# Bit Bucket x'31'

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Session 16458
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# Secure Socket to Me

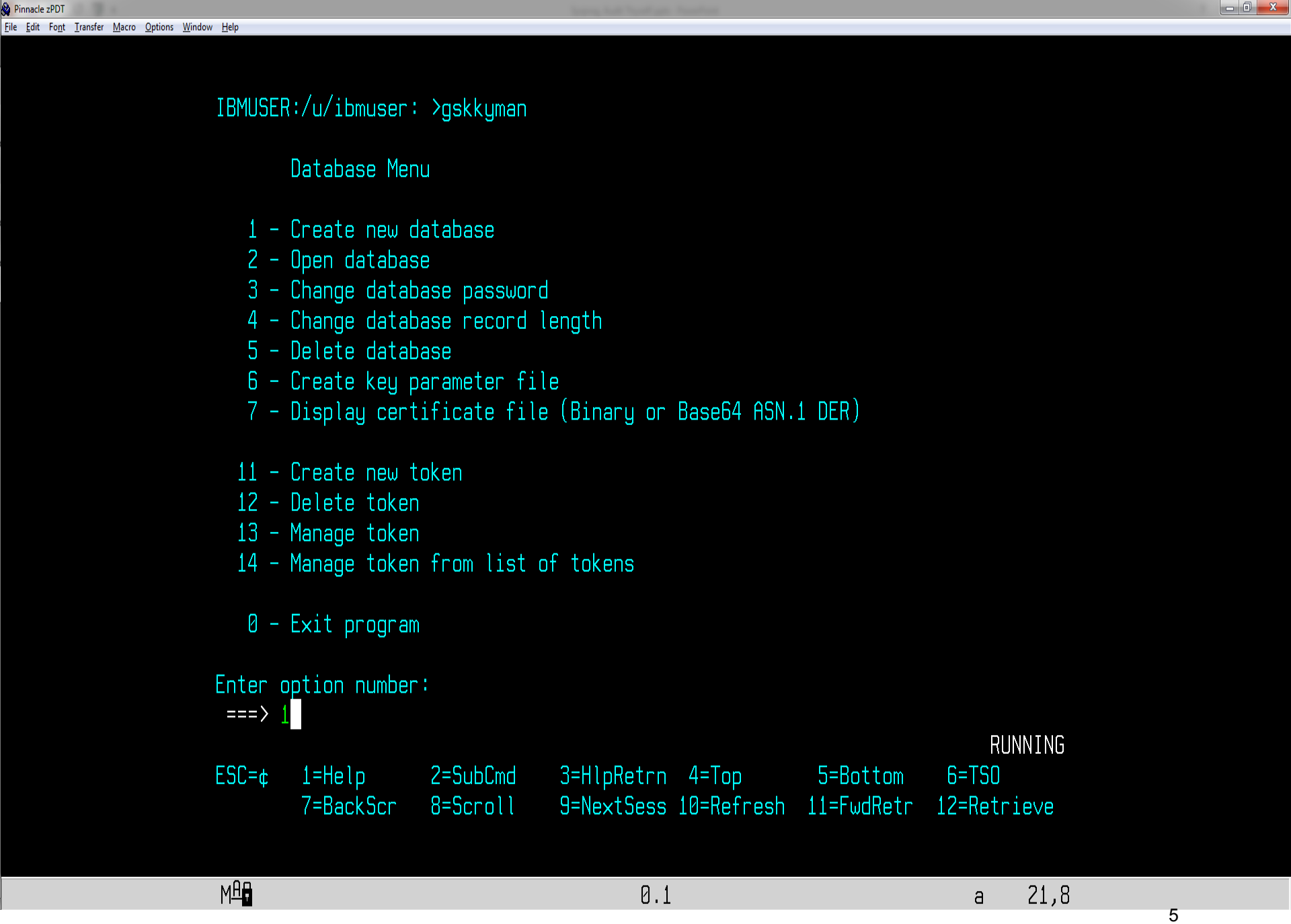
(Tom Conley)

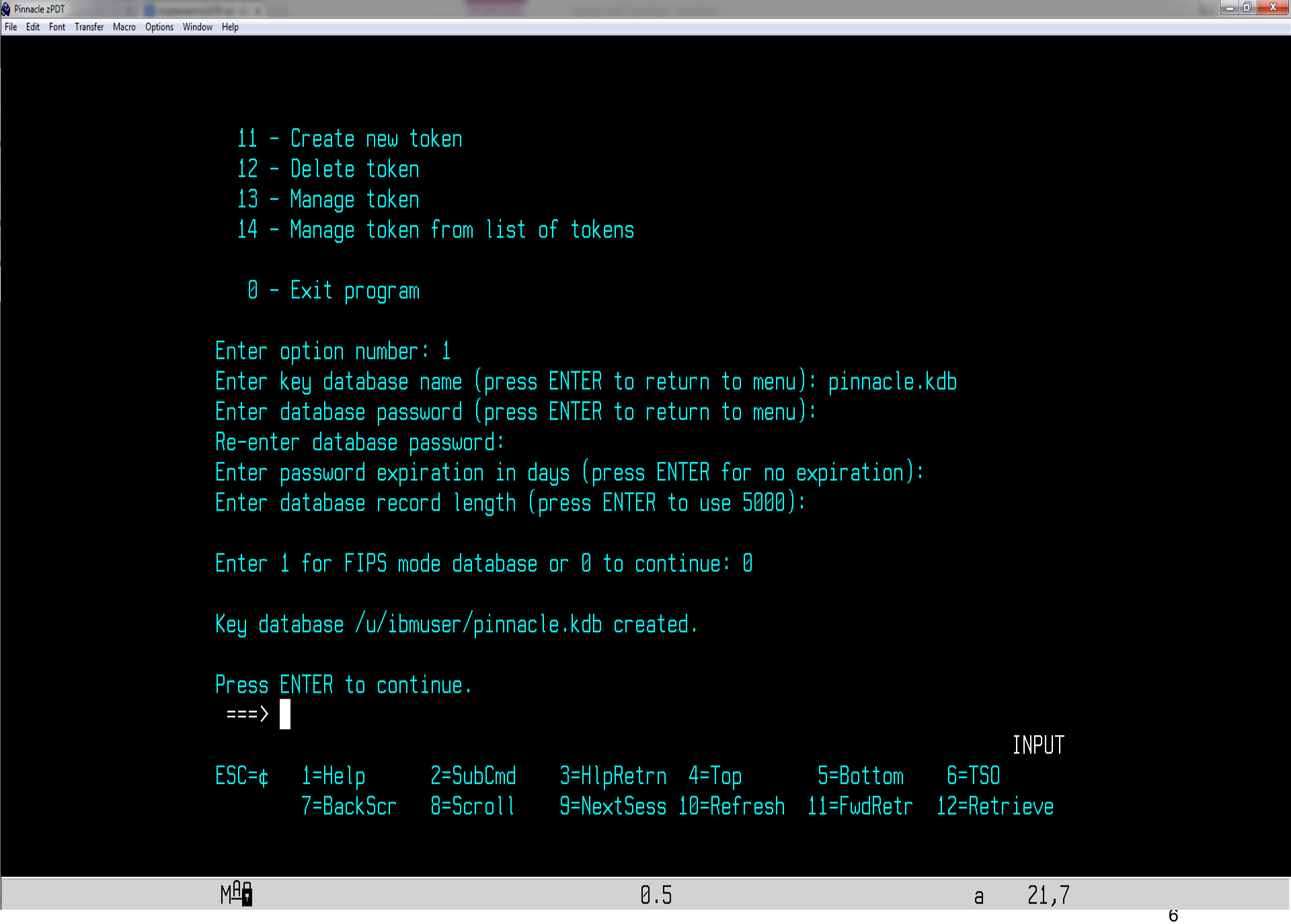
# SSL for TN3270

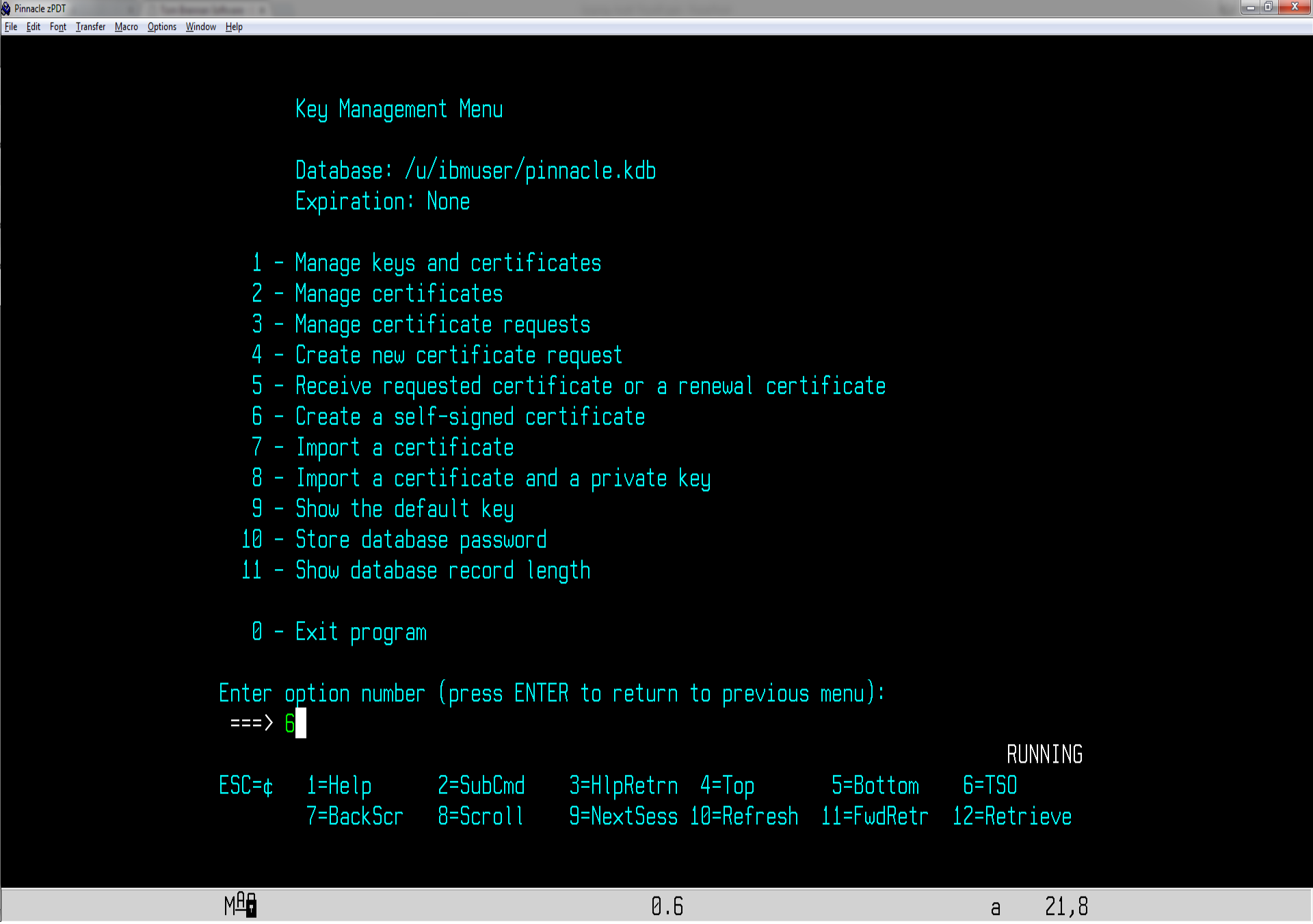
- Don't assume that your internal network is friendly
- You should encrypt traffic on your internal network to prevent passwords from going out in the clear
- A robust implementation would use IPSec, AT/TLS to encrypt all traffic on your internal network, but that implementation is time-consuming
- You can easily encrypt TN3270 traffic by enabling SSL, ensuring passwords are not in the clear
- While not the only way in, TN3270 is a significant percentage of mainframe network traffic, and used by most trusted users on the system

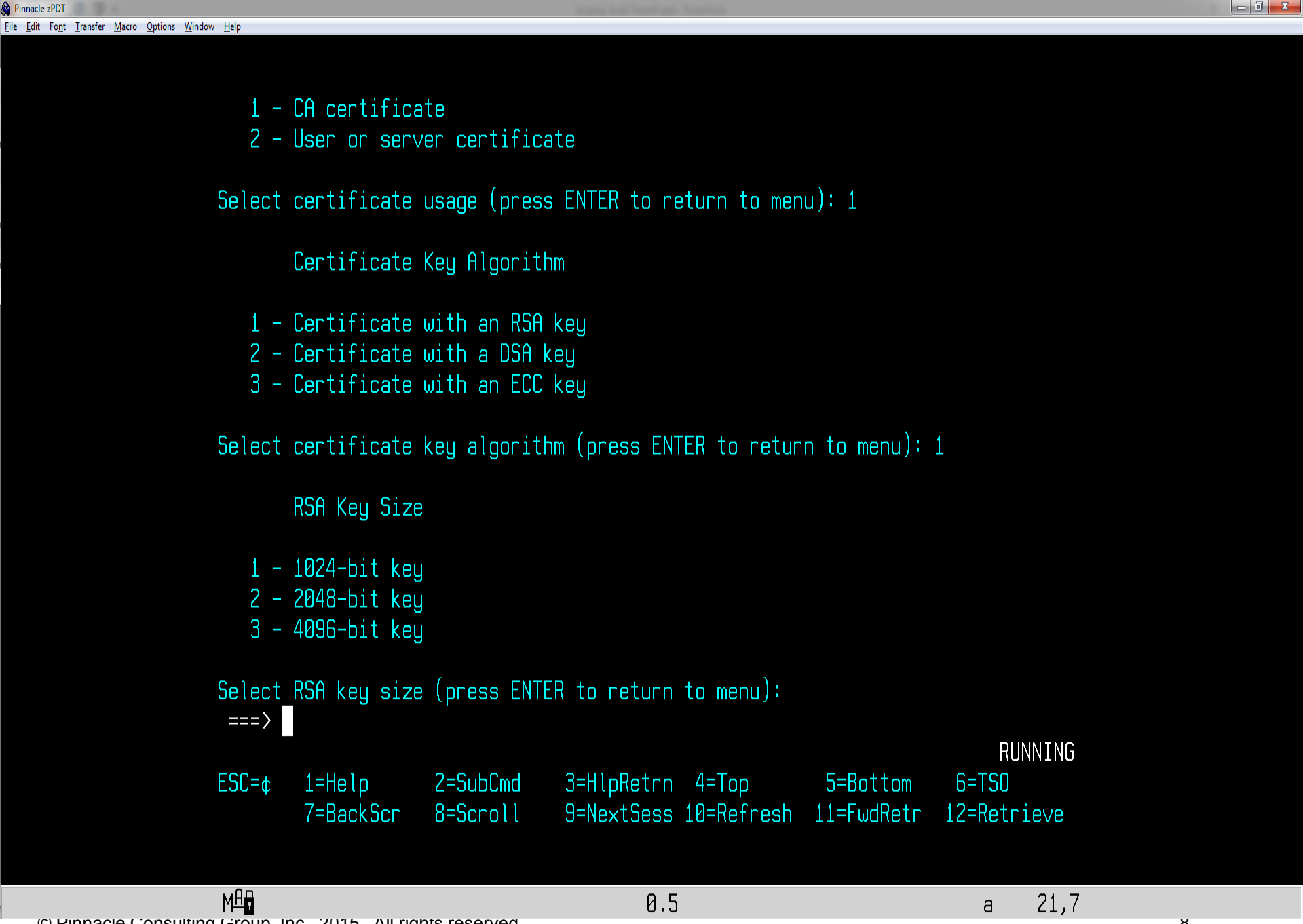
# SSL for TN3270

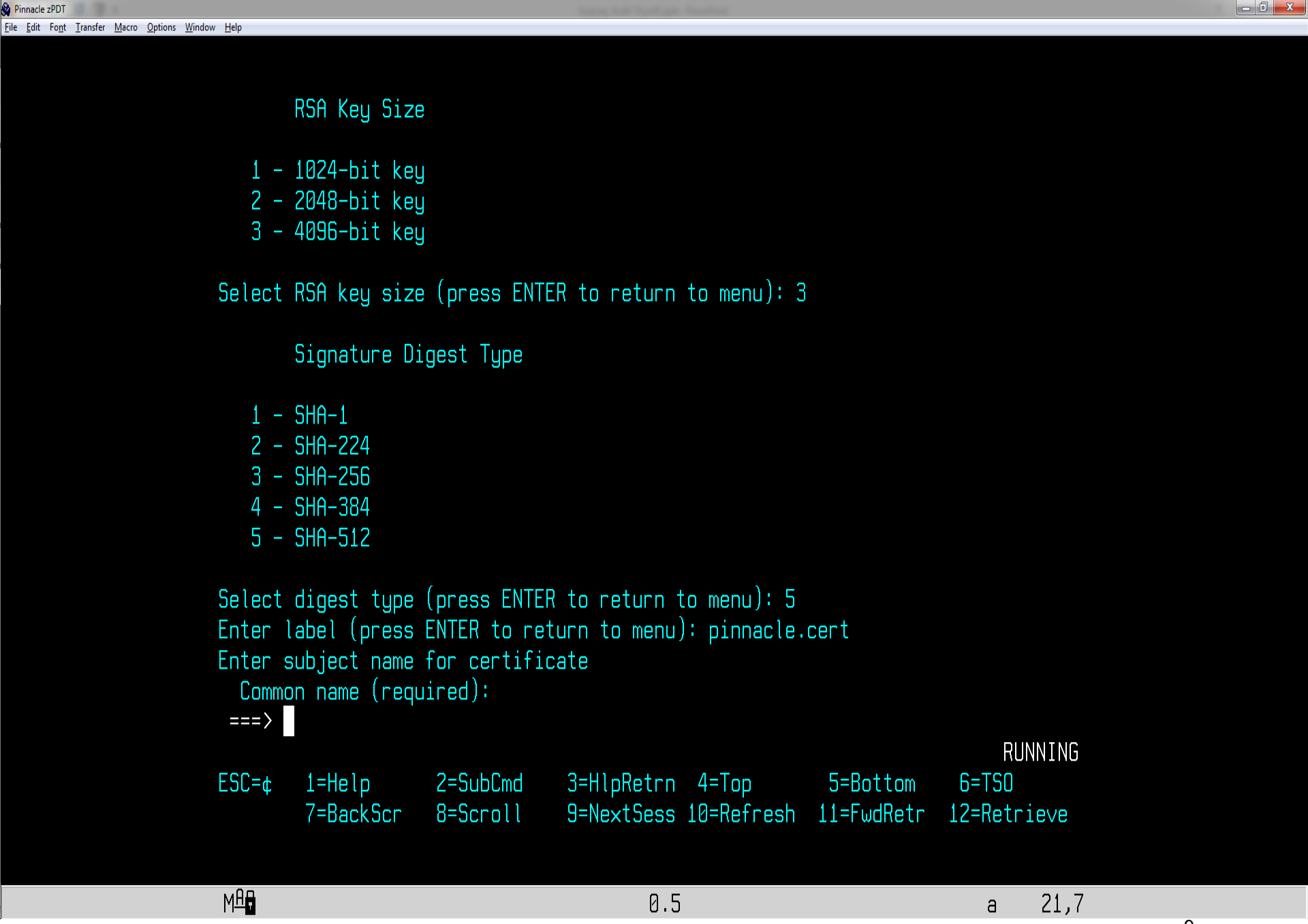
- Setting up SSL for TN3270 using self-signed certificate and key database takes about 10 minutes
- http://www.tombrennansoftware.com/bb/viewtopic.php?f=3&t=51 shows how to create key database with self-signed certificate, but steps missing due to updates in gskkyman
- http://www.tombrennansoftware.com/bb/viewtopic.php?f=3&t=50 shows how to create a RACF keyring with a self-signed certificate
- If your company has their own Certificate Authority (CA), you can sign certificate with that CA
- Self-signed cert gets you encrypted quickly, you can upgrade to a CA cert later

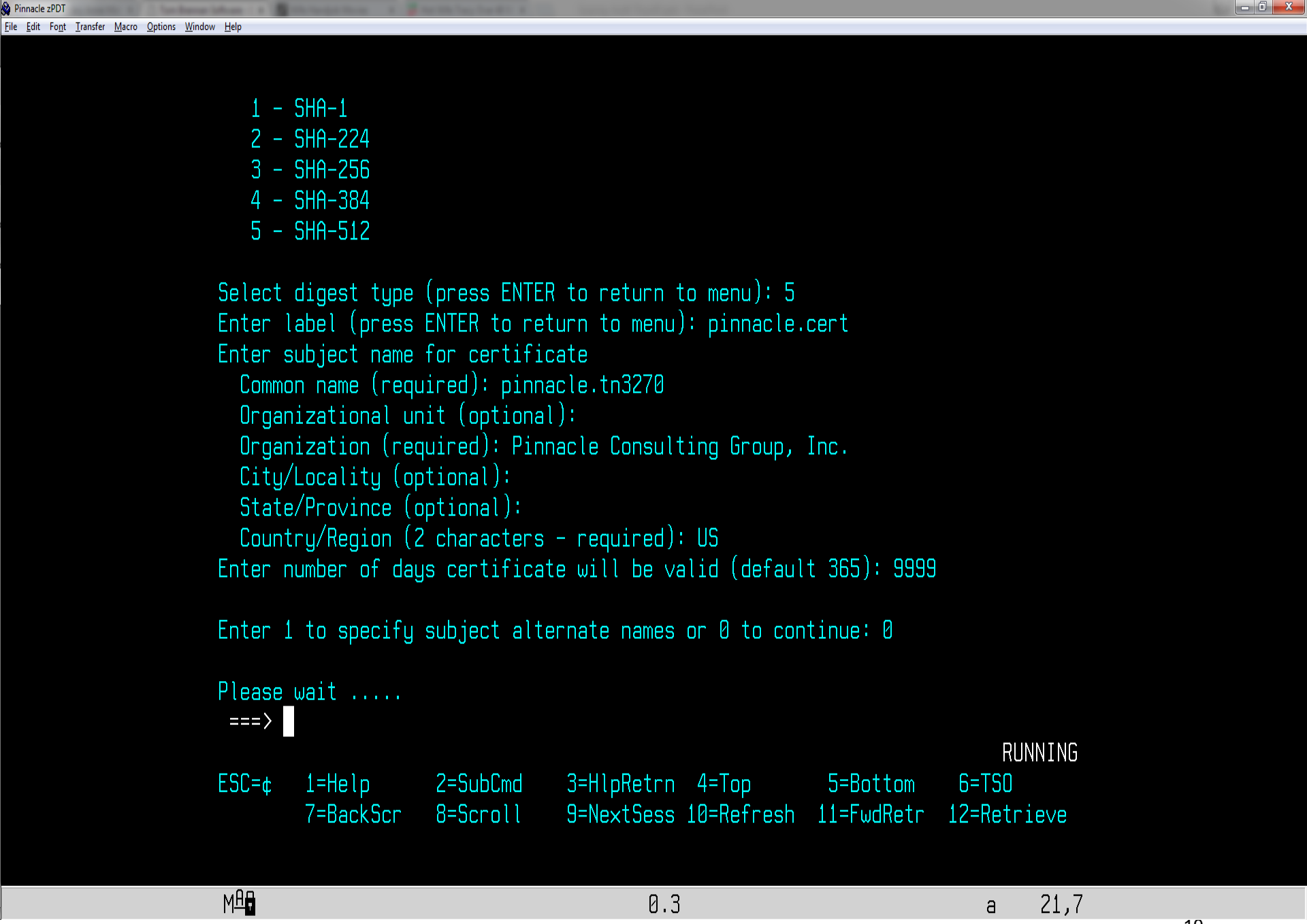

Pinnacle zPDT
File Edit Font Transfer Macro Options Window Help
IBMUSER:/u/ibmuser: >gskkyman
Database Menu
1 - Create new database
2 - Open database
3 - Change database password
4 - Change database record length
5 - Delete database
6 - Create key parameter file
7 - Display certificate file (Binary or Base64 ASN.1 DER)
11 - Create new token
12 - Delete token
13 - Manage token
14 - Manage token from list of tokens
0 - Exit program
Enter option number:
===> 1
RUNNING
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
MA
0.1
a 21,8

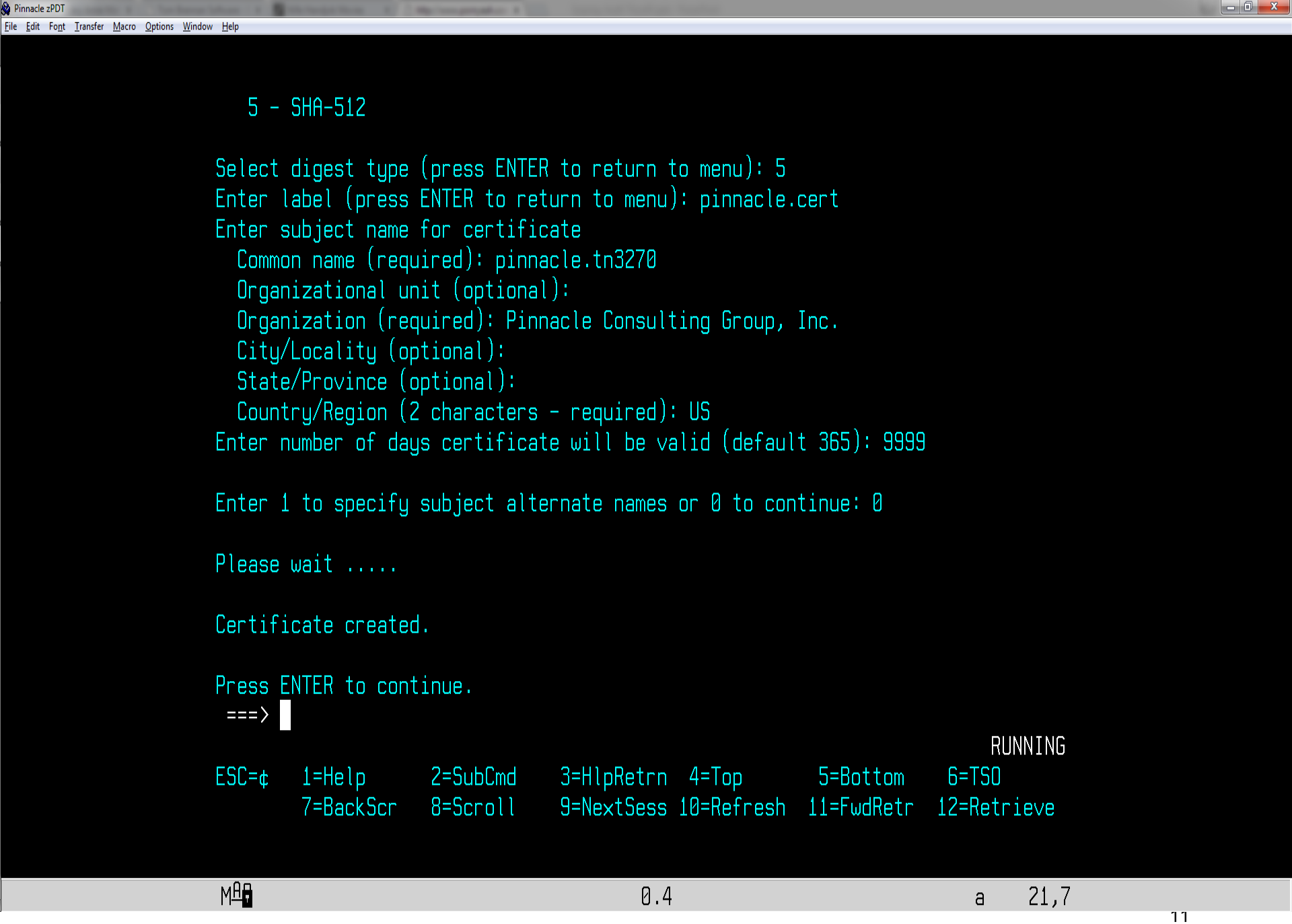

Pinnacle zPDT
File Edit Font Transfer Macro Options Window Help
11 - Create new token
12 - Delete token
13 - Manage token
14 - Manage token from list of tokens
0 - Exit program
Enter option number: 1
Enter key database name (press ENTER to return to menu): pinnacle.kdb
Enter database password (press ENTER to return to menu):
Re-enter database password:
Enter password expiration in days (press ENTER for no expiration):
Enter database record length (press ENTER to use 5000):
Enter 1 for FIPS mode database or 0 to continue: 0
Key database /u/ibmuser/pinnacle.kdb created.
Press ENTER to continue.
===>
INPUT
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
0.5
a 21,7


Pinnacle zPDT
File Edit Font Transfer Macro Options Window Help
Key Management Menu
Database: /u/ibmuser/pinnacle.kdb
Expiration: None
1 - Manage keys and certificates
2 - Manage certificates
3 - Manage certificate requests
4 - Create new certificate request
5 - Receive requested certificate or a renewal certificate
6 - Create a self-signed certificate
7 - Import a certificate
8 - Import a certificate and a private key
9 - Show the default key
10 - Store database password
11 - Show database record length
0 - Exit program
Enter option number (press ENTER to return to previous menu):
===> 6
RUNNING
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
0.6
a 21,8




Pinnacle zPDT
File Edit Font Transfer Macro Options Window Help
RSA Key Size
1 - 1024-bit key
2 - 2048-bit key
3 - 4096-bit key
Select RSA key size (press ENTER to return to menu): 3
Signature Digest Type
1 - SHA-1
2 - SHA-224
3 - SHA-256
4 - SHA-384
5 - SHA-512
Select digest type (press ENTER to return to menu): 5
Enter label (press ENTER to return to menu): pinnacle.cert
Enter subject name for certificate
Common name (required):
===>
RUNNING
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
MA
0.5
a 21,7


Pinnacle zPDT
File Edit Font Transfer Macro Options Window Help
1 - SHA-1
2 - SHA-224
3 - SHA-256
4 - SHA-384
5 - SHA-512
Select digest type (press ENTER to return to menu): 5
Enter label (press ENTER to return to menu): pinnacle.cert
Enter subject name for certificate
Common name (required): pinnacle.tn3270
Organizational unit (optional):
Organization (required): Pinnacle Consulting Group, Inc.
City/Locality (optional):
State/Province (optional):
Country/Region (2 characters - required): US
Enter number of days certificate will be valid (default 365): 9999
Enter 1 to specify subject alternate names or 0 to continue: 0
Please wait .....
===>
RUNNING
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
0.3
a 21,7


Pinnacle zPDT
File Edit Font Transfer Macro Options Window Help
5 - SHA-512
Select digest type (press ENTER to return to menu): 5
Enter label (press ENTER to return to menu): pinnacle.cert
Enter subject name for certificate
Common name (required): pinnacle.tn3270
Organizational unit (optional):
Organization (required): Pinnacle Consulting Group, Inc.
City/Locality (optional):
State/Province (optional):
Country/Region (2 characters - required): US
Enter number of days certificate will be valid (default 365): 9999
Enter 1 to specify subject alternate names or 0 to continue: 0
Please wait .....
Certificate created.
Press ENTER to continue.
===>
RUNNING
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
MA
0.4
a 21,7

# SSL for TN3270

- Key database and certificate now created
- Specify key database in TN3270 parmlib member

```
TelnetParms                ; Standard TN3270E Telnet server port
  Secureport 1234
  KEYRING HFS /u/ibmuser/pinnacle.kdb
  Conntype secure
  ClientAuth None
  SSLtimeout 10
  SSLv2
```

- Recycle TN3270 server, OBEYFILE usually fails
- Attempt connection with TN3270 SSL client

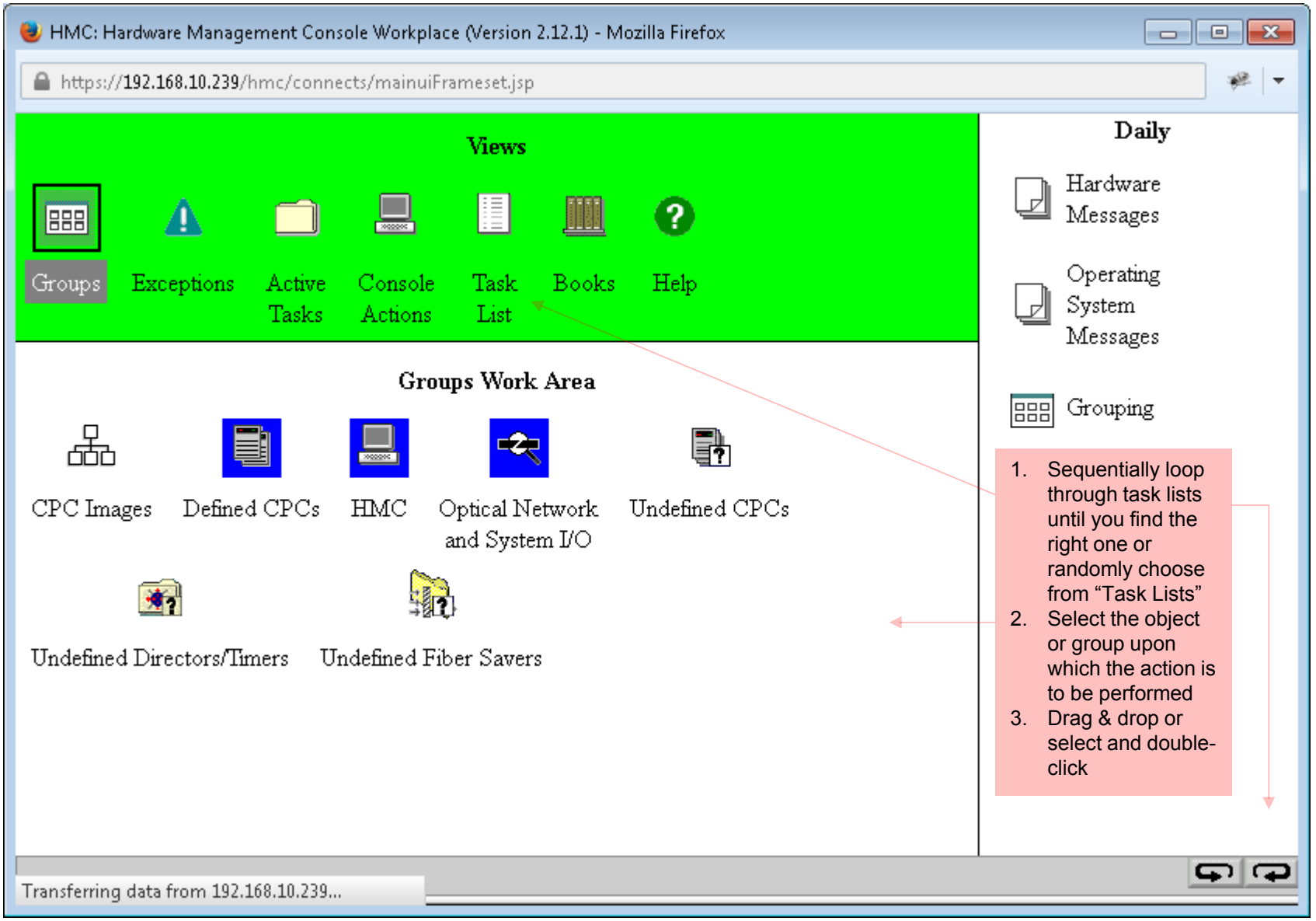
# Hardware Management Heaven

(Ed Jaffe)

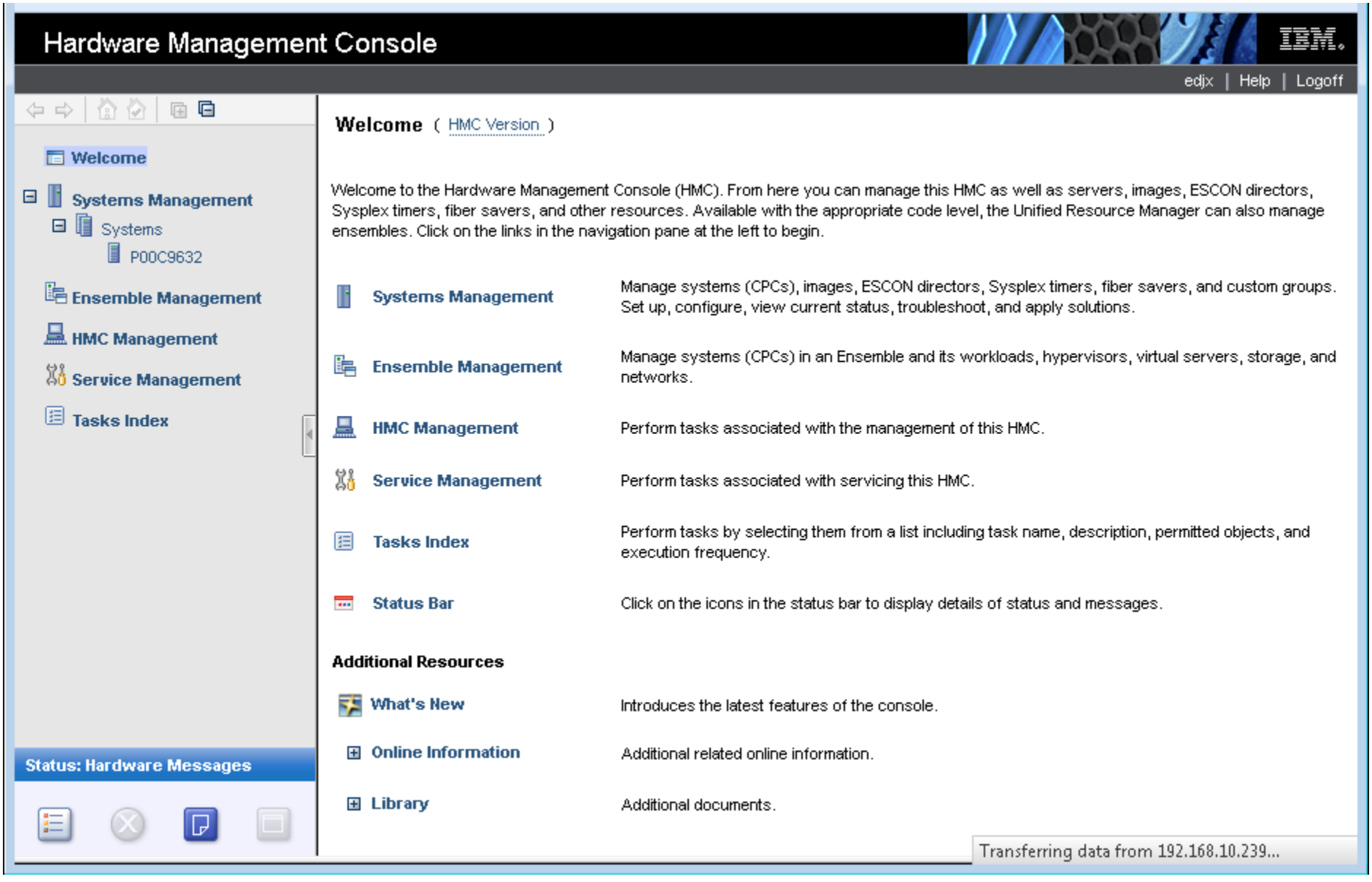
# A Blast from the Past!

- In providing support for a customer, we got a look at their HMC.
- It looked very much like the one that first arrived with the original 9672-Rx1 back in 1994!
- In discussing this, we learned that the customer was unaware that newer, more functional HMC interfaces have been implemented in recent years. The customer was happy to learn about this.
- This episode reminded me of my HMC Bit Bucket presentation from Atlanta (six SHAREs ago) called "View from the Topo" in which I described the HMC's topology view (subset of the Tree Style interface).
- This is a re-visitation of that discussion…

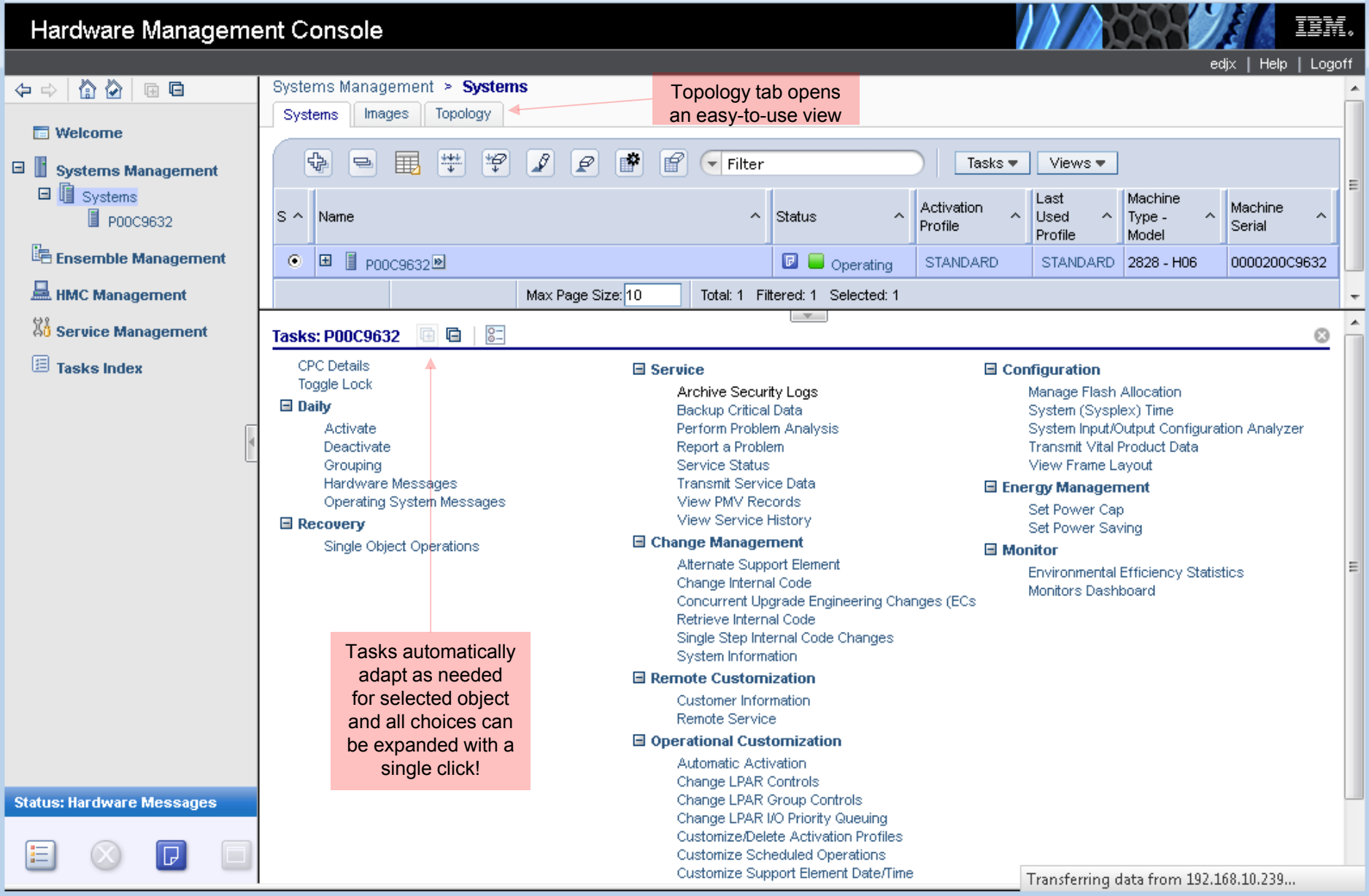
# HMC Classic Style – A Blast from the Past!



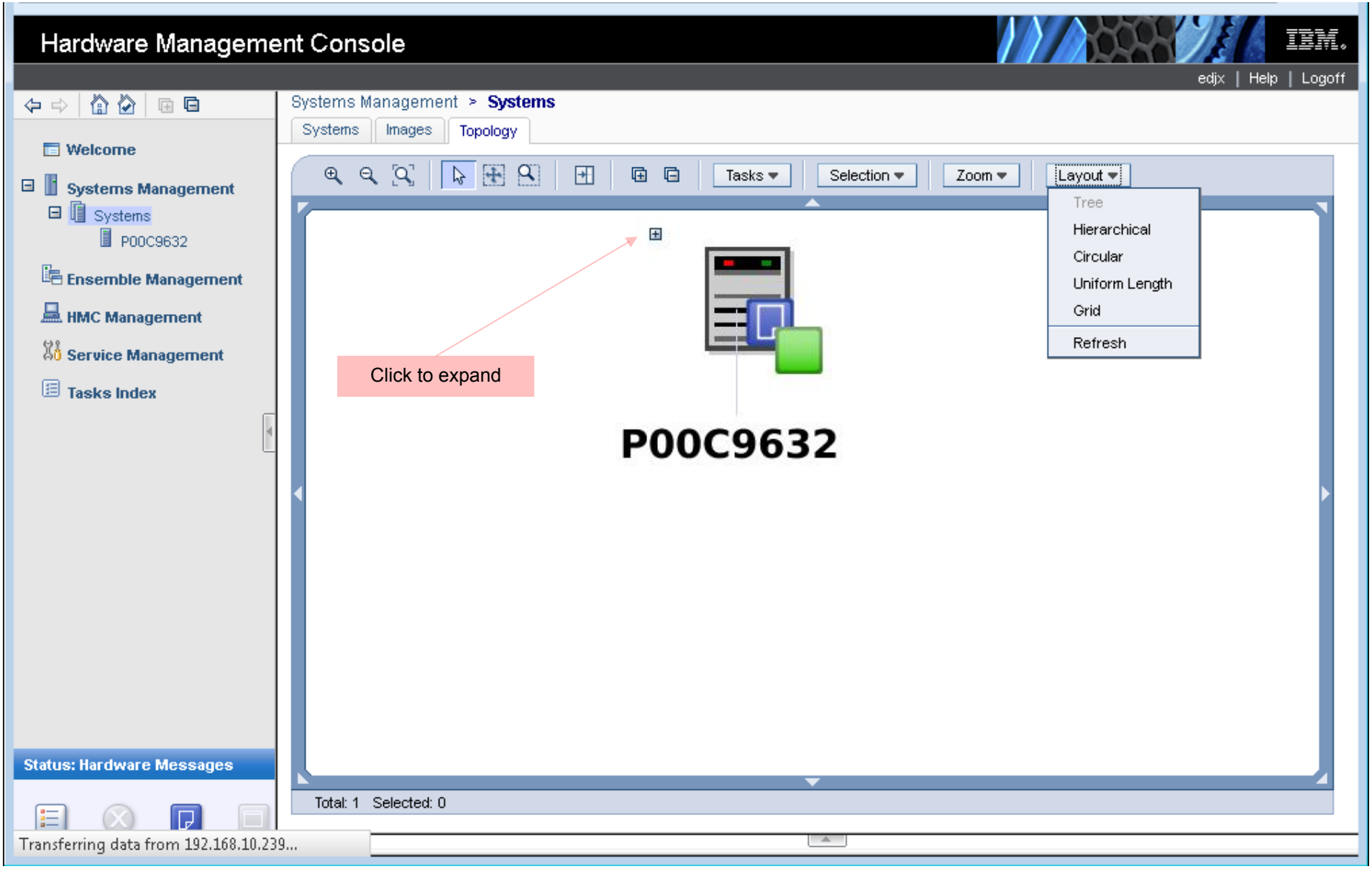
# HMC Tree Style – Much Easier to Use and a Necessity for Some Configuration Options



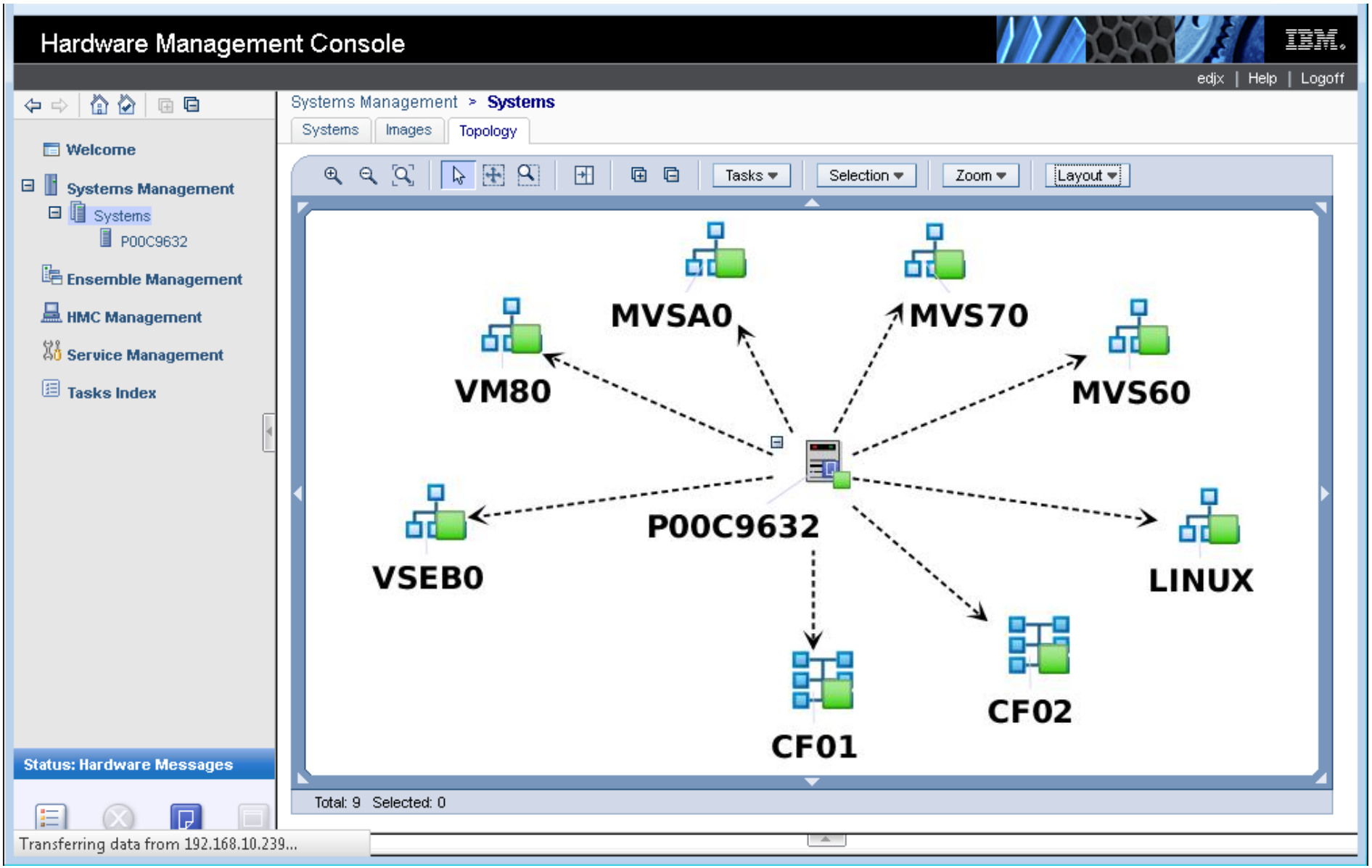
# HMC Tree Style with a CPC Selected



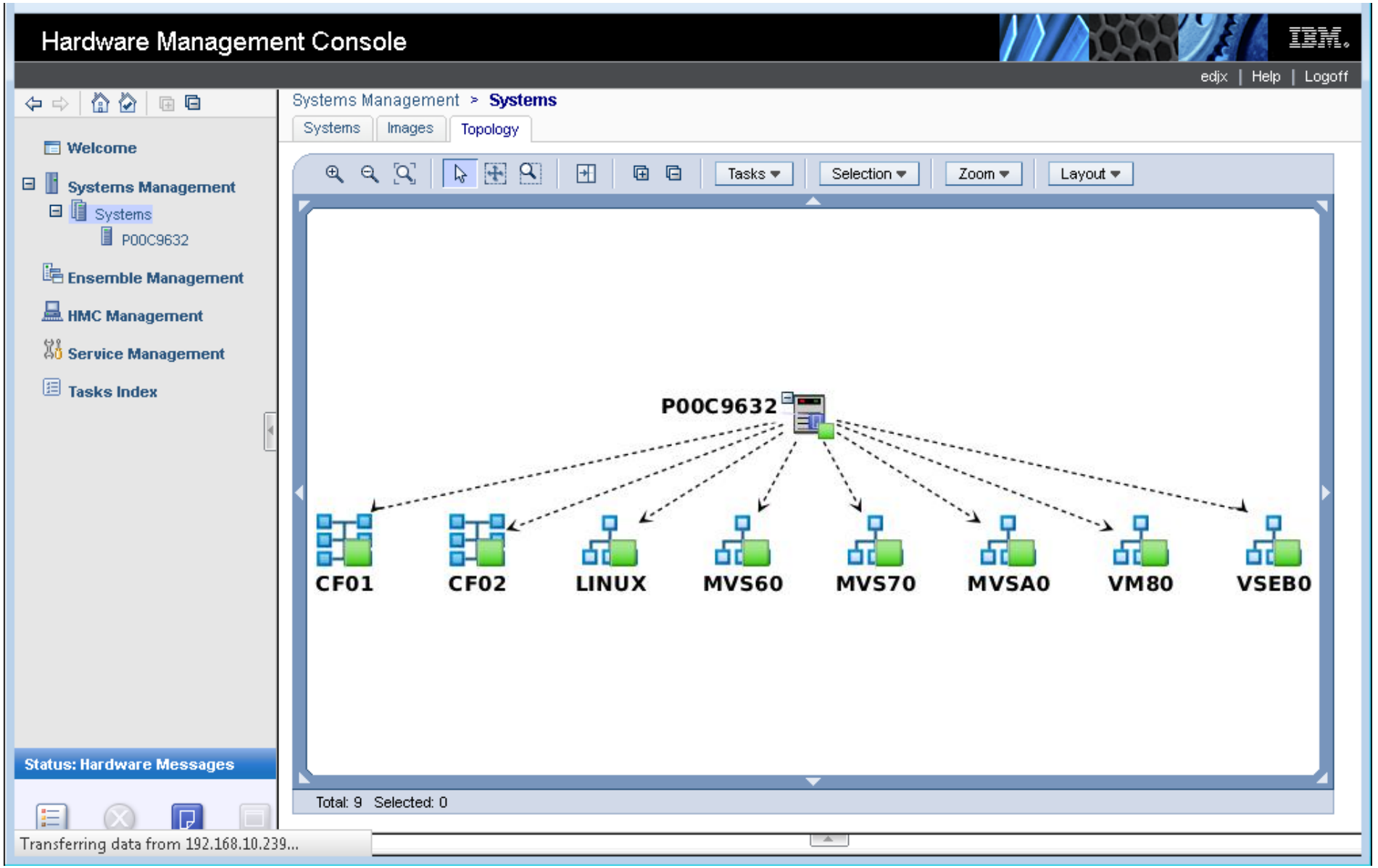
# HMC Topology View



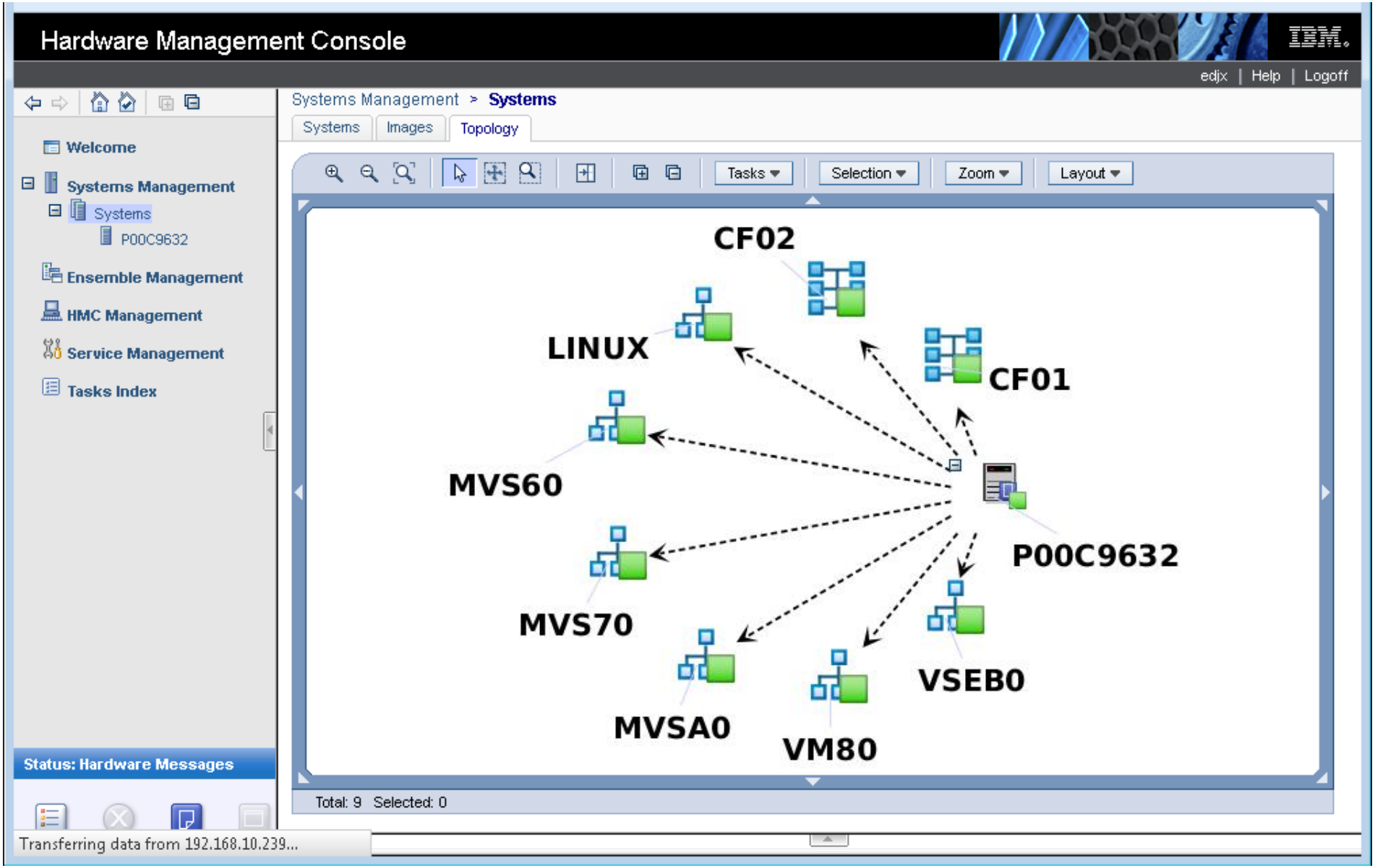
# HMC Topology – Tree Layout



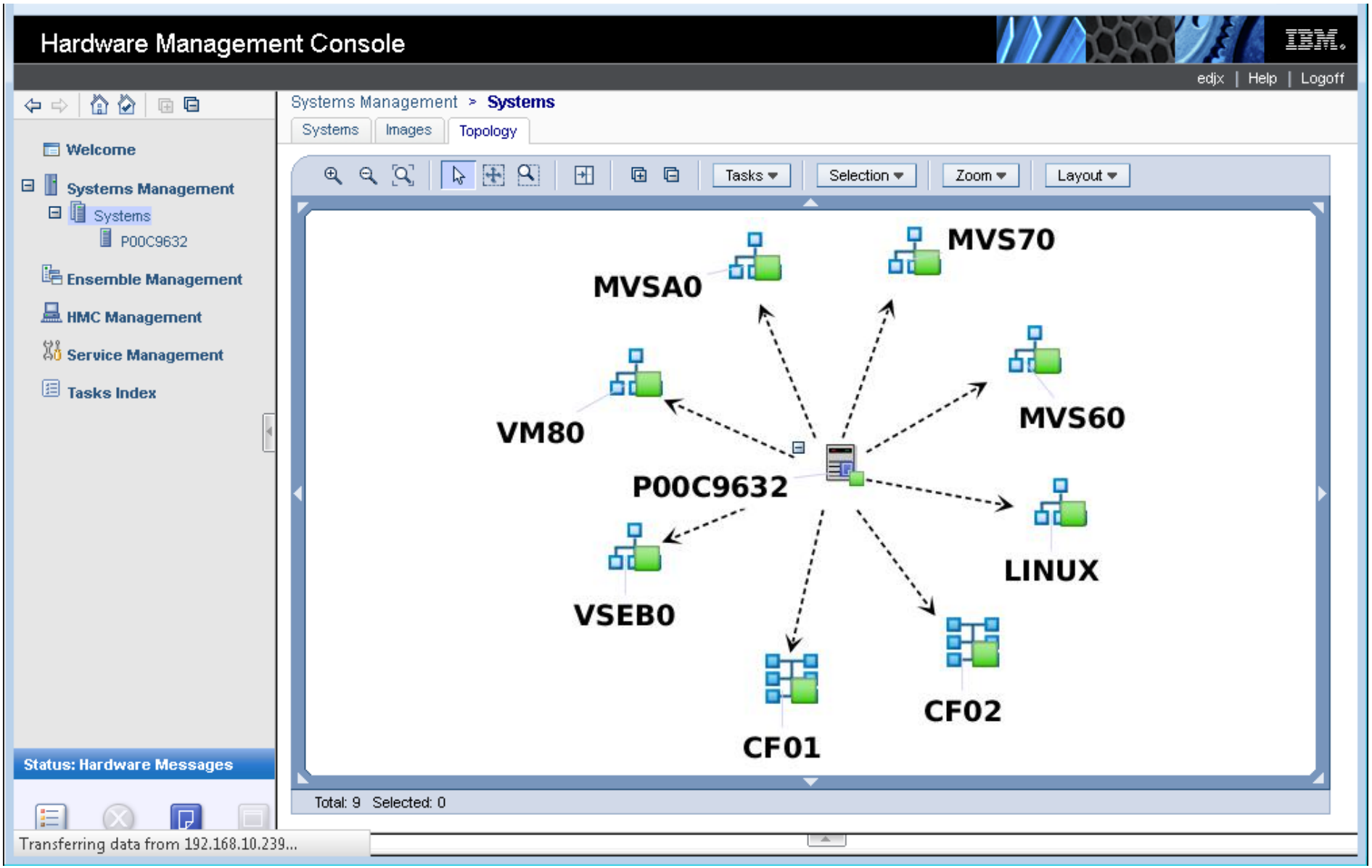
# HMC Topology – Hierarchical Layout



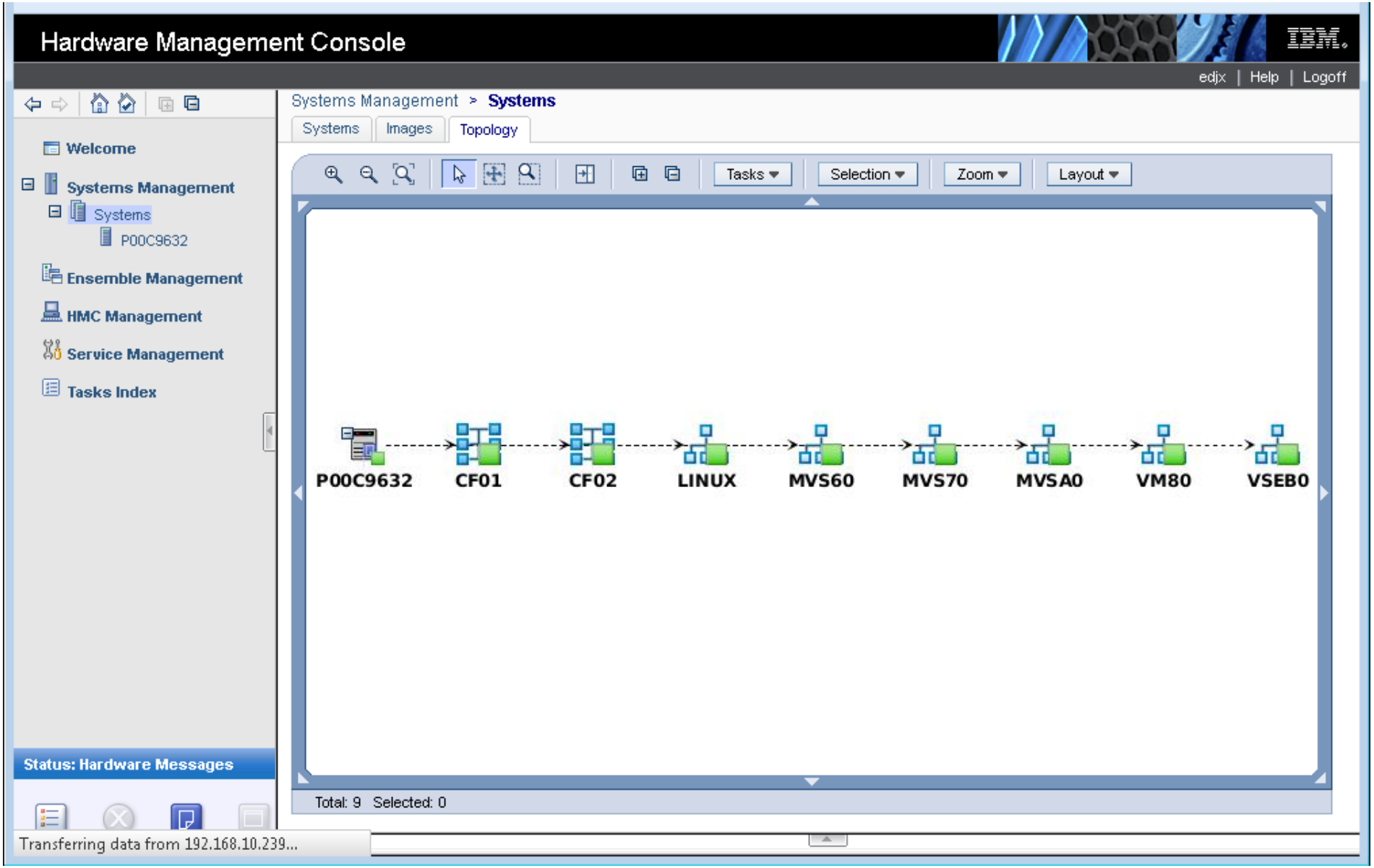
# HMC Topology – Circular Layout



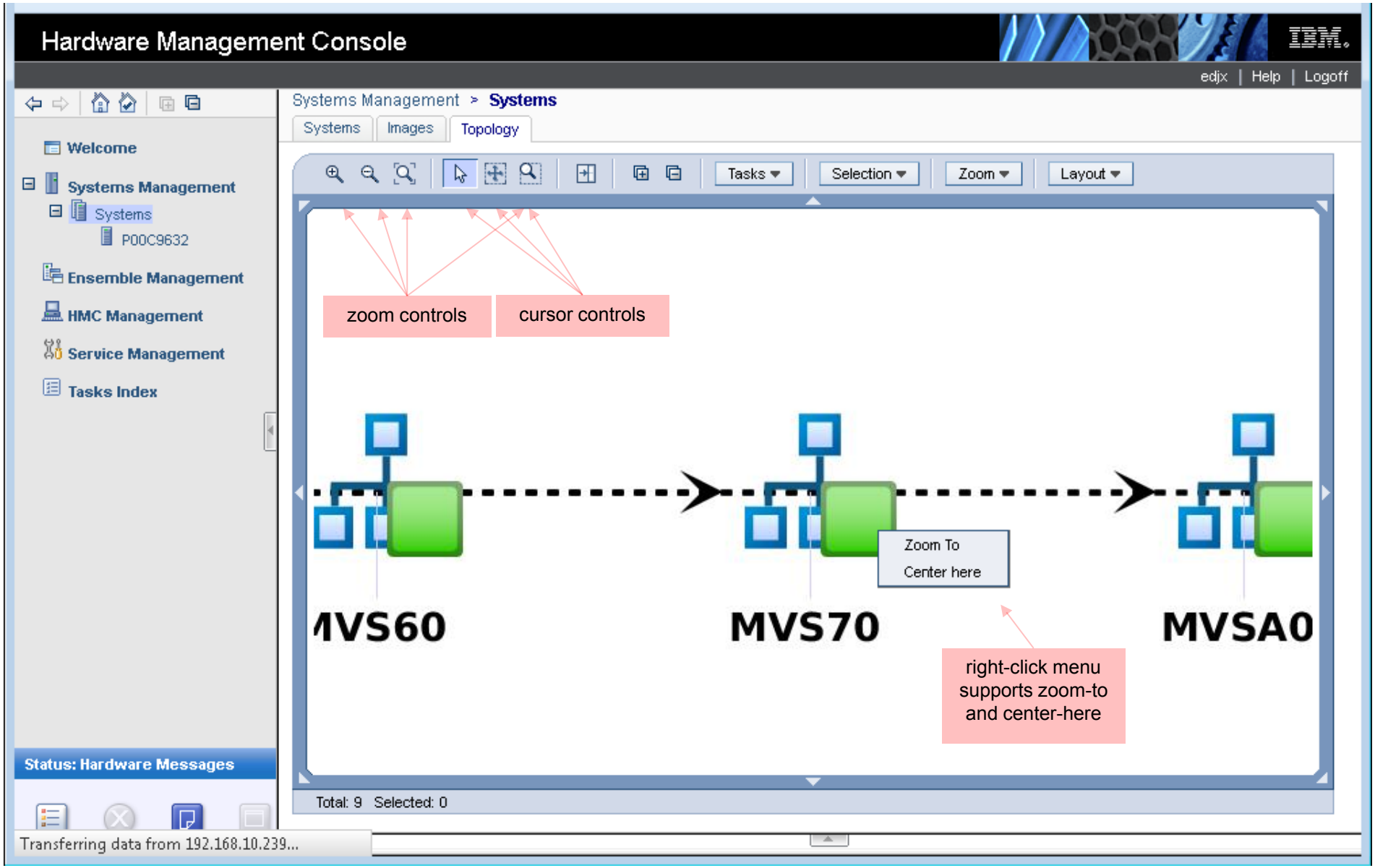
# HMC Topology – Uniform Length Layout



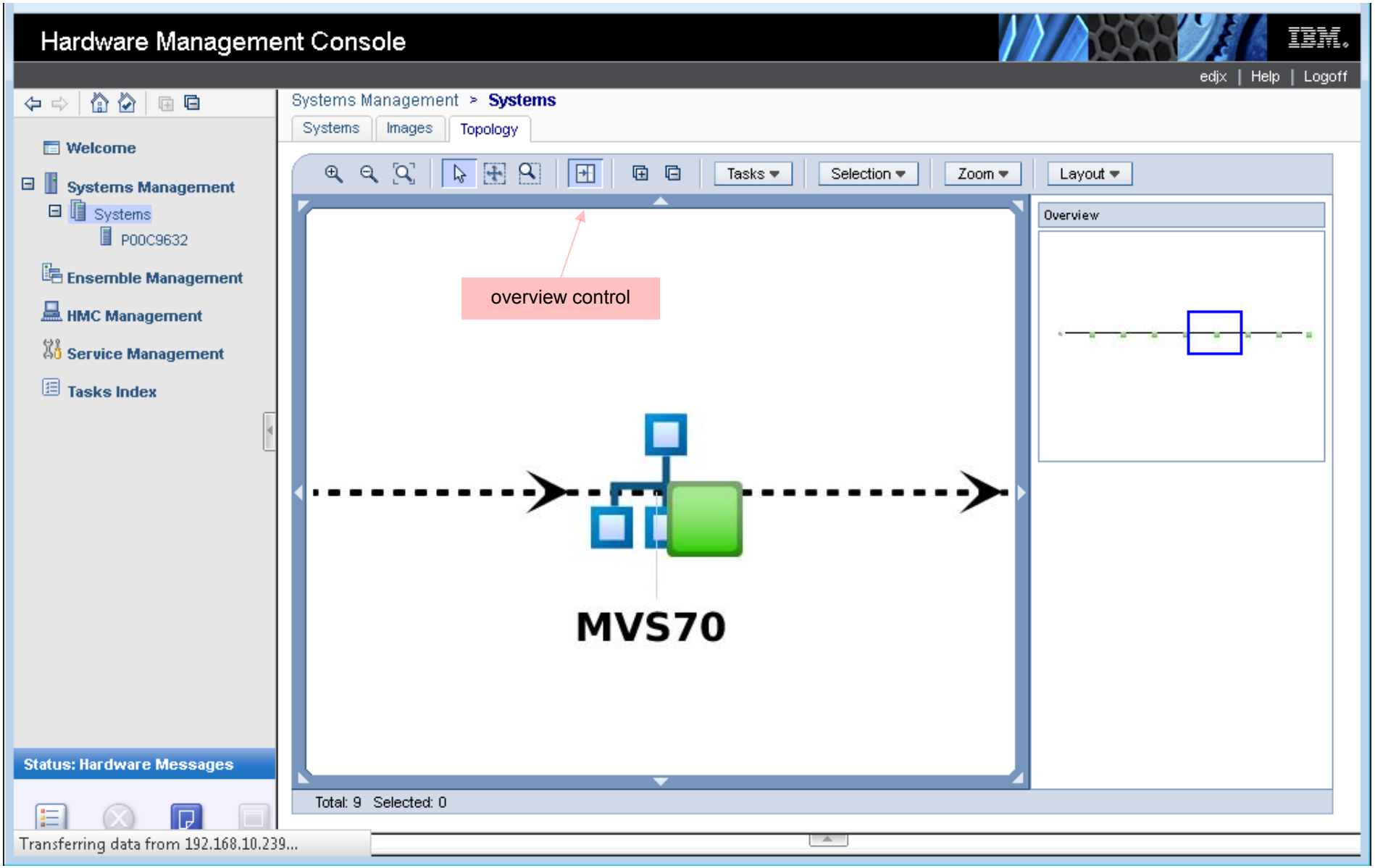
# HMC Topology – Grid Layout



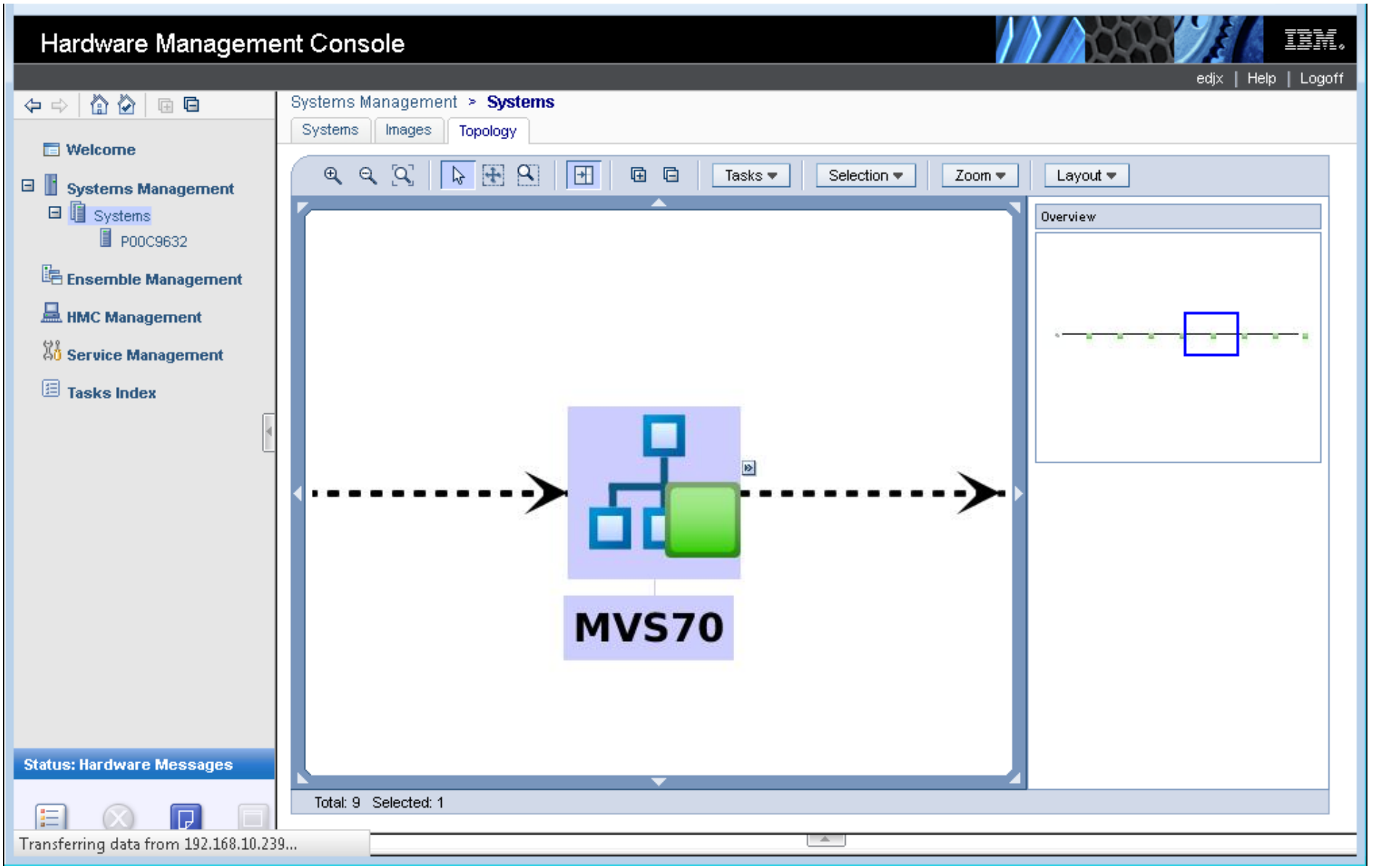
# HMC Topology – All Layouts Support Zoom In/Out



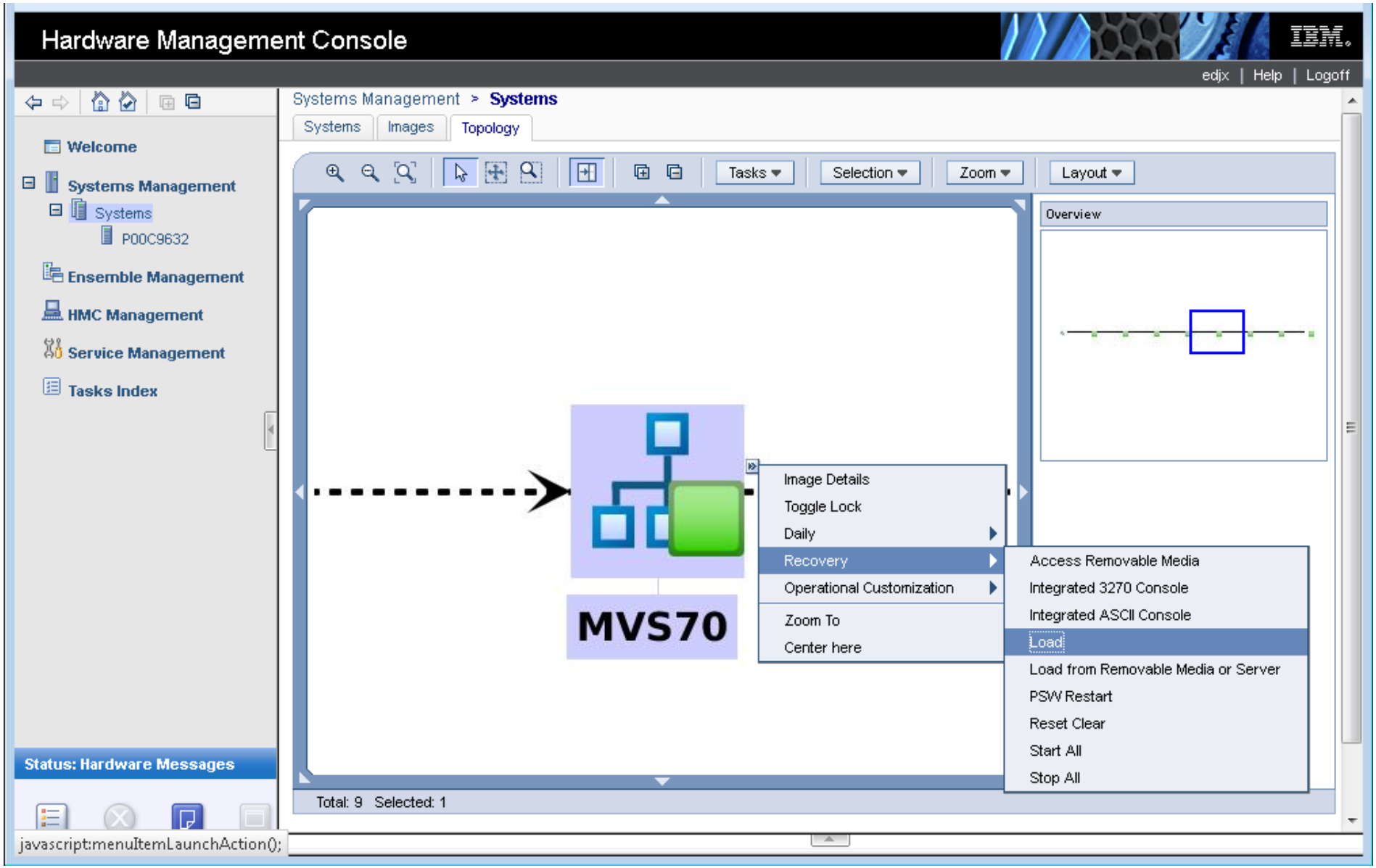
# HMC Topology – Zoomed Grid Layout with Overview



# HMC Topology – Select Object to Activate its Menu



# HMC Topology - Click >> to Expose Menu for Object



# zPotpourri

(Sam Knutson)

# Seattle all about the z

- Why IBM z Systems?

# Seattle all about the z



- the "z" stands for "zero down time."
- With a MTTF of over 40 years it's all about the z

# FOIL

- foil n. Viewgraph, transparency, viewfoil - a thin sheet or leaf of transparent plastic material used for "overhead" projection of illustrations (visual aids).
- the term "Foil" was widely used in IBM and SHARE…
- the acronym originally stood for "Foil Over Incandescent Light".
- This therefore seems to be IBM's first attempt at a recursive language.
- FOILS5 program gave us a style of presentations and printed handouts that is burned into our collective memory

**SHARE 86 - Interesting MVS APARs**
**More Cancel Enhancement**

**APAR OW14392**

- Release - MVS/SP 5.1.0 and up
- Function - Cancel Enhancement (also known as Parallel Detach) was shipped with MVS/SP 5.1.0 to resolve deadlock situations during termination (such as CANCEL) of an address space. This APAR provides further enhancement to relieve the situation as described in SUG APAR OW13452.
- PTFs - UW21981, UW21982, UW21983

# Some Assembly Required

- Dr. John Erhman Old books and presentations
  - http://www-01.ibm.com/software/awdtools/hlasm/share.html
  - To get a deeper understanding of IBM's High Level Assembler and Toolkit Feature, view or download these SHARE presentations (written by John Ehrman of the IBM Silicon Valley Laboratory)
  - Extending the Life Cycle of Legacy Applications: Specific to Assembler Language
  - Finding and Fixing Assembler Language Problems: How High Level Assembler Can Help
  - Assembler Language as a Higher Level Language: Macros and Conditional Assembly Techniques
  - Continuing to profit from legacy Assembler code
  - More…

Overview

Overview: How HLASM Can Help

- Things HLASM can help with:
  - Information available in the listing
    - The program being assembled
    - The assembly environment
    - How to reveal possibly-hidden information
  - Useful options
  - Optional diagnostics
  - Macro-related information and problem solving
  - Other things worth noting
- Things HLASM can't help with: (Sorry!)
  - Problems with program structure, logic, or style
    - HLASM Toolkit components can help with these
  - Problems with using the wrong files (such as libraries)
  - Resource constraints (but HLASM can sometimes cope)

HLASM © IBM Corporation 2008, 2009. All rights reserved. 1

The High Level Assembler for MVS & VM & VSE provides extensive information about the programs it assembles and the assembly environment, and supports flexible controls over both the displayed information and diagnostics to be applied to the program.

This document summarizes many ways to benefit from the capabilities of the High Level Assembler, particularly for locating problems with Assembler Language programs.

High Level Assembler is designed to assemble programs efficiently, but it does not try to create an "overview" or comprehensive analysis of the program as a whole. Thus, matters such as coding style, program structure and organization, and logic are largely invisible to the assembler. Certain statements with wide-ranging effects, such as USING instructions, are analyzed with care, but this analysis is based only on the information known at the time the statement is processed.

The High Level Assembler for MVS & VM & VSE Toolkit Feature provides several components that can help with understanding and managing programs "in the large" such as the Interactive Debug Facility, the Program Understanding Tool, and the Source Cross-Reference Utility.

Overview 1

# Some Assembly Required

- Long awaited a NEW Assembler book from Dr. John Erhman released this year
- Assembler Language Programming for IBM z System™ Servers Version 1.00
- 1279 pages, How & Why, Exercises
- $0 == Priceless!
- Marist College web site:
- http://idcp.marist.edu/enterprisesystemseducation/Assembler%20Language%20Programming%20for%20IBM%20z%20System%20Servers.pdf
- Or http://tinyurl.com/qcnzrwc

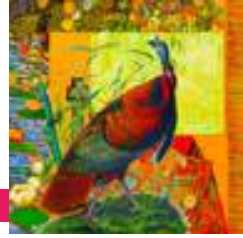
MVS is a Tur(n)key

(Sam Knutson)

# Hercules - What is it?

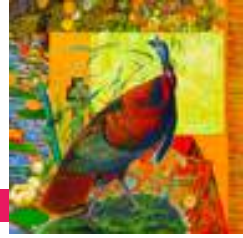
- Hercules is a System/370, ESA/390 and z/Architecture emulator which can IPL and execute most of the instructions defined for these architectures. It can also emulate CKD and FBA DASD, printer, card reader, tape, channel-to-channel adapter, and local non-SNA 3270 devices.
- Currently runs under Linux, Windows, Mac OS X
- Capable of running nearly all software written for S/370, ESA/390 and z/Architecture
- Hercules Home Page http://www.hercules-390.org
- Active User Community on Yahoo Groups include hercules-390, H390-MVS, turnkey-mvs, H390-VM, more!
- http://groups.yahoo.com/group/hercules-390

# MVS 3.8j Tur(n)key 4- System



- MVS 3.8j Tur(n)key 4- ("TK4-") is a ready to use OS/VS2 MVS 3.8j system built specifically to run under the Hercules System/370, ESA/390, and z/Architecture Emulator. It is an extension of the original MVS Tur(n)key Version 3 System ("TK3") created by Volker Bandke in 2002. See the User's Manual for credits and copyrights.
- TK4- update created by Juergen Winkelmann
- http://wotho.ethz.ch/tk4-/ provides the downloads includes a user guide, optional source code, optional CBT DASD, and the most current copy of TK- along with incremental updates if you have downloaded it previously.
- TK4- is a personal preference of the author on how to operate and maintain a vintage MVS system.

# MVS 3.8j Tur(n)key 4- System



- Downloaded in about 10 minutes
- Unzip everything takes about 500M
- Double click MVS.BAT
- TN3270 to localhost port 3270
- At this point everything works but you may now want to read the user manual ☺
- You will find the USERID and Password to logon which is HERC01 CUL8TR

# MVS 3.8j Tur(n)key 4- System

Vista TN3270 Session A

File Edit Font Transfer Macro Options Window Help

```
Hercules Version   : 4.00
Host name          : DTW127512N01
Host OS            : Windows-6.1.7601 7 Professional 64-bit
Host Architecture  : Intel(R) x64
Processors         : LP=4, Cores=2, CPUs=1
LPAR Name          : HERCULES
Device number      : 0:00C0
```


TK3 created by Volker Bandke vbandke@bsp-gmbh.com
TK4- update by Juergen Winkelmann winkelmann@id.ethz.ch
see TK4-.CREDITS for complete credits

MA 0.0 03/05/15.064 04:50PM localhost a 1,1

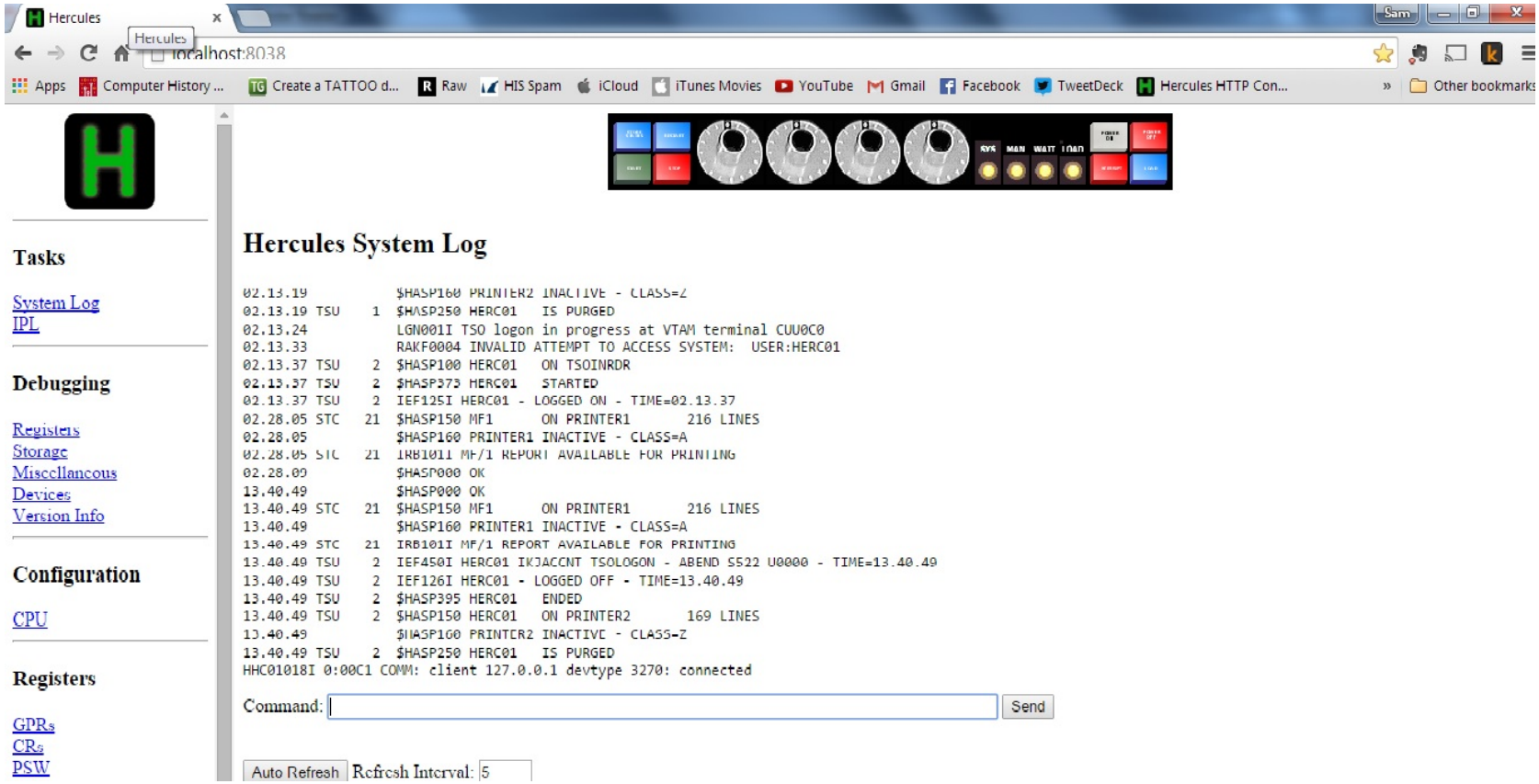
# MVS 3.8j Tur(n)key 4- System

- System is ready to use with many tools that you might also find work and would be useful on z/OS
- REVIEW (RFE) & IMON http://www.prycroft6.com.au/software.html
- RPF http://members.quicknet.nl/rn.prins/Rpf_En.htm

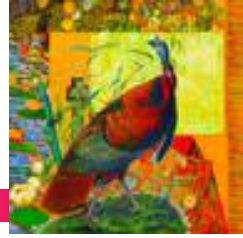
```
Terminal  CUU0C0                                          Date  23.11.13
System    TK4-                                            Time  16:30:35
TSO User  HERC01

Option ===> 1

                The MVS 3.8j Tur(n)key System
                     TK Level 4- PUT 8505

                       TSO Applications

      1  RFE          "SPF like" productivity tool
      2  RPF          "SPF like" productivity tool
      3  IM           IMON/370 system monitor
      4  QUEUE        spool browser
      5  HELP         general TSO help
      6  UTILS        information on utilities and commands available
      7  TERMTEST     verify 3270 terminal capabilities


 PF3=Exit
```

# MVS 3.8j Tur(n)key 4- System

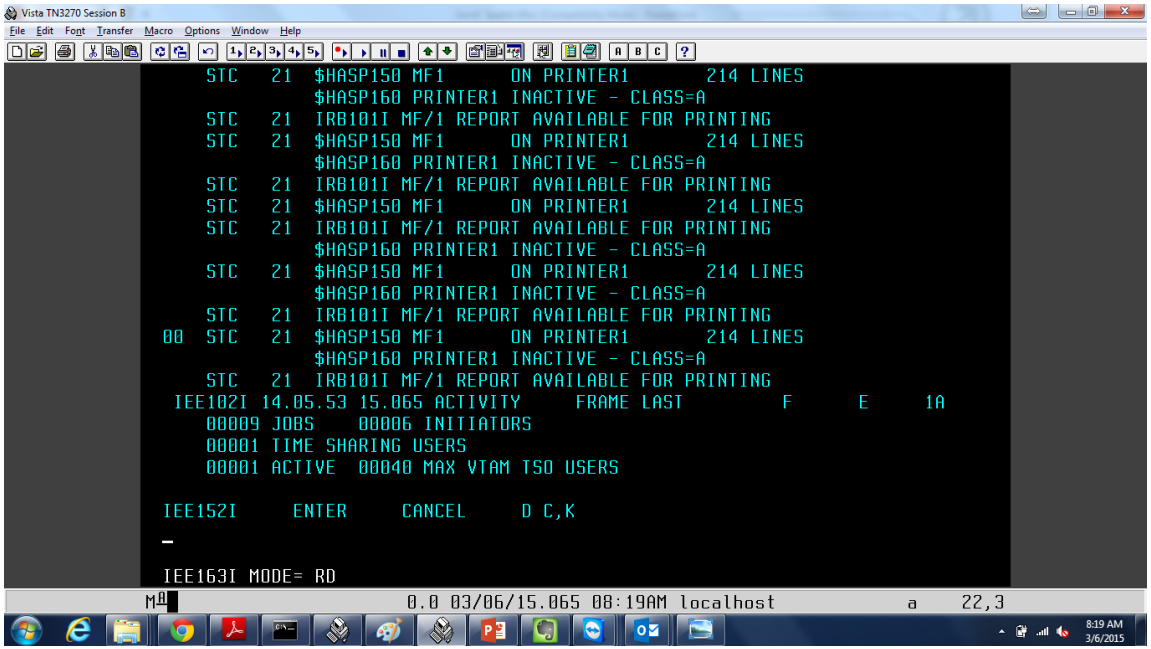
- HTTP Console for Hercules is below which you access using a Web browser on your PC http://localhost:8038/



# MVS 3.8j Tur(n)key 4- System



- **If you want an MVS console on HTTP Console for Hercules issue** attach 010 3270 CONS
- Connect a TN3270 to Hercules with LUNAME CONS. I like Vista 3270 from Tom Brennan http://www.tombrennansoftware.com/
- Then issue /v 010,console,auth=all at the HTTP Console



# Irreconciled Differences

(Skip Robinson)

# Irreconciled Differences

- We use Netview System Automation (SA)
- We depend heavily on it for
- Startup and shutdown
- Task restart
- Message handling
  - To respond to WTOR
  - To take some other action

- Our first z/OS V2.1 was IPLed on a sandbox system
- Member of a small, fully functional parallel sysplex
- Like all our sysplexes, 'everything is shared'
- Had been running R13 since our ESP days
- Now running different levels--SOP for new rollout

# Irreconciled Differences

- Most everything came up fine
- System Automation did not
- All kinds of errors and failures
- Especially with message handling
- Under R13 everything worked fine
- Used all the same files except sysres-resident

- We opened SR with IBM: Level 2 was mystified
- R13 Serverpac had come with Netview 6.1 and SA 3.3
- V2.1 Serverpac came with Netview 6.2 and SA 3.4
- Much doc flowed over the interweb
- Many suggestions offered and implemented
- Lots of frustration and delay ensued
- V2.1 rollout was stuck on the first sandbox system

# Irreconciled Differences

- Eventually someone mentioned Subsystem Name Table
- IEFSSN defines z/OS subsystems for IBM, vendor, and user
- Includes entries for Netview and SA
- We try to avoid duplicating similar PARMLIB members
- Causes confusion, prone to error over time
- Here we created two members: Shared 00 and release-specific 01
- Concatenated as (00,01)
- Layout of IEFSSN00
  - SMS
  - JES2
  - Two entries for TCP/IP (don't ask me why)
  - BEGINPARALLEL
  - A whole bunch of other entries

# Irreconciled Differences

- IEFSSN01 contained only entries for Netview and SA
- Why? Skip's hot button: incompatible product changes
- Netview V6 had changed SSN by adding INITRTN(DSI4LSIT)
- Netview V5 could not tolerate this parameter
- I.e. R13 could not share SSN member with R12
- Skip's Rube Goldberg workaround
- Isolate Netview entries in a separate 01 member
- Put unique IEFSSN01 on SYSRES for R12 and R13
- Share IEFSSN00 in the common PARMLIB
- Result: entries for Netview/SA were at the bottom
- This worked fine for R12 and R13
- SYSRES for V2.1 was built the same way
- Even though the compatibility issue was long gone

# Irreconciled Differences

- This layout of SSN entries was the culprit
- z/OS 2.1 with Netview 6.2 and SA 3.4 was broken
- I moved Netview and SA entries to -00 before BEGINPARALLEL
- Eliminated -01 altogether
- Result works fine for both R13 and V2.1
- After months of stagnation, problem vanished

- Conclusion: incompatible parm changes are deadly
- Customer is forced to invent his own cockamamie accommodation
- This particular customer is not smart enough to survive the challenge

# My Head on a JES2 Block

- Several JES2 control block changes in V2.1
- Some fields moved from $DTE/$DCN to $CIWORK
- This was done in support of 'batch modernization'
- In Exit 6, we used these fields
  - DCNVMSG 'ACB FOR SYSTEM MSGS DATA SET'
  - DCNVSCHE 'Scheduling environment for job'
  - DCNVCAT 'Address of CAT for job'
- These and other fields are now in $CIWORK
  - Pointed directly to by exit parm list word 6 (+20)
- CIWBMSG 'ACB for system msgs data set'
- CIWJSCHE 'Scheduling environment'
- CIWCATA 'Address of CAT for job'
- Control block changes hit exits up front
- Regardless of JES2 run time options

# Robo Logo

- In vanilla ISPF, primary panel displays a 'logo'
- Really an IBM copyright notice
- We have never displayed it
- But in new ISPF, we could not suppress it

```
+-----------------------------------------+
| Licensed Materials - Property of IBM    |
| 5650-ZOS     Copyright IBM Corp. 1980, 2013. |
| US Government Users Restricted Rights - |
| Use, duplication or disclosure restricted |
| by GSA ADP Schedule Contract with IBM Corp. |
+-----------------------------------------+
```

# Robo Logo

- We modify primary panel ISR@PRIM a lot
- Same mods appeared to carry forward with no error
- No change we could see would explain this behavior
- After discussion on IBM Main, we commented out two lines
- Logo no longer displays

```
/* .MSG = ISRLO999    Set logo information      @L5A*/
/* .RESP = ENTER      Simulate enter            @L5A*/
```

# SHARE in Orlando Preview!

- z/OS 2.2 sessions aplenty!
- Bob Rogers will be doing How you do what you do when you're a z13 CPU *and* Sysprog Goody Bag
- New to z track
- Glenn Anderson will be back and doing an MVS Dispatching update
- Tom Wasik (IBM) will be back with JES2 update & more
- *A flock of User Experiences*: Insourcing Experiences, Datacenter move, RD&T, z/OS 2.2, migrating from HTTP server to Apache, Auditors Myths, COBOL 5, Large Memory exploitation
- Deep technical content z13, z/OSMF, USS, ISPF, Print

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# See You in Orlando