

:



.1

User Interface

:

(GUI: Graphical User Interface)

(CLI : Command Line Interface)

Unix

Program Execution

:

(Parameters)

I/O Operations :

File-system manipulation :

persistent

Communications :

Error detection :

()

Debugging

:

:

:

:

:

:

①

.C

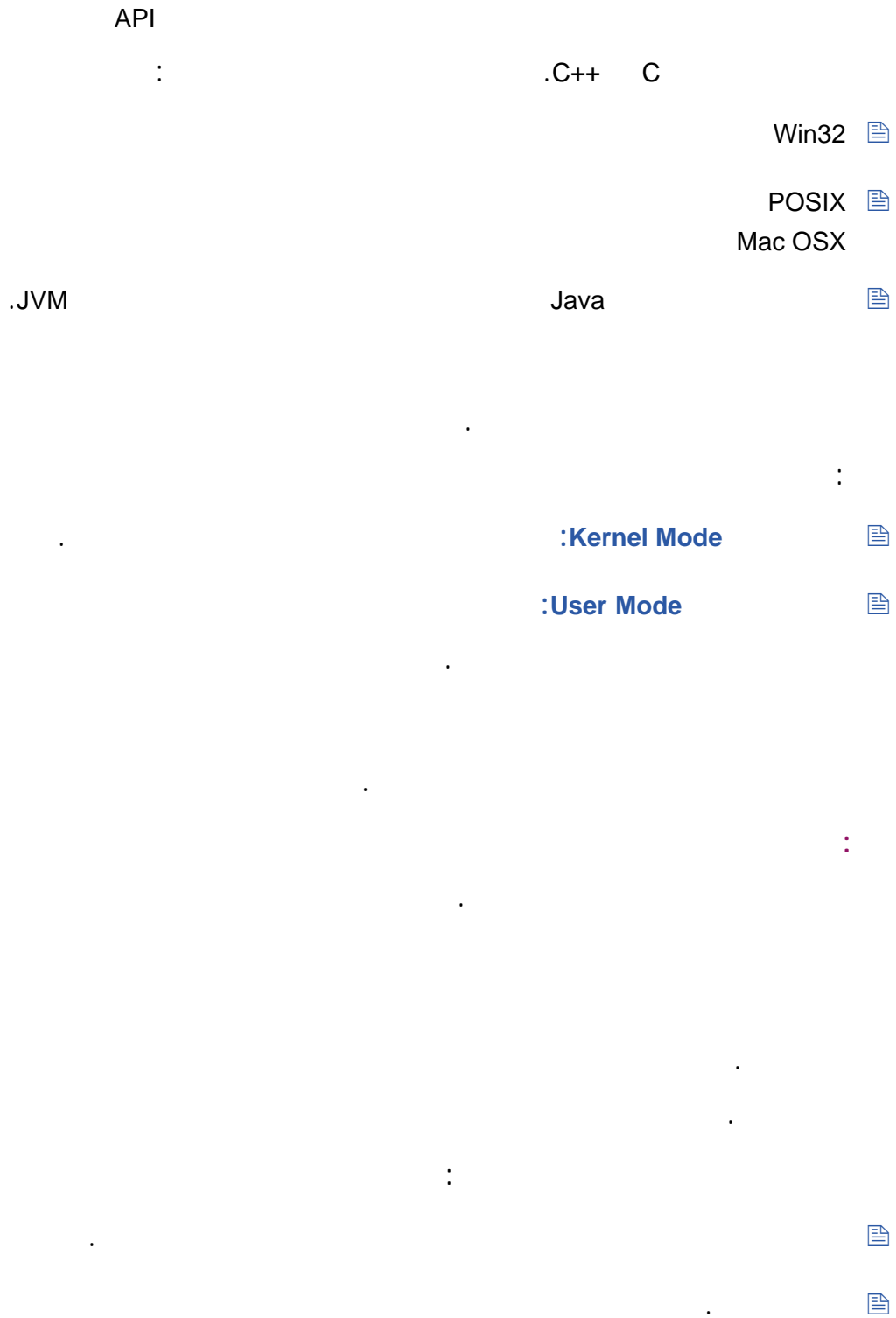
(Win95 Win311)

:

②

System calls

.2





ReadFile

:

```

BOOL ReadFile(
    HANDLE hFile,1
    LPVOID lpBuffer,2
    DWORD nNumberOfBytesToRead,3
    LPDWORD lpNumberOfBytesRead,4
    LPOVERLAPPED lpOverlapped5
);

```

API

Procedure

Compiler

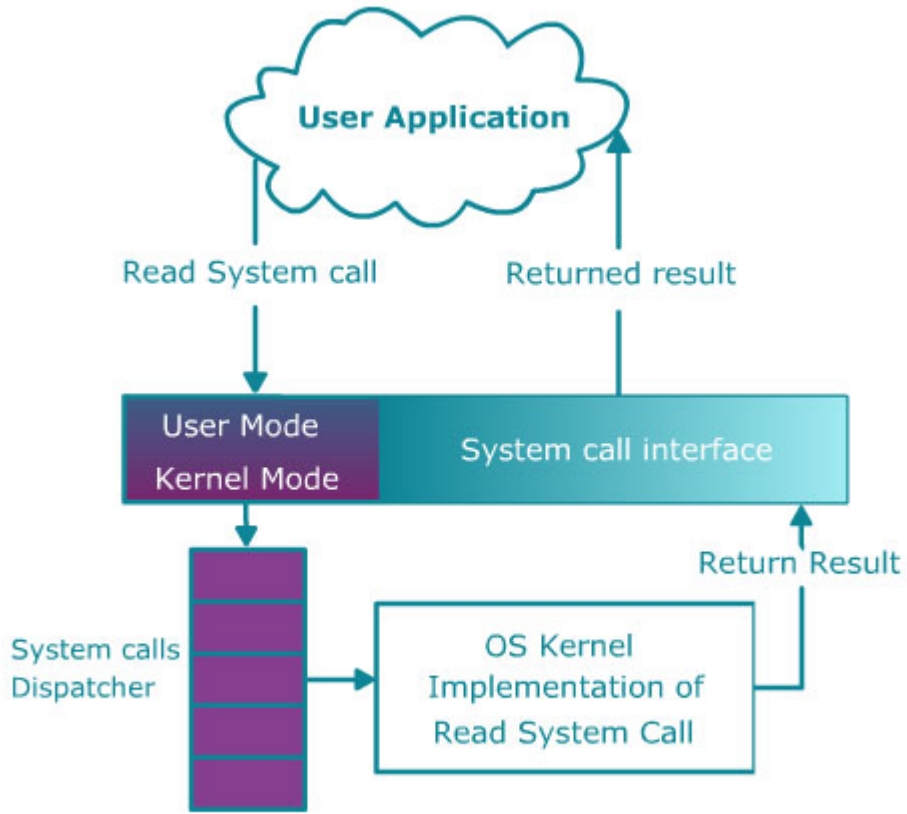
⁶ ReadFile

```

: file1
: lpBuffer2
: nNumberOfBytesToRead3
:lpNumberOfBytesRead4
: lpOverlapped5
ReadFile

```

⁶ BOOL ReadFile(
HANDLE hFile,
LPVOID lpBuffer,
DWORD nNumberOfBytesToRead,
LPDWORD lpNumberOfBytesRead,
LPOVERLAPPED lpOverlapped
);



:Kernel Mode

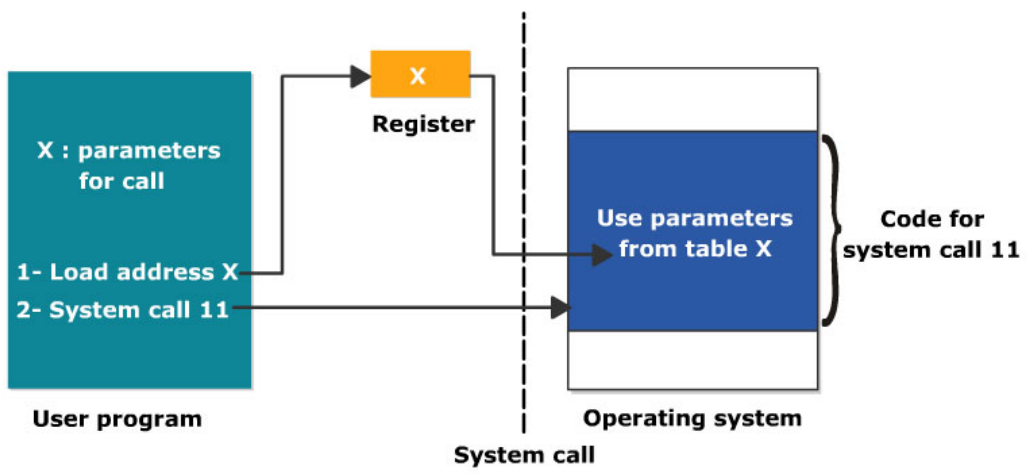


:User Mode



.Linux Solaris





.3

Windows Explorer
 .Unix shell

grep Unix vi

:



debuggers

:



.FTP

.4

:



:



Hardware

Layer	Function
5	The operator
4	User programs
3	Input/output management
2	Operator-process communication
1	Memory and drum management
0	Processor allocation and multiprogramming

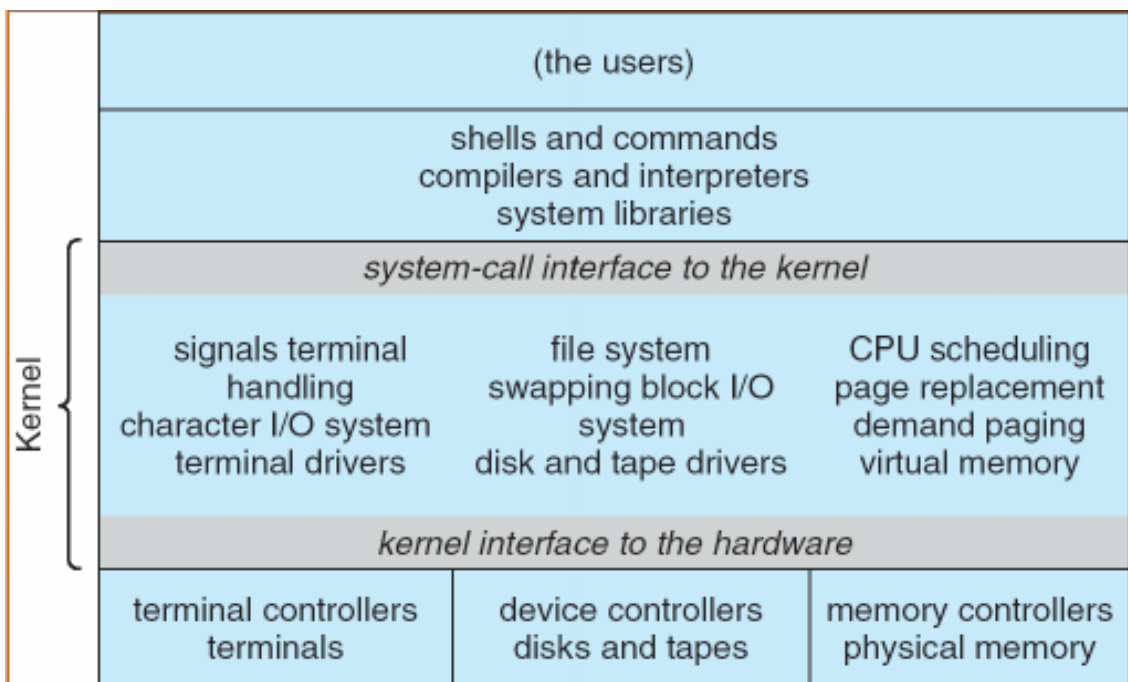
THE

1968

512

.Unix

:(1)



.Unix

7

()

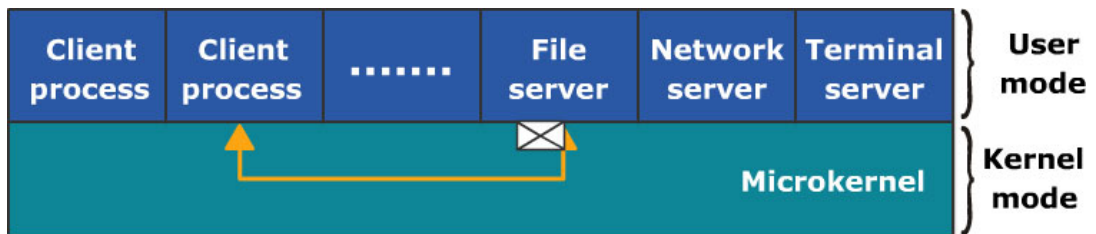
8

.MicroKernel

:(2)

Micro Kernel

: مثل نظام إدارة الملفات. هذه



Client & server processes communicate through messages

:User Mode

7

:Kernel Mode

8

.File server

Client process

:

:

①

②

:

:

③

:

④