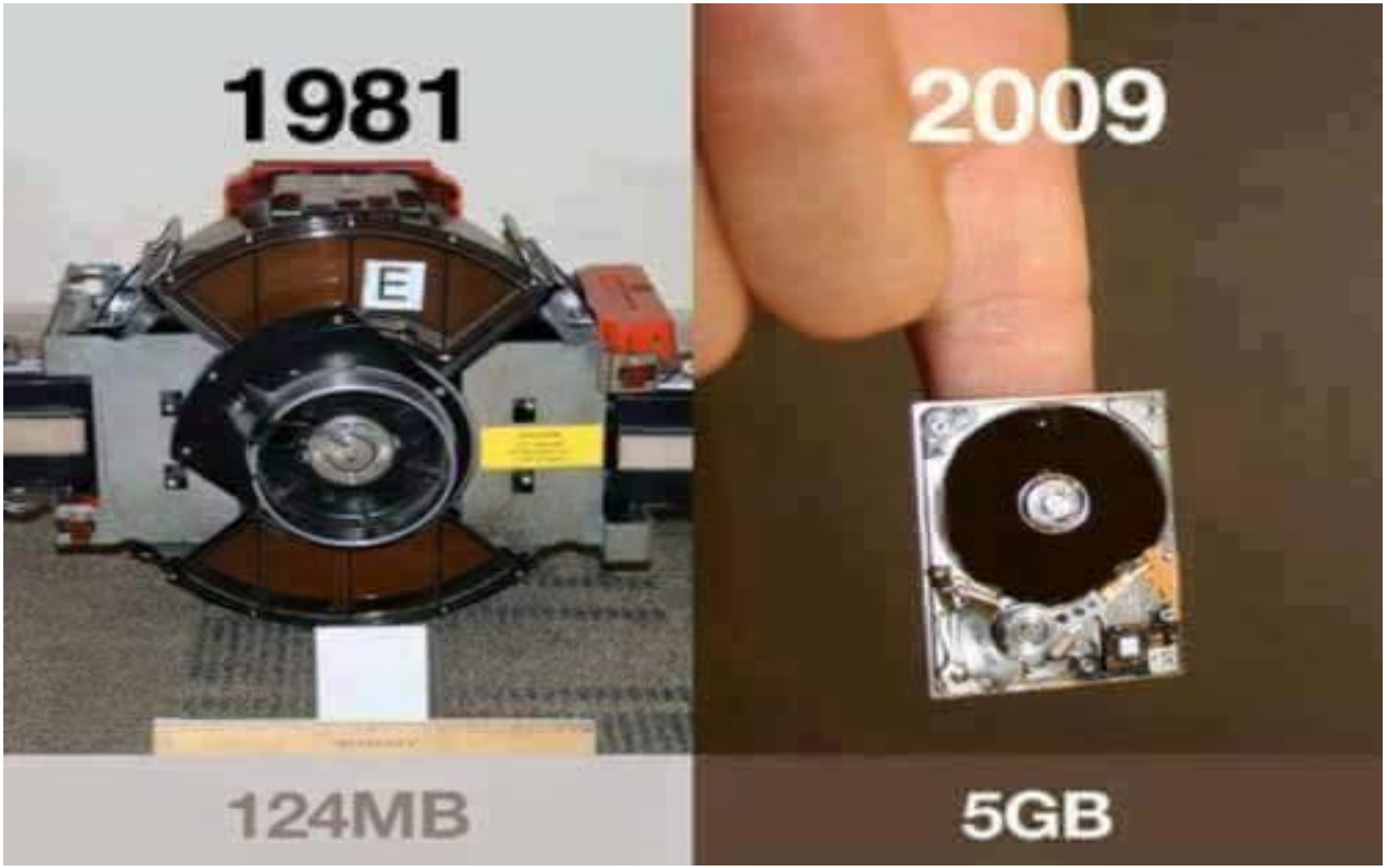
Advancement in Computer Science Technology

Difference



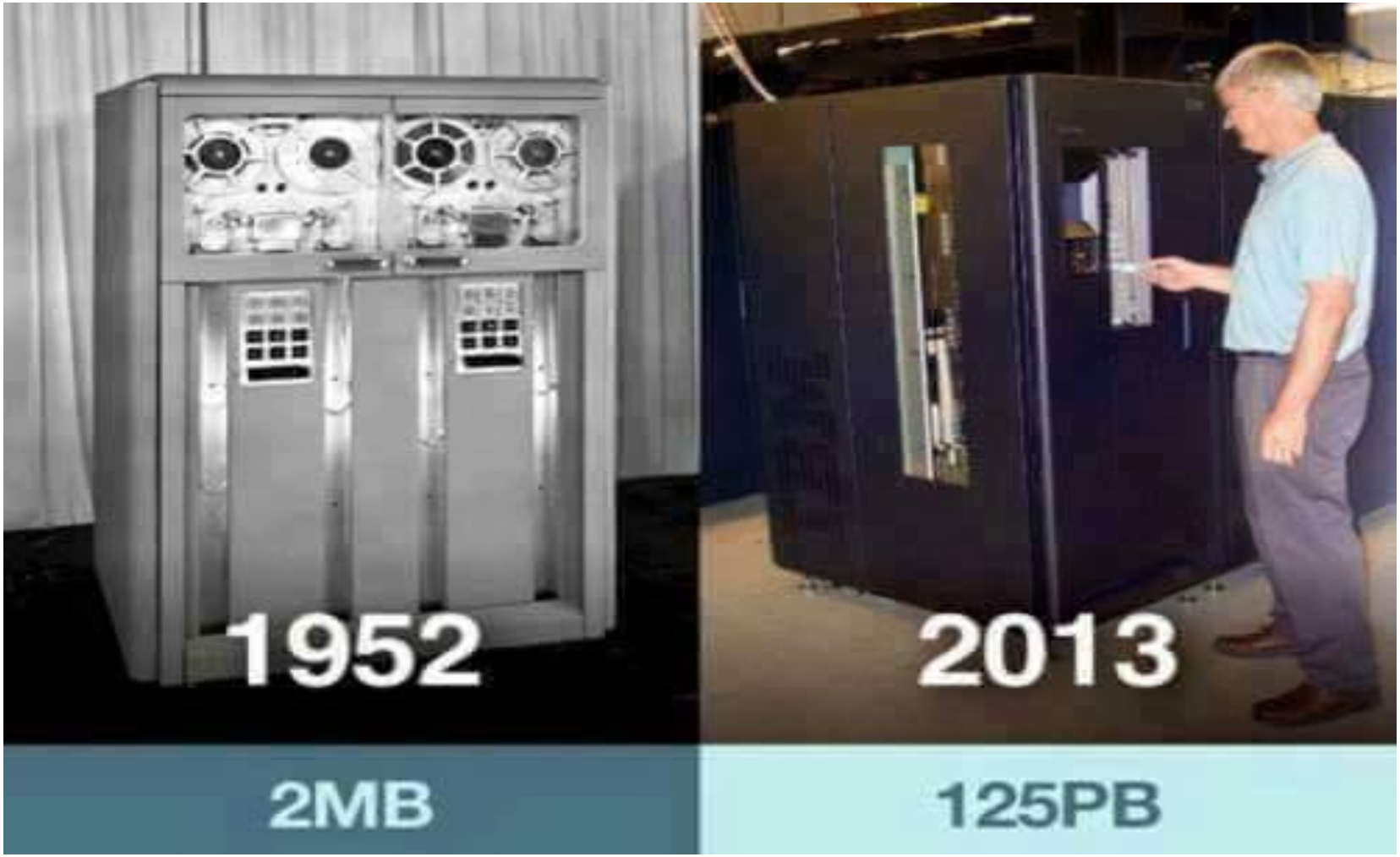
Difference

Difference



Difference

Difference



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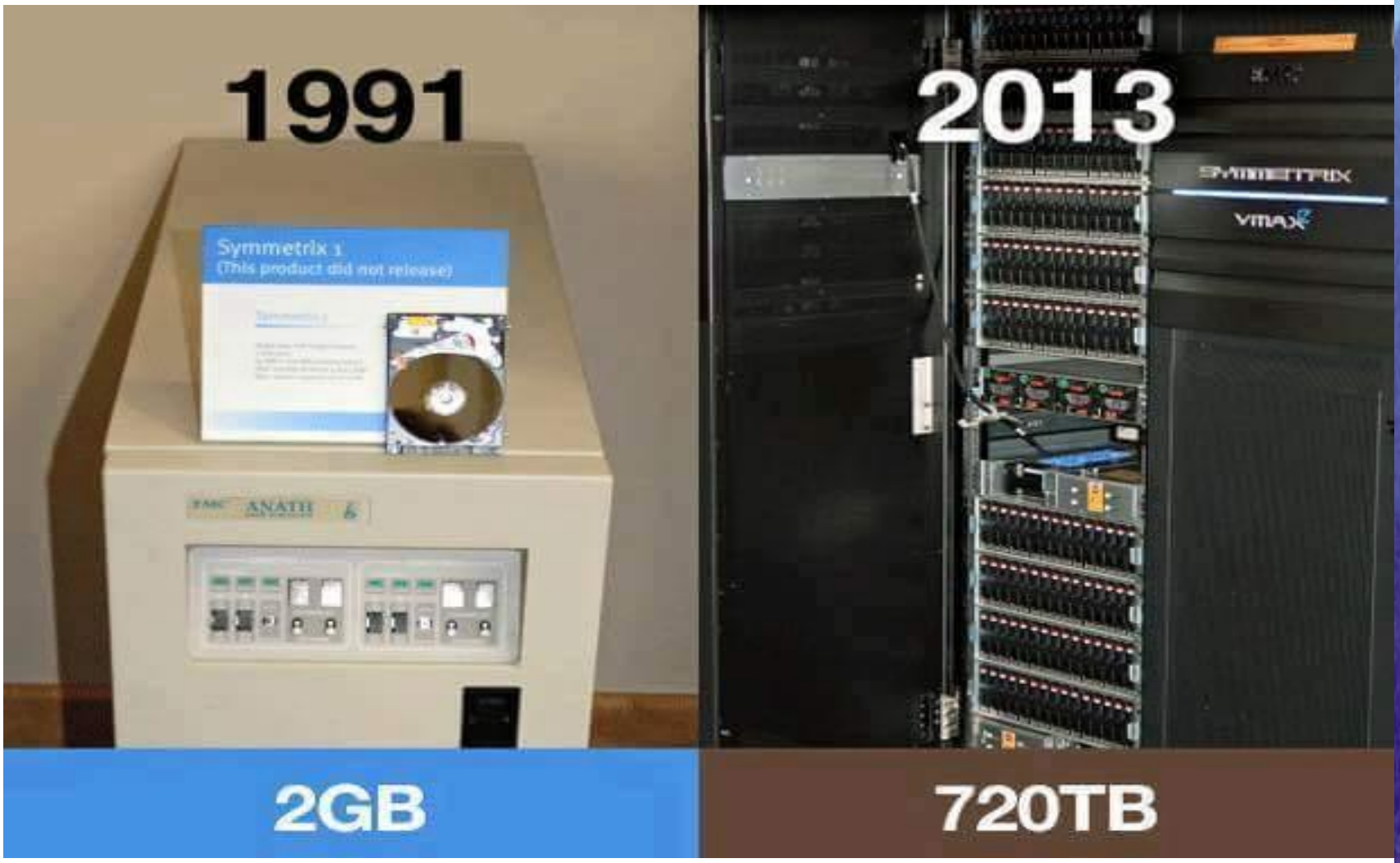
1991
Symmetrix 1
(This product did not release)
2GB
2013
VMAX
720TB

Questions:

- Can you think of any other common computing device other than computers?

Mobiles
Correct Answer
But Why?

Computing Device: Mobiles in the Past

Today Mobiles and Devices

Today Mobiles and Devices

Future?

FROM HEAD TO TOE WEARABLE TECHNOLOGY

SHIRT
Conductive thread means a computer is literally built into the fabric of the shirt, providing the processing power for all the other wearable gadgets.

WRISTBAND
A sensor that tracks movement to determine the number of steps taken through the day – 10,000 is ideal – and how much sleep the wearer gets at night.

TROUSERS
Also made with conductive thread, the trousers take the energy generated by movement and use it to power the other gadgets.

GLASSES
Overlays navigation directions and information about points of interest directly on to the wearer's field of vision.

WRISTWATCH
Vibrates when a message arrives and displays it on the watch face. Tells the time too.

HAND
Embedded under the skin is a chip containing medical records, passport data and credit records. Information is transferred by waving the hand over a suitable scanner.

SHOES
GPS chip provides directions using LED lights in each shoe: the left shoe indicates direction, while the right shows distance.

GRAPHIC: JOHN BRADLEY

Dream Smartphone Device s| Intelligent Personnel Assistant Mobile

- No need to take tension about its charging time. it can be charge from body heat or electromagnetic waves.
- it check my mood and set the wallpaper of mobile phone according to my mood.
- Make a record of my decision and give me opinion is my every day problem.
- Detecting your Geo location and hence providing you help like mulch-language translation support and best traffic routing via GPS.
- Direct satellite connection for 24/7 uninterrupted service/internet connection.
- Looking at your schedule and replying to an incoming invitation for a party/get together.
- Fully voice functional.
- Ability to provide you suggestion about your schedule/adjusting your schedule as it best fits.
- Behavior based detection of messages hence informing you about the important ones only.
- Practically 100% unbreakable and stealth proof/secure

Last topic of Chapter 0: Introduction

- Ethical, Social and Legal Repercussions
  - Home work
  - Verbal presentation in the next class

Any Questions?