What Happens when an 18-year-old Buys a Mainframe

CONNOR KRUKOSKY

Who am I?

First computer at 18 months old.

None of my toys stayed together for very long as a kid.

Had a craving to learn more about electronics.

Aspiring Electrical Engineer.

Started collecting vintage computers about 2-3 years ago.

Started slow collecting single micro computers.

But it wasn’t long before…

This…

And This…

And This…

It was all downhill from here…

From [redacted]

Subject **[midatlanticretro] OT: Rutgers is selling a IBM Z890** 10/19/2015

To yahoogroups

Kind of off topic but I know people here like this stuff.

IBM z890 – Model: 2086-320, bidding so far $100.00

https://www.govdeals.com/index.cfm?fa=Main.Item&itemid=106&acctid=7529

Then This Happened

From Connor Krukosky connork@connorsdomain.com [midatlanticretro]

Subject **Re: [midatlanticretro] OT: Rutgers is selling a IBM Z890**

To midatlanticretro@yahoogroups.com

Ohhh, thanks for posting this! I needed something to heat the basement this winter ;)
I will definitely be going for this.
-Connor K

I Responded Accordingly

There Were Warnings From The Concerned

From [redacted]

Subject **Re: [midatlanticretro] OT: Rutgers is selling a IBM Z890**

To midatlanticretro@yahoogroups.com

Whoa, Connor. The z890 weighs well over a ton and doesn't fit through most doorways. This is not one to chase.

-Dave

From [redacted]

Subject **Re: [midatlanticretro] OT: Rutgers is selling a IBM Z890**

To midatlanticretro@yahoogroups.com

Heat the house and hold down the floors, this machine is probably 2,200 lbs.

From [redacted]

Subject Re: [midatlanticretro] OT: Rutgers is selling a IBM Z890

To [redacted]

Connor: 115lbs
z890: 2,300lbs

We could sell tickets. :-)

From [redacted]

Subject Re: [midatlanticretro] OT: Rutgers is selling a IBM Z890

To midatlanticretro@yahoogroups.com

On 10/19/2015 03:38 PM, [redacted] wrote:

> Connor: 115lbs
> z890: 2,300lbs
>
> We could sell tickets. 🙂

Priceless ?

And Jokes From The Not So Concerned

This Did Not Stop Me

Also I had already bid…

Started planning.

Talked with my parents about getting a new ‘machine’.

Realized I was screwed…

Two trips had to happen.

Before I realized it…

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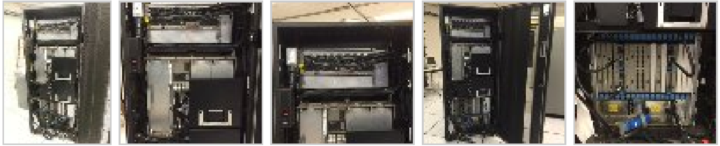
Main Frame Computer IBM z890 – Model: 2086-320



More media

Make/Brand	Model	VIN/Serial	Condition	Category
IBM	2086-320	013E0B	See Description	Computers, Parts and Supplies

IBM z890 – Model: 2086-320:

• Serial Number: 013E0B • 20 MSU's • 133 MIPS

Auction Closed

High Bidder: c*****a
Sold Amount: **$211.01**
Buyer's Premium (12.50%): **$26.38**
Total Price **$237.39**

View Bid History

Terms and Conditions

250 visitors

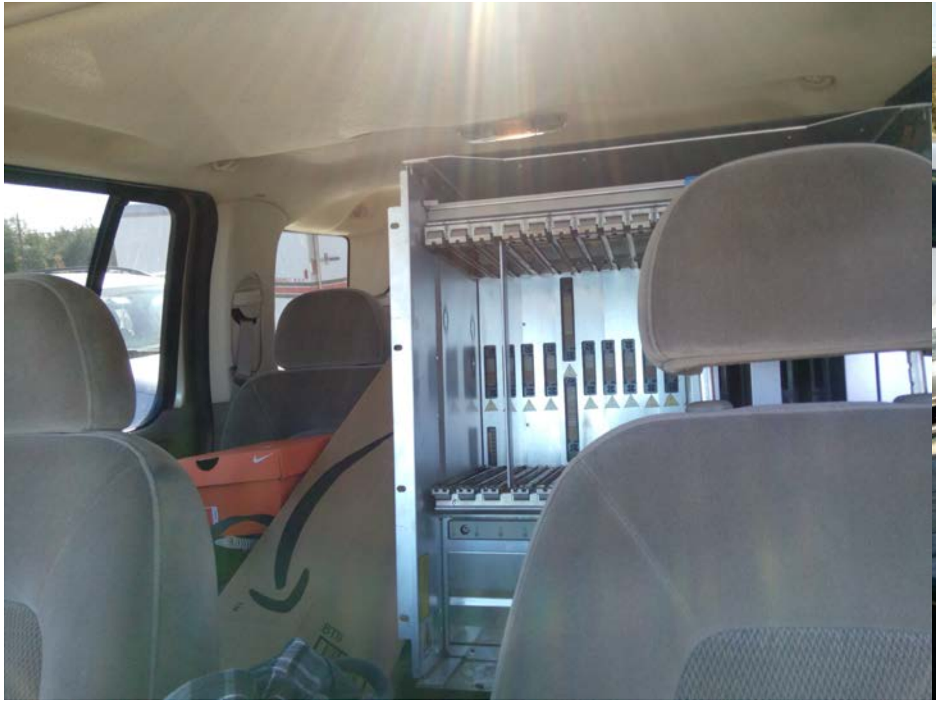
I Had Won The z890

And about a week later…

It Began



The Big Move



The Big Move
So far so good right?

I Had To Go And Jinx It…

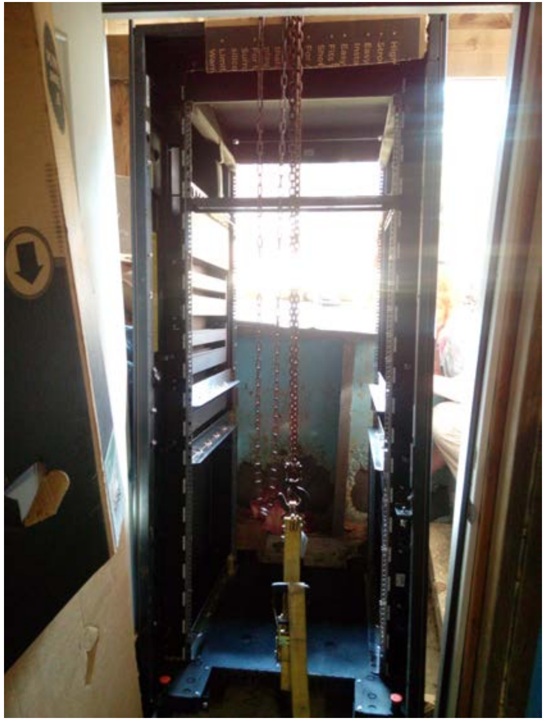
First Roadblock: Wasn’t going to fit under the deck!

We Must Dig Deeper

My father excavated some land and it looks promising!

The Squeeze


Very Tight



Finally!

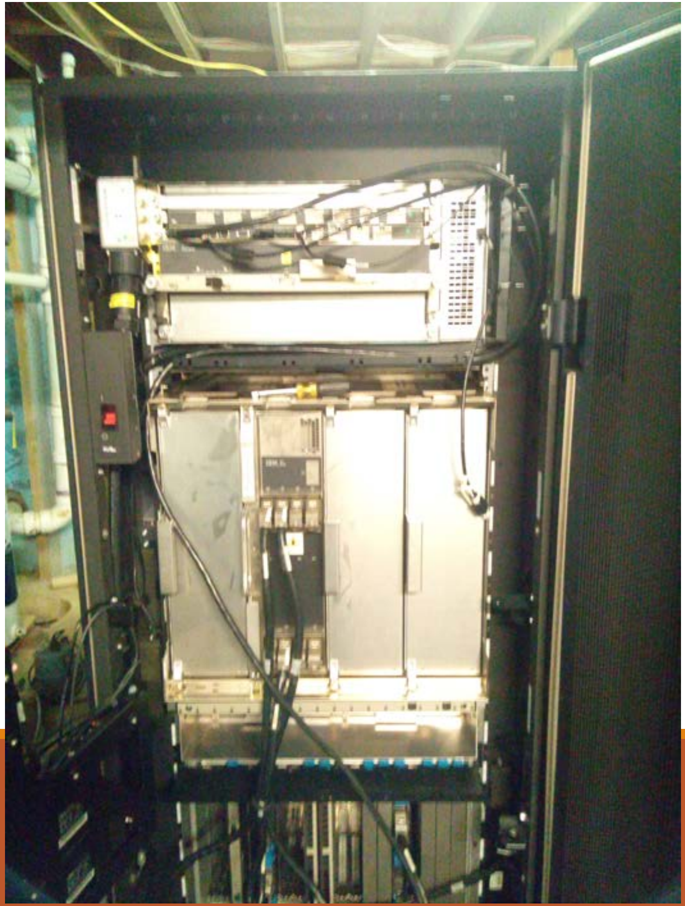
What Was Learned So Far…

Always make sure you have a plan.

Measure twice, move once.

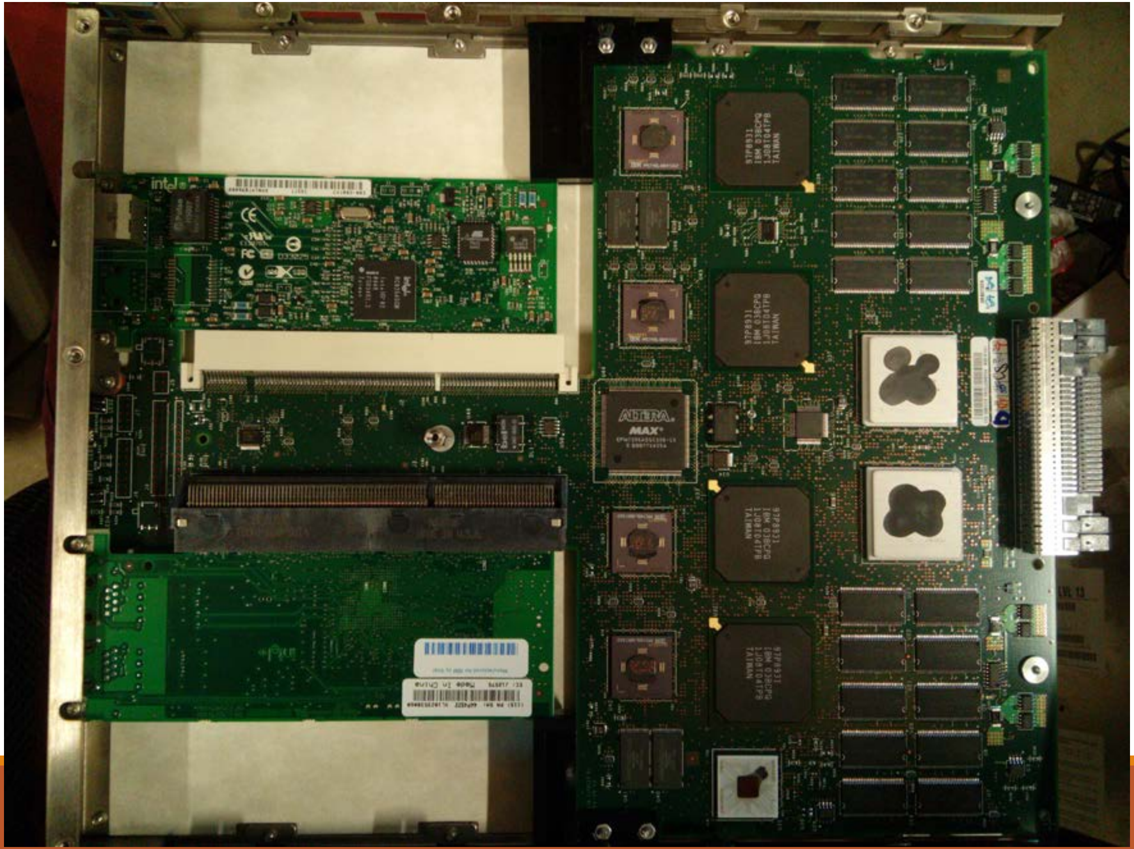
Listen to your mother and get a warehouse.

And no matter what others tell you…
1500lbs of mainframe WILL move itself, if the floor isn't perfectly flat.



Reassembly

Reassembly Cont.



Second Roadblock: Bad Thermal Compound

Bad Thermal Compound

When removing I/O modules, heatsinks appeared.

I knew this wasn’t a good sign.

Almost every module had this problem.

Re-pasting these, while cheap, took a long time.

If you have one of these machines, probably a good idea to check your I/O modules too.


Third Roadblock: Power

Power

Originally wired for 3-phase power.

Learned that it could be wired for single-phase operation.

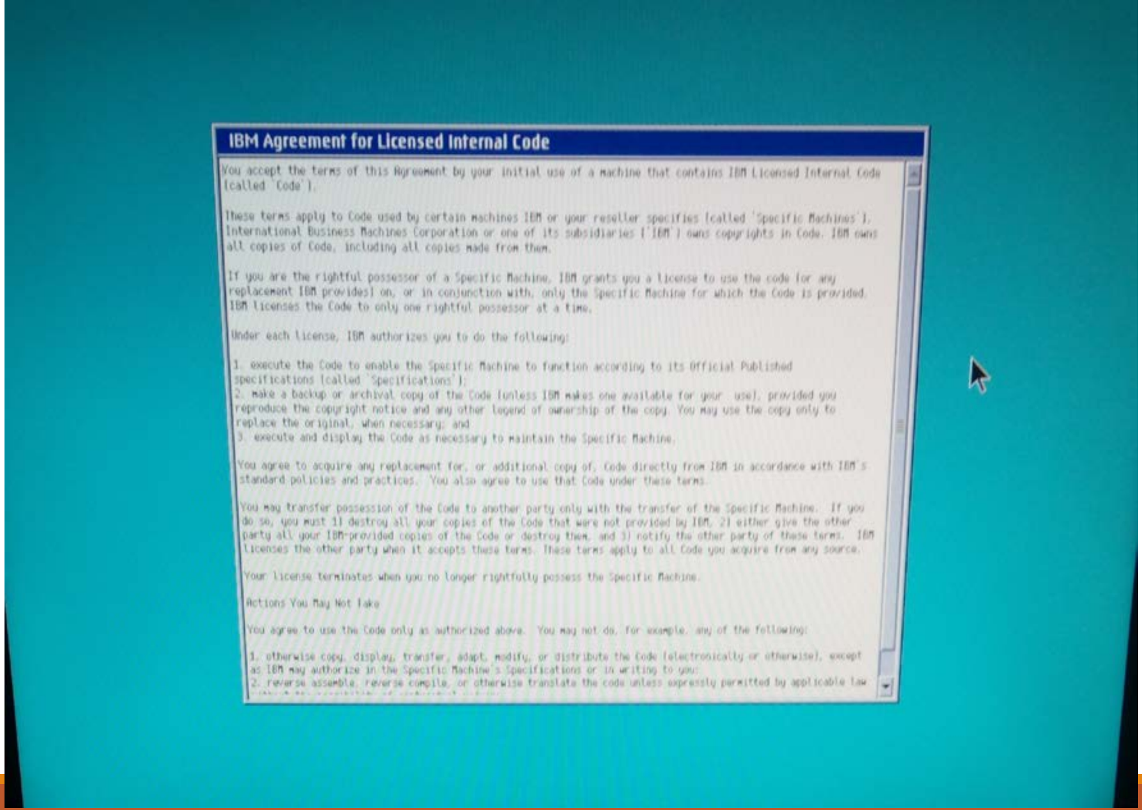
Just ignore the 3^{rd} phase!

Requires 220v at 30A.

Its not supposed to support a fully loaded machine at this configuration but that’s ok.

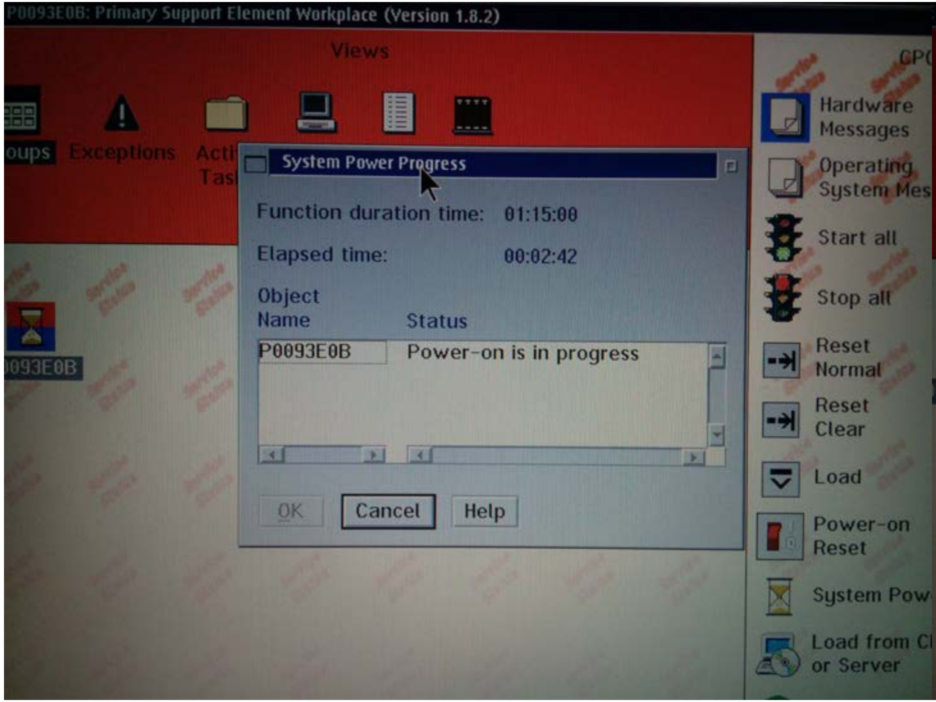
Power!

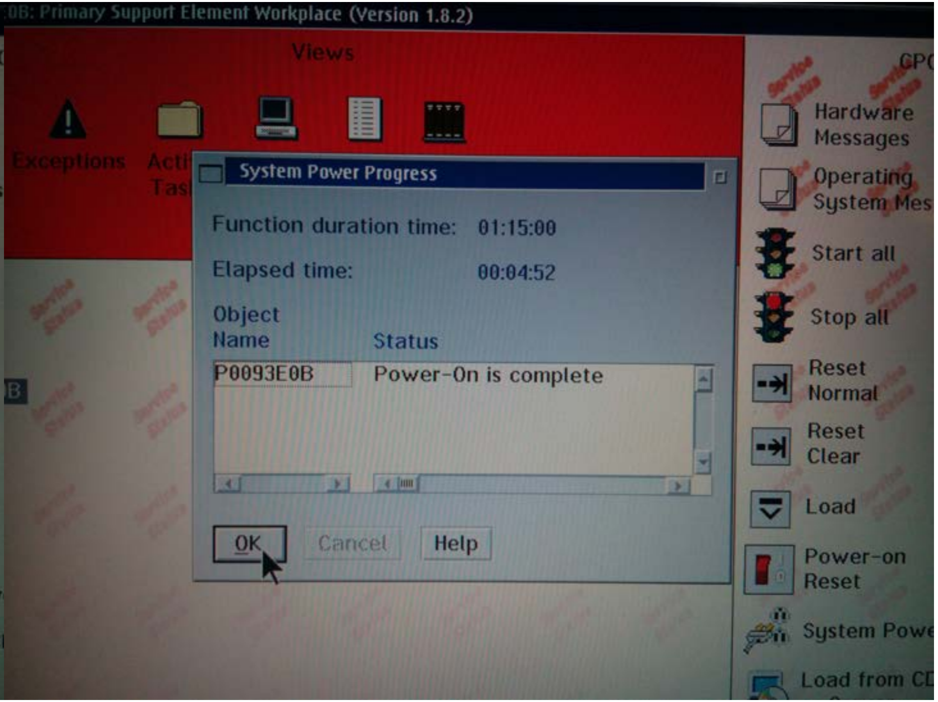
But, what's that on the screen?



Oh…

I guess its time to play the waiting game…


P0093E0B: Primary Support Element Workplace (Version 1.8.2)
Views
Exceptions
System Power Progress
Function duration time: 01:15:00
Elapsed time: 00:02:42
Object Name
Status
P0093E0B
Power-on is in progress
OK
Cancel
Help
Hardware Messages
Start all
Stop all
Reset Normal
Reset Clear
Load
Power-on Reset
or Server


Primary Support Element Workplace (Version 1.8.2)
Views
Exceptions
System Power Progress
Function duration time: 01:15:00
Elapsed time: 00:04:52
Object Name
Status
P0093E0B
Power-On is complete
OK
Cancel
Help
Hardware Messages
Start all
Stop all
Reset Normal
Reset Clear
Load
Power-on Reset

Power-on!

Fourth Roadblock: User Error

When trying to POR (Power-on Reset) it was giving me an error and none of my I/O seemed to be working.

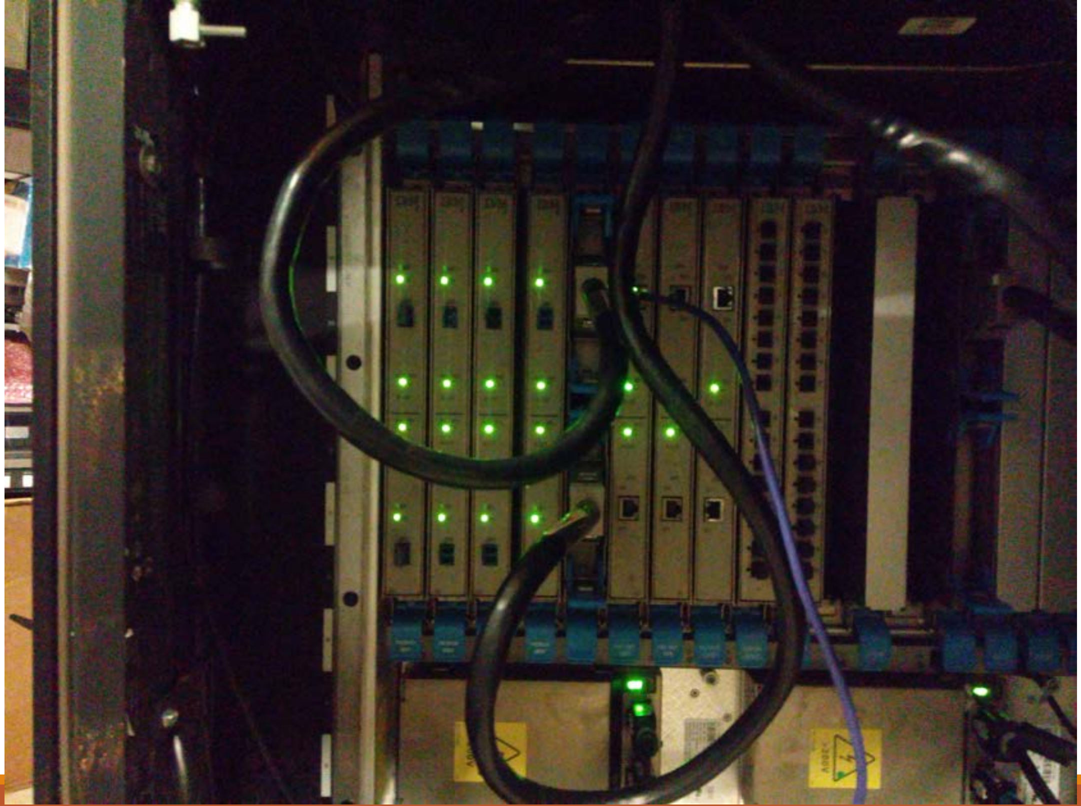
Played around on the ThinkPad for hours.

This solved nothing.

I finally decided to check the power connections.

I forgot to fully install the power supplies in the I/O cage…

DOH!



Much Better!

Fifth Roadblock: IOCDS / Reset Profile

Next I had to create a new IOCDS (I/O Config. Data Set)

To do this I had to use the IOCP (I/O Config. Program)

Exported the IOCDS to floppy to edit on my desktop.

Hours later, and probably about 5 PDFs later, I was slowly making progress.

Then I had to create a new Reset Profile and LPAR.

Then I was theoretically off to the races!

Old IOCDS vs. New IOCDS

```
      ICP067I **WARNING** IOCDS WAS WRITTEN WITH IOCP VERSION 03.01.00
              WHICH IS HIGHER THAN VERSION OF IOCP PROCESSING IT
ID MSG1='SYS1.IODFA0                                                    +
               ',                                                       +
              MSG2='SYS1.IODFA0 - 2015-04-29 16:29                      +
               ',                                                       +
              SYSTEM=(2086,1),                                          +
              TOK=('Z890     ',                                         +
              008000013E0B2086162909630115119F00000000,                 +
              00000000,'15-04-29','16:29:09',                           +
              'SYS1     ','IODFA0  ')
RESOURCE PARTITION=((CSS(0),(RUTADMIN,1),(TEST,2),(SANDBOX,3),          +
              (PENGUIN,4))),                                            +
              MAXDEV=((CSS(0),08192))
CHPID PCHID=100,PATH=(CSS(0),31),TYPE=OSC,SHARED
CHPID PCHID=101,PATH=(CSS(0),34),TYPE=OSD,SHARED
CHPID PCHID=110,PATH=(CSS(0),30),TYPE=OSD,SHARED
CHPID PCHID=111,PATH=(CSS(0),33),TYPE=OSD,SHARED
CHPID PCHID=120,PATH=(CSS(0),22),TYPE=FC,SHARED
CHPID PCHID=121,PATH=(CSS(0),26),TYPE=FC,SHARED,PARTITION=((0))
CHPID PCHID=130,PATH=(CSS(0),21),TYPE=FC,SHARED
CHPID PCHID=131,PATH=(CSS(0),24),TYPE=FC,SHARED
CHPID PCHID=140,PATH=(CSS(0),25),TYPE=FC,SHARED
CHPID PCHID=141,PATH=(CSS(0),27),TYPE=FC,SHARED,PARTITION=((0))
CHPID PCHID=150,PATH=(CSS(0),38),TYPE=OSD,SHARED
CHPID PCHID=151,PATH=(CSS(0),39),TYPE=OSD,SHARED
CHPID PCHID=160,PATH=(CSS(0),01),TYPE=CNC,SHARED
CHPID PCHID=161,PATH=(CSS(0),04),TYPE=CNC,SHARED,PARTITION=((RUTADMIN,+
              TEST,SANDBOX),(=))
CHPID PCHID=162,PATH=(CSS(0),07),TYPE=CTC,SHARED
CHPID PCHID=163,PATH=(CSS(0),08),TYPE=CNC,SHARED,PARTITION=((RUTADMIN,+
              TEST,SANDBOX),(=))
CHPID PCHID=164,PATH=(CSS(0),0C),TYPE=CNC,SHARED
CHPID PCHID=165,PATH=(CSS(0),0B),TYPE=CNC,SHARED,PARTITION=((RUTADMIN,+
              TEST,SANDBOX),(=))
CHPID PCHID=166,PATH=(CSS(0),0E),TYPE=CNC,SHARED
CHPID PCHID=167,PATH=(CSS(0),0F),TYPE=CNC,SHARED,PARTITION=((RUTADMIN,+
              TEST,SANDBOX),(=))
CHPID PCHID=168,PATH=(CSS(0),15),TYPE=CVC,PARTITION=((RUTADMIN),(TEST,+
              SANDBOX),REC)
CHPID PCHID=169,PATH=(CSS(0),1F),TYPE=CVC,PARTITION=((RUTADMIN),(TEST,+
              SANDBOX),REC)
CHPID PCHID=170,PATH=(CSS(0),00),TYPE=CNC,SHARED,PARTITION=((RUTADMIN,+
              TEST,SANDBOX),(=))
CHPID PCHID=171,PATH=(CSS(0),05),TYPE=CNC,SHARED
CHPID PCHID=172,PATH=(CSS(0),06),TYPE=CNC,SHARED,PARTITION=((RUTADMIN,+
              TEST,SANDBOX),(=))
CHPID PCHID=173,PATH=(CSS(0),09),TYPE=CNC,SHARED,PARTITION=((RUTADMIN,+
              TEST,SANDBOX),(=))
CHPID PCHID=174,PATH=(CSS(0),0A),TYPE=CNC,SHARED
CHPID PCHID=175,PATH=(CSS(0),0D),TYPE=CNC,SHARED,PARTITION=((RUTADMIN,+
              TEST,SANDBOX),(=))
CHPID PCHID=176,PATH=(CSS(0),11),TYPE=CNC,SHARED,PARTITION=((SANDBOX),+
              (RUTADMIN,TEST))
CHPID PCHID=177,PATH=(CSS(0),12),TYPE=CNC,SHARED,PARTITION=((TEST),    +
              (RUTADMIN,SANDBOX))
CHPID PCHID=178,PATH=(CSS(0),14),TYPE=CVC,PARTITION=((RUTADMIN),(TEST,+
```

```
              SANDBOX),REC)
CHPID PCHID=179,PATH=(CSS(0),1E),TYPE=CVC,PARTITION=((RUTADMIN),(TEST,+
              SANDBOX),REC)
CHPID PCHID=180,PATH=(CSS(0),32),TYPE=OSC,SHARED
CHPID PCHID=181,PATH=(CSS(0),36),TYPE=OSD,SHARED
CHPID PCHID=1A0,PATH=(CSS(0),35),TYPE=OSD,SHARED
CHPID PCHID=1A1,PATH=(CSS(0),37),TYPE=OSD,SHARED
CHPID PCHID=1C0,PATH=(CSS(0),20),TYPE=FC,SHARED
CHPID PCHID=1C1,PATH=(CSS(0),23),TYPE=FC,SHARED
CNTLUNIT CUNUMBR=1501,PATH=((CSS(0),15)),UNIT=3811,UNITADD=((04)),     +
              PROTOCL=D,SHARED=N
CNTLUNIT CUNUMBR=1502,PATH=((CSS(0),15)),UNIT=3811,UNITADD=((05)),     +
              PROTOCL=D,SHARED=N
CNTLUNIT CUNUMBR=1E04,PATH=((CSS(0),1E)),UNIT=3811,UNITADD=((03)),     +
              PROTOCL=D,SHARED=N
CNTLUNIT CUNUMBR=1F01,PATH=((CSS(0),1F)),UNIT=4248,UNITADD=((0E)),     +
              PROTOCL=D,SHARED=N
CNTLUNIT CUNUMBR=3001,PATH=((CSS(0),30)),UNIT=OSA
CNTLUNIT CUNUMBR=3101,PATH=((CSS(0),31)),UNIT=OSC
CNTLUNIT CUNUMBR=3201,PATH=((CSS(0),32)),UNIT=OSC
CNTLUNIT CUNUMBR=3301,PATH=((CSS(0),33)),UNIT=OSA
CNTLUNIT CUNUMBR=3401,PATH=((CSS(0),34)),UNIT=OSA
CNTLUNIT CUNUMBR=3501,PATH=((CSS(0),35)),UNIT=OSA
CNTLUNIT CUNUMBR=3601,PATH=((CSS(0),36)),UNIT=OSA
CNTLUNIT CUNUMBR=3701,PATH=((CSS(0),37)),UNIT=OSA
CNTLUNIT CUNUMBR=3801,PATH=((CSS(0),38)),UNIT=OSA
CNTLUNIT CUNUMBR=3901,PATH=((CSS(0),39)),UNIT=OSA
CNTLUNIT CUNUMBR=5000,PATH=((CSS(0),20,21,22)),UNIT=2107,CUADD=00,     +
              UNITADD=((00,256))
CNTLUNIT CUNUMBR=5001,PATH=((CSS(0),20,21,22)),UNIT=2107,CUADD=01,     +
              UNITADD=((00,256))
CNTLUNIT CUNUMBR=6000,PATH=((CSS(0),23,24,25)),UNIT=2107,CUADD=00,     +
              UNITADD=((00,128))
CNTLUNIT CUNUMBR=6001,PATH=((CSS(0),23,24,25)),UNIT=2107,CUADD=01,     +
              UNITADD=((00,128))
CNTLUNIT CUNUMBR=8000,PATH=((CSS(0),26,27)),UNIT=3490,CUADD=00,        +
              UNITADD=((00,16))
CNTLUNIT CUNUMBR=8001,PATH=((CSS(0),26,27)),UNIT=3490,CUADD=01,        +
              UNITADD=((00,16))
CNTLUNIT CUNUMBR=8002,PATH=((CSS(0),26,27)),UNIT=3490,CUADD=02,        +
              UNITADD=((00,16))
CNTLUNIT CUNUMBR=8003,PATH=((CSS(0),26,27)),UNIT=3490,CUADD=03,        +
              UNITADD=((00,16))
IODEVICE ADDRESS=(0E04),CUNUMBR=(1501),UNIT=3211
IODEVICE ADDRESS=(0E05),CUNUMBR=(1502),UNIT=3211
IODEVICE ADDRESS=(0E03),CUNUMBR=(1E04),UNIT=3211
IODEVICE ADDRESS=(060E),CUNUMBR=(1F01),UNIT=4248
IODEVICE ADDRESS=(0920,8),CUNUMBR=(3001),UNIT=OSA
IODEVICE ADDRESS=(0900,8),CUNUMBR=(3101),UNIT=3270,MODEL=X
IODEVICE ADDRESS=(0940,8),CUNUMBR=(3201),UNIT=3270,MODEL=X
IODEVICE ADDRESS=(0930,8),CUNUMBR=(3301),UNIT=OSA
IODEVICE ADDRESS=(0910,8),CUNUMBR=(3401),UNIT=OSA
IODEVICE ADDRESS=(0960,8),CUNUMBR=(3501),UNIT=OSA
IODEVICE ADDRESS=(0950,8),CUNUMBR=(3601),UNIT=OSA
IODEVICE ADDRESS=(0970,8),CUNUMBR=(3701),UNIT=OSA
IODEVICE ADDRESS=(0980,8),CUNUMBR=(3801),UNIT=OSA
IODEVICE ADDRESS=(0990,8),CUNUMBR=(3901),UNIT=OSA
IODEVICE ADDRESS=(0000,56),CUNUMBR=(5000),UNIT=3390
IODEVICE ADDRESS=(0C00,68),UNITADD=38,CUNUMBR=(5000),UNIT=3390
IODEVICE ADDRESS=(0F00,4),UNITADD=FC,CUNUMBR=(5000),UNIT=3390
IODEVICE ADDRESS=(0100,56),CUNUMBR=(5001),UNIT=3390
IODEVICE ADDRESS=(0D00,68),UNITADD=38,CUNUMBR=(5001),UNIT=3390
```

```
ID MSG1='SYS1.IODFA0                                                    +
               ',                                                       +
              MSG2='SYS1.IODFA0 - 2015-04-29 16:29                      +
               ',                                                       +
              SYSTEM=(2086,1),                                          +
              TOK=('Z890     ',                                         +
              008000013E0B2086162909630115119F00000000,                 +
              00000000,'15-04-29','16:29:09',                           +
              'SYS1     ','IODFA0  ')
RESOURCE PARTITION=((CSS(0),(LINUX,1))),MAXDEV=((CSS(0),08192))
CHPID PCHID=100,PATH=(CSS(0),00),TYPE=FCP,SHARED,PARTITION=((LINUX))
CHPID PCHID=101,PATH=(CSS(0),01),TYPE=FCP,SHARED,PARTITION=((LINUX))
CHPID PCHID=110,PATH=(CSS(0),02),TYPE=FCP,SHARED,PARTITION=((LINUX))
CHPID PCHID=111,PATH=(CSS(0),03),TYPE=FCP,SHARED,PARTITION=((LINUX))
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CHPID PCHID=121,PATH=(CSS(0),05),TYPE=FC,SHARED
CHPID PCHID=130,PATH=(CSS(0),06),TYPE=FC,SHARED
CHPID PCHID=131,PATH=(CSS(0),07),TYPE=FC,SHARED
CHPID PCHID=140,PATH=(CSS(0),08),TYPE=OSC,SHARED
CHPID PCHID=141,PATH=(CSS(0),09),TYPE=OSD,SHARED
CHPID PCHID=150,PATH=(CSS(0),0A),TYPE=OSD,SHARED
CHPID PCHID=151,PATH=(CSS(0),0B),TYPE=OSD,SHARED
CHPID PCHID=160,PATH=(CSS(0),0C),TYPE=OSD,SHARED
CHPID PCHID=161,PATH=(CSS(0),0D),TYPE=OSD,SHARED
CNTLUNIT CUNUMBR=2000,PATH=((CSS(0),00)),UNIT=FCP
CNTLUNIT CUNUMBR=2100,PATH=((CSS(0),01)),UNIT=FCP
CNTLUNIT CUNUMBR=2200,PATH=((CSS(0),02)),UNIT=FCP
CNTLUNIT CUNUMBR=2300,PATH=((CSS(0),03)),UNIT=FCP
CNTLUNIT CUNUMBR=3100,PATH=((CSS(0),08)),UNIT=OSC
CNTLUNIT CUNUMBR=3200,PATH=((CSS(0),09)),UNIT=OSA
CNTLUNIT CUNUMBR=3300,PATH=((CSS(0),0A)),UNIT=OSA
CNTLUNIT CUNUMBR=3400,PATH=((CSS(0),0B)),UNIT=OSA
CNTLUNIT CUNUMBR=3500,PATH=((CSS(0),0C)),UNIT=OSA
CNTLUNIT CUNUMBR=3600,PATH=((CSS(0),0D)),UNIT=OSA
IODEVICE ADDRESS=(0100,064),CUNUMBR=(2000),UNIT=FCP
IODEVICE ADDRESS=(0200,064),CUNUMBR=(2100),UNIT=FCP
IODEVICE ADDRESS=(0300,064),CUNUMBR=(2200),UNIT=FCP
IODEVICE ADDRESS=(0400,064),CUNUMBR=(2300),UNIT=FCP
IODEVICE ADDRESS=(0500,8),CUNUMBR=(3100),UNIT=3270,MODEL=X
IODEVICE ADDRESS=(0510,3),CUNUMBR=(3200),UNIT=OSA
IODEVICE ADDRESS=(0520,3),CUNUMBR=(3300),UNIT=OSA
IODEVICE ADDRESS=(0530,3),CUNUMBR=(3400),UNIT=OSA
IODEVICE ADDRESS=(0540,3),CUNUMBR=(3500),UNIT=OSA
IODEVICE ADDRESS=(0550,3),CUNUMBR=(3600),UNIT=OSA
```

Time To Load Over FTP

Or so I thought…

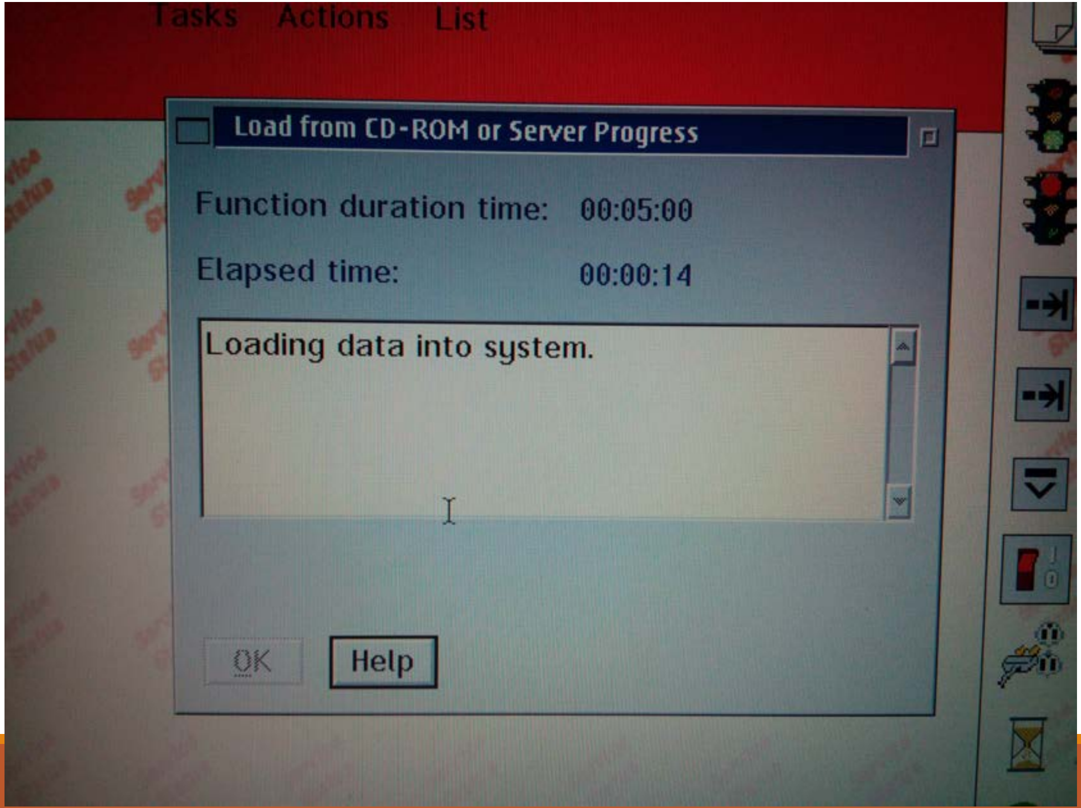
Where do you attach the LAN?!

Another couple of PDFs later I figured it out.

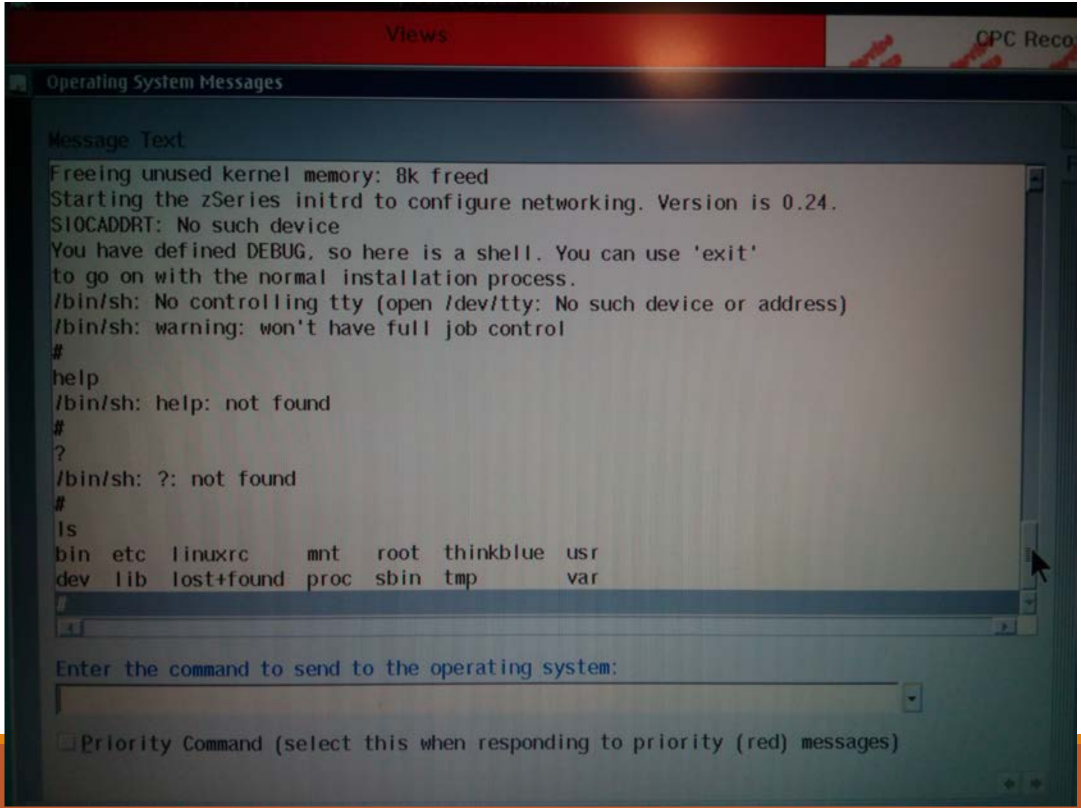
Oh and make sure your FTP password DOES NOT have any special characters!!!

Yes it was hours before I realized this…

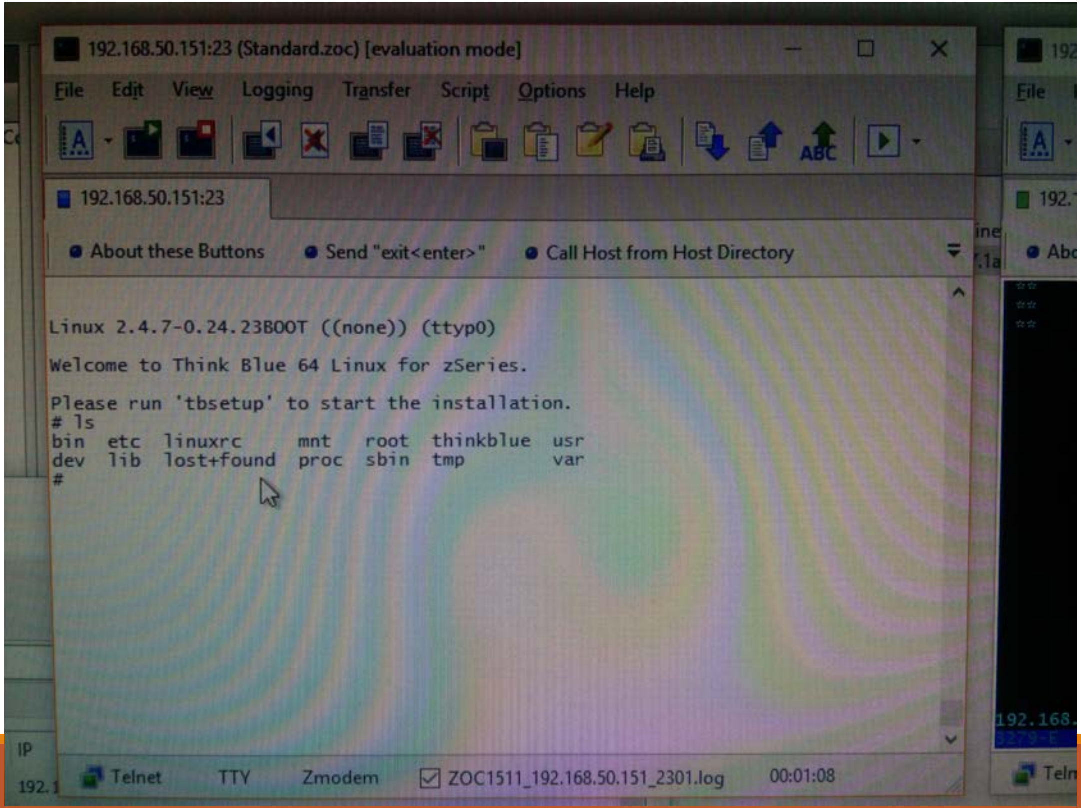
But finally…


Tasks Actions List
Load from CD-ROM or Server Progress
Function duration time: 00:05:00
Elapsed time: 00:00:14
Loading data into system.
OK
Help

Loading!


Views
CPC Reco
Operating System Messages
Message Text
Freeing unused kernel memory: 8k freed
Starting the zSeries initrd to configure networking. Version is 0.24.
SIOCADDRT: No such device
You have defined DEBUG, so here is a shell. You can use 'exit'
to go on with the normal installation process.
/bin/sh: No controlling tty (open /dev/tty: No such device or address)
/bin/sh: warning: won't have full job control
#
help
/bin/sh: help: not found
#
?
/bin/sh: ?: not found
#
ls
bin etc linuxrc mnt root thinkblue usr
dev lib lost+found proc sbin tmp var
Enter the command to send to the operating system:
Priority Command (select this when responding to priority (red) messages)

Success!


192.168.50.151:23 (Standard.zoc) [evaluation mode]
File Edit View Logging Transfer Script Options Help
192.168.50.151:23
About these Buttons
Send "exit<enter>"
Call Host from Host Directory
Linux 2.4.7-0.24.23BOOT ((none)) (ttyp0)
Welcome to Think Blue 64 Linux for zSeries.
Please run 'tbsetup' to start the installation.
ls
bin etc linuxrc mnt root thinkblue usr
dev lib lost+found proc sbin tmp var
#
Telnet
TTY
Zmodem
ZOC1511_192.168.50.151_2301.log
00:01:08

Ok Now SSH!

Sixth Roadblock: Storage

I saw this coming from a mile away.

All the proper FICON/ESCON based storage is too expensive.

All BUS & TAG based storage is too hard to get.

Only other option is a SAN attached to a FICON port via FCP.

Started to gather stuff for that plan in mind.

Storage

IBM 2108-G07 SAN Data Gateway

IBM 2005-B16 Total Storage SAN 16 Port Switch

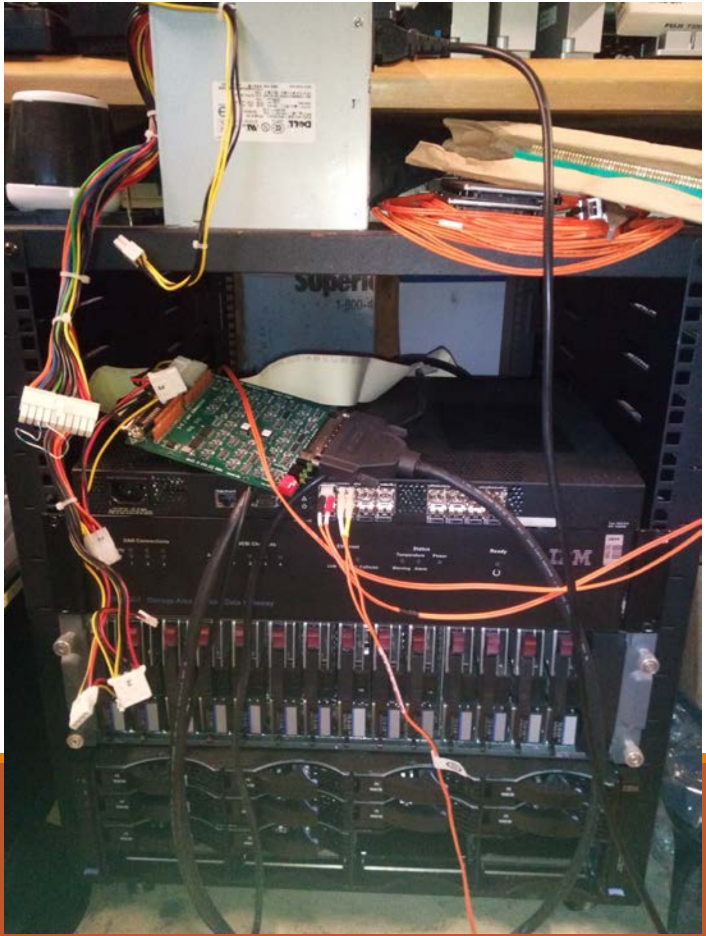
Ancot PBSED616A-03 Differential SCSI Converter

2x 3m LC-LC Duplex Fiber Optic Cable

2x 5m LC-SC Duplex Fiber Optic Cable

HP StorageWorks MSA30 with 10x 300GB 10Krpm Drives

Hitachi IBM 4Gb 1300nm GBIC SFP Transceiver HTR6916R20-E



Storage Cont.

Seventh Roadblock: Storage, again…

I had to figure out how to actually configure the storage.

Mainly the SAN Data Gateway.

Then I had to learn how the Linux FCP Mapping system worked…

Headaches ensued.

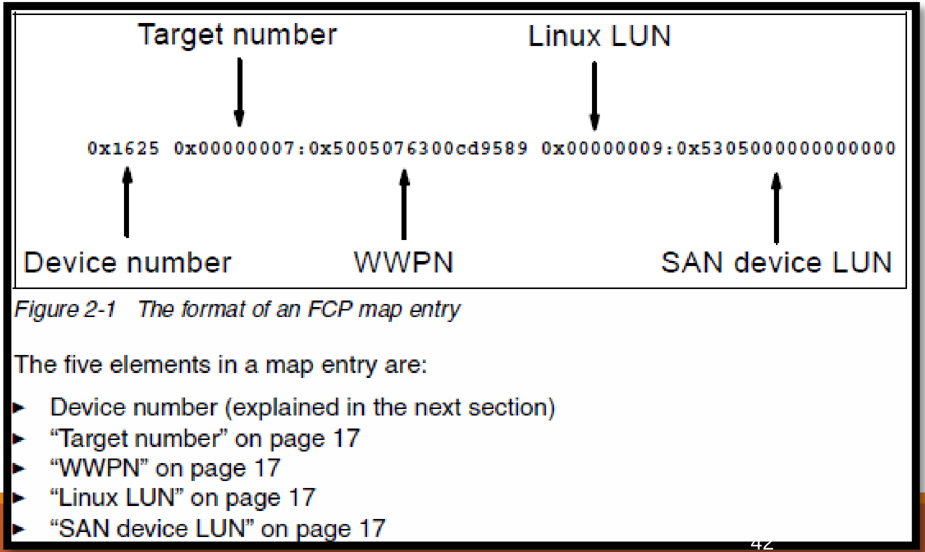


Figure 2-1 The format of an FCP map entry

The five elements in a map entry are:

- Device number (explained in the next section)
- “Target number” on page 17
- “WWPN” on page 17
- “Linux LUN” on page 17
- “SAN device LUN” on page 17

Did You Remember?

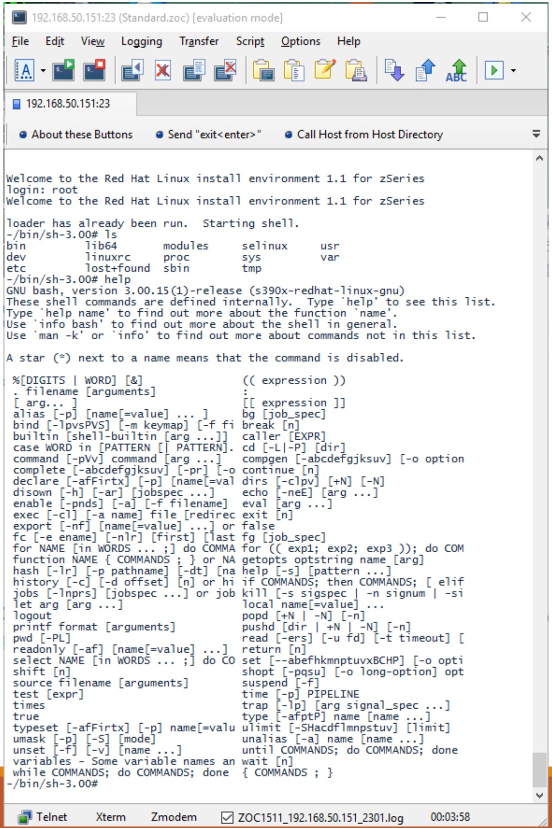
After 2 days of not being able to get it working…

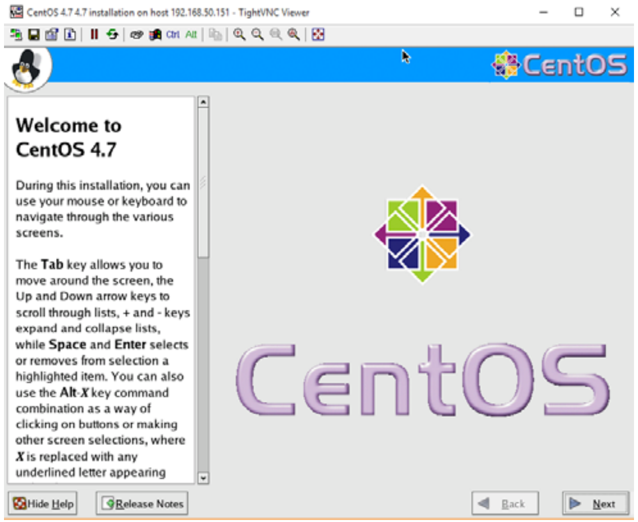
I learned the z890 has a LW (Long Wave, 1300nm) FICON port.

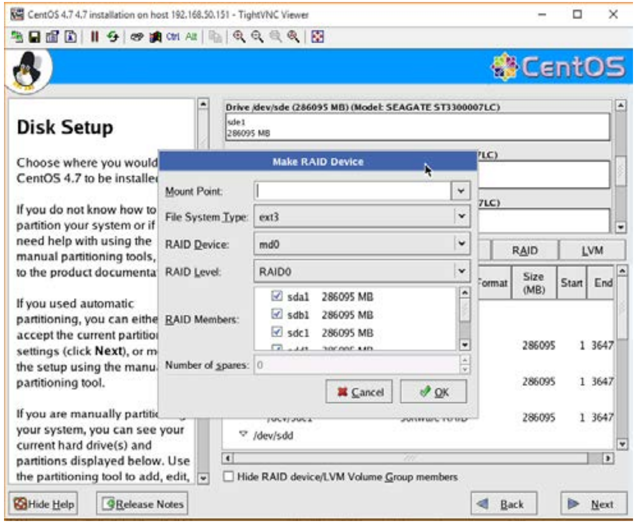
Whereas the FCP Switch and the SAN Gateway have SW (Short Wave, 850nm) ports.

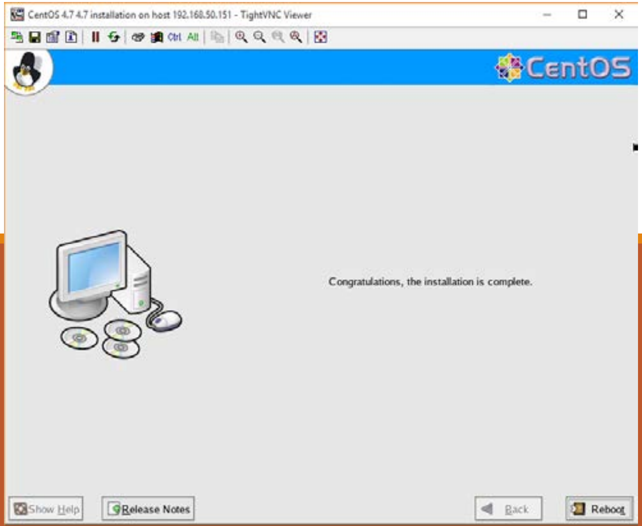
That’s where the new SFP Module comes in.

User Error strikes again…









Installation

Eighth Roadblock: IPL

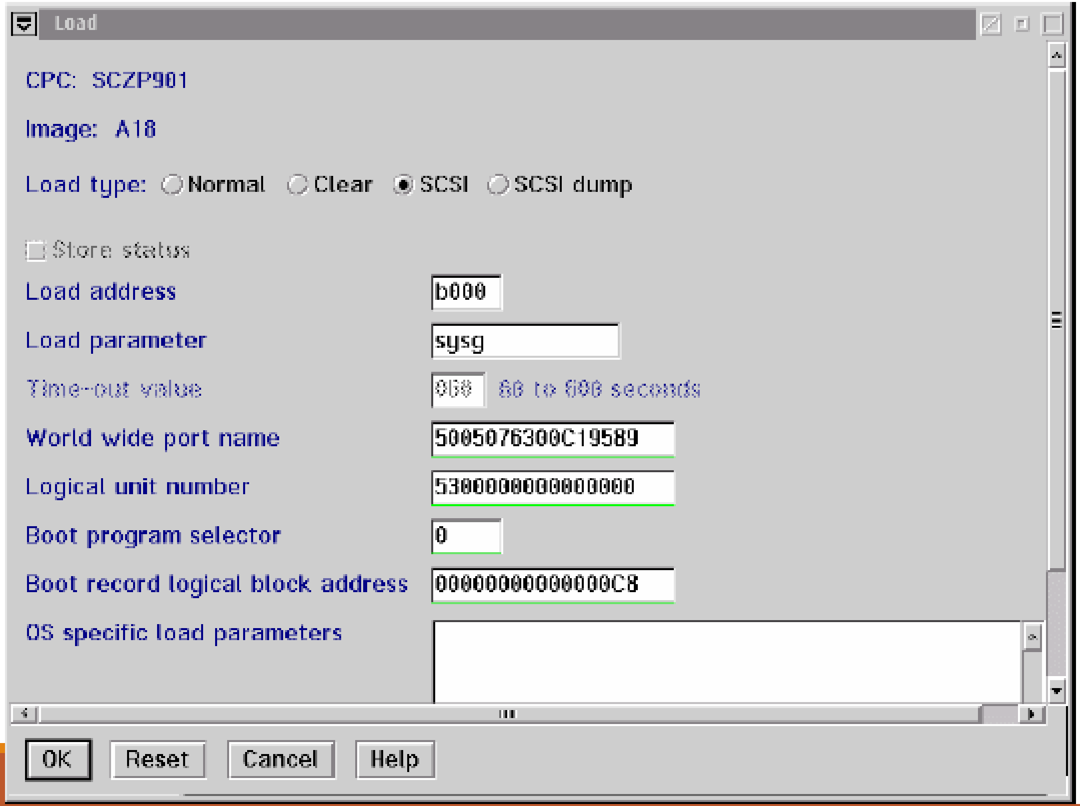
This is where the project hit a dead end for awhile.

I couldn’t IPL the install because of a missing FC 9904.

I would need to get proper FICON/ESCON/B&T storage.

There may have been a way to IPL via the installer…

But my main propriety was to look for FICON/ESCON based storage.



FC 9904

Why we can’t have nice things…

Now What?

The main option I have been keeping an eye on is the DS6000/DS8000.

- They tend to be expensive, >$1000.
- Some pop up cheaper but infrequently.

Other options?

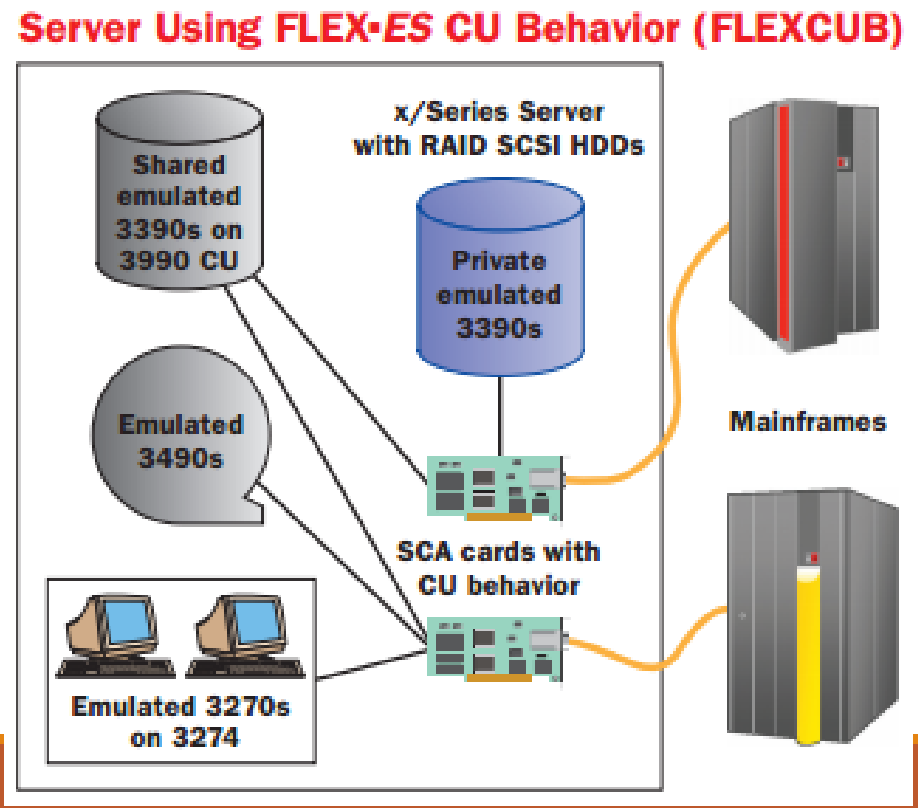
- I was contacted by a company by the name Fundamental Software Inc. (FSI for short).
- They had an option that while out of my price range they offered to lend me to get the mainframe running!

FSI’s FLEXCUB

The FLEXCUB is essentially a PCI card that attaches to an ESCON port of the mainframe acting as a wide variety of things.

Such as:

- CKD/FBA DASD, Tape, Consoles, Communications, Printers, Card Reader/Punch.
- You can read more about the FLEXCUB on FSI’s site at: www.funsoft.com


Server Using FLEX•ES CU Behavior (FLEXCUB)
Shared emulated 3390s on 3990 CU
x/Series Server with RAID SCSI HDDs
Private emulated 3390s
Emulated 3490s
SCA cards with CU behavior
Emulated 3270s on 3274
Mainframes

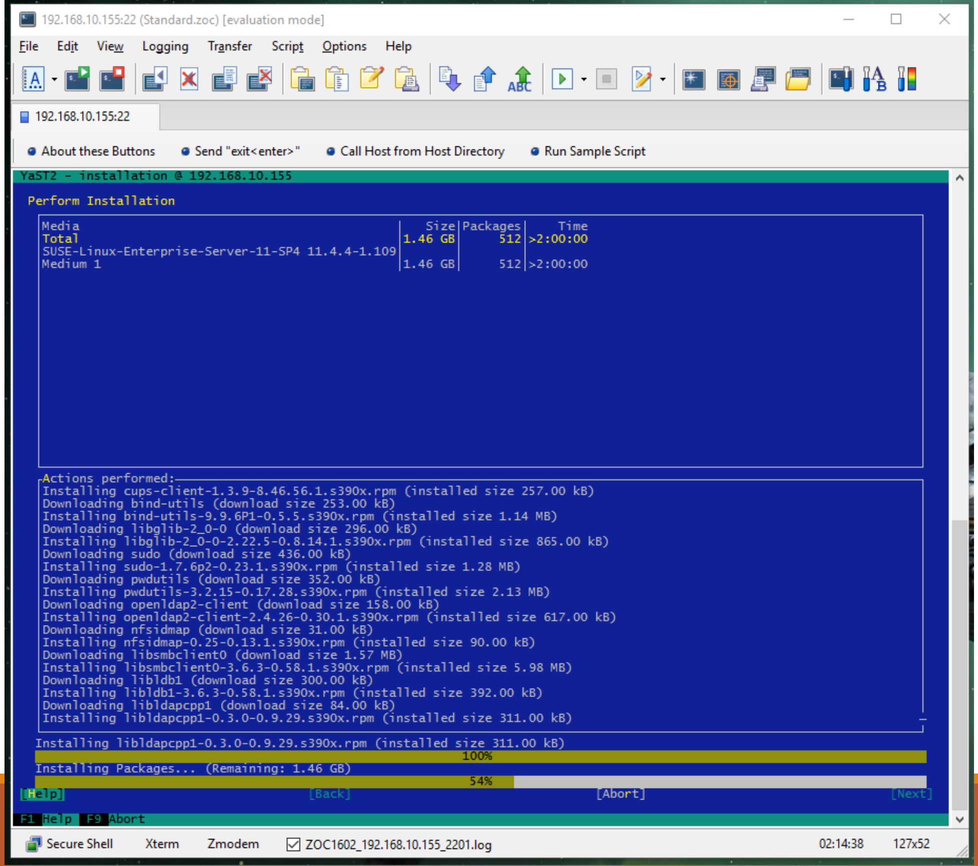
FLEXCUB

Installation Attempt #2

This time I am installing on a 3990-9 emulated on the FLEXCUB.

- Could have gone with an FBA DASD or made the CKD larger than a normal 3990-9 but it was already setup.

There were 16 3990-9s configured anyway so I could expand by mounting a few other units.



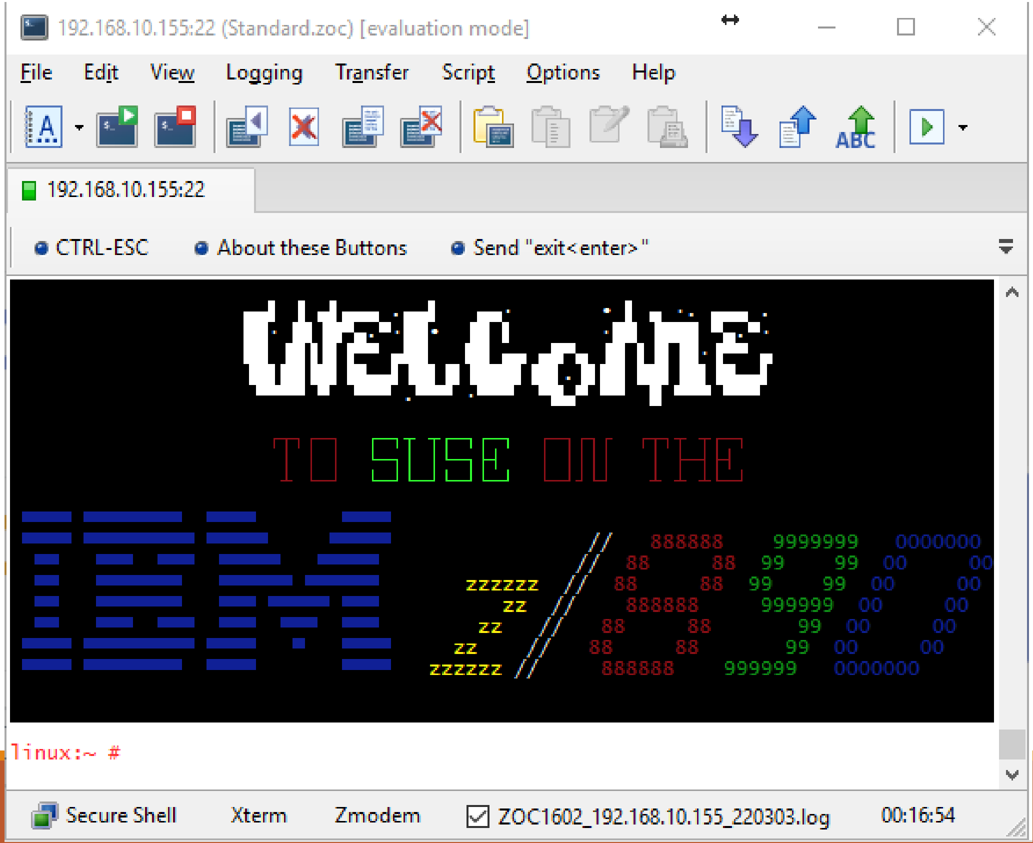
Installation

For real this time!

```
linux:~ # ping google.com
PING google.com (74.125.29.100) 56(84) bytes of data.
64 bytes from qg-in-f100.1e100.net (74.125.29.100): icmp_seq=1 ttl=43 time=39.3 ms
64 bytes from qg-in-f100.1e100.net (74.125.29.100): icmp_seq=2 ttl=43 time=27.9 ms
64 bytes from qg-in-f100.1e100.net (74.125.29.100): icmp_seq=3 ttl=43 time=51.8 ms
^C
--- google.com ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2001ms
rtt min/avg/max/mdev = 27.945/39.713/51.882/9.777 ms
linux:~ # cat /etc/SuSE-release
SUSE Linux Enterprise Server 11 (s390x)
VERSION = 11
PATCHLEVEL = 4
linux:~ # cat /proc/cpuinfo
vendor_id       : IBM/S390
# processors    : 3
bogomips per cpu: 520.00
features        : esan3 zarch msa ldisp highgprs
processor 0: version = 00,  identification = 053E0B,  machine = 2086
processor 1: version = 00,  identification = 053E0B,  machine = 2086
processor 2: version = 00,  identification = 053E0B,  machine = 2086
linux:~ #
```

Secure Shell   Xterm   Zmodem   ☑ ZOC1602_192.168.10.155_2201.log   00:19:28   127x52

Done and IPL'ed!


192.168.10.155:22 (Standard.zoc) [evaluation mode]
File Edit View Logging Transfer Script Options Help
192.168.10.155:22
CTRL-ESC
About these Buttons
Send "exit<enter>"
WELCOME
TO SUSE ON THE
linux:~ #
Secure Shell
Xterm
Zmodem
ZOC1602_192.168.10.155_220303.log
00:16:54

MOTD!

Overview

So you want to buy your own mainframe too huh?

Here’s an overview of what you’ll have to go through.

- Disassemble and move the machine to its desired location.
- Reassemble and double check all of your connections!
- Get power run for it.
- Find suitable storage.
- Setup IOCDS/Reset Profile/LPAR.
- Load installer via FTP or DVD and install desired OS.
- IPL!

IBM z890	$ 237.39
Thermal Adhesive Epoxy	$ 6.53
IBM 2108-G07 SAN Data Gateway	$ 34.80
IBM 2005-B16 SAN 16 Port Switch	$ 16.56
Ancot PBSED616A-03 Differential SCSI Converter	$ 15.95
2x 3m LC-LC Duplex Fiber Optic Cable	$ 7.98
2x 5m LC-SC Duplex Fiber Optic Cable	$ 9.55
HP StorageWorks MSA30 with 10x 300GB 10Krpm Drives	FREE
Hitachi IBM 4Gb 1300nm GBIC SFP Transceiver	$ 11.84
Total:	$ 340.60

Cost Breakdown

What's Next?

Getting a working FICON based storage solution. I may have something on the way!

Getting some 3270 packages setup in Linux to try out the consoles I have setup.

Hooking a real 3270 terminal to the machine via 3174-61R for fun.

Possibly in the future get some form of z/OS z/VM running on the thing?

Collecting more old stuff to someday have a museum for it all.

What more could I have? Well something like…

This.

Thanks!

My Parents Liz and Joe Krukosky for being so supportive.

Everyone from IBM-MAIN who also gave help along the way!

Jan Cannaerts for all the help getting the thing running.

Conclusion And Q/A!

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