

Cloud on System z – The Real Deal

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Session: 13122





Cloud Characteristics

Resource **Pooling**

Broad **Network** Access

Metering and Monitoring

On-Demand **Self Service**

Infinitely **Elasticity**

Service Models

Infrastructure as a Service

Platform as a Service

Software as a Service



Delivery Models

Public Cloud

Private Cloud

Community Cloud

Hybrid Cloud



Considerations

Cloud

Architecture Complexity

Time to value

Capability to be extensible

End users can view service catalog

Best use of the platform

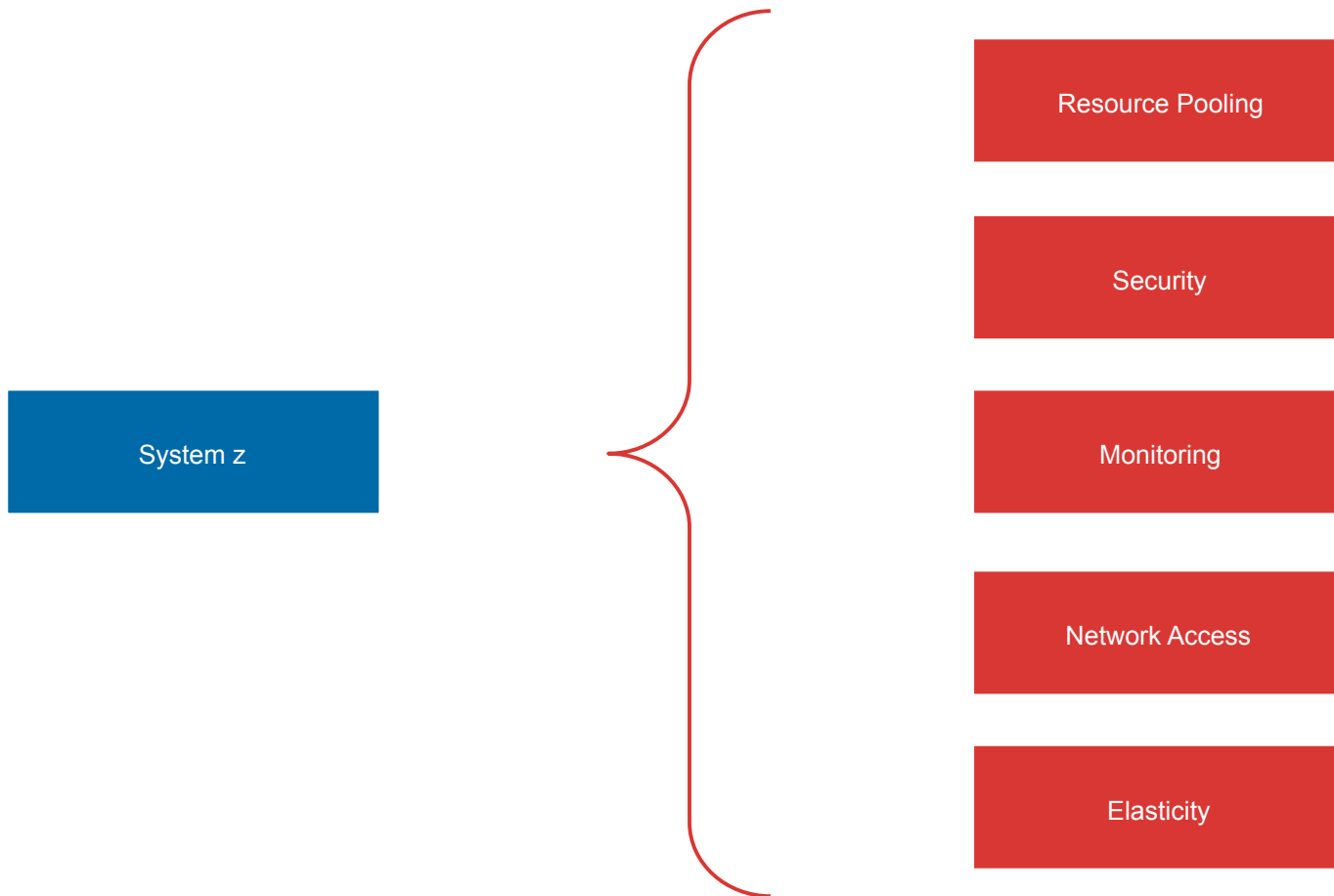


SHARE
Technology - Connections - Results



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Platform



Options

Build your own

Extreme Cloud Administration Tool (xCat)

zEnterprise Starter Edition for Cloud (TPM)

IBM Systems Director (ISD)

IBM Workload Deployer (IWD)

System z Solution Edition for Cloud (TSAM)

Build your own Architecture

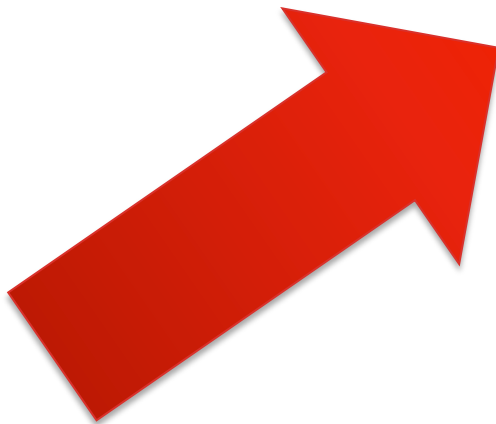
UI



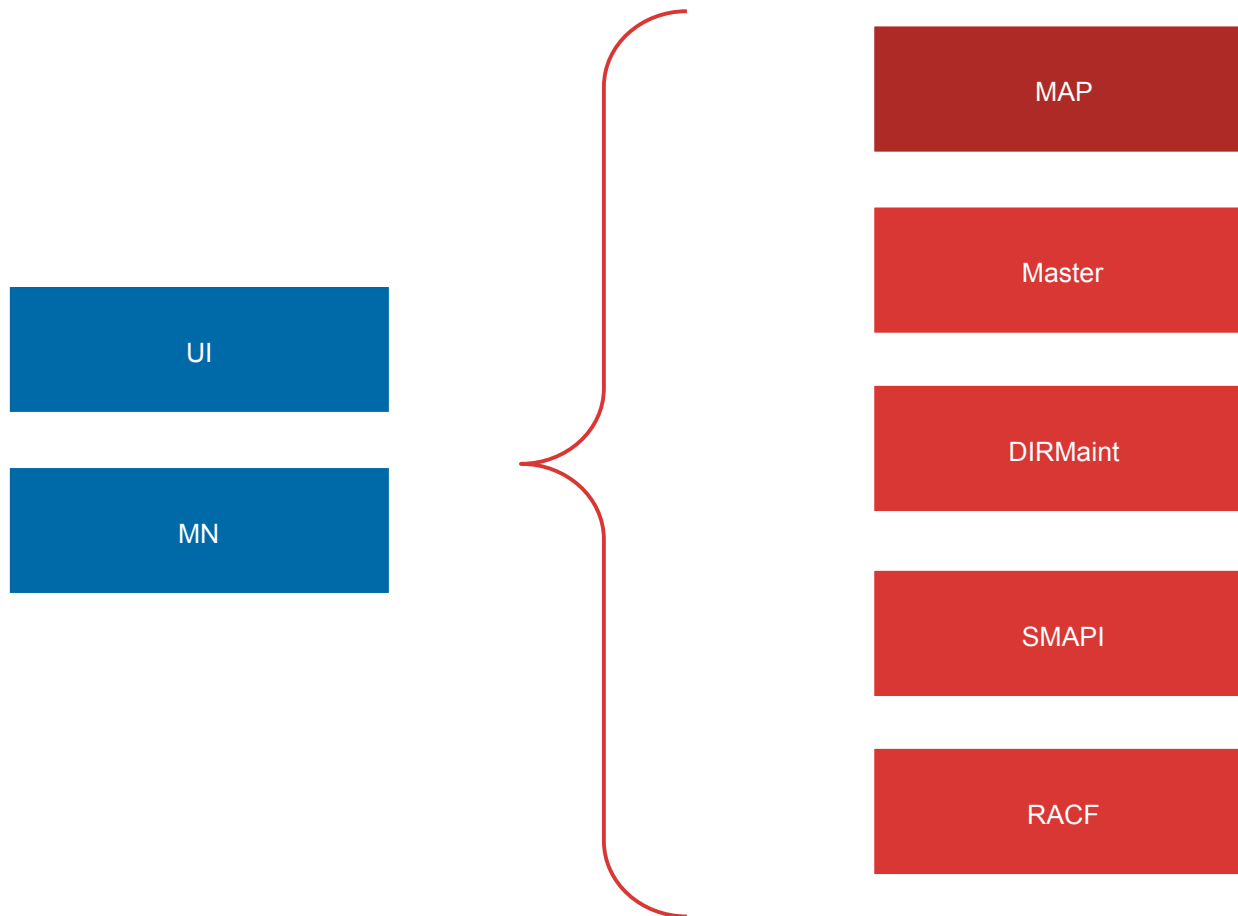
Time to Value



Extensibility



xCAT Architecture



xCAT UI

UI

Provides **self service** interface

Users can request **clones and installs**

Users can request **multiple services** at once

Users can view **service catalog**

xCAT UI

Provision Images **zvm**

Provision a node on System z.

Provision:

New node ▼

Group:

all

Node:

zlnx09

User ID:

zlnx09

Hardware control
point:

maplnx64

Operating system
image:

sles11sp1-s390x-insta

Directory entry:

```
USER ZLNX09 U7BDEX3S 512M 512M G 64
INCLUDE LINDFLT1
CPU 00 NODEDICATE
CPU 01 NODEDICATE
IPL CMS PARM AUTO CR
MACHINE ESA 4
OPTION QUICKDSP APPLMON
NICDEF 4420 TYPE QDIO LAN SYSTEM CLOUDSWC
MACID FFFFE9
```

Disks:

	Type	Address	Size	Mode	Pool	Password
	3390 ▼	0100	10016	MR ▼	POOL0	

[Add disk](#)

Provision

xCAT Management Node

MN

Controls the xCat **service catalog** (tables)
Can manage **multiple** LPARS
Can be **extended** with plugins
Can manage other platforms

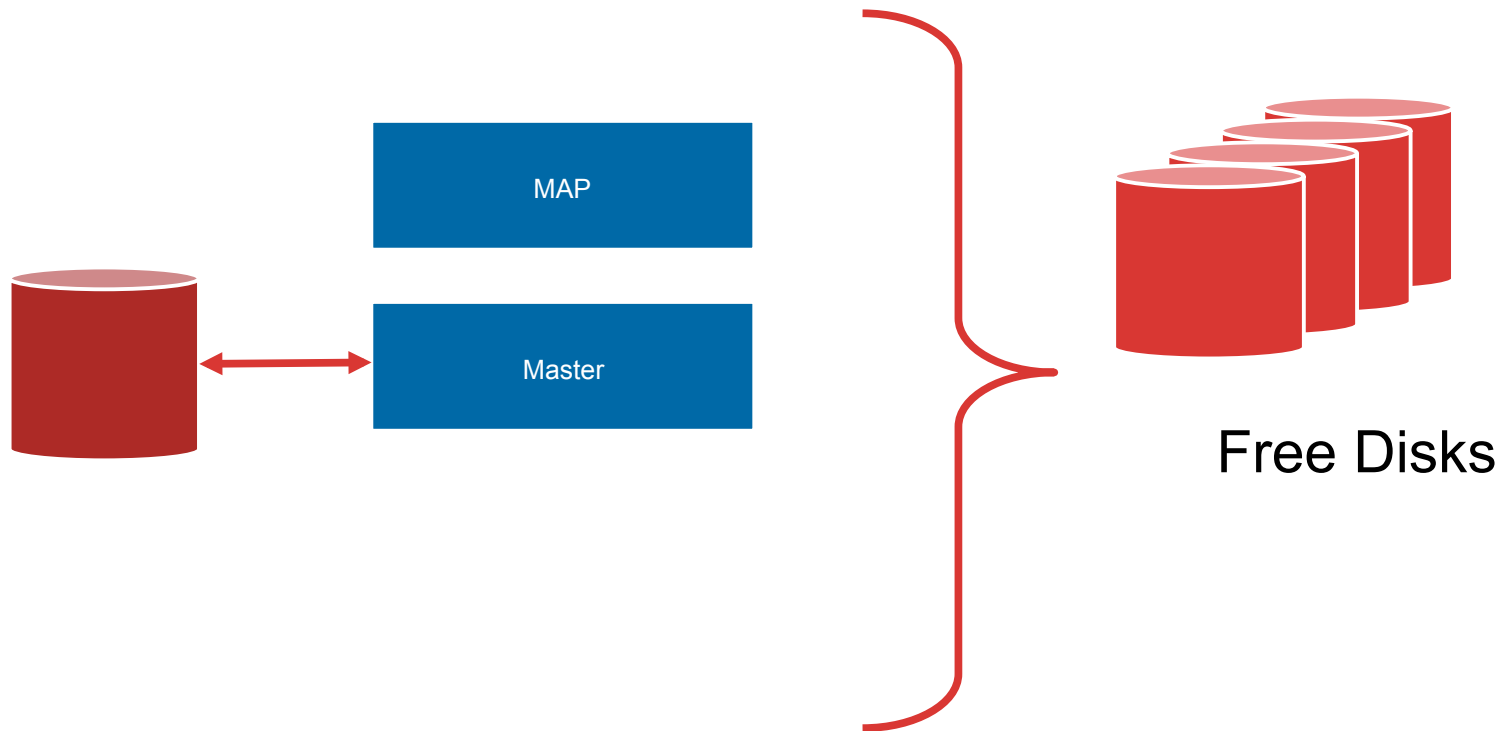
Time to Value



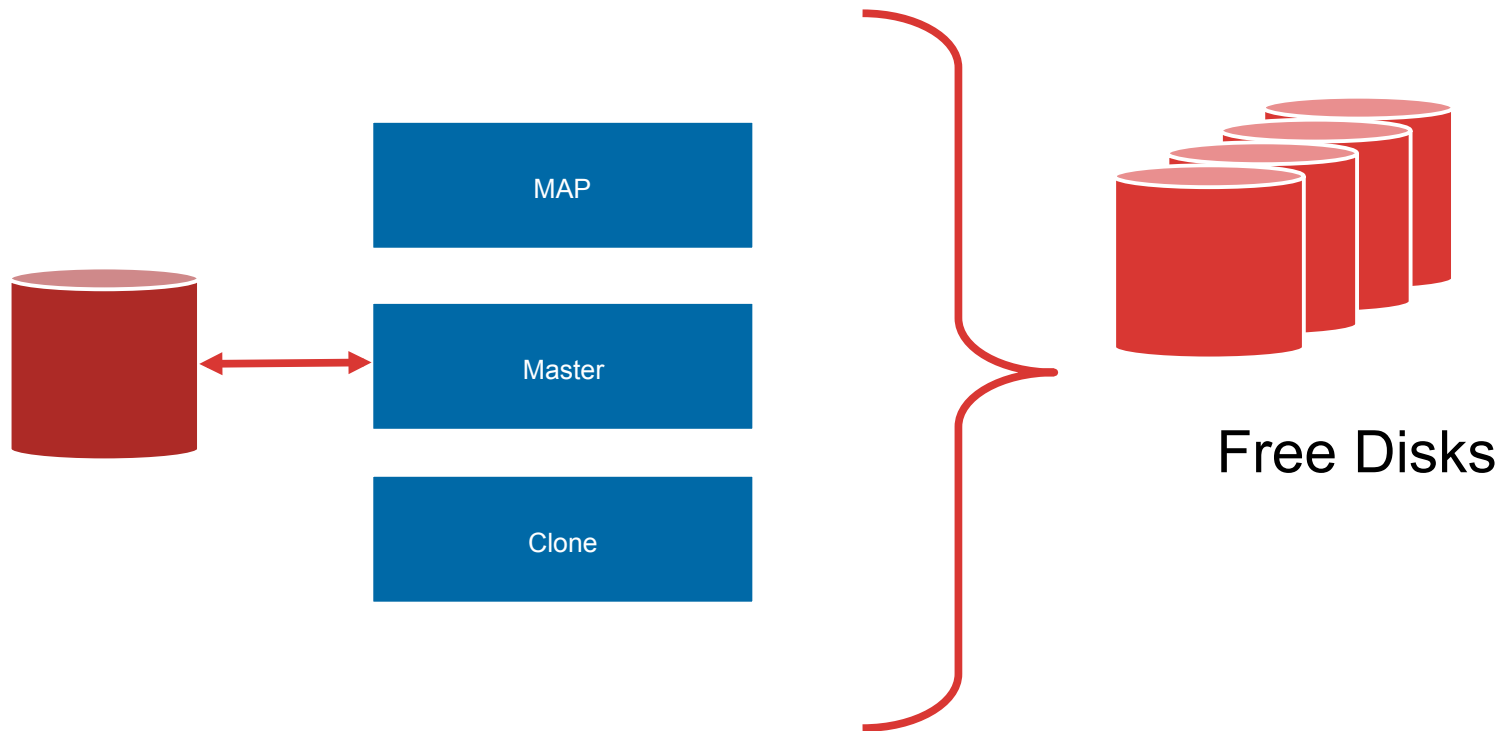
Extensibility



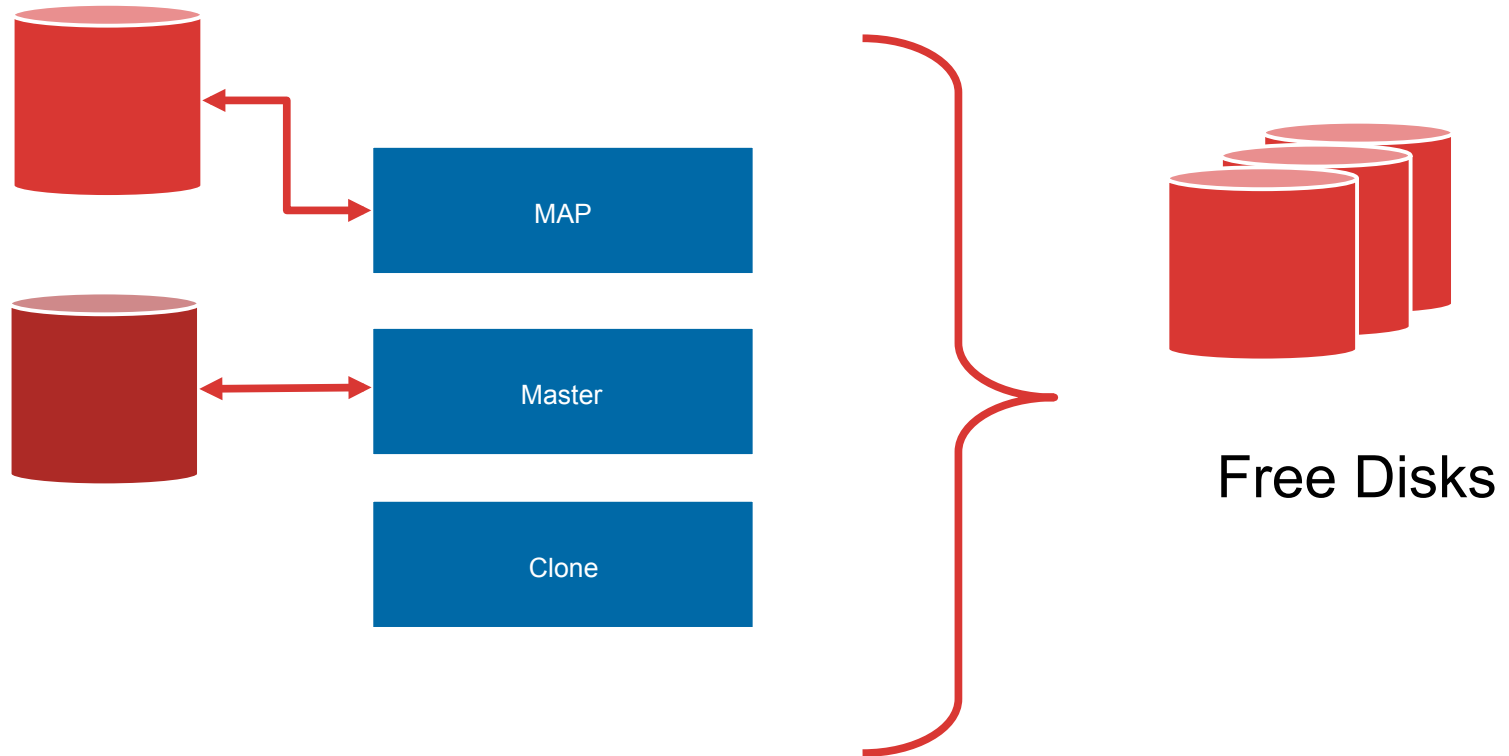
xCat Clone



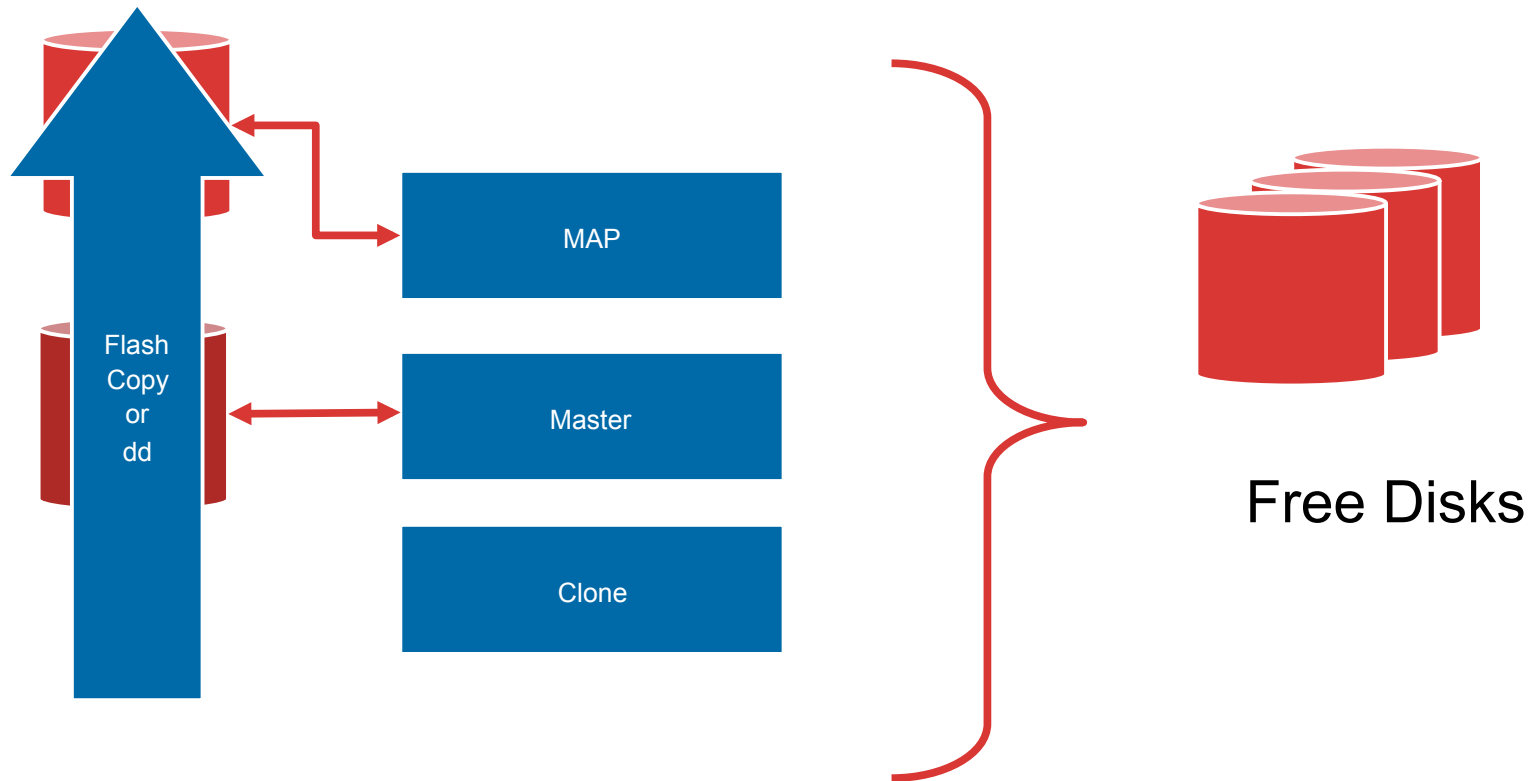
xCat Clone



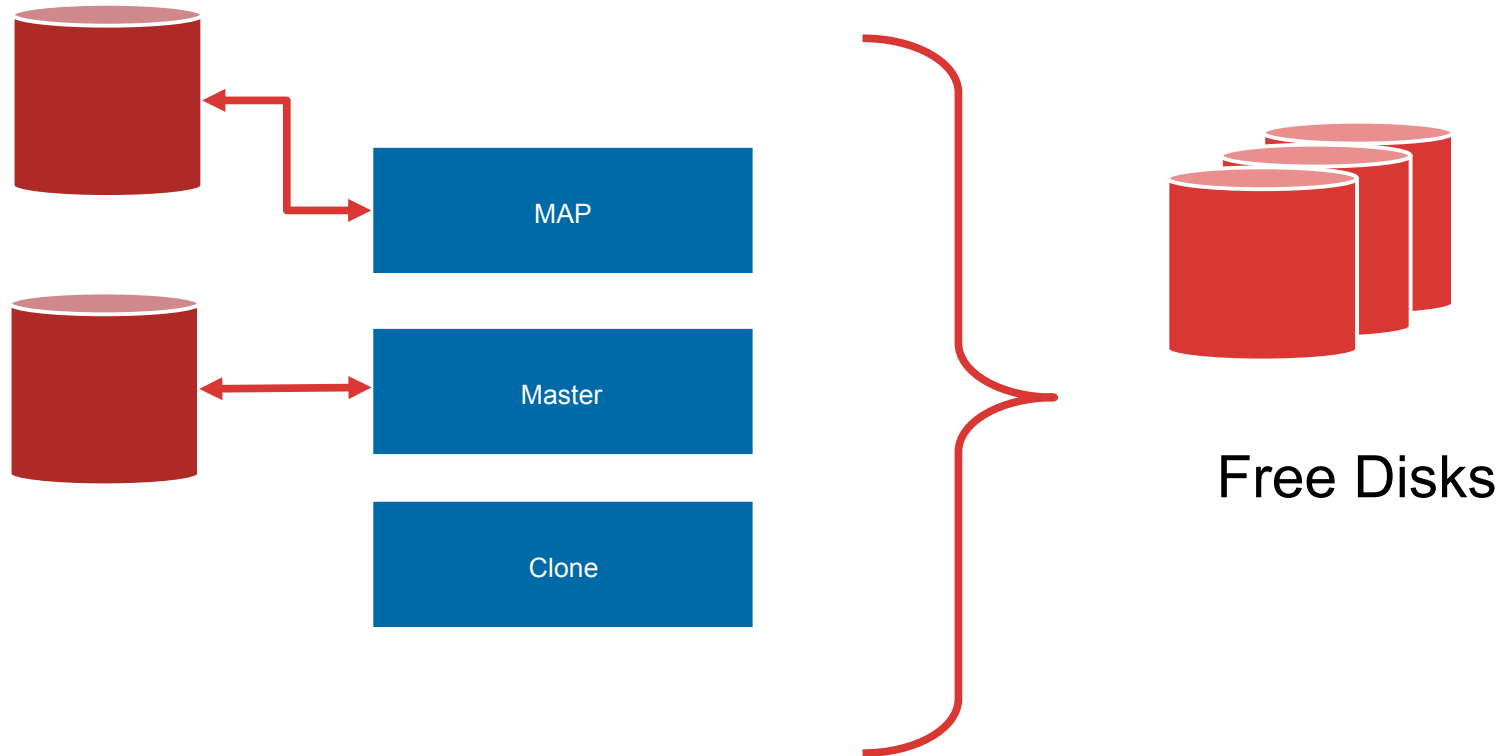
xCat Clone



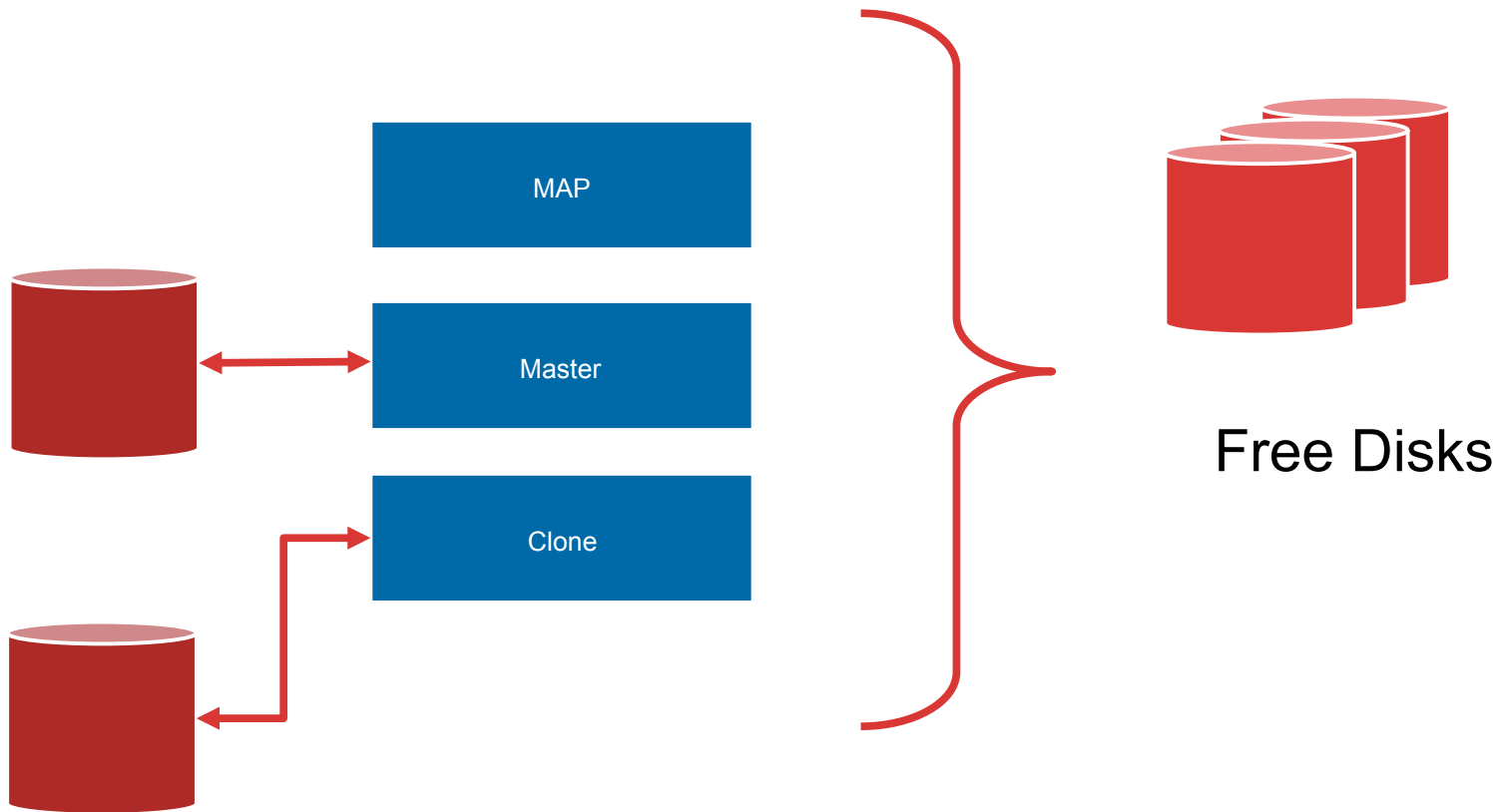
xCat Clone



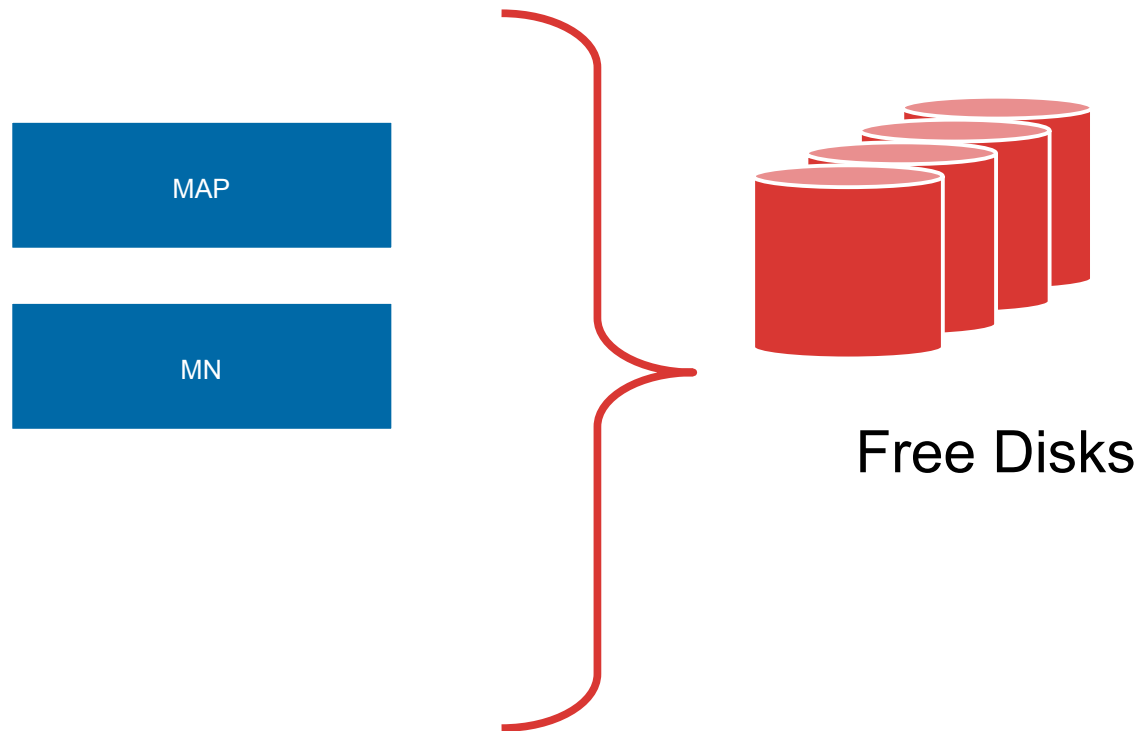
xCat Clone



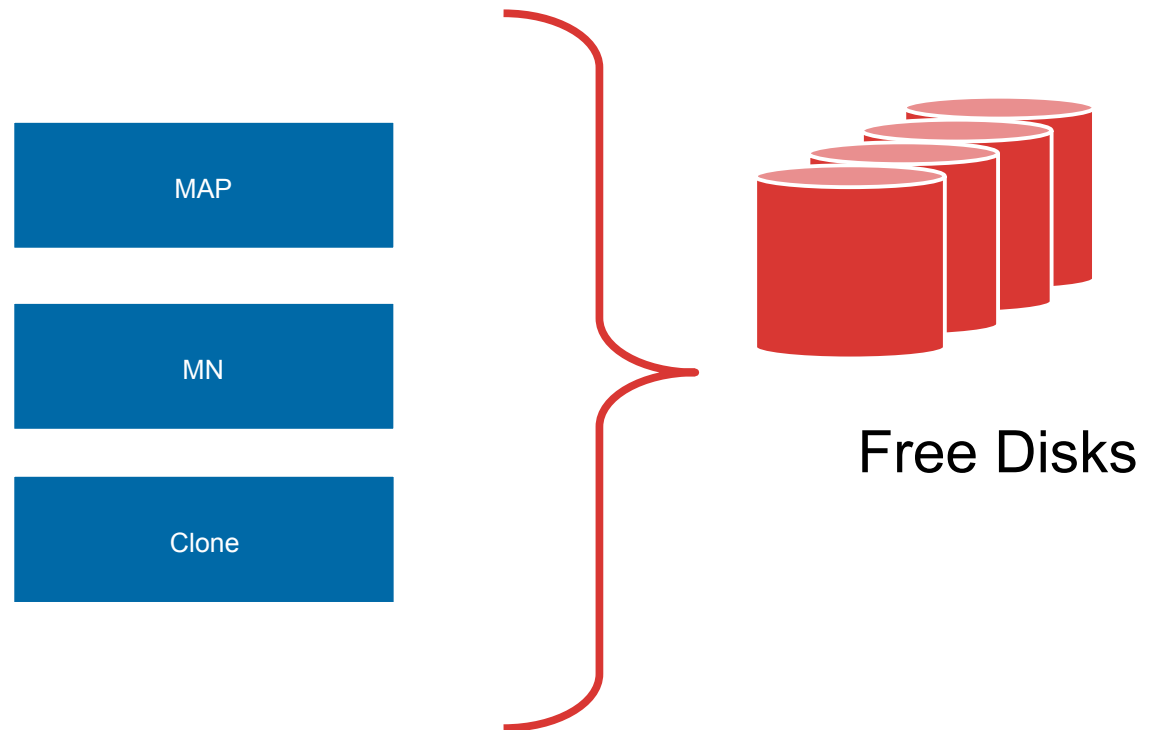
xCat Clone



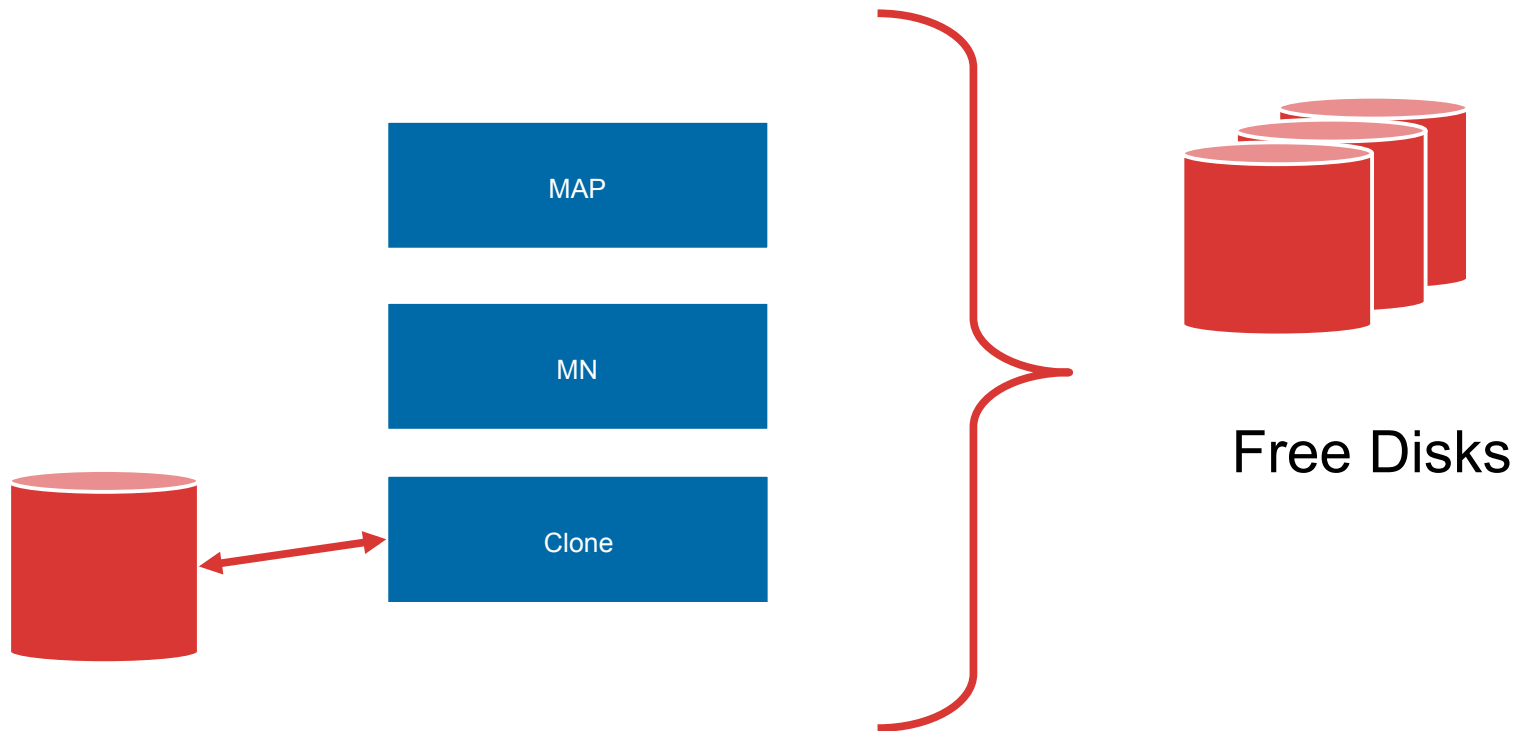
xCat Install



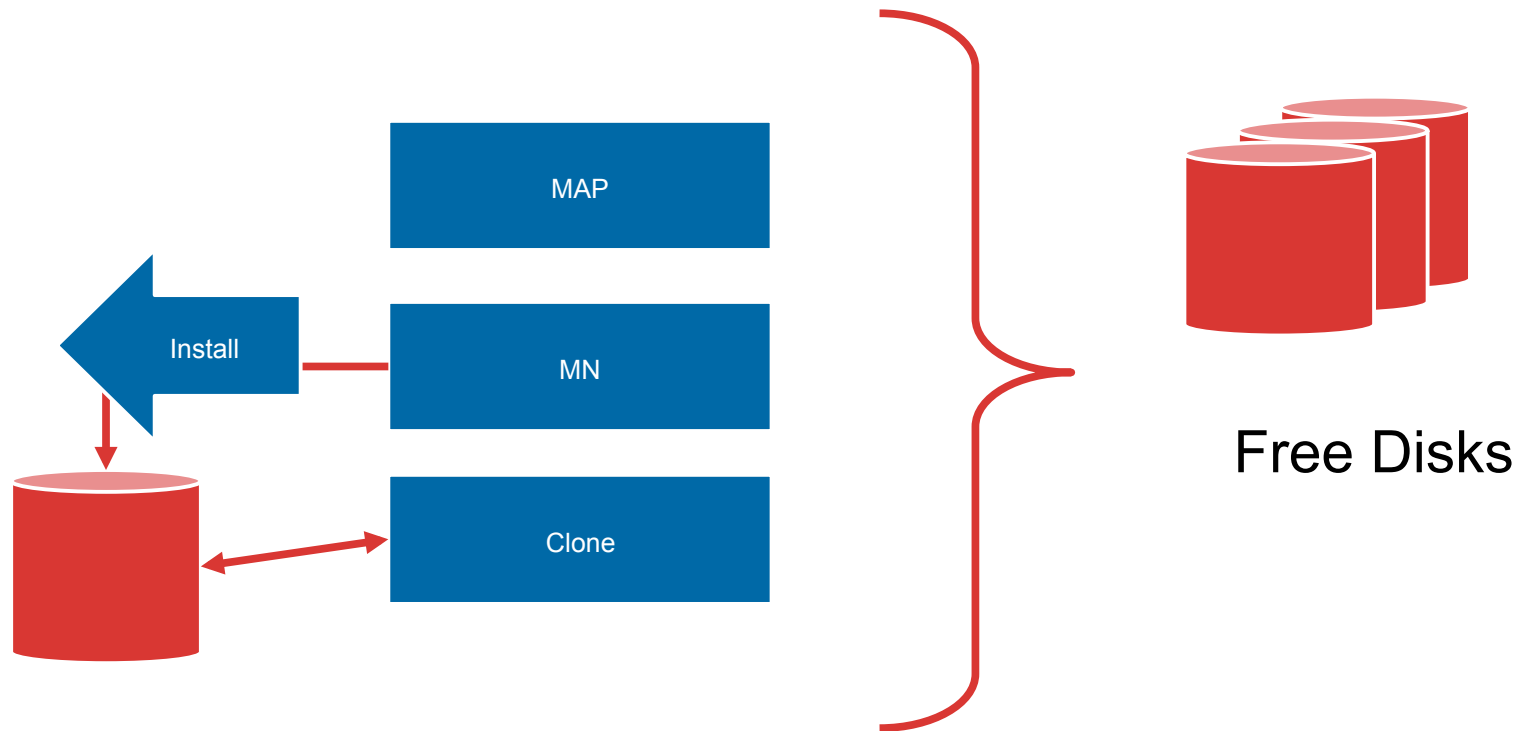
xCat Install



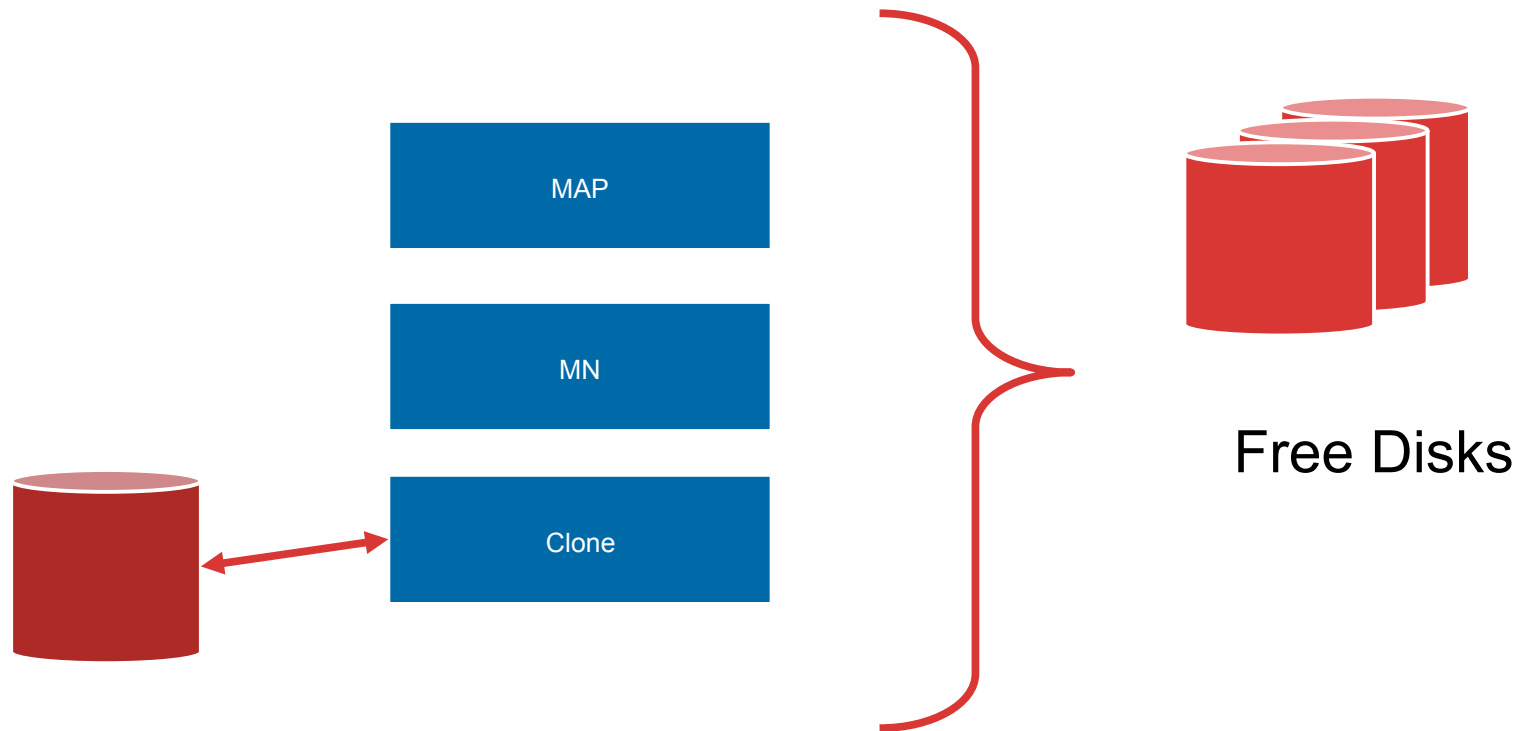
xCat Install



xCat Install



xCat Install



Things to Consider

Open Source **Support**

Currently **no ESM** support

Personalization done through **Linux tools** on Master

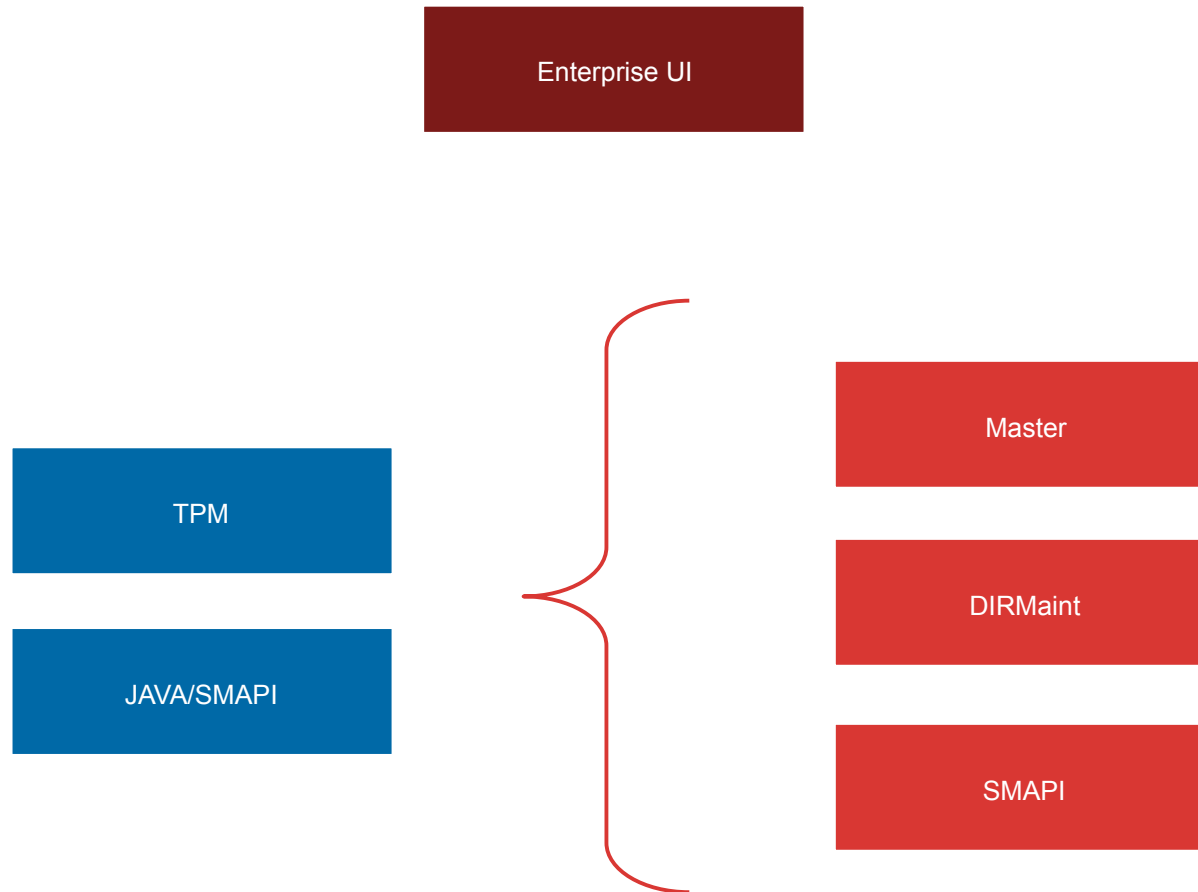
Connects to SMAPI through **sockets** (IUCV)

Very Linux oriented

Based on **clustering** technology

With MOAB can extend cloud capability

zEnterprise Starter Edition for Cloud



TPM Based Components

TPM

JAVA/SMAPI

No need for MAP server
TPM **can run** on z/Linux
Special **TPM** workflows
Java implements SMAPI calls
directly

Example UI

System z Server Deployment on z/VM - Deploy a new Server

Fill in the following fields and press SUBMIT to deploy a new server.

Provide information to deploy a new server

Select a Master to be deployed *

RHEL 5.3 64-bit Linux
SLES 10 SP3 64-bit Linux
z/OS V1.10

email Address * user@my.company.com

Department Charge * ACCT|

Credit Card Number

* - means required

Submit

Reset

Home

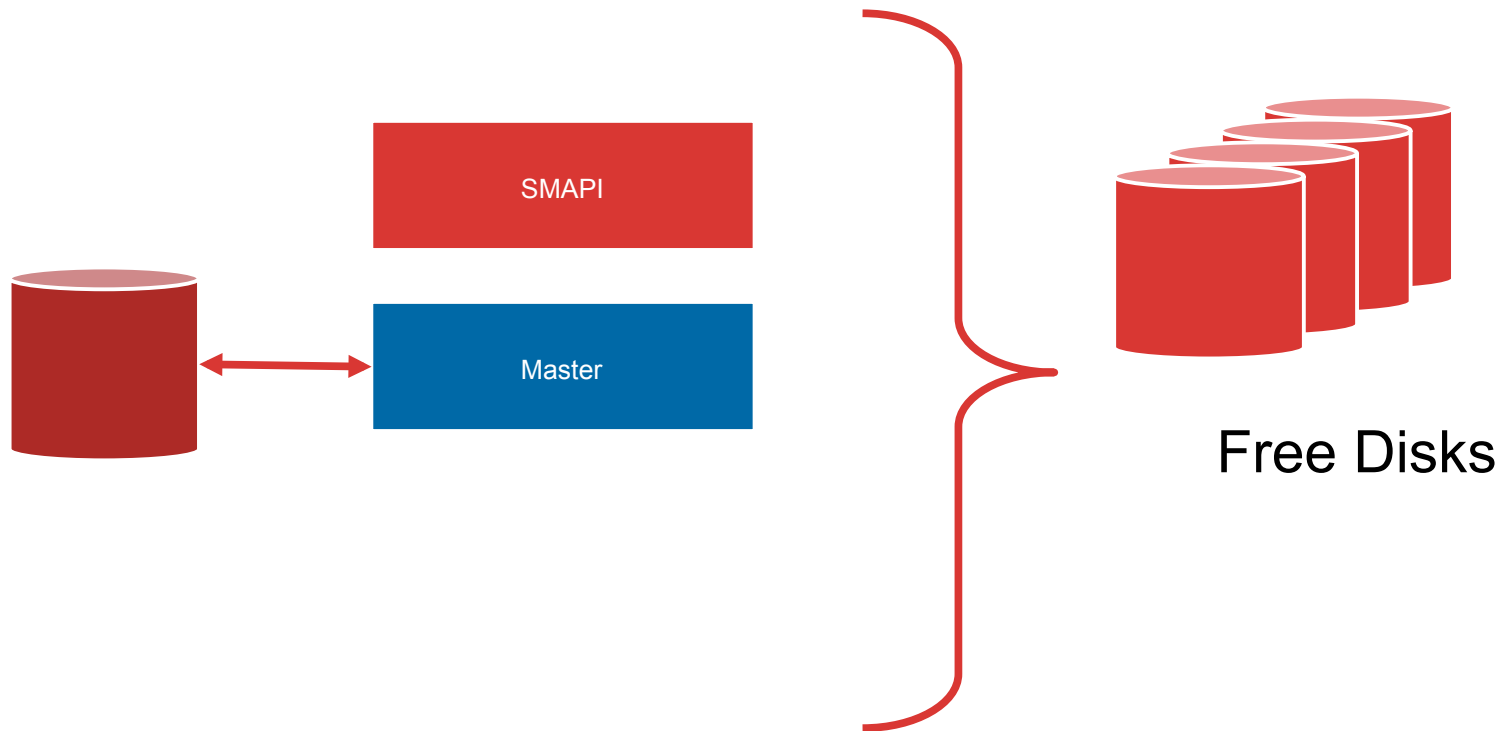
Time to Value



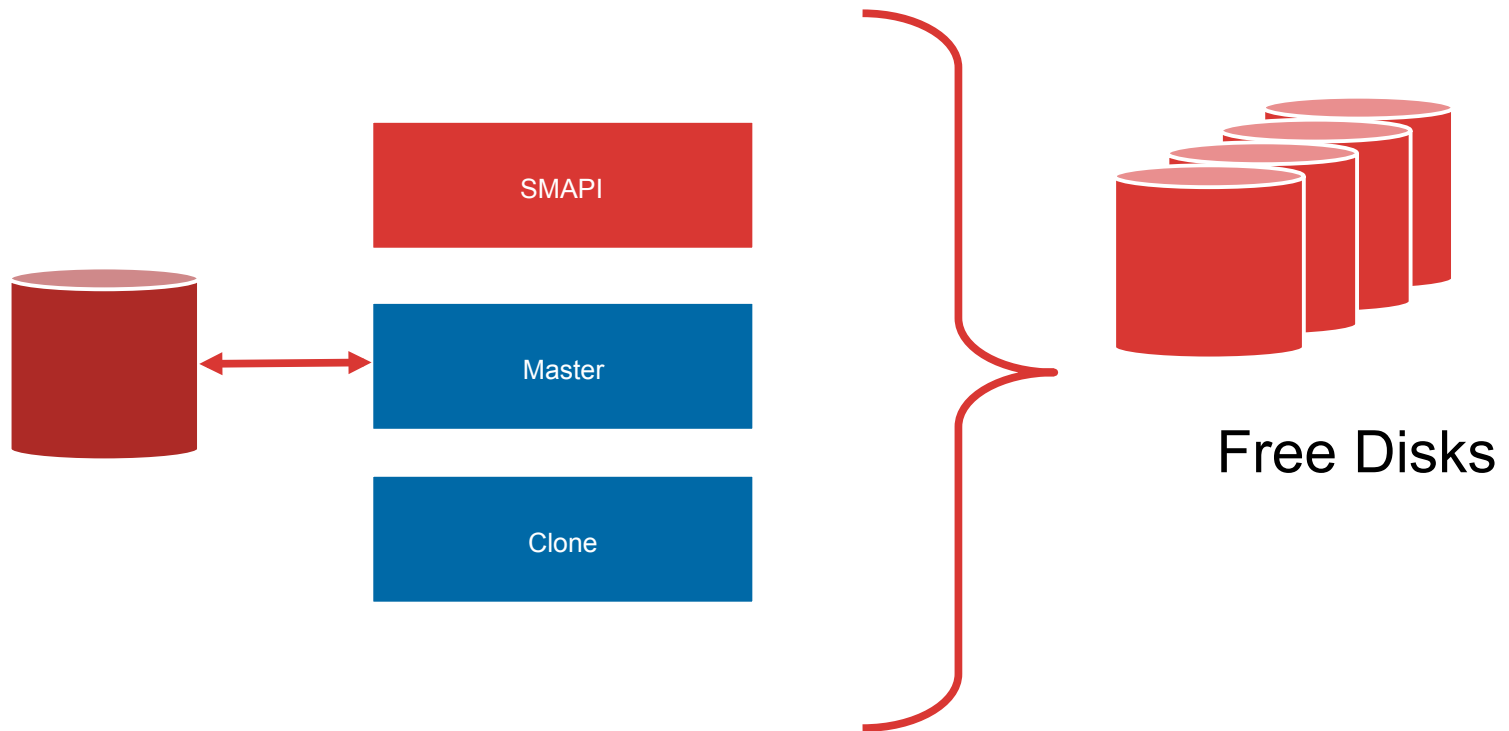
Extensibility



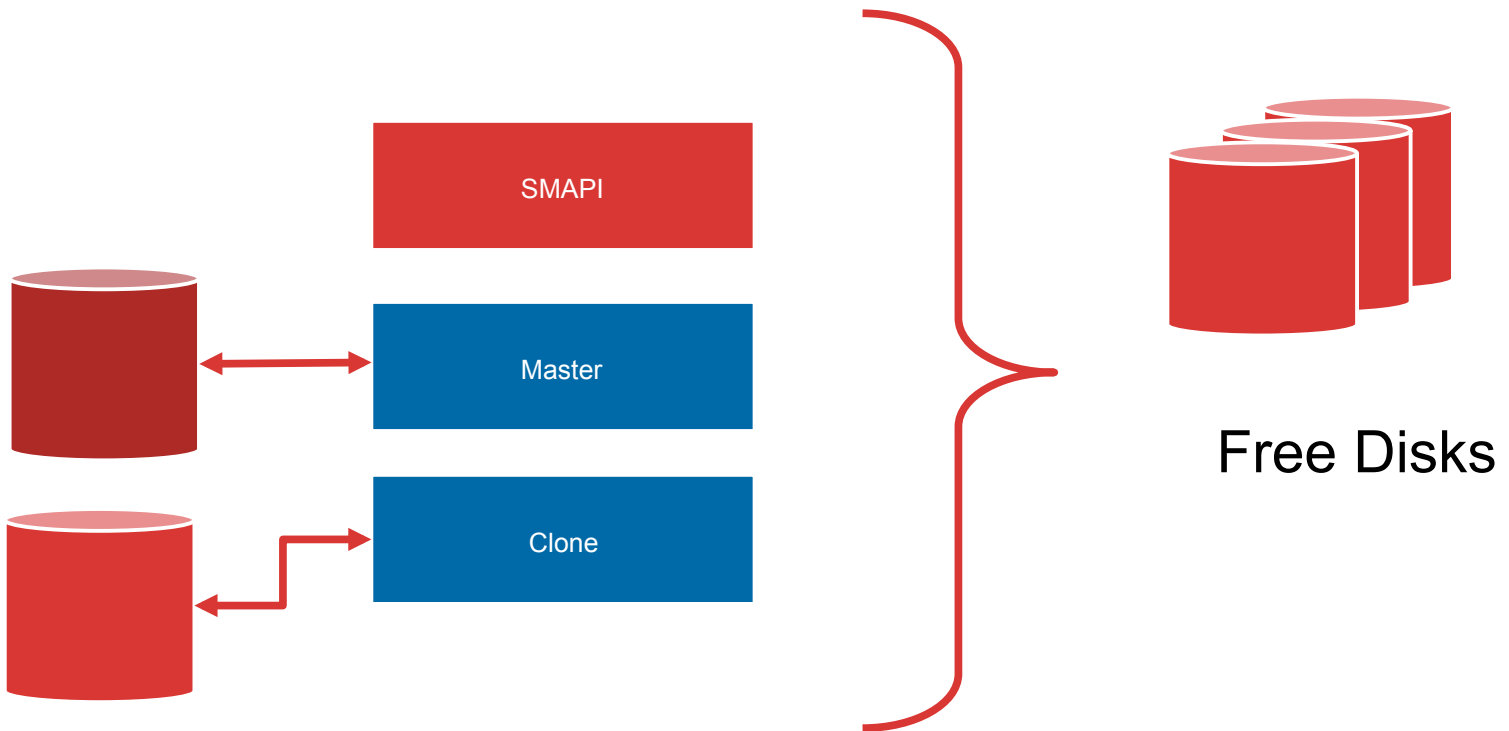
Clone



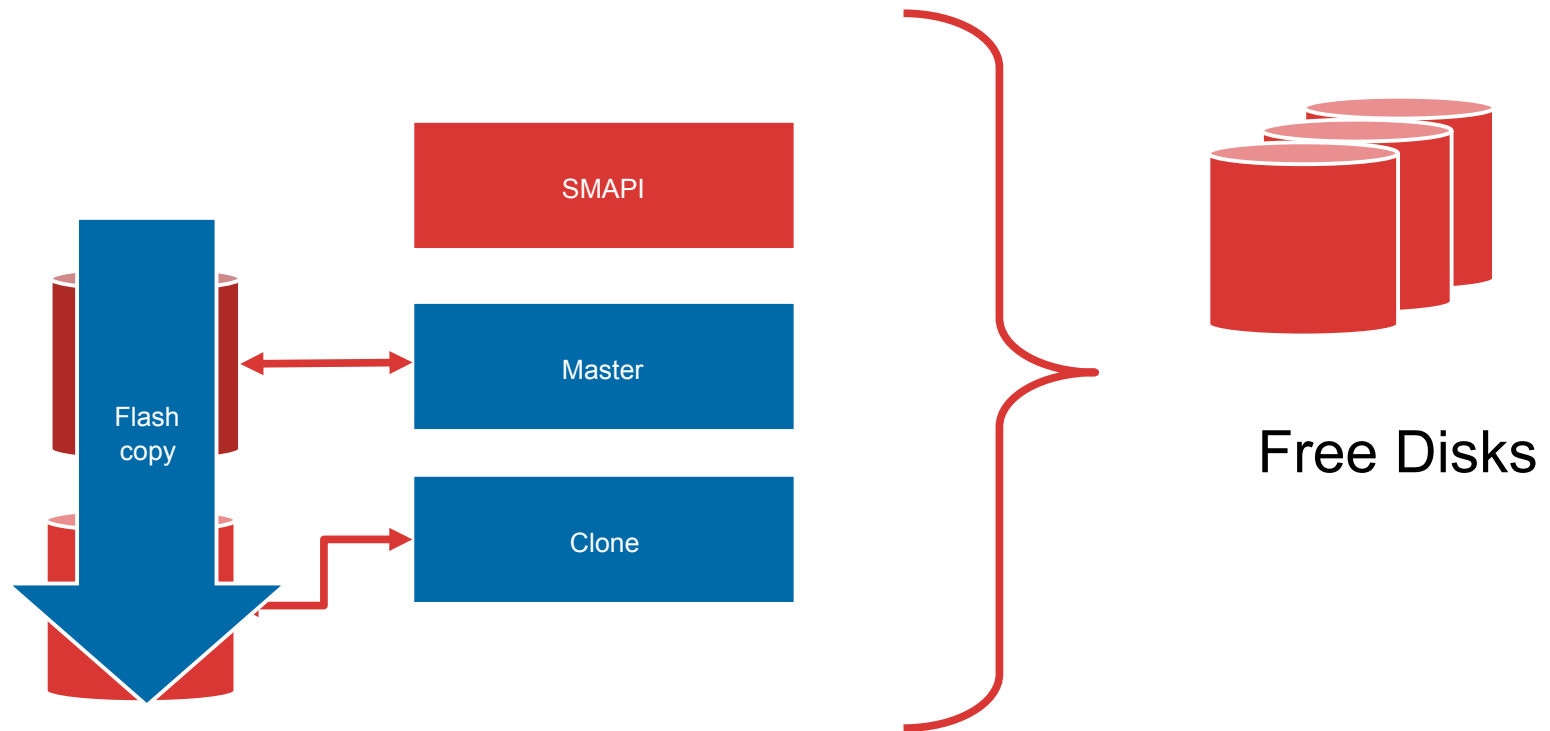
Clone



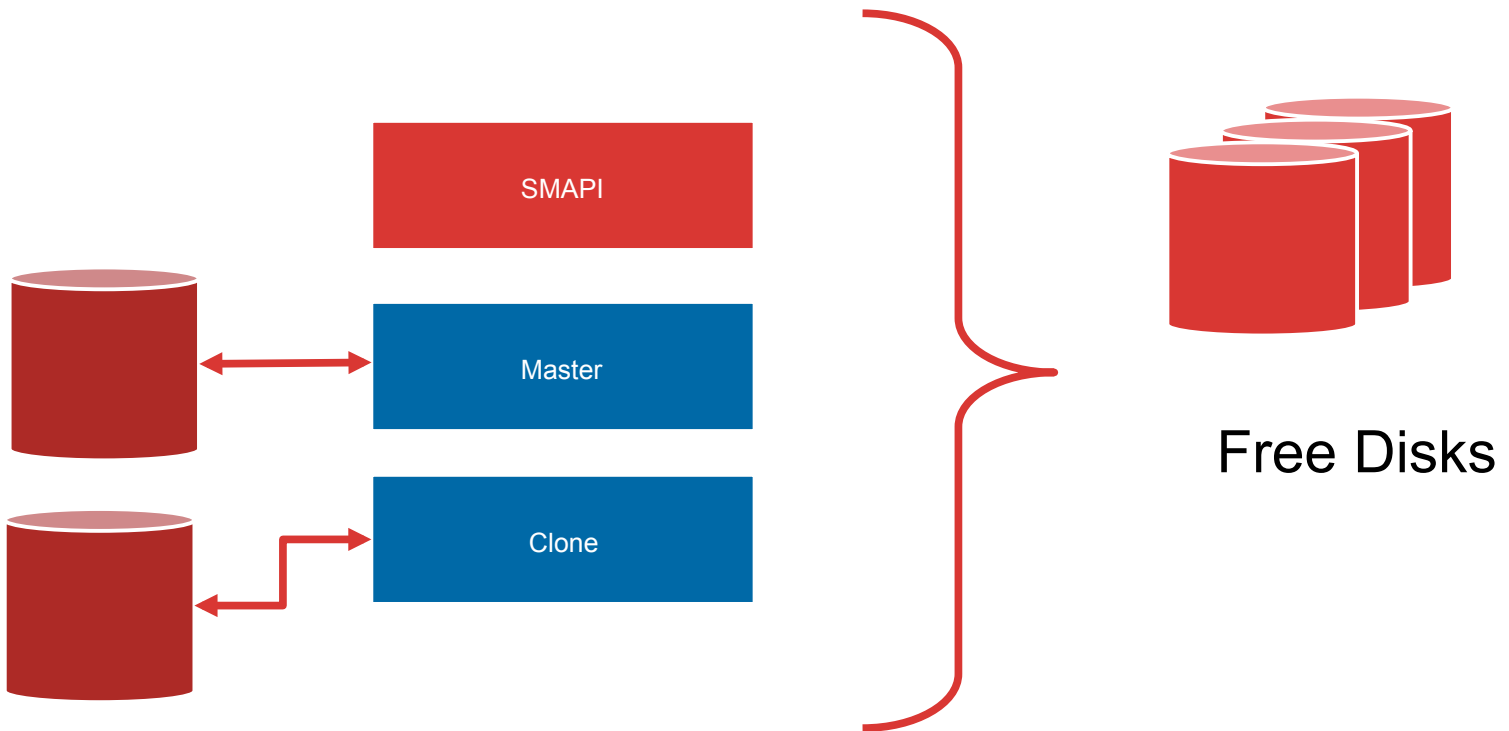
Clone



Clone



Clone



Things to Consider

z/VM 6.2

Can work with **RACF** and **VMSecure**

Uses TCP/IP to connect to SMAPI

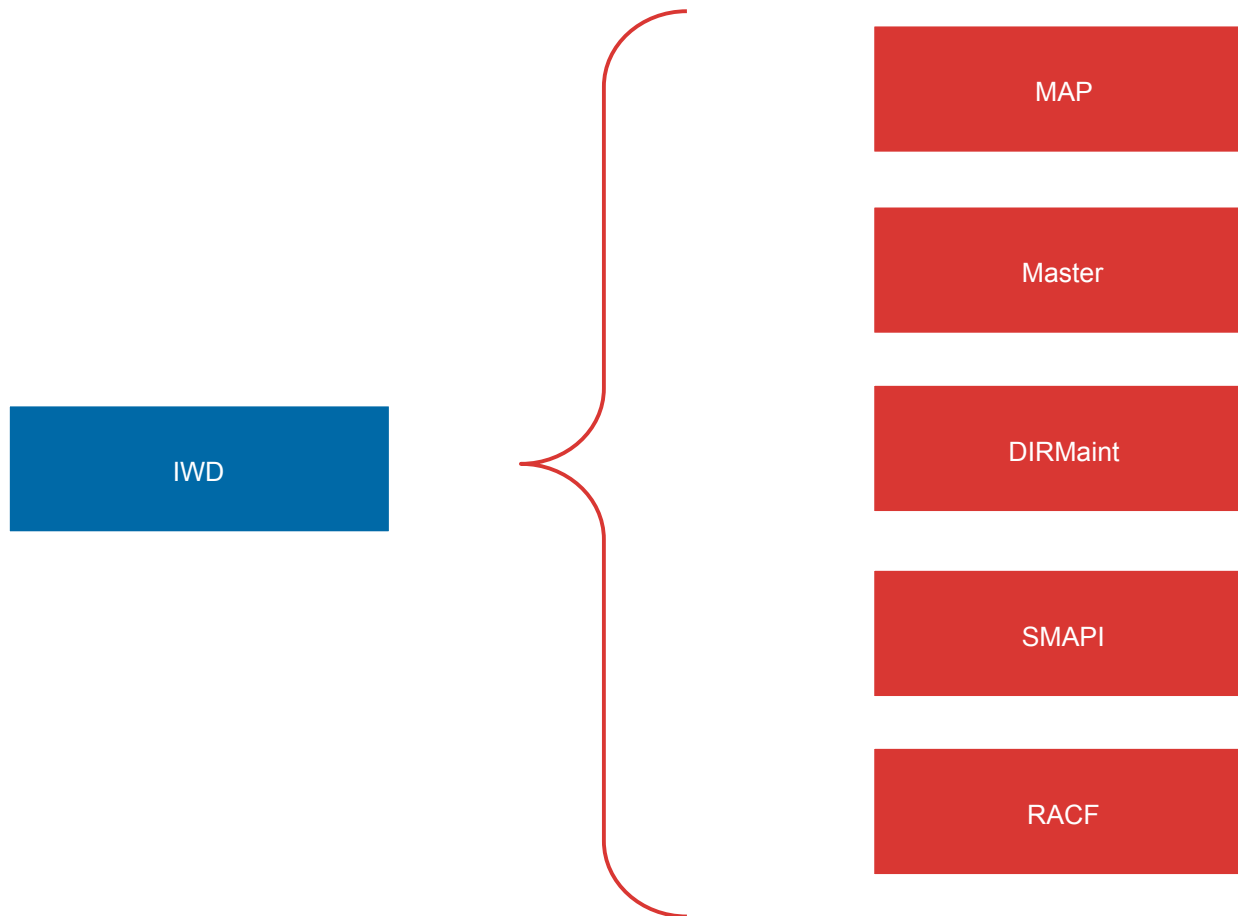
Personalization is done through :

- CMS Disk

- CP “hack” (p15 override)

- VMSecure Tags

IBM Workload Deployer



IWD UI

IBM Workload Deployer

Administrator | Help | About | Logout

Welcome | Instances | **Patterns** | Catalog | Reports | Cloud | System

Virtual System Patterns

- WebSphere Message Broker 7.0.0.1 (Advanced)
- WebSphere Message Broker 7.0.0.1 (Basic)
- WebSphere Portal clustered servers (RHEL)
- WebSphere Portal clustered servers (SLES)
- WebSphere Portal single server (RHEL)
- WebSphere Portal single server (SLES)
- WebSphere Portal stand-alone server (RHEL)
- WebSphere Portal stand-alone server (SLES)
- WebSphere advanced cluster
- WebSphere advanced cluster (development)
- WebSphere cluster
- WebSphere cluster (development)
- WebSphere cluster (large topology)
- WebSphere single server
- WebSphere single server with sample
- z cloud**

z cloud

Description:
None provided

Created on:
Apr 13, 2012 4:44:00 PM

Current status:
Draft

Updated on:
Apr 13, 2012 4:44:26 PM

In the cloud now:

- zlnx01
- zlnx02
- zlnx03

Access granted to:
Administrator [owner]

Add more...

Topology for this pattern:

Deploys to zVM hypervisors.

Standalone server
8.0.0.1

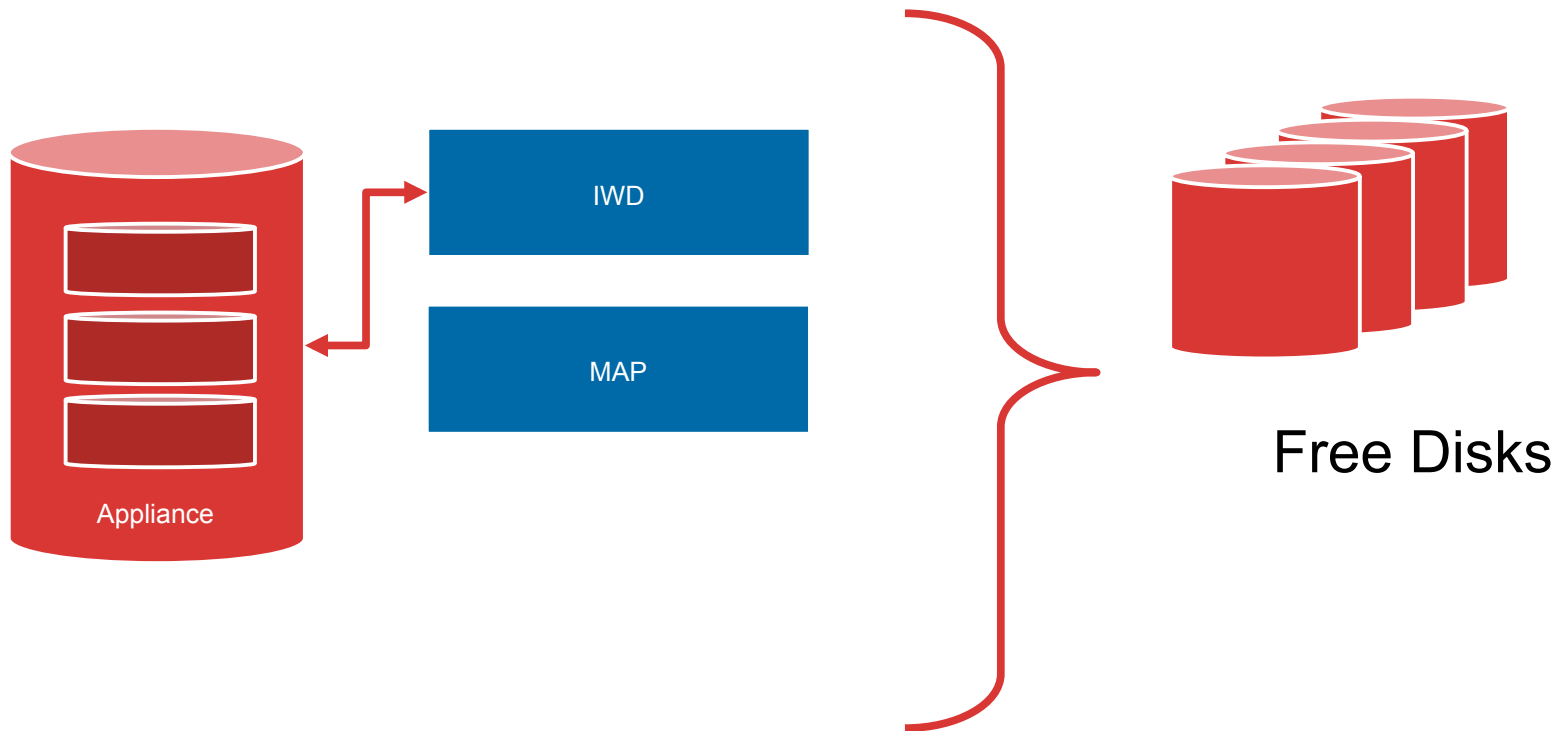
Time to V



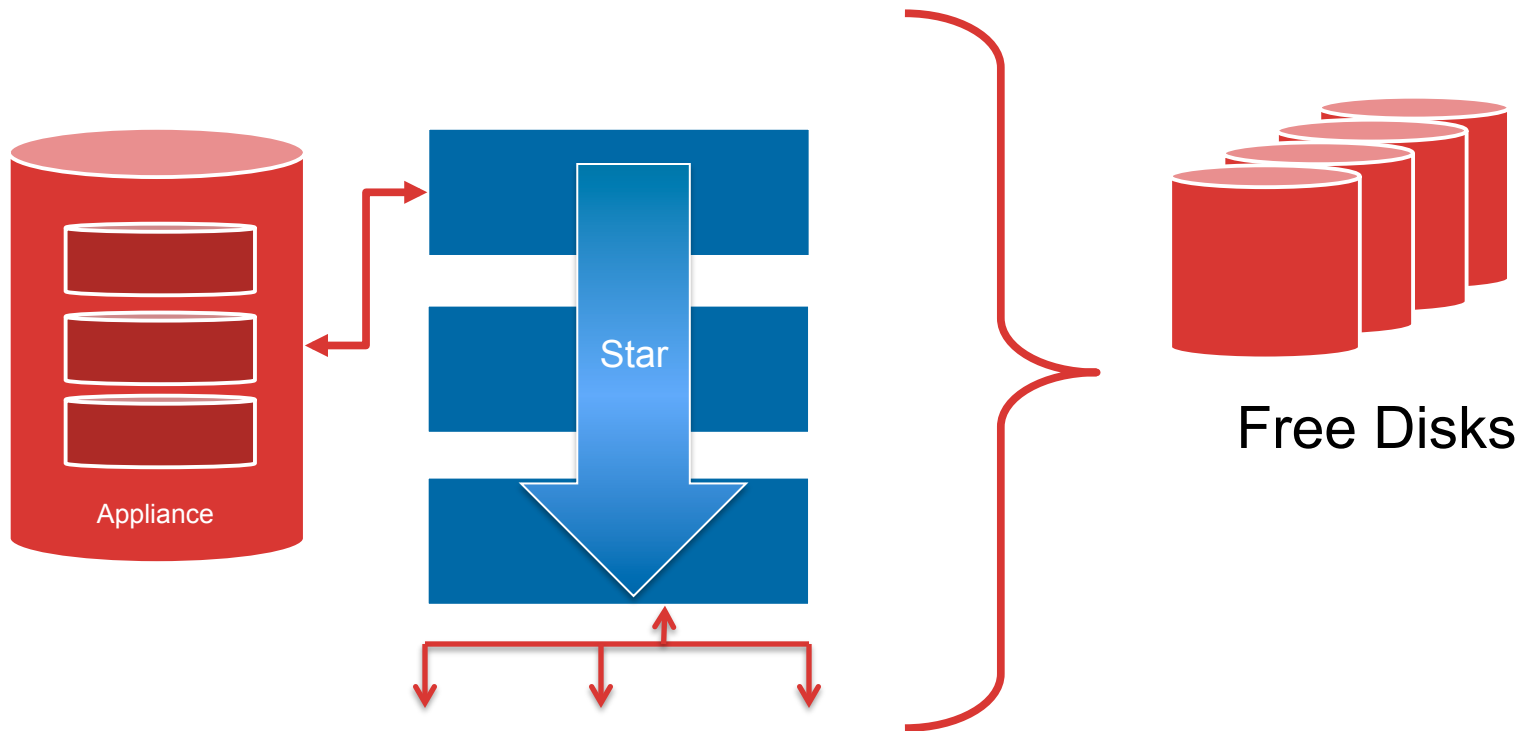
Extensibility



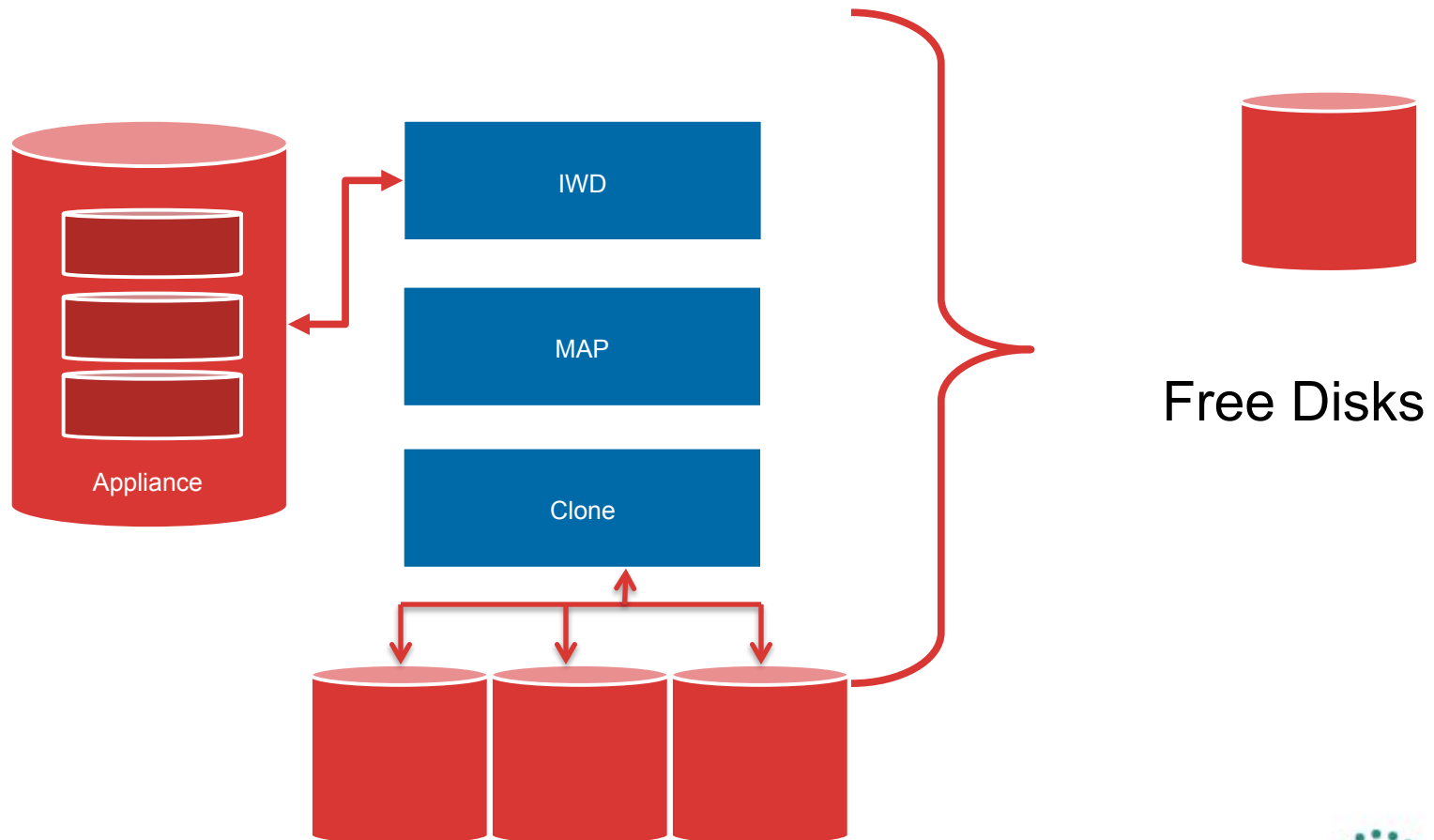
IWD No Cache



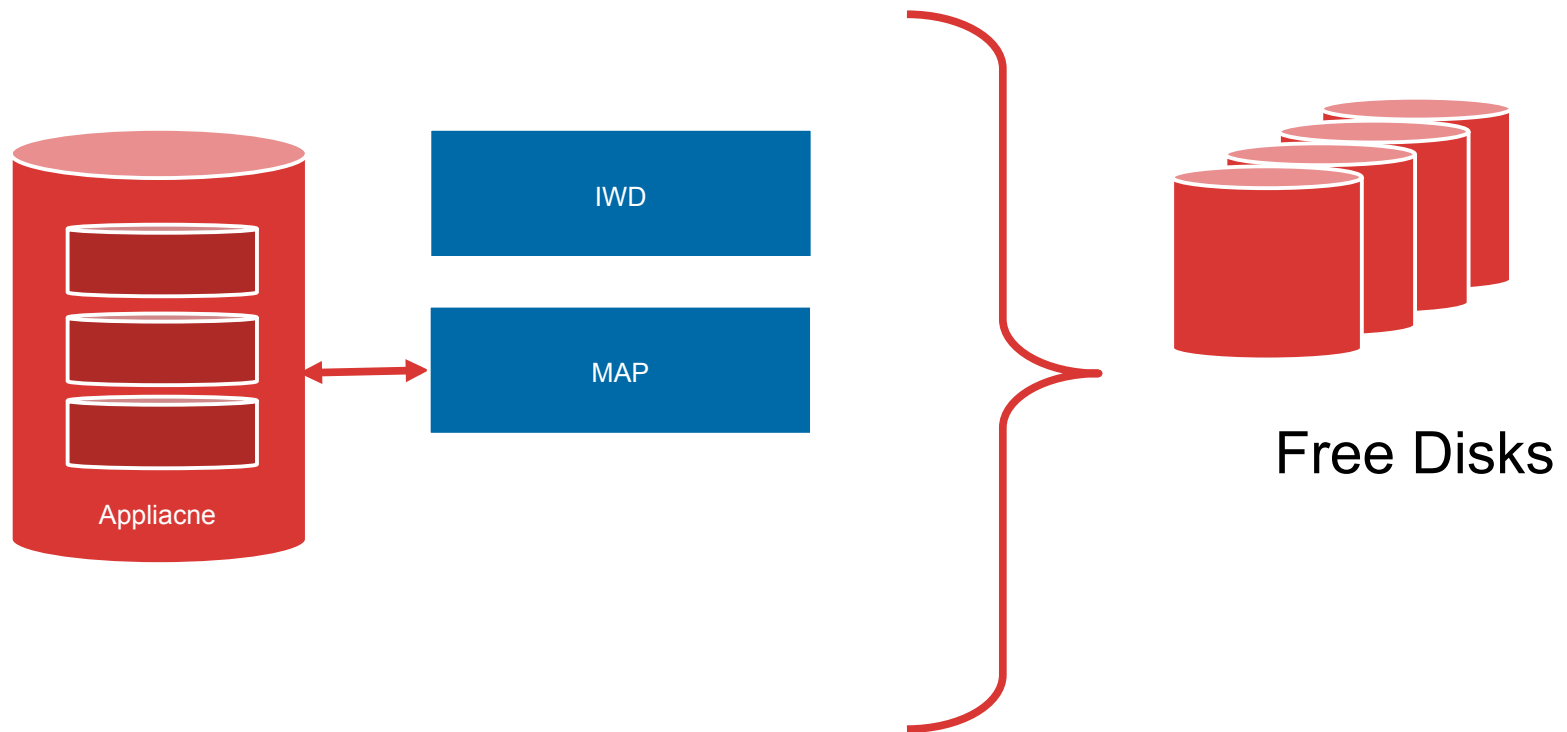
IWD No Cache



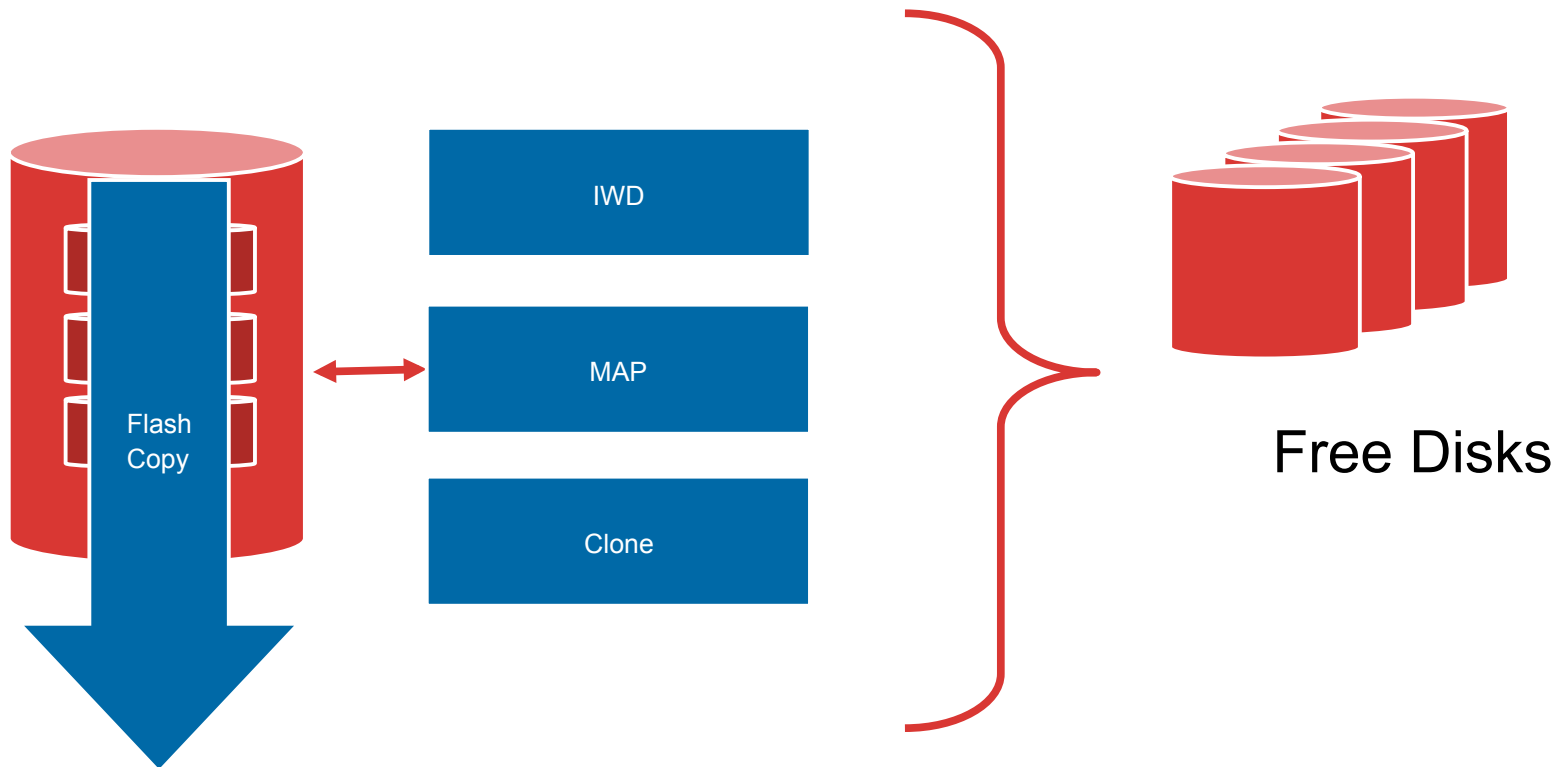
IWD No Cache



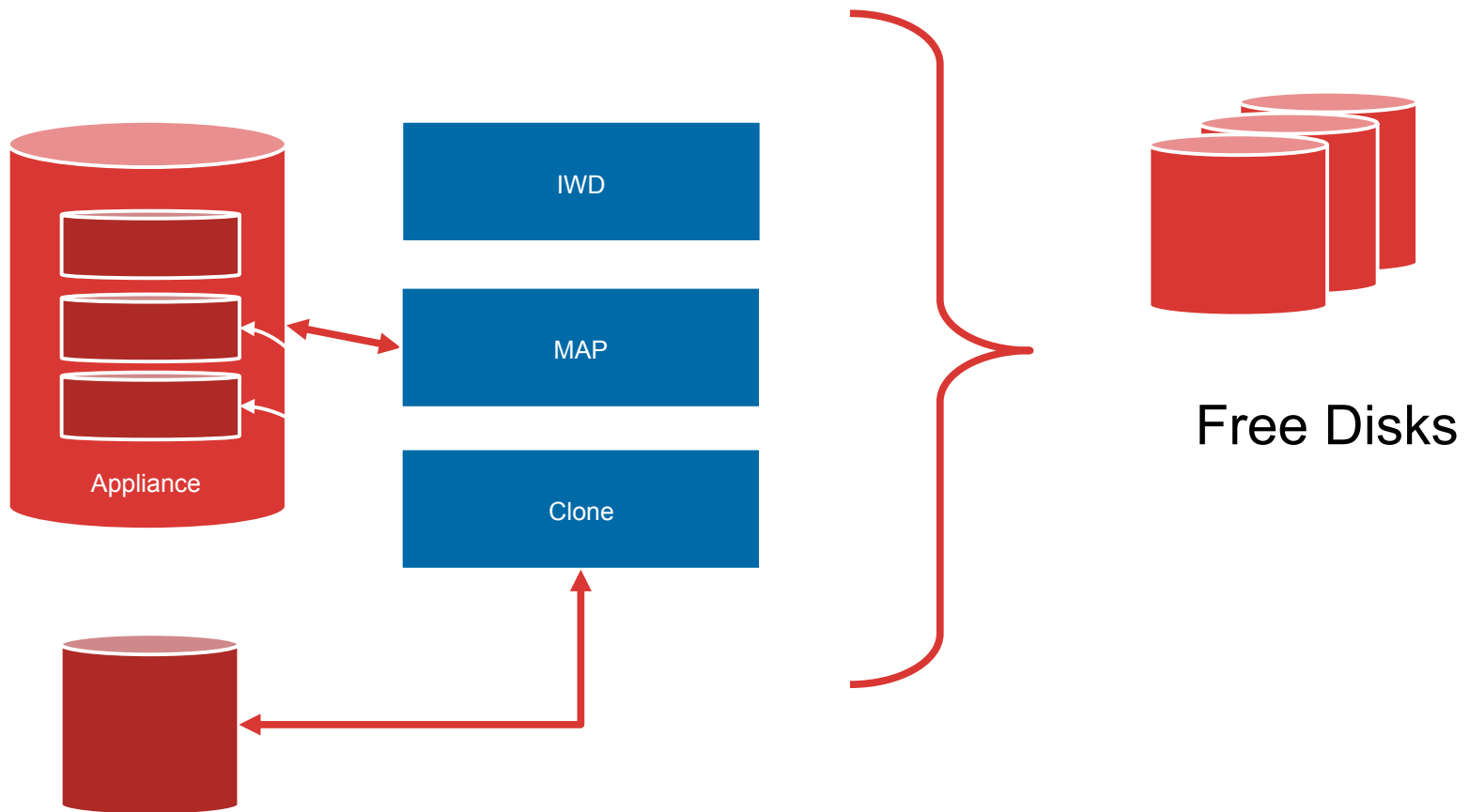
IWD With Cache



IWD With Cache



IWD With Cache



Things to Consider

z/VM 6.2

It is an **appliance**

Supports **read only** file systems

Pattern oriented

Ships with WebSphere Application Server pattern

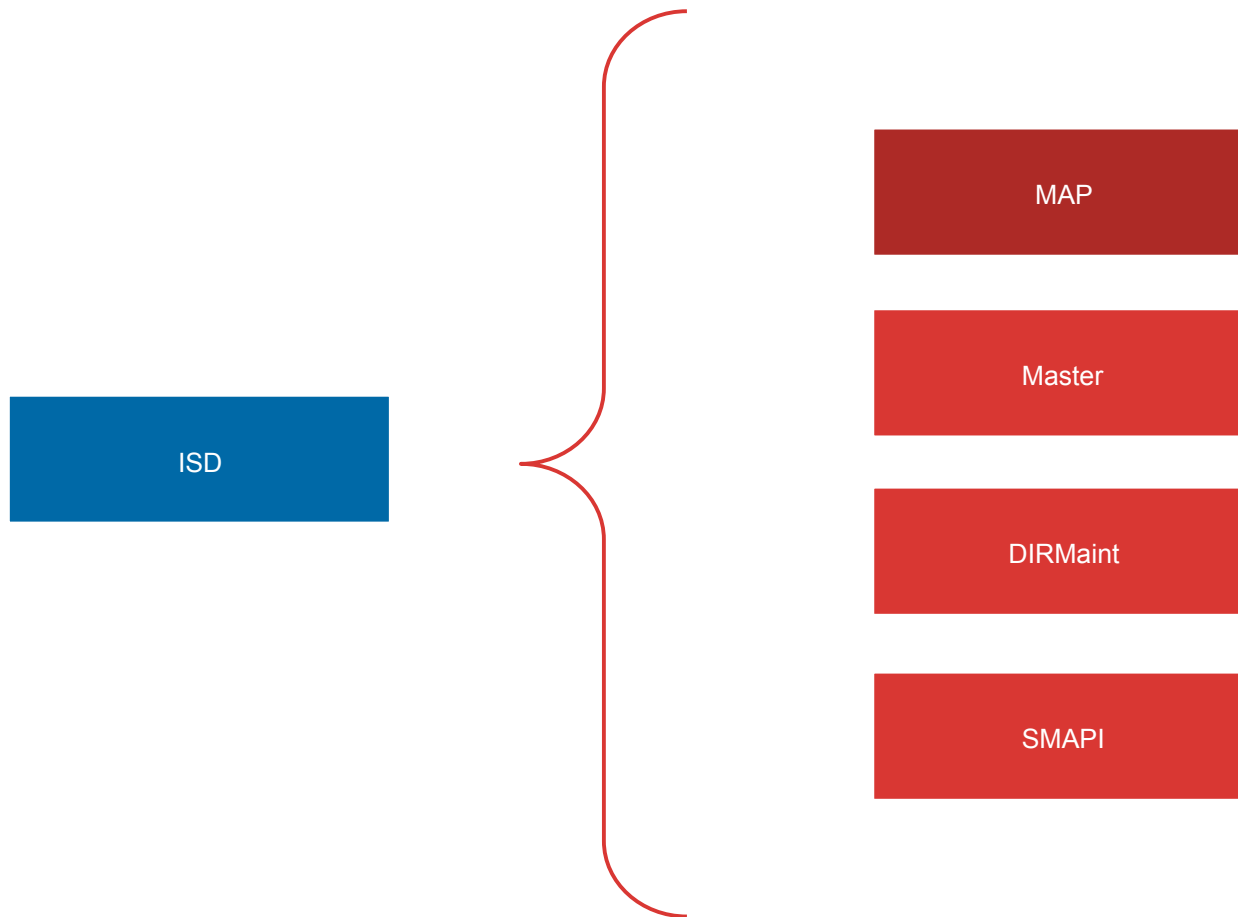
Supports VMSecure, RACF, Dirmaint

Personalization done as part of **Activation Engine**

Supports OVA, OVF format

Fits closely with Tivoli's future Cloud direction

IBM Systems Director



ISD UI

IBM® Systems Director

Welcome root

Help | Logout IBM

View: All tasks ▼

- Home
- Find a Task
- Find a Resource
- Resource Explorer
- Welcome
- My Startup Pages

Remote Access

Automation

Availability

Inventory

Release Management

Security

System Configuration

- Current Configuration
- Configuration Templates
- Configuration Plans
- VMControl
- Storage Management
- External Storage Applications

System Status and Health

Task Management

Settings

Home X Resource Ex... X VMControl X Deploy Virt... X

--- Select Action --- ▼

Deploy Virtual Appliance

✓ Welcome

➔ Target


Summary

Target

Select the location where you want to deploy the virtual appliance.

You can deploy the virtual appliance to create a new virtual server on an existing host system or system pool. Or, you can deploy the virtual appliance to an existing virtual server.

Deploy to a new virtual server on the following:

<div>Actions</div> <div>Search the table... Search</div>						
Select	Name	State	IP Addresses	Installed O...	Description	
<input checked="" type="radio"/>	 V64 IBM 2817 M80 02000000...				z/VM System P...	
<div>Page 1 of 1 1 Selected: 1 Total: 1 Filtered: 1</div>						

Deploy to an existing virtual server:

Actions

Search the table...

Search

Select	Name	State	IP Addresses	Description
<div><div></div><div></div></div>	<div><div></div>49.SL10MSTR</div>	Stopped		

Page 1 of 1

1

Selected: 1 Total: 1 Filtered: 1

Note: When deploying to a server system pool, the server system pool must identify the host where the virtual appliance will be deployed. This process might take a few minutes to complete.

< Back Next > Finish Cancel

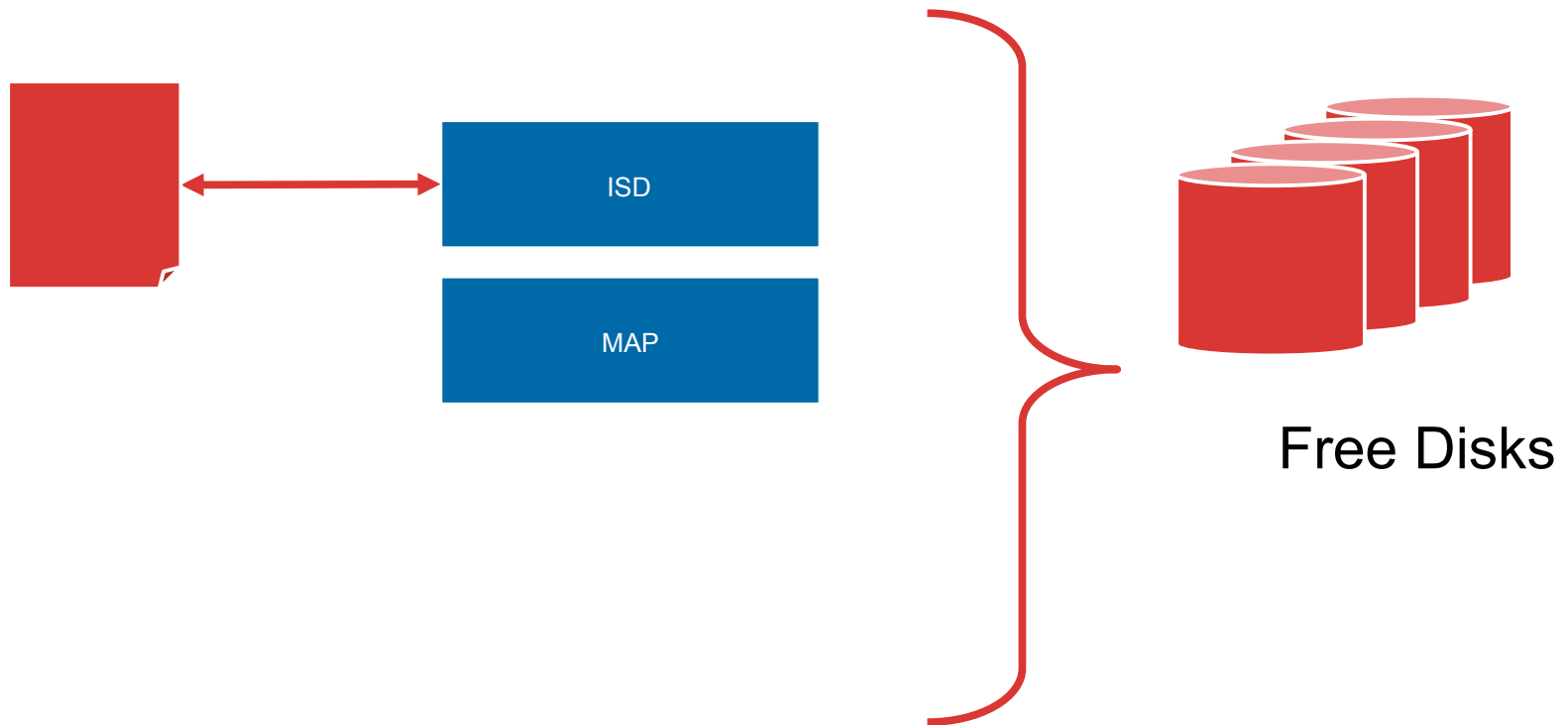
Time to Value



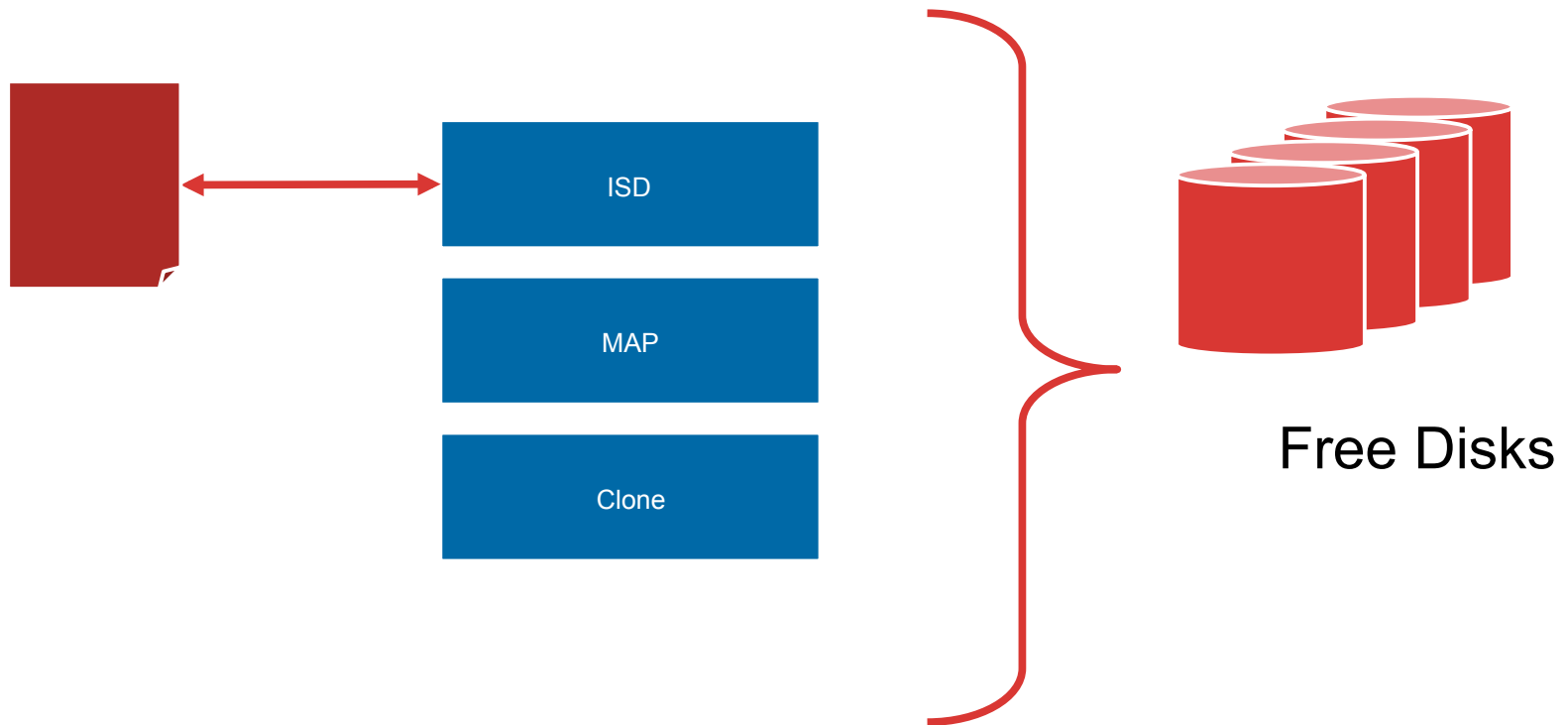
Extensibility



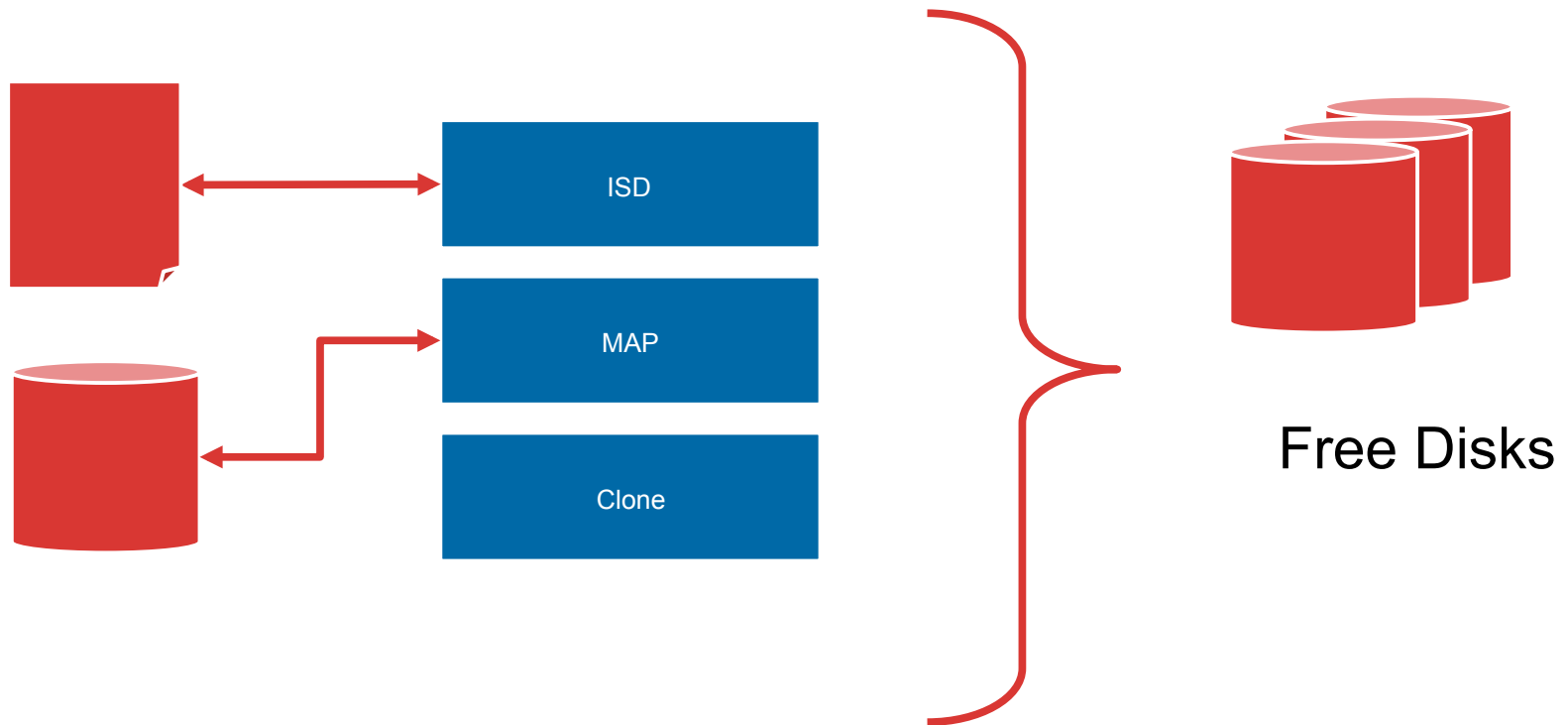
ISD Provision



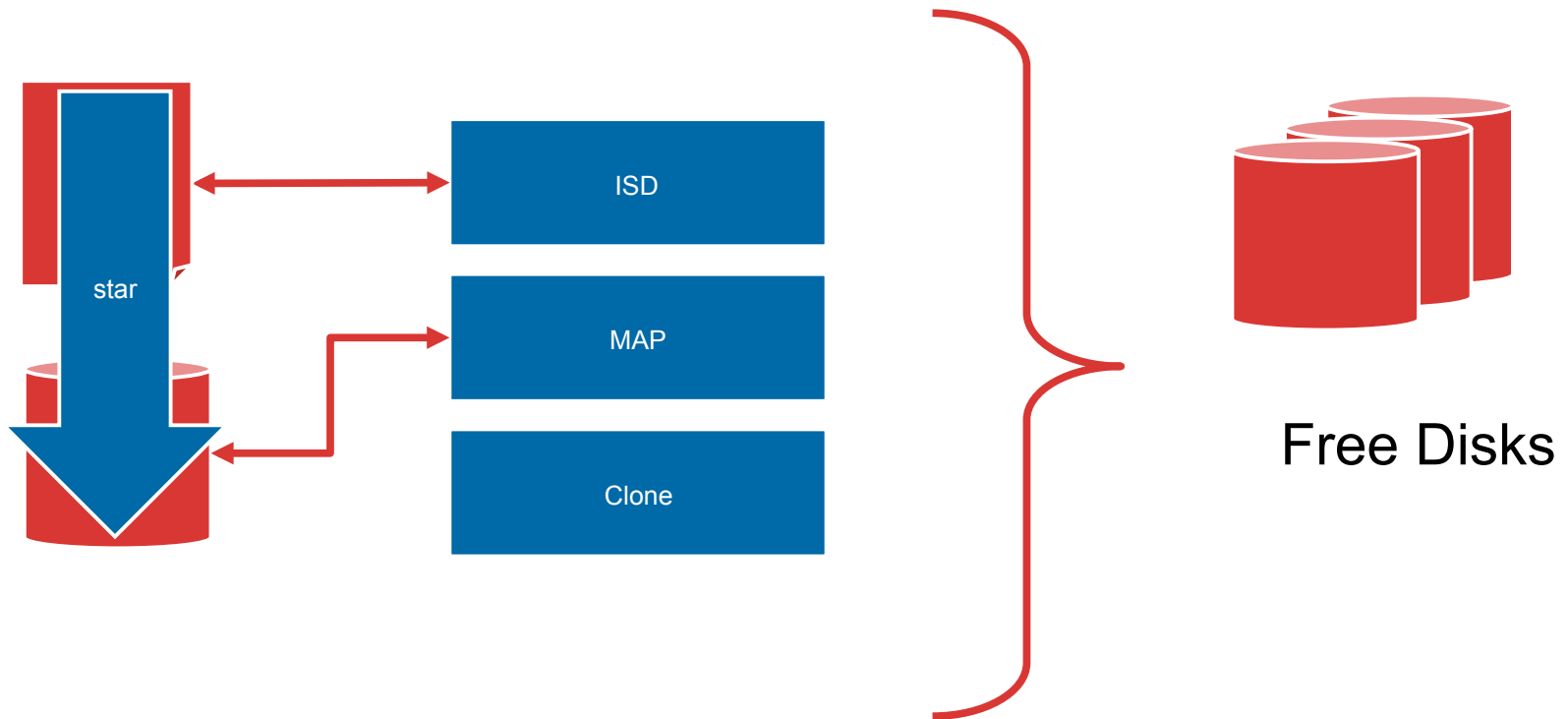
ISD Provision



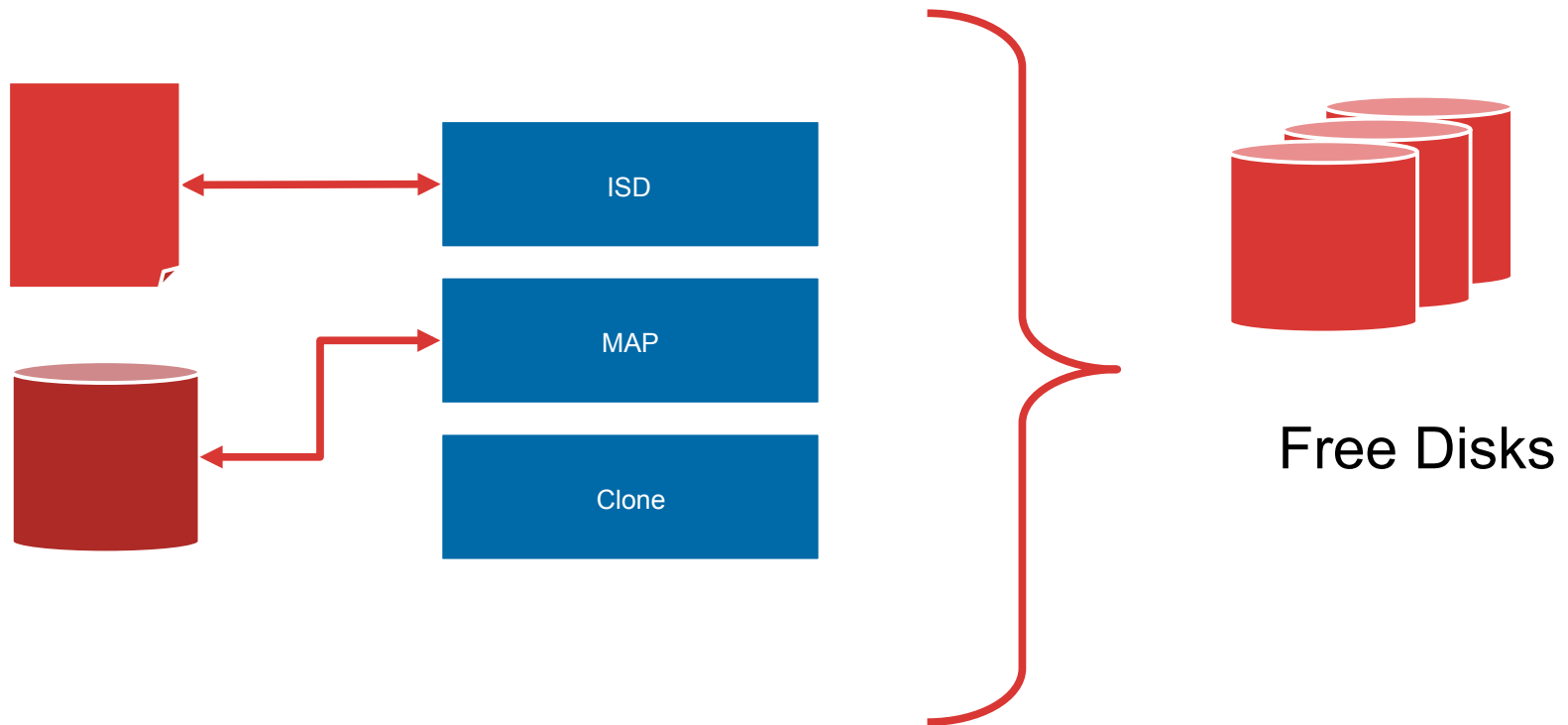
ISD Provision



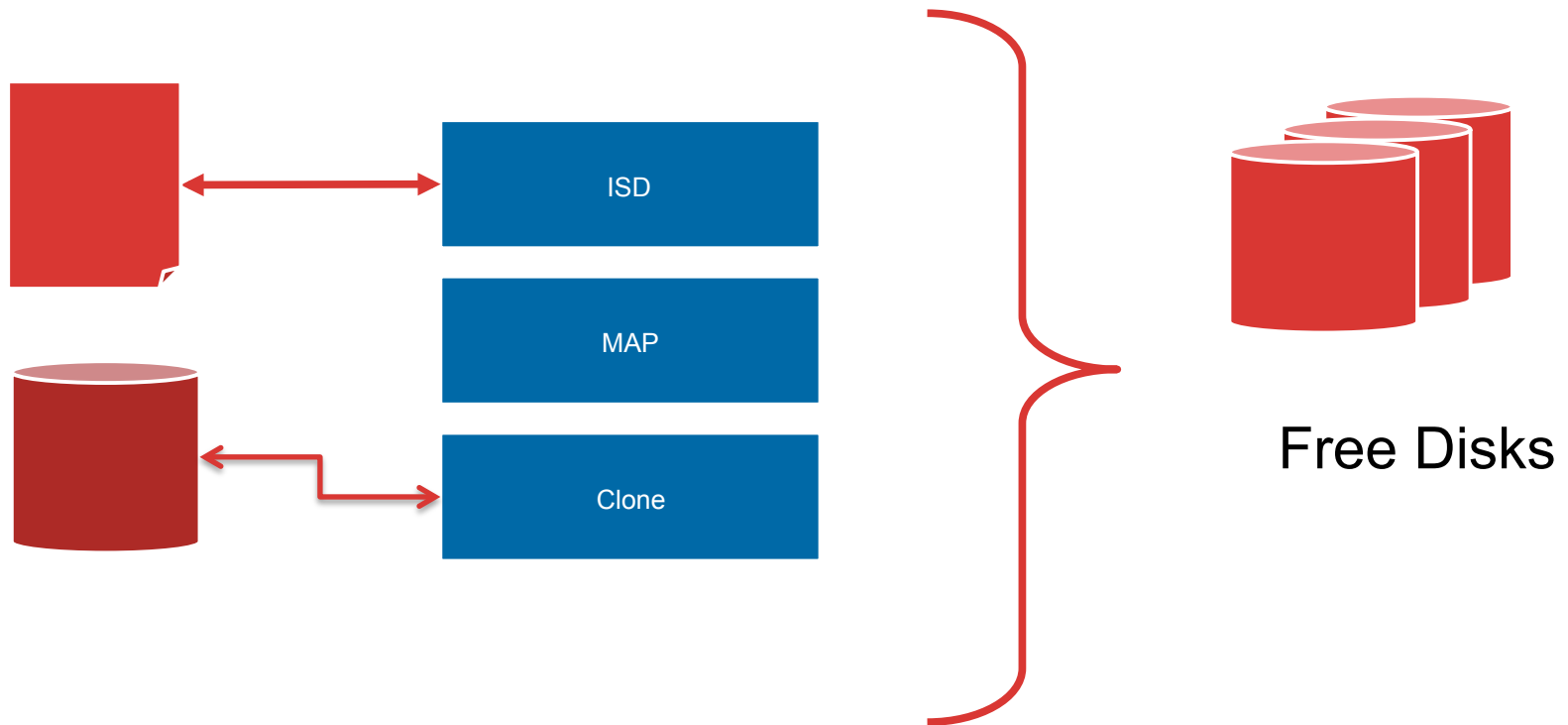
ISD Provision



ISD Provision



ISD Provision



Things to Consider

z/VM 6.2

Supports RACF (not VMSecure)

Runs on Power/Intel only

One provision at a time

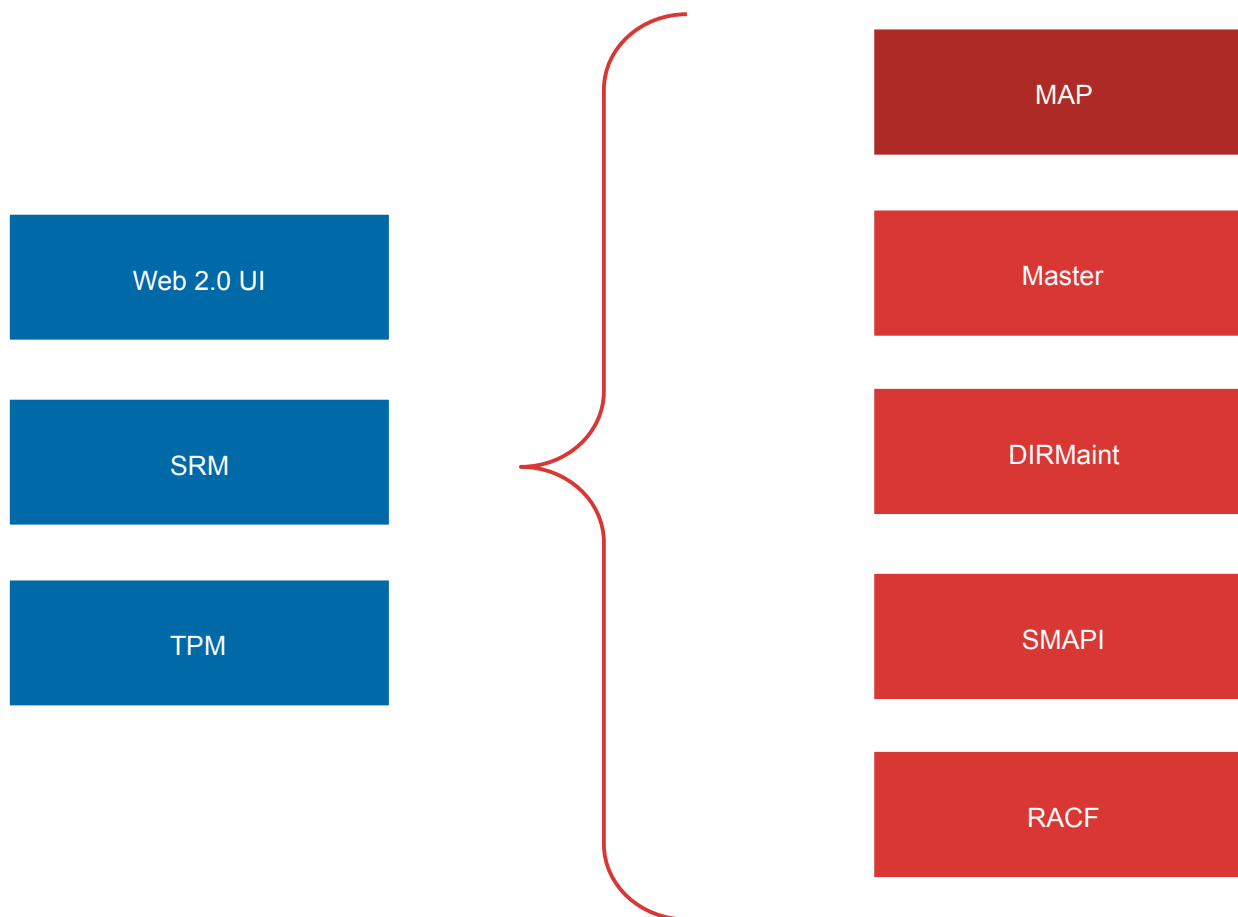
Uses sockets (IUCV)

Master can have many disks

No orchestration

Personalization done as part of Activation Engine

IBM System z Solution Edition for Cloud



IBM System z Solution Edition for Cloud

Web 2.0 UI

Role Based access to resources
Very little **specific knowledge** needed
Shows project **state**
Users can view service catalog
Provides access to **approval**
mechanisms

IBM System z Solution Edition for Cloud

SRM

Provides **orchestration** capabilities
Built in approval flows
Works with CMDB
Provides service catalog
Puts the service in **service**

IBM System z Solution Edition for Cloud

TPM

Provides **data center model** and
CMDB integration

Provides automation workflows

Provides **logical device** operations

Plugable architecture allows for
software installation as well

TSAM UI

Service Automation Manager
Welcome Cloud Admin **PMRDPCUST**
About | Help | Logout
IBM

Type the request name
Search

Home » Request a New Service » Virtual Server Management

Backup and Restore Server Image

Manage Image Library

Modify Project

Cancel Project
Use this task to cancel a project. All of its virtual servers will be de-provisioned and would no longer be available. Any saved images will also be deleted.

Create Project with KVM Servers
Provision one or more KVM virtual servers containing a software image.

Create Project with POWER LPAR Servers via IBM Systems Director VMControl
Provision one or more POWER LPARs via IBM Systems Director VMControl containing a software image.

Create Project with a Workload Deployer Pattern
Provisions a Workload Deployer Pattern to a set of virtual servers in a Workload Deployer cloud group.

Manage Customers

Manage Users and Teams

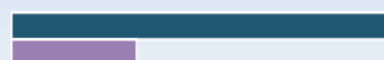
Modify Server

Cancel Workload Deployer Project
The virtual system created upon Workload Deployer Pattern deployment and all of its virtual servers are deleted.

Create Project with POWER LPAR Servers
Provision one or more POWER LPARs containing a software image.

Create Project with VMware Servers
Provision one or more VMware virtual machines containing a software image.

Create Project with z/VM Linux Servers
Provision one or more z/VM Linux virtual servers containing a software image.

My Requests


0 1 2 3

Failed (1) Resolved (3)

Recent Activity

Create Project with z/VM Linux Servers pr1	Failed
Create Team TEAM 1	Resolved
Create Customer cust1	Resolved
Create Customer PMRDPCUST	Resolved

[Show all requests](#) [Manage Requests...](#)

My Projects

Recent Activity

No recent activity

Upcoming Projects

No upcoming projects

[Show all projects](#) [Manage Projects...](#) [Manage Servers...](#)

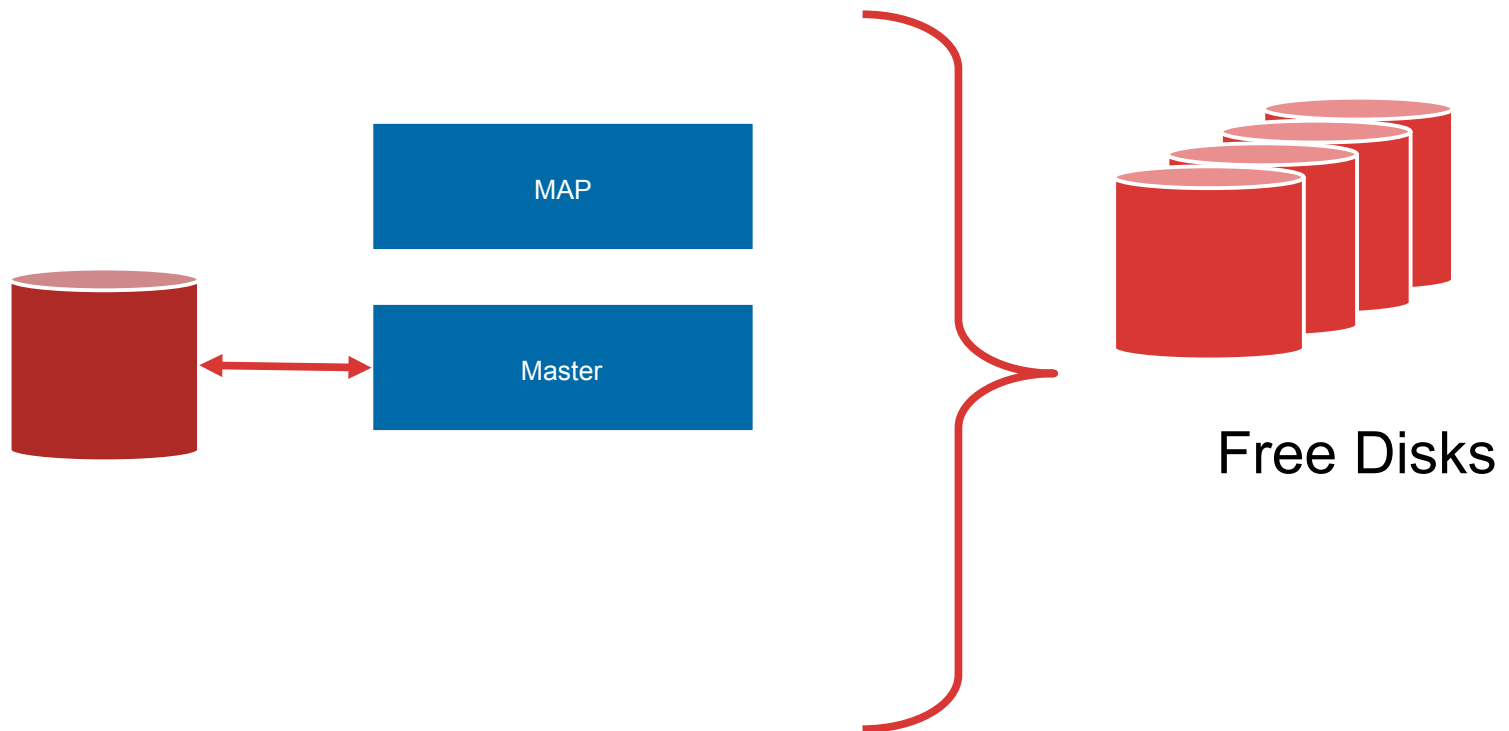
Time to Value



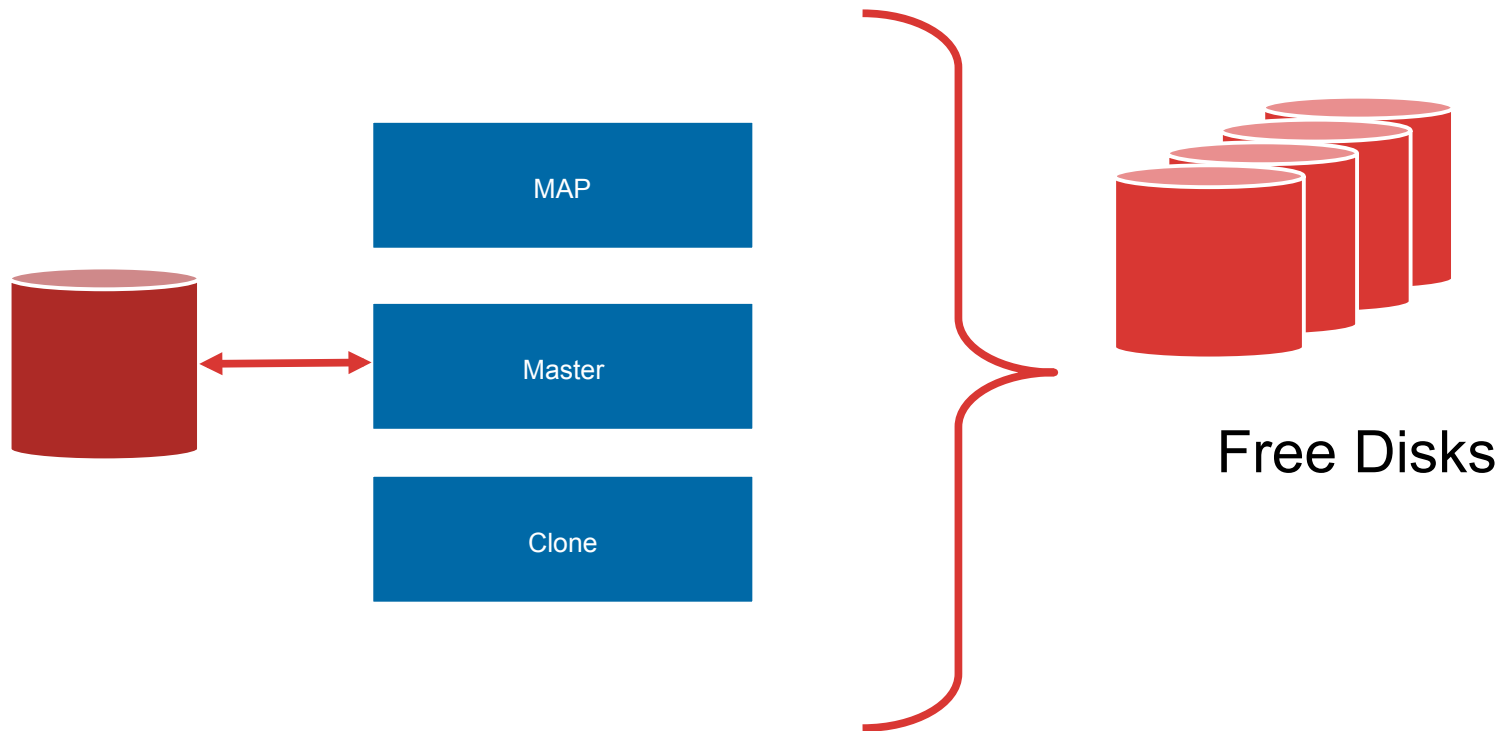
Extensibility



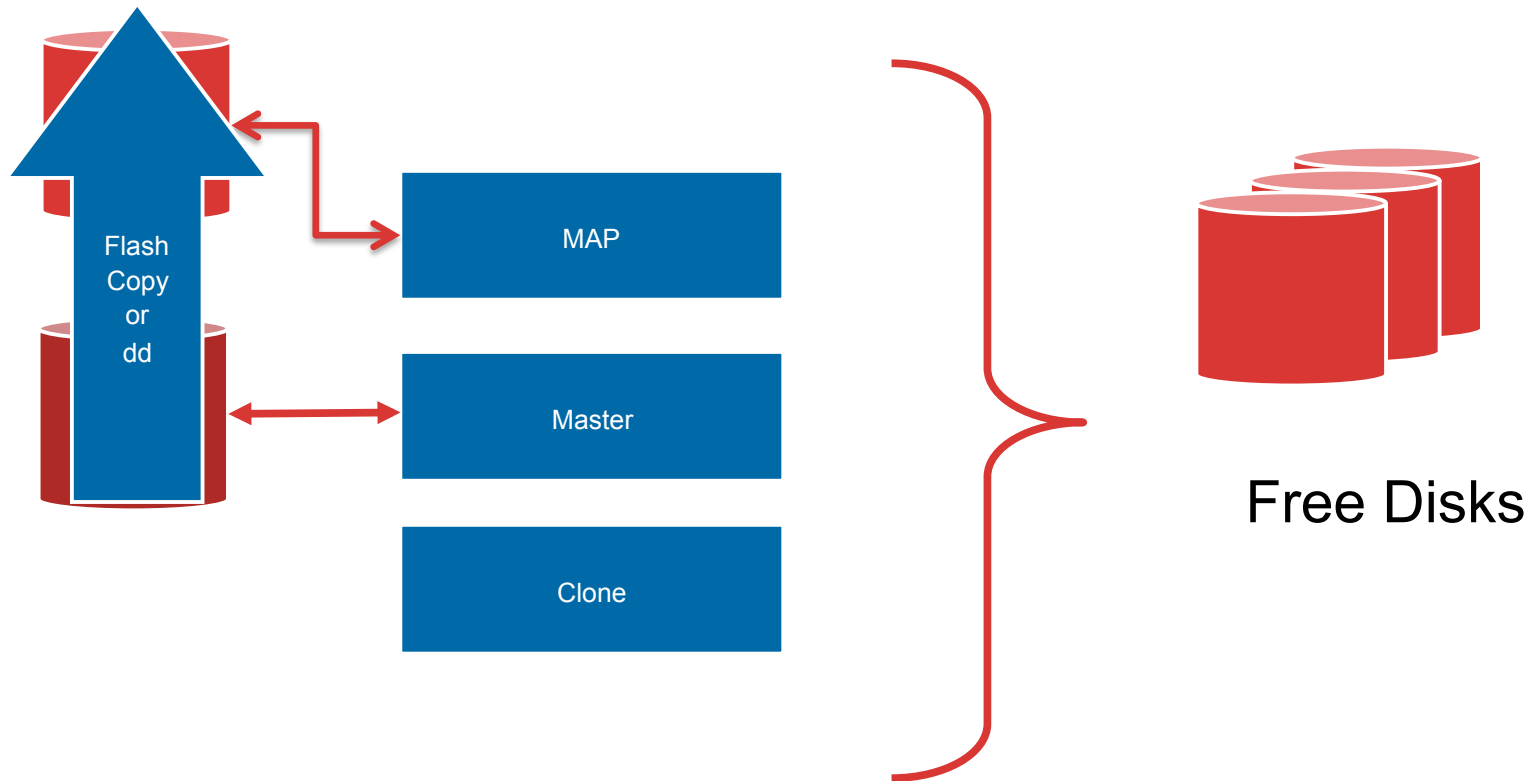
TSAM Clone



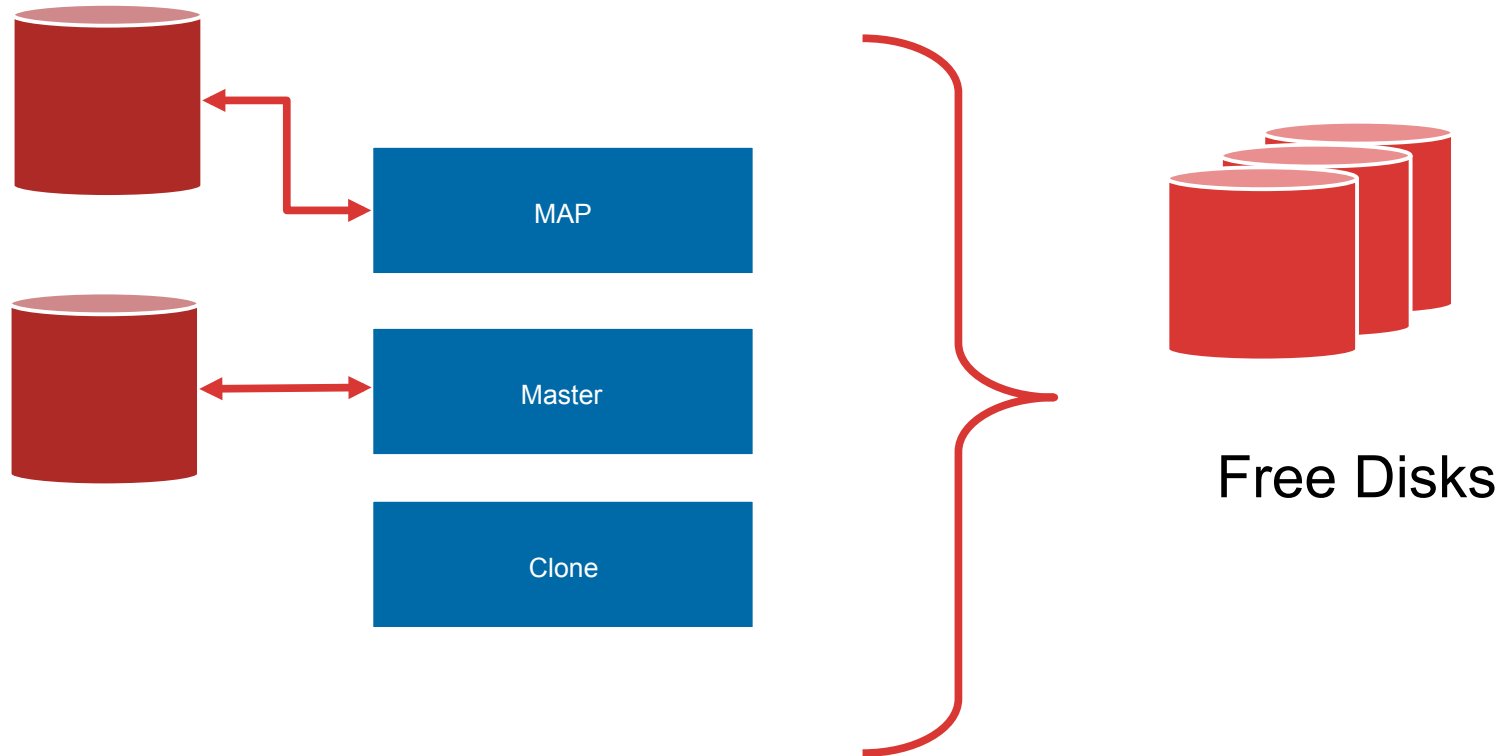
TSAM Clone



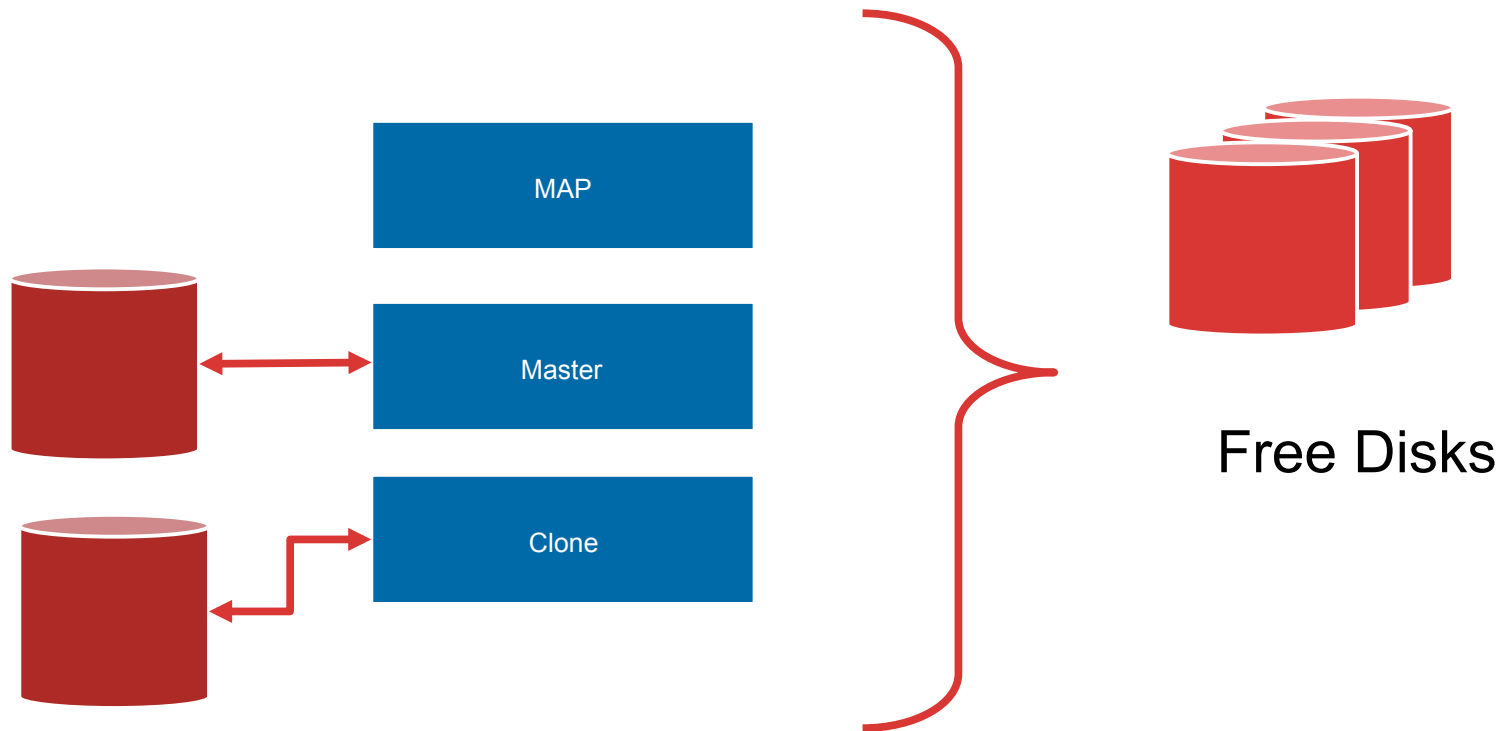
TSAM Clone



TSAM Clone



TSAM Clone



Things to Consider

z/VM 5.4 and 6.2

Some parts **can't run on z**

Single mini disk master

Can provision **many VM's** at once

Personalization done at first boot

Connect to SMAPI uses TCP/IP

Service **Orchestration** build in

Solutions Untried (by US)

- Cloud Ready
 - Like Solution Edition for Cloud
 - Leverages services for a drastically better time to value
 - Has the same extensibility characteristics
- CSL-Wave
 - Integrated **zVM** solution
 - Should have quick return on Investment
 - Is a z only solution

Summary


Solution	Time To Value	Extensibility	Multi-platform	z Security	VM Version	% on z	Use z/VM	Multiple deploy	Orchestrate
BYO	VH	L	N	Y	Yours	100	Y	?	N
xCAT	M	M	Y	N	ANY	100	N	Y	N
Starter Edition	H	M	Y	RACF zSecure	6.1	100	Y	N	Y
IWD	L	H	Y	RACF zSecure	6.1	0	Y	Y	N
ISD	M	M	Y	RACF	6.1	0	Y	N	N
Solution Edition	H	M	N	RACF	5.4 6.1	80	Y	Y	Y
Cloud Ready	L	M	N	RACF	5.4 6.1	80	Y	Y	Y
CSL Wave	L	?	N	RACF zSecure	5.4+	100	Y	Y	N

VH=Very High H=High M=Medium L=Low VL=Very Low

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Questions ?





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