Memory Management.

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Course Code: CE2103
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-Keywords: Memory Management, memory hierarchy, virtual memory.

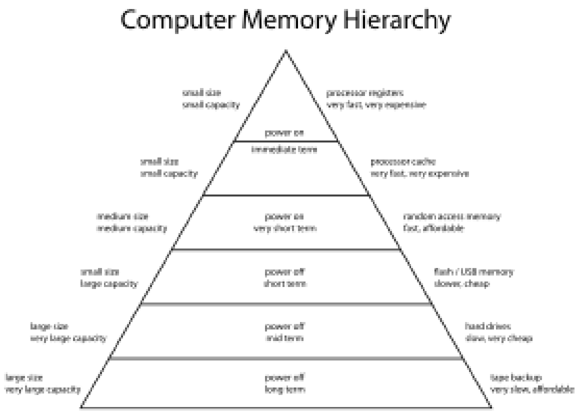
-Content:

The life cycle of a program:

1. Edition: The code is built.
2. Compilation: The code is converted into an objective language (traditionally a language machine). The consistency of the code, types of procedures are checked
3. It is checked that everything is in the same conditions (architecture, versions, etc...).
4. Link: Libraries and other dependencies are linked. There is dynamic link, in which libraries are not included in the executable program, and static, in the one they do meet.
5. Load: The program is loaded into the main memory.

ANÁLISIS
DISEÑO
DESARROLLO
IMPLANTACIÓN
EXPLOTACIÓN
MANTENIMIENTO
SEGUIMIENTO
BI / GEOBI
INVERSIÓN
RESULTADOS
EVOLUCIÓN
CICLO DE VIDA DE UN PROYECTO

Memory hierarchy:



Memory management schemes:

None:

There is no abstraction. Nobody manages memory. It was used in mainframes Primitives in the 60s and PCs in the 80s. That there is no abstraction means that the programs interact directly with memory. rThe mainframes are not a server to which things can be installed. They are mega-computers. Are you married & quot; hardware and software. Mainframes run systems own operations that are made specifically. For example: IBM Z running Z / OS.

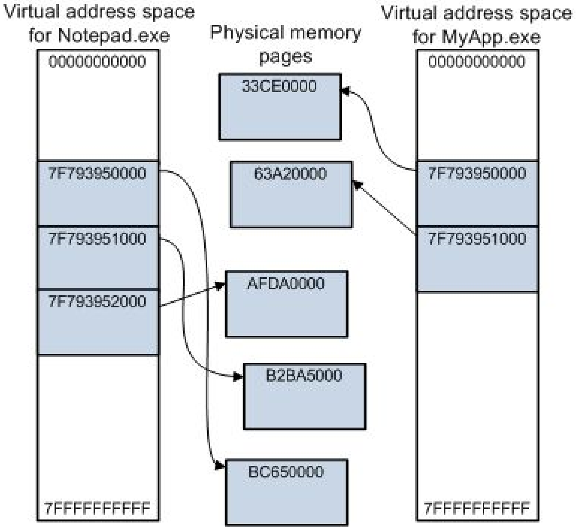
The mainframes are very stable. They are used by people who use too many Transactions, for example: American Express, Visa, MasterCard.

source: http://www.issis.org/Mainframe.jpg

Address Spaces:

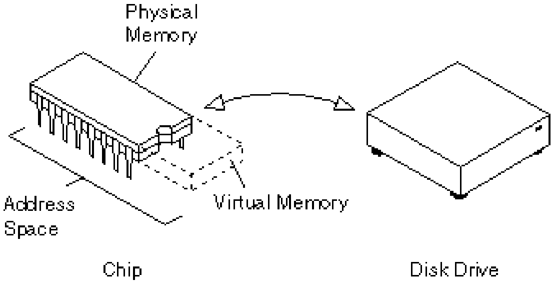
Each program has a range of addresses in which it operates. Each address space is independent.

Dynamic Relocation is used to execute several programs at the same time. The entire program must be in memory.



Virtual Memory:

- The size of the programs grows faster than the amount of available RAM.
- A page is mapped to the actual memory.
- A page is a block of continuous addresses.
- Not all pages are in memory at any given time.
- Virtual Memory uses specialized hardware MMU (Memory Management Unit).



Pagination:

The addresses can be generated and accessed through the use of indexes, base registers, segment records, and other forms. This generation of program management is called "Virtual Addresses" and together they form the "Virtual Address Space". These memory addresses are assigned a physical space in the computer, this is called Page Frames. All these pages and "Pages Frames" usually have the same size.The MMU is responsible for signaling and making news to the CPU of those problems with the Pages.

Pages tables:

In these all the pages are stored, and you can access them by means of a specific index that is in the one that is inside the table, in this you could say that "Rest" the page until it is called.

Structure of a Page Table entry:

In this each page is referenced, depending on the position it occupies within it. They are accessed through indexes. In this the pages can be written or removed within the table. In the same way there are divisions in which the pages work separately.

There are adaptations of these tables for larger and larger memories, but they present certain conflicts due to their extension. There are also multi level tables, in which the spaces in which the pages are placed are divided by levels. Some have come to work with pointers.

Important Concepts:

Limit and Base Registers: It is used to locate memory addresses. It works as a reference to locate a memory address. The limit register is the maximum amount of memory that a program can occupy in the indicated space, and the base register is the initial position of the program in memory.

Swapping: It consists of extracting it in its entirety, executing it for a while and then saving it again on the disk. Virtual memory allows programs to run even when they are only partially in the main memory space. When Swapping creates many "holes" in the memory, it can combine them into a very large one and take it down in memory, as much as possible, this is called "memory compaction".