



Learning to Love Linux and z/VM

My Background



2002

Helpdesk

- Password Monkey™
- pOwErPoiNt
- Heavy monitors
- Floppy disks
- Introduced to Linux

2005

Sysadmin

- SCO Unix (shudder)
- AIX (RS6000)
- Informix
- Physical Tape
- Driving a lot
- Kernel panics
- Impact printers
- Lots of Bash

2007

Forensics

- Encase
- File systems
- Lots of Hex
- Progress bars
- Regular Expression
- Court Appearances
- Evidence Bags
- Misanthropy

2013

The Mainframe



Distributed Systems

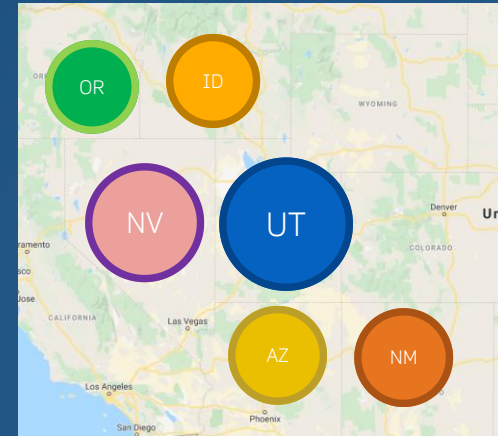
America First Credit Union



1939 – Fort Douglas Civilian Employees Credit Union



- Not for profit, member-owned organization
- More than 1 million members
- ~\$12 billion in assets
- 131 branches (UT, NV, ID, AZ, OR, NM)





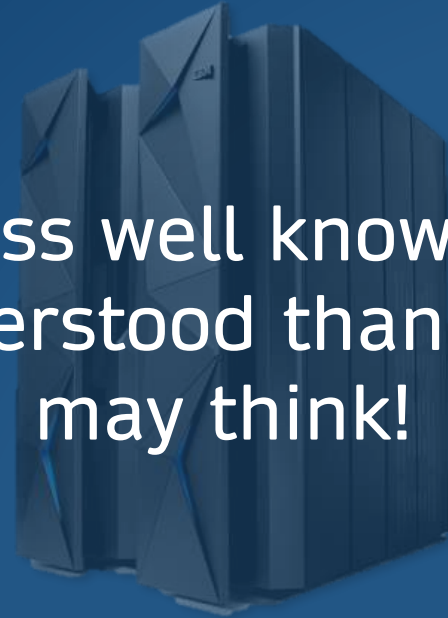
Linux on z/VM at AFCU

- Initially went into production in 2004 (ATM system)
- SUSE Linux shop
- Primary workload: MQ/Broker/IIB
- Growing environment
- Two SSI clusters
- z/VM 7.1
- SLES 12
- SUSE Manager
- DIRMAINT/Operations Manager/RACF/Performance Toolkit+OMEGAMON





Z is less well known and understood than you may think!



What iZ it?



```
vendor_id      : IBM/5390
# processors   : 1
bogomips per cpu: 20325.00
max thread id  : 0
features       : esan3 zarch stfle msa ldisp eimm dfp edat etf3eh highgprs te v
x sie
facilities     : 0 1 2 3 4 6 7 8 9 10 12 14 15 16 17 18 19 20 21 22 23 24 25 26
 27 28 30 31 32 33 34 35 36 37 40 41 42 43 44 45 46 47 48 49 50 51 52 53 55 57 7
3 74 75 76 77 80 81 82 128 129 131
cache0         : level=1 type=Data scope=Private size=128K line_size=256 associ
ativity=8
cache1         : level=1 type=Instruction scope=Private size=96K line_size=256
associativity=6
cache2         : level=2 type=Data scope=Private size=2048K line_size=256 assoc
iativity=8
cache3         : level=2 type=Instruction scope=Private size=2048K line_size=25
6 associativity=8
cache4         : level=3 type=Unified scope=Shared size=65536K line_size=256 as
sociativity=16
cache5         : level=4 type=Unified scope=Shared size=491520K line_size=256 a
ssociativity=30
processor 0: version = FF,  identification = 037B37,  machine = 2964
```

It's just Linux right?

```
cpu number     : 0
cpu MHz dynamic : 5000
cpu MHz static  : 5000
ghowells Ým (B@ Ý1mltbvmom1 Ým (B: Ý1mTEST Ým (B: Ý1m~ Ým (B $
```

Well yeah, but there's some cool stuff!

Wait, what?



- What do you mean virtualization has been around since 1967?
- You can run how many virtual machines?
- There's no way it's this reliable right?
- LPARs, DASD, OSAs, CKD, CP, CP, IFL, CMS...huh?
- Single core?
- How is disaster recovery this easy?
- Why doesn't everyone know about this?

Getting Familiar



- Beginning to see the differences
- But I felt comfortable
- Still had bash, grep, awk, sed etc.
- Started recognizing the power of the platform
- Curiosity about this z/VM thing was growing!
- Recognition of the close, symbiotic relationship of Linux and z/VM

Efficiency



Other
Hypervisors



z/VM

So what makes the difference?



Emulation

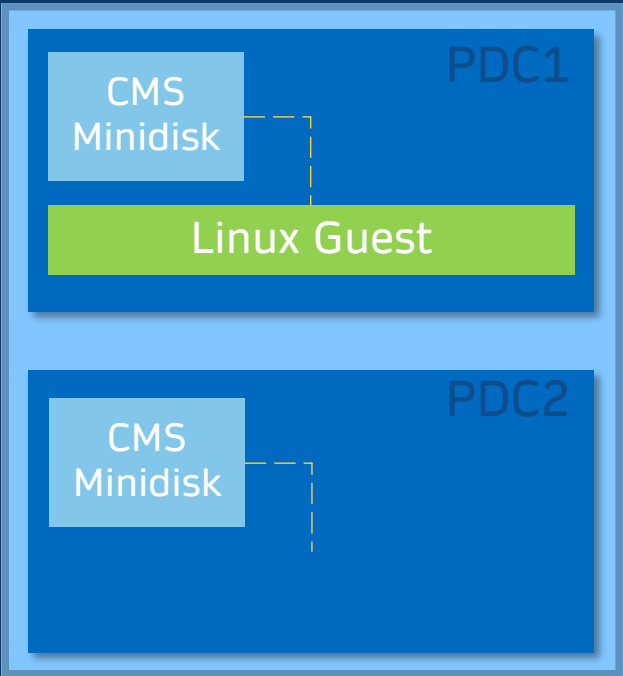
VS.

Instantiation

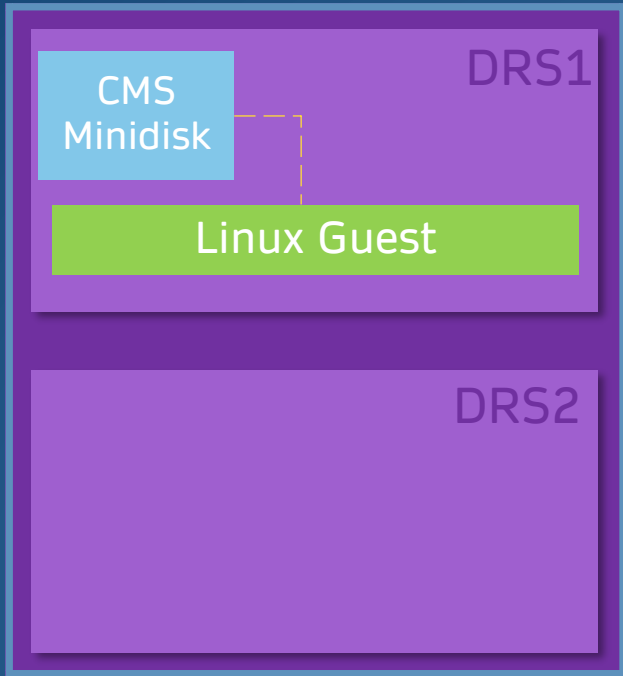


Examples

Primary Data Center



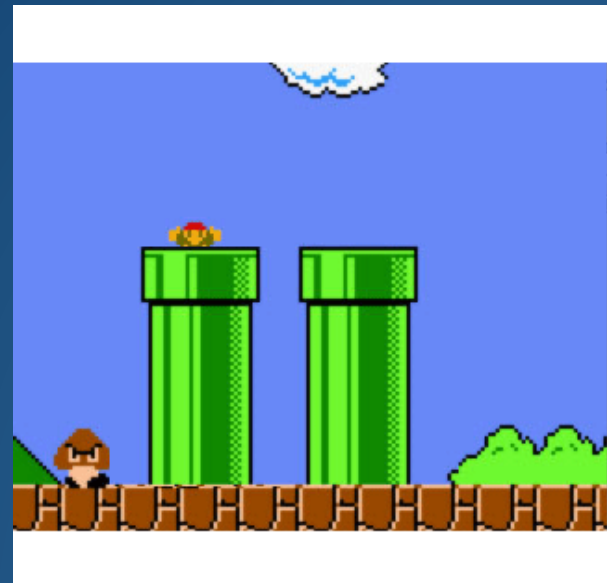
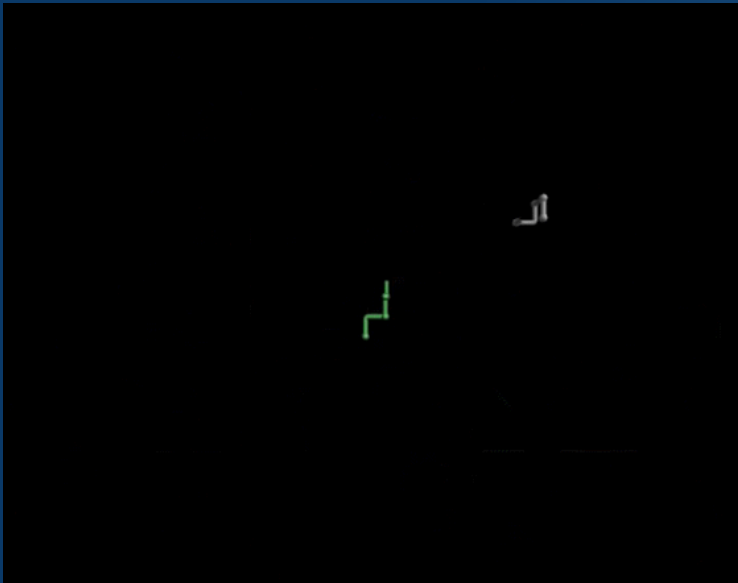
Disaster Recovery Site



REXXcuse Me?



- Started to discover the power of REXX under VM
- The real “eureka moment” was...



<http://www.manmrk.net/tutorials/rexx/>

Talking done.



Questions?

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