```
           / VV              VVV MM           MM
          / VV              VVV  MMM         MMM
222222   /  VV             VVV   MMMM       MMMM
   22   /   VV       VVV      MM MM  MM MM
   22  /    VV    VVV      MM  MMM   MM
   22 /     VVVVV        MM   M    MM
   22/      VVV         MM         MM
222222 /     V         MM         MM

built on IBM Virtualization Technology
```

Prepared by: VM RESOURCES LTD.

Presenter

Push Button or Hand Build?

David Kreuter

Getting to ZVM640 One Way or the Other

The Choice is Yours…

- You want to run 640.

- Good decision.

- Should you use the migration tool?

- Should you hand build your way to 640?

- The IBM Migration tool set will be compared to the "Dave Way"

2

Two Great Methods

- IBM Migration

- Source Version 620 or later

- Formal Documentation

- Some Experience With It
  - Works as Designed

- T

- Dave Method

- Any Source Version

- Casual Documentation

- Extensive Experience
  - Refined over years of use

- Code and Tools Driven

VM RESOURCES LTD
Software * Consulting * Training

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3

6.4 IBM UPGRADE PROCESS

```
                              /  VV          VVV MM        MM
                              /  VV          VVV MMM      MMM
               ZZZZZZ        /  VV       VVV    MMMM    MMMM
                   ZZ       /  VV     VVV     MM MM MM MM
                  ZZ       /  VV   VVV      MM   MM   MM
                 ZZ       /  VVVV            MM   M   MM
                ZZ       /  VVV              MM      MM
               ZZZZZZ   /  V                MM      MM

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```

Customer Hardware
Configuration

VM RESOURCES LTD
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6.4 IBM UPGRADE METHOD: BENEFITS

Benefits:
- Upgrade a z/VM 6.2 or 6.3 system with minimal impact to the current running system.
- No manual merge of directories
- Add new USERIDs to current system
- Upgrade files on existing disks under VMSES control
- Flag local modifications for review and customized files
- No coding (for the code challenged among us)
- Worksheets and table driven

6.4 HAND METHOD

Customer Hardware Configuration

6.4 HAND METHOD

Benefits:
- Upgrade any system.
- Tools are mature and portable.
- Deepens knowledge of system layout.
- I'm in control of the process.
- Takes less time, can migrate in a day.
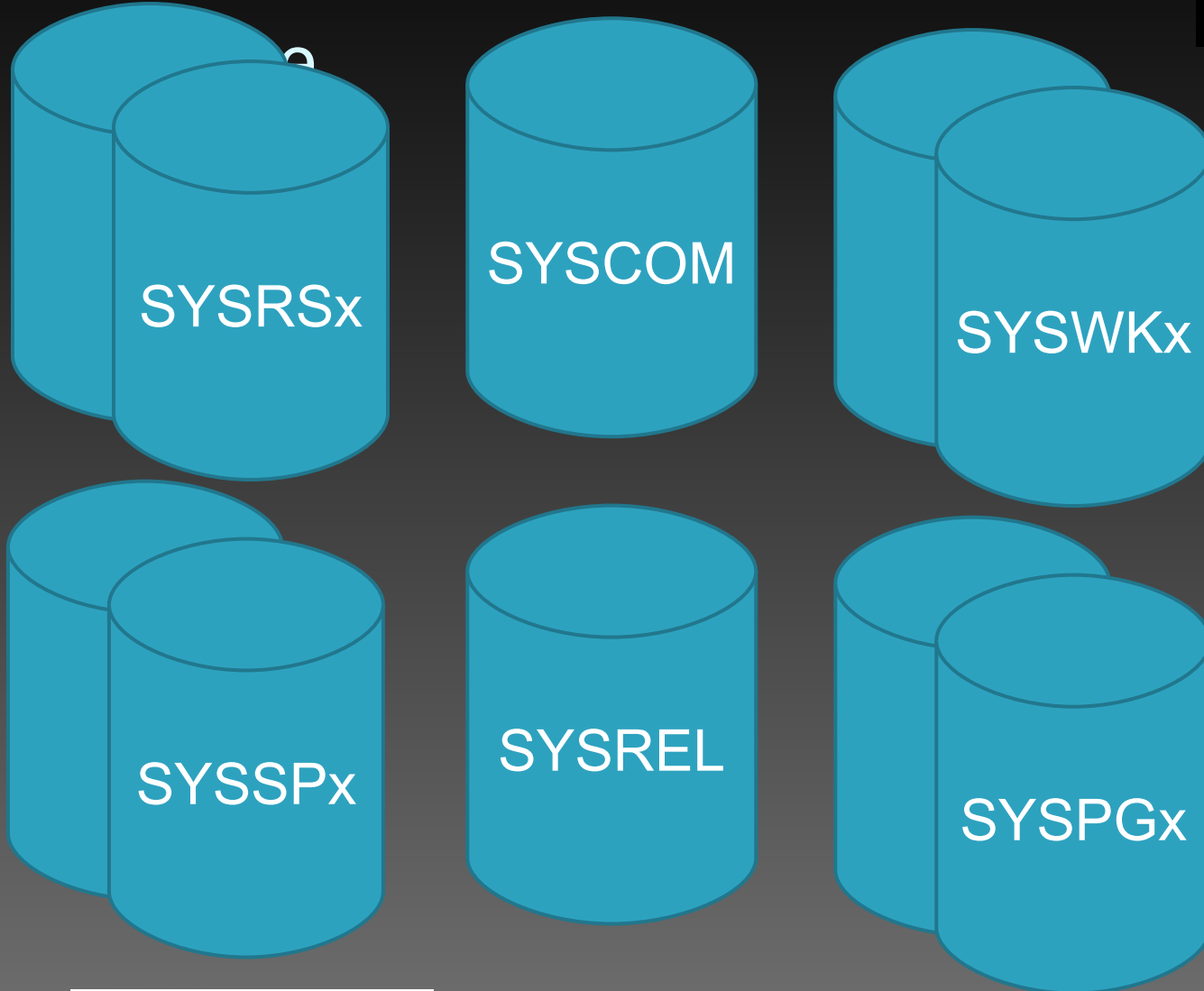- Clone friendly.
- Very few worksheets.

The Dave Way...

- Build 2nd level system with new version

- Homegrown tools and utilities

- Directory heavy lifting aka the Manual Merge

- SYSTEM CONFIG heavy lifting.

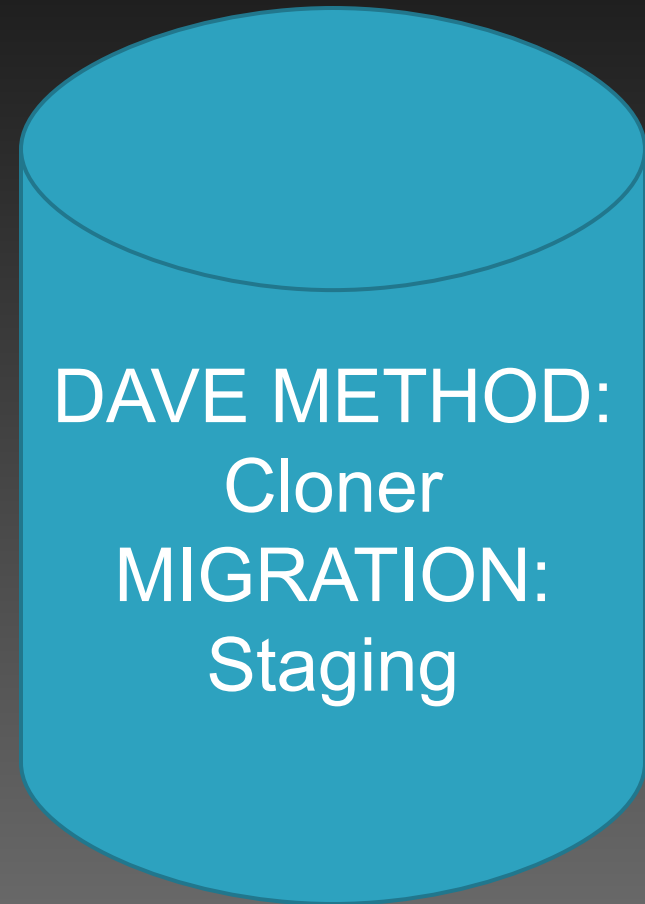- Other standard customizing

- Post install cleanup

- Clone friendly

- n of source operating system

8

Both Methods -> The 640 2nd level

SYSRSx

SYSCOM

SYSWKx

SYSSPx

SYSREL

SYSPGx

The 2nd Level System

- Put as much service as you can ahead of time!

  - Hey you never know when you will get a maintenance window these days!

- Do not move any MDISKs.

- Do not make any USERID IDENTITY

DAVE METHOD: Cloner
MIGRATION: Staging

The Dave Way...IDs & MDISKs

- PMAINT CF0

- SAPL (MAINT 123)

- PERFTK 191

- DIRMAINT 11F & 1DF

- PMAINT 41D

- MAINT 190

- MAINT 191

Truth be told – maybe around 12 MDISKs to tailor on a standard system

F191

The Dave Way…Directory Heavy Lift with DIRFAMOS Tool

```
/**/

parse source . . xcnm xctyp . . how .

arg fn ft fm .


'PIPE',

'(endchar \)',

'<' fn ft fm ,

'| FRLABEL USER'||,

'| NFIND *'||,

'| L: zone w1 all /USER/ ! /IDENTITY/ !
/SUBCONFIG/',
'| Q: FANOUT',

'| specs',

' w2 1 /   / nw ',

'|j: JUXTAPOSE'

' R: FANINANY ',
```

Source directory

The Dave Way…DIRFAMOS Output

```
LINUX1    USER LINUX1 TESTPAS 3G 3G G
LINUX1        INCLUDE LINDFLT4
LINUX1        CPU 00
LINUX1        CPU 01
LINUX1        OPTION APPLMON
LINUX1        DEDICATE 5F00 FA00
LINUX1        DEDICATE 5F01 FA01
LINUX1        DEDICATE 5F02 FA02
LINUX1        LINK LNX191 0993 0191 RR
LINUX1        MDISK 0200 3390 0001 10016 XX2915 MR
LINUX1        MDISK 0201 3390 0001 10016 XX2916 MR
:
TCPMNT-1 SUBCONFIG TCPMNT-1
TCPMNT-1      LINK 6VMTCP40 491 491 RR
TCPMNT-1      LINK 6VMTCP40 492 492 RR
TCPMNT-1      MDISK 591 3390 08569 160 SYSRE1 M
TCPMNT-1      MDISK 592 3390 08729 240 SYSRE1 M
TCPMNT-1      MDISK 198 3390 08969 009 SYSRE1 M
TCPMNT-1      MDISK 191 3390 08978 007 SYSRE1 M
```

Source directory

The Dave Way…Map those MDISKs

- From Staging system ATTACH the source and new 640 system disks as full pack.

- Then DEFINE MDISK….

DEFINE MDISK F198 8969 9 SYSRE1

ACCESS F198 Q

- Then copy files, tailor…

- Repeat for all tailorable MDISKS

New 640

The Dave Way…Create the new entries…more tools…

LINUX1   USER LINUX1 TESTPAS 3G 3G G

LINUX1   INCLUDE LINDFLT4

LINUX1   CPU 00

New 640

LINUX1   CPU 01

LINUX1   MDISK 0200 3390

DAVE METHOD: Cloner

- 2nd level foible:

  - When using MOD9s to install IBM forgot to continue distributing with the empty last cylinder!

  - So you must use full mod9s (10,017) cylinders.

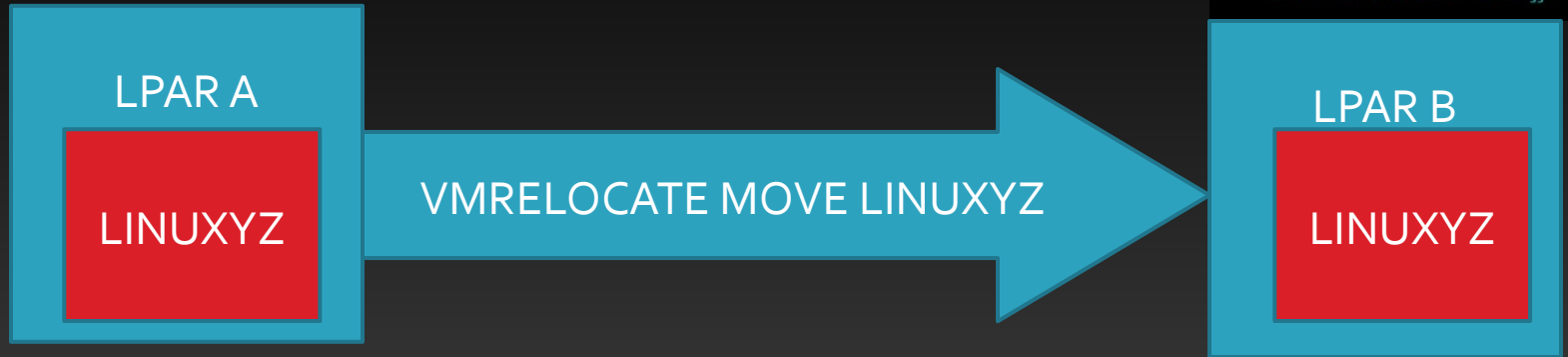 - Messes up my install best practice. I use MDISK own modes is
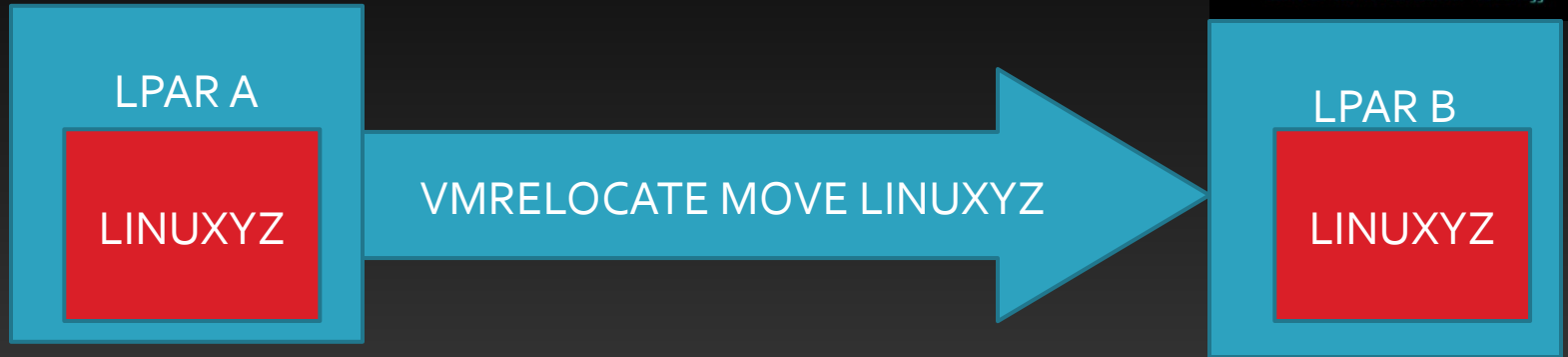
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DAVE METHOD: 640 Golden

- 2nd level notes:
  - Second level is the z/VM golden image.
  - Copy to full packs (starting on cylinder 0)
  - Re-label
  - Redo ownership
  - Tailor
  - Merge

LGR Negative Observat

LPAR A

LINUXYZ

VMRELOCATE MOVE LINUXYZ

LPAR B

LINUXYZ

- True for whichever method you choose

- Not showing to be useful on large systems during migrations.

  - Consider a two member cluster where each members has 200Gb and moderate page load.

  - To do a migration you must tip the scales to move all the Linux workload.

  - Really must have each member 400GB.

    - Double the memory.

- Customers balking at the expense.

an outage. Sad but true.

LGR I'm Trying to Lov

LPAR A

LINUXYZ

VMRELOCATE MOVE LINUXYZ →

LPAR B

LINUXYZ

- True for whichever method you choose

- Better with Testing Systems and Sandboxes

- Really nice for workload adjustments.

- Some sort of TCM? Temporary Cheap Memory.

Upgrade Overview

Upgrade Notes

MIGMAINT Userid

Need about an additional 8,000 cylinders

Installation worksheets

Upgrade is table driven

Editorial on OPNCLOUD

- OPNCLOUD will any shop use you?

- You take up a lot of space

- And have messed up RSU implementation

- Will I learn to love you?

- And by the way... what do you do, exactly?

OPNCLOUD

Sample Worksheets

Current System Information:

System configuration file:
Name: _____   _____   User ID: _____   Address: _____

Do you edit your CP directory file manually? _____
If YES, then CP directory file:
Name: _____   _____   User ID: _____   Address: _____

Are you using a security manager other than RACF? _____

Is a 2191 minidisk required? _____   Size required: _____

VMPSFS filepool free blocks required: _____

3390 DASD model: _____

SCSI volume size: _____

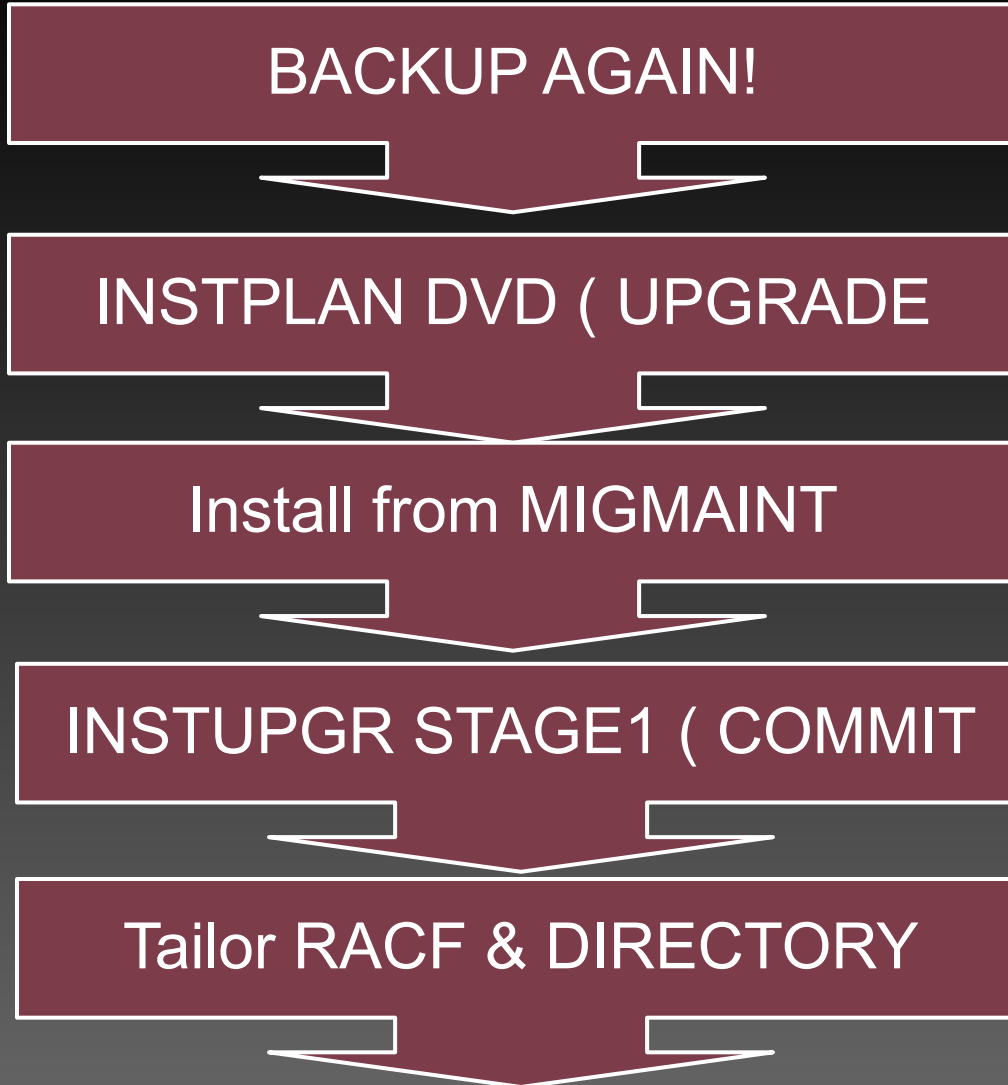Table 15. Upgrade Installation Worksheet 3 (3390 Only)

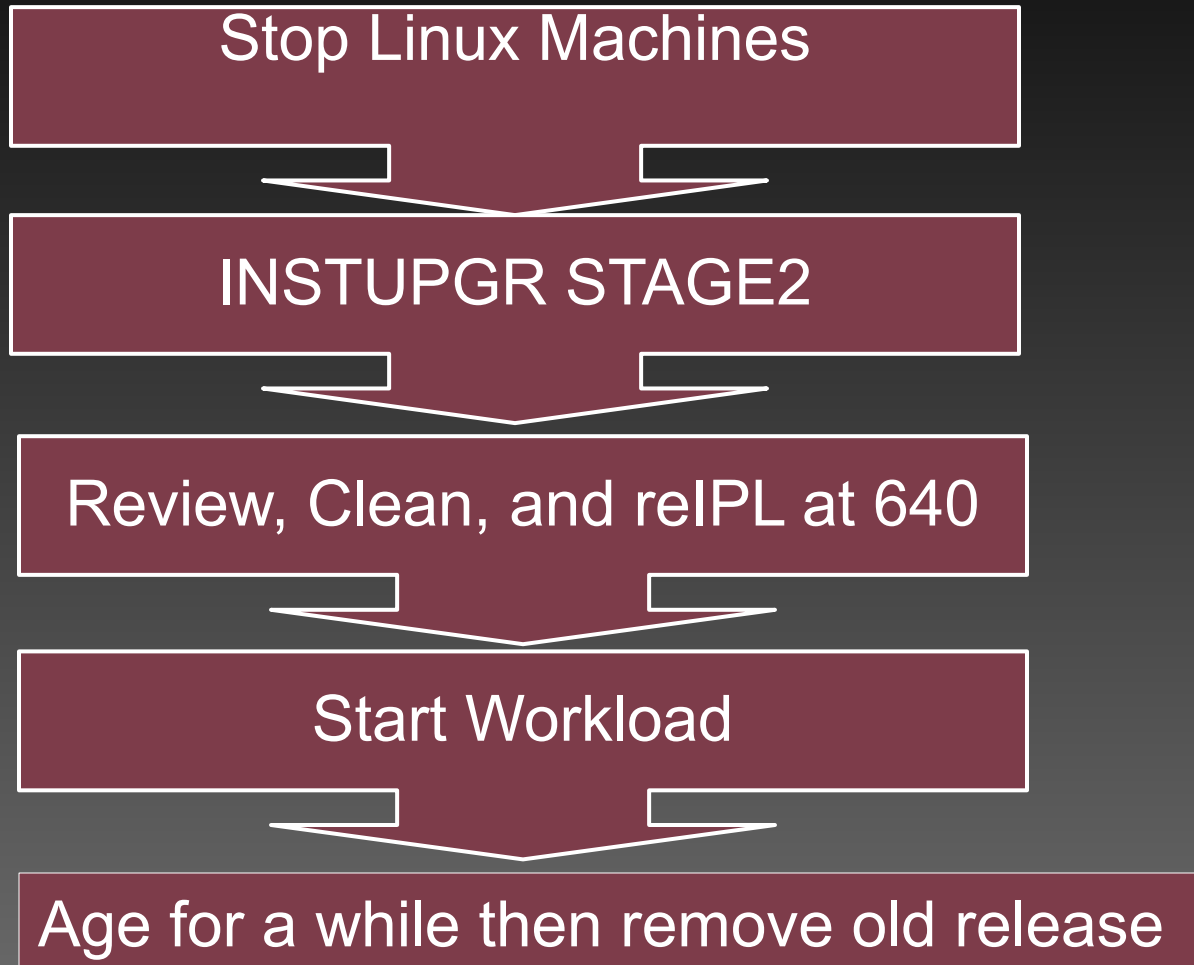| Installation Volumes for z/VM Work System (3390):			
Volume Type	**Default Label**	**New Label**	**Address**
COMMON	IBMCM1		
COMMON2	IBMCM2		
RELVOL	xxxRL1		
RELVOL2	xxxRL2		
RELVOL3	xxxRL3		
RES	IBMRES		
SPOOL	IBMS01		
PAGE	IBMP01		
MEMBER	IBMWK1		
MEMBER	IBMWK2		
MEMBER	IBMWK3		

Note: You must *not* use any of IBM's default volume labels for a volume other than the volume for which it is originally defined.

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Upgrade Path

BACKUP AGAIN!

↓

INSTPLAN DVD (UPGRADE

↓

Install from MIGMAINT

↓

INSTUPGR STAGE1 (COMMIT

↓

Tailor RACF & DIRECTORY

↓

Upgrade Path

Stop Linux Machines

INSTUPGR STAGE2

Review, Clean, and reIPL at 640

Start Workload
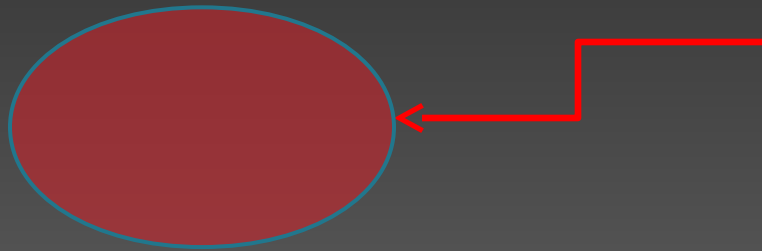
Age for a while then remove old release

QUESTIONS?

DAVID vs. GOLIATH

IBM MANUAL

Summary of Dave Method

IBM INSTALLATION GUIDE OVERVIEW

If you are unsure if a device needs to be backed up then include it anyways. We will need to back up the exisitng COMMON, SYSRES and MEMBER volumes.

> # Execute the Upgrade Install

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Upgrade Options

Remove Obsolete Release

4-3 Install a Z/VM V6.4 work system