

NAME Christos Kozyrakis DATE _____

- What is the base idea behind the stored-program concept?

The idea is to use a single storage (memory) in a computer to store both instructions and their data. It was introduced by von Neumann in the 40s,

- What are the advantages of the stored-program concepts?
Provide some examples.

Better utilization of the storage

We can write programs that write programs (compilers, assemblers, JITs etc).

- What are the disadvantages of the stored program concept? How can we address this problem?

Security: a malicious (or buggy) program can produce data that are later treated as code and lead to crashes or other serious security issues for the application or the whole system. Buffer overflows that overwrite return addresses in stacks are a good example.

Various protection mechanisms could help: non-execute bits, virtual memory, etc.