Dismiss the Myth & Embrace Agility:

How Implementing Virtualization Can Improve Your Hyperion Performance

Casey J. Ratliff, System Architect & Principal

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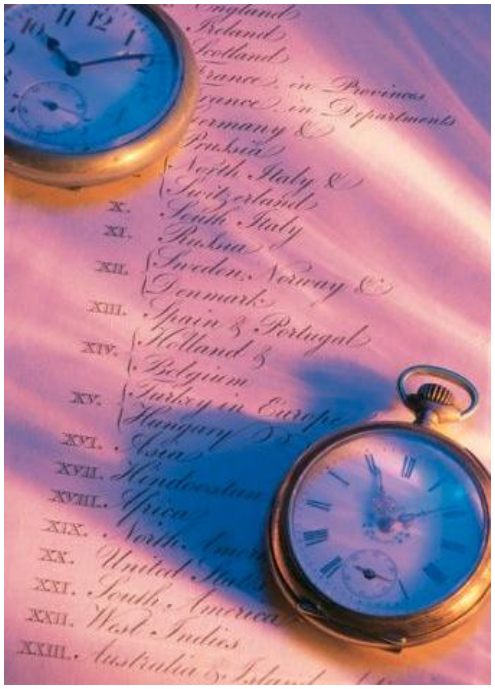
"By 2020, virtualization or abstraction will account for 90+% of all servers."

"In my 10+ years of implementing EPM products, only once (1) has virtualization accounted for a bug."

- Casey J. Ratliff, 2011

Agenda

- Introduction
- eCapital Advisors
- What is Virtualization?
- The CIO Edict
- The Conundrum
- The “Magic Pill”
- What’s available?
- Negotiating Agility & Balance
- Baseline
- Q & A



eCapital Overview

- **Founded in 2001**
- **Enterprise performance management consulting firm**
- **Headquartered in Minneapolis, MN**
- **Regional offices in St. Louis and Milwaukee**
- **Over 150 performance management customers**
- **eCapital Advisors employees:**
  - Proven record and high customer satisfaction
  - Highly experienced project team
  - Deep Finance and Accounting backgrounds
  - Integrated EPM knowledge

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eCapital Overview

- **Complete Range of Performance Management Services**
  - Strategic assessments and planning
  - Performance management consultants with extensive implementation experience
  - Financial consultants with planning, financial reporting & consolidation delivery experience
  - Experience with the current platform as well as prior releases
- **Regional project team for enhanced business partnership**
  - Local accountability
  - On-going strategic relationship
- **High value proposition – Strategic Implementation Methodology**
  - Value based approach to all engagements
  - Delivering top quality solutions to maximize return on investment

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CARLSON

GENERAL MILLS

MERRILL CORPORATION

Bass Pro Shops

MTS

BEST BUY

SCHREIBER

Hormel Foods

PRIME THERAPEUTICS

UnitedHealthcare

ARCHWAY
Marketing Delivered

POLARIS

planet hollywood
RESORT & CASINO • LAS VEGAS

Medtronic

TCF
Since 1923
Open 7 Days

SOLUTIA

HNI

HNI Corporation

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Introduction

- 15+ years IT experience, 4+ Hyperion architecture
- Certified on Hyperion, Microsoft (MCSE), SANs, hardware (A+), databases, as well other software
- Implementations/upgrades performed at over 100+ customers
- Masters in Information Systems

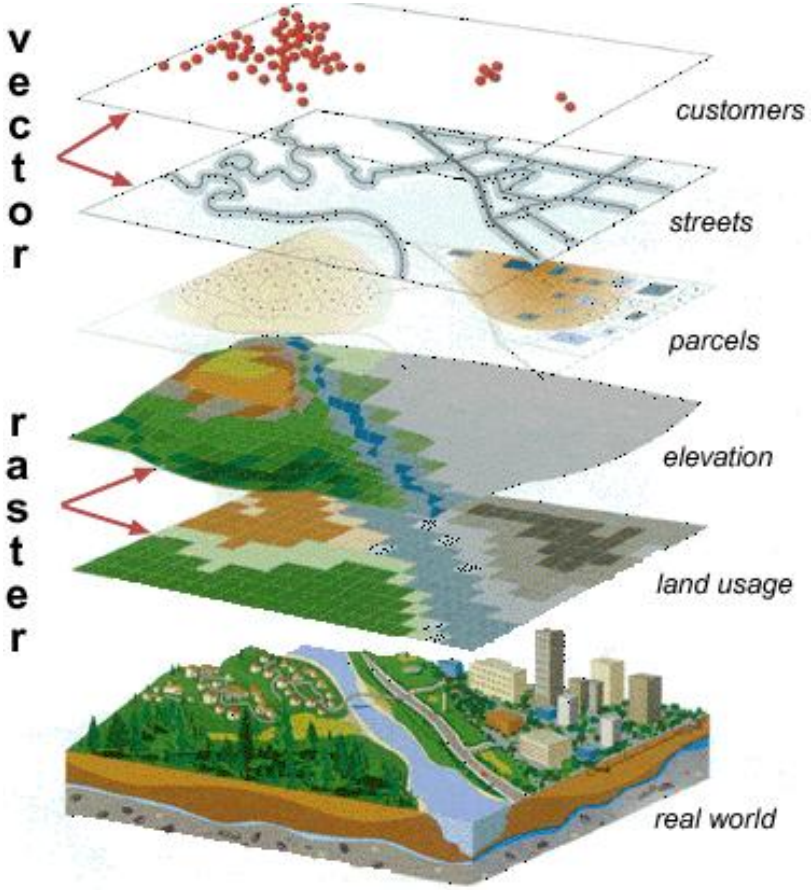
Survey

- How many Hyperion installations are currently using virtualization?

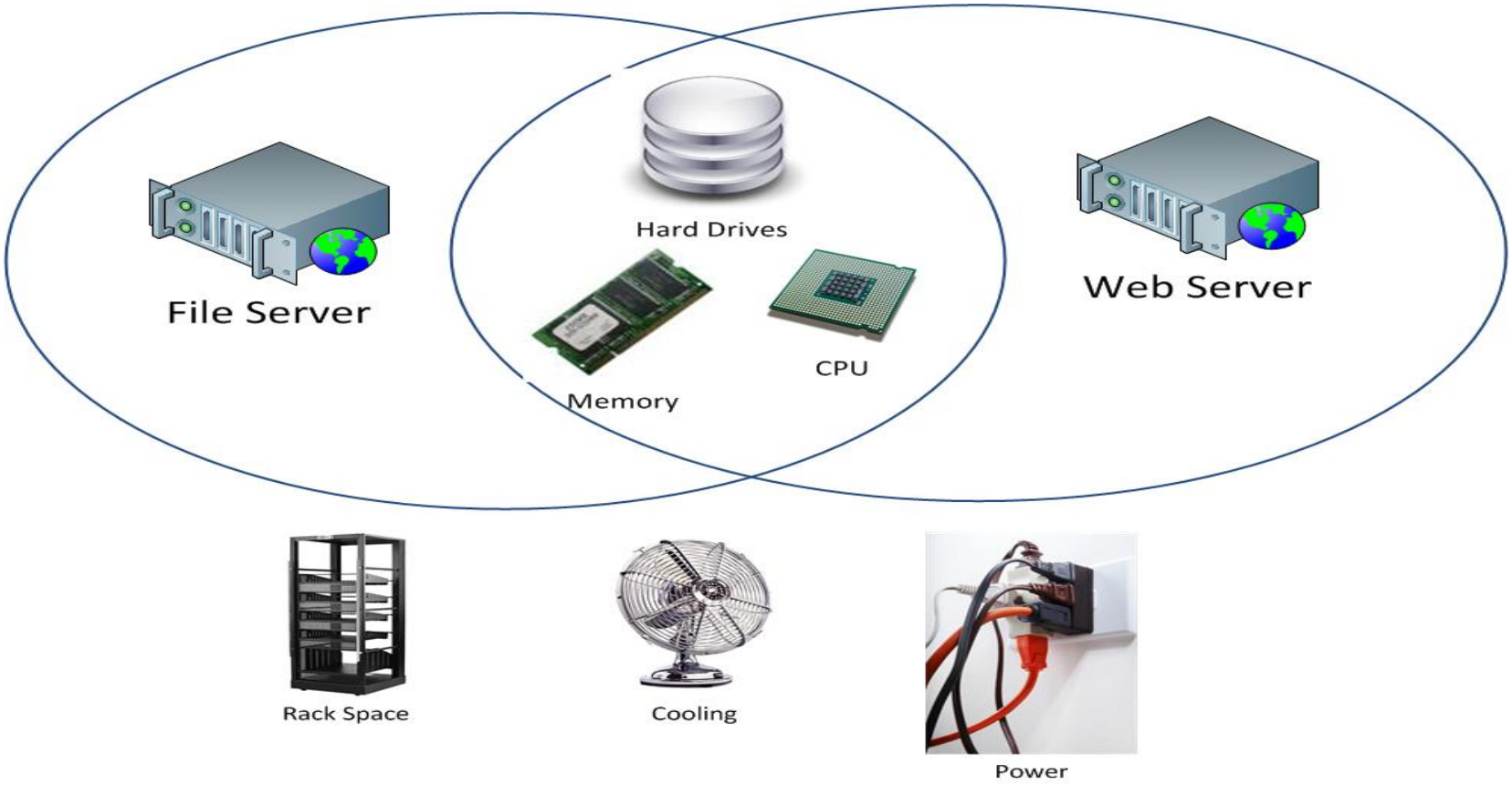
- How many would prefer to have physical servers?

What is Virtualization?

CIO magazine's web site: "Virtualization refers to technologies designed to provide a layer of abstraction between computer hardware systems and the software running on them. By providing a logical view of computing resources, rather than a physical view, virtualization solutions make it possible to do a couple of very useful things: They can allow you, essentially, to trick your operating systems into thinking that a group of servers (or other devices or applications) is a single pool of computing resources. And they can (also) allow you to run multiple operating systems simultaneously on a single machine."



Analogy of Virtualization



In 2009, 40% of U.S. data centers surveyed faced budget cuts, and 20% of respondents faced budget cuts of more than 10%. – Techtarget.com, 2011

The CIO Edict

The CIO has been given the challenge to reduce costs while maintaining status quo in headcount and overall costs, or even adding requirements

- This directive transcends to infrastructure – reduce costs & improve efficiencies…period.
- This means no additional servers unless absolutely required and proven

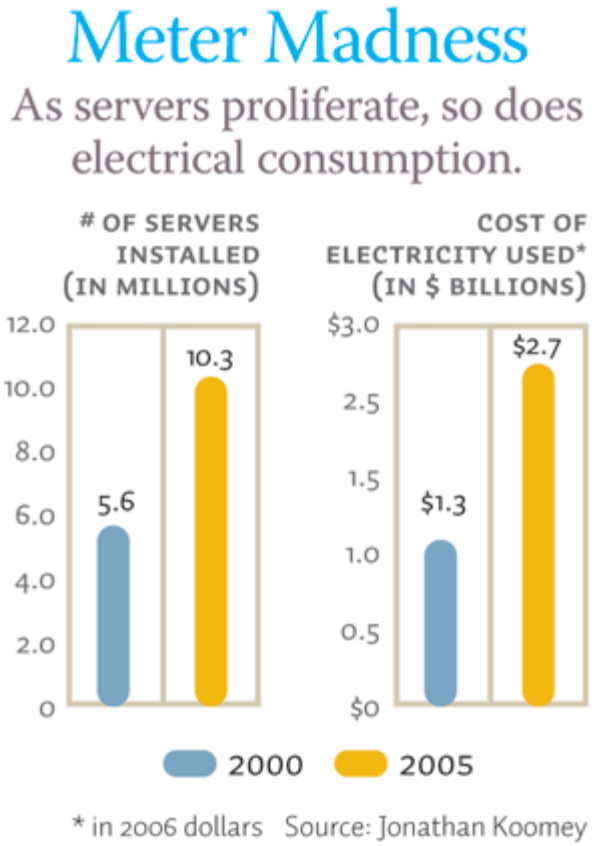
The Conundrum

- IT Management needs to provide the functional business units (Finance, Operations, etc.) a platform for Oracle EPM
- The infrastructure must be minimum “net-new”
- Disaster Recovery requirements are not optional: they must be accounted for
- The EPM implementation must still meet the requirements of the functional side – both in performance and ease of implementation
- For a standard implementation of EPM, there is a need for 3-4 servers…this could equate to $20K or $30K in servers alone if physical, not including the additional costs for rack space, cooling, power, etc.
- What can IT do?

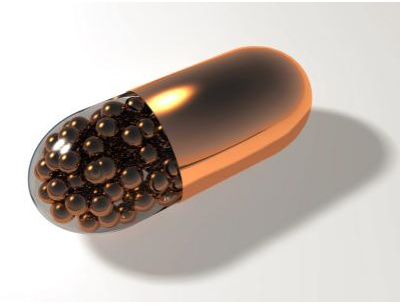
For a large data center, the energy bill can be a whopper--and anything that can cut that bill by 20 or 30 percent bears some serious consideration. [An eWeek] article recounts how the city of Minneapolis saved a whopping $18 million, and that utility rebates alone allow some uses to recoup half of their upgrade investment. – ITWorld, 2009

What about being Green?

…the electric bill for a data center can eat up 25 to 44 percent of its budget. That raises concerns not just about the bottom line, but also about brownouts or blackouts. A recent study by Stanford professor Jonathan Koomey found that computer servers (including cooling and auxiliary equipment) now account for 1.2 percent of total U.S. electric consumption, a figure that's growing fast. (Power consumption by such devices doubled between 2000 and 2005, Koomey says.)



The “Magic Pill”



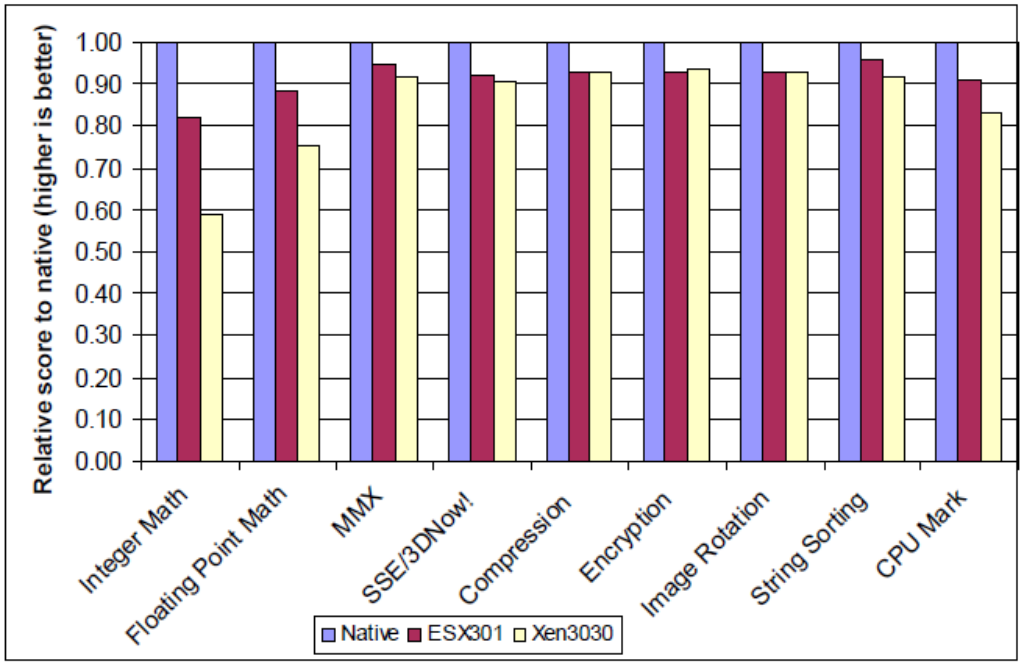
- Virtualization!
  - Considerably smaller power, cooling and rack space needed
  - Full utilization of the hardware – no waste
  - Ease of DR and backup/recovery
  - Full HA through clustering and other tools
  - Minimal additional cost for software needed (VMWare)
  - Skills for virtualization are becoming much more common
  - Build times for servers are measured in minutes rather than days or weeks
  - Adjusting server resource allocation is easy

The Windows Server operating system and virtualization implementations have driven IT spending in 2010 [59% will expand virtualization deployments]. – Techtarget.com, 2011

In 2010, nearly 60% of data centers will expand their virtualization deployments, and nearly one-quarter of respondents (22%) run VMs on 50% to 100% of their server hardware. Many adopters use virtualization for disaster recovery, dynamic allocation of resources and desktop virtualization. – Techtarget.com, 2011

Isn't Virtual *SLOWER* than Physical?

Yes. Virtual is slower than physical when measured one for one



But, considering the benefits and capabilities virtualization offers, you can afford to allocate MORE resources to your implementation, and therefore be *FASTER* than physical!

We want horsepower!

Okay…so how do we (finance) make sure we have the performance we need?

How can we (IT) provide finance the comfort level that virtualization is giving them what they need?

Dynamic Performance, Transparent Resource Usage and Detailed Analytics

- Virtualization has complex resource controls which give you the capabilities to control resources completely and dynamically - easily
- Resource utilization at the individual servers and the whole virtual server or cluster are easy to access

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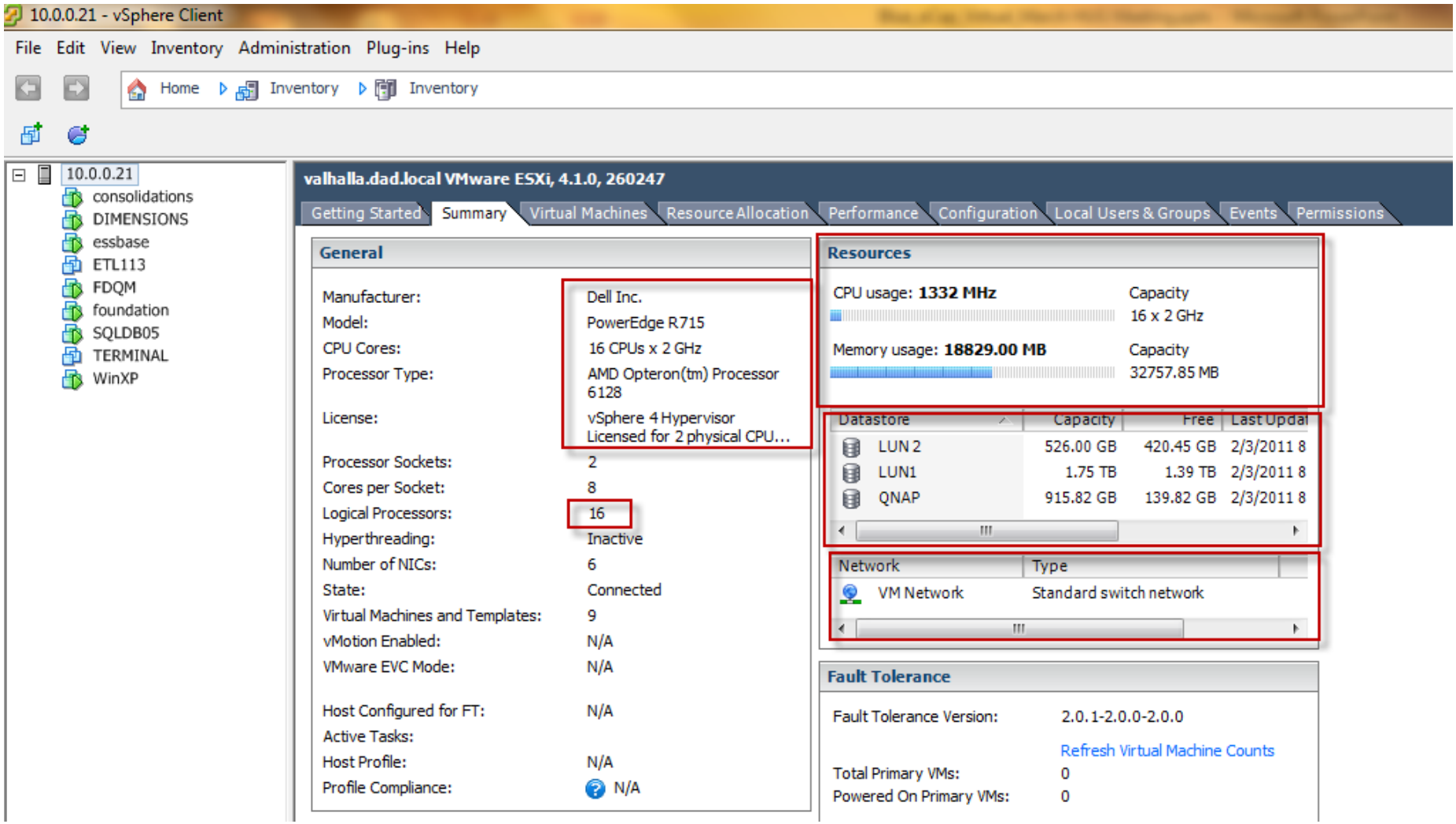
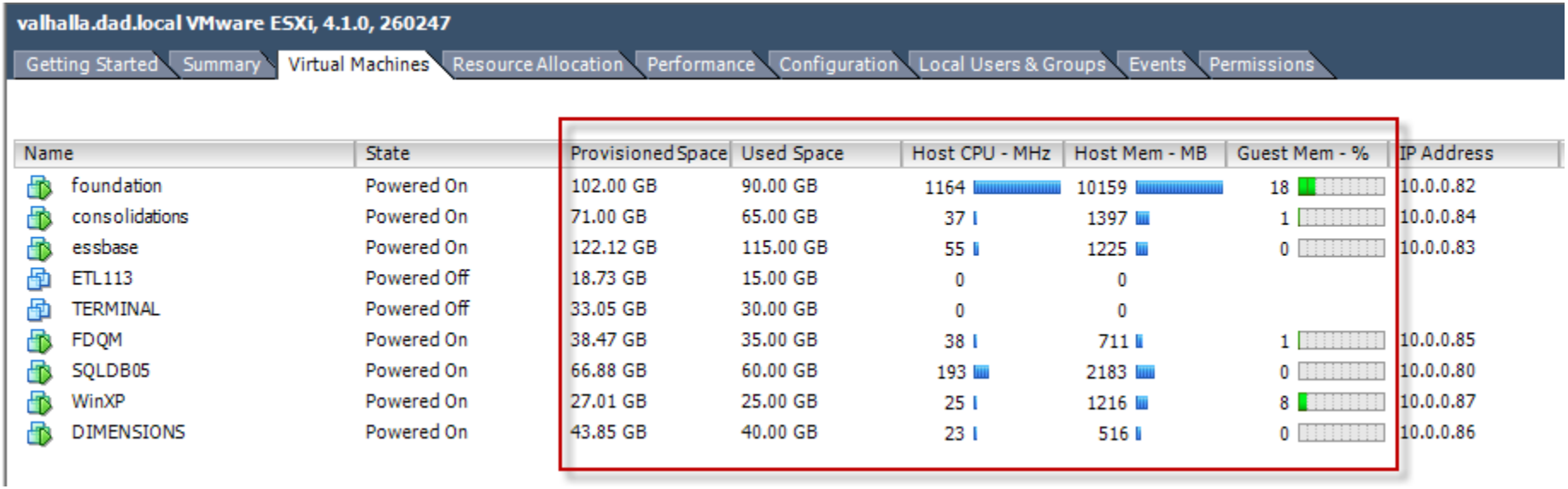
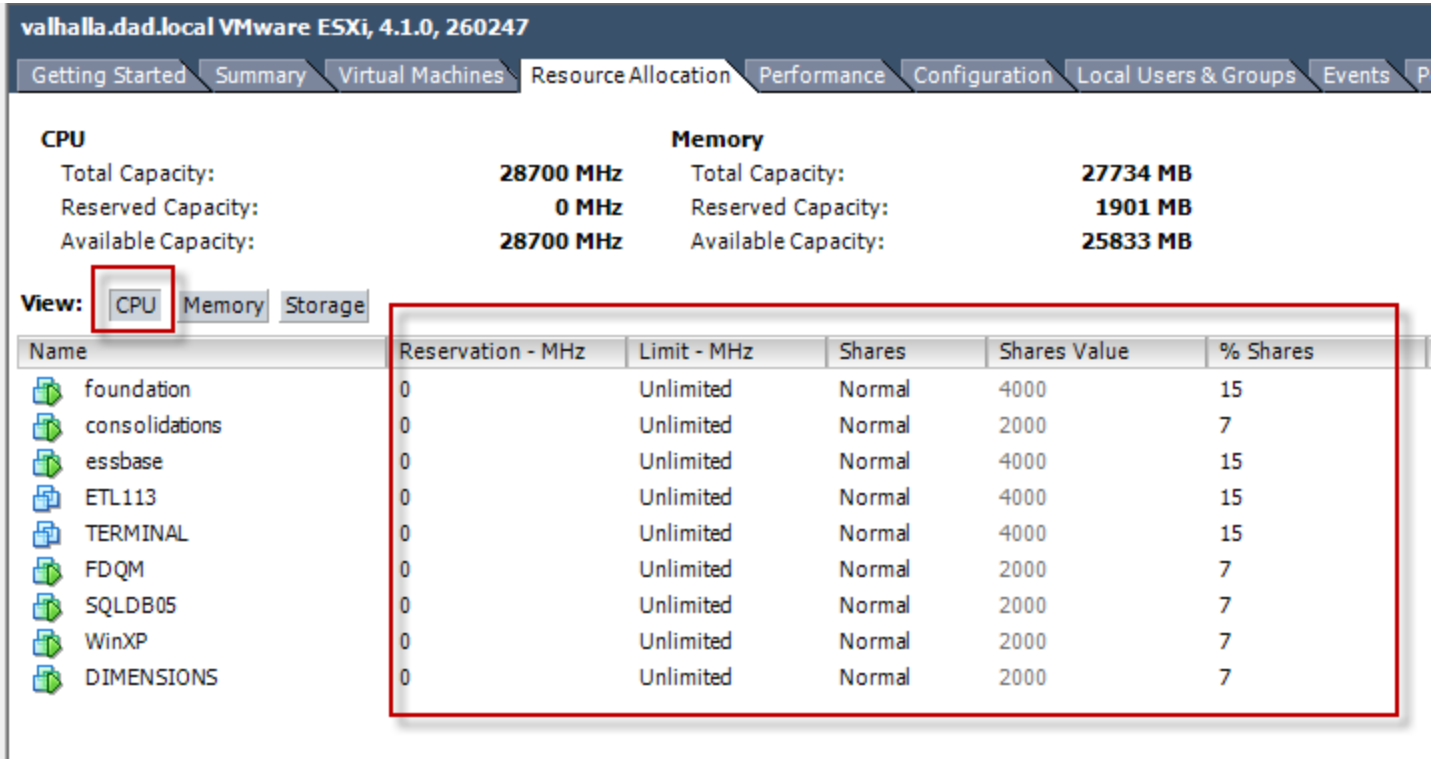
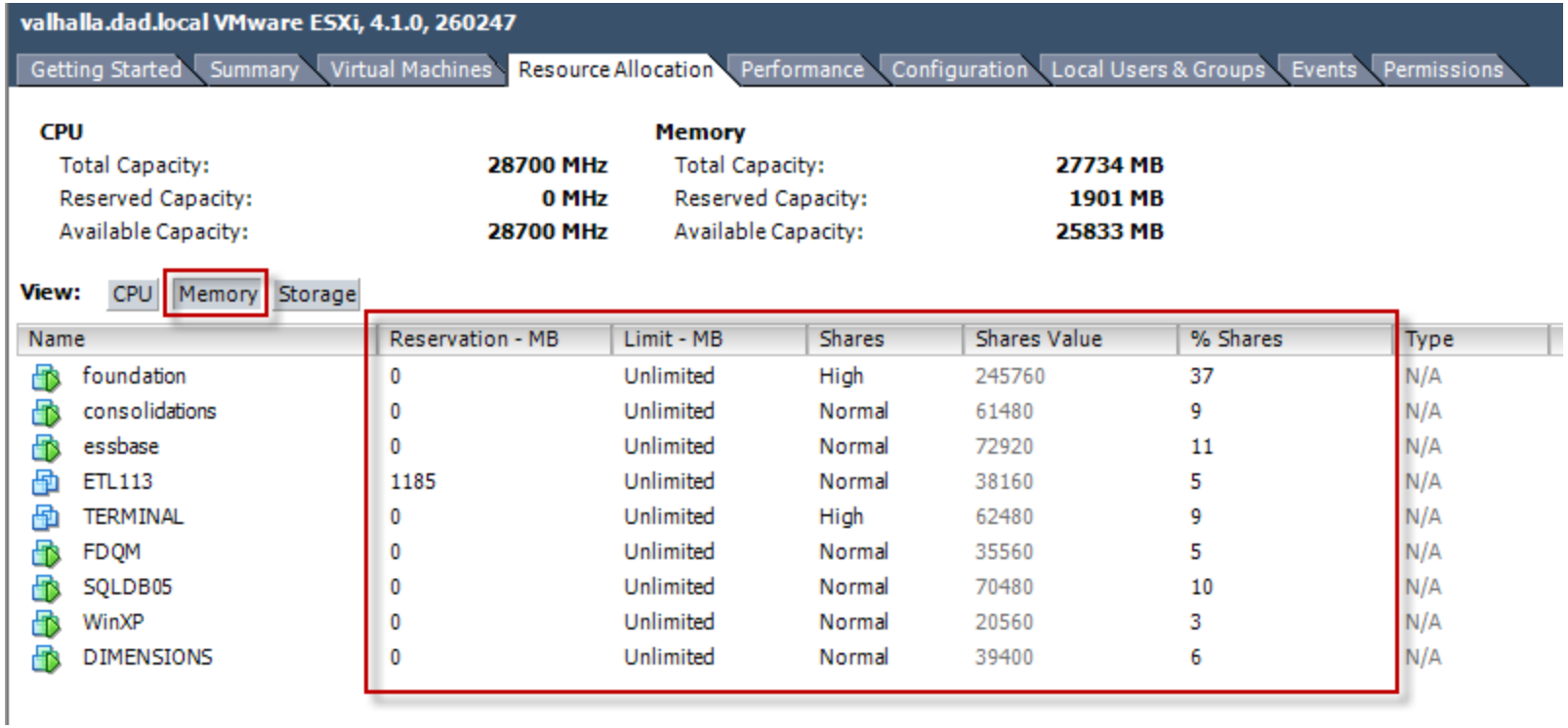




Name	State	Provisioned Space	Used Space	Host CPU - MHz	Host Mem - MB	Guest Mem - %	IP Address
foundation	Powered On	102.00 GB	90.00 GB	1164	10159	18	10.0.0.82
consolidations	Powered On	71.00 GB	65.00 GB	37	1397	1	10.0.0.84
essbase	Powered On	122.12 GB	115.00 GB	55	1225	0	10.0.0.83
ETL113	Powered Off	18.73 GB	15.00 GB	0	0		
TERMINAL	Powered Off	33.05 GB	30.00 GB	0	0		
FDQM	Powered On	38.47 GB	35.00 GB	38	711	1	10.0.0.85
SQLDB05	Powered On	66.88 GB	60.00 GB	193	2183	0	10.0.0.80
WinXP	Powered On	27.01 GB	25.00 GB	25	1216	8	10.0.0.87
DIMENSIONS	Powered On	43.85 GB	40.00 GB	23	516	0	10.0.0.86


valhalla.dad.local VMware ESXi, 4.1.0, 260247
Getting Started
Summary
Virtual Machines
Resource Allocation
Performance
Configuration
Local Users & Groups
Events
CPU
Total Capacity: 28700 MHz
Reserved Capacity: 0 MHz
Available Capacity: 28700 MHz
Memory
Total Capacity: 27734 MB
Reserved Capacity: 1901 MB
Available Capacity: 25833 MB
View: CPU Memory Storage
Name | Reservation - MHz | Limit - MHz | Shares | Shares Value | % Shares
foundation | 0 | Unlimited | Normal | 4000 | 15
consolidations | 0 | Unlimited | Normal | 2000 | 7
essbase | 0 | Unlimited | Normal | 4000 | 15
ETL113 | 0 | Unlimited | Normal | 4000 | 15
TERMINAL | 0 | Unlimited | Normal | 4000 | 15
FDQM | 0 | Unlimited | Normal | 2000 | 7
SQLDB05 | 0 | Unlimited | Normal | 2000 | 7
WinXP | 0 | Unlimited | Normal | 2000 | 7
DIMENSIONS | 0 | Unlimited | Normal | 2000 | 7



Name	Reservation - MB	Limit - MB	Shares	Shares Value	% Shares	Type
foundation	0	Unlimited	High	245760	37	N/A
consolidations	0	Unlimited	Normal	61480	9	N/A
essbase	0	Unlimited	Normal	72920	11	N/A
ETL113	1185	Unlimited	Normal	38160	5	N/A
TERMINAL	0	Unlimited	High	62480	9	N/A
FDQM	0	Unlimited	Normal	35560	5	N/A
SQLDB05	0	Unlimited	Normal	70480	10	N/A
WinXP	0	Unlimited	Normal	20560	3	N/A
DIMENSIONS	0	Unlimited	Normal	39400	6	N/A

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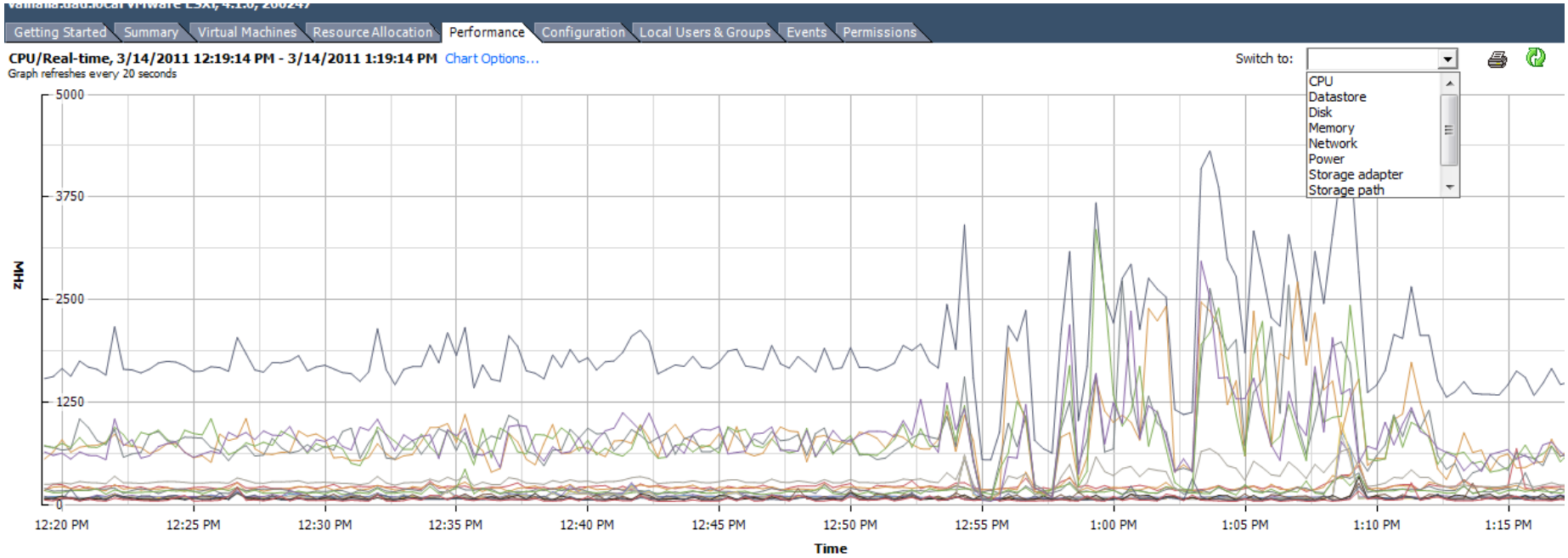


Performance Chart Legend

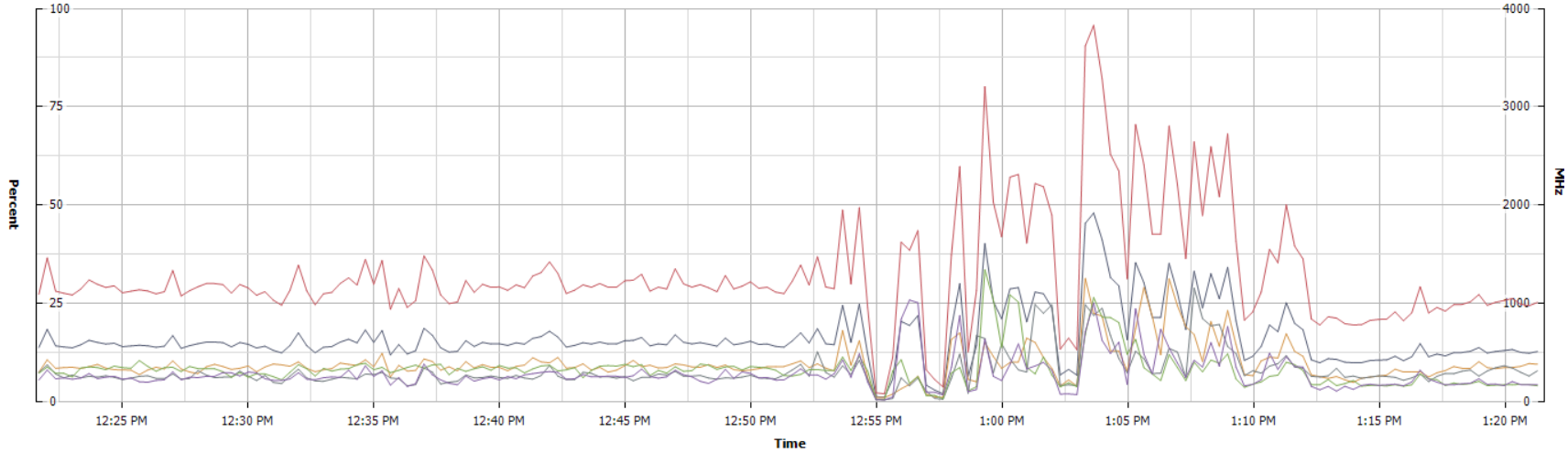
Key	Object	Measurement	Rollup	Units	Latest	Maximum	Minimum	Average
	valhalla.dad.local	Usage in MHz	Average	MHz	1622	4343	538	1877.917
	0	Usage	Average	Percent	3.72	13.53	3.02	4.236
	1	Usage	Average	Percent	3.85	10.46	2.89	3.963
	2	Usage	Average	Percent	3.64	7.62	2.32	3.341
	3	Usage	Average	Percent	3.09	8.47	2.18	3.125
	4	Usage	Average	Percent	1.64	15.21	1.31	2.087

foundation

Getting Started | Summary | Resource Allocation | Performance | Events | Console | Permissions

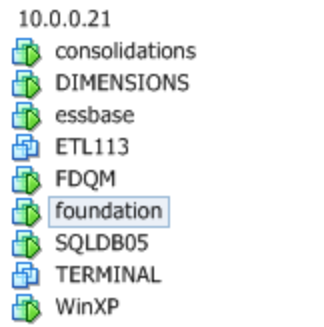
CPU/Real-time, 3/14/2011 12:21:33 PM - 3/14/2011 1:21:33 PM Chart Options...
Graph refreshes every 20 seconds

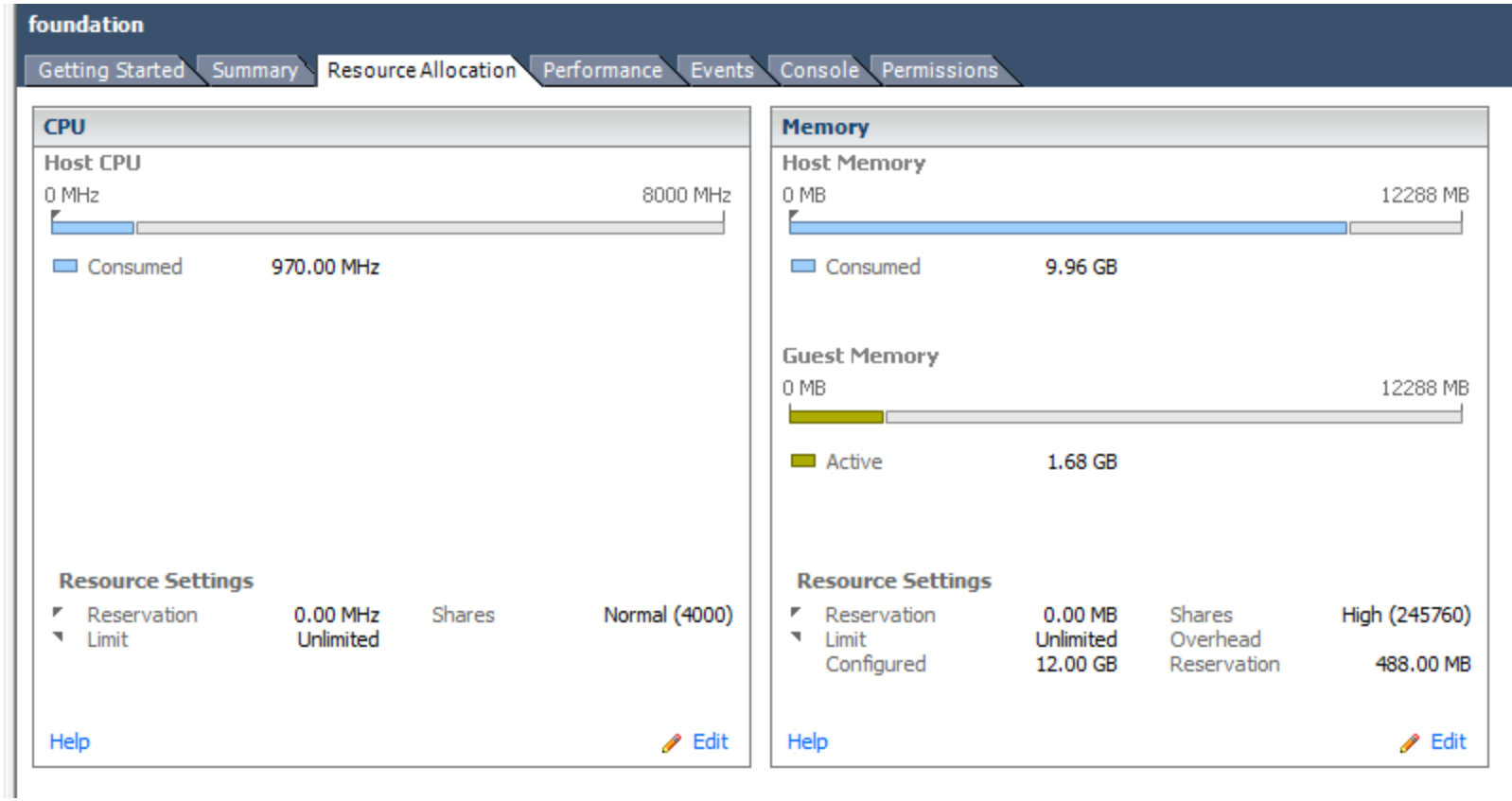
Switch to:

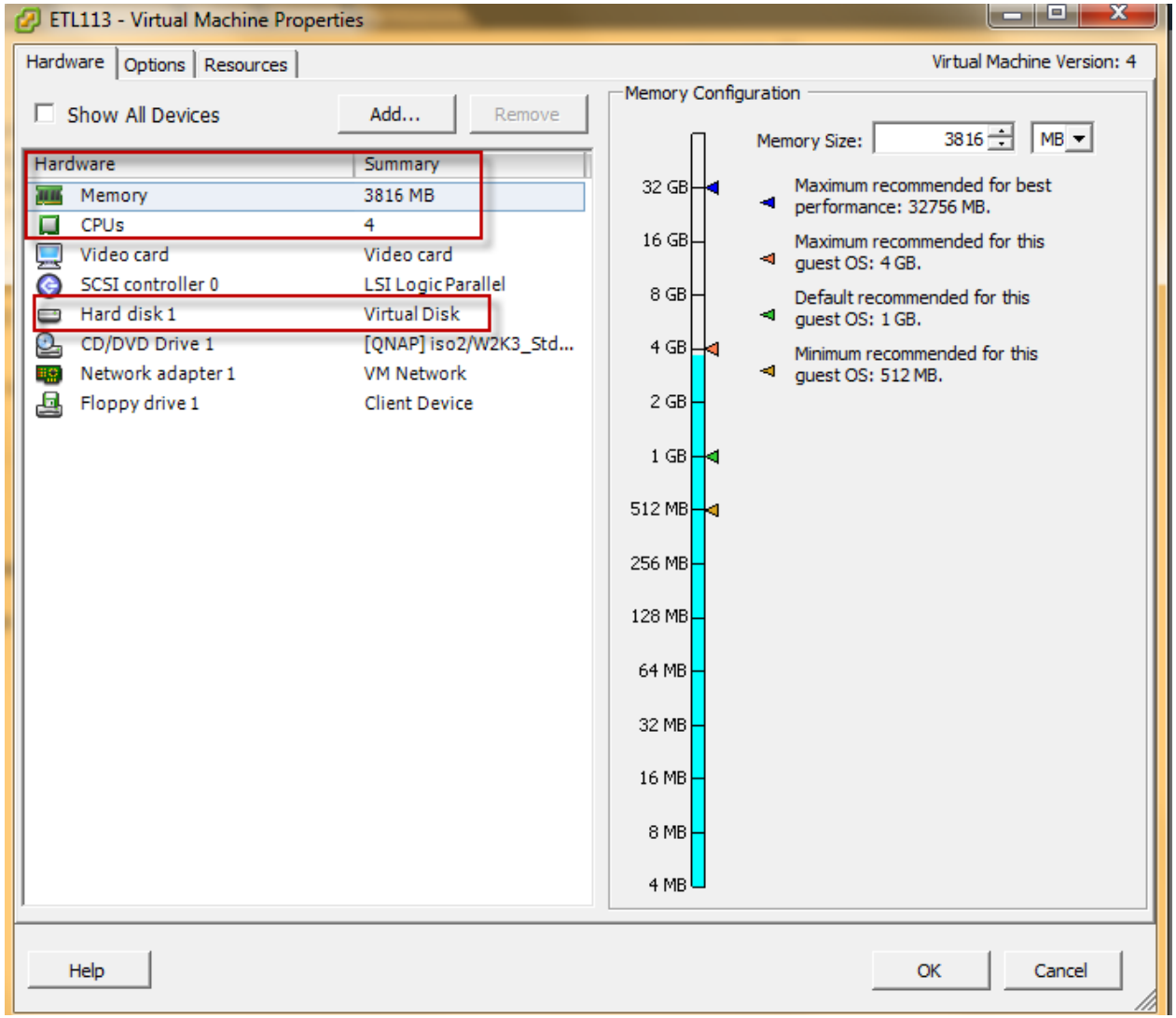


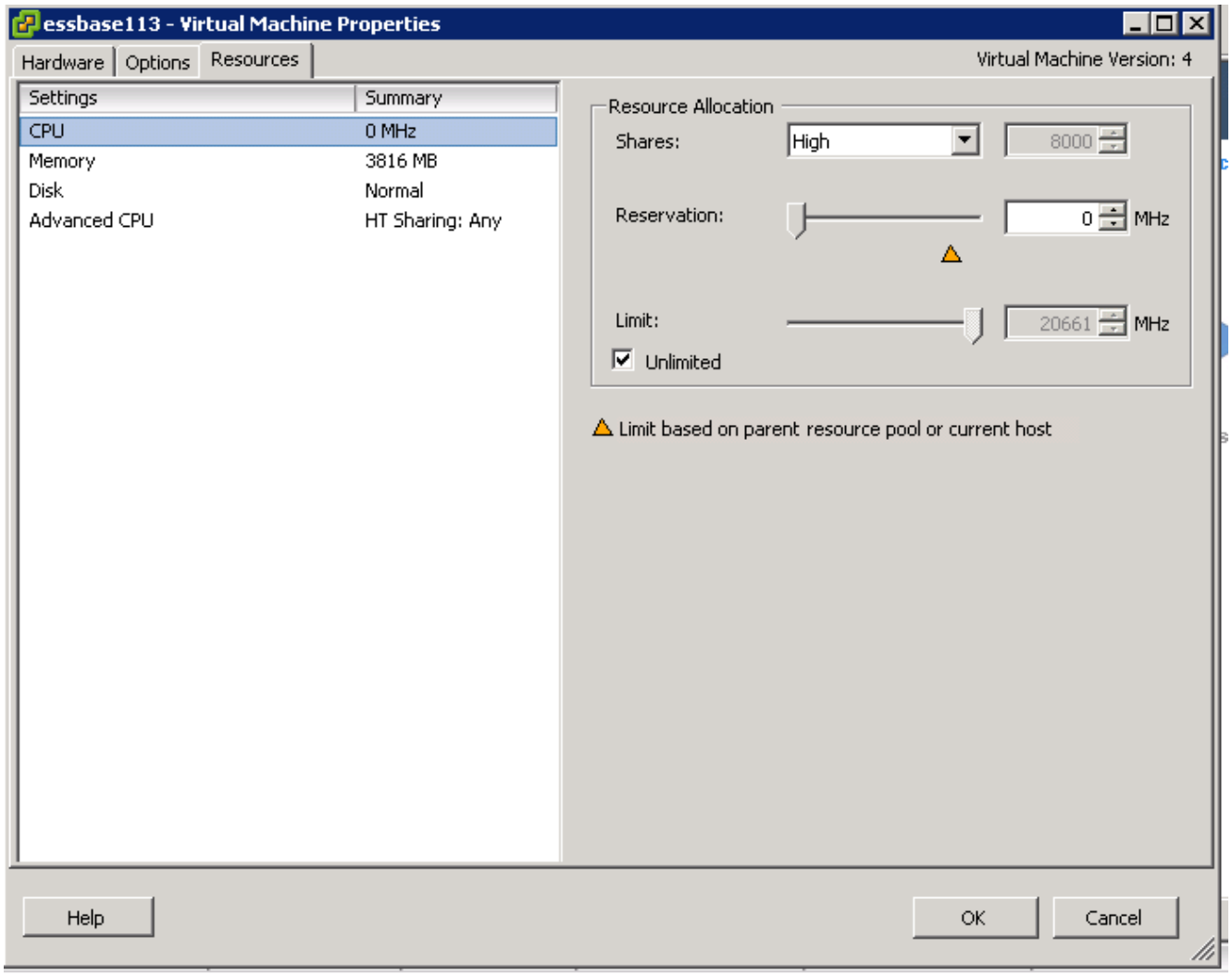
Performance Chart Legend

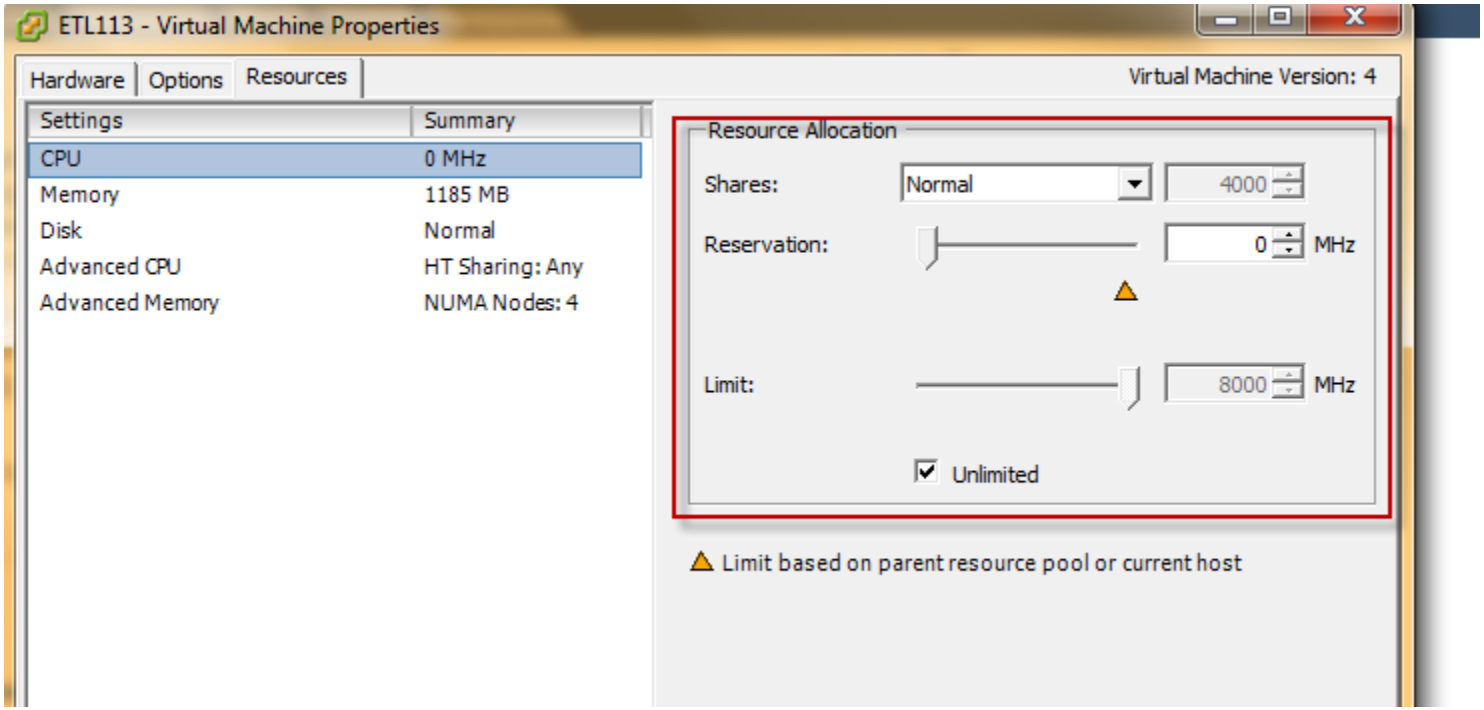
Key	Object	Measurement	Rollup	Units	Latest	Maximum	Minimum	Average
	foundation	Usage	Average	Percent	12.54	47.92	0.88	16.216
	foundation	Usage in MHz	Average	MHz	1003	3834	70	1297.239
	0	Usage in MHz	Average	MHz	372	1248	30	380.728
	1	Usage in MHz	Average	MHz	305	1151	9	305.361
	2	Usage in MHz	Average	MHz	152	1337	11	318.494
	3	Usage in MHz	Average	MHz	161	1028	8	278.25

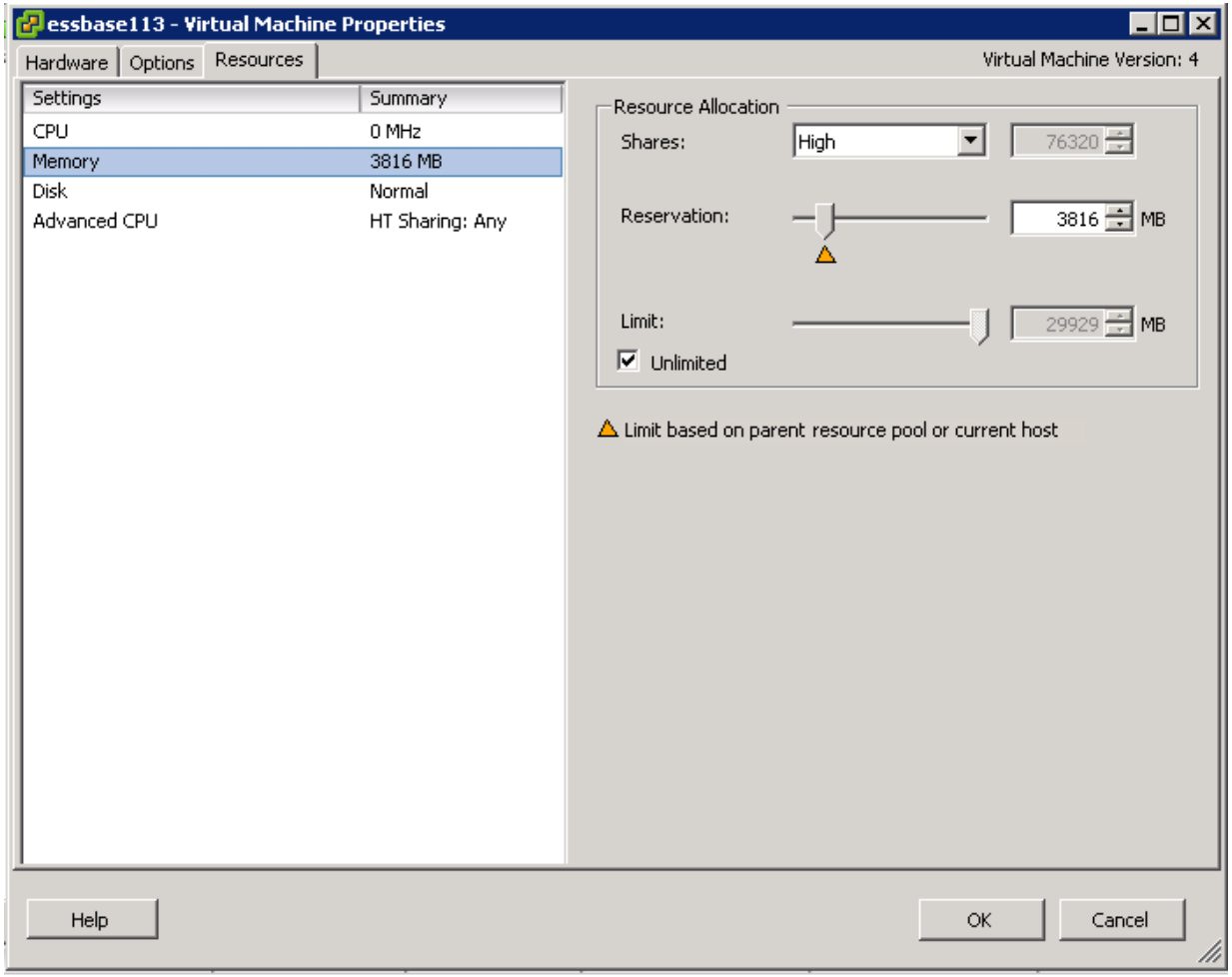

10.0.0.21
consolidations
DIMENSIONS
essbase
ETL113
FDQM
foundation
SQLDB05
TERMINAL
WinXP

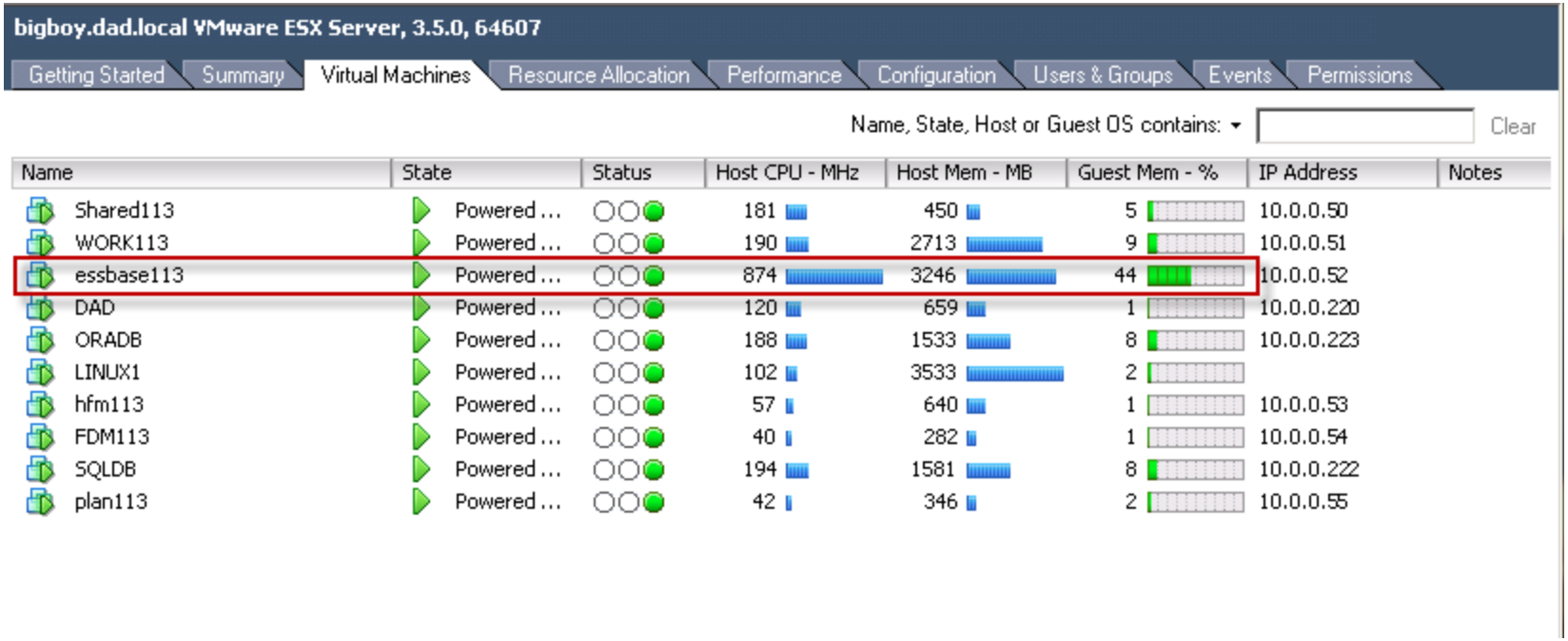

foundation
Getting Started
Summary
Resource Allocation
Performance
Events
Console
Permissions
CPU
Host CPU
0 MHz
8000 MHz
Consumed
970.00 MHz
Resource Settings
Reservation
0.00 MHz
Limit
Unlimited
Shares
Normal (4000)
Help
Edit
Memory
Host Memory
0 MB
12288 MB
Consumed
9.96 GB
Guest Memory
0 MB
12288 MB
Active
1.68 GB
Resource Settings
Reservation
0.00 MB
Limit
Unlimited
Configured
12.00 GB
Shares
High (245760)
Overhead
Reservation
488.00 MB
Help
Edit


ETL113 - Virtual Machine Properties
Hardware
Options
Resources
Virtual Machine Version: 4
Show All Devices
Add...
Remove
Hardware
Summary
Memory
3816 MB
CPUs
4
Video card
Video card
SCSI controller 0
LSI Logic Parallel
Hard disk 1
Virtual Disk
CD/DVD Drive 1
[QNAP] iso2/W2K3_Std...
Network adapter 1
VM Network
Floppy drive 1
Client Device
Memory Configuration
Memory Size:
3816
MB
32 GB
16 GB
8 GB
4 GB
2 GB
1 GB
512 MB
256 MB
128 MB
64 MB
32 MB
16 MB
8 MB
4 MB
Maximum recommended for best performance: 32756 MB.
Maximum recommended for this guest OS: 4 GB.
Default recommended for this guest OS: 1 GB.
Minimum recommended for this guest OS: 512 MB.
Help
OK
Cancel


essbase113 - Virtual Machine Properties
Hardware
Options
Resources
Virtual Machine Version: 4
Settings
Summary
CPU
0 MHz
Memory
3816 MB
Disk
Normal
Advanced CPU
HT Sharing: Any
Resource Allocation
Shares:
High
8000
Reservation:
0
MHz
Limit:
20661
MHz
Unlimited
Limit based on parent resource pool or current host
Help
OK
Cancel


ETL113 - Virtual Machine Properties
Hardware
Options
Resources
Virtual Machine Version: 4
Settings
Summary
CPU
0 MHz
Memory
1185 MB
Disk
Normal
Advanced CPU
HT Sharing: Any
Advanced Memory
NUMA Nodes: 4
Resource Allocation
Shares:
Normal
4000
Reservation:
0
MHz
Limit:
8000
MHz
Unlimited
Limit based on parent resource pool or current host


essbase113 - Virtual Machine Properties
Hardware
Options
Resources
Virtual Machine Version: 4
Settings
Summary
CPU
0 MHz
Memory
3816 MB
Disk
Normal
Advanced CPU
HT Sharing: Any
Resource Allocation
Shares:
High
76320
Reservation:
3816
MB
Limit:
29929
MB
Unlimited
Limit based on parent resource pool or current host
Help
OK
Cancel


bigboy.dad.local VMware ESX Server, 3.5.0, 64607
Getting Started
Summary
Virtual Machines
Resource Allocation
Performance
Configuration
Users & Groups
Events
Permissions
Name, State, Host or Guest OS contains:
Clear
Name
State
Status
Host CPU - MHz
Host Mem - MB
Guest Mem - %
IP Address
Notes
Shared113 Powered ... 181 450 5 10.0.0.50
WORK113 Powered ... 190 2713 9 10.0.0.51
essbase113 Powered ... 874 3246 44 10.0.0.52
DAD Powered ... 120 659 1 10.0.0.220
ORADB Powered ... 188 1533 8 10.0.0.223
LINUX1 Powered ... 102 3533 2
hfm113 Powered ... 57 640 1 10.0.0.53
FDM113 Powered ... 40 282 1 10.0.0.54
SQLDB Powered ... 194 1581 8 10.0.0.222
plan113 Powered ... 42 346 2 10.0.0.55

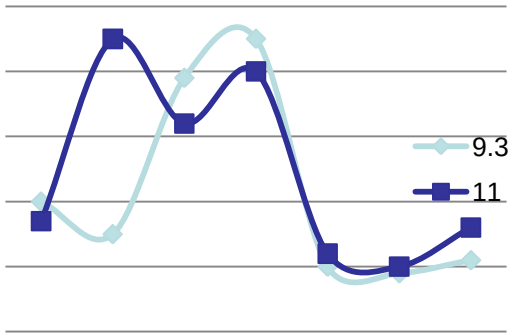
Negotiating Agility & Balance

- Virtualization can also be used too much as the “Magic Pill”
  - A single physical server can be over-allocated
  - Some staff declare they will not vary from the “default” in virtualization
  - Limitations can be put in place that make Oracle EPM under-perform significantly
- A balance is required
  - Flexible resource allocation must be agreed to
  - Changes to resources must be discussed and agreed to
  - Transparency is a must!
- Commit to virtual environments being as close to physical as possible if used for Prod
- Provide reports/reviews on a stated occurrence (monthly)
- BASELINE – and compare

Measure - Baseline

Measure your environment's performance to baseline

- Calc Scripts run time
- Reports opening
- Plans refreshing data
- Multiple User login and navigation
- Consolidation performance – time to execute



By 'baselining', you will be able to quantify the impact of virtualization, alter the virtual resource allocations, diagnose performance issues, and manage expectations

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