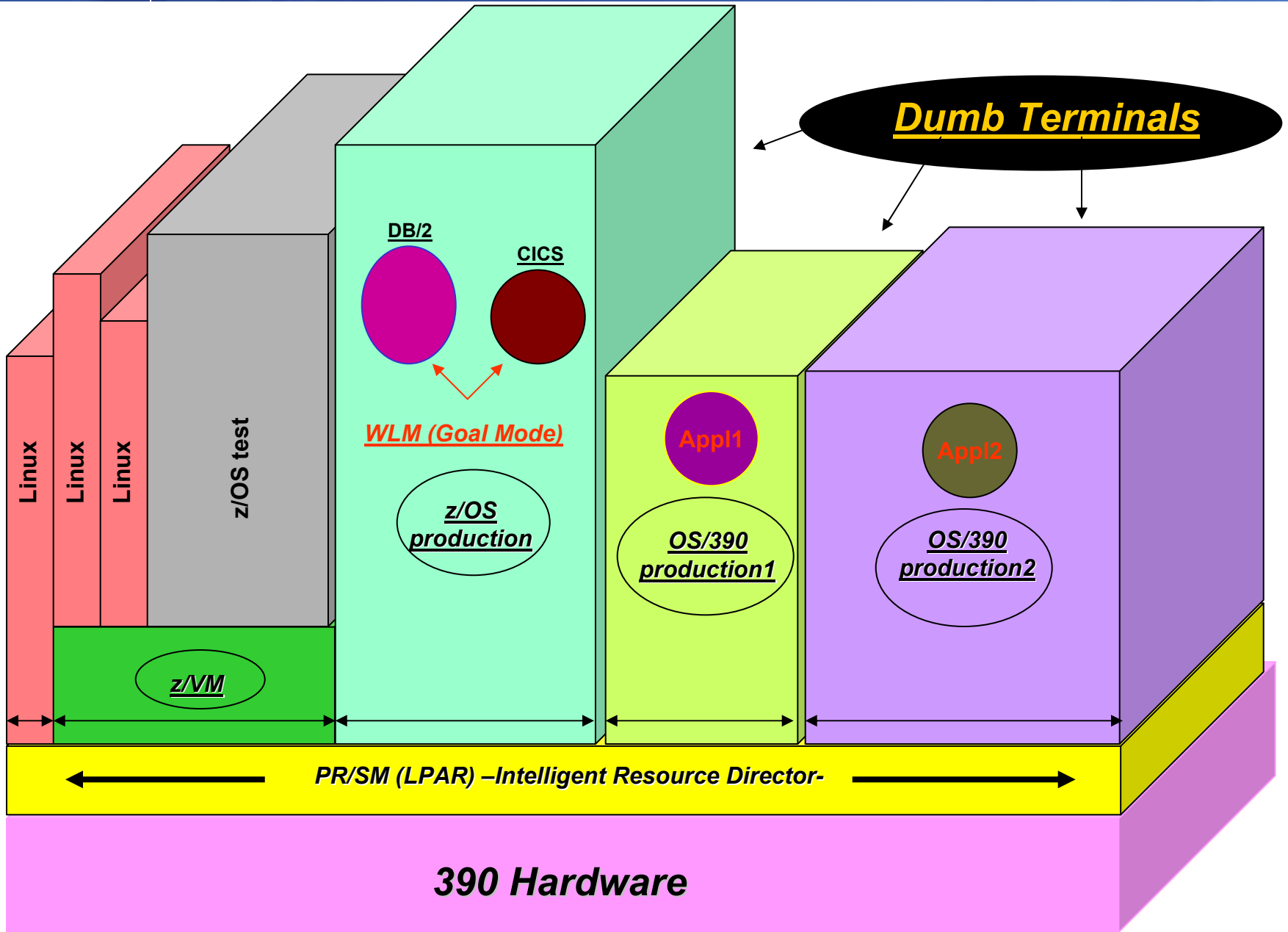




# Servers and Desktop Virtualization

Massimo Re Ferre'  
Systems Architect  
IBM Systems & Technology Group





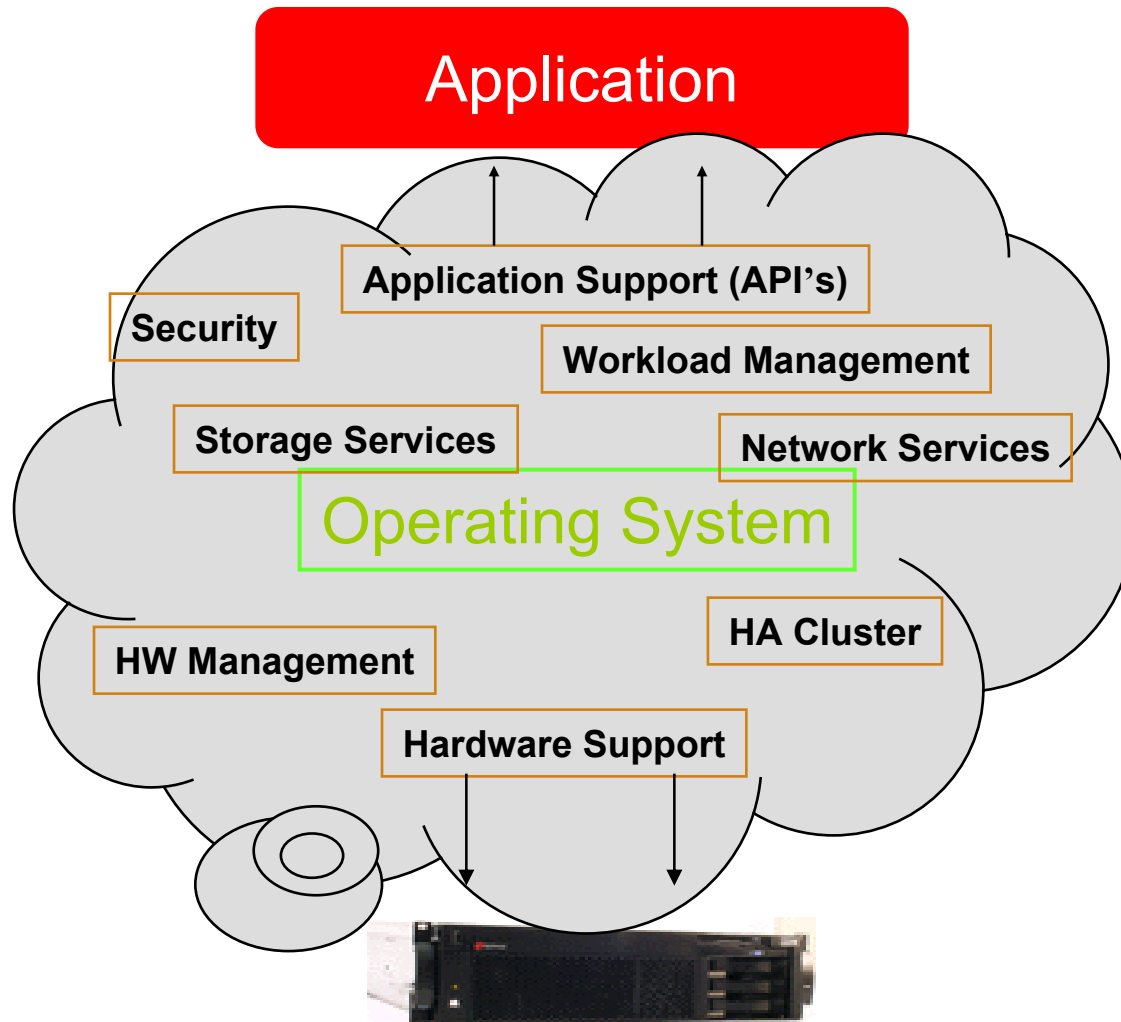
**Infrastructure issues**

**Management issues**

**Physical Vs Virtualized**

**Manual Vs Autonomic**

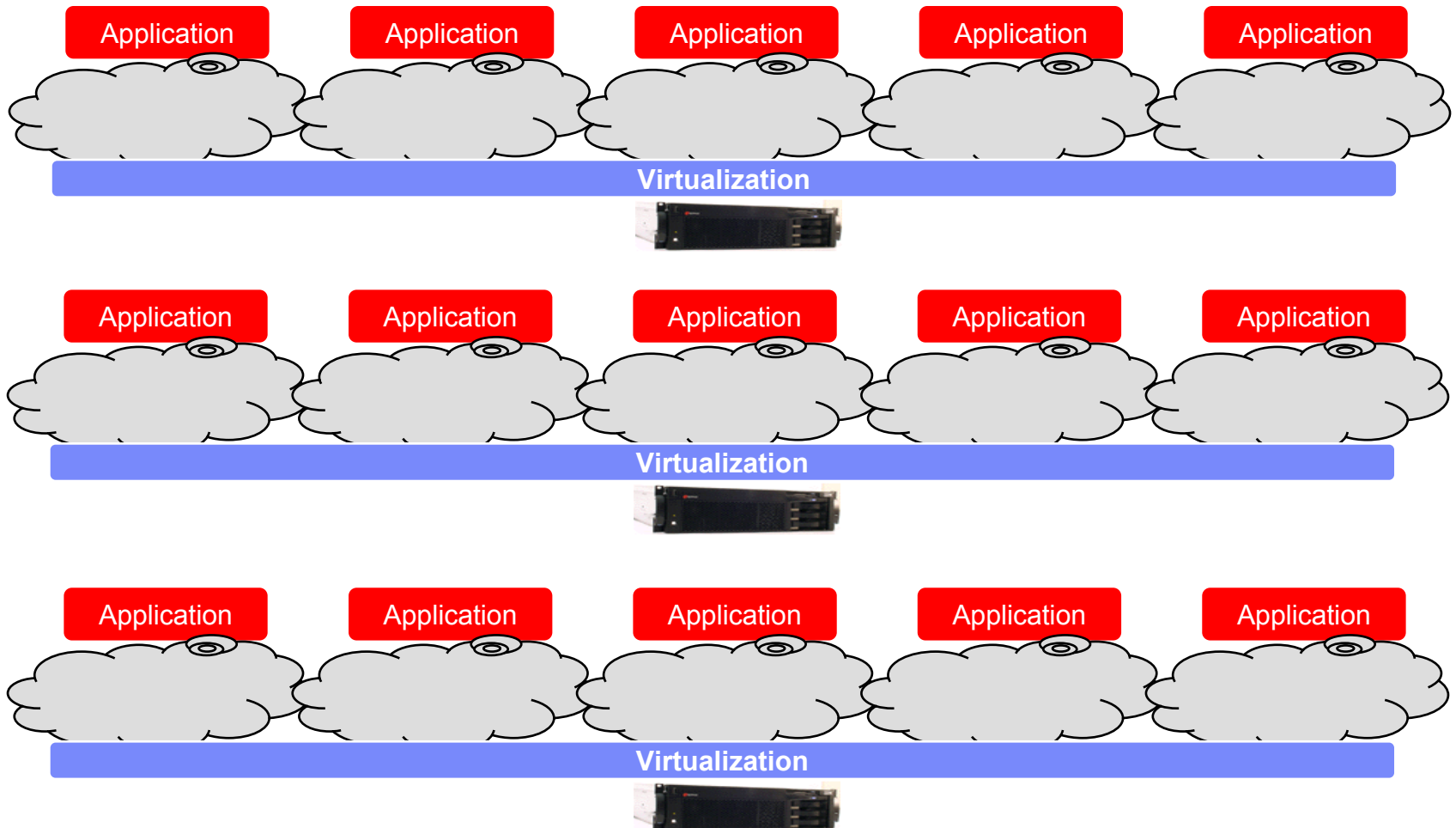
# The current open software stack



# The result (of the current open software stack)



And the first wave of “virtualization” helped us to .....



.... reduce the number of servers.....

# As of early April '04 the MPS virtualized infrastructure is as follows



## 170 virtual machines running:

- Networking infrastructure servers
- Domain Controllers
- Application Servers (com+ etc etc)
- Software Distribution servers
- SNA Servers
- Web Servers
- Terminal Servers
- Test/Development Servers
- etc etc etc

## Virtualization layer



**15 x 8-way  
(production)**



**1 x 16-way  
(production)**



**2x 8-way  
(in the works)**



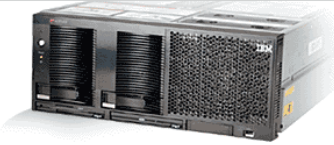
**2x 16-way  
(in the works)**

*delivering on demand together*

# Virtualization example in the SMB market (year 2005)

Intel processor-based servers

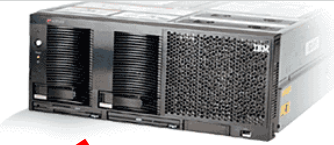
**More info:** xSeries 445



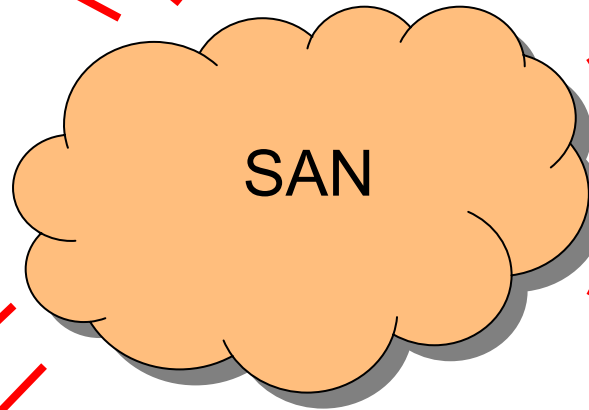
IBM @server xSeries

Intel processor-based servers

**More info:** xSeries 445



IBM @server xSeries



Intel processor-based servers

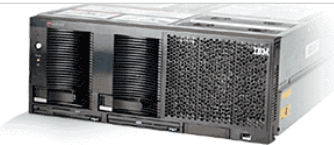
**More info:** xSeries 445



IBM @server xSeries

Intel processor-based servers

**More info:** xSeries 445



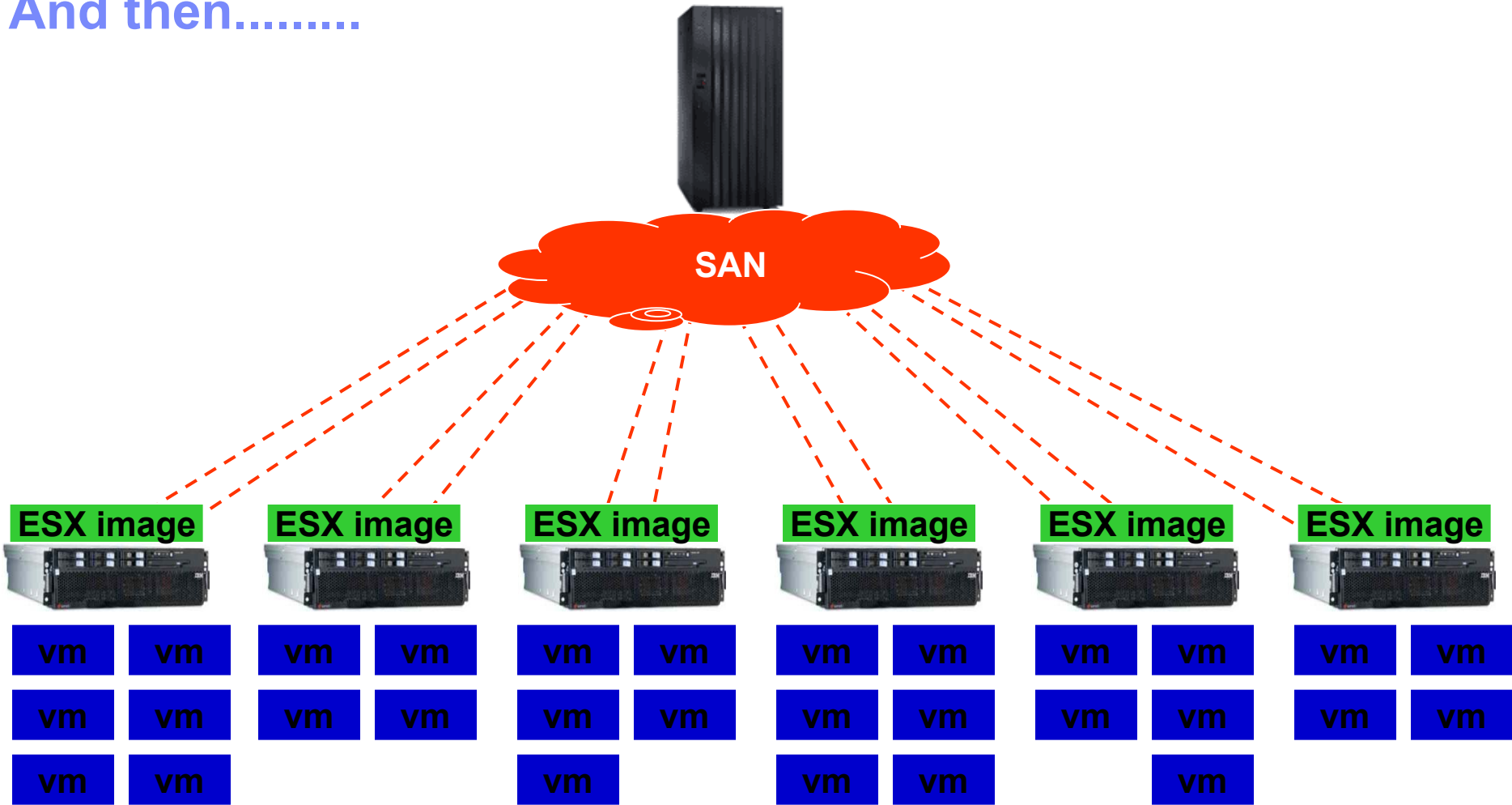
IBM @server xSeries



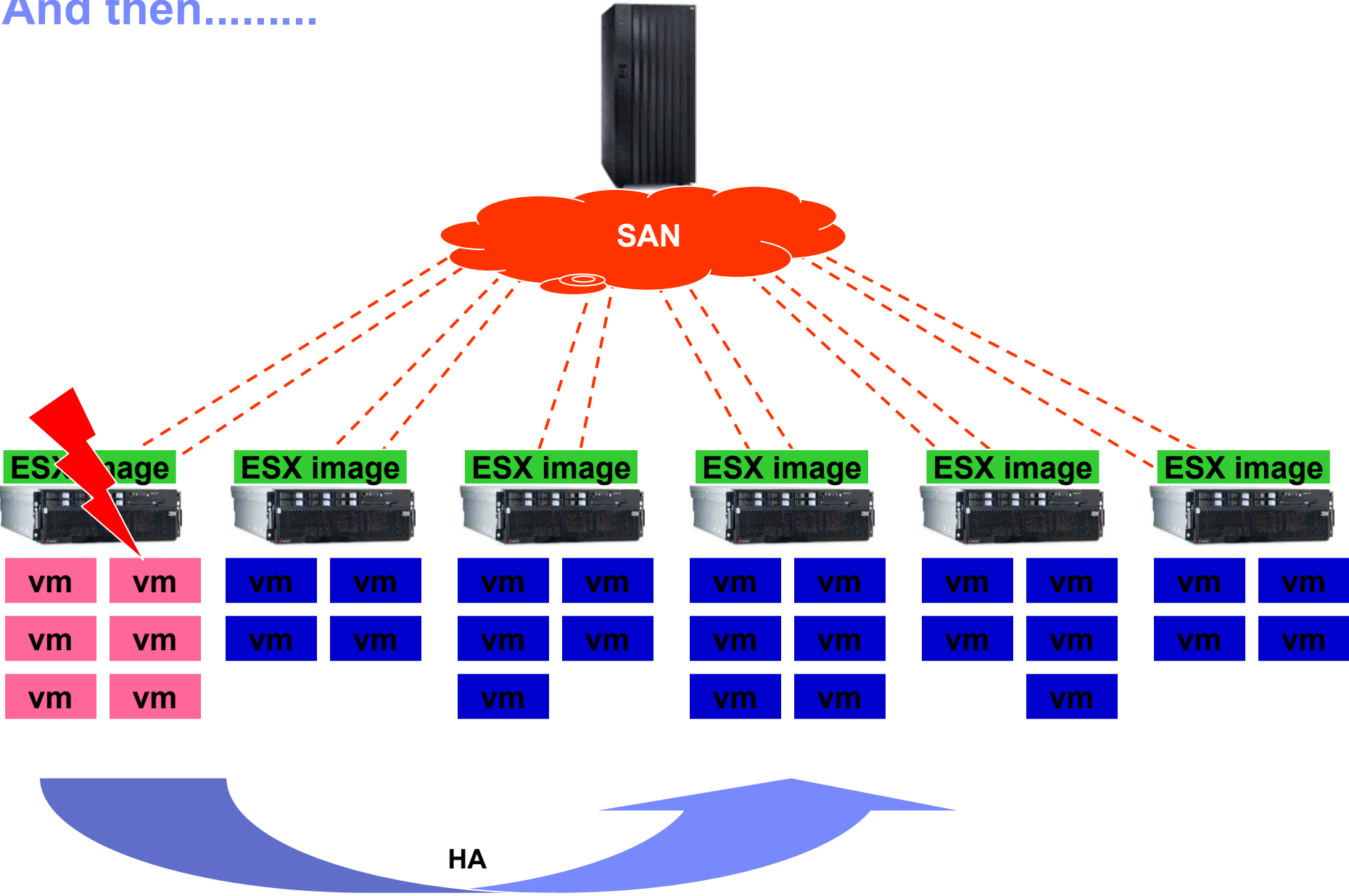
*delivering on demand together*



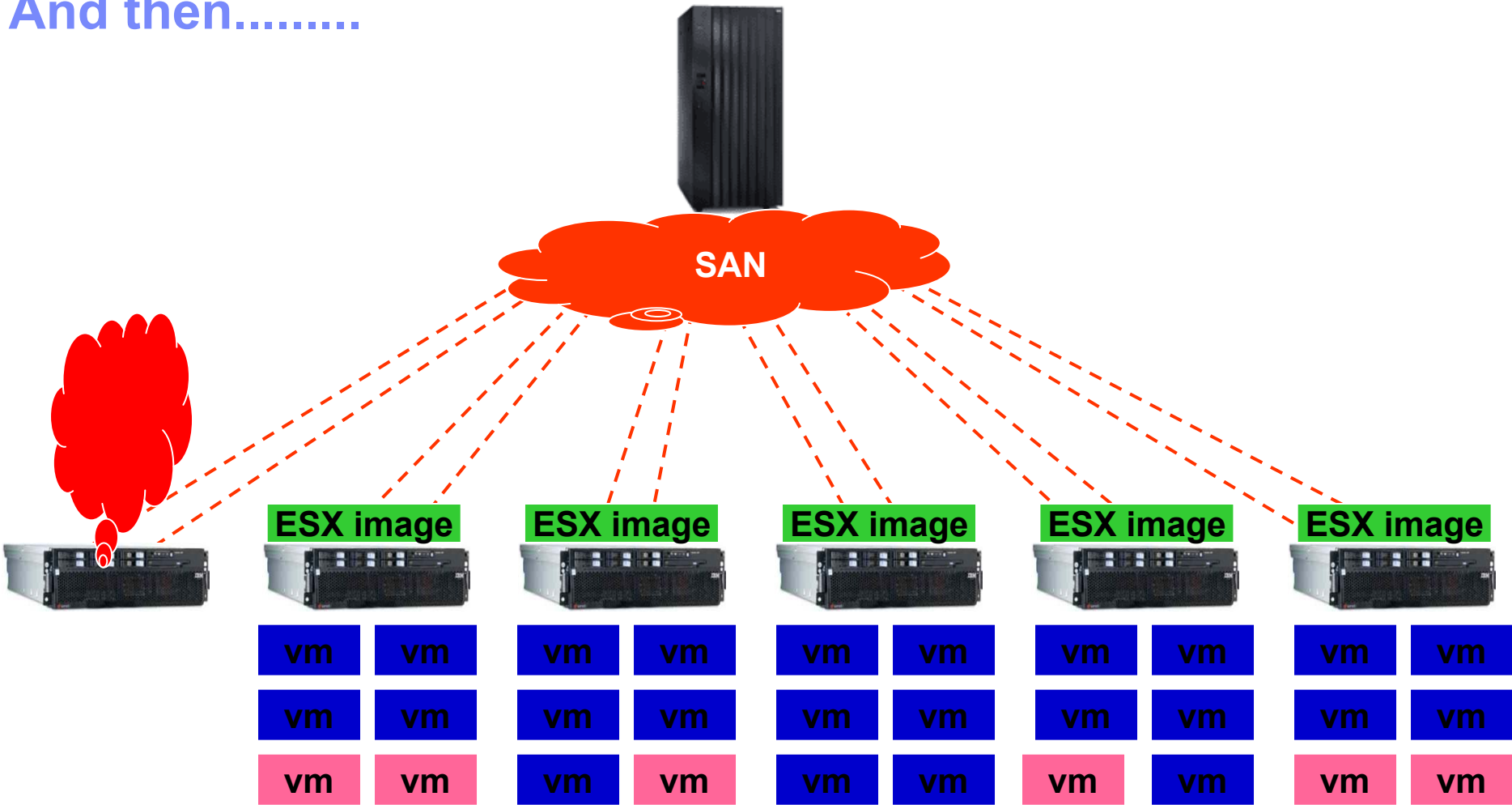
And then.....



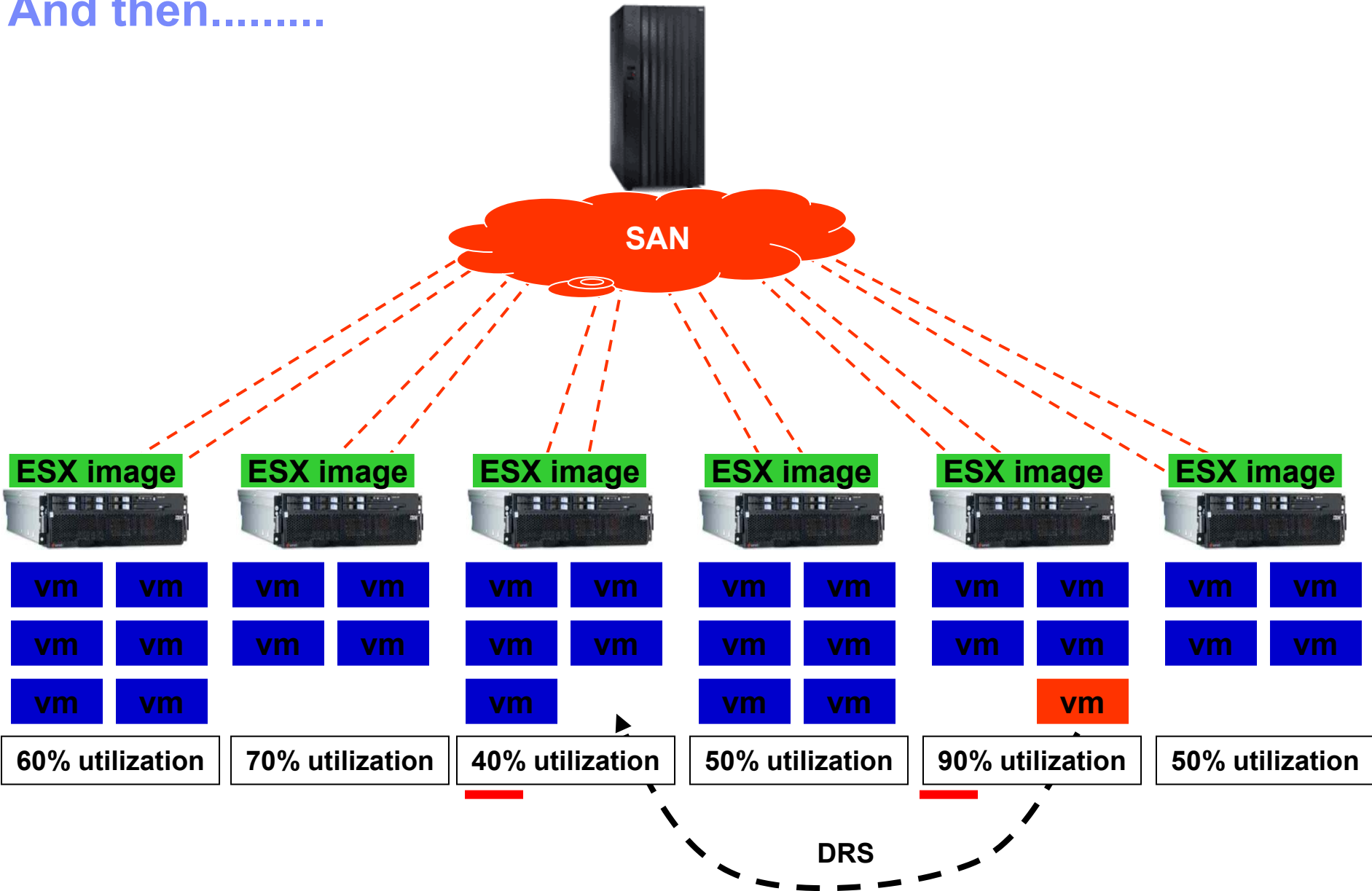
# And then.....



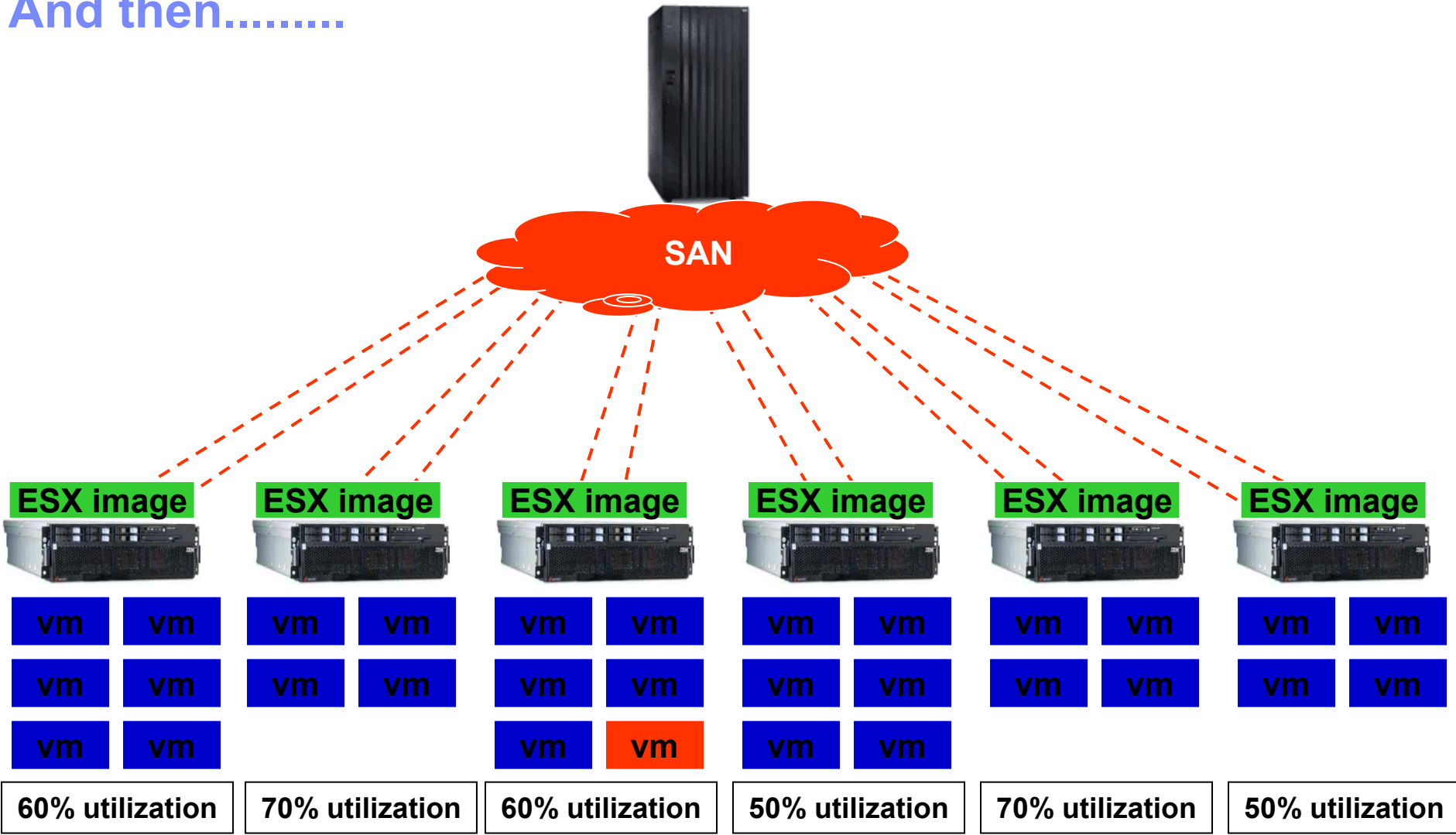
# And then.....



# And then.....



And then.....



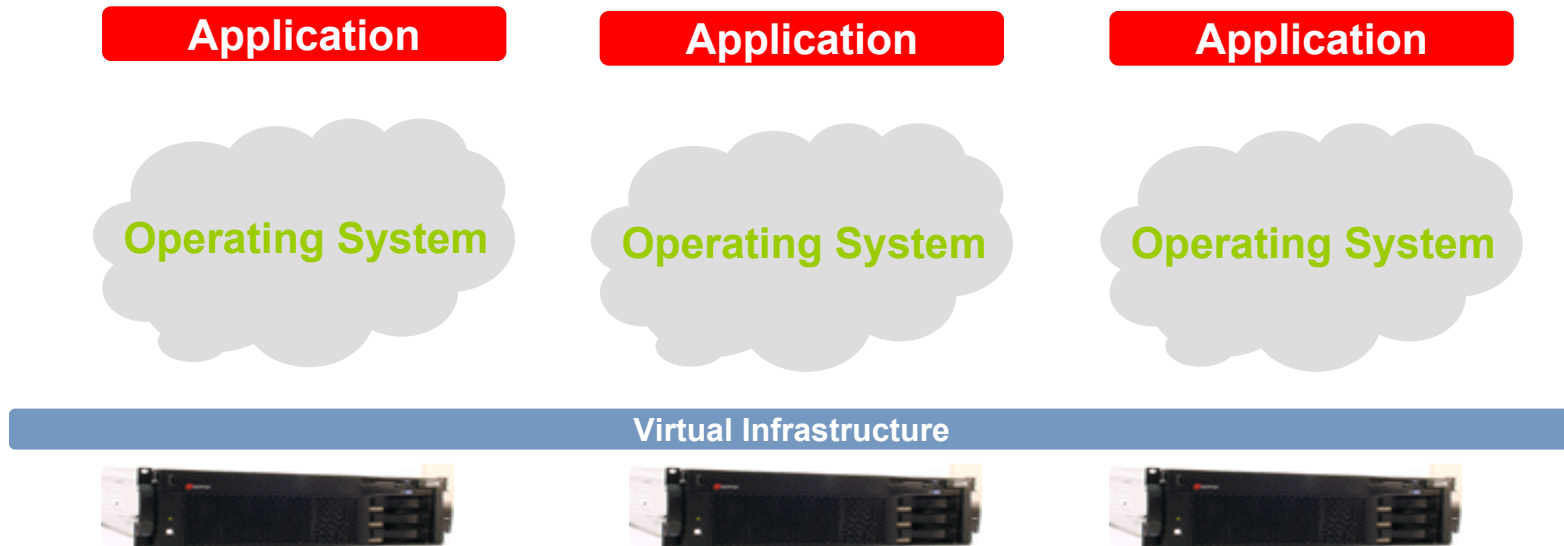
(Using VMotion)

# Yesterday's x86 Deployments



My legacy SW stacks run on dedicated systems

# Today's x86 Deployments



My legacy SW stacks run on **a shared virtual infrastructure**

# Future x86 Deployments

Virtual Appliance

Virtual Appliance

Virtual Appliance

Virtual Infrastructure (Datacenter OS)



**Applications run directly on a shared virtual infrastructure**

# Application Realm and Infrastructure Realm

“Golden” Pool

“Platinum” Pool

“Bronze” Pool



**“No Fly Zone” Buffer**

**Infrastructure to provide:**

(Virtual) Hardware Resources (with SLA)

Load Balancing

High Availability

Transparent Maintenance

Hardware Management / Interface

Backup Services

Network Services (balancing / ha)

(More in the future)

# Intra-Company deployments



this appl is ready for deployment:  
I need 500MHz cpu / 512 MB ram /  
network is "abc"

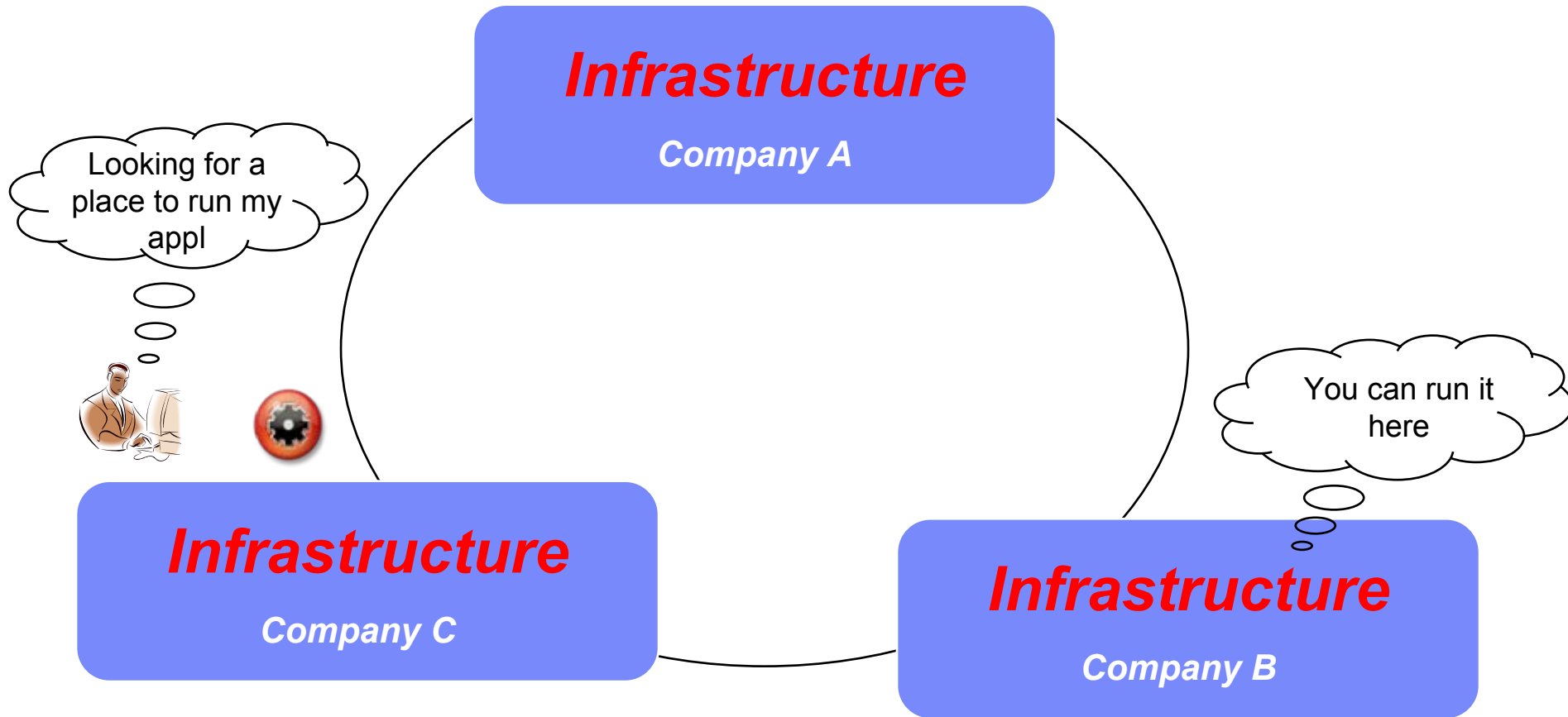
OK you are good to go! upload it  
Thanks! Your bill is xyz € with your credentials



**Infrastructure**



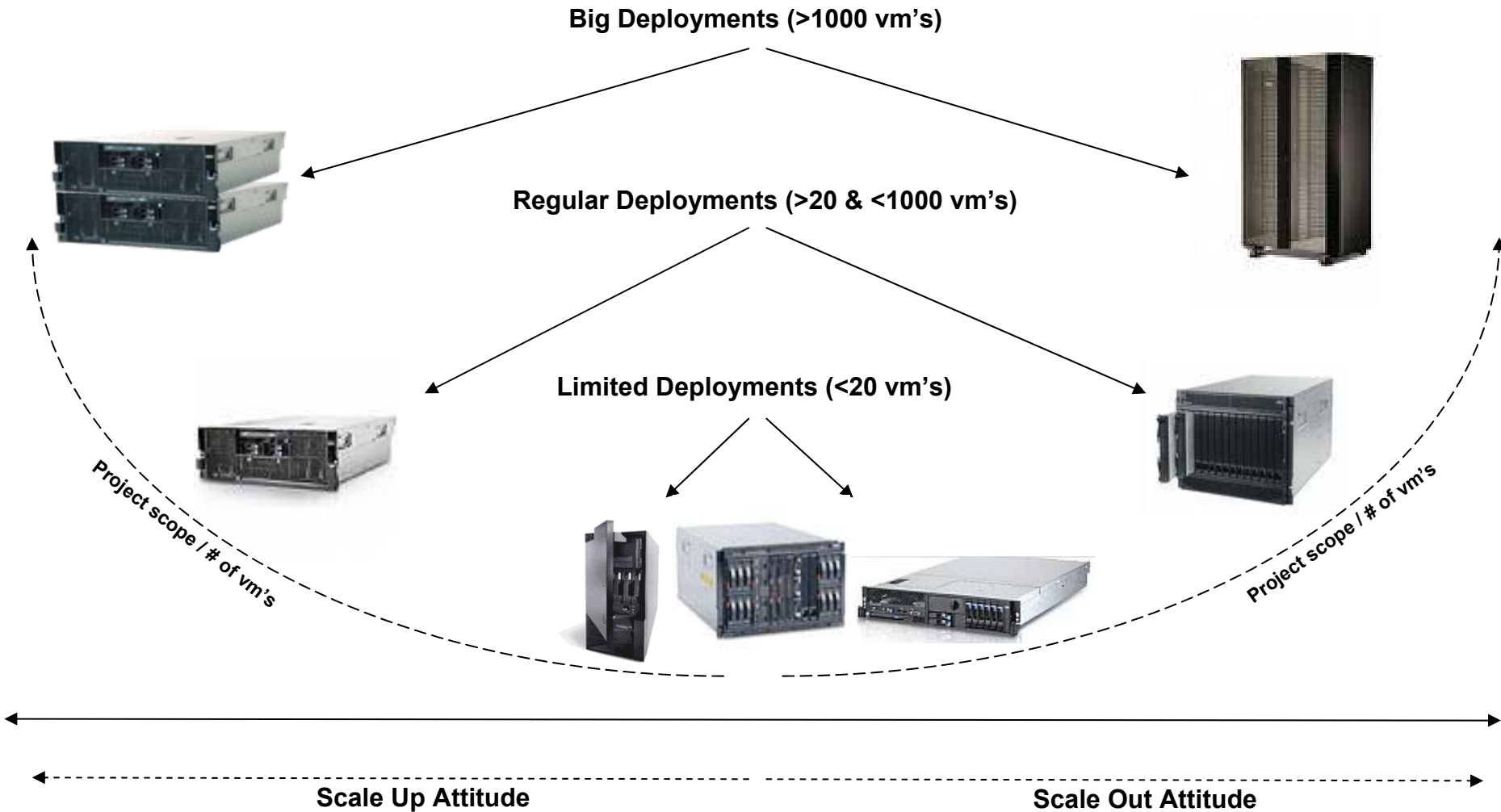
# Inter-Company deployments



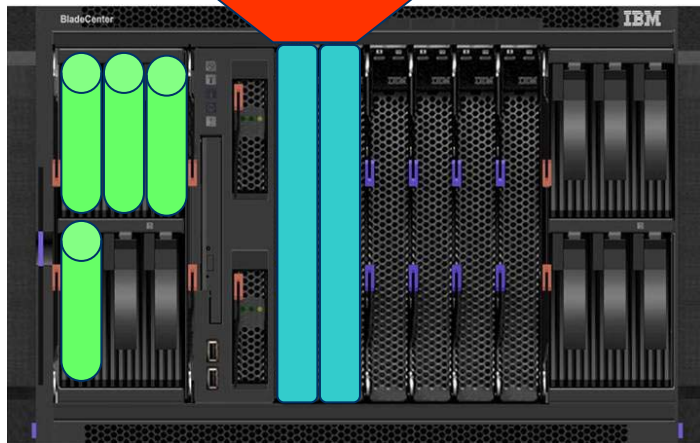
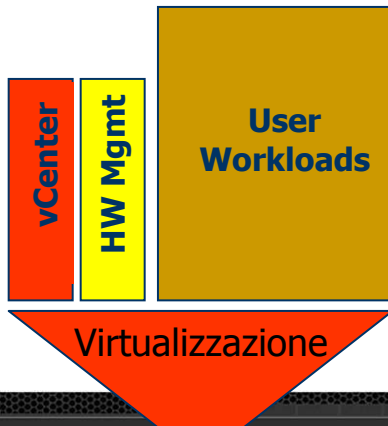
**Your Appl : IT Infrastructures = Power cable : Power Grid**



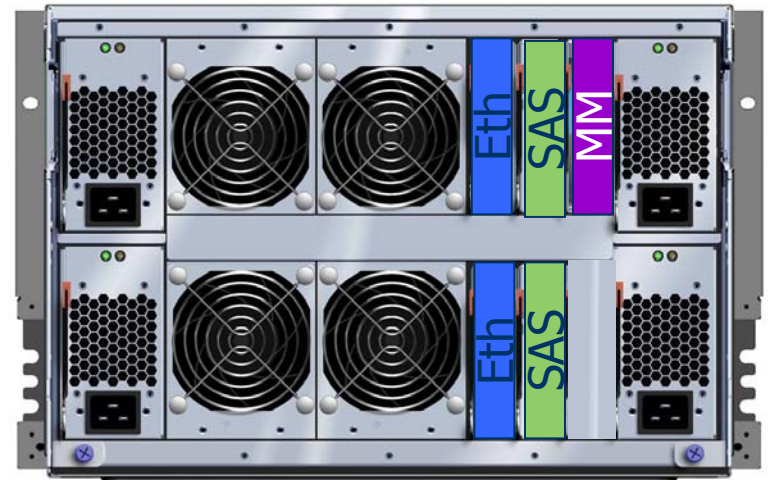
# System x / BladeCenter Server platform selection



# BladeCenter S: the Datacenter-in-a-box



Front View



Rear View

# Power Server platform selection

## POWER6

### Common Features

- Processor technology
- Service Processor
- Virtualization



550



570

575

595

520



### PowerVM

- Micro-Partitioning
- multiple shared processor pools
- physical and virtual I/O
- Live Partition Mobility



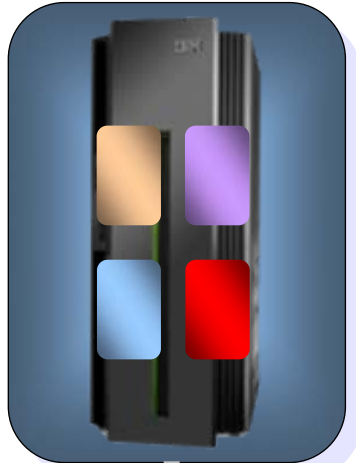
**BladeCenter®**  
JS12 JS22



# Power-based Live Partition Mobility



Example: POWER 595



**Movement to  
a different server  
with  
no loss of  
service**

Example: POWER 595



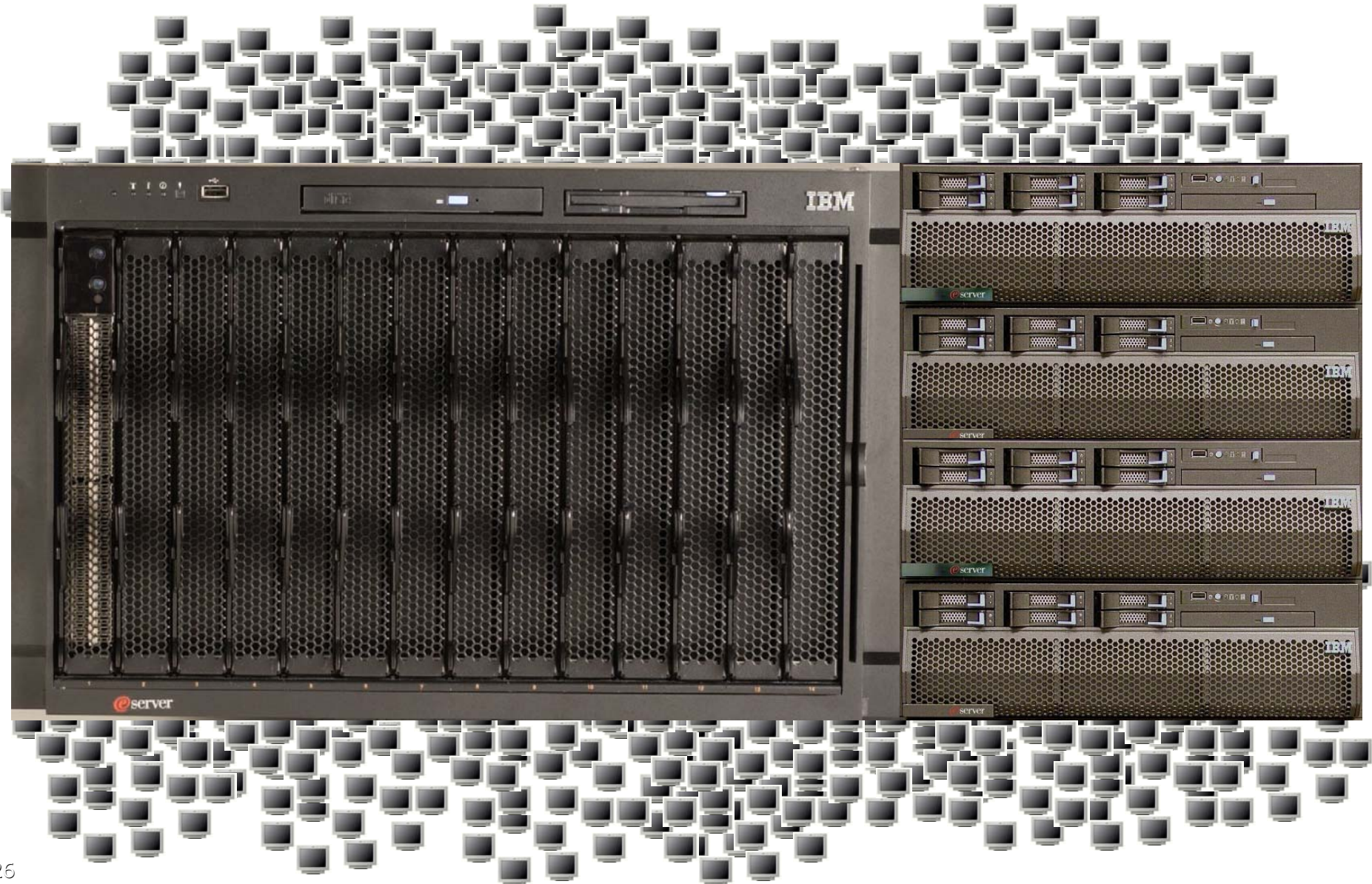
**Virtualized SAN and Network Infrastructure**



Example: DS8000







# Desktop Virtualization: concepts

Offices (local / remote)

Datacenter

...but it shows here...



It runs here



User3 XP image

User6 XP image

User2 XP image

User5 XP image

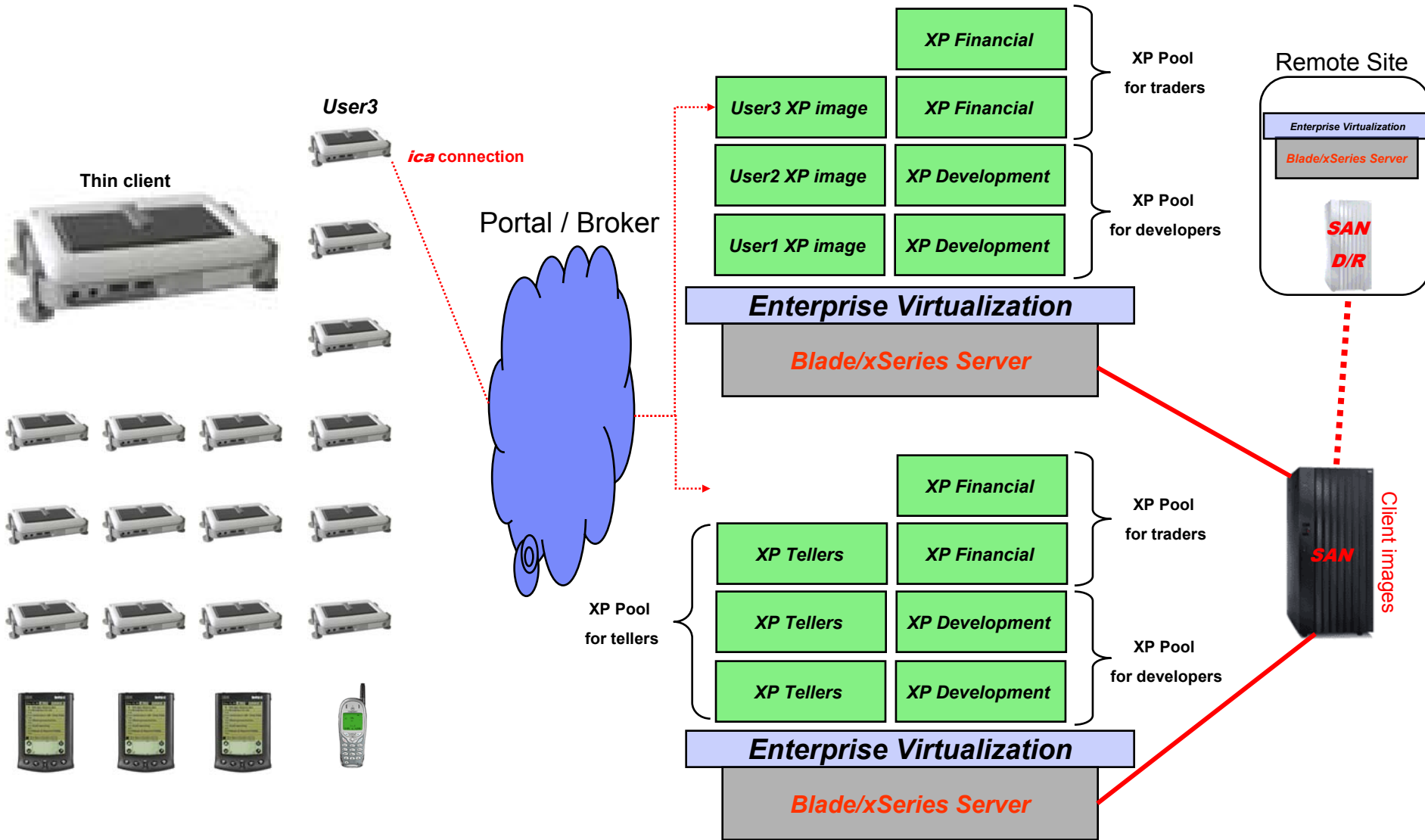
User1 XP image

User4 XP image

**virtualization**

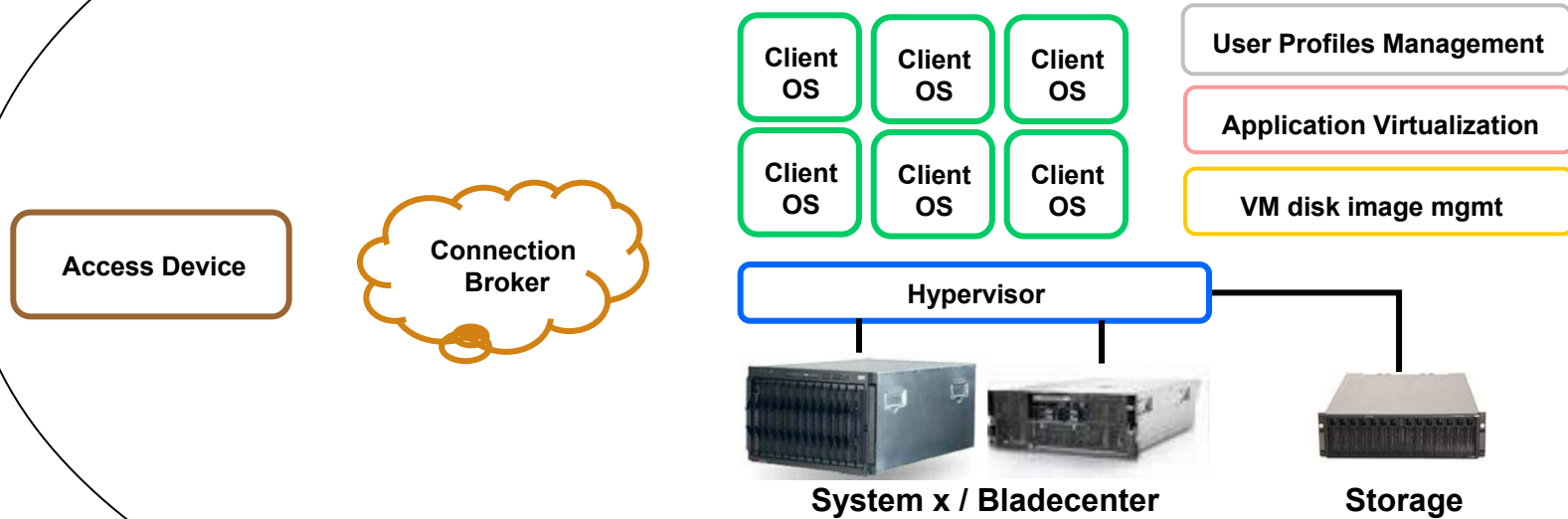
**Blade/xSeries Server**

# Desktop Virtualization: example



# Desktop Virtualization: High Level Architecture

## Solution Design



## Deployment Services

## ***Desktop Virtualization: typical benefits***

- ***Same or better end-user experience***
- ***Better control of the distributed infrastructure***
- ***Minimal PC life-cycle***
- ***Business Continuity***
- ***Data Security***
- ***Flexibility***
- ***Minimal Client/Server bandwidth issues***
- ***More control over software updates and patch management (through pools)***
- ***Power savings (in the range of 50-100€ per client device)***
- ***Easier Backup of configurations***
- ***Etc etc etc***

**Basically: back to the 3270 but with a rich interface!**

Thin client



# Back to the future.....

