

## Unix Grundstruktur

Die Stapelverarbeitung ist ein Sonderfall der interaktiven Verarbeitung. In der Shellsprache werden Batch-Aufträge durch ein nachgestelltes „&“ gekennzeichnet.

## **OS/390 vs. Unix**

### **OS/390**

**mehrere 1000 E/A Operationen / s  
advanced software error recovery  
Unterstützung für dynamische Rekonfiguration**

### **Unix**

**mehrere 100 E/A Operationen / s**

## **OS/390 Unix System Services**

**Gartner: „Industry’s most efficient SMP Environment“.**

# **Unix für die ESA/390 Plattform**

## **1. Native Unix Betriebssysteme für ESA/390**

**Amdahl UTS (Universal Time Sharing System)**  
Marktführer, < 300 Installationen

**Hitachi HI-OSF/1-M**

**IBM AIX/ESA**

## **2. Automated Unix System Option**

für VM und VSE

## **3. OS/390 Unix System Services**

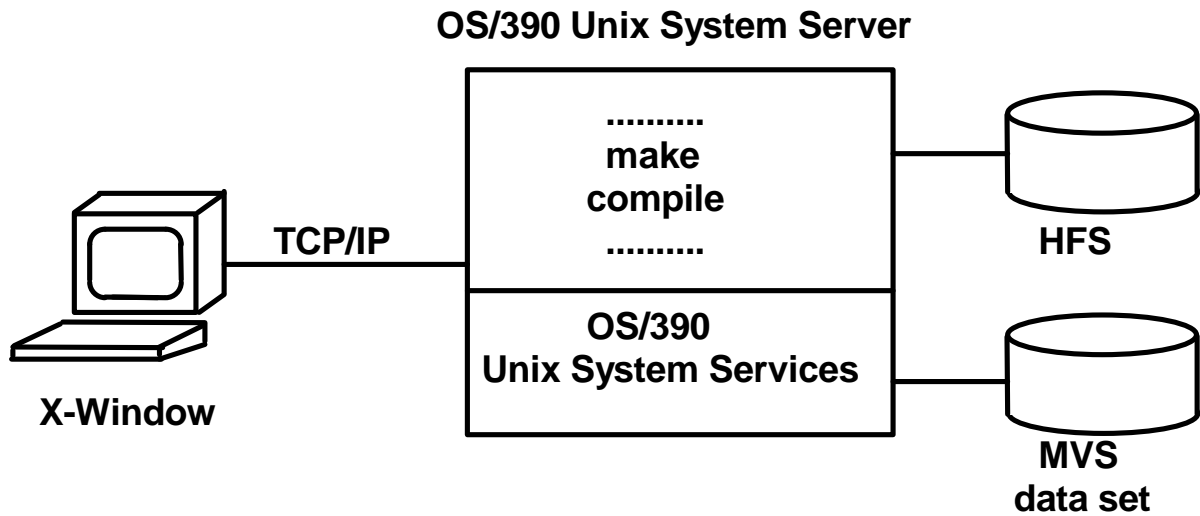
früher als Open Edition MVS bezeichnet

1100 Unix API's

## Process of copying C source code that resides in an RS/6000 AIX directory, called /u/smith/mvsport, to OpenEdition MVS.

```
$ cd /u/smith
$ pwd
/u/smith
$ ls -l
-rwxr----- 1 smith    system    254 Jan  7 15:22 .profile
-rw----- 1 smith    system   2228 Jan  7 15:22 .sh_history
drwxr-xr-x  2 smith    system    512 Jan  7 15:22 mvsport
$ cd mvsport
$ pwd
/u/smith/mvsport
$ ls -l
-rw-r--r--  1 smith    system   3951 Jan  7 15:22 server.c
-rw-r--r--  1 smith    system   1395 Jan  7 15:22 passwd.c
-rw-r--r--  1 smith    system   4968 Jan  7 15:22 users.c
-rw-r--r--  1 smith    system   5147 Jan  7 15:22 sql.c
$ tar -cvf mvsport.tar /u/smith/mvsport
$ ftp cljes2
```

```
Connected to cljes2.itsc.pok.ibm.com.
220-FTPSERVE IBM MVS V3R1 at CLJES2.ITSC.POK.IBM.COM, 14:58:31 on 10/20/95
220 Connection will close if idle for more than 5 minutes.
Name (cljes2:root): wellie2
331 Send password please.
Password:
230 WELLIE2 is logged on.
ftp> site blk=32720 lrecl=80 recfm=fb tracks unit=3390 primary=500
200 Site command was accepted
ftp> binary
200 Representation type is IMAGE.
ftp> put /u/smith/mvsport/mvsport.tar 'wellie2.archive'
200 Port request OK.
125 Storing data set WELLIE2.ARCHIVE
250 Transfer completed successfully.
215040 bytes sent in 8.414 seconds (24.96 Kbytes/s)
ftp>
```



## Compiling with c89

Application source code in HFS files or MVS data sets can be compiled and link-edited from within the shell using the OpenEdition MVS c89 utility. The syntax is:

```
c89 [-options ...] [file.c ...] [file.a ...] [file.o ...] [-l libname]
```

where:

<b>file.c</b>	<b>source file</b>
<b>file.o</b>	<b>object file</b>
<b>file.a</b>	<b>archive file</b>
<b>libname</b>	<b>archive library</b>

Makefiles may be used to maintain OpenEdition MVS application source and object files automatically when updating individual modules. The make utility runs c89.

The X Window API allows to write applications in the OpenEdition MVS environment that can be displayed on X11 servers on a TCP/IP based network. It provides that application with graphics capabilities as defined by the X Window System protocol.

\*

**Process of copying C source code that resides in an RS/6000  
AIX directory, called /u/smith/mvsport,  
to OpenEdition MVS.**

```
+-----+
|
| $ cd /u/smith
|
| $ pwd
|
| /u/smith
|
| $ ls -l
|
| -rwxr-----  1 smith    system      254 Jan  7 15:22
|.profile      |
| -rw-----   1 smith    system      2228 Jan  7 15:22
|.sh_history   |
| drwxr-xr-x   2 smith    system       512 Jan  7 15:22
|mvsport      |
| $ cd mvsport
|
| $ pwd
|
| /u/smith/mvsport
|
| $ ls -l
|
| -rw-r--r--   1 smith    system      3951 Jan  7 15:22
|server.c     |
| -rw-r--r--   1 smith    system      1395 Jan  7 15:22
|passwd.c    |
| -rw-r--r--   1 smith    system      4968 Jan  7 15:22
|users.c     |
| -rw-r--r--   1 smith    system      5147 Jan  7 15:22
|sql.c       |
| $ tar -cvf mvsport.tar /u/smith/mvsport
|
| $ ftp cljes2
|
```

```
| Connected to c1jes2.itsc.pok.ibm.com.
|
| 220-FTPSERVE IBM MVS V3R1 at C1JES2.ITSC.POK.IBM.COM,
14:58:31 on 10/20/95      |
| 220 Connection will close if idle for more than 5
minutes.                  |
| Name (c1jes2:root): wellie2
|
| 331 Send password please.
|
| Password:
|
| 230 WELLIE2 is logged on.
|
| ftp> site blk=32720 lrecl=80 recfm=fb tracks
unit=3390 primary=500    |
| 200 Site command was accepted
|
| ftp> binary
|
| 200 Representation type is IMAGE.
|
| ftp> put /u/smith/mvsport/mvsport.tar
'wellie2.archive'        |
| 200 Port request OK.
|
| 125 Storing data set WELLIE2.ARCHIVE
|
| 250 Transfer completed successfully.
|
| 215040 bytes sent in 8.414 seconds (24.96 Kbytes/s)
|
| ftp>
```

```
+-----+
+-----+
```

# Pitfalls

The C language allows to code the following:

```
char z;  
z = '7' ;  
if (47 < z && z < 58) { /* is numeric */  
    some code here  
}
```

What the code does is to check if the binary representation of z lies in the region between decimal 47 and 58. If you look up an ASCII table you will find that the numbers 0-9 are located at these code points. This code will compile immediately without any error on every machine.

What happens if such a piece of code is ported to the OpenEdition environment and translated to EBCDIC? It will definitely fail. Thoughtful testing is required even if the source code compiles immediately.

The OS/390 C compiler provides services which makes such a piece of code portable across ASCII and EBCDIC platforms

A similar problem occurs because the ASCII characters are stored contiguously in the code table, where the EBCDIC characters are not. The following do-loop runs nicely and makes sense in an ASCII environment.

```
for (i='A';i<='Z';i++) &lrbc. do something here }
```

As the alphabet in an EBCDIC environment is not stored contiguously this piece of code is not directly portable to OpenEdition