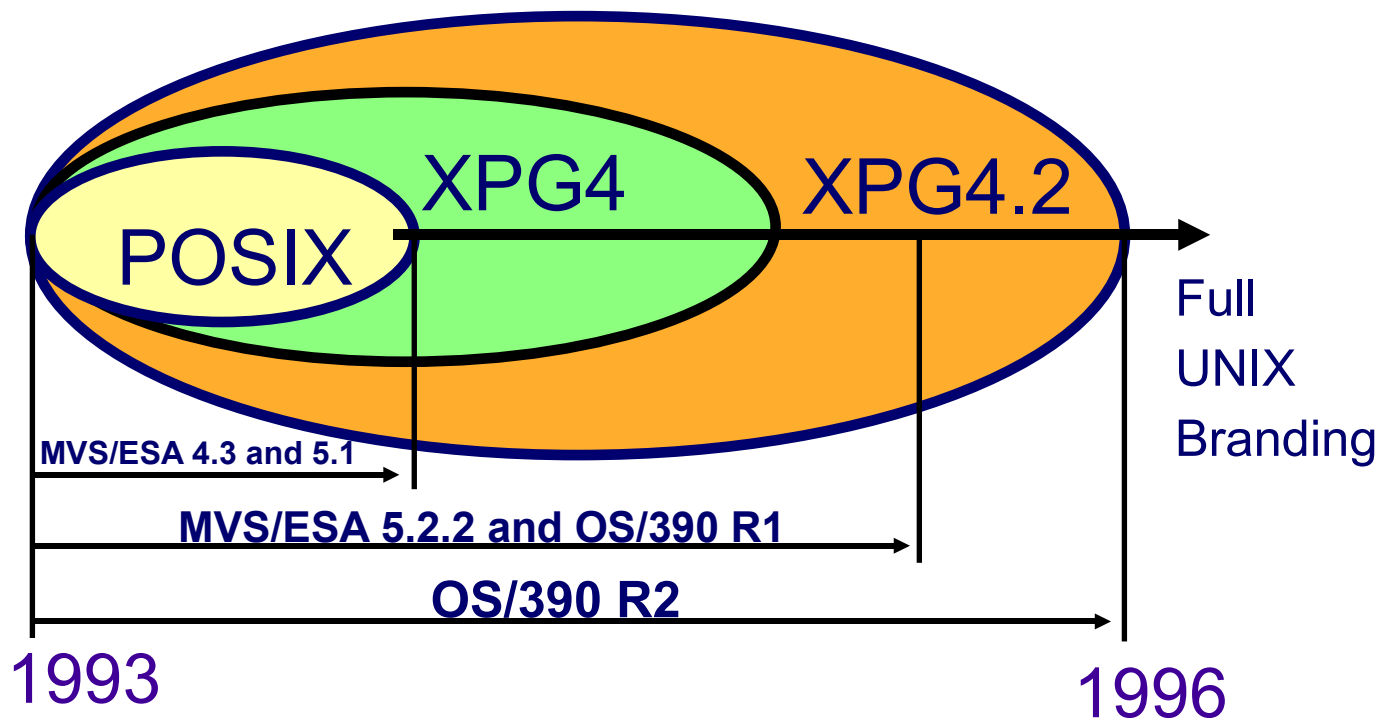
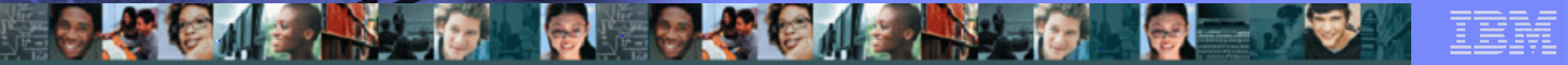


Sistemi Centrali – Modulo 3- Il sistema operativo z/OS – (quarta parte) Unix Services

UNIX System Services

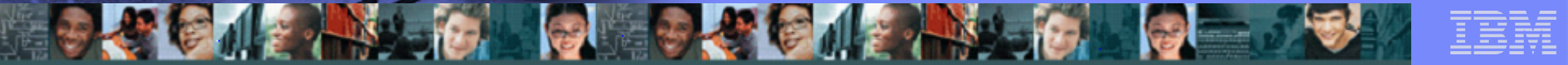




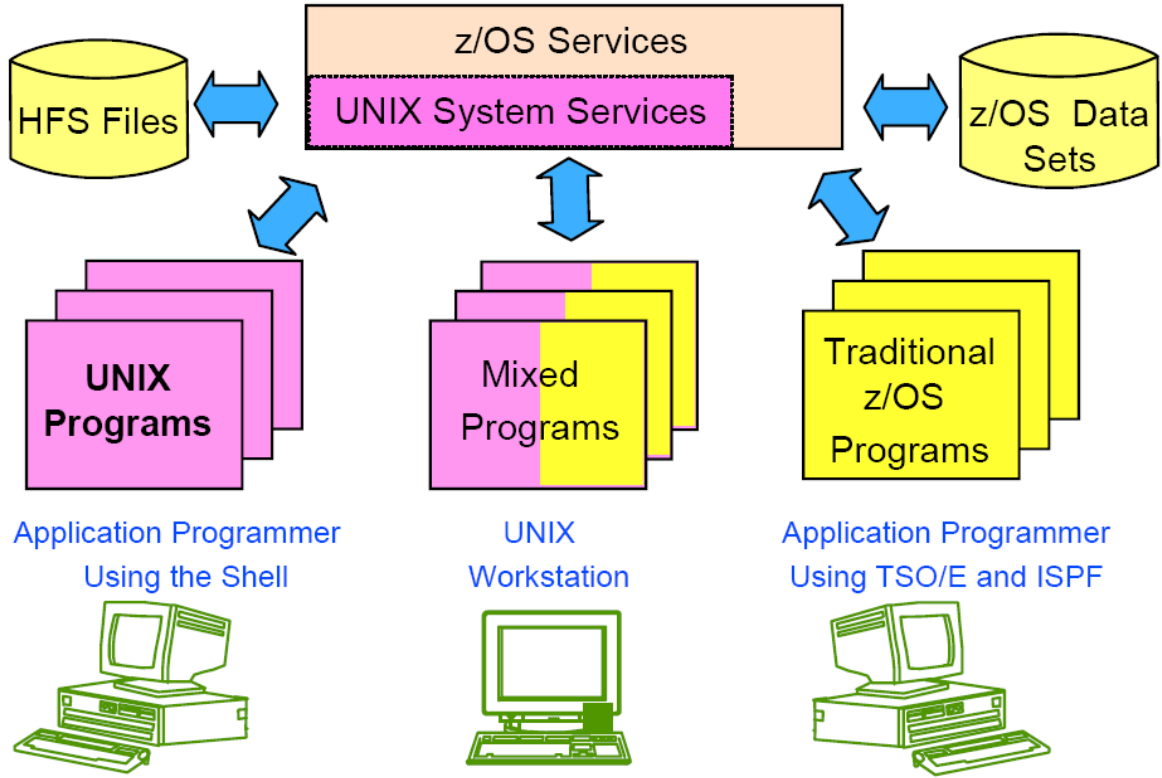
POSIX Standards Overview

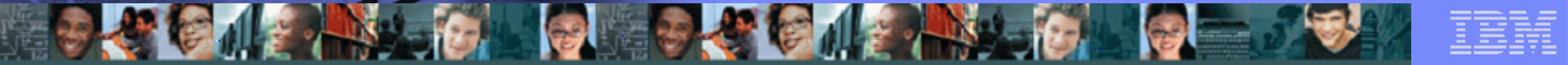
- * 1003.1 System Application Program Interface for C
- * 1003.1a System Application Program Interface Extensions
- 1003.1b Real Time Extensions
- * 1003.1c Threads Extensions (previous 1003.4a)
- 1003.1e Security Extensions
- 1003.1f Network - Transparent File Access
- 1003.1g Protocol Independent Network API
- * 1003.2 Shell and Utilities
- 1003.5 ADA Bindings (for 1003.1)
- 1003.9 Fortran Bindings (for 1003.1)
- 1003.13 Real Time Application Environment Profile
- 1003.15 Batch System Administration

* Currently supported by UNIX System Services

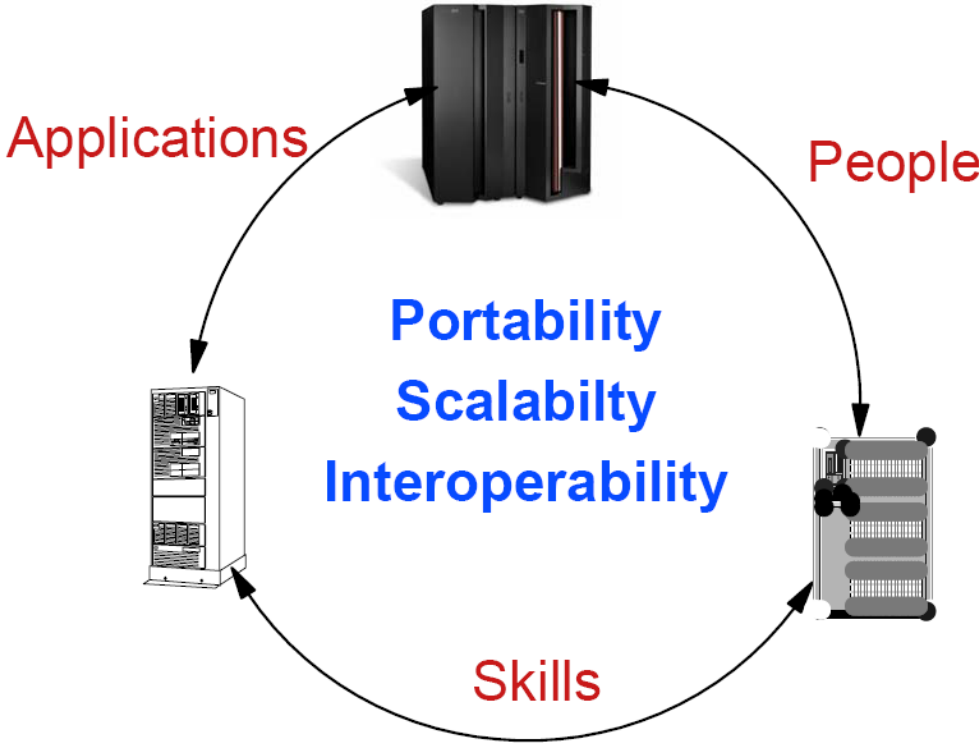


z/OS- Applicazioni UNIX

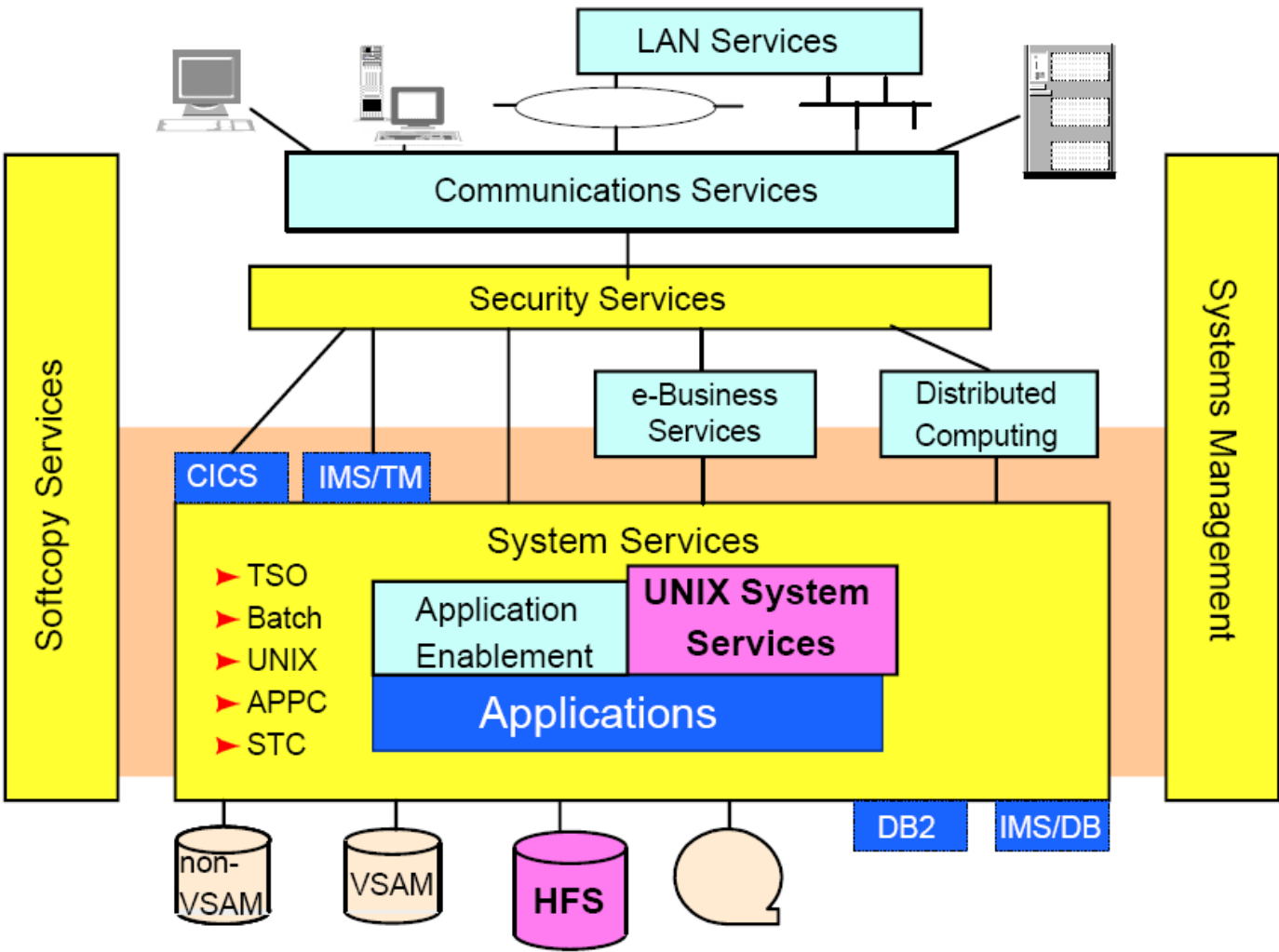




z/OS- Vantaggi di Unix Services

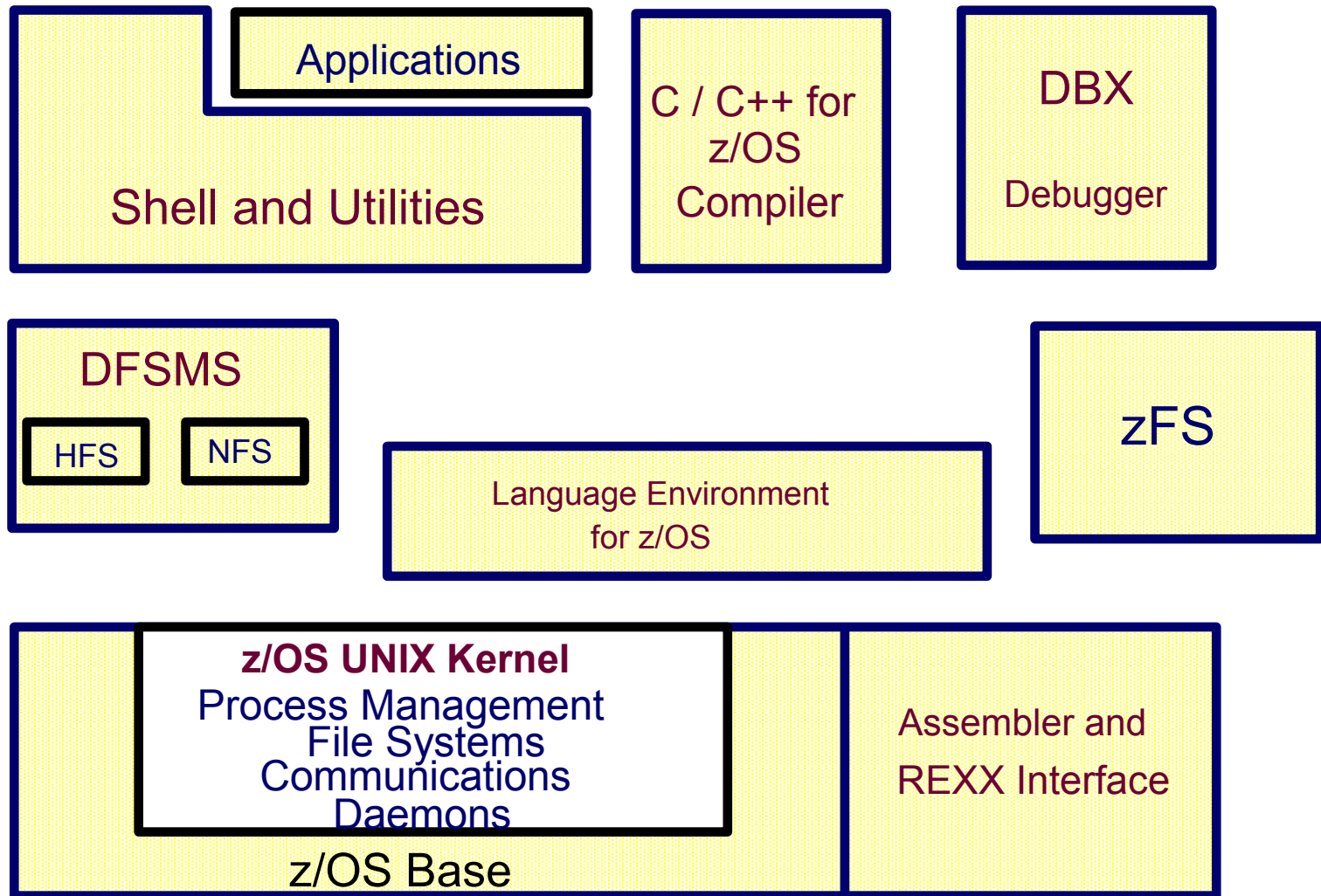


z/OS- Panoramica

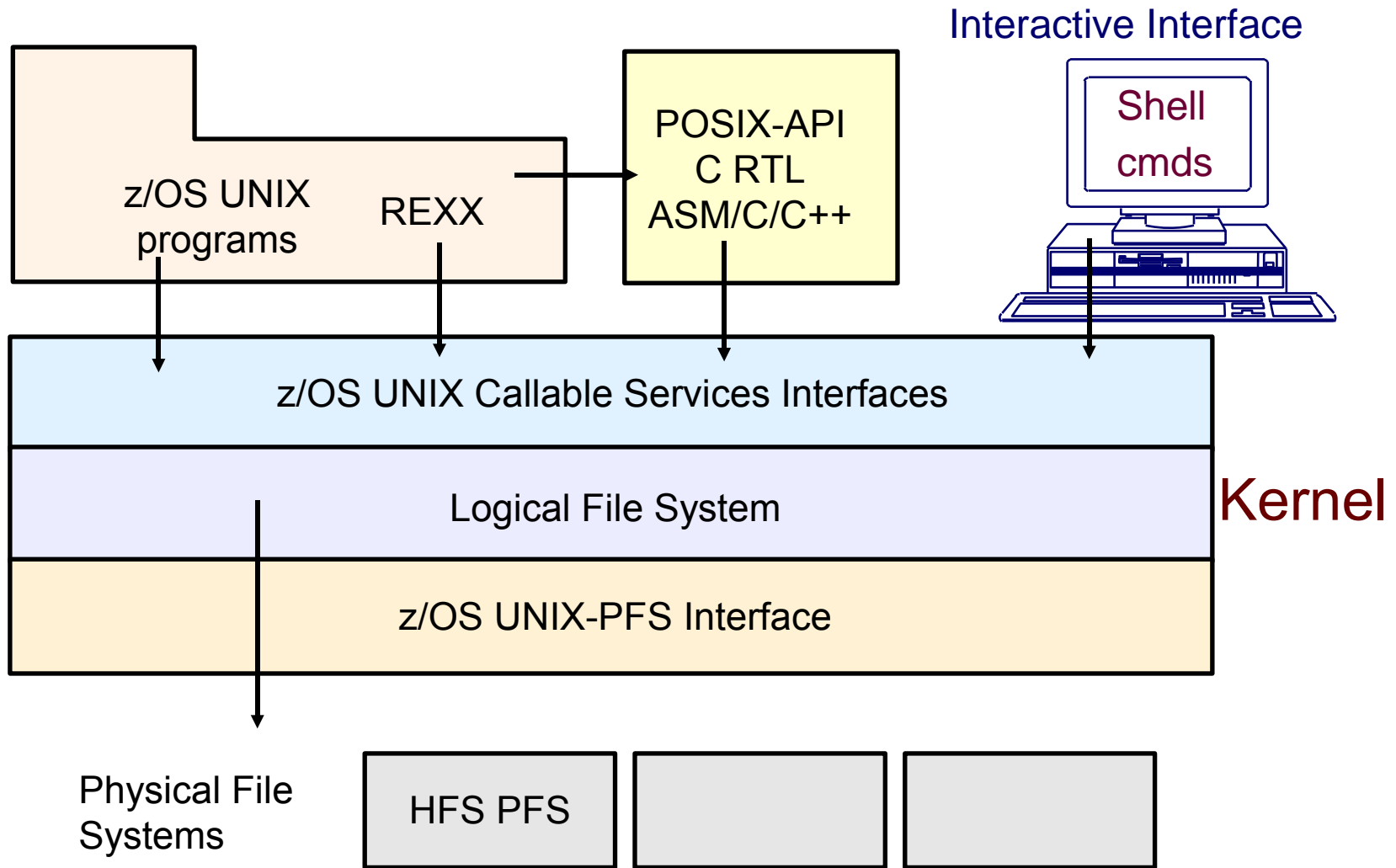


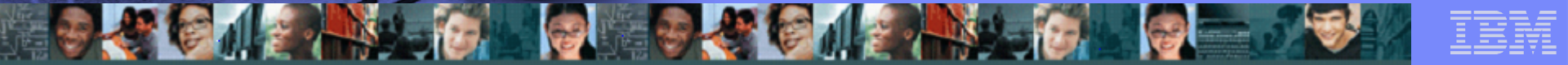
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z/OS UNIX Components

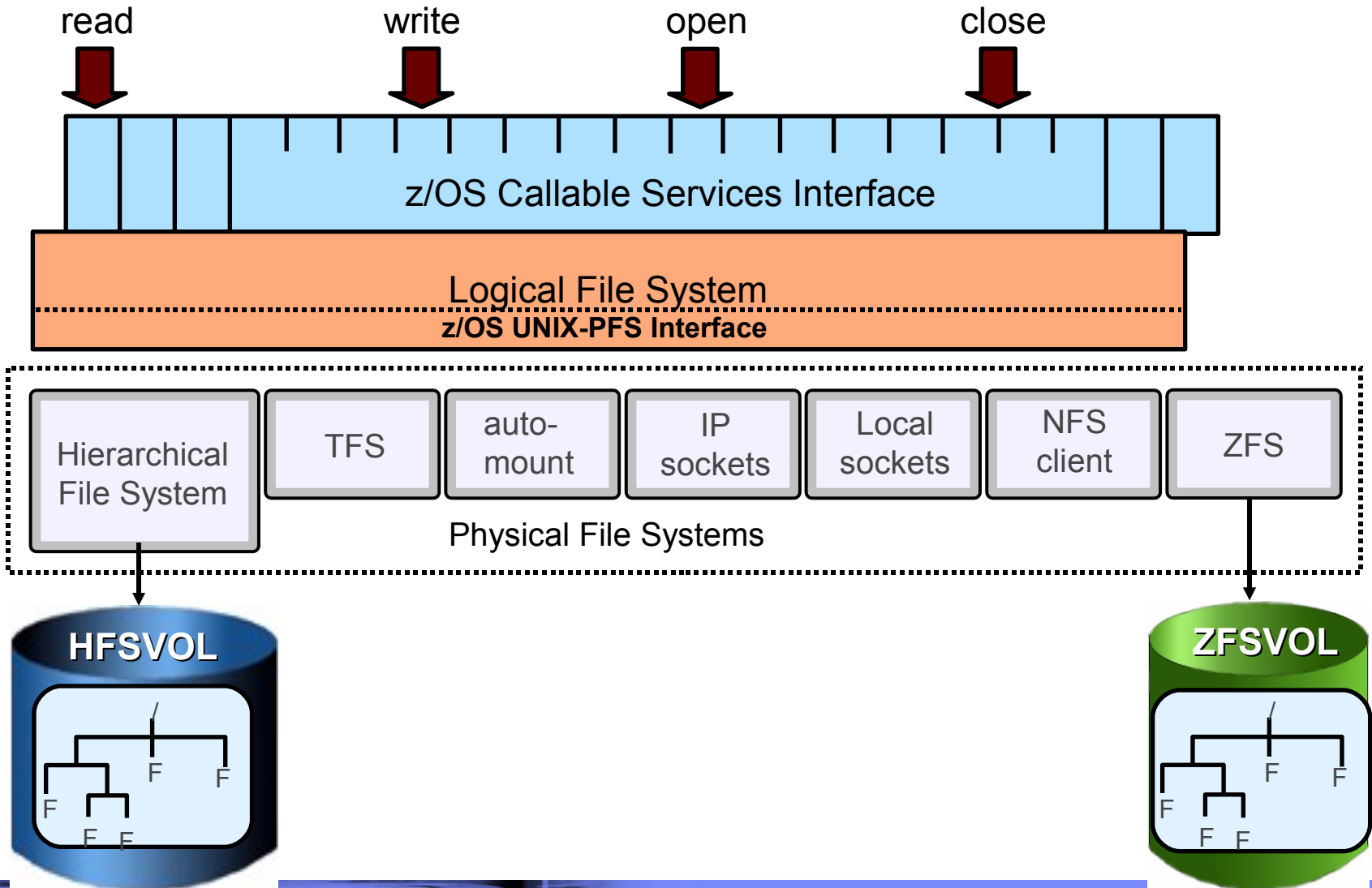


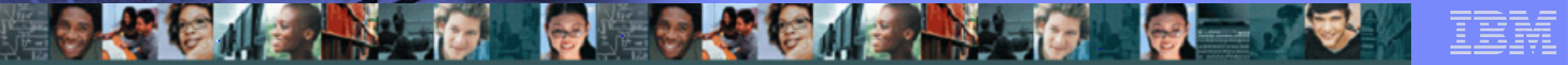
UNIX System Services





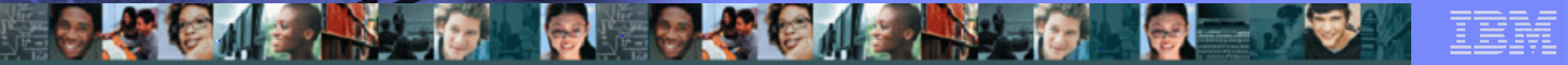
Physical File Systems



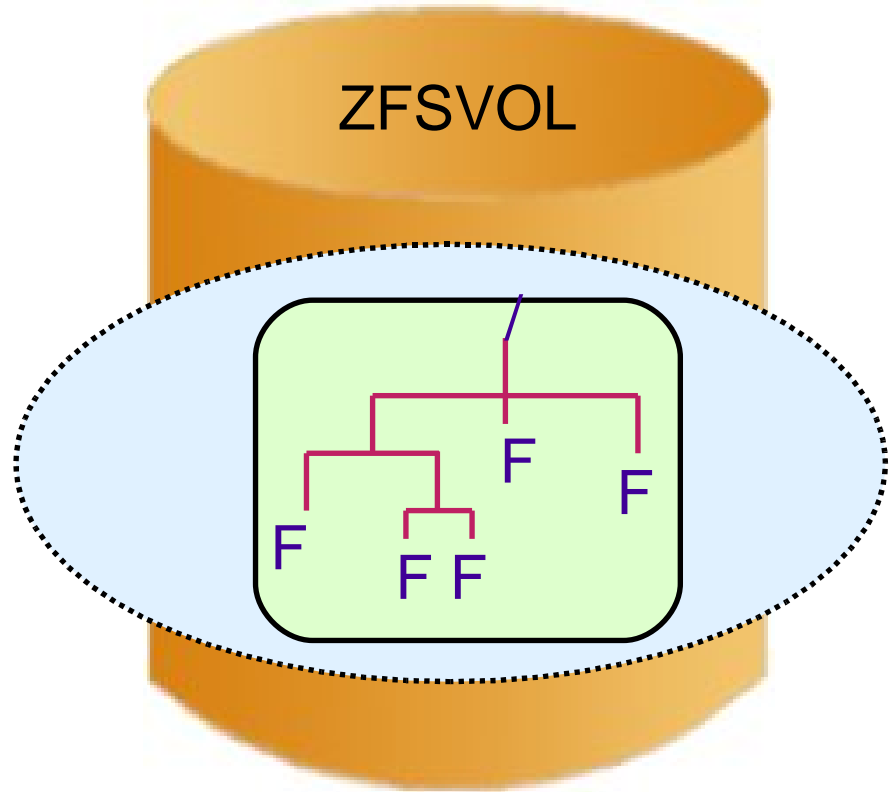
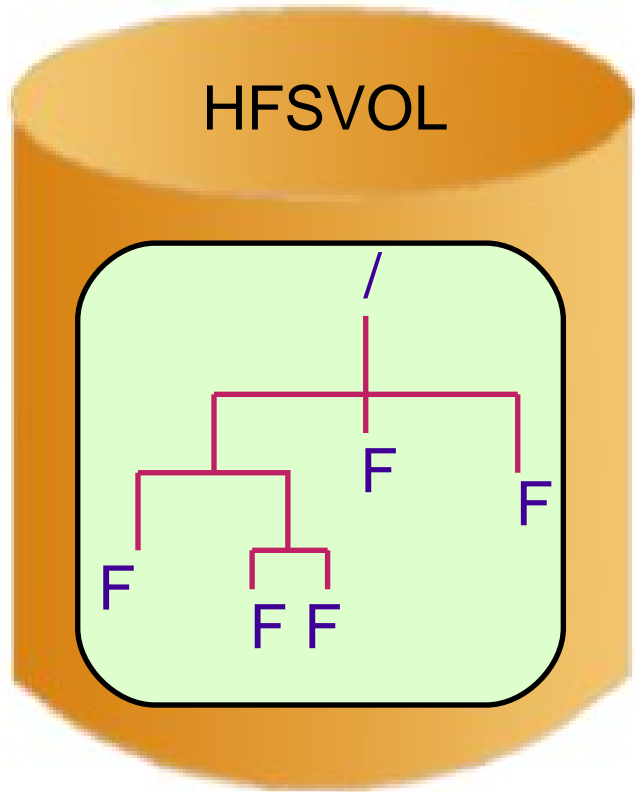


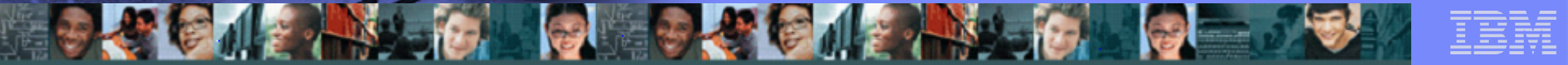
Several file systems supported

- zFS – z/OS UNIX File System
- HFS – Hierarchical File System
- NFS – Network File System
- TFS – Temporary File System



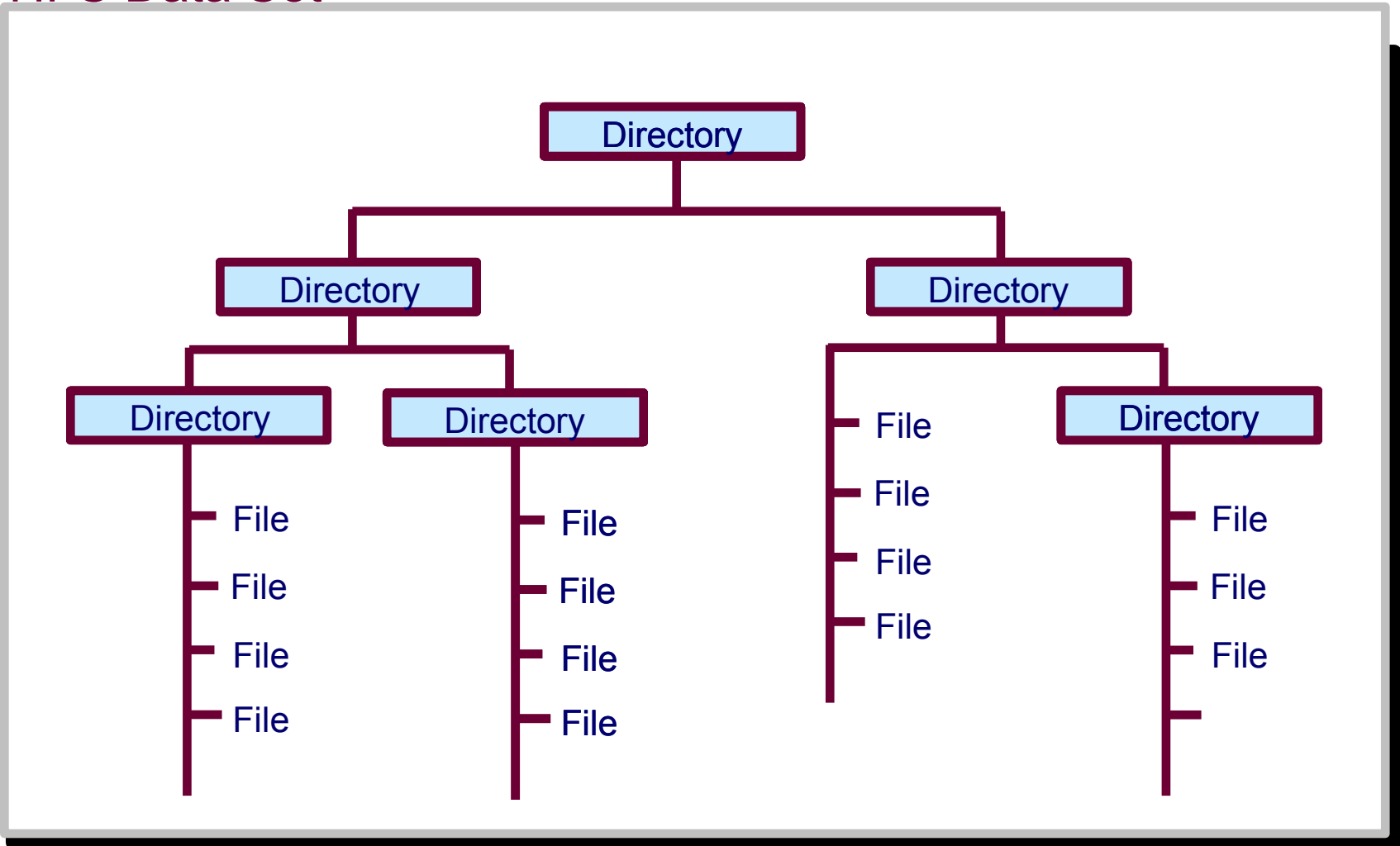
HFS Data Set - zFS Data Set



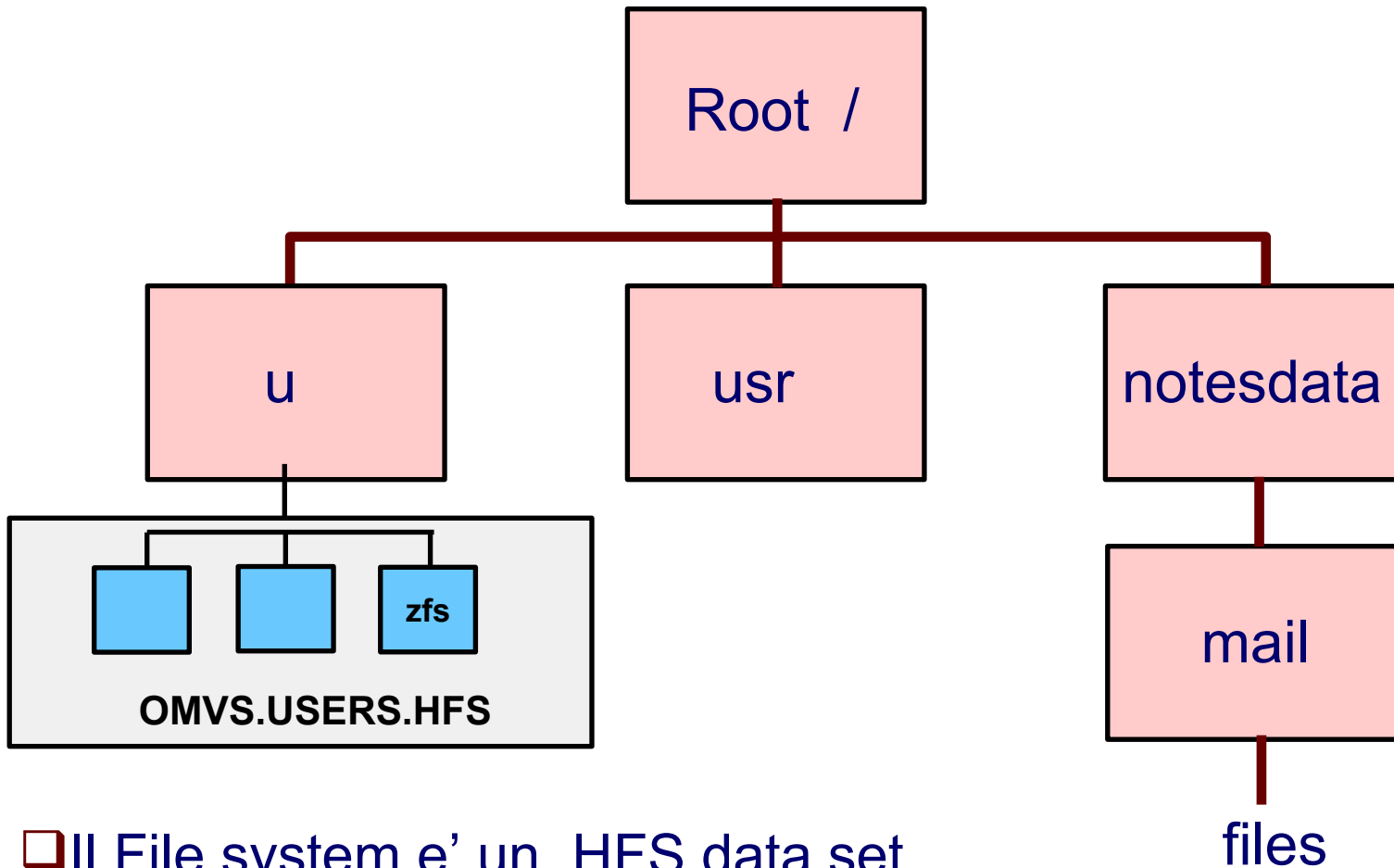


Hierarchical File System (HFS)

HFS Data Set



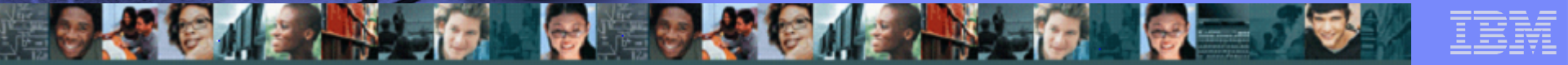
File System Data Sets



❑ Il File system e' un HFS data set

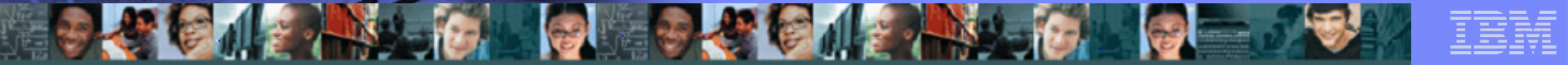
➤ DSNTYPE=HFS

Path: /notesdata/mail

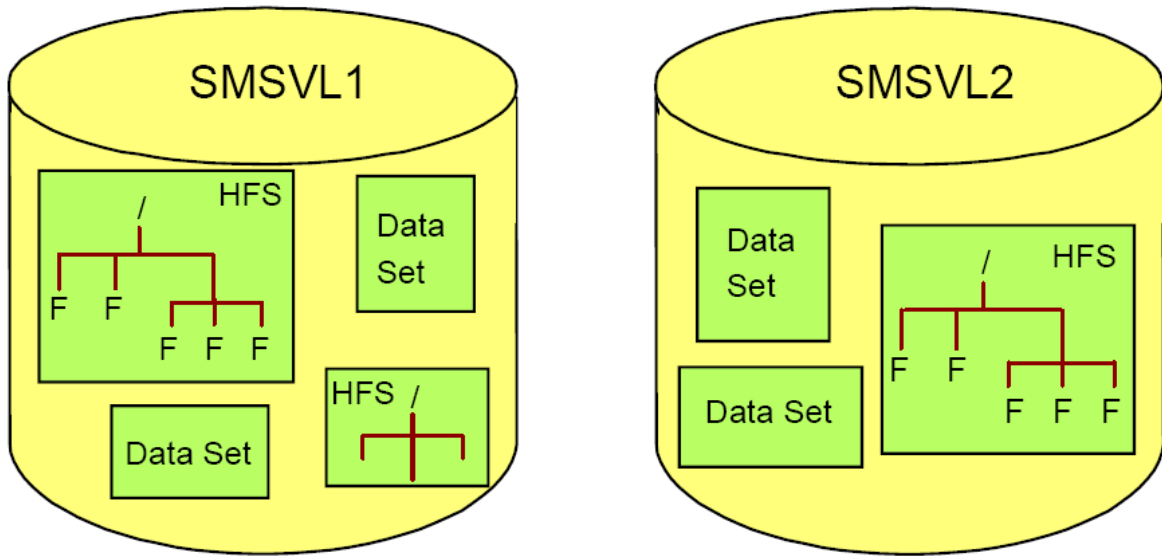


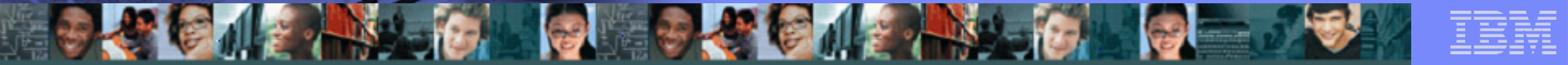
zFS File Systems

- ❑ zFS e' un nuovo Unix File System for z/OS
 - Non rimpiazza HFS
- ❑ Usando zFS, si possono
 - Girare applicazioni come con HFS
 - Usare zFS in aggiunta all' HFS o rimpiazzare HFS
- ❑ Vantaggi :
 - Migliore performance
 - Funzioni amministrative facilitate
 - Minore perdita di dati in caso di caduta del sistema

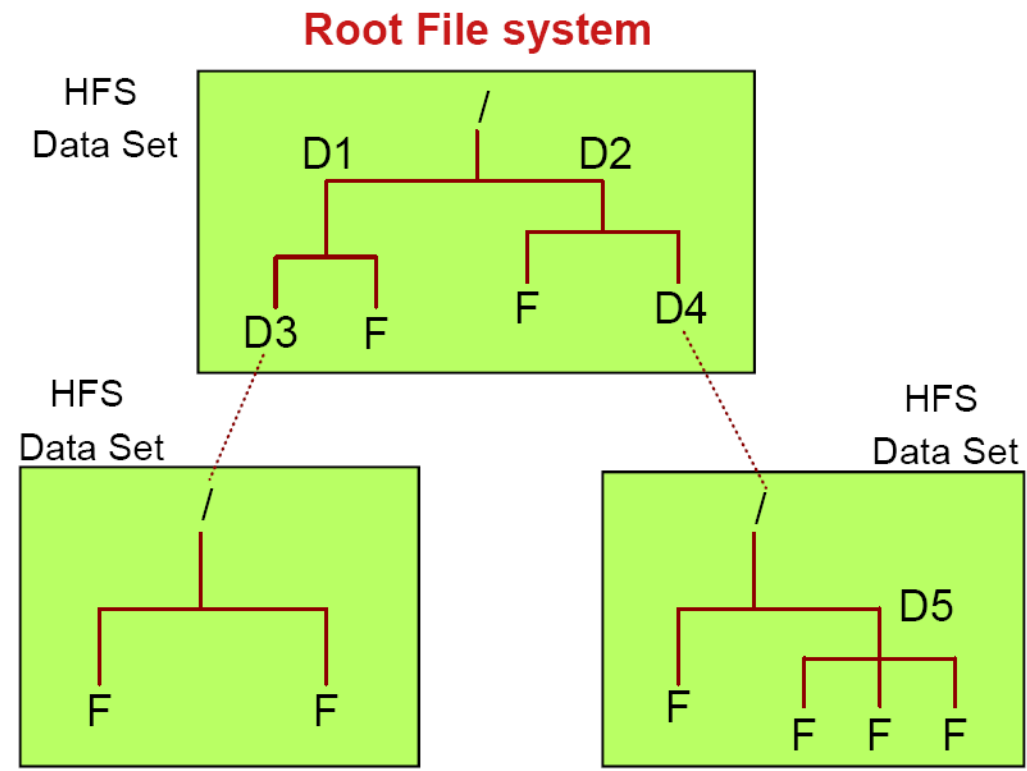


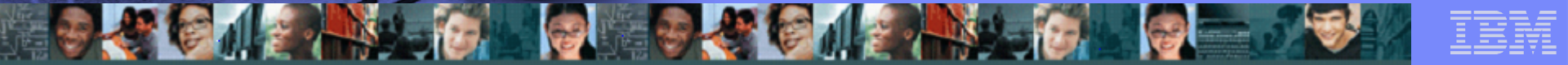
z/OS- Dataset HFS





z/OS- Struttura del File System

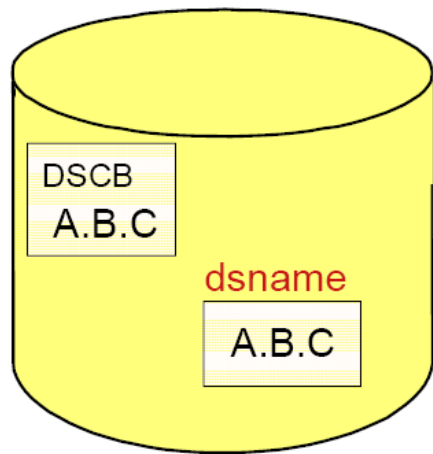




z/OS- Dataset z/OS vs File di Unix Services

z/OS Datasets

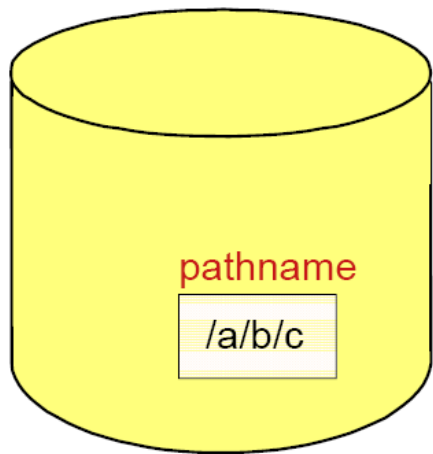
DCB= Data Control Block



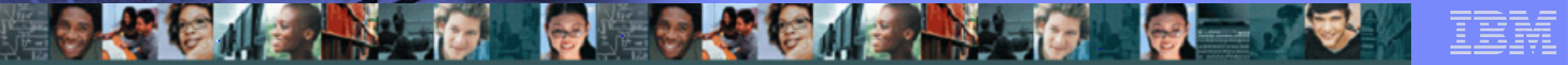
//DD1 DD DSN=A.B.C,DCB=...

UNIX Files

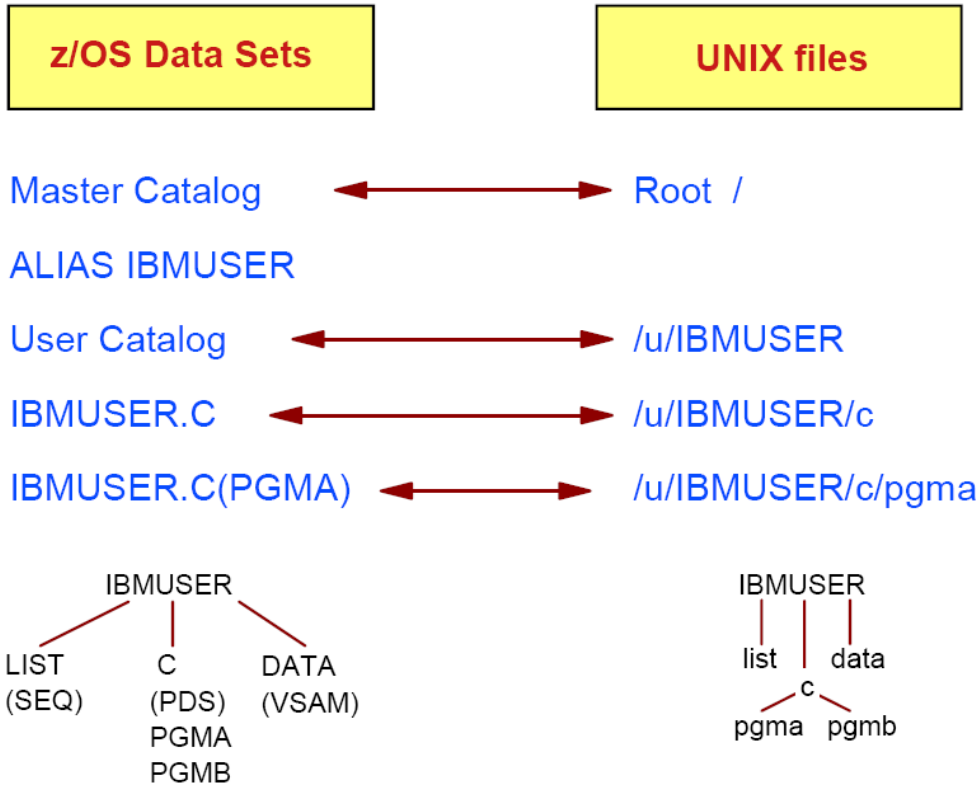
File Descriptor: 18=/a/b/c

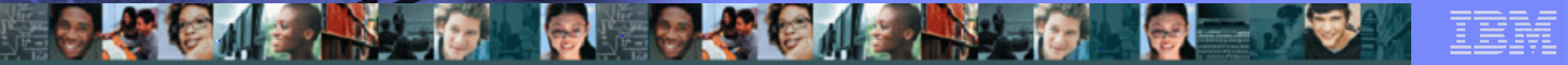


path=/a/b/c

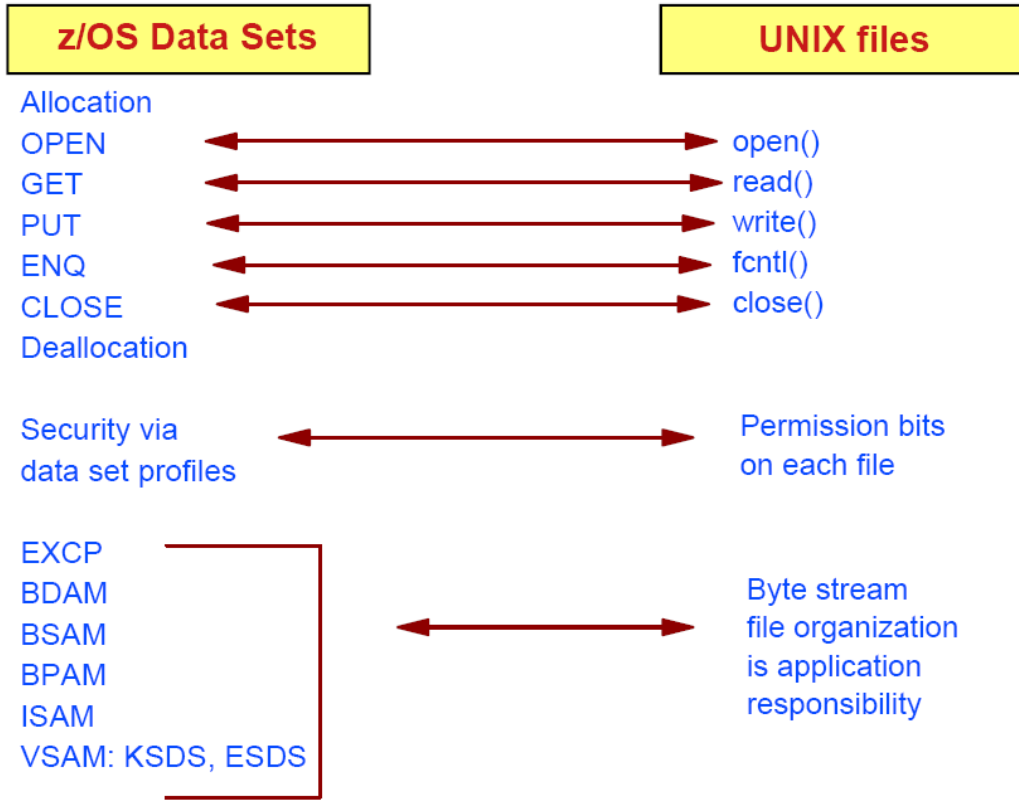


z/OS- Dataset z/OS vs File di Unix Services

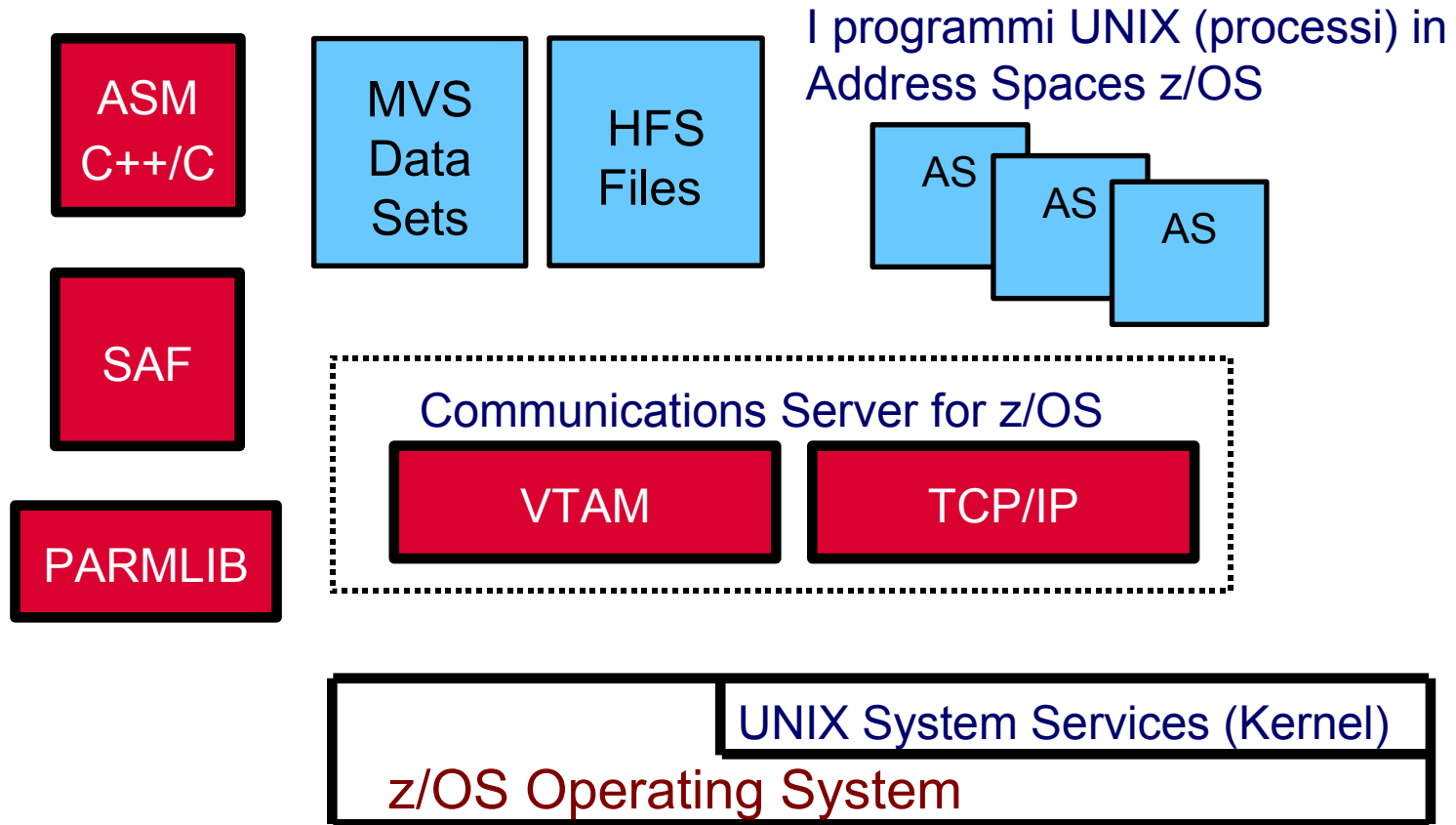




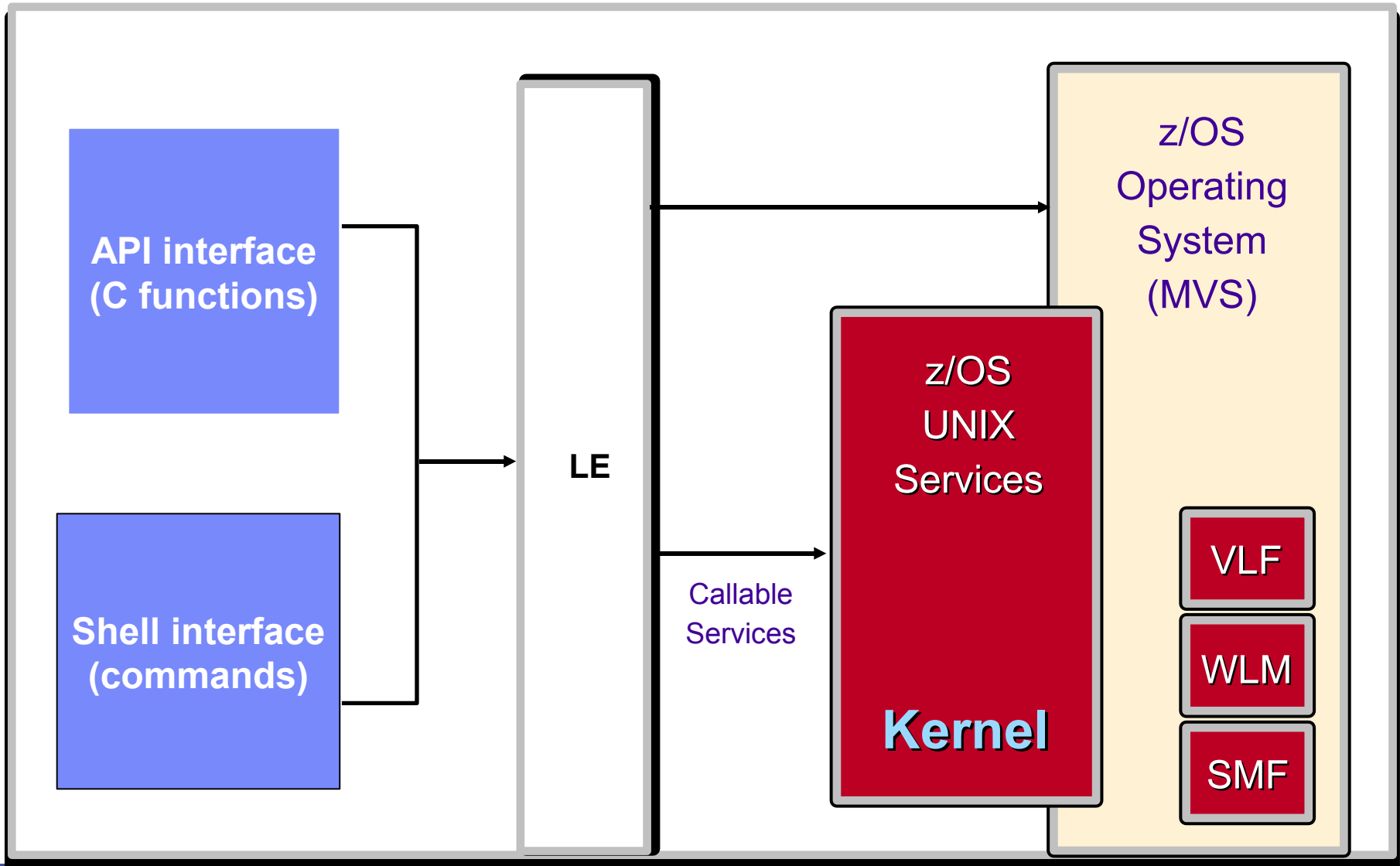
z/OS- Paragone sugli accessi dei Dataset z/OS nei confronti di un File di Unix Services



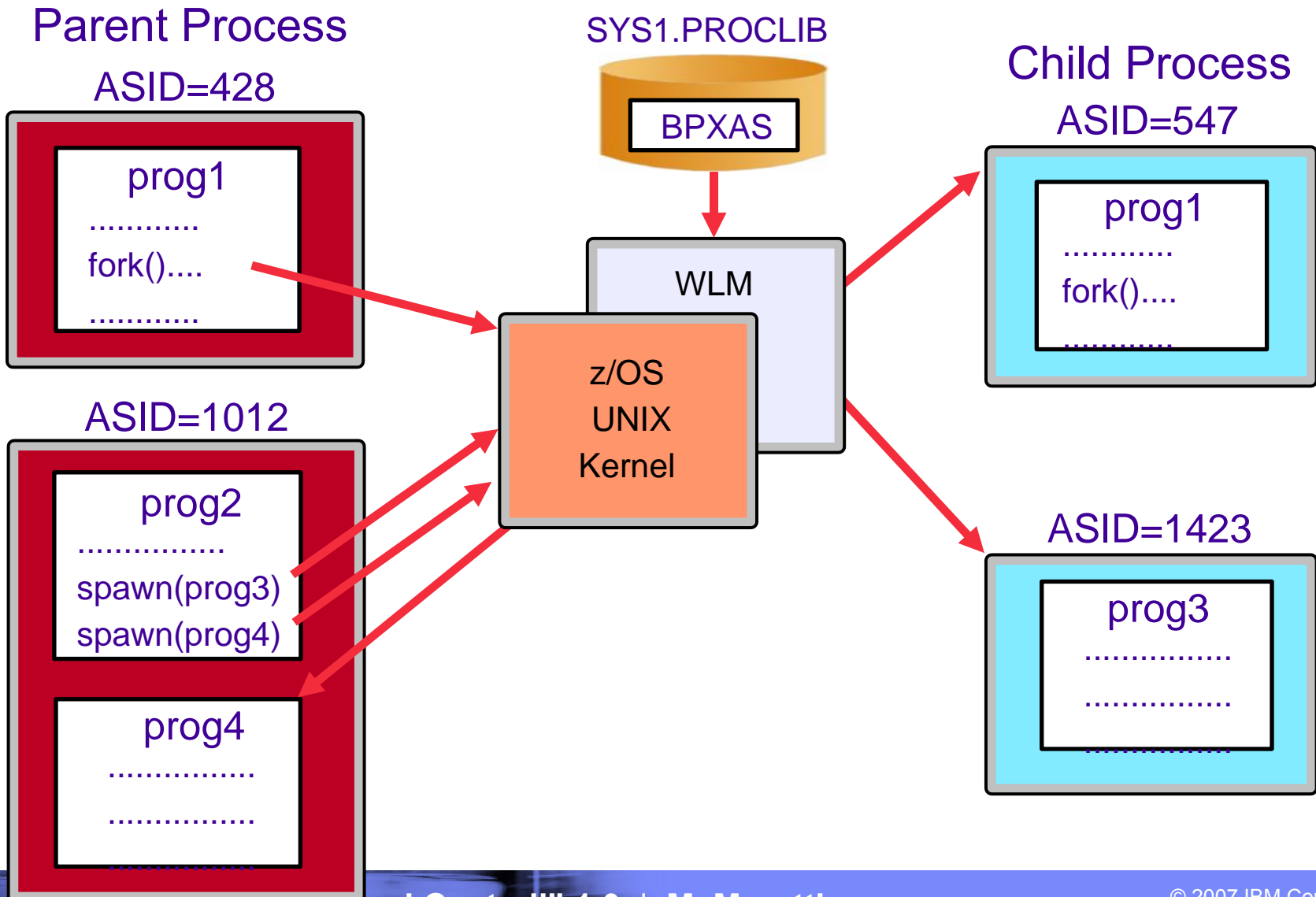
Programmi z/OS UNIX (Processi)

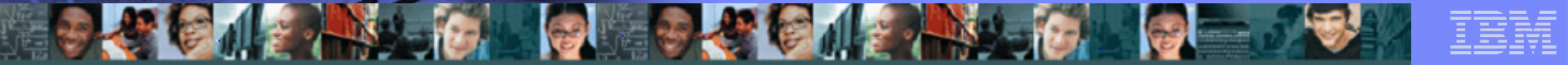


z/OS Operating System and z/OS UNIX

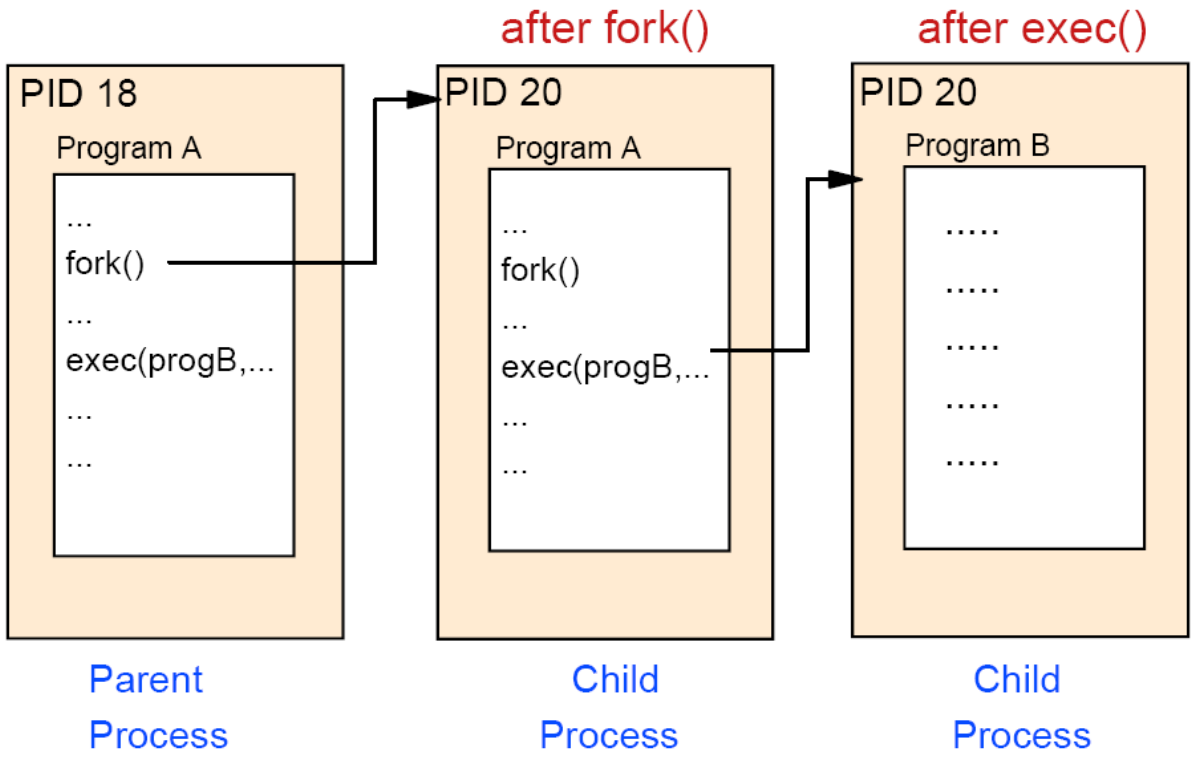


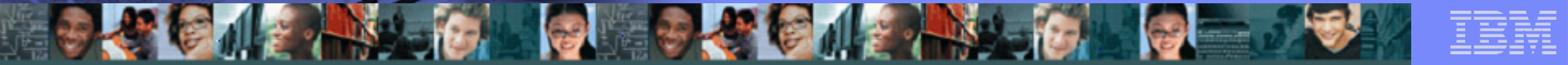
Creare un processo





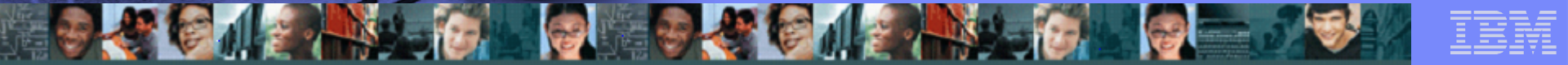
z/OS- Processi



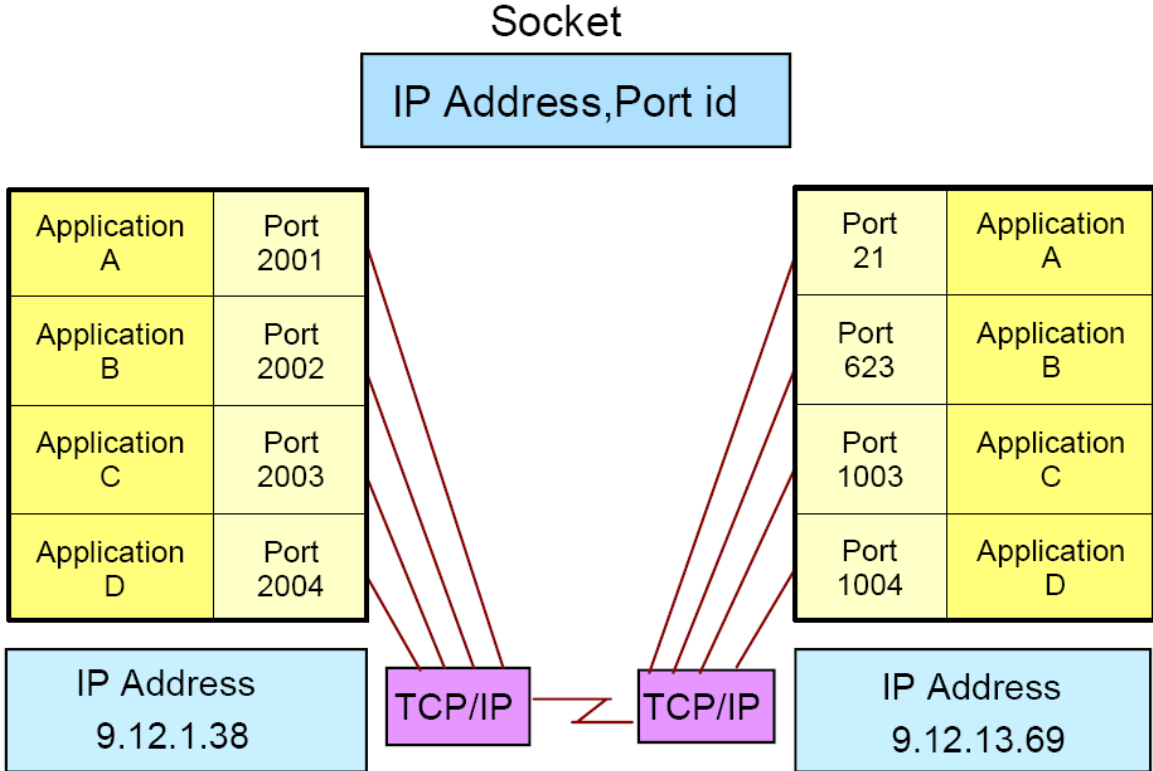


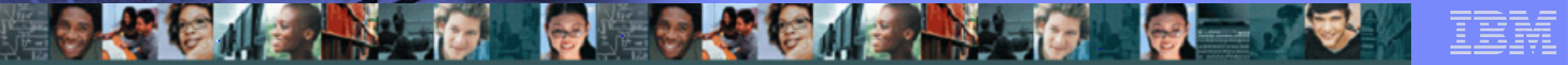
z/OS- TSO vs Shell

z/OS Environment	Activity	Shell Environment
Clist and REXX	Scan files and manipulate strings	Shell scripts and REXX
ISPF	Editing	ed/sed/vi/ispf
SDSF	Job control	ps, jobs, kill
Submit job	Background job	command &
Editing	Character conversion	CONVERT chcp
DFSMSshm TSM	Data Management	tar, cpio, pax, TSM UNIX Client

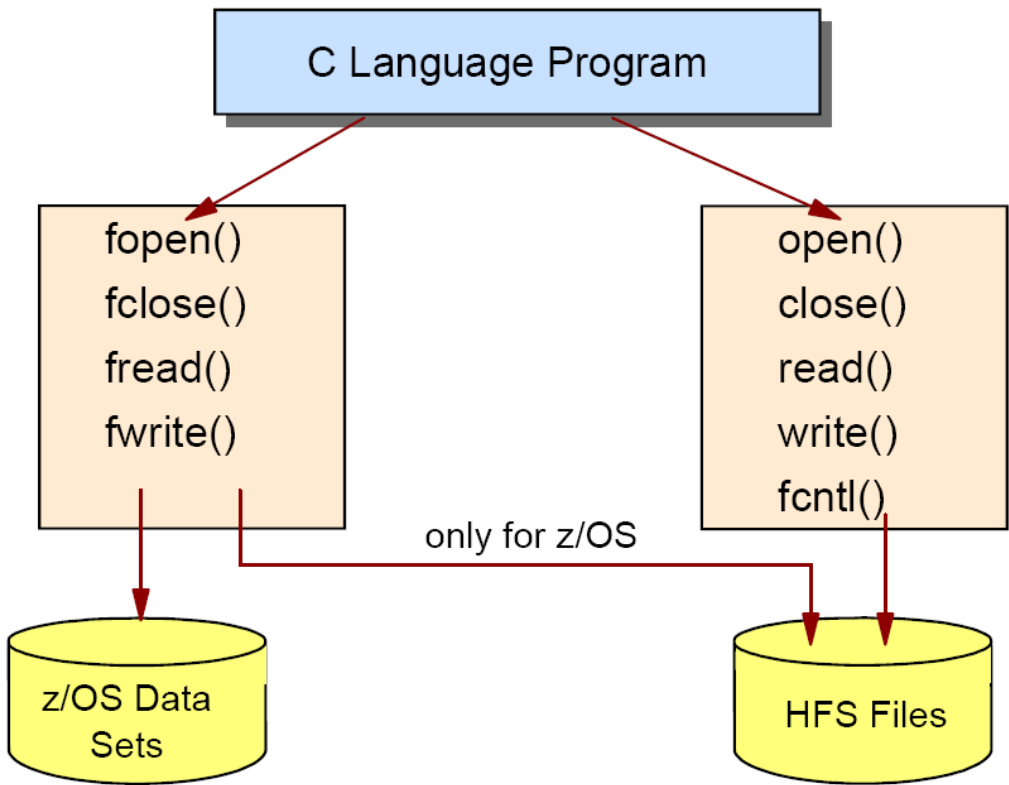


z/OS- Socket

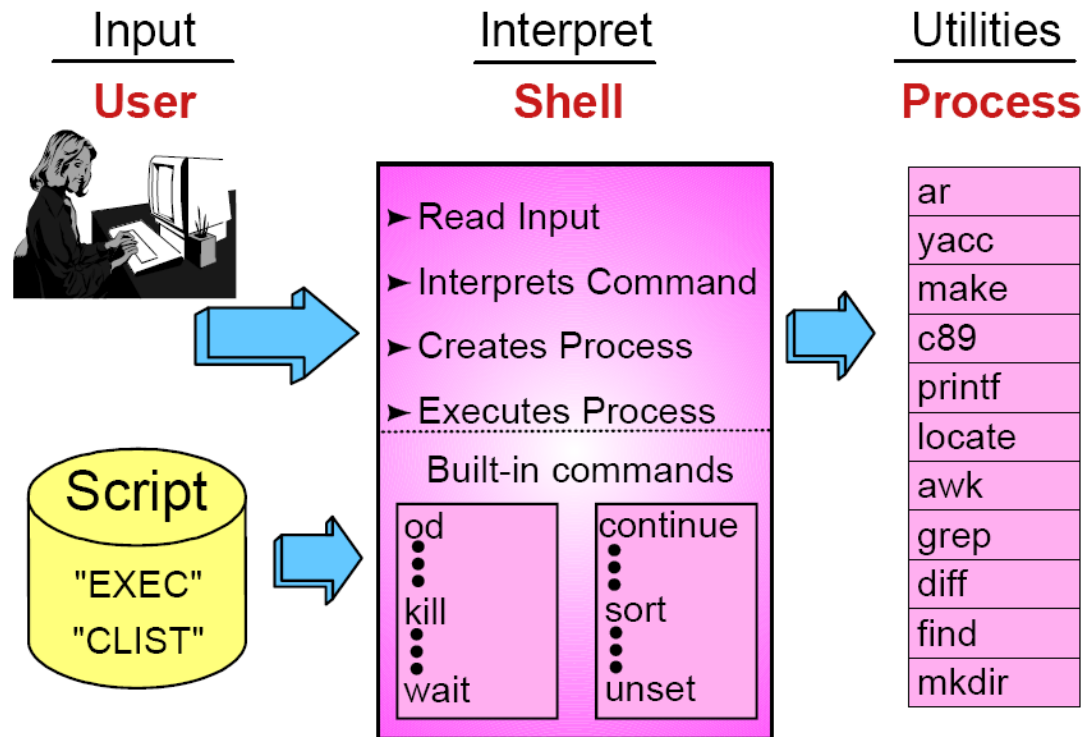


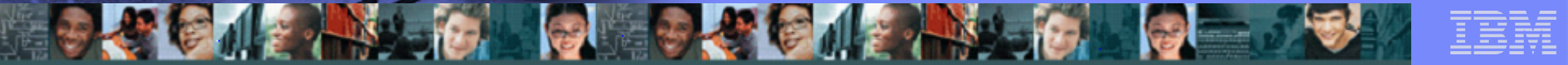


z/OS- Operazioni sui file

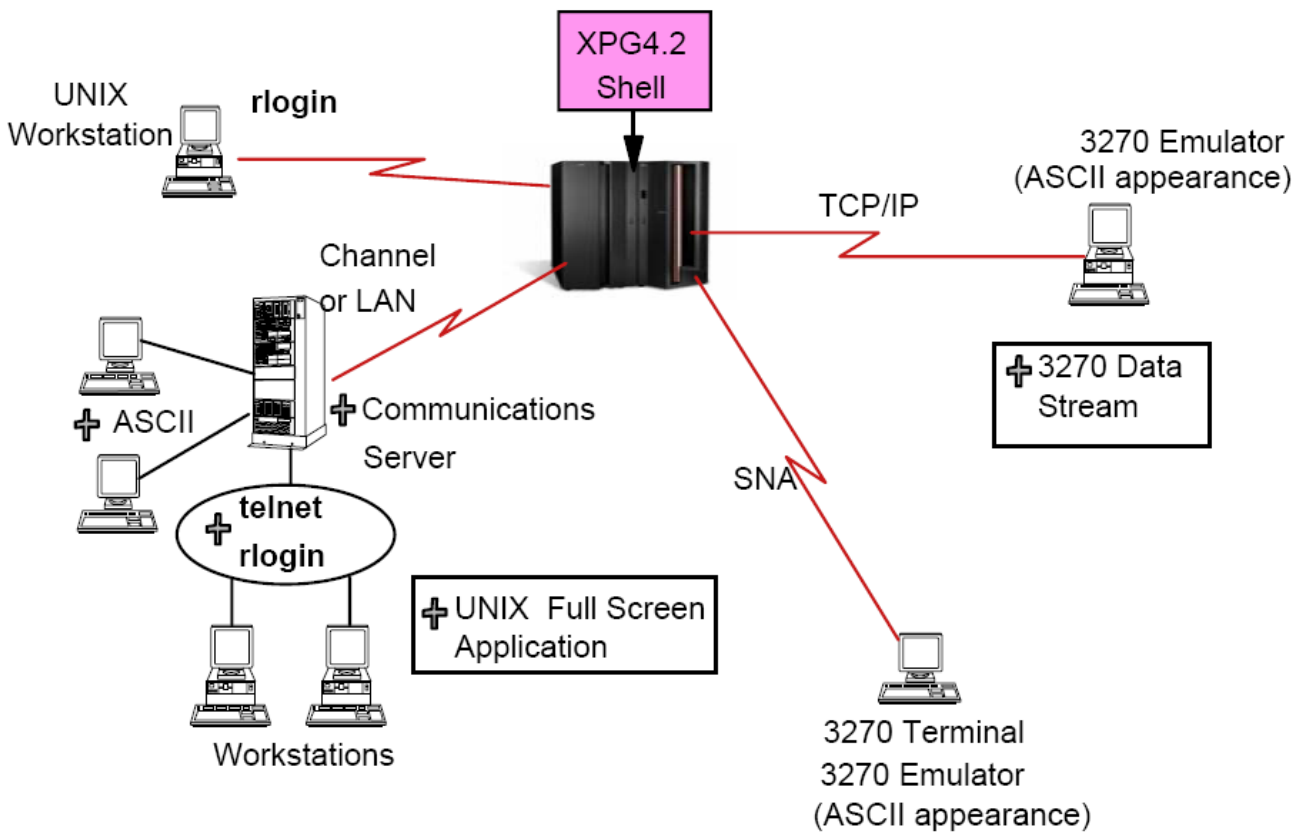


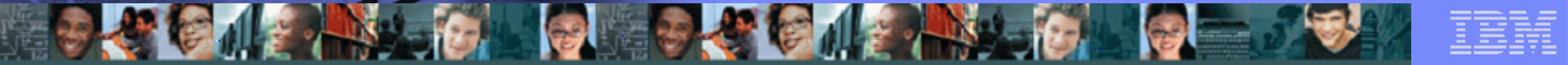
z/OS- Shell



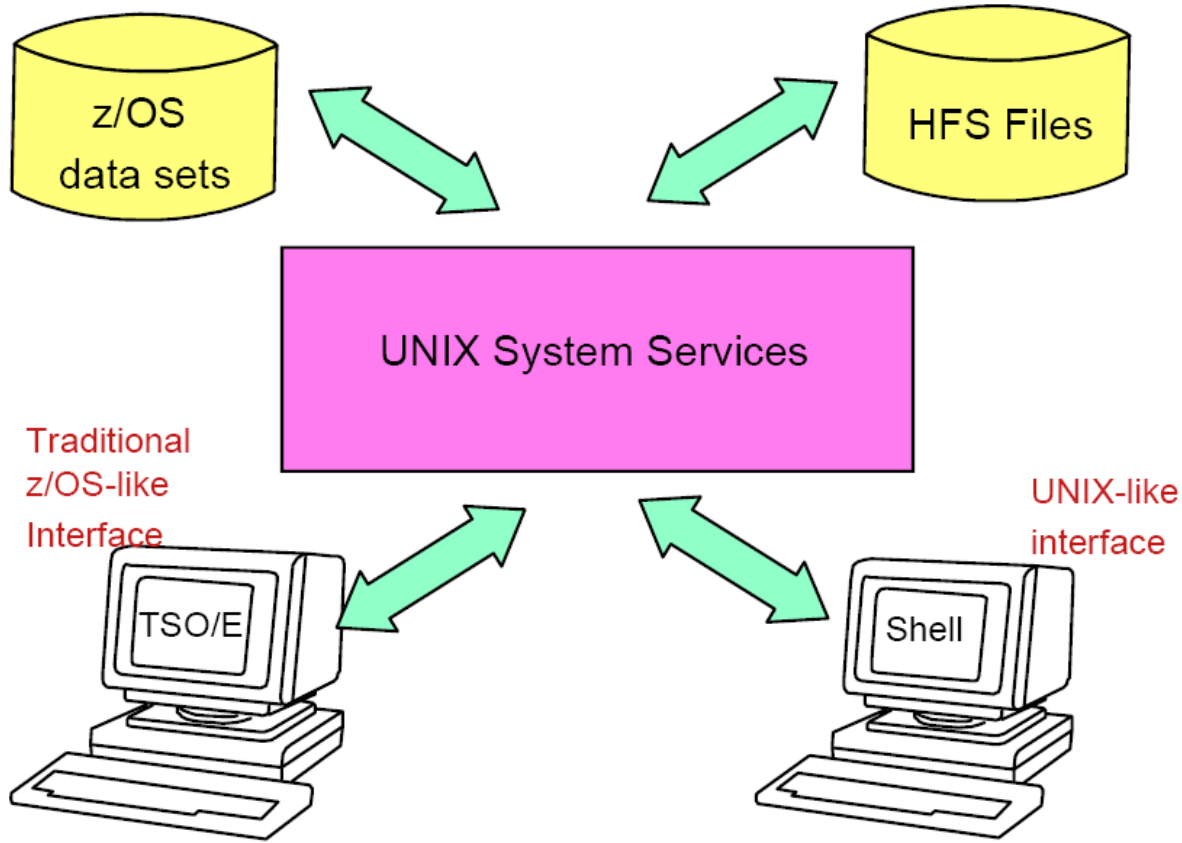


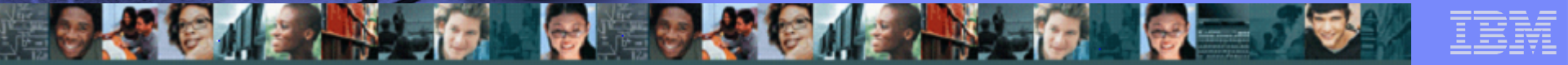
z/OS- Accesso di rete alla shell



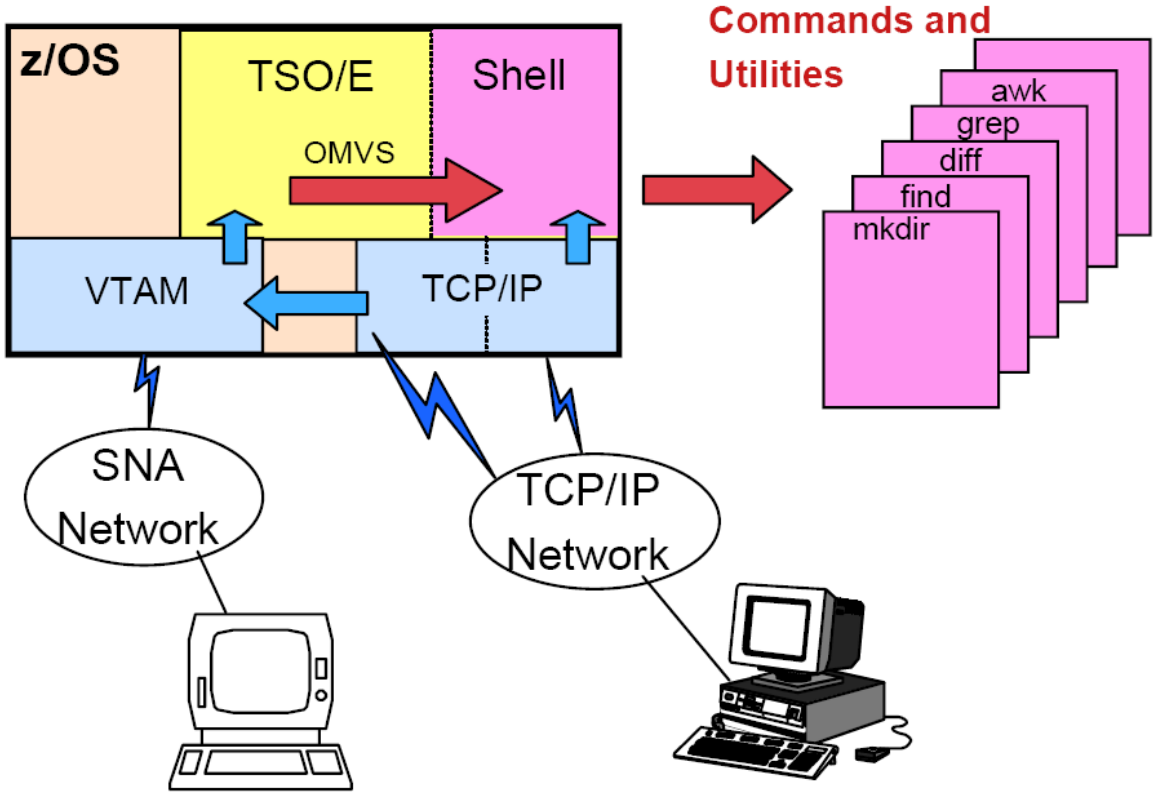


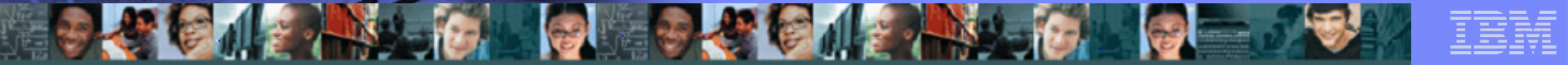
z/OS- II TSO e le Shell



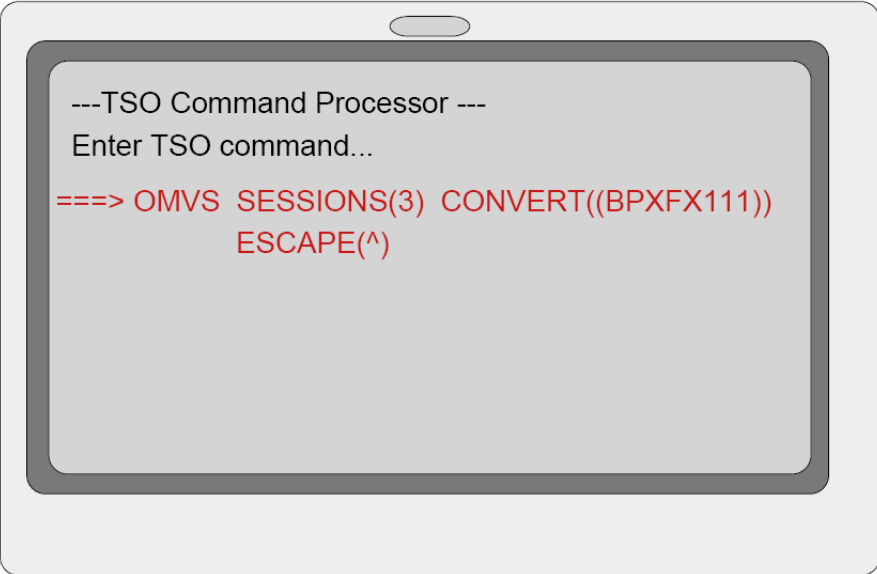


z/OS- Shell e Utilities

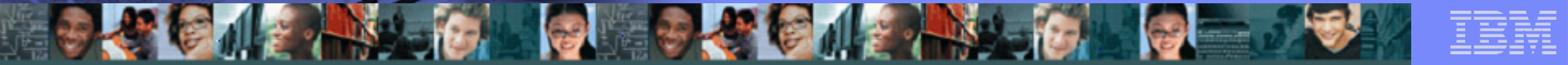




z/OS- il comando OMVS in TSO



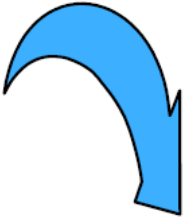
```
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Corp.  
  
IBM is a registered trademark of the IBM Corp.  
  
$  
  
===>  
  
RUNNING <1>  
ESC=^ 1=Help 2=SubCmd 3=HlpRetrn 4=Top 5=Bottom 6=TSO  
7=BackScr 8=Scroll 9=NextSess 10=Refresh 11=FwdRetr 12=Retrieve
```



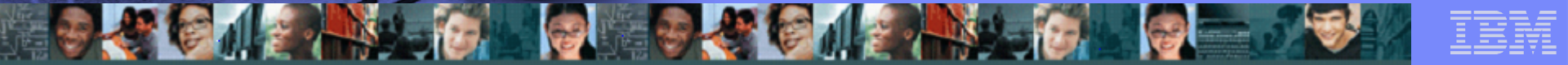
z/OS- Accesso alla shell con il terminale Asincrono

```
$rlogin ZOS1
$rlogin -l jane ZOS1
enter password:

$telnet -t vt220 ZOS1
$telnet -t vt220 -p 623 9.24.104.126
Enter userid:
Enter password:
```



- 1. TCP/IP
login or telnet port
- 2. INETD
fork an address space
- 3. Rlogind or otelnetd
validate user and spawn new process
- 4. Shell



z/OS- Accesso alla shell con il terminale Asincrono

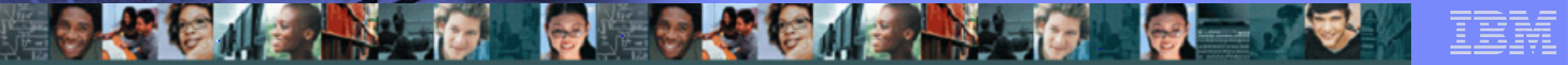
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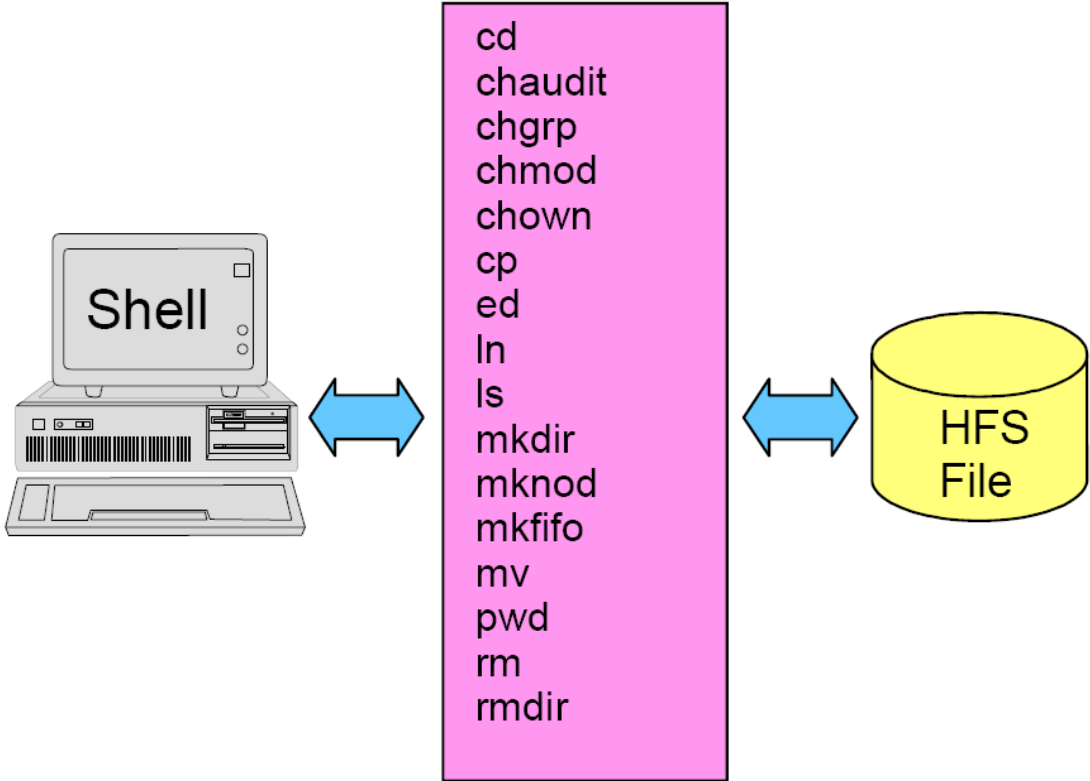
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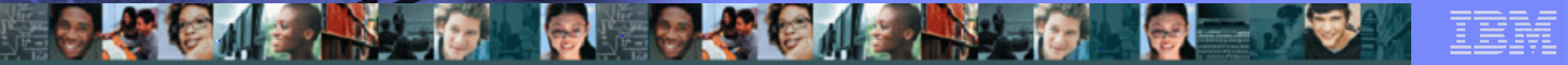
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JANE:/u/jane > _
```



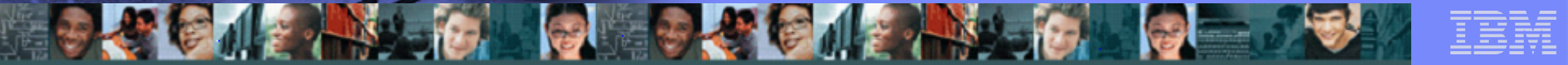
z/OS- Accesso ai dati dalla shell



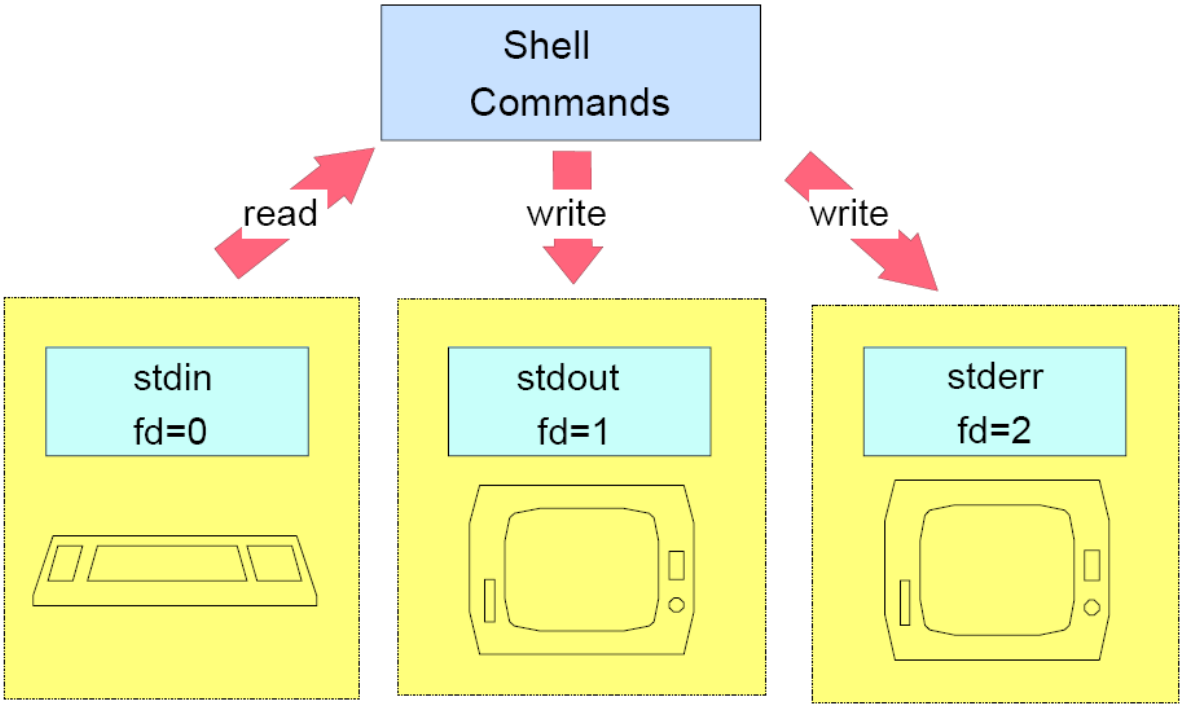


z/OS- Esempio di comando dalla shell

```
$ ls -l /usr/lib
total 237
drwxr-xr-x  2 ELVIS  SYS1      0 Jul 29 20:14 IBM
-rw-r--r--  2 ELVIS  SYS1    5200 Jul 29 20:12 lib.b
-rw-r--r--  2 ELVIS  SYS1  12076 Jul 29 20:12 libl.a
-rw-r--r--  2 ELVIS  SYS1    4706 Jul 29 20:12 liby.a
drwxr-xr-x  5 ELVIS  SYS1      0 Jul 29 19:52 nls
-r-sr-xr-x  2 ELVIS  SYS1  98304 Jul 29 20:08 tsmail
$
```



z/OS- Standard Input ,Output, Error



z/OS- Interfaccia TSO verso Unix Services

```
Menu  Utilities  Compilers  Options  Status  Help
```

```
-----  
ISPF Primary Option Menu
```

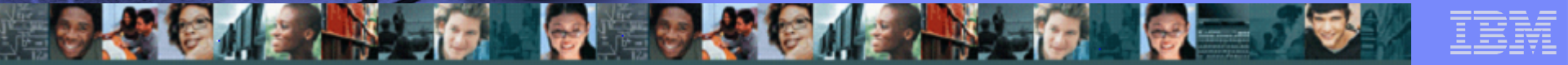
```
Option ==> i
```

```
1 BRWFILE      - BROWSE FILES  
2 EDITFILE     - EDIT FILES  
3 OMVS         - TSO COMMAND OMVS  
4 OHELP        - TSO COMMAND OHELP  
  
I ISH          - OPENMVS ISPF SHELL
```

```
User ID . : USER1  
Time. . . : 17:36  
Terminal. : 3278  
Screen. . : 1  
Language. : ENGLISH  
Appl ID . : ISR  
TSO logon : LOGON  
TSO prefix: USER1  
System ID : SYS1  
MVS acct. : 5820  
Release . : ISPF 4.8
```

```
Enter X to Terminate
```

```
F1=Help      F2=Split      F3=Exit      F7=Backward  F8=Forward   F9=Swap  
F10=Actions  F12=Cancel
```



z/OS- Shell ISPF

```
File Directory Special_file Tools File_systems Options Setup Help
-----
                UNIX System Services ISPF Shell

Enter a pathname and do one of these:

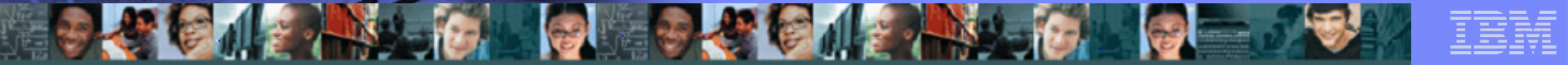
- Press Enter.
- Select an action bar choice.
- Specify an action code or command on the command line.

Return to this panel to work with a different pathname.
                                                    More:      +

/
-----
-----
-----

EUID=21

Command ==> _____
F1=Help      F3=Exit      F5=Retrieve  F6=Keyshelp  F7=Backward  F8=Forward
F10=Actions  F11=Command  F12=Cancel
```



z/OS- ISHELL directory menu

```

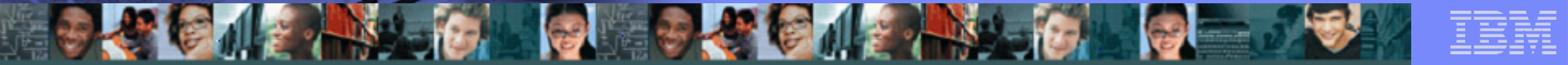
File  Directory  Special_file  Tools  File_systems  Options  Setup  Help
-----
1. List directory(L)...      ISPF Shell
2. New(N) ...
3. Attributes(A)...
4. Delete(D)...
5. Rename(R)...
6. Copy to PDS(C)...
7. Copy from PDS(I)...
8. Print(P)
9. Compare(M)...
10. Find strings(F)...
11. Set working directory(W)
12. File system(U)...

Enter
-
-
-
Retur
/
-
-

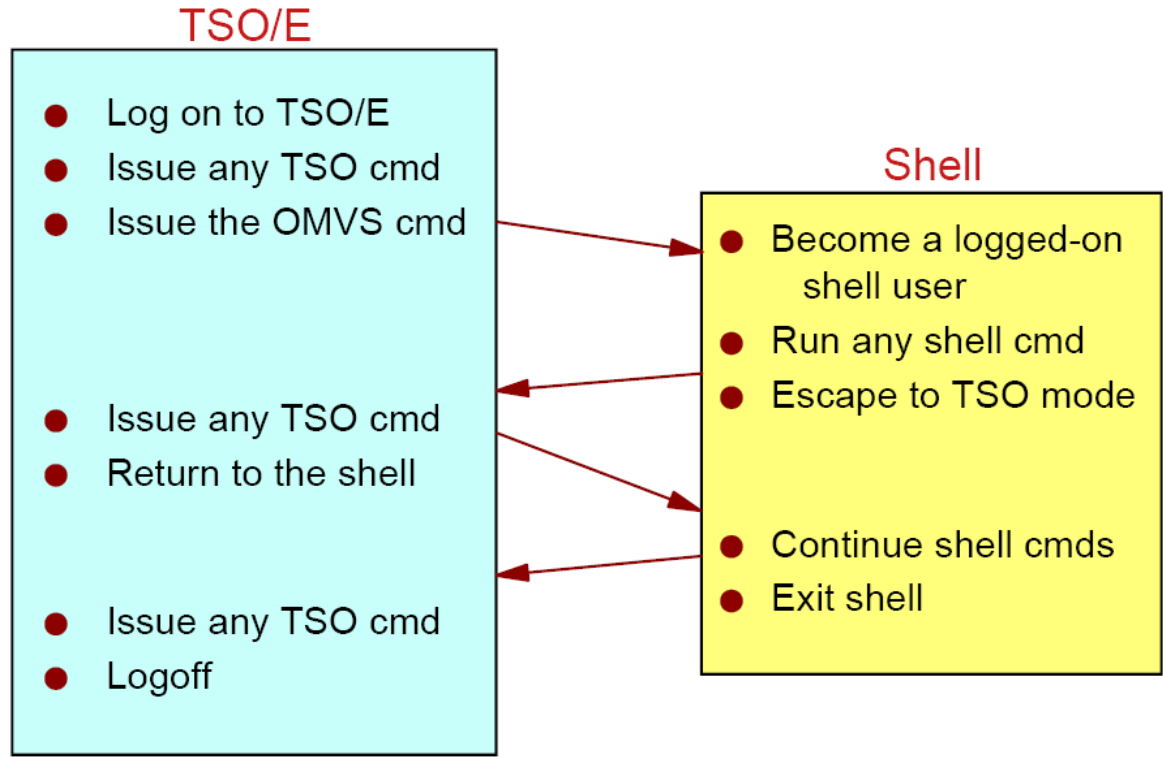
EUID=21

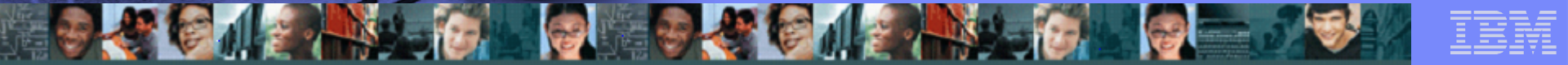
Command ==> _____
F1=Help      F3=Exit      F5=Retrieve  F6=Keyshelp  F7=Backward  F8=Forward
F10=Actions  F11=Command  F12=Cancel

```



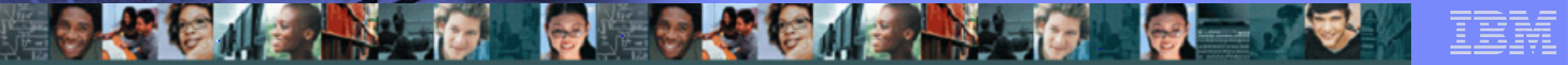
z/OS- Interazione tra TSO e Shell



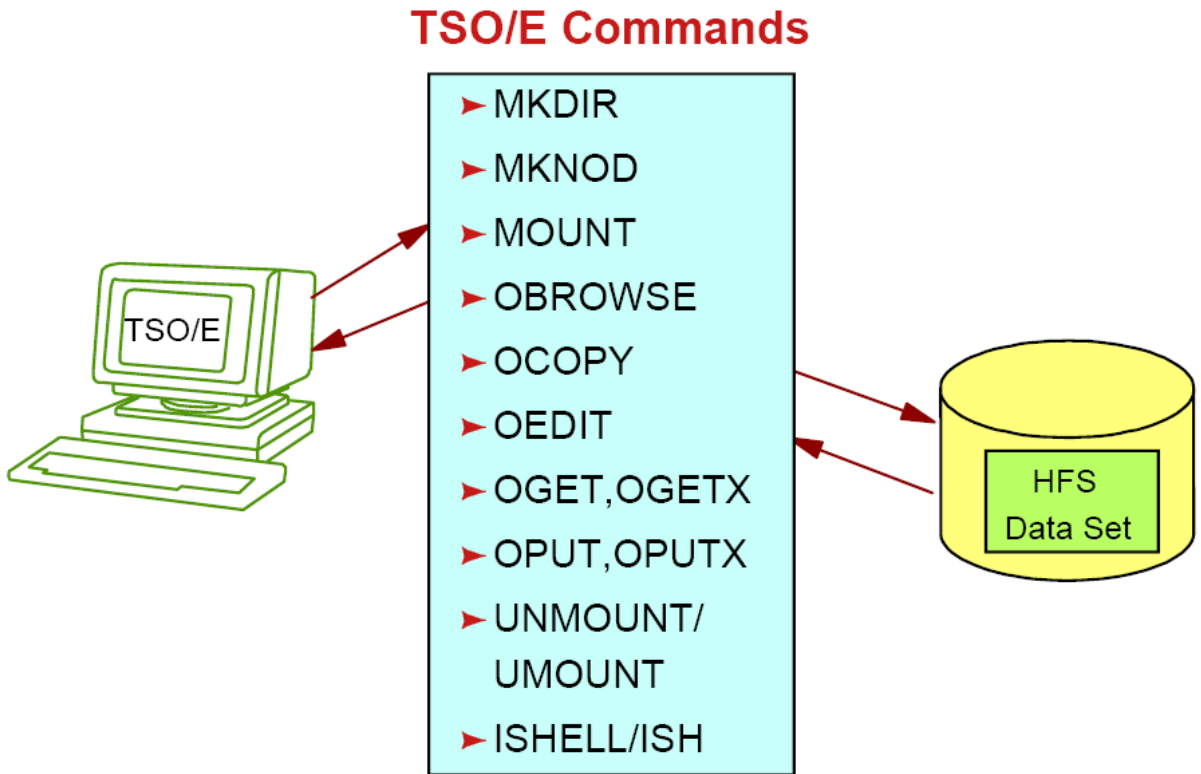


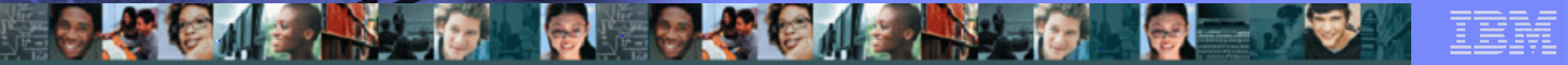
z/OS- Comandi e Utilities

awk	pattern processing language
cat	concatenate
cc	C compiler
cd	change directory
cp	copy
date	show date
diff	difference between two files
find	find
grep	search for pattern
head	print first few lines
kill	send signal
ls	list
mail	send/receive electronic mail
man	show on-line documentation
mkdir	make directory
mv	move
ps	process status
pwd	print working directory
rm	remove
sort	sort
vi	visual screen editor

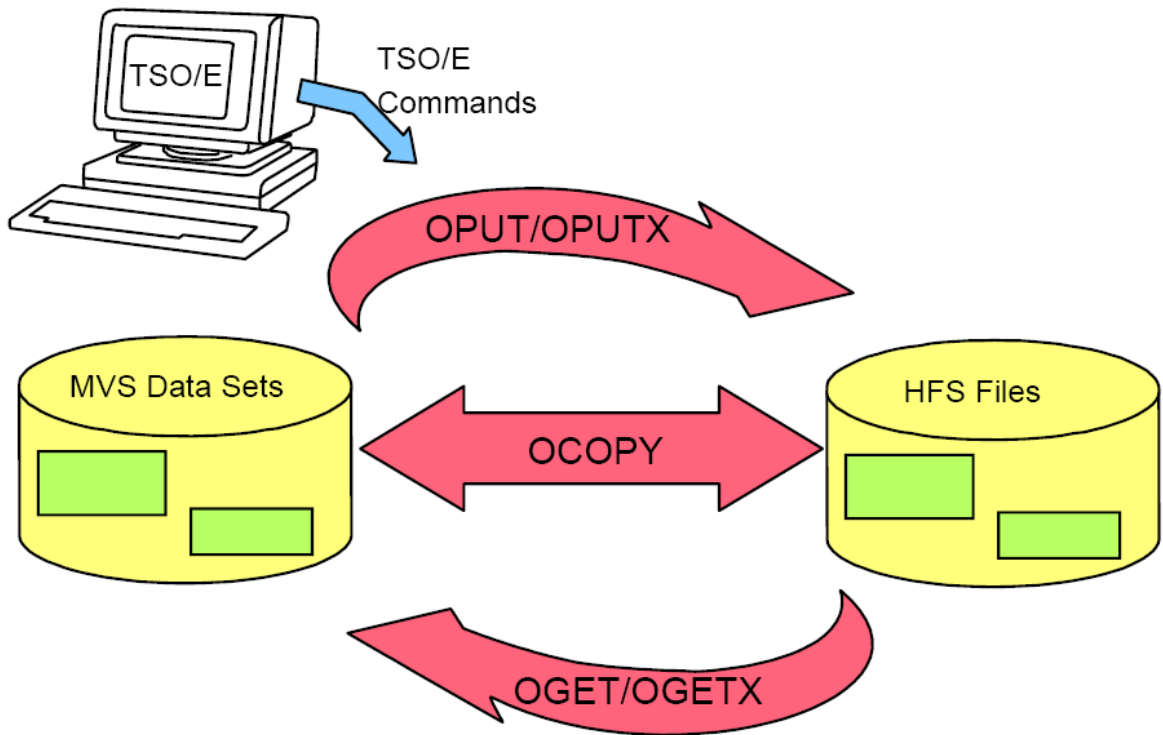


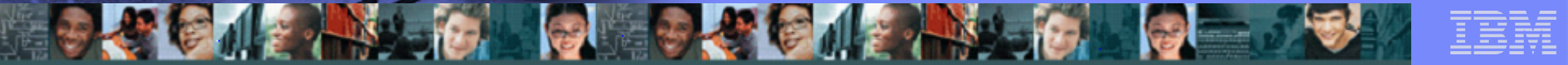
z/OS- Accesso ai files da TSO





z/OS- Copia di un file





z/OS- Supporto delle JCL

DSNTYPE=HFS|PIPE

PATH=pathname

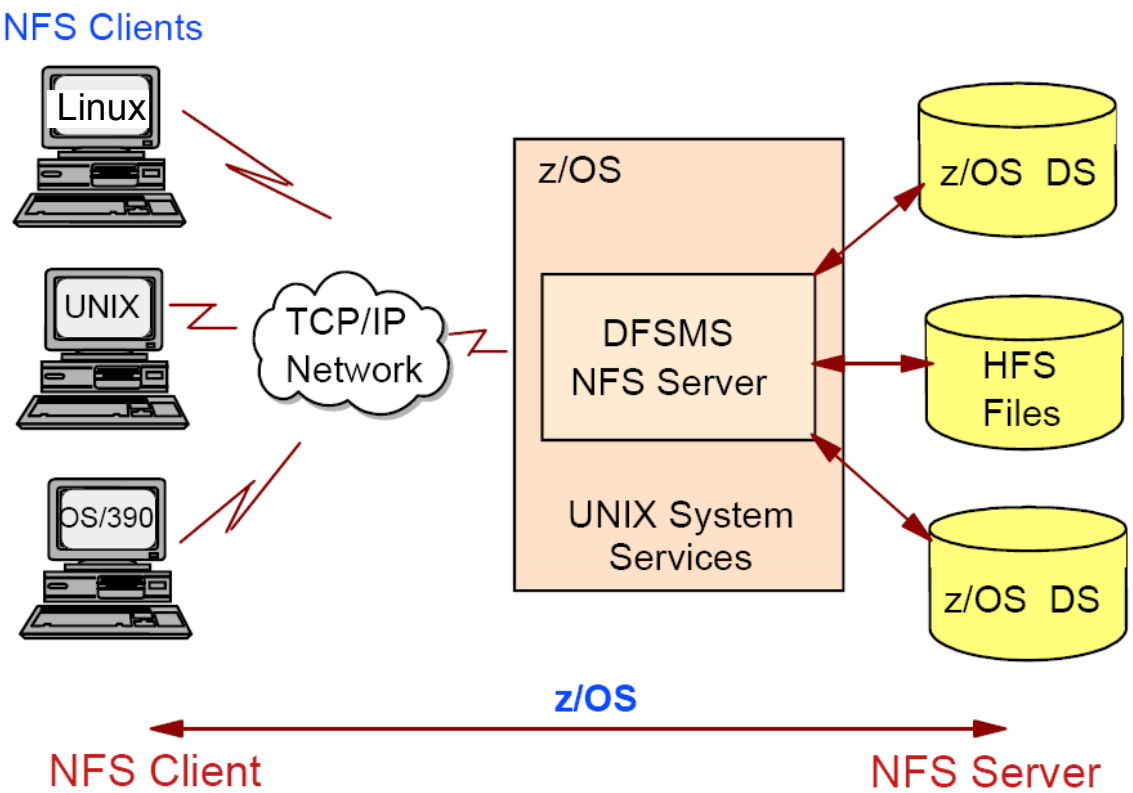
PATHDISP=(normal-termination-disp,abnormal-term-disp)

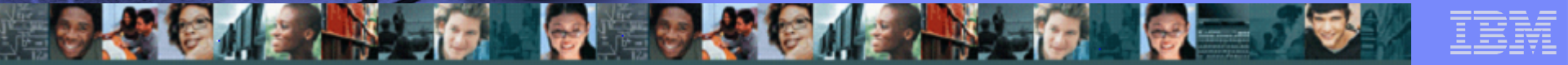
PATHMODE=(file-access-attribute,file-acc-attr, . . .)

PATHOPTS=(file-option,file-option,. . .)

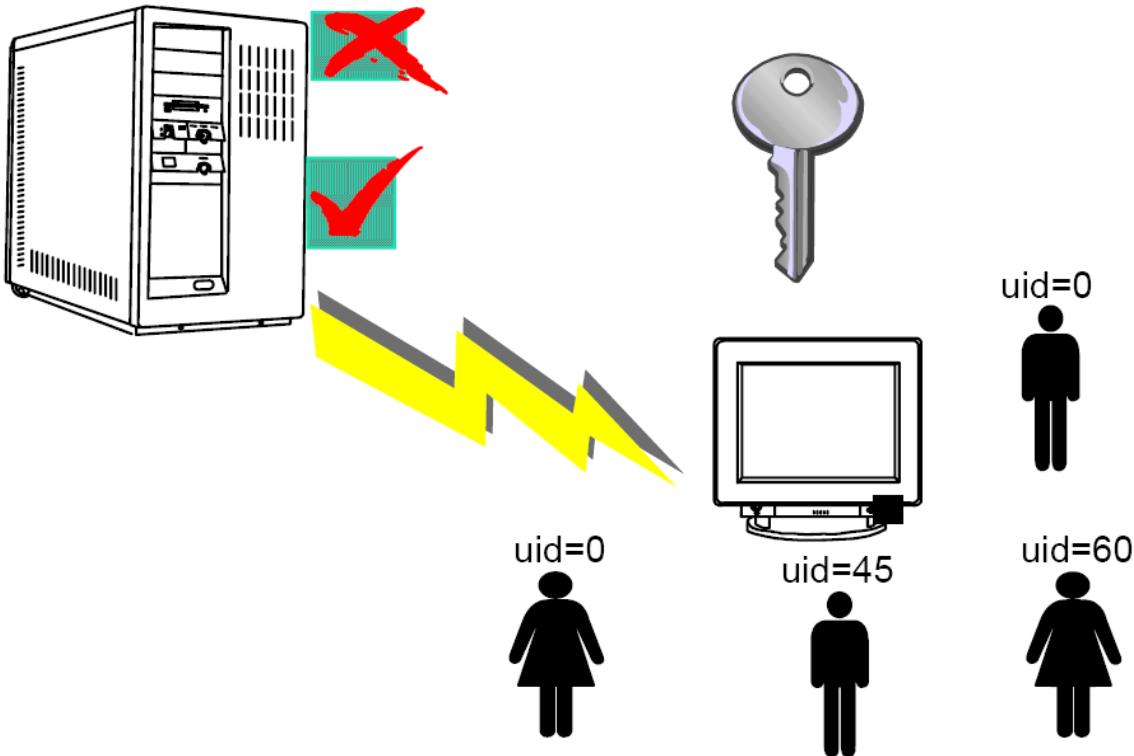
```
//LINK      JOB  (XX,YY,ZZ),MSGCLASS=H,CLASS=A,
//          MSGLEVEL=(1,1)
//LKED     EXEC  PGM=IEWBLINK,
//          PARM='LIST,REUS,RENT,LET,CASE=MIXED'
//SYSPRINT DD  *
//INLIB     DD   DSN=POSIX.LOADLIB,DISP=SHR
/*
//SYSLMOD  DD  PATH='/u/posix/llib',
//          PATHOPTS=(OWONLY,OCREAT,OTRUNC),
//          PATHMODE=(SIRWXU,SIRWXG,SIRWXO)
//SYSLIN   DD  *
//          INCLUDE INLIB(PAYRLI)
//          ENTRY CEESTART
//          NAME payrl1(R)
/*
```

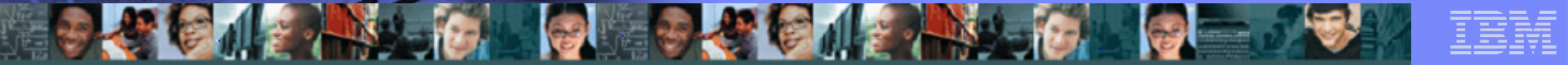
z/OS- Network File System



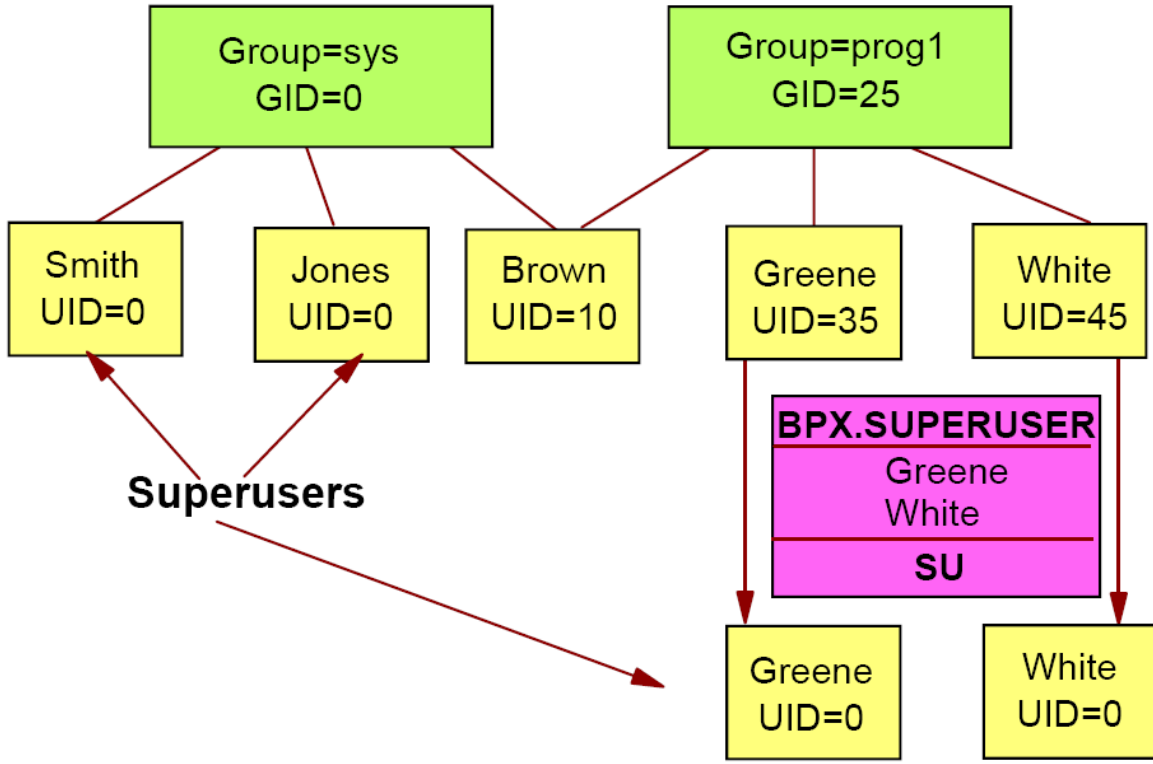


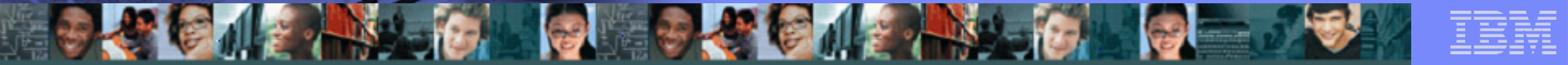
z/OS- Sicurezza



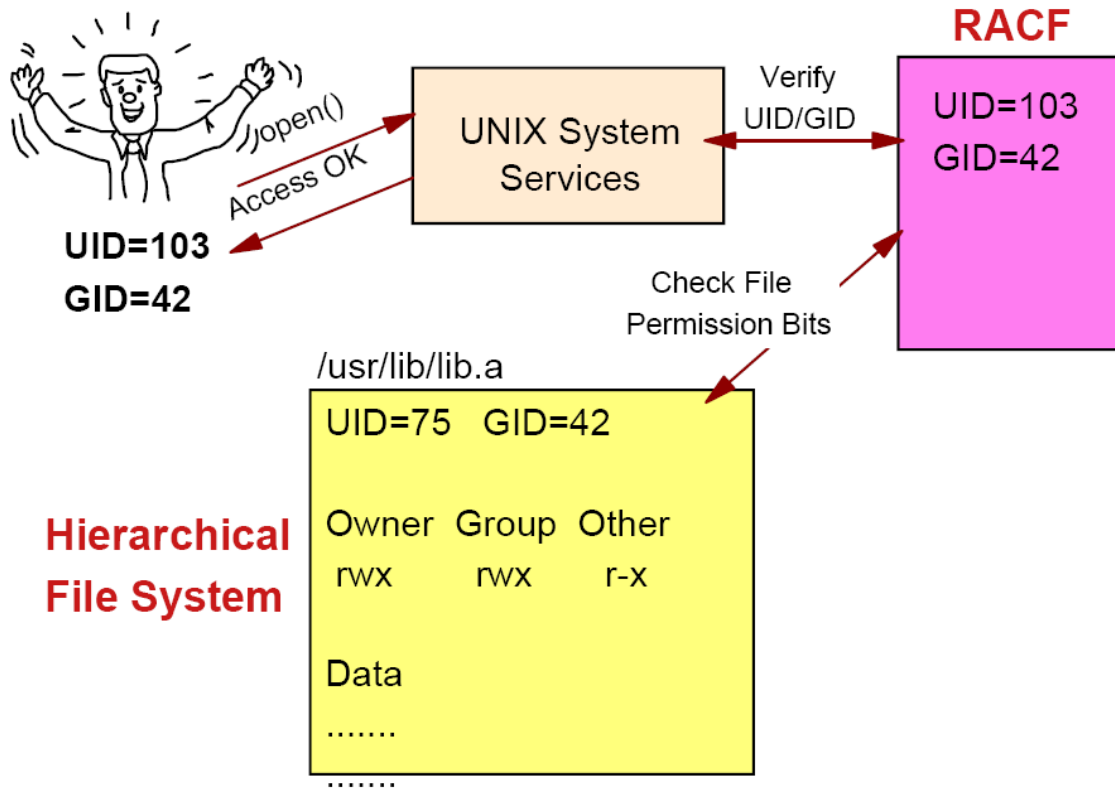


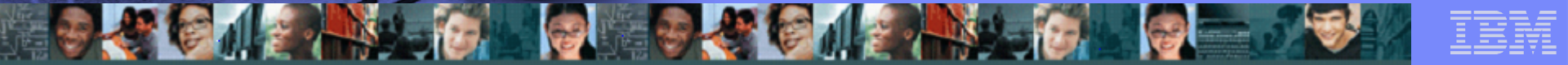
z/OS- Users e Groups





z/OS- Sicurezza dei Files





z/OS- Permission Bits

Files		Directories
read or print contents of file	Read	read (not search) directory
change/add/delete contents of file	Write	change/add/delete entries in directory
execute file	Execute	search a directory

Sistemi Centrali – Modulo 3- Il sistema operativo z/OS – (quarta parte) Unix Services

