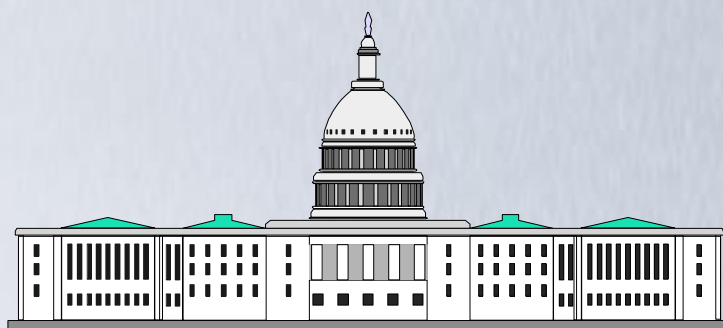


# Session 2875: Replacing 3174s

## IBM 2074-003 Console Support Controller and OSA-ICC Overview and Implementation



**IBM** Washington Systems Center

John Hughes  
Advanced Technical Support  
jjhughes@us.ibm.com  
August 18, 2004

# Trademarks



The following are trademarks of the International Business Machines Corporation in the United States and/or other countries.

e-business logo	MVS
ESCON*	Netfinity*
FICON	OS/390*
IBM*	S/390*
IBM logo*	

\* Registered trademarks of IBM Corporation

## The following are trademarks or registered trademarks of other companies.

Lotus, Notes, and Domino are trademarks or registered trademarks of Lotus Development Corporation

Tivoli is a trademark of Tivoli Systems Inc.

Java and all Java-related trademarks and logos are trademarks of Sun Microsystems, Inc., in the United States and other countries

UNIX is a registered trademark of The Open Group in the United States and other countries.

Microsoft, Windows and Windows NT are registered trademarks of Microsoft Corporation.

SET and Secure Electronic Transaction are trademarks owned by SET Secure Electronic Transaction LLC.

\* All other products may be trademarks or registered trademarks of their respective companies.

## Notes:

Performance is in Internal Throughput Rate (ITR) ratio based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput that any user will experience will vary depending upon considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput improvements equivalent to the performance ratios stated here.

IBM hardware products are manufactured from new parts, or new and serviceable used parts. Regardless, our warranty terms apply.

All customer examples cited or described in this presentation are presented as illustrations of the manner in which some customers have used IBM products and the results they may have achieved. Actual environmental costs and performance characteristics will vary depending on individual customer configurations and conditions.

This publication was produced in the United States. IBM may not offer the products, services or features discussed in this document in other countries, and the information may be subject to change without notice. Consult your local IBM business contact for information on the product or services available in your area.

IBM considers a product "Year 2000 ready" if the product, when used in accordance with its associated documentation, is capable of correctly processing, providing and/or receiving date data within and between the 20th and 21st centuries, provided that all products (for example, hardware, software and firmware) used with the product properly exchange accurate date data with it. Any statements concerning the Year 2000 readiness of any IBM products contained in this presentation are Year 2000 Readiness Disclosures, subject to the Year 2000 Information and Readiness Disclosure Act of 1998.

All statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

Information about non-IBM products is obtained from the manufacturers of those products or their published announcements. IBM has not tested those products and cannot confirm the performance, compatibility, or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

# IBM Mainframe Console Alternatives

- IBM 2074 Console Support Controller
  - To IPL CECs and LPARs, and operating system console operations
    - z/OS, z/OS.e, OS/390 (back to MVS/XA), z/VM, VM/ESA, VSE/ESA, TPF
    - zSeries, S/390, Multiprise® 3000
    - No parallel channel on z800 and z990, therefore no 3174 without ESCON converter
- IBM OSA-ICC for z990 and z890
  - To IPL LPARs, and operating system console operations
  - z/OS 1.3, z/OS.e, z/VM 4.4, VSE/ESA V2.6, TPF V4.1
- HMC Integrated 3270 Console
  - To IPL and operate z/VM 4.4 LPARs only
  - HMC supports a single 3270 console session on each of multiple LPARs
  - Can switch a session between HMCs
  - IBM @server zSeries 800, 900, 990, S/390 (G5/G6)
  - Designed for dedicated z/VM LPARs or z/VM machine with Linux guest traffic
- HMC Integrated ASCII Console
  - To IPL and operate native Linux LPARs only
  - HMC supports a single console session on each of multiple LPARs
  - Can switch a session between HMCs
  - ASCII to ASCII .. VT220 via /dev/ttyS1 logical device
  - zSeries 800, 900, 990, S/390 (G5/G6)
  - Designed for dedicated Linux machines (e.g. z800 Linux only machine)

# ***Overview: 2074***

# IBM 2074 Models



Type/Model	Announced	Withdrawn	Maximum Sessions per ESCON Adapter	Total Maximum Sessions
2074-001	8/22/2000	6/30/2002	16	32
2074-002	2/26/2002	12/09/2003	32	64
2074-003	10/21/2003	N/A	48	96

## Notes:

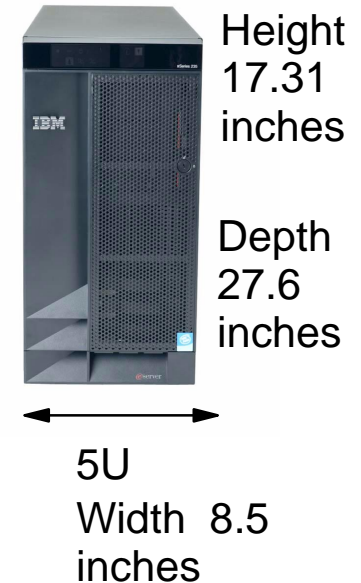
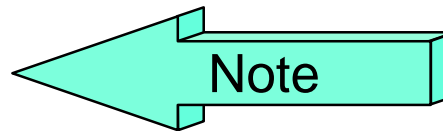
- There are no upgrades offered between models
- The Model 001 and Model 002 are rack mount units (3U)
- The Model 003 is a tower model
  - Rack Mounting Kit available at initial order time

# IBM 2074 Model 3 Facts and Functions

- Console controller for IBM @server<sup>®</sup> zSeries<sup>®</sup> and S/390<sup>®</sup> servers
  - System Console (IPL) and operations support for multiple CECs and LPARs
  - Console use can include
    - z/OS<sup>®</sup>, z/OS.e, OS/390<sup>®</sup>, MVS<sup>™</sup>, z/VM<sup>®</sup>, VM/ESA<sup>®</sup>, VM, VSE/ESA<sup>™</sup>, TPF
    - TSO for systems programmers
- One IBM 2074-003 Console Support Controller
  - Can connect up to ninety-six (96) TN3270E client console sessions
  - Shared control unit for simultaneous access to multiple CECs and LPARs via MIF
  - Can support console sessions in different CECs and LPARs, and on different channels
  - Supports TN3270E sessions instead of coax attached 3270 terminals
- Local and remote console capability
- Can coexist in configurations using prior 2074 models, OSA-ICCs, and older 3174 controllers
- Optical Media Attach (OMA) support for loading z/VM install and service CDs

# IBM 2074-003 Specifications

- Shipped as floor standing "rackable" tower
  - Optional Racking Unit (FC 7420) conversion kit orderable at time of manufacture and will be installed by IBM at customer location
  - 19 inch rack mount ... requires 5U
- ESCON adapter(s)
  - One integrated ESCON (maximum 48 sessions)
  - Optional second ESCON feature (additional 48 sessions for total maximum of 96 sessions)
  - **New MTRJ ESCON connector**
- LAN Connections
  - Two integrated, autosensing 10/100 megabits per second Ethernet adapters
  - Two integrated, autosensing 4/16 megabits per second Token-Ring adapters
  - Not an orderable or changeable configuration
- Features for keyboard/display
  - New 17-inch display and keyboard use less space
- No coaxial cable support
- CD-ROM support for OMA distribution media
- Closed operating system loaded on hard drive, shipped on CD-ROM
- Configuration utility included



# IBM 2074-003 Security Considerations

- Physical
  - CD-ROM pre-loaded on 2074 hard drive
  - No operating system dependencies
  - No user code
  - Use locally attached display/keyboard to configure the 2074
- Network
  - Isolate 2074 LANs and consoles from general backbone traffic
    - Place consoles on separate subnet directly connected to 2074s
    - Recommendation to use dedicated LAN(s) for client workstation access
  - Remote access capability from a configured TN3270E Client. Customer is responsible to provide secure network connection, for instance
    - Virtual Private Network (VPN)
    - Virtual LAN (VLAN)
- Access Control flexibility
  - Can use a specific LU name or IP address to connect a session
  - Does not provide local or remote access connection checking



# ***Overview: OSA-ICC***

# OSA Integrated Console Controller Specifications

- **Function of new or installed OSA-Express 1000BASE-T Ethernet**
  - ▶ Up to 120 console sessions per port
  - ▶ Port operation defined with new CHPID type = OSC
    - OSC is mutually exclusive with QDIO (OSD) or non-QDIO (OSE) CHPID on port
  - ▶ One or both ports can be individually configured for Integrated Console Controller
    - No automatic load balancing among ports
  - ▶ Spanned channels allows port(s) sharing among z990 and z890 LCSS and LPARs
- **LAN Connections**
  - ▶ LAN attached consoles running TN3270E clients
    - Non-SNA DFT data streams to TN3270
  - ▶ Capable of operating at 10 Mbps, 100 Mbps, or 1000 Mbps (1 Gbps)
  - ▶ Uses RJ-45 connection to category 5 Unshielded Twisted Pair (UTP) copper cabling
- **No Token-Ring**
- **No coaxial cable support**
- **Configuration support provided via Support Element and Hardware Management Console**
- **Supported environments**
  - ▶ z990 and z890 at May 2004 LIC level (Driver Level 55)
  - ▶ OSA-Express 1000BASE-T Ethernet (FC 1366)
  - ▶ Minimum z/OS 1.3, z/OS.e 1.3, z/VM 4.4, VSE/ESA 2.6, TPF V4R1

# OSA Integrated Console Controller Management



- Use standard channel install for new chipid
- Use Support Element (SE) or Hardware Management Console (HMC) for configuration, operation and diagnosis
  - ▶ Uses base SE and HMC security for access control and remote connection
  - ▶ Configuration changes/additions and Diagnosis
    - SE for IOPD, Advanced Facilities, etc
    - HMC via Single Object Operations .. mirror SE screens on HMC
      - ◆ Use systems programmer mode
      - ◆ Remote access supported
      - ◆ Advanced Facilities via HMC
        - ★ Access to all OSC, OSD and OSE channels

# OSA Integrated Console Controller Security Considerations



- Physical
  - ▶ Function provided in OSA-Express 1000BASE-T Ethernet Licensed Internal Code
  - ▶ OSA-Express plugged into z990 or z890 I/O cage
  - ▶ No user code
  - ▶ Use locally attached Support Element (SE) or Hardware Management Console (HMC) session to configure the port
- Network
  - ▶ Should isolate consoles from general backbone traffic
  - ▶ Place consoles on separate subnet(s) directly connected to OSA-Express port(s)
  - ▶ Recommendation to use dedicated LAN(s) for client workstation access
  - ▶ Remote user session access capability from a configured TN3270E client would require user-provided secure network session tunnel
  - ▶ HMC environment can provide secure features for network connection for operation, configuration, diagnosis
- Access Control flexibility
  - ▶ Can use a specific LU name or IP address to connect a session
  - ▶ Does not provide local or remote access connection checking

# OSA Integrated Console Controller vs. IBM 2074 Console Support Controller



	OSA Integrated Console Controller function	IBM 2074 Console Support Controller
<b>Hardware</b>		
# mainframe connections per feature or product	120 per OSA-Express 1000BASE-T Ethernet port. Each 100BASE-T port separately definable for console controller support	min 1 ESCON <sup>®</sup> / max 2 ESCON
# CHPIDs req'd per controller function	One per controller defined port. If you use both OSA-Express 1000BASE-T ports, than two CHPIDs are required	each ESCON ties to path. 2074 can contain 2 ESCONs maximum
CHPID type	OSA	standalone controller, connects via ESCON adapter
multiple CEC attach	no. OSA-Express is inserted into I/O cage of z990. A console can be shared by using same LAN across multiple CECs	yes, via dual ESCON, or ESCON director or FICON <sup>™</sup> bridge, or common LAN among CECs
supports spanned channels	yes, supports spanned channels over multiple LCSS	No spanning support on ESCON channels
10/100/1000 BASE-T copper	10/100/1000, yes	10/100 support
Ethernet frame types	manually configure, DIX and 802.3	DIX and 802.3
auto-negotiate speed on LAN	yes for 10/100; 1000 is config only	yes for 10/100
supported servers	z990, z890, and later	zSeries, S/390 <sup>®</sup> , Multiprise <sup>®</sup> 3000
mainframe connection	one LAN per OSA-Express 1000BASE-T port	up to two ESCONs, two Ethernet, two Token-Ring LANs
Number of console sessions	120 per each configured 1000BASE-T Ethernet port	Model dependent: M3: 48 or 96, M2: 32 or 64, M1: 16 or 32
hot swap feature?	yes if OSA-Express predefined, disruptive to sessions	NA. Use separate controller, disruptive to sessions
<b>Software</b>		
local 3270 sessions for device control	no, use SE or HMC	yes, maximum 2
Supported Operating systems	z/OS, z/OS.e, z/VM, TPF, VSE/ESA	z/OS, z/OS.e, OS/390 <sup>®</sup> , VSE/ESA, VMESA <sup>®</sup> , z/VM, TPF
multi-path session redundancy support?	no	no
printer support	yes, Emulator supported client attached printer	yes, Emulator supported client attached printer
TN3270E session support	TN3270E RFC 2355 compliant emulator	TN3270E only
LAN support	1 Ethernet per port	2 Ethernet and 2 token-ring per 2074
remote user session support	yes via standard TCP/IP flows. No integrated transport security	yes via standard TCP/IP flows. No integrated transport security
Access control	LUNAME, IP address	LUNAME, IP address

# OSA Integrated Console Controller vs. IBM 2074 Console Support Controller (continued)



	OSA Integrated Console function (OSA-ICC)	IBM 2074 Console Support Controller
<b>Packaging</b>		
separate feature or product	1 or 2 port(s) can be configured on OSA-Express 1000BASE-T Ethernet feature	standalone box..rack mounted, or floor standing depending on model
pricing	OSA-Express 1000BASE-T . Software included as part of OSA-Express Licensed Internal Code	IBM 2074, with optional priced second ESCON. Operating software included on machine
<b>Management</b>		
ping to session	yes via SE and HMC panel	no
trace route	yes via SE and HMC panel	yes, different trace type, CE only
SNMP support	no	no
Debugging client sessions	yes, use SE or HMC panels	2 local sessions only
<b>Configuration</b>		
user interface	SE (for initial config), SE or HMC panels and/or ASCII file thereafter	utility GUI, no batch file
backup configurations	can be imported/exported to floppy disk. Limited to size of disk	yes up to 4
reconfiguration	yes if OSA-Express pre-defined, disruptive to session(s)	yes, disruptive
remote configuration support	SE (for initial config), SE or HMC panels for remote support thereafter	no, must be local to 2074

# *Operations*

# What does the operator see?

```
A - USER0.WS
File Edit Transfer Appearance Communication Assist Window Help

COMPLETED
- 14.05.19 TSU00853 $HASP373 MCDON   STARTED
- 14.08.15 TSU00853 JOBNAME  PROCSTEP STEPNAME  CPU TIME      EXCPS      RC
- 14.08.15 TSU00853 MCDON    IKJACCNT IKJACCNT    00:00:00      1,113      00
- 14.08.15 TSU00853 $HASP395 MCDON    ENDED
14.08.33 STC00836 IST169I DISCONNECTION CAUSED VARY INACT FOR PU =
CNR00003
14.08.33 STC00836 IST105I CNR00003 NODE NOW INACTIVE
14.08.33 STC00836 IST871I RESOURCE CNR00003 DELETED
14.12.34 IEE936I CONSOLE MVS2@E66 INITIALIZATION ERROR -
SEG(10) APPLIED
- 14.32.50 STC00848 JOBNAME  PROCSTEP STEPNAME  CPU TIME      EXCPS      RC
- 14.32.50 STC00848 BPXAS    --NONE--      00:00:00      0          **
- 14.32.50 STC00848 $HASP395 BPXAS    ENDED
- 15.57.16 d a
15.57.16 IEE114I 15.57.16 2000.266 ACTIVITY 460 C
JOBS      M/S      TS USERS  SYSAS    INITS    ACTIVE/MAX VTAM  OAS
00000    00007    00000    00024    00010    00000/00030     00001
16.05.41 STC00836 IST1488I ACTIVATION FOR RTP CNR00004 AS ACTIVE PARTNER
COMPLETED
- 16.05.47 TSU00854 $HASP373 BOOS    STARTED
- 16.44.03 TSU00854 JOBNAME  PROCSTEP STEPNAME  CPU TIME      EXCPS      RC
- 16.44.03 TSU00854 BOOS     IKJACCNT IKJACCNT    00:00:04      4,128      00
- 16.44.03 TSU00854 $HASP395 BOOS    ENDED
00 16.44.21 STC00836 IST169I DISCONNECTION CAUSED VARY INACT FOR PU =
CNR00004
16.44.21 STC00836 IST105I CNR00004 NODE NOW INACTIVE
16.44.21 STC00836 IST871I RESOURCE CNR00004 DELETED
IEE612I CN=MVS2@E60 DEVNUM=0E60 SYS=MVS2

-
IEE163I MODE= R
Mâ a
```



# *Cables*

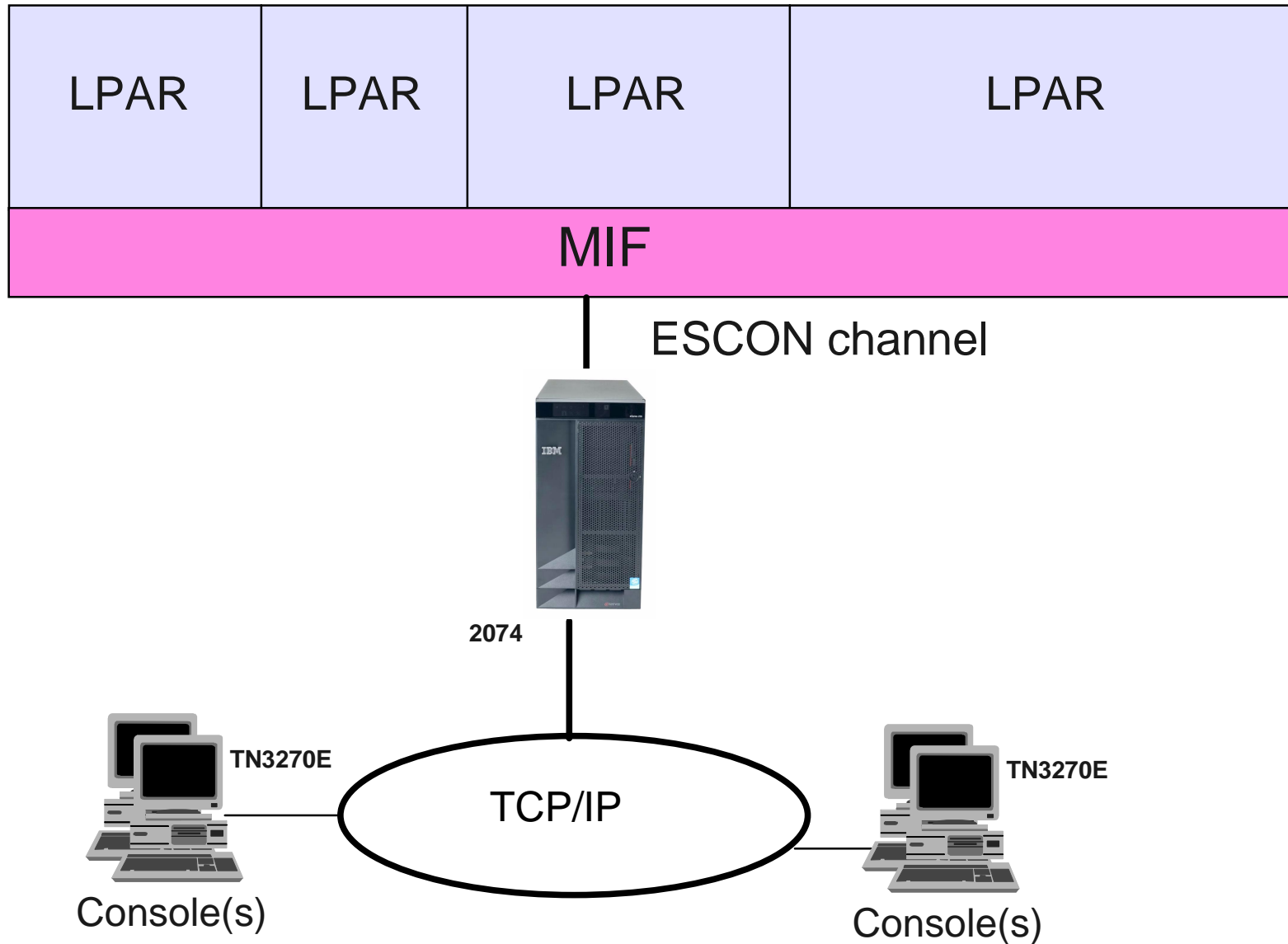
# Cables...



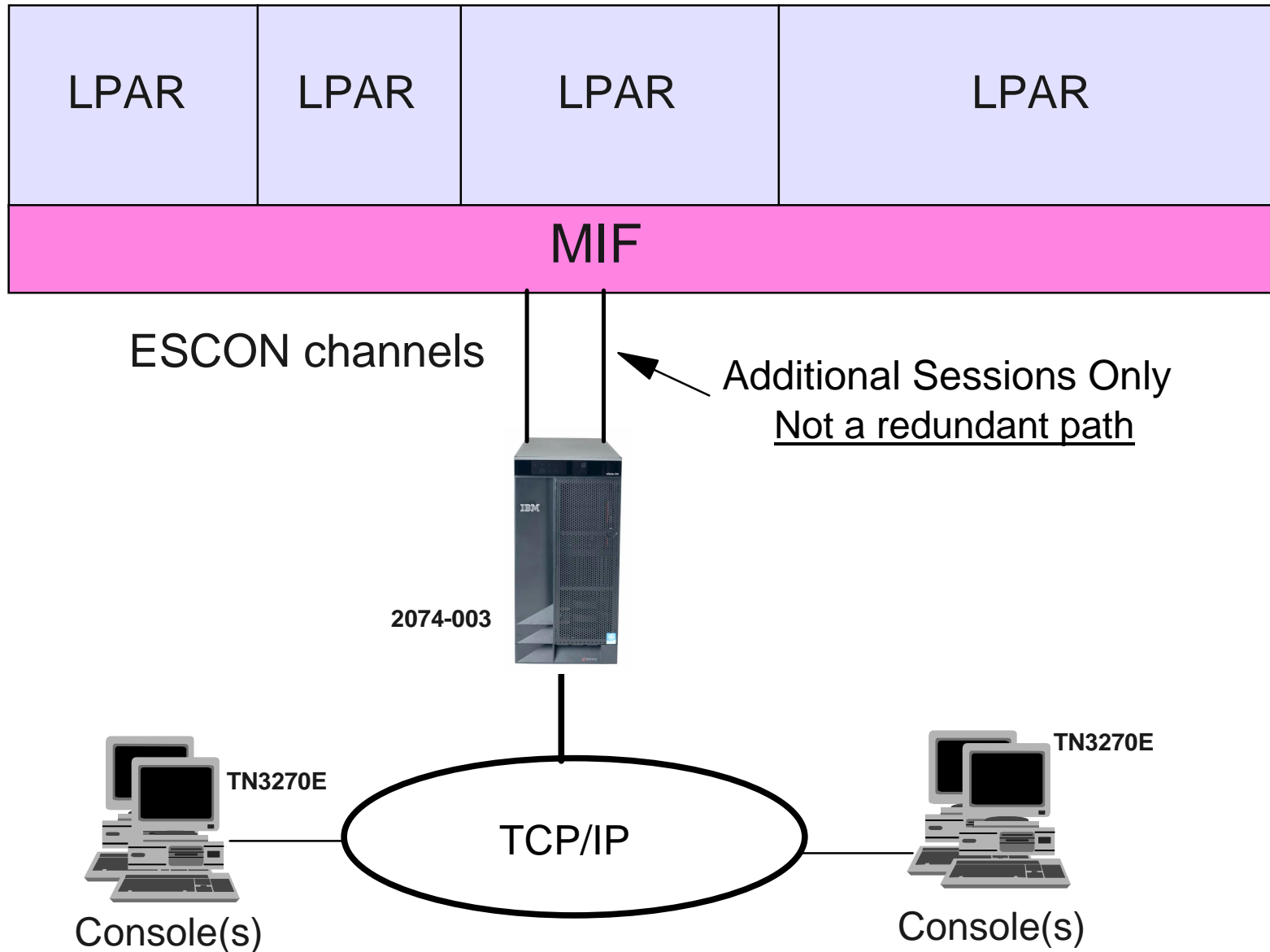
- All cables must be provided by customer
- 2074
  - LAN Cables
    - Token Ring-9-Pin D-Shell or RJ45
    - Ethernet-RJ45
  - ESCON Cable(s)
    - ESCON cable with MTRJ connector
    - One for each ESCON adapter ordered (standard + optional)
- OSA-ICC
  - LAN Cables
    - Ethernet RJ45

# ***Configuration Options***

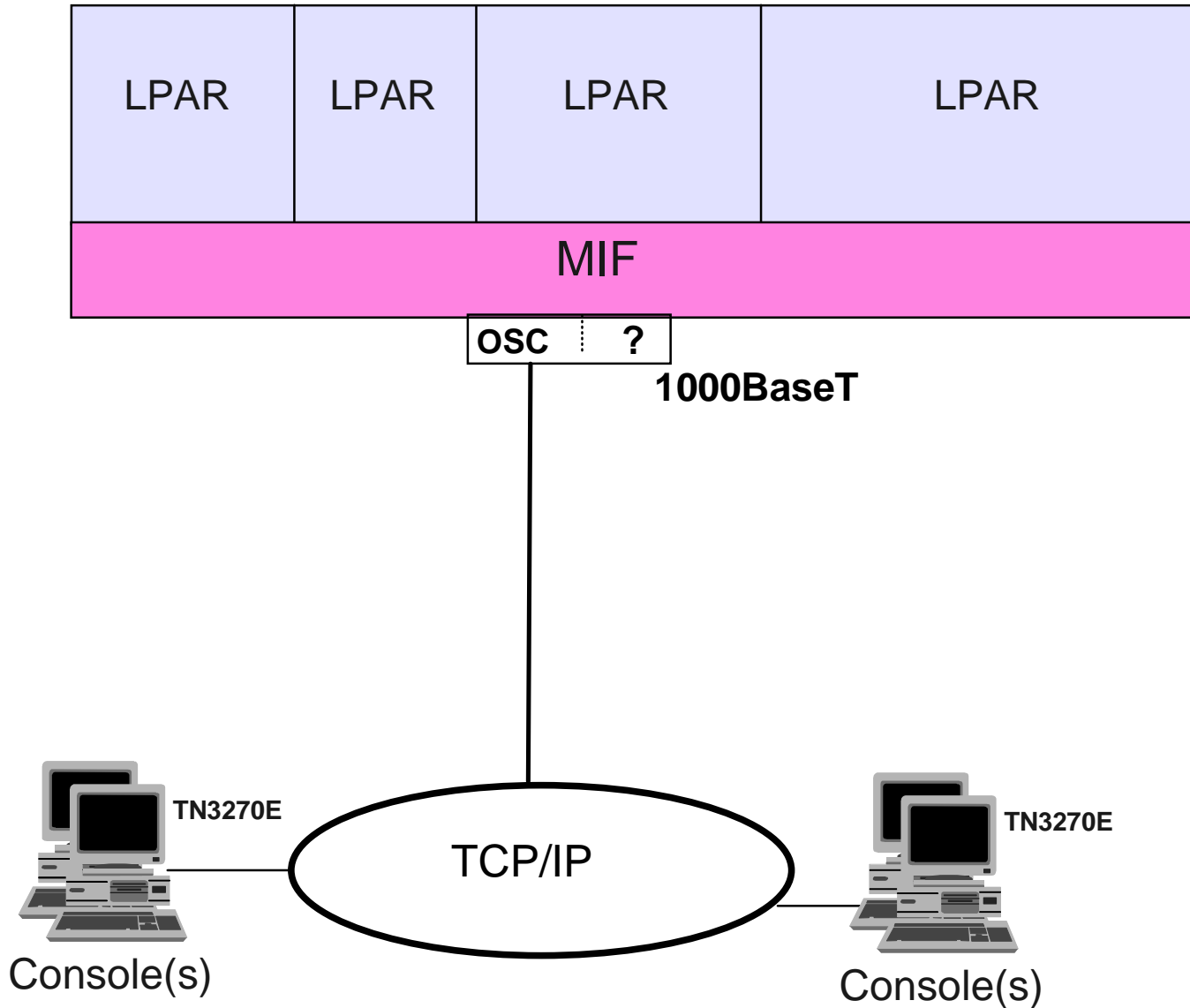
# 2074 Basic Configuration-48 Sessions with single ESCON



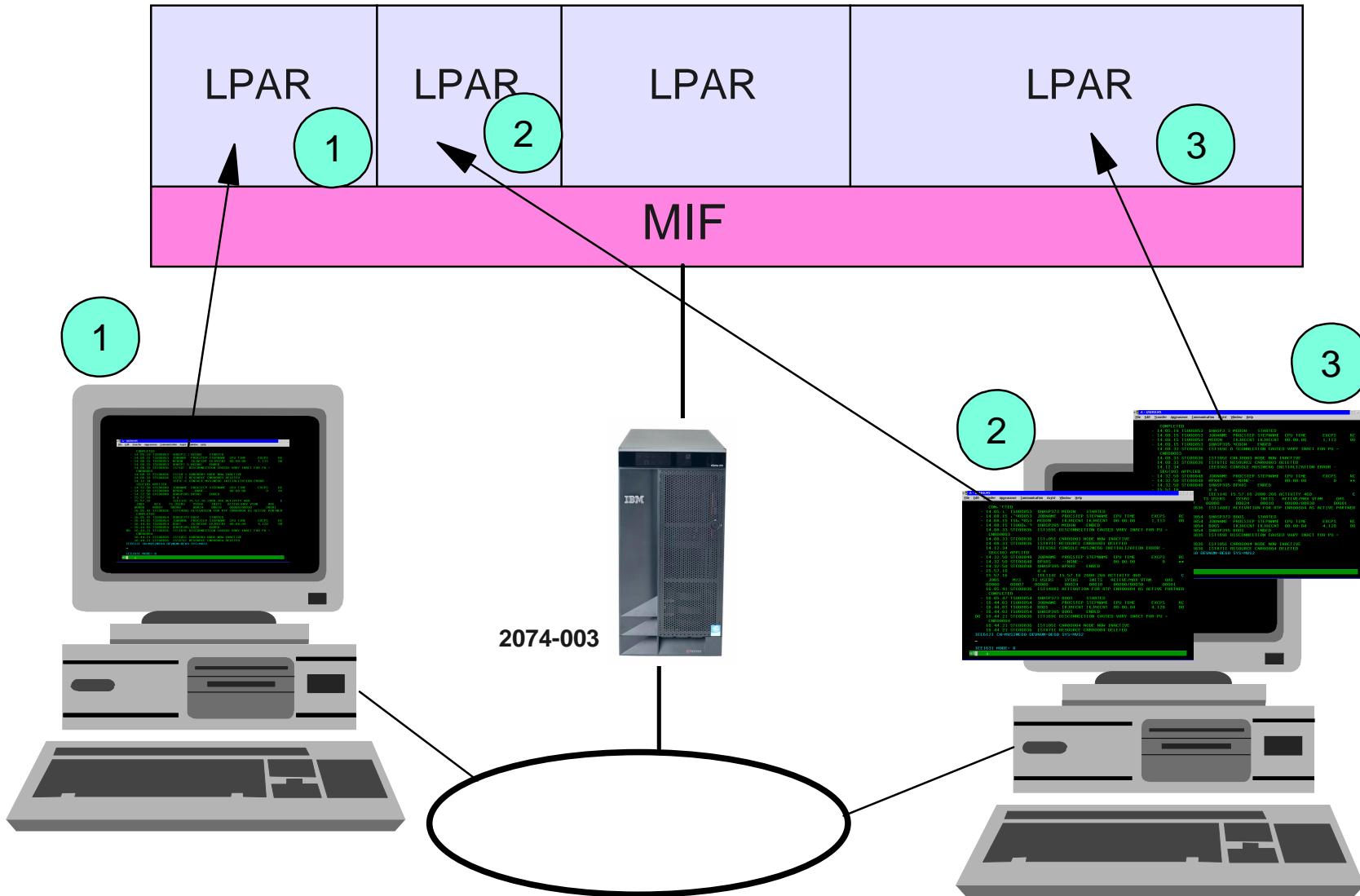
# 2074 Basic Configuration-96 Sessions with second ESCON



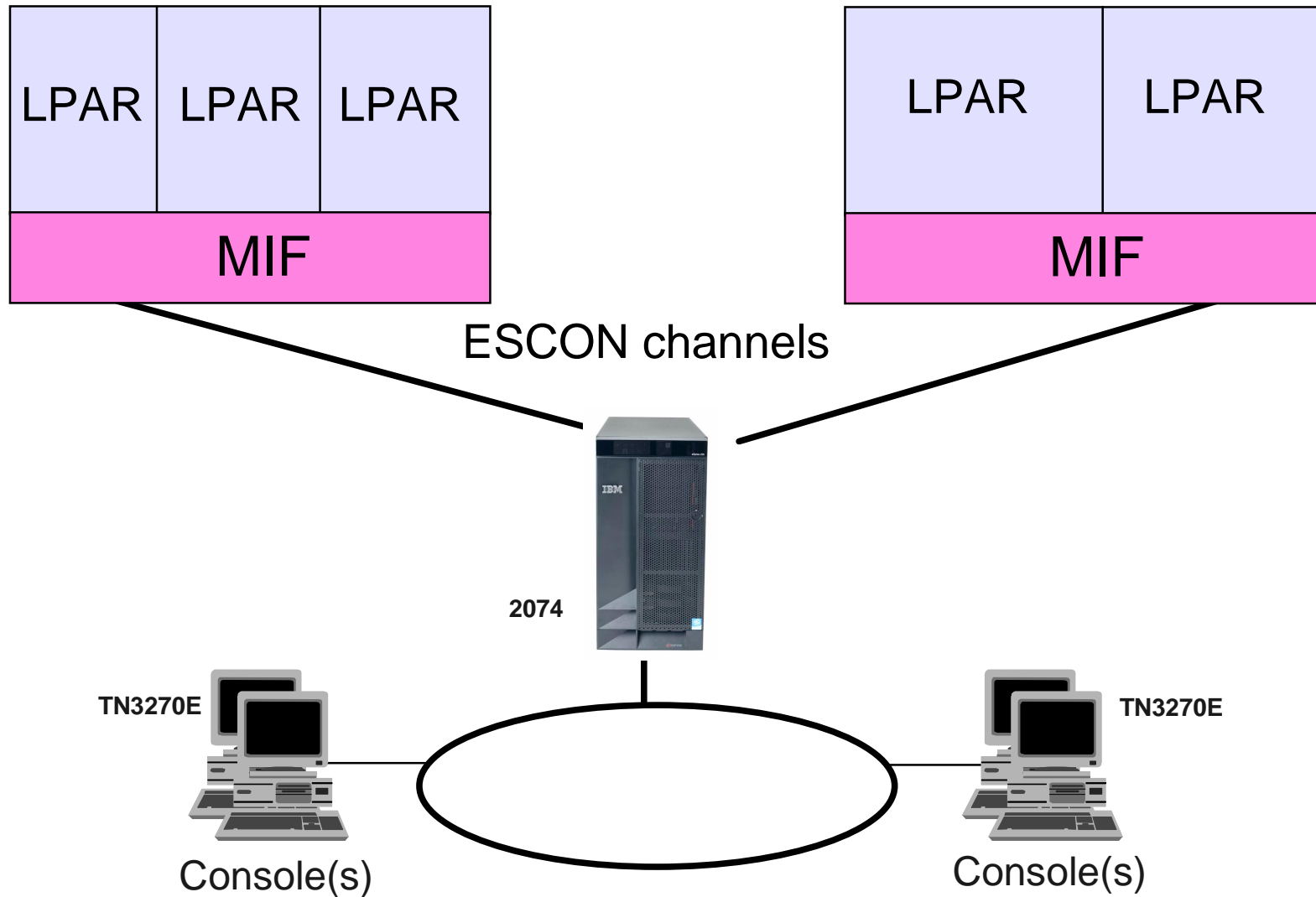
# OSA-ICC Basic Configuration-120 Sessions with single 1000BaseT Port



# Let's talk about sessions...

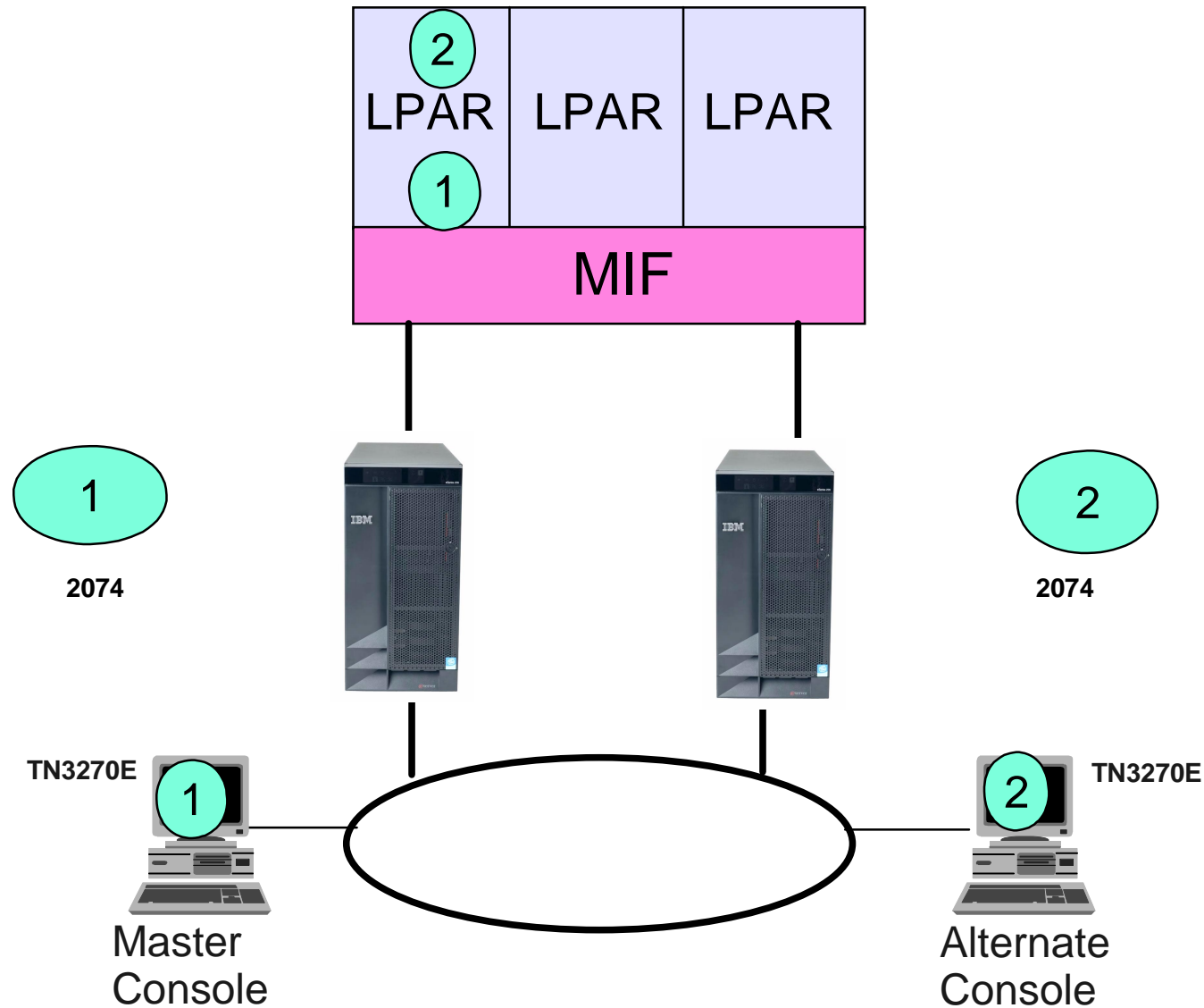


# 2074 Multiple Processors-No ESCON Director

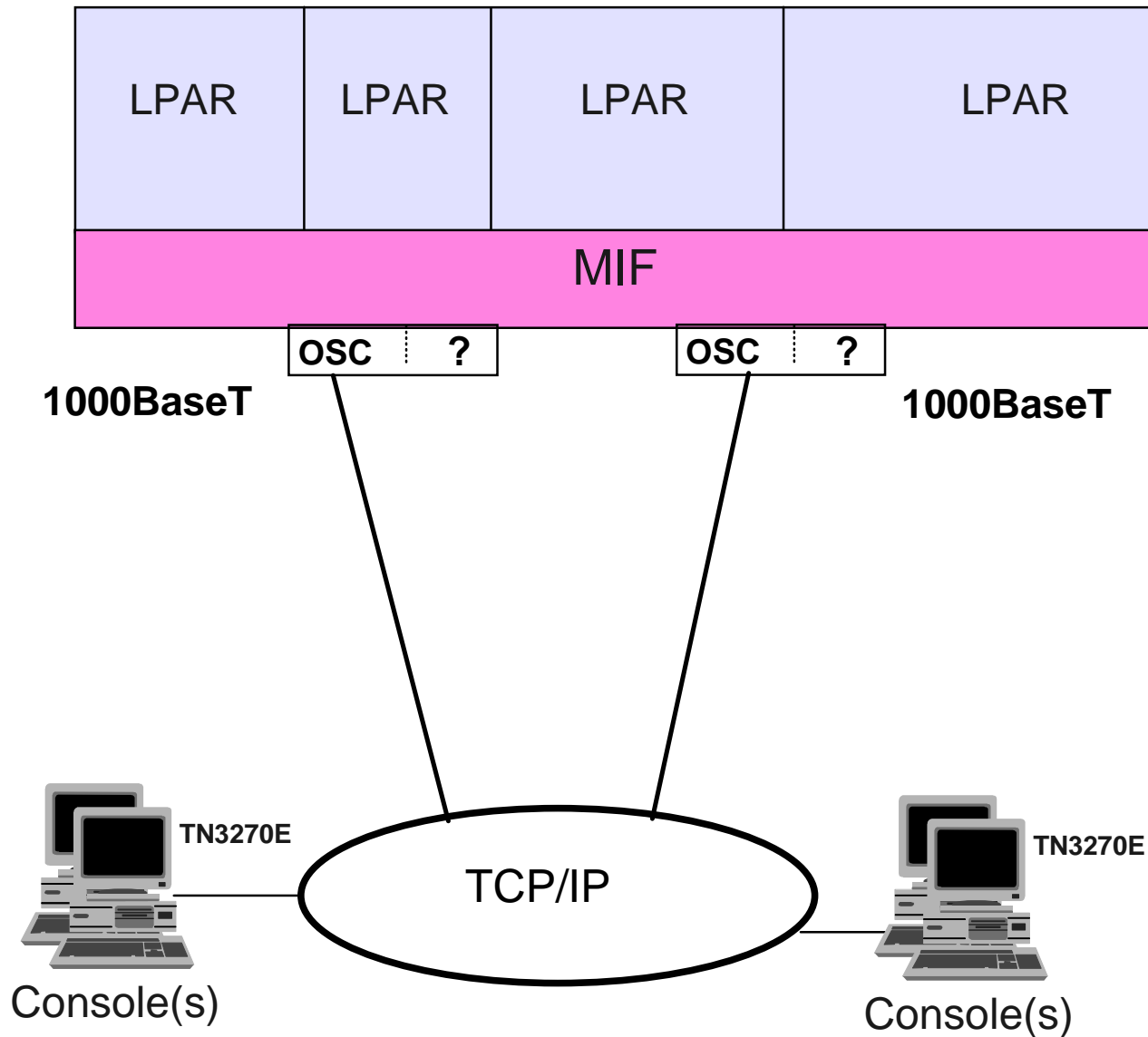




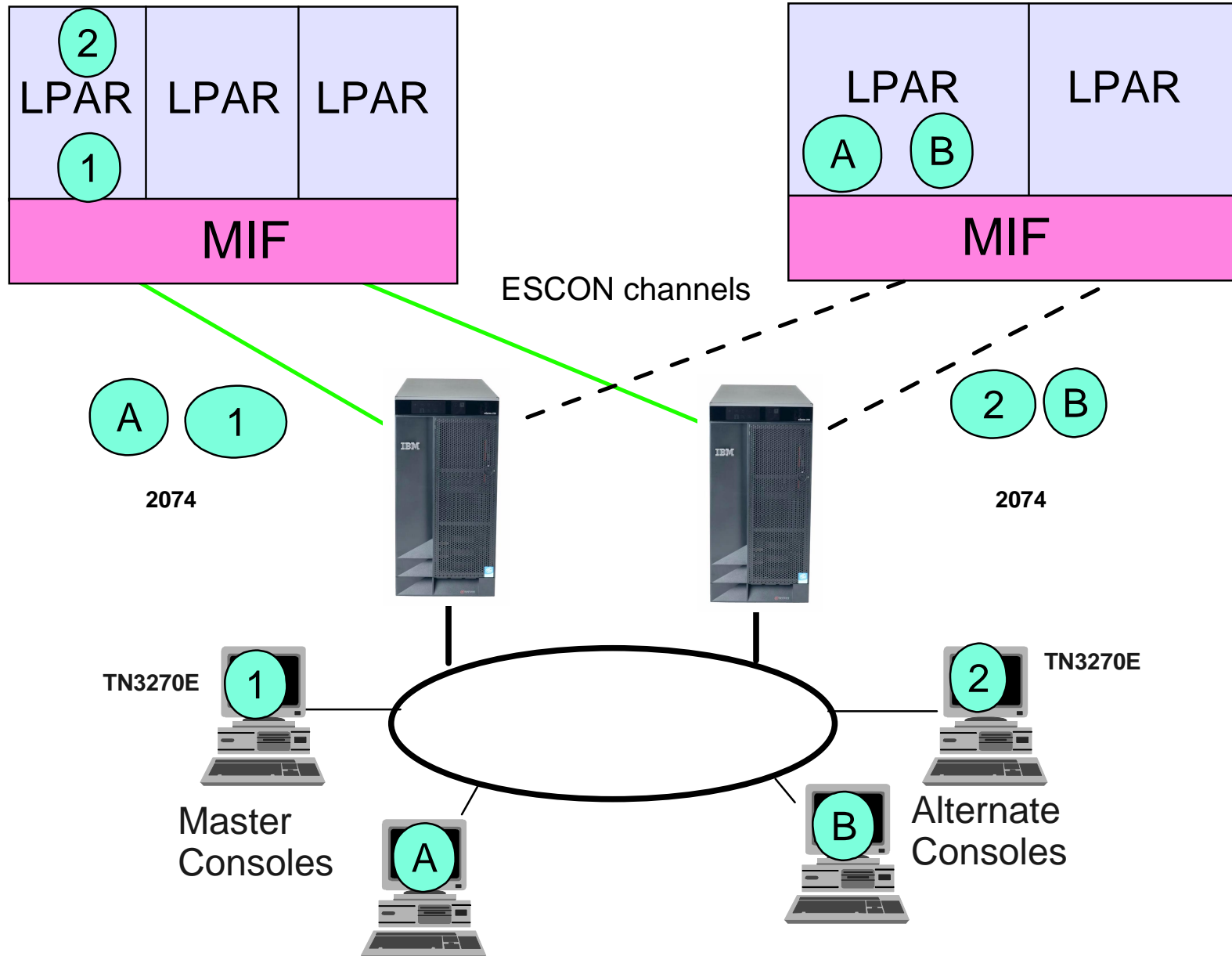
# 2074: Single processor with redundancy



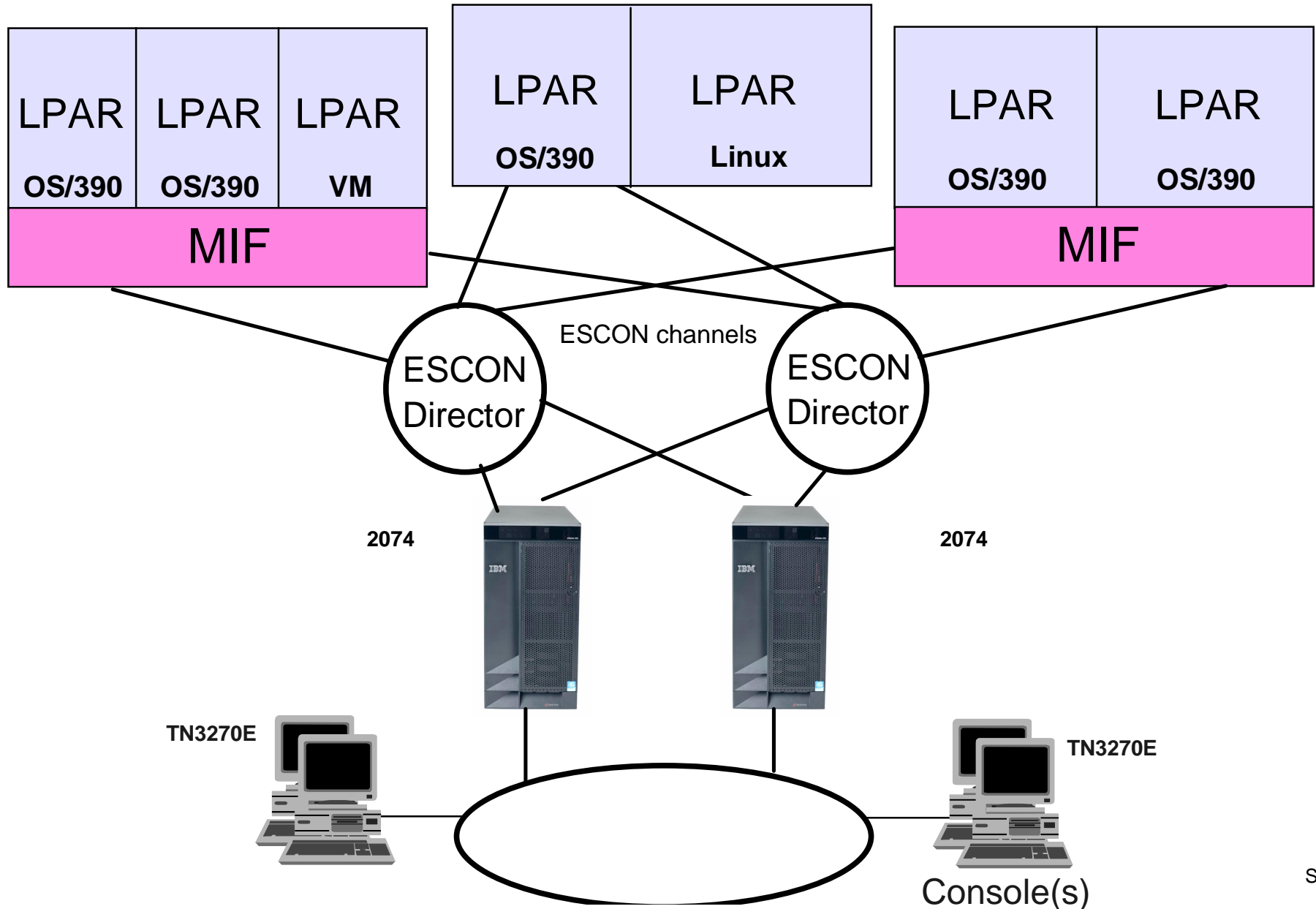
# OSA-ICC Single Processor with Redundancy



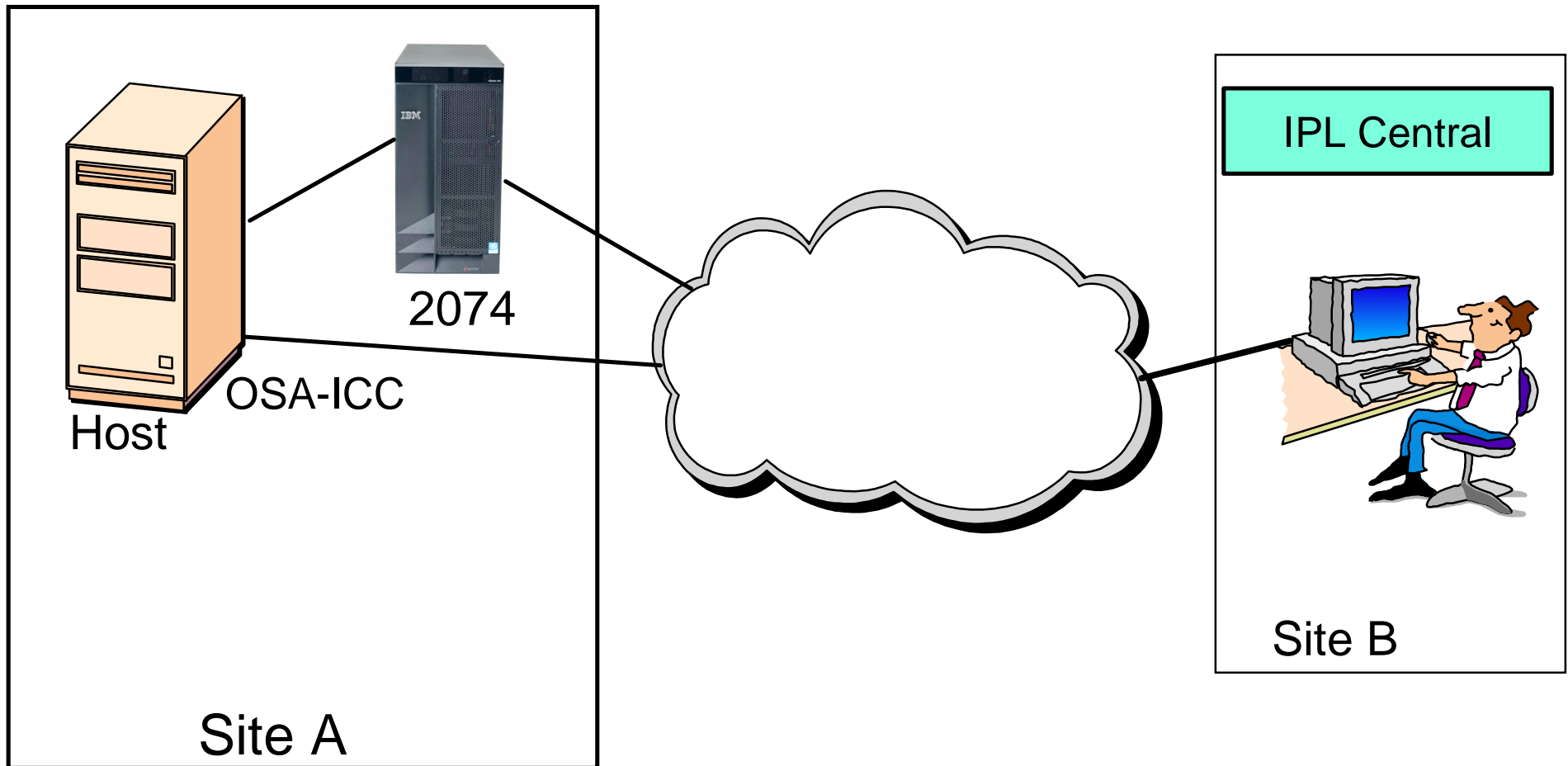
# 2074: Two processors with redundancy



# 2074: Multi Processor with ESCON Directors

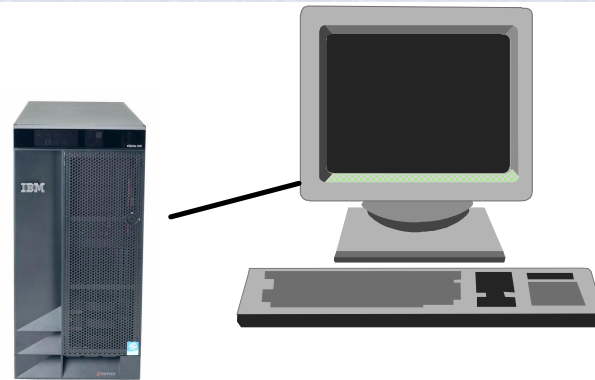


# Remote Data Center

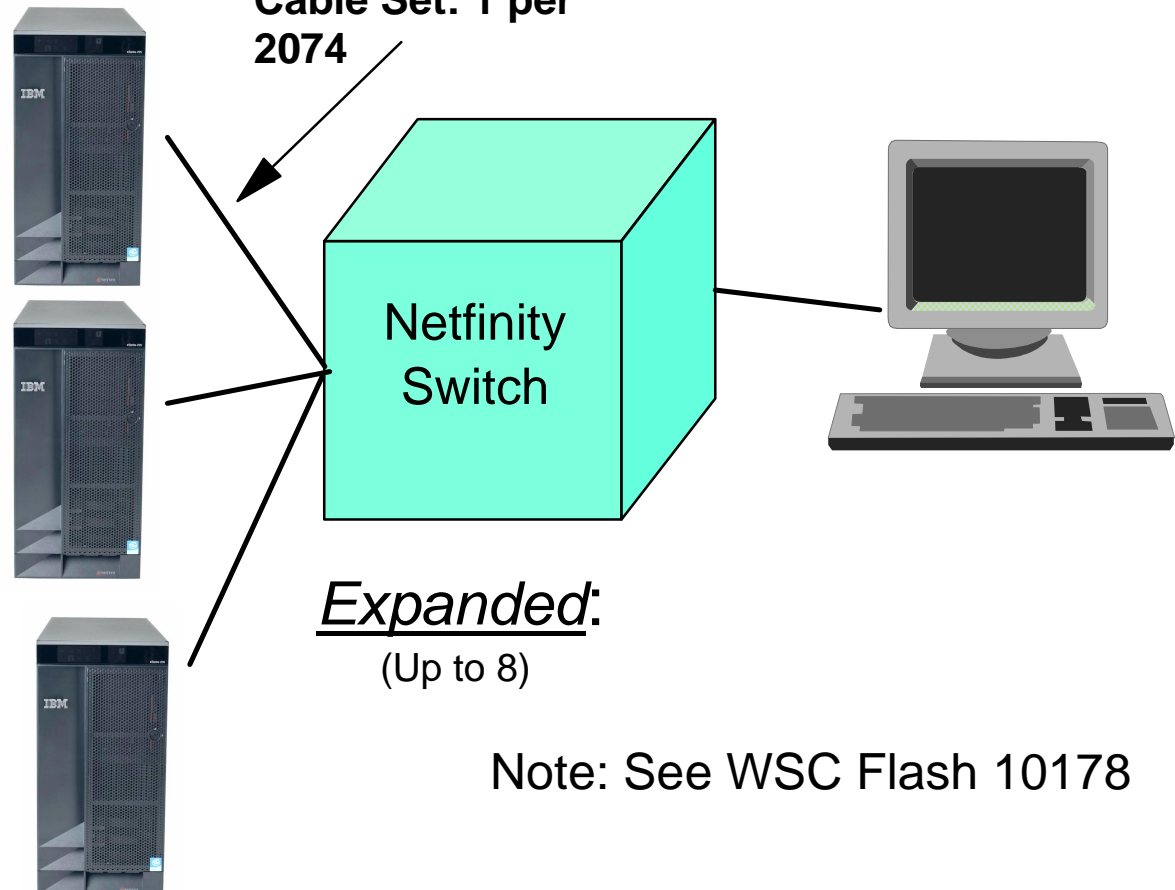


# 2074: Configurations....

Minimum:



Cable Set: 1 per  
2074



Expanded:  
(Up to 8)

Note: See WSC Flash 10178

# ***Implementation-Host***

## 2074: Host Definitions-the simple case

```
RESOURCE PARTITION=((MVS1,1),(MVS2,2))
```

```
..
```

```
CHPID PATH=(04),SHARED,PARTITION=((MVS1,MVS2)),TYPE=CNC
```

```
..
```

```
CNTLUNIT CUNUMBR=700,PATH=04,UNITADD=((00,32)),UNIT=3174
```

```
..
```

```
IODEVICE CUNUMBR=700,ADDRESS=(700,32),UNIT=3270,  
UNITADD=0
```

```
..
```

This provides a string of 32 3270 devices, starting with address 700, that is known to all LPARs. This would be invalid with a real 3174 control unit, but works here because the 2074 can separate LPAR usage via its DEVMAP and the use of LUNAMES in the tn3270 sessions.



## 2074: Host definitions..being too clever

```
RESOURCE PARTITION=((MVS1,1),(MVS2,2))  
..  
CHPID PATH=(04),SHARED,PARTITION=((MVS1,MVS2)),TYPE=CNC  
CHPID PATH=(05),SHARED,PARTITION=((MVS1,MVS2)),TYPE=CNC  
..  
CNTLUNIT CUNUMBR=700,PATH=(04,05),UNITADD=((00,64)),UNIT=3174  
..  
IODEVICE CUNUMBR=700,ADDRESS=(700,64),UNIT=3270,UNITADD=0
```

This illustrates a misguided attempt to define an IBM 2074 with two ESCON adapters using a single control unit statement. This is multipathing and this is NOT supported on the 2074. It may work to some extent but problem determination will be extremely difficult at best if there is a failure or incorrect definition.



# OSA-ICC Host Definitions



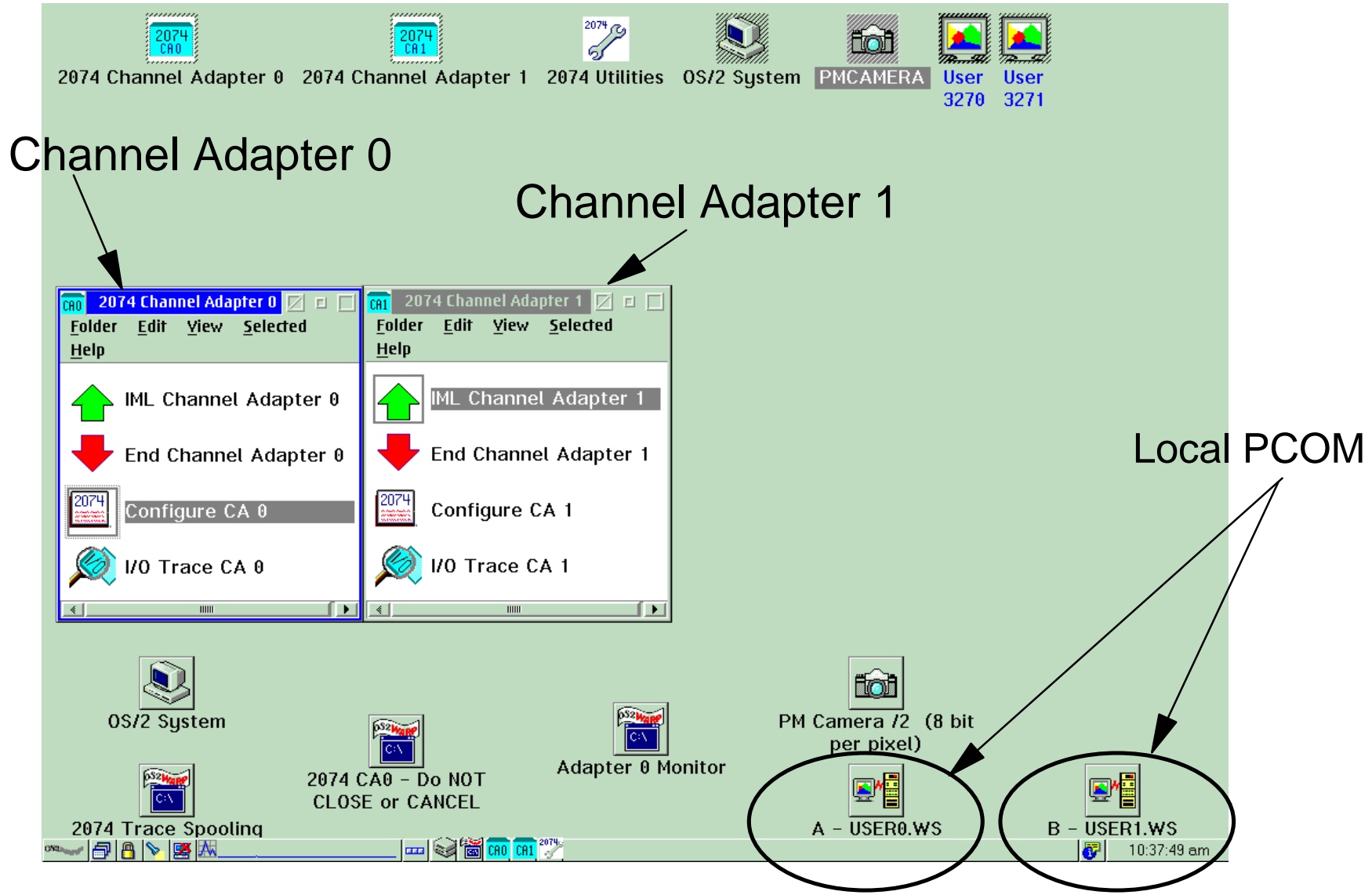
```
ID MSG1='IODF38', *
    MSG2='SYS6.IODF38.WORK - 2004-04-15 05:10', *
    SYSTEM=(2084,1), *
    TOK=('SCZP901',0080000ABBA00084155953790104108C00000000, *
        00000000,'04-04-15','05:10:58',' ',' ') *
RESOURCE PARTITION=((CSS(1),(A11,1),(A12,2),(A17,7))), *
    MAXDEV=((CSS(1),64512))
CHPID PATH=(CSS(1),04),SHARED,PARTITION=((A11,A12,A17),(=)), *
    PCHID=111,TYPE=OSC

CNTLUNIT CUNUMBR=E000,PATH=((CSS(1),04)),UNIT=OSC

IODEVICE ADDRESS=(E000,120),MODEL=X,CUNUMBR=(E000),UNIT=3270
```

# ***2074 Customization***

# 2074 Desktop



The screenshot displays the 2074 Desktop environment. At the top, there are icons for '2074 CA0', '2074 CA1', '2074 Utilities', 'OS/2 System', 'PMCAMERA', and two 'User' icons (User 3270 and User 3271). Two windows are open, labeled '2074 Channel Adapter 0' and '2074 Channel Adapter 1'. Each window contains a menu with options: 'IML Channel Adapter', 'End Channel Adapter', 'Configure CA', and 'I/O Trace CA'. Below the windows, there are several desktop icons: 'OS/2 System', '2074 CA0 - Do NOT CLOSE or CANCEL', 'Adapter 0 Monitor', 'PM Camera /2 (8 bit per pixel)', and two 'Local PCOM' windows labeled 'A - USER0.WS' and 'B - USER1.WS'. The taskbar at the bottom shows the system tray with icons for 'CA0', 'CA1', and '2074', along with the time '10:37:49 am'.

Channel Adapter 0

Channel Adapter 1

Local PCOM

A - USER0.WS

B - USER1.WS

Note: Each channel adapter is independent

# Device Map Selection

```
Configure CA 0  
  
IBM 2074 Channel Adapter 0 Configuration  
  
Device Map Selection  
Currently Active Device Map:  
E:\DEVMAP\DEVMAPAC.CA0 CONFIG1 Initial Configuration  
Active on Next IML Device Map:  
E:\DEVMAP\DEVMAPO.CA0 CONFIG1 Initial Configuration  
  
Editable Device Maps:  
Device Map 0 >E:\DEVMAP\DEVMAPO.CA0 Initial Configuration  
Device Map 1 >E:\DEVMAP\DEVMAP1.CA0 Sample Configuration  
Device Map 2 >E:\DEVMAP\DEVMAP2.CA0 Sample Configuration  
Device Map 3 >E:\DEVMAP\DEVMAP3.CA0 Sample Configuration  
  
TAB the cursor to an "Editable" DEVMAP name and press ENTER to edit.  
The "Currently Active" device map CANNOT be edited, only viewed.  
  
To change the "Active on Next IML" DEVMAP, TAB the cursor  
to an "Editable" DEVMAP name and press F11.  
  
NOTE: The ACTIVE DEVICE MAP was copied from E:\DEVMAP\DEVMAPO.CA0  
  
F1 - Help          ENTER - Select Devmap      F10 - End Configurator  
lthmaps
```

# Function Select Screen

```
Configure CA 0
```

```
FUNCTIONS
```

```
Current 2074 Program Level is: 1.0.4 7/07/00  
Device Map is E:\DEVMAP\DEVMAPO.CAO Initial Configuration
```

```
Major Functions  
F1 Help  
F2 Update System Devices  
F3 Set 2074 Name and Description  
F4 Update LAN Configuration.  
  
F6 END - SAVE ALL, then EXIT  
  
F8 SAVE - SAVE ALL, DO NOT EXIT  
  
F10 QUIT - DO NOT SAVE ANYTHING  
  
F12 Edit Trace Entries
```

```
Description of Major Functions:  
F2 Configure device addresses, LPARS  
director ports, and TN3270 parms.  
  
F3 Define the system LANID and  
a description of this DEVMAP.  
  
F4 Change TCP/IP configuration  
parameters. Enable/disable LAN  
adapters.
```

```
cnfuncs
```

# Definitions...tieing it together

```
Configure CA 0
Channel Adapter 0 Device Configuration

Active Devices: 6          MAX allowable device index is hex 40
Index Device LPAR# Port CU UA Mgr Parameters
-----
01 3278 2 01 0 00 1 Local
02 3278 2 01 0 01 1 Local
03 3278 2 01 0 02 2 /R=mvs2con1
04 3278 2 01 0 03 2 /R=MVS2CON2
05 3278 2 01 0 04 2 /R=MVS2CON3
06 3278 2 01 0 06 2 /R=MVS2NIP
07
08
09
0A
0B
0C
0D
0E
0F
10

Mgr Codes: 1=AWS3274 2=LAN3274

F1 Help ALT+F1 Key Definitions F10 Main Menu ESC Cancel Input cnsys174
```

# Just some documentation stuff....

```
Configure CA 0
```

```
SET 2074 NAME and DESCRIPTION
```

Use TAB or ARROW keys to move cursor. Press ENTER to make changes.

```
Set for Device Map 0 ->E:\DEVMAP\DEVMAPO.CAO  
Configuration Description >Initial Configuration  
2074 Channel Adapter Name >CONFIG1
```

```
F1=Help      ENTER = Accept Data,return to Main Menu      ESC=No Changes  
cnl thenv
```



# Defining the LAN Adapters

```
Configure CA 0
Update LAN Configuration for CA0 and CA1

LAN0 (ETHER) IPAddress>nil          Mask>
Enabled?(y/n)>N  Parms>metric 1 mtu 1500
IEEE 802.3 enabled?(y/n)>N

LAN1 (ETHER) IPAddress>metric      Mask>mtu
Enabled?(y/n)>N  Parms>1500
IEEE 802.3 enabled?(y/n)>N

LAN2 (TOKEN) IPAddress>9.82.8.82   Mask>255.255.240.0
Enabled?(y/n)>Y  Parms>metric 1 mtu 1500

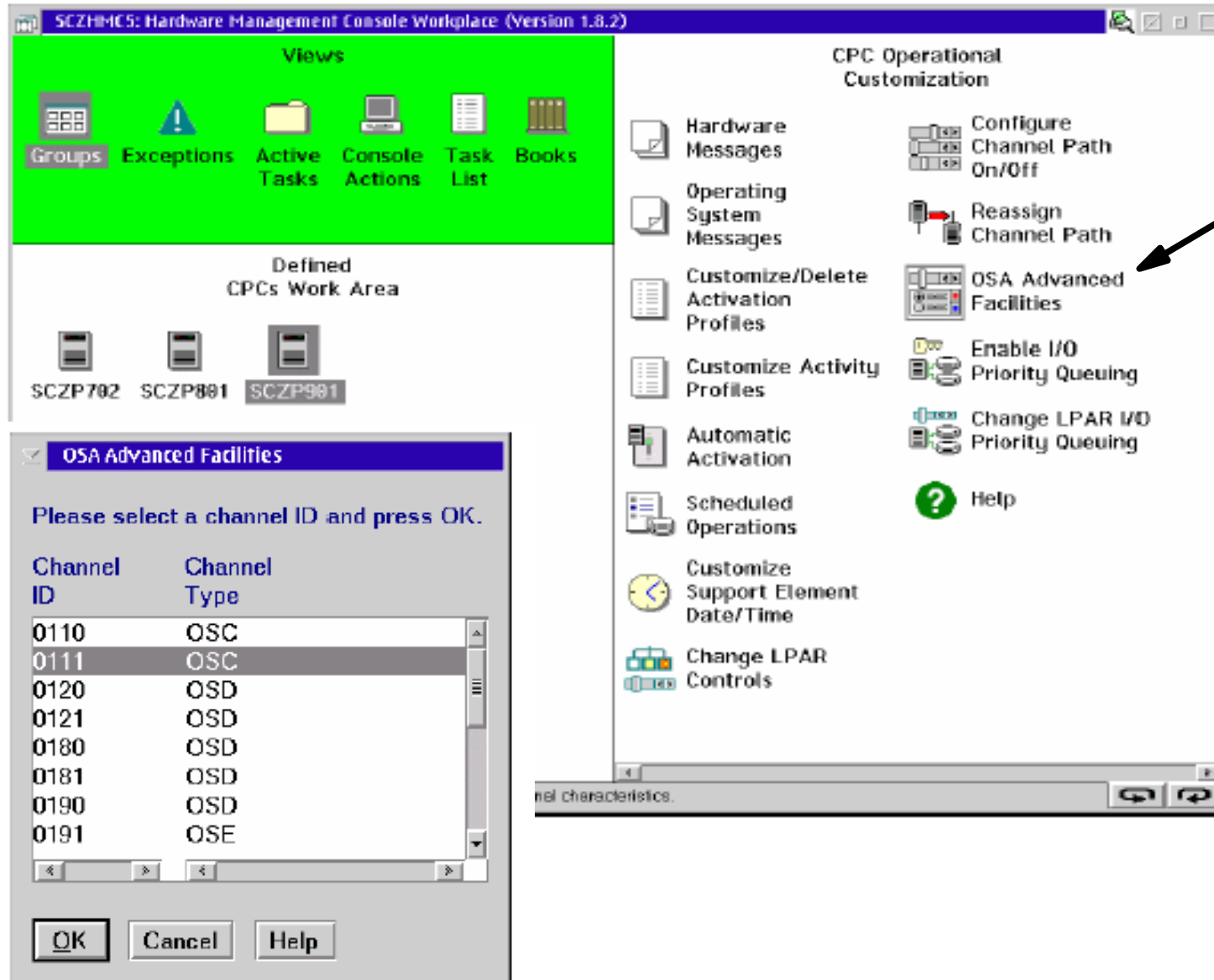
LAN3 (TOKEN) IPAddress>metric      Mask>mtu
Enabled?(y/n)>N  Parms>1500

Input file is  C:\MPTN\BIN\SETUP.COMD          Press F4 for ROUTE statements
Output file is C:\MPTN\BIN\SETUP.COMD

F1=Help      F10=Save/return  ENTER=Check Syntax  ESC=No Changes
cnupdlan
```

# ***OSA-ICC Customization***

# OSA Advanced Facilities

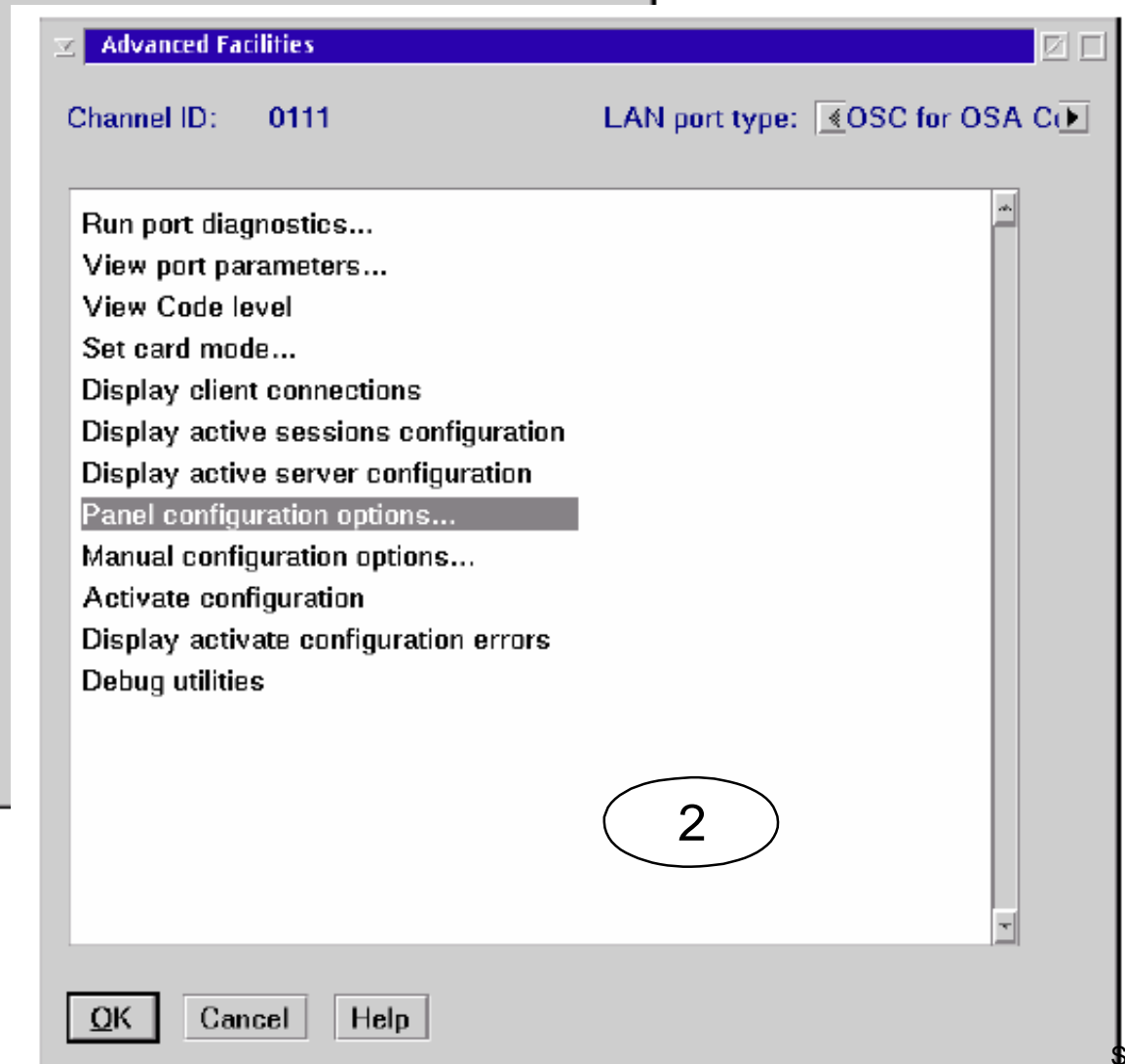
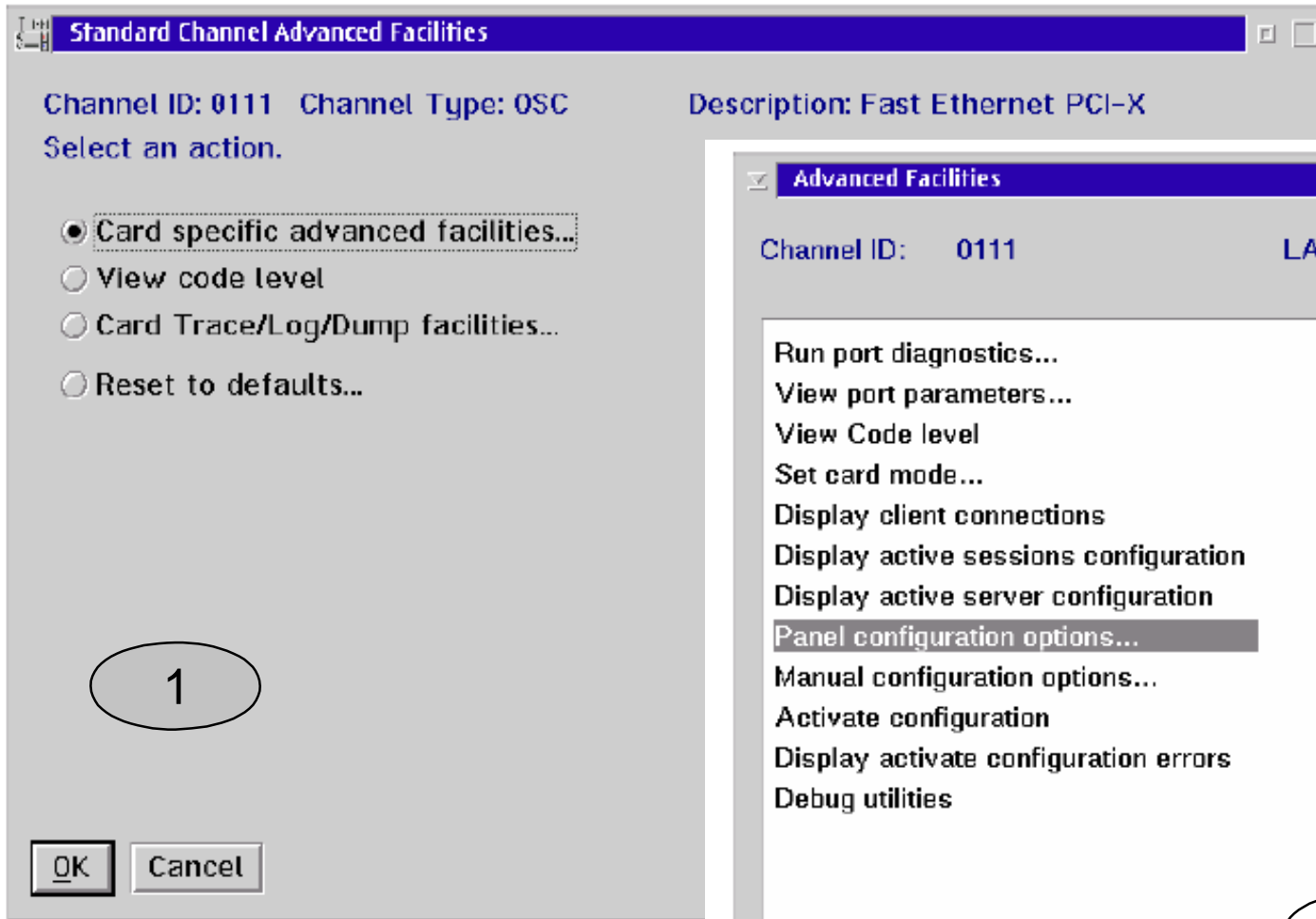


The screenshot displays the SCZHM5: Hardware Management Console Workplace (Version 1.8.2) interface. The main window is titled "CPC Operational Customization" and contains a list of menu items. A dialog box titled "OSA Advanced Facilities" is open in the foreground, prompting the user to select a channel ID. The dialog box contains a table with the following data:

Channel ID	Channel Type
0110	OSC
0111	OSC
0120	OSD
0121	OSD
0180	OSD
0181	OSD
0190	OSD
0191	OSE

The "OSA Advanced Facilities" menu item in the "CPC Operational Customization" window is highlighted with a black arrow.

# Function Selection under OSA-Advanced Facilities



# Configuration Options Panel

Panel Configuration Options

Channel ID: 0111    LAN port type: OSC for OSA Con Cntrl

**Options**

- Edit sessions configuration
- Edit server configuration
- Validate panel values
- Display validate panel errors

**Note:** After the panel values have been validated, you must use the Activate Configuration function on the Advanced Facilities panel to make them active, or your present changes will be lost.

# Edit Server Configuration Panel

Edit Server Configuration

Channel ID: 0111 LAN port type: OSC for OSA Con Cntrl

Server Name: OSCE000

Host IP Address: 10 . 10 . 4 . 2

TCP Port: 1024

Default Gateway: 10 . 10 . 4 . 1

Subnet Mask: 255 . 255 . 255 . 0

Frame type  DIX  SNAP

Note: The recommended frame type for OSA-ICC is DIX. Changing the frame type to another mode without checking with your Network Administrator could cause a loss of connectivity to your sessions.

MTU Size(B): 1492 (256-1492)

Note: Changing host IP address or port will cause dropping of any currently connected clients.

# Edit Sessions Configuration

**Edit Sessions Configuration**

Channel ID: 0111 LAN port type: OSC for OSA Con Cntrl

To change session data, select a line and press Change.

To save session data, press Save.

Index	State	CSS	MIFID	Device Number	LU Name	Client's IP	Session type	DHD	RSP	RTO
1	Not configu	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
2	Not configu	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
3	Not configu	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
4	Not configu	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
5	Not configu	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
6	Not configu	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
7	Not configu	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
8	Not configu	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
9	Not configu	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
10	Not configu	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
11	Not configu	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
12	Not configu	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
13	Not configu	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
14	Not configu	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0
15	Not configu	0	0	0000		0.0.0.0	Unknown	Disable	Disable	0

Save Change Cancel Help

# Edit Session

**Edit Session Configuration**

Channel ID: 0220 LAN port type: OSC for OSA Con Cntrl

Session Index: 1

Session State: Not configured

CSS Value: 0

MIFID: 1

Device Number: 0E60

LU Name: zplex60

Client's IP Address: 0 . 0 . 0 . 0

Session Type  TN3270  Operator console  printer

Defer Host Disconnect

disable

enable with defaulted deferment of 60 seconds

enable with no timeout for deferment

enable with user specified defaulted deferment of:

OK Delete Session Cancel Help



# Edit Session



**Edit Session Configuration**

enable with defaulted deferment of 60 seconds

enable with no timeout for deferment

enable with user specified defaulted deferment of:

Defer Host Disconnect time value (seconds):

Response mode  enable  disable

Note: If the Response mode is enabled,  
then the timeout is specified via the Read Timeout value setting.

Read Timeout

disable

low (1 second)

medium (10 seconds)

high (60 seconds)

user specified timeout of:

If this session is active, then changing configurations can cause client connection to drop.

# Session Created and enabled

**Edit Sessions Configuration**

Channel ID: 0111 LAN port type: OSC for OSA Con Cntr

To change session data, select a line and press Change.

To save session data, press Save.

Index	State	CSS	MIFID	Device Number	LU Name	Client's IP	Session type	DHD	RSP	RTO
1	Available	1	1	E000	SC64E000	10.10.10.2	Op Console	Enablec	Enablec	10
2	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
3	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
4	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
5	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
6	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
7	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
8	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
9	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
10	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
11	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
12	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
13	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
14	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10
15	Not configu	0	0	0000		0.0.0.0	TN3270	Disable	Disable	10

**Save** **Change** **Cancel** **Help**



# Validate..

Panel Configuration Options

Channel ID: 0111 LAN port type: OSC for OSA Con Cntrl

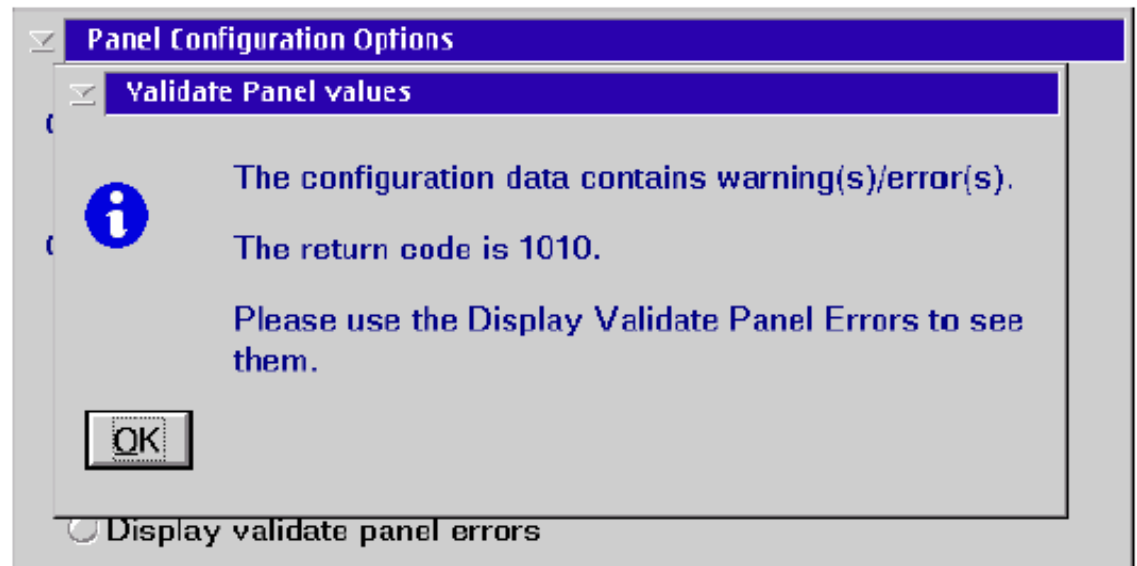
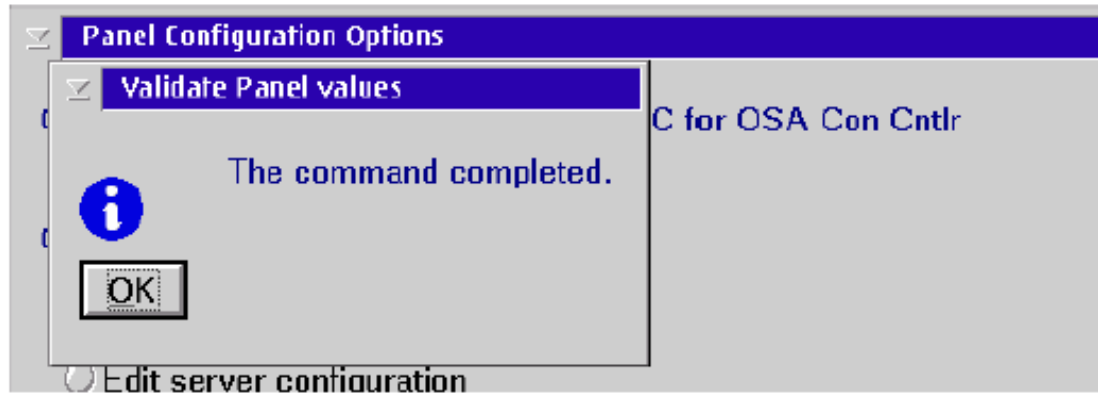
Options

- Edit sessions configuration
- Edit server configuration
- Validate panel values
- Display validate panel errors

Note: After the panel values have been validated,  
you must use the Activate Configuration function  
on the Advanced Facilities panel to make them active,  
or your present changes will be lost.

OK Cancel

# Possible Results....good and bad



# Activate


**Advanced Facilities**

Channel ID: 0111      LAN port type: OSC for OSA C

- Run port diagnostics...
- View port parameters...
- View Code level
- Set card mode...
- Display client connections
- Display active sessions configuration
- Display active server configuration
- Panel configuration options...**
- Manual configuration options...
- Activate configuration**
- Display activate configuration errors
- Debug utilities

OK    Cancel    Help

**Activate Configuration**

 This function makes any configuration changes active immediately.


This could result in active sessions being dropped.

Select OK to continue the activate configuration.

Select Cancel to end the activate configuration.

OK    Cancel

**Activate Configuration**

 The command completed.

OK

# Manual Options...fyi

Manual Configuration Options

Channel ID: 0111    LAN port type: OSC for OSA Con Cntrl

Options

Import source file

Export source file

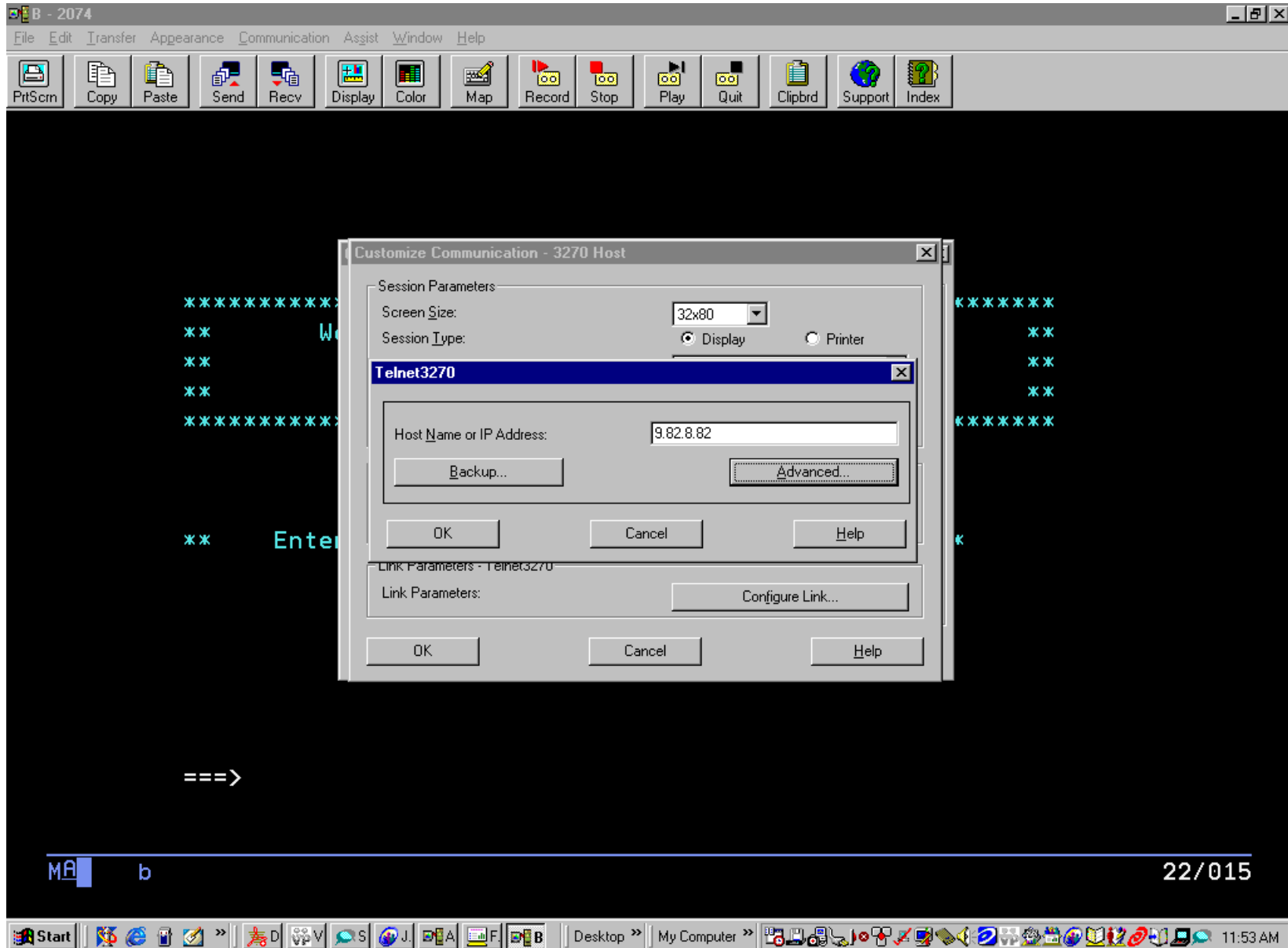
Edit source file

Validate source file

Note: After source file has been validated,  
you must use the Activate Configuration function  
on the Advanced Facilities panel to make it active,  
or your present changes will be lost.

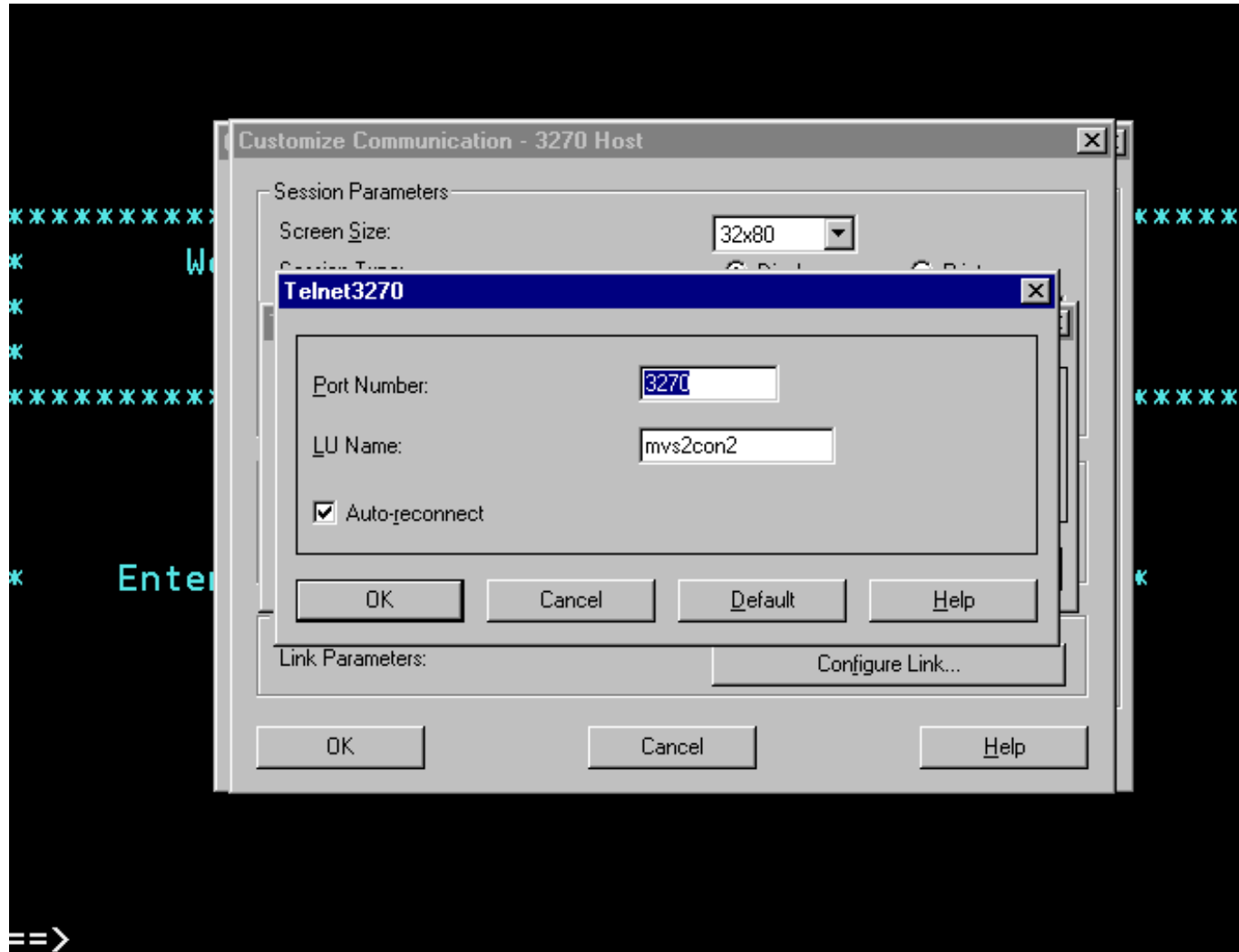
# ***Customization-Client***

# PCOM Setup-IP address of LAN adapter



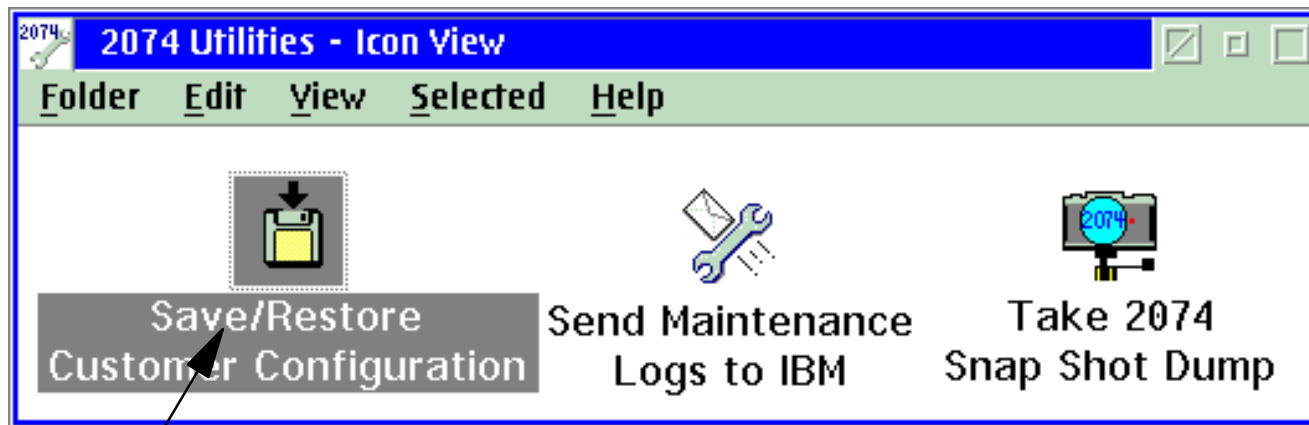


# PCOM-Advanced, setting LU name



# *Miscellaneous*

# 2074 Utilities...



Saving your customization

# Considerations

- Requires networking skills
  - LAN Design
  - TCP/IP Definitions
- Security
  - Primarily dependent on LAN security
  - Recommendation to use private, highly secure LAN
- Failure Procedures
  - Depends on host console recovery
    - Exactly same process as for 3174 non-SNA implementation
- Loss of console detection
  - potential time delay since 2074 does not do active polling of devices
- TCP/IP running on the LAN independent of host TCP/IP

# SMCS Considerations



SMCS consoles are MCS consoles that use VTAM services for input and output. SMCS consoles provide most of the same functions as MCS consoles with the following exceptions:

- Synchronous WTO/R, also known as disabled console communication facility (DCCF), is not supported for SMCS consoles. The system console or an MCS console must be used instead.
- SMCS consoles are not available during NIP. The system console or an MCS console must be used instead.
- VTAM must be active for SMCS to be active. The system console and MCS consoles do not rely on VTAM, and these can be used before VTAM is active.
- SMCS consoles must be activated differently than MCS consoles. The activation process depends on the console definitions, but in all cases, VARY CONSOLE and VARY CN, ONLINE do not work for SMCS.
- SMCS does not support output-only (message stream and status display) consoles. SMCS consoles must always be full-capability consoles.
- SMCS does not support printer consoles, and cannot be used as hardcopy devices.
  - continued next page

# SMCS Considerations (*continued*)



Because an SMCS console is connected through a network and uses VTAM services, the VTAM commands VARY NET and HALT NET, as well as network problems, can affect console operations.

Source:

z/OS

MVS Planning: Operations

Document Number SA22-7601-00

# References



## *References*

# References-2074

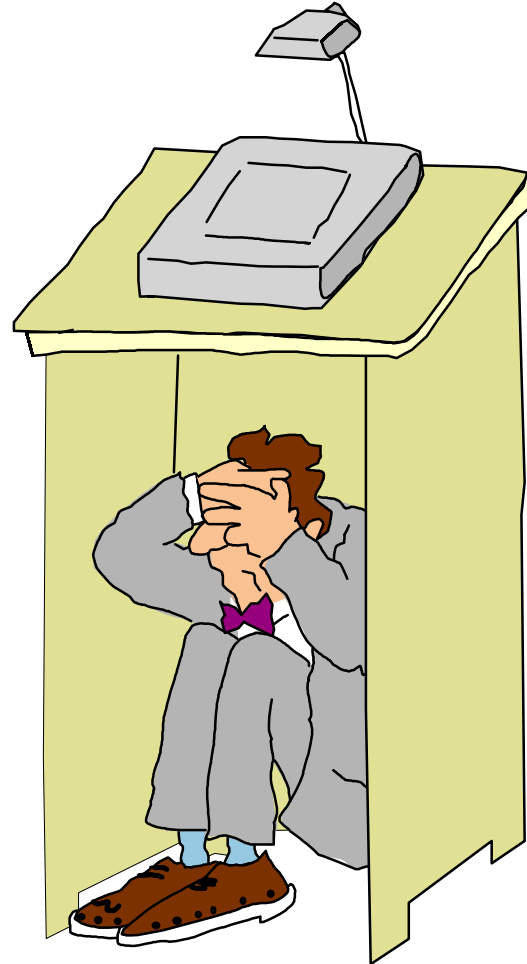
- *Usage Tips for the IBM 2074 Model 3 Console Support Controller*
  - [ibm.com/servers/eserver/zseries/library/techpapers/pdf/gm130316.pdf](http://ibm.com/servers/eserver/zseries/library/techpapers/pdf/gm130316.pdf)
- *IBM 2074 Console Support Controller Installation and Maintenance Information - G229-9028-03*
  - Shipped with product and also on Resource Link™ ([ibm.com/servers/resourcelink](http://ibm.com/servers/resourcelink))
- *IBM 2074 Configuration Guide - SC28-6806-02*
  - [ibm.com/servers/resourcelink](http://ibm.com/servers/resourcelink)
- *Introducing the IBM 2074 Control Unit (Redbook) - SG24-5966*
  - [redbooks.ibm.com/abstracts/sg245966.html](http://redbooks.ibm.com/abstracts/sg245966.html)
- *IBM Rack Options for 2074 .. FLASH 10178*
  - [www-1.ibm.com/support/techdocs/atmastr.nsf/PubAllNum/Flash10178](http://www-1.ibm.com/support/techdocs/atmastr.nsf/PubAllNum/Flash10178)
- *IBM NetBAY Rack configurator*
  - [www.pc.ibm.com/ww/eserver/xseries/rack.html](http://www.pc.ibm.com/ww/eserver/xseries/rack.html)
- [ibm.com/eserver/zseries/networking/2074.html](http://ibm.com/eserver/zseries/networking/2074.html)
- *IBM 2074-003 Console Support Controller: Planning and Installation*
  - White Paper on [www.ibm.com/support/techdocs](http://www.ibm.com/support/techdocs)



## References: OSA-ICC

- SG24-6364 OSA-Express Integrated Console Controller Implementation Guide
  - (ITSO Redbook)
- SA22-7990 Open Systems Adapter-Express Integrated Console Controller User's Guide
  - ResourceLink Publication

# Questions?



[jjhughes@us.ibm.com](mailto:jjhughes@us.ibm.com)