



Session 2: VIOS - how to get going



Nigel Griffiths
IBM Power Systems
Advanced Technology Support
EMEA

Agenda



Reference sources

- Redbooks

- Movies

- Whitepaper

VIOS Sizing

VIOS Media

VIOS How to Install

Using VIOS to support Virtual Ethernet, Virtual Disks, Virtual Optical

Agenda



- | | |
|------------|--|
| Redbooks | PowerVM Intro & Config 4th Edition
PowerVM Managing & Monitoring
PowerVM Best Practices
PowerVM Virtual I/O Server Deployment Examples
Integrated Virtual Ethernet Adapter Intro
PowerVM Live Partition Mobility
Hardware Management Console V7 Handbook
Integrated Virtualisation Manager (IVM)
VIOS User Guide |
| Movies | http://tinyurl.com/AIXMovies - 20 movies |
| Whitepaper | POWER5 Virtualization:
How to set up the IBM Virtual I/O Server
How to work with VLANs using the IBM VIOS
by Nigel Griffiths |

VIOS Sizing



It depends on what you are doing with Disk & Network I/O

- Physical adapters now in the VIOS so device driver cycles moved out
- Extra work involves function shipping the request
- Efficient as the Hypervisor uses virtual memory rather than raw data moving

Who knows the I/O details to rates and packet sizes?

- Answer: no one
- If you do, we can do some maths to estimate the CPU cycles at peak period.
- But most of the time that would be overkill

VIOS Sizing

Trick 1 – Uncapped, micro partition with VP+1
Use PowerVM to re-use unused VIOS CPU cycles
in the application Virtual Machines

Trick 2 – Don't worry about the tea bags!
Just make sure you have enough

Trick 3 – ROT then monitor
Rule of thumb: for every 16 CPUs – 1 CPU, 2 GB RAM
The monitor VIOS use & tune as necessary

PowerVM System Planning Tool and Workload Estimator

Simplifies the planning for and installation of Power servers with PowerVM

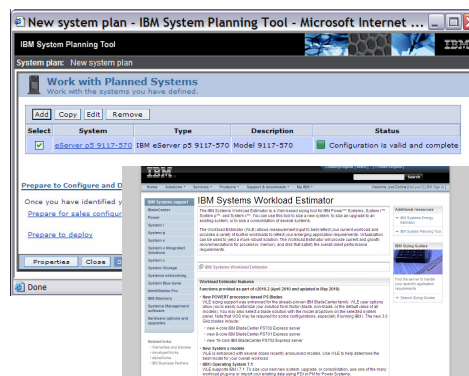
✓ **Saves time and reduces errors**

- *Browser-based application that helps you design logical partitioned systems*
- *Integrated with the Workload Estimator to plan a system based on existing performance data*
- *Integrated with IBM ordering system*
- *Plans generated can be deployed on the system by HMC or IVM*

✓ **Available for download:**

SPT – <http://www.ibm.com/systems/support/tools/systemplanningtool>

WLE – <http://www.ibm.com/systems/support/tools/estimator/>



VIOS Media



VIOS Media

You will need the VIOS DVD or .iso image

1 Shipped with the machine or there about!

- Careful as they may be out of date

2 Ordered from IBM – needs SWMA

3 Downloaded from ESS – needs SWMA

- <http://www.ibm.com/servers/eserver/ess>
- About 4.5 GB plus fixes

VIOS Media

Current version

- Latest release VIOS 2.2.0.12-FP24 SP02 from May 2011
- See <http://tinyurl.com/AIXpert>
PowerVM Virtual I/O Server - Recommended Levels
- Bonkers not to run the Latest
- OK ... give it two weeks after it is released

VIOS How to Install

```
Installation and Settings

Either type 0 and press Enter to install with current settings, or type the
number of the setting you want to change and press Enter.

  1 System Settings:
    Method of Installation.....Preservation
    Disk Where You Want to Install.....hdisk0

  2 Primary Language Environment Settings (AFTER Install):
    Cultural Convention.....English (United States)
    Language .....English (United States)
    Keyboard .....English (United States)
    Keyboard Type.....Default

  3 Security Model.....Default
  4 More Options (Software install options)
  5 Select Edition.....express ←
>>> 0 Install with the current settings listed above.

-----+-----
88 Help ? | WARNING: Base Operating System Installation will
99 Previous Menu | destroy or impair recovery of SOME data on the
                | destination disk hdisk0.
>>> Choice [0]:
```

VIOS How to Install

Integrated Virtualisation Manager (IVM)

- Have a dumb screen console working then power up
- Reset to factory defaults then boot of VIOS DVD
- Select console, language, disk and install
- Go watch the movies

HMC or SDMC

- Create VIOS LPAR on the HMC
- Boot off DVD media
- Select console, language, disk and install

Could use NIM– only for the NIM experts ... IMHO

VIOS How to Install

HMC or SDMC

- Create VIOS LPAR on the HMC
- Boot off DVD media
- Select console, language, disk and install

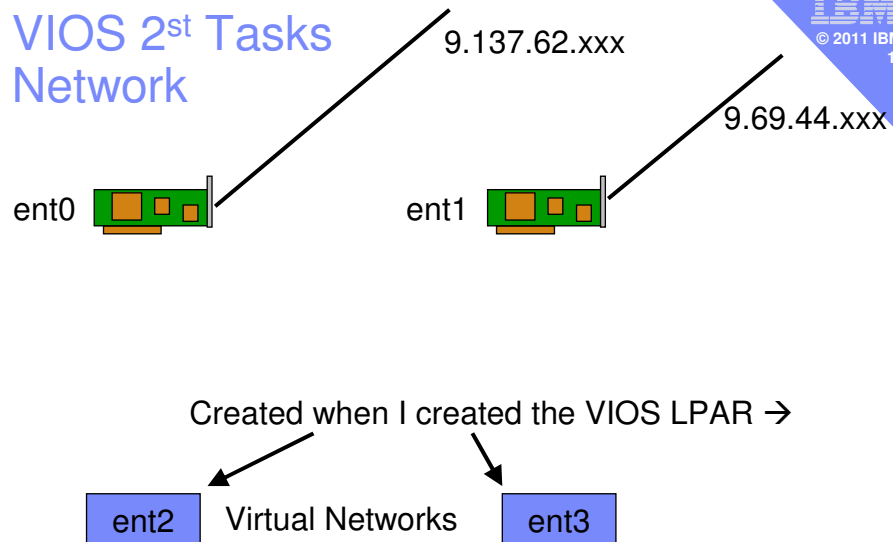
- DEMO HERE
- HMC – start VIOS, find DVD, boot, **Start Install**

VIOS 1st Tasks

cfgassist menu

- You are asked to confirm the license agreement
- Set padmin password (sort of root user for VIOS)
- Set date, time and timezone
- Set up the network
- Exit

VIOS 2st Tasks Network



Logical Partition Profile Properties: normal @ greyvios2 @ grey-9117-
MMA-p570-8F - greyvios2

© 2011 IBM 15

General Processors Memory I/O **Virtual Adapters** Power Controlling Settings HCA Logical Host Ethernet Adapters (LHEA)

Virtual Ethernet Adapter Properties - greyvios2

Virtual resources allow for the sharing of physical hardware virtual adapter settings are listed below.

Maximum virtual adapters : *40

Number of virtual adapters : 13

WARNING: One or more of the logical port definitions referenc not configured in shared mode.

Select	Type	Adapter ID	Server/Client Partition
<input type="checkbox"/>	Ethernet	11	N/A
<input type="checkbox"/>	Ethernet	12	N/A
<input type="checkbox"/>	Ethernet	21	N/A
<input type="checkbox"/>	Ethernet	22	N/A
<input type="checkbox"/>	Server SCSI	13	darkblue(3)
<input type="checkbox"/>	Server SCSI	14	(4)
<input type="checkbox"/>	Server SCSI	15	(5)
<input type="checkbox"/>	Server SCSI	16	(6)
<input type="checkbox"/>	Server SCSI	17	(7)
<input type="checkbox"/>	Server SCSI	18	(8)
<input type="checkbox"/>	Server SCSI	19	(9)
<input type="checkbox"/>	Server Serial	0	Any Partition
<input type="checkbox"/>	Server Serial	1	Any Partition

Total: 13 Filtered: 13 Selected: 0

Virtual Ethernet Adapter Properties - greyvios2

General

Virtual ethernet adapter

Adapter ID : *11

VSwitch : ETHERNET0(Default)

Port Virtual Ethernet: *137

This adapter is required for virtual server activation.

IEEE Settings

Select this option to allow additional virtual LAN IDs for the adapter.

IEEE 802.1q compatible adapter

Shared Ethernet Settings

Select Ethernet bridging to link (bridge) the virtual Ethernet to a physical network

Use this adapter for Ethernet bridging

Priority: 10 (1 or 2)

OK Cancel Help

VIOS 2st Tasks Network

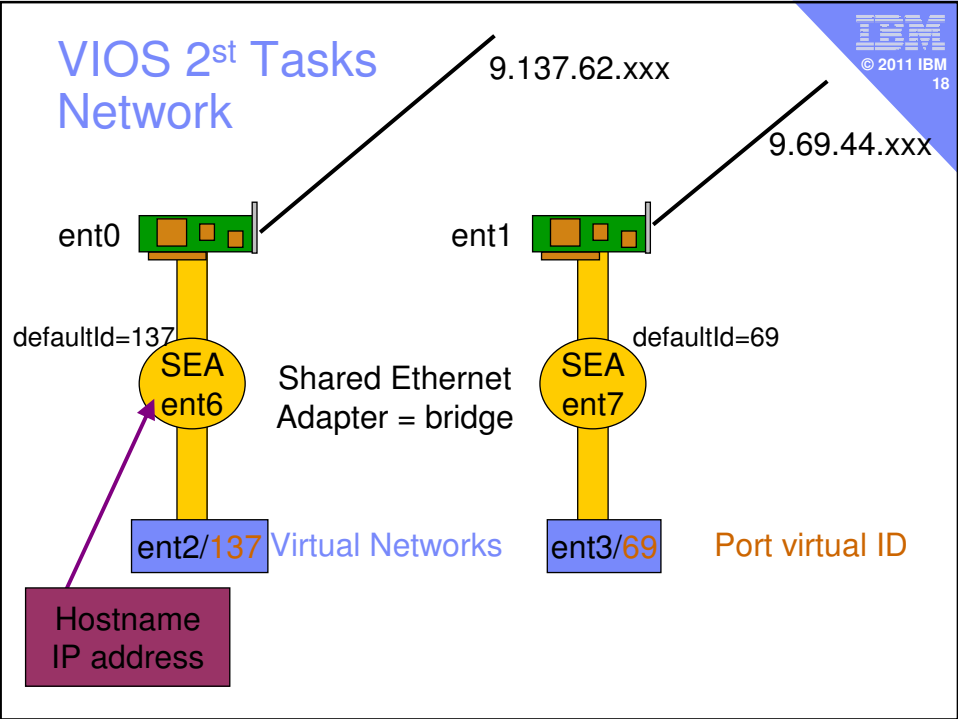
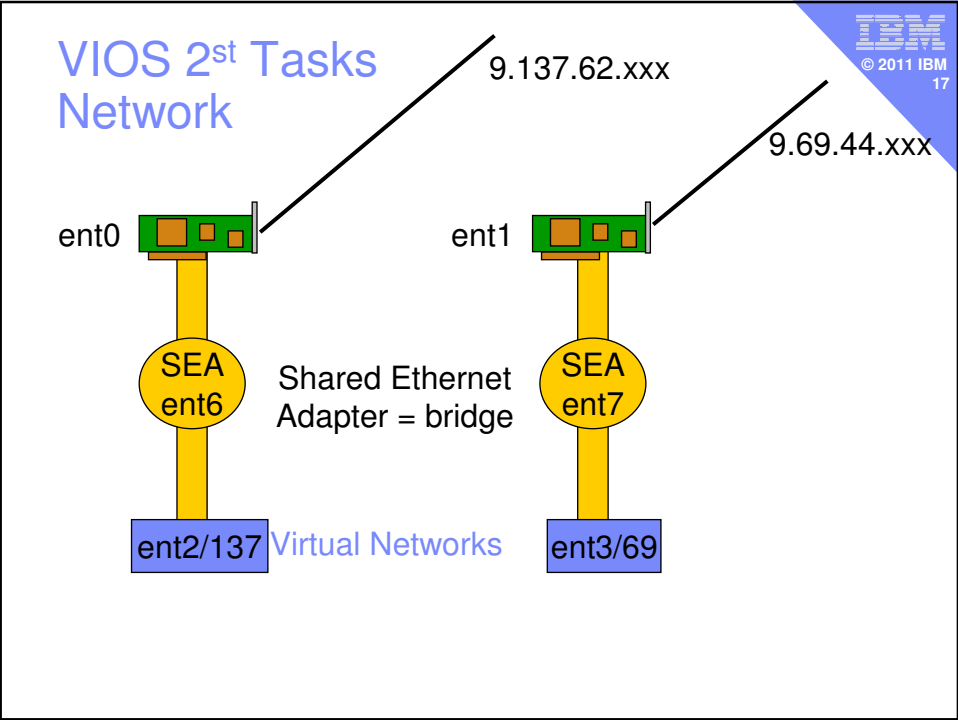
© 2011 IBM 16

```

padmin$ lsdev | grep ent
clientvg      Defined   Volume group
ent0          Available 2-Port 10/100/1000 Base-TX
              PCI-Express Adapter (14104003)
ent1          Available 2-Port 10/100/1000 Base-TX
              PCI-Express Adapter (14104003)
ent2          Available Virtual I/O Ethernet Adapter (I-lan)
ent3          Available Virtual I/O Ethernet Adapter (I-lan)
ent4          Available Virtual I/O Ethernet Adapter (I-lan)
ent5          Available Virtual I/O Ethernet Adapter (I-lan)
ent6          Available Shared Ethernet Adapter
ent7          Available Shared Ethernet Adapter
  
```

```

padmin$ lsdev -slots | grep ent
U9117.MMA.101CD8F-V2-C11 Virtual I/O Slot ent2
U9117.MMA.101CD8F-V2-C12 Virtual I/O Slot ent3
U9117.MMA.101CD8F-V2-C21 Virtual I/O Slot ent4
U9117.MMA.101CD8F-V2-C22 Virtual I/O Slot ent5
  
```

VIOS 2st Tasks Network

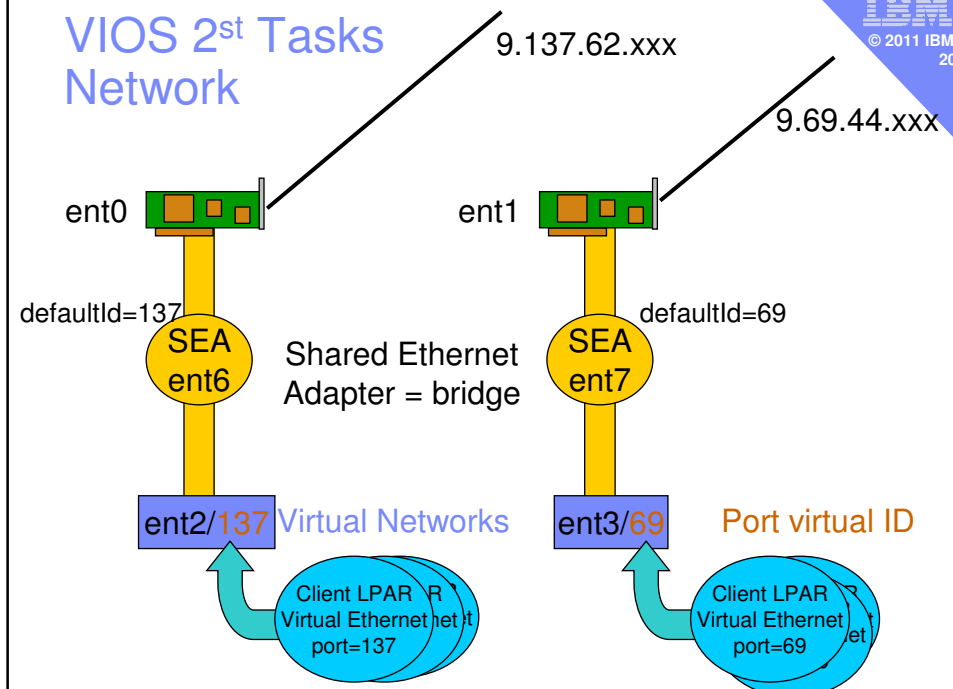


ent0 physical network card on my 9.137.62.xxx network
ent2 first virtual network
\$ mkvdev -sea ent0 -vadapter ent2 -default ent2 -defaultid 137
-attr ha_mode=auto ctl_chan=ent4

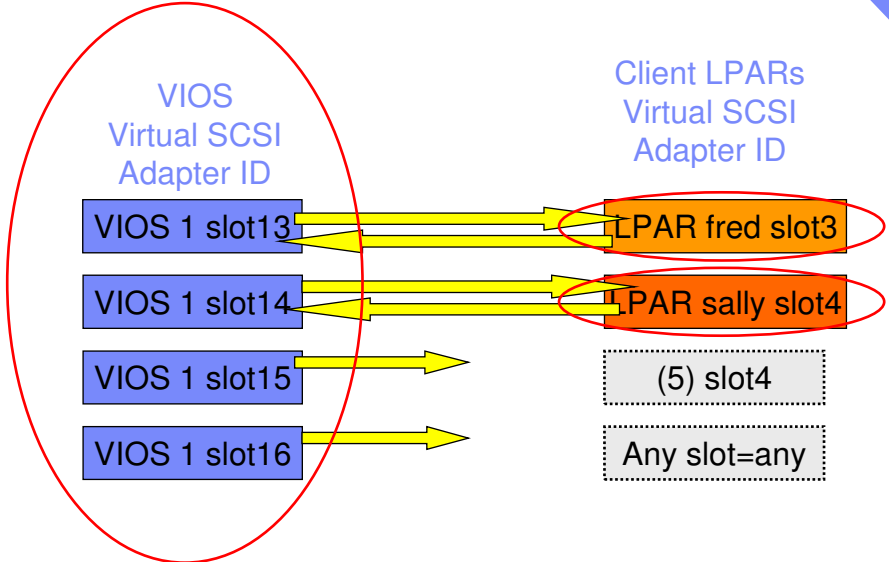
\$ mktcpip -hostname greyvios2 -interface en6 -inetaddr
9.137.62.241
-netmask 255.255.255.0 -gateway 9.137.62.1
-nsrvaddr 9.137.62.2 -nsrvdomain aixncc.uk.ibm.com -start

ent1 physical network card on my 9.69.44.xxx network
ent3 second virtual network
\$ mkvdev -sea ent1 -vadapter ent3 -default ent3 -defaultid 69
-attr ha_mode=auto ctl_chan=ent5

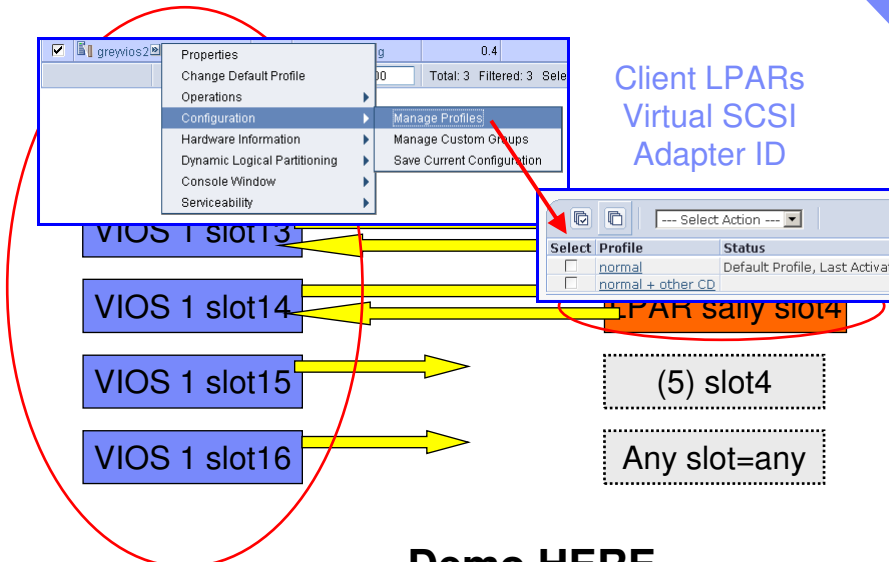
VIOS 2st Tasks Network



VIOS 3rd Tasks Disks



VIOS 3rd Tasks Disks



Demo HERE

VIOS 3rd Tasks Disks

General Processors Memory I/O **Virtual Adapters** Power Controlling Settings HCA Logical Host Ethernet Adapters (LHEA)

Actions

Virtual resources allow for the sharing of physical hardware between logical partitions. The current virtual adapter settings are listed below.

Maximum virtual adapters : 40 Reserved slot numbers: 0 - 10

Number of virtual adapters : 13

WARNING: One or more of the logical port definitions reference a shared adapter that is missing or not configured in shared mode.

Select	Type	Adapter ID	Server/Client Partition	Partner Adapter	Required
<input type="checkbox"/>	Ethernet	11	N/A	N/A	Yes
<input type="checkbox"/>	Ethernet	12	N/A	N/A	Yes
<input type="checkbox"/>	Ethernet	21	N/A	N/A	Yes
<input type="checkbox"/>	Ethernet	22	N/A	N/A	Yes
<input type="checkbox"/>	Server SCSI	13	darkblue(3)	3	Yes
<input type="checkbox"/>	Server SCSI	14	(4)	4	Yes
<input type="checkbox"/>	Server SCSI	15	(5)	4	Yes
<input type="checkbox"/>	Server SCSI	16	Any Partition	Any Partition Slot	Yes
<input type="checkbox"/>	Server SCSI	17	(7)	4	Yes
<input type="checkbox"/>	Server SCSI	18	(8)	4	Yes
<input type="checkbox"/>	Server SCSI	19	(9)	4	Yes
<input type="checkbox"/>	Server Serial	0	Any Partition	Any Partition Slot	Yes
<input type="checkbox"/>	Server Serial	1	Any Partition	Any Partition Slot	Yes

Total: 13 Filtered: 13 Selected: 0

Client LPARs
Virtual SCSI
Adapter ID

--- Select Action ---

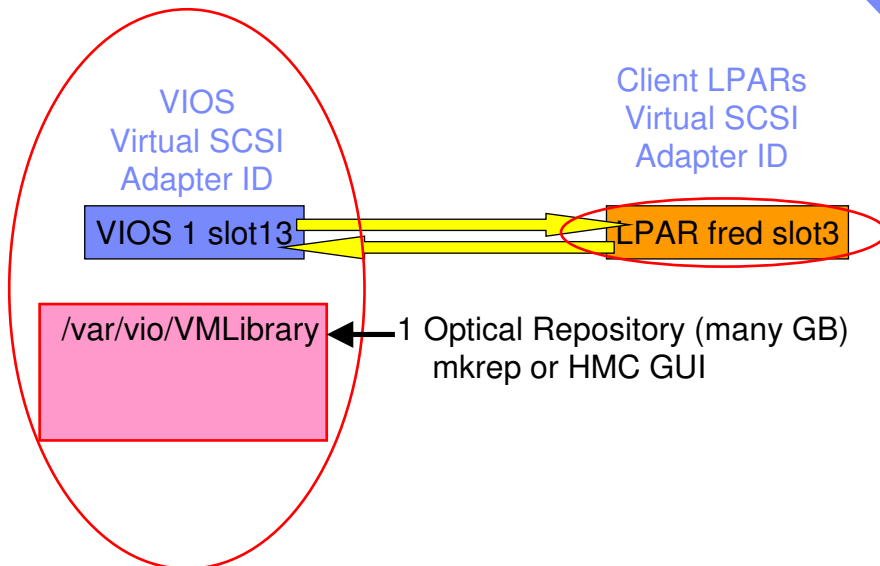
Status
Default Profile, Last Activated
+ other CD

Any slot4

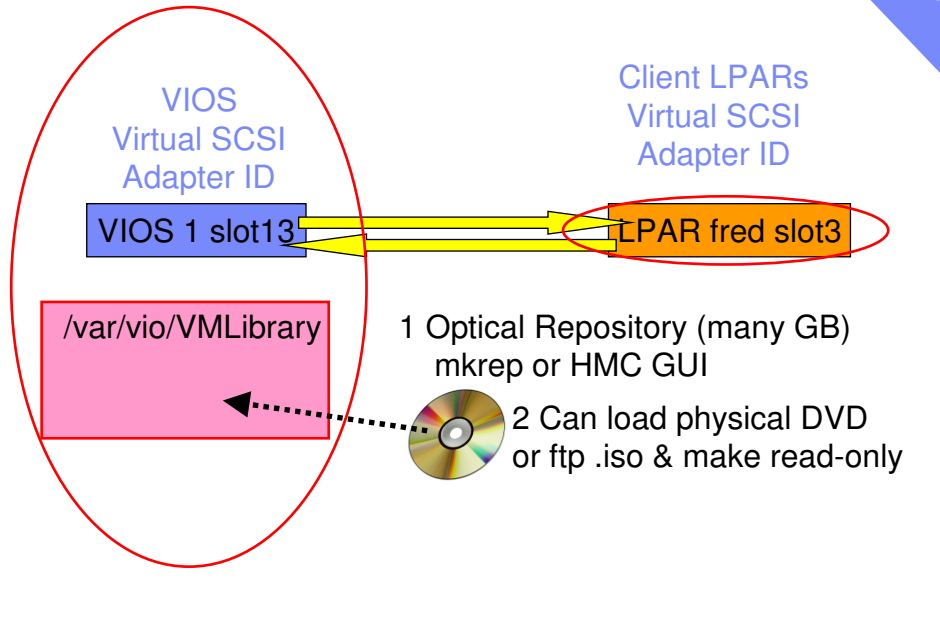
(5) slot4

any slot=any

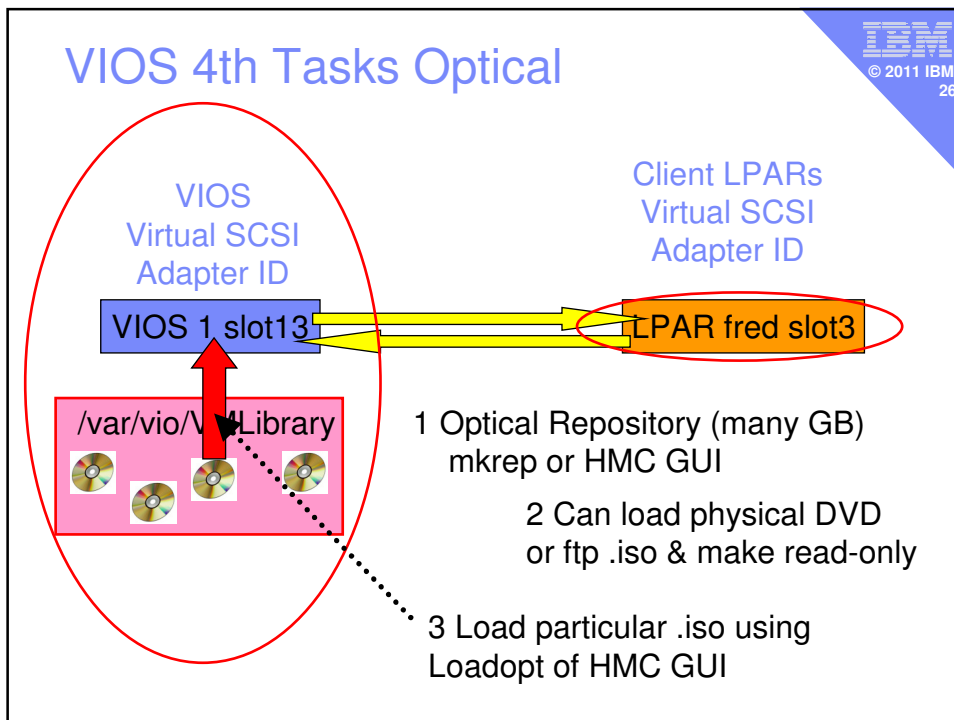
VIOS 4th Tasks Optical



VIOS 4th Tasks Optical



VIOS 4th Tasks Optical



VIOS 5th Tasks Clients

