



S. 243



Red Hat Enterprise Linux

MRG

Red Hat Network Satellite

Red Hat Enterprise Virtualization

JBoss

Cloud



# Red Hat Enterprise Linux



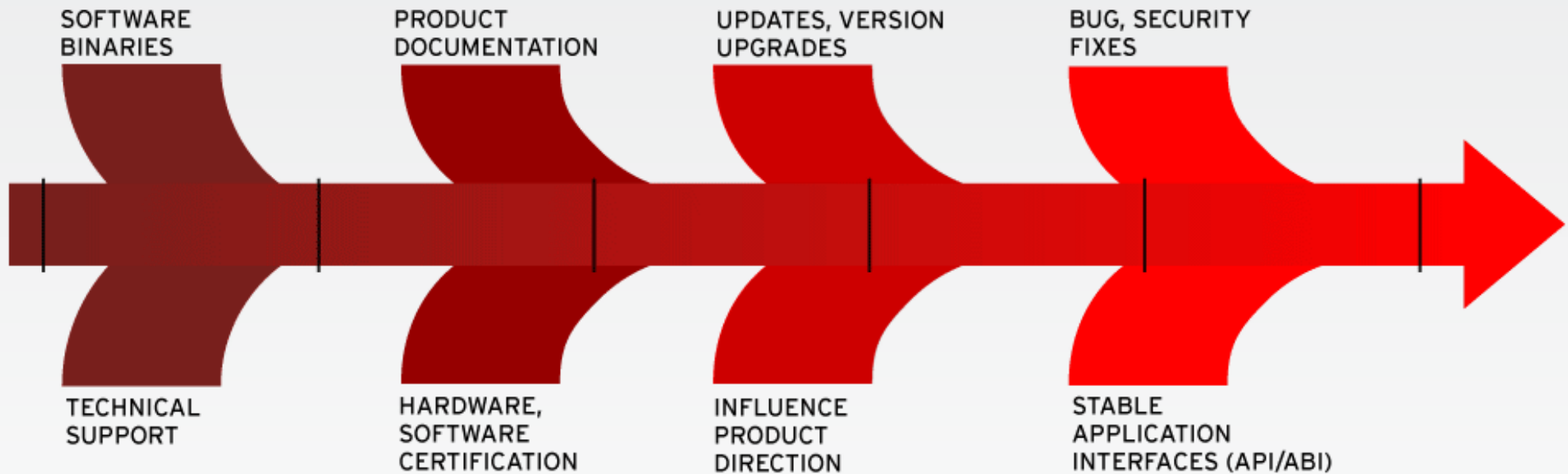
# Proven development model

Red Hat collaborates with the open source community in the Fedora and JBoss.org projects to develop technology

This provides the basis for enterprise-ready products which feed innovation back to the community projects



# VALUE OF A RED HAT SUBSCRIPTION



**PREDICTABLE COST, CONTINUOUS VALUE**



ENTER

## The NSA's security challenge

Password:



# Red Hat Enterprise Linux 6



# Facts and Figures



## Red Hat Enterprise Linux 6

Released November 10th, 2010

Represents more than 600 person years by Red Hat engineers

1,821 customer/partner requested features included

3.7 GB of content  
2,957 binary RPMs

Red Hat engineers are based in 26 countries

85% more packages than Red Hat Enterprise Linux 5

14,631 resolved issues from partner, customer & community reports

847 features & fixes verified by partner QA teams

3,900 additional kernel enhancements to 2.6.32

Kernel based on 2.6.32 with many features from .33 & .34

*Red Hat is the lead developer of kernel features*

Red Hat Enterprise Linux design allows smooth integration of future features

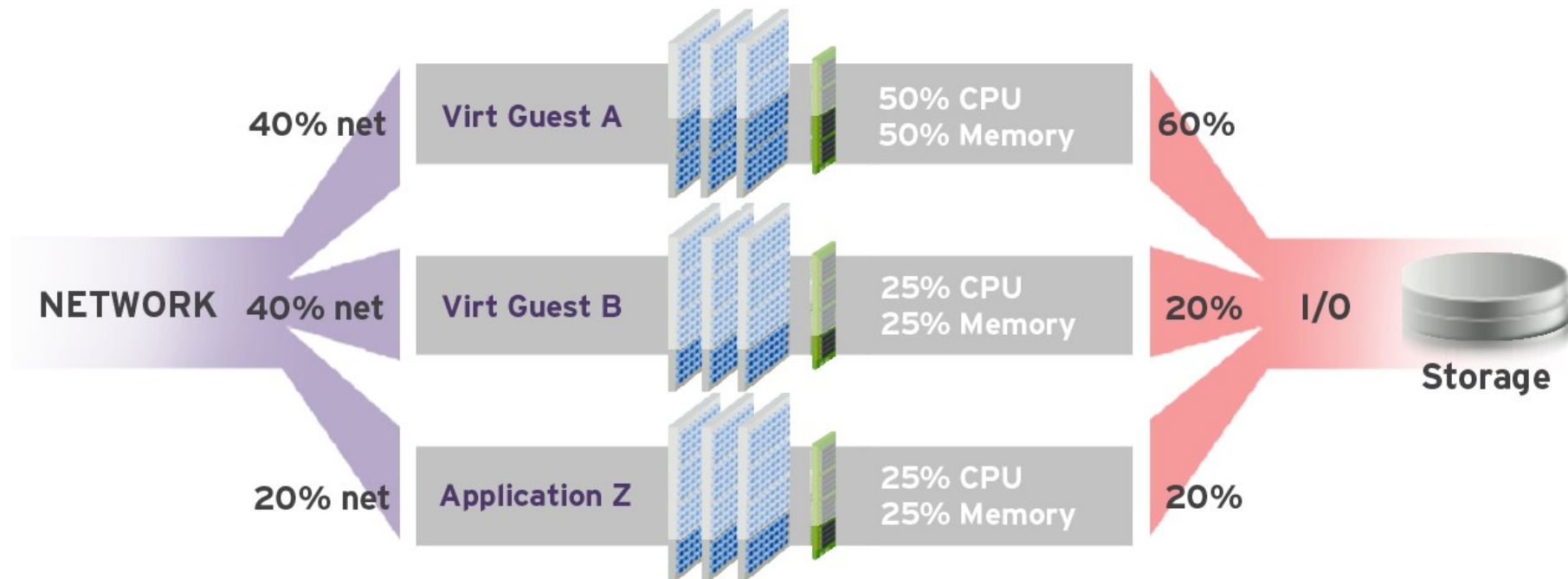




# Resource Management

Ability to manage large system resources effectively

- Control groups (cgroups) for CPU/Memory/Network/Disk
- Benefit: guarantee Quality of Service & dynamic resource allocation
- Ideal for managing any multi-application environment
  - From back ups to the Cloud










# Capabilities for new deployment models

- Extensive SELinux Policy library making security accessible
  - Sandboxing, sVirt & Kiosk mode with Live OS
- Standardize system security information with OpenSCAP
- Enhanced centralized identity control with SSSD/OpenLDAP
- XACE: secure independent MLS windows environment
- Security Standards
  - NSS: FIPS 140-2 certified cryptographic library
  - SHA256: release management tools meeting FISMA reqmnts
  - OpenSwan: RFC 5114 and Cisco VPN compliant



# Red Hat Enterprise Linux Add-ons

 <b>RED HAT® ENTERPRISE LINUX®</b> <b>+High Availability</b>	May be configured for most applications that use customizable agents, as well as for virtual guests.
 <b>RED HAT® ENTERPRISE LINUX®</b> <b>+Load Balancer</b>	Provides redundancy for web serving, databases, networking, and storage.
 <b>RED HAT® ENTERPRISE LINUX®</b> <b>+Resilient Storage</b>	Enables a shared storage or clustered file system to access the same storage device over a network.
 <b>RED HAT® ENTERPRISE LINUX®</b> <b>+Scalable File System</b>	Provides support for file systems that are more than 16 terabytes in size.
 <b>RED HAT® ENTERPRISE LINUX®</b> <b>+Smart Management</b>	Includes management, monitoring, and provisioning support modules for Red Hat Network and Red Hat Network Satellite.
 <b>RED HAT® ENTERPRISE LINUX®</b> <b>+High Performance Network</b>	Delivers remote directory memory access over converged Ethernet (RoCE) for those times when low network latency and high capacity are important.
 <b>RED HAT® ENTERPRISE LINUX®</b> <b>+Extended Update Support</b>	Extends the support period of an update for 18 months and delivers overlapping release support to give enterprise customers more flexibility.



# Red Hat Enterprise Linux MRG



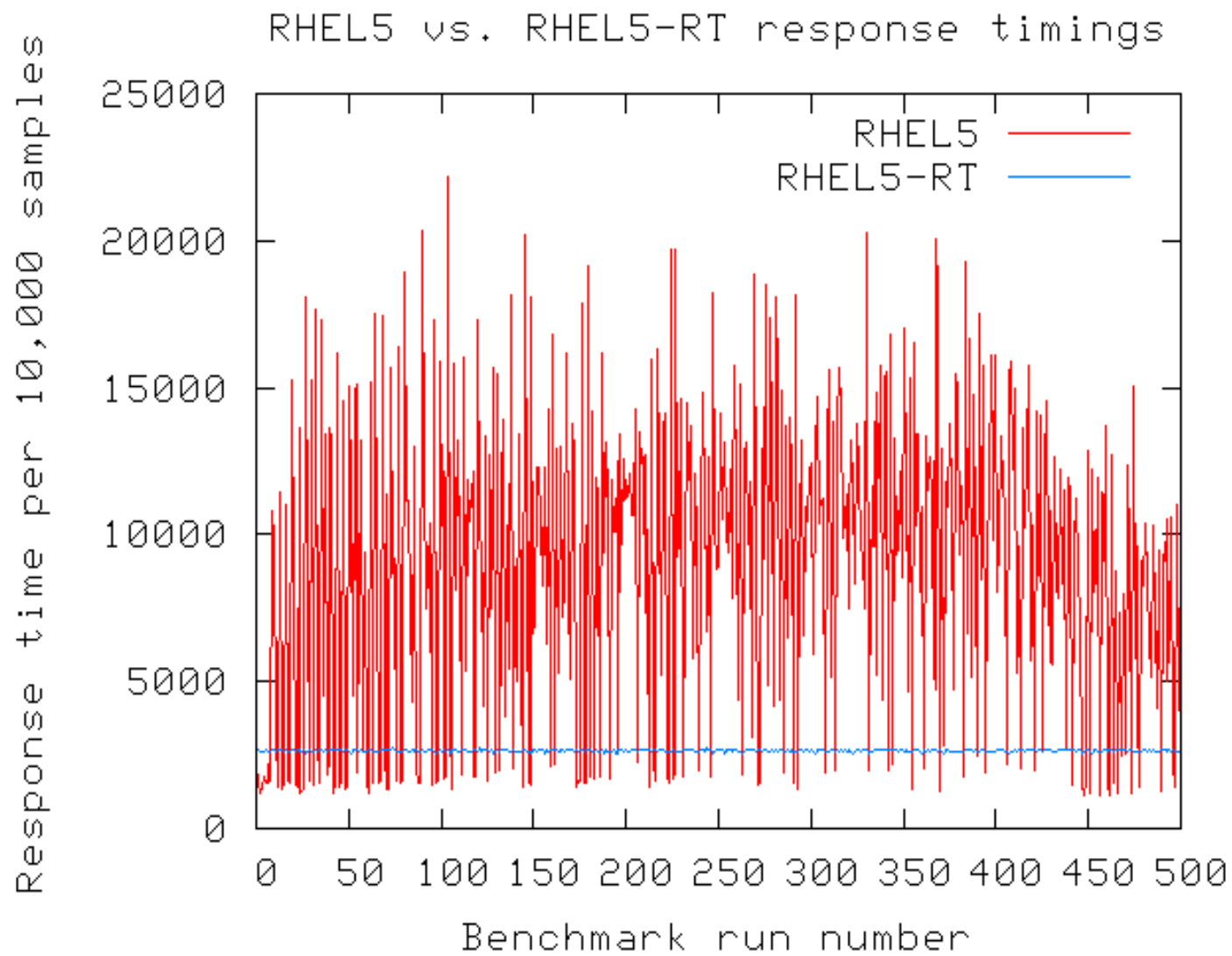


**JPMorgan's plumbing problem**



# US Navy's standardization mission





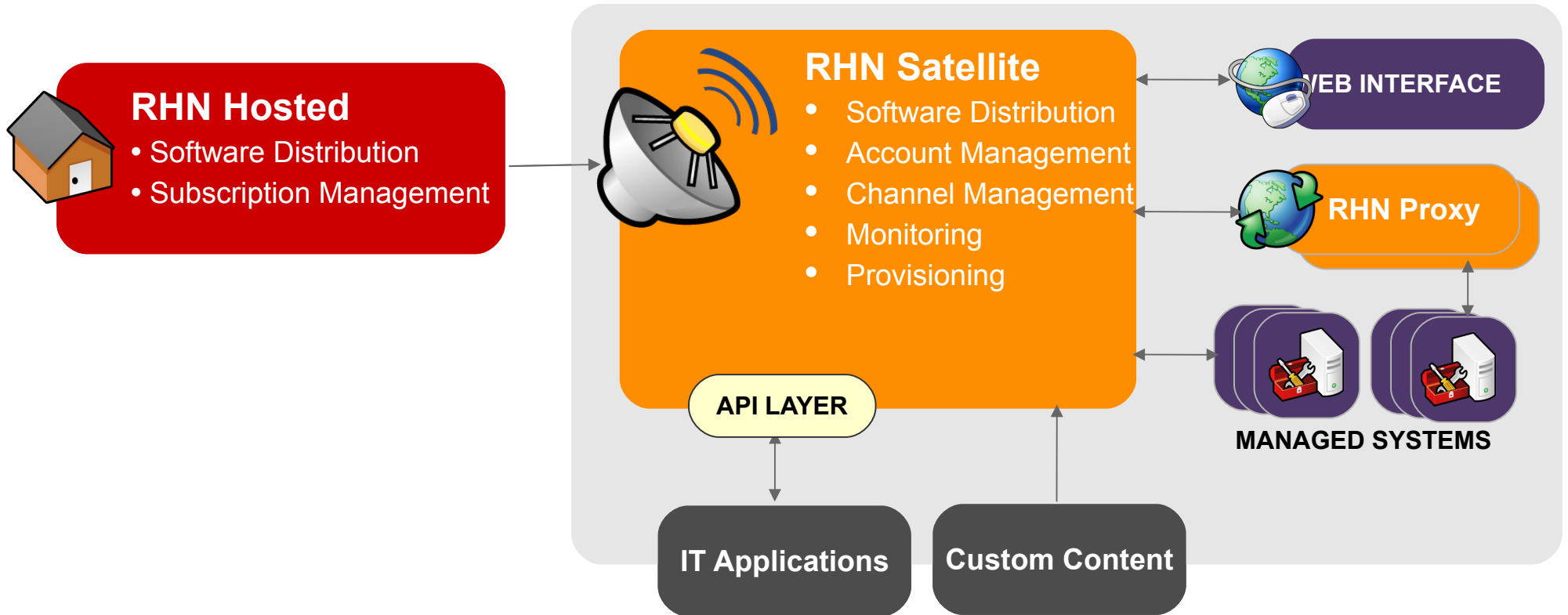




# Red Hat Network Satellite



# Satellite deployment model

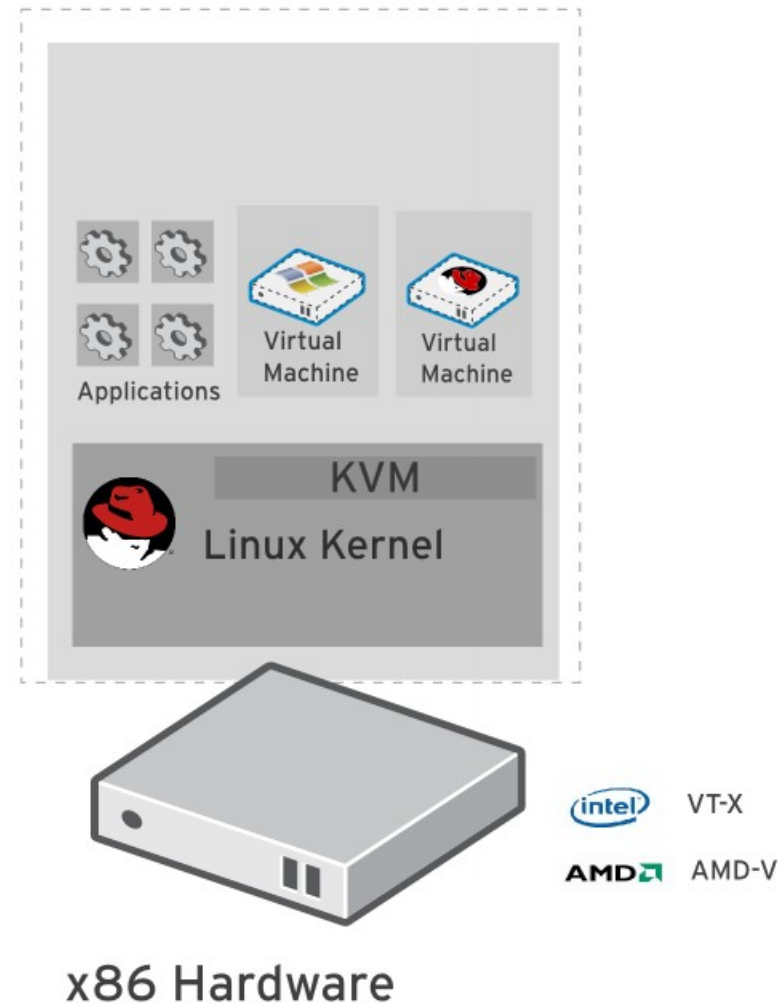


# Red Hat Enterprise Virtualization



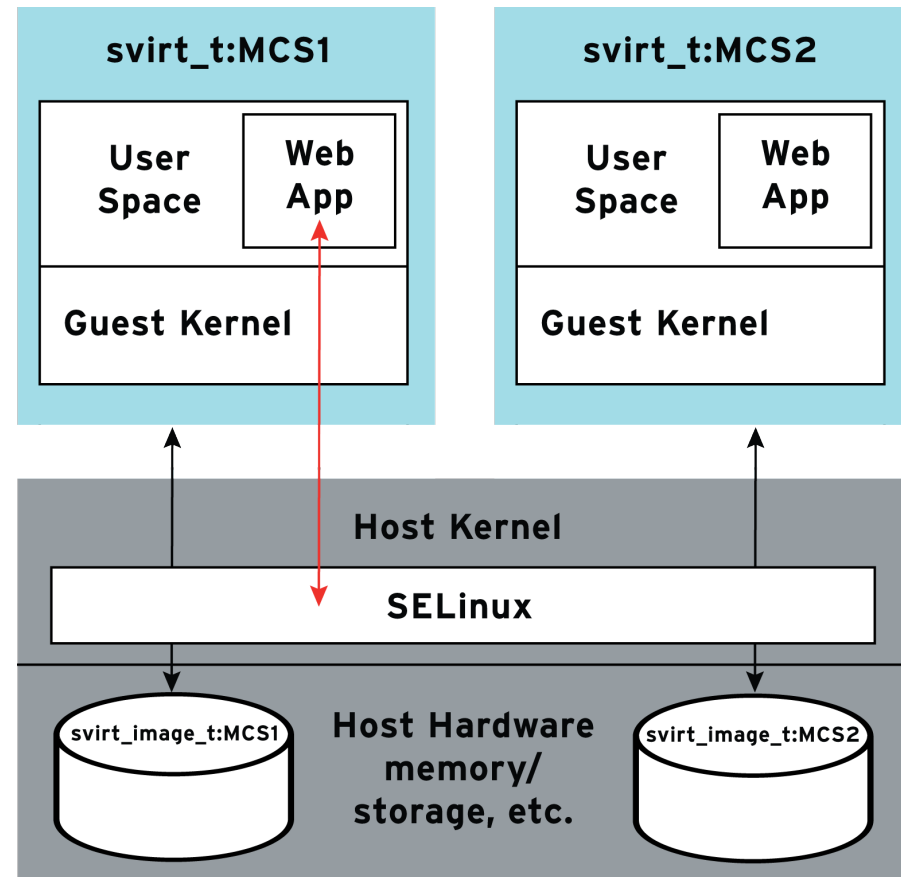
# KERNEL-BASED VIRTUAL MACHINE (KVM)

- Included in Linux kernel since 2006
- Runs Linux, Windows and other operating system guests
- Advanced features
  - Live migration
  - Memory page sharing
  - Thin provisioning
  - PCI Pass-through
- KVM architecture provides high “feature-velocity” – leverages the power of Linux



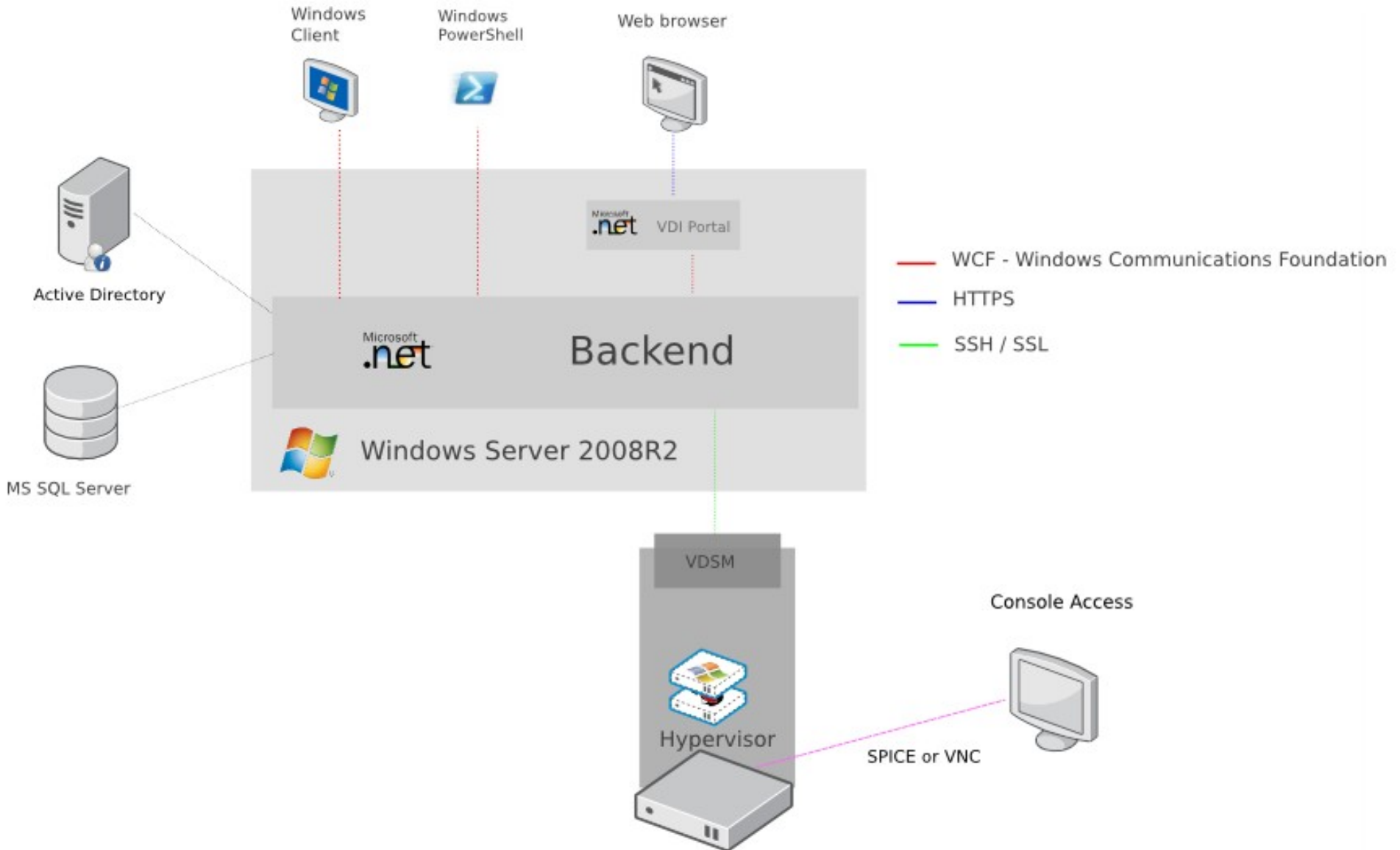
# SELinux: From Applications to Guests

- *Applying security labels to individual guest virtual machines and their resources*
  - Guest Isolation achieved with SELinux Mandatory Access Controls (MAC)
    - Protect against untrusted Guest VM
    - Protect against Host misconfiguration
    - Prevents unauthorized access of guests/hypervisor
  - Builds on existing, proven security mechanisms & controls



# RED HAT ENTERPRISE VIRTUALIZATION

## RHEV 2.2 ARCHITECTURE



# RED HAT ENTERPRISE VIRTUALIZATION MANAGEMENT FEATURES

Feature	Description
High Availability	Restart guest VMs from failed hosts automatically on other hosts
Live Migration	Move running VM between hosts with zero downtime
System Scheduler	Continuously load balance VMs based on resource usage/policies
Power Saver	Concentrate virtual machines on fewer servers during off-peak hours
Maintenance Manager	No downtime for virtual machines during planned maintenance windows
Image Management	Template based provisioning, thin provisioning and snapshots
Monitoring and Reporting	For all objects in system – VM guests, hosts, networking, storage etc.



# RED HAT ENTERPRISE VIRTUALIZATION

## DESKTOP MANAGEMENT

Feature	Description
Connection Broker	Users log into connection broker and connect to their desktop
SPICE - HD	HD quality streaming video support 30+fps
SPICE - audio/video	Bi-directional audio/video for VoIP/video-conferencing
SPICE – USB	USB 2.0 devices + guest connectivity policy
SPICE - multi-monitor	Supports 4 monitors
Desktop pools	Automatic, manual and time-lease pools
Security	Leverages SE-Linux to isolate virtual deskops
Guest support	Windows XP, Windows 7, RHEL 5
Thin client support	Any Windows XP/XPe, RHEL 5/6, HP, Devon, IGEL, 10zig, Wyse

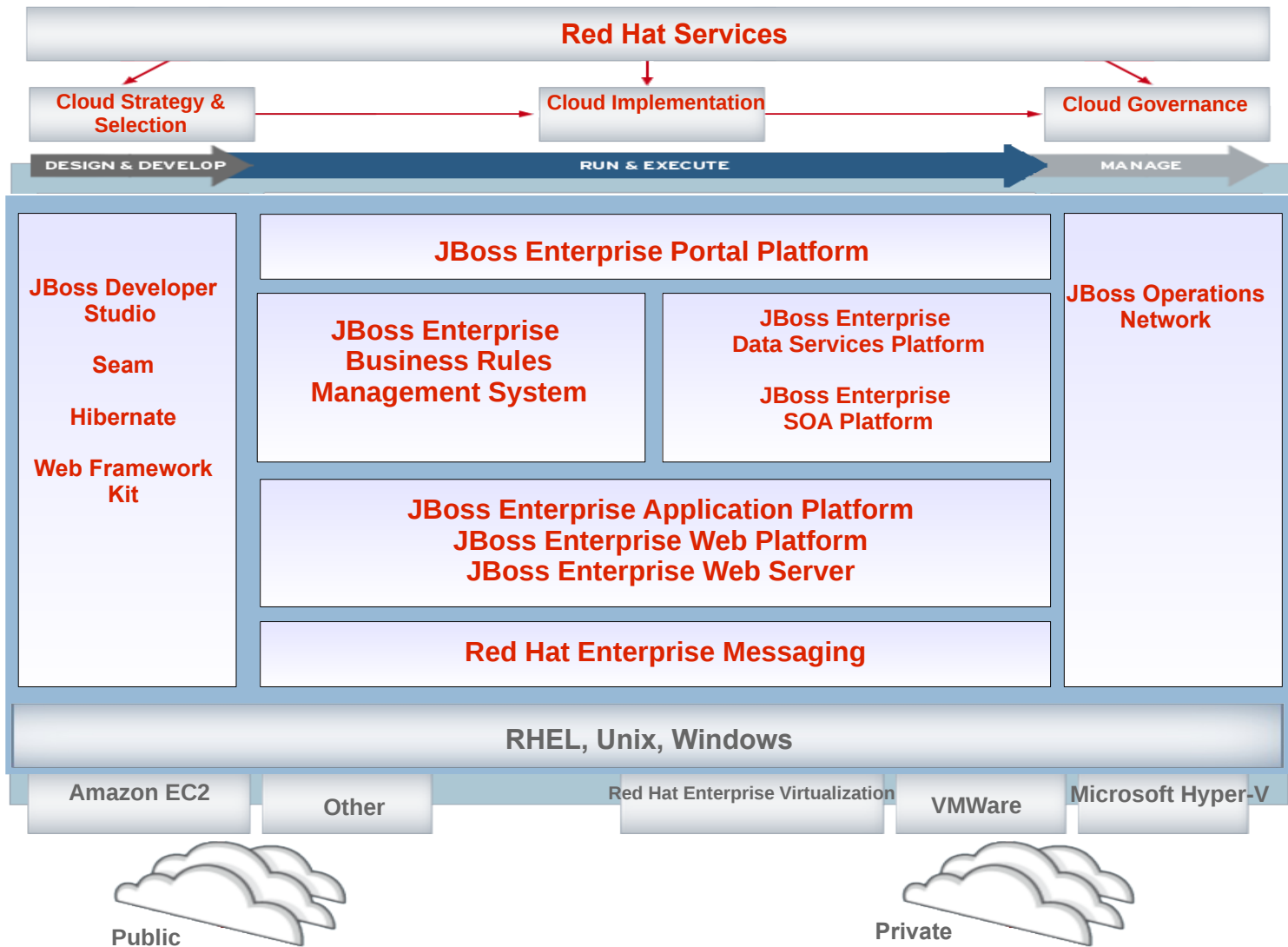




# JBoss



# JBoss Enterprise Middleware Portfolio



# Red Hat Cloud



# So what's a cloud, now?

NIST says a cloud must allow users to **serve themselves**. They should be able to do this from **anywhere**. Users **don't care where** resources come from, and those resources can be **allocated according to demand**. All of this is **measured** and monitored.

<http://csrc.nist.gov/groups/SNS/cloud-computing/index.html>



Yes, it's hard to do this right

Most shops are very, very far away.

There is a lack of standards.

Lock-in is everywhere.



# So what's the plan?

Identify tools, not products.

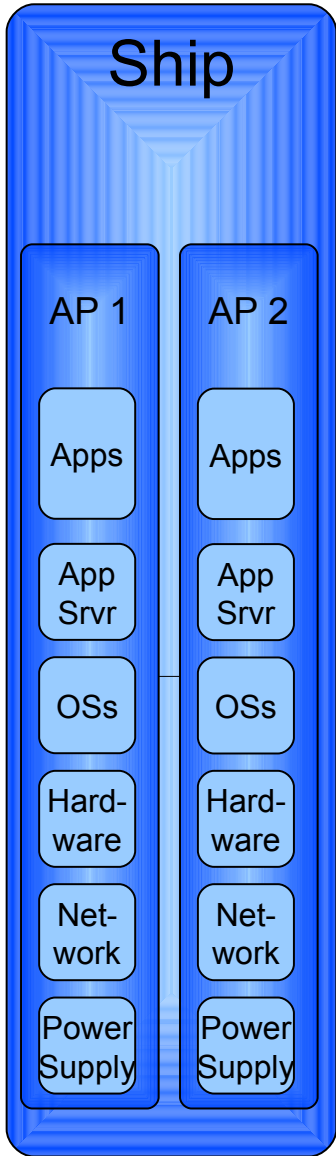
Interoperability

Flexibility in Licensing



# Cloud: US Navy

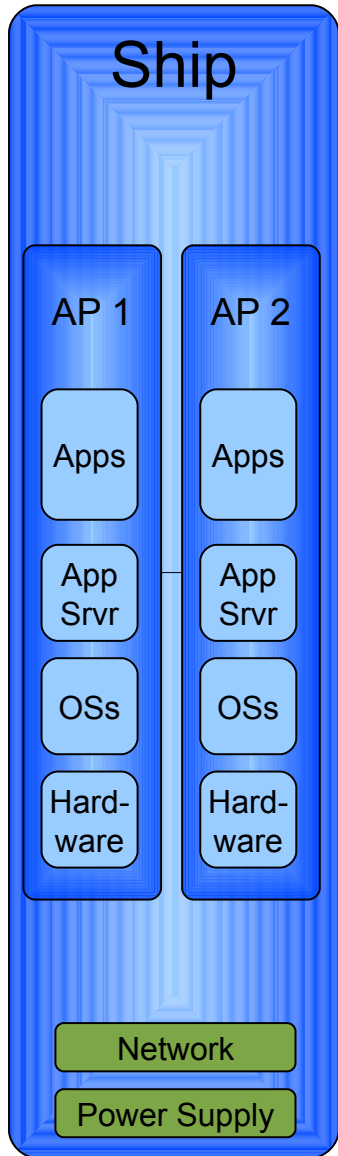
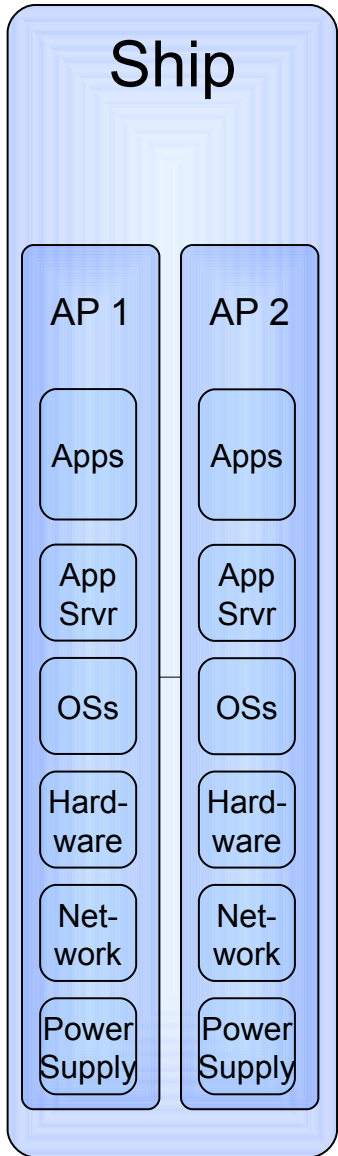






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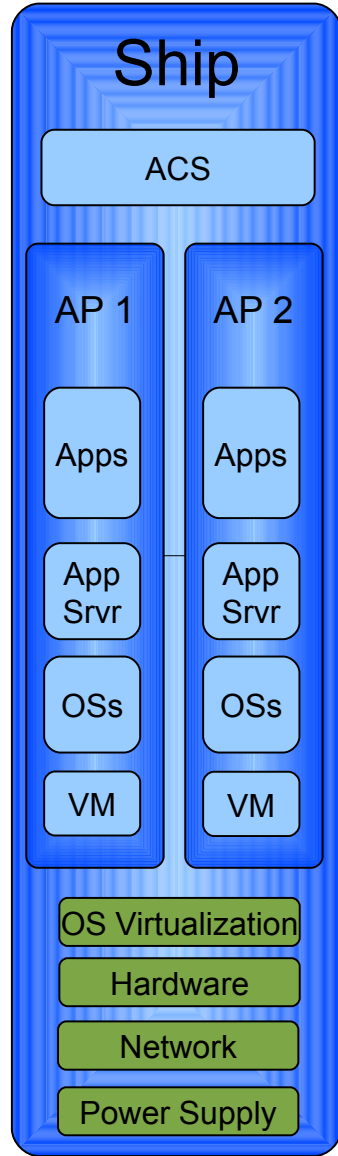
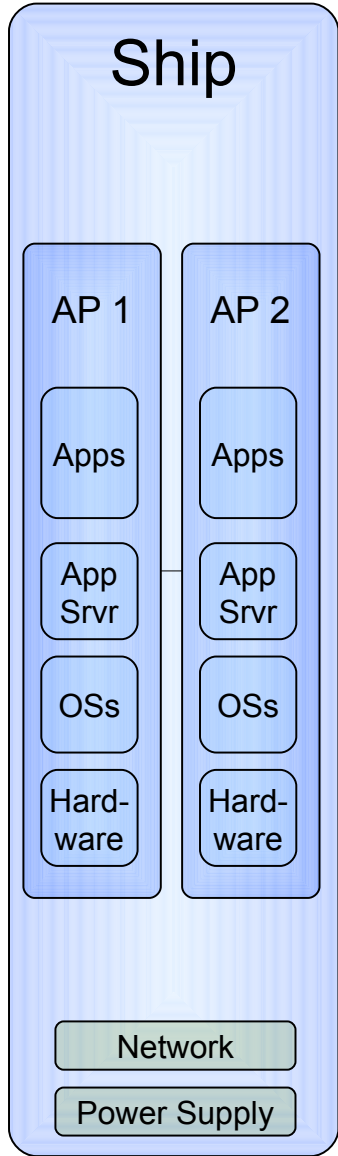
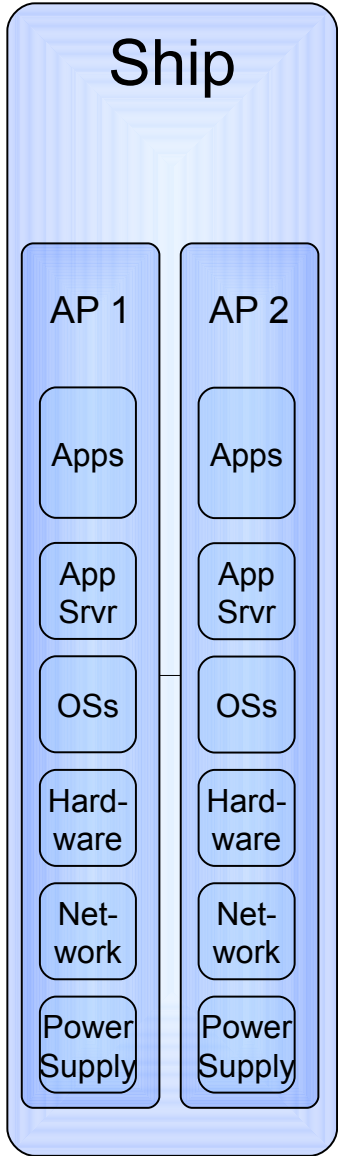
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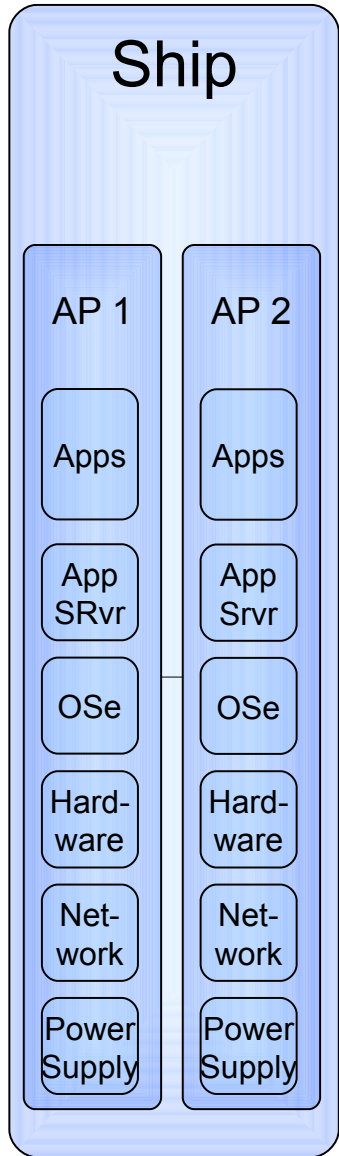
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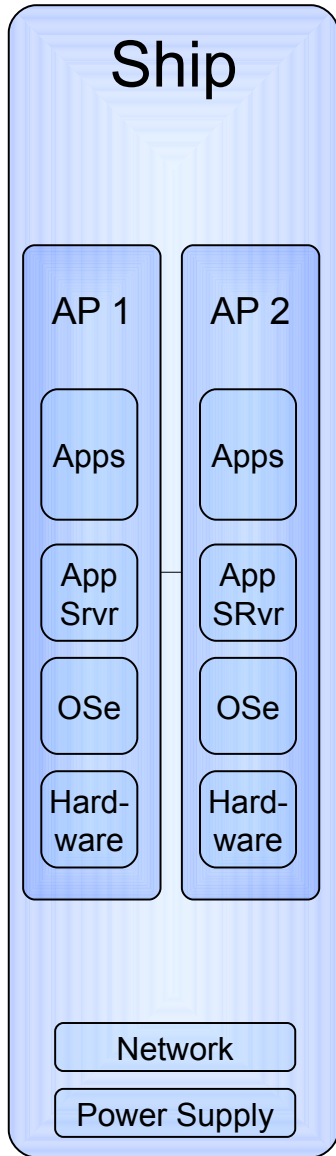
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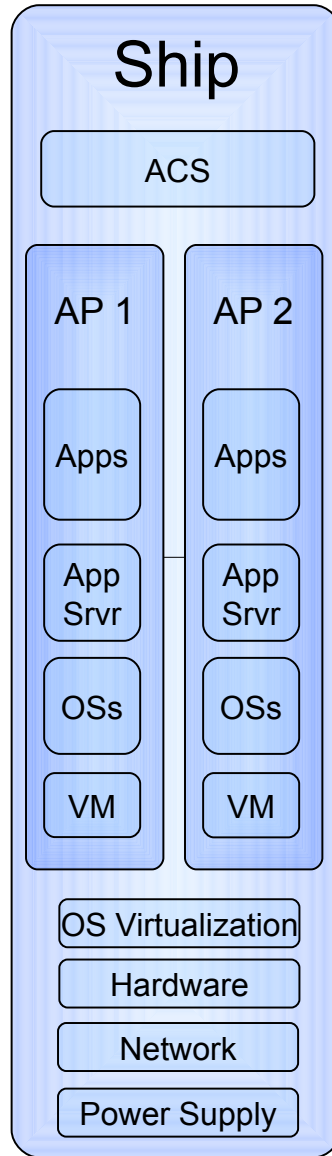
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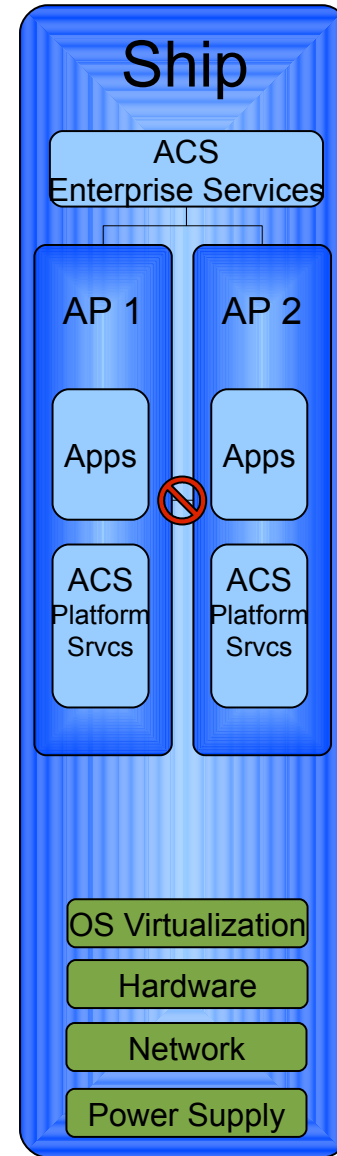
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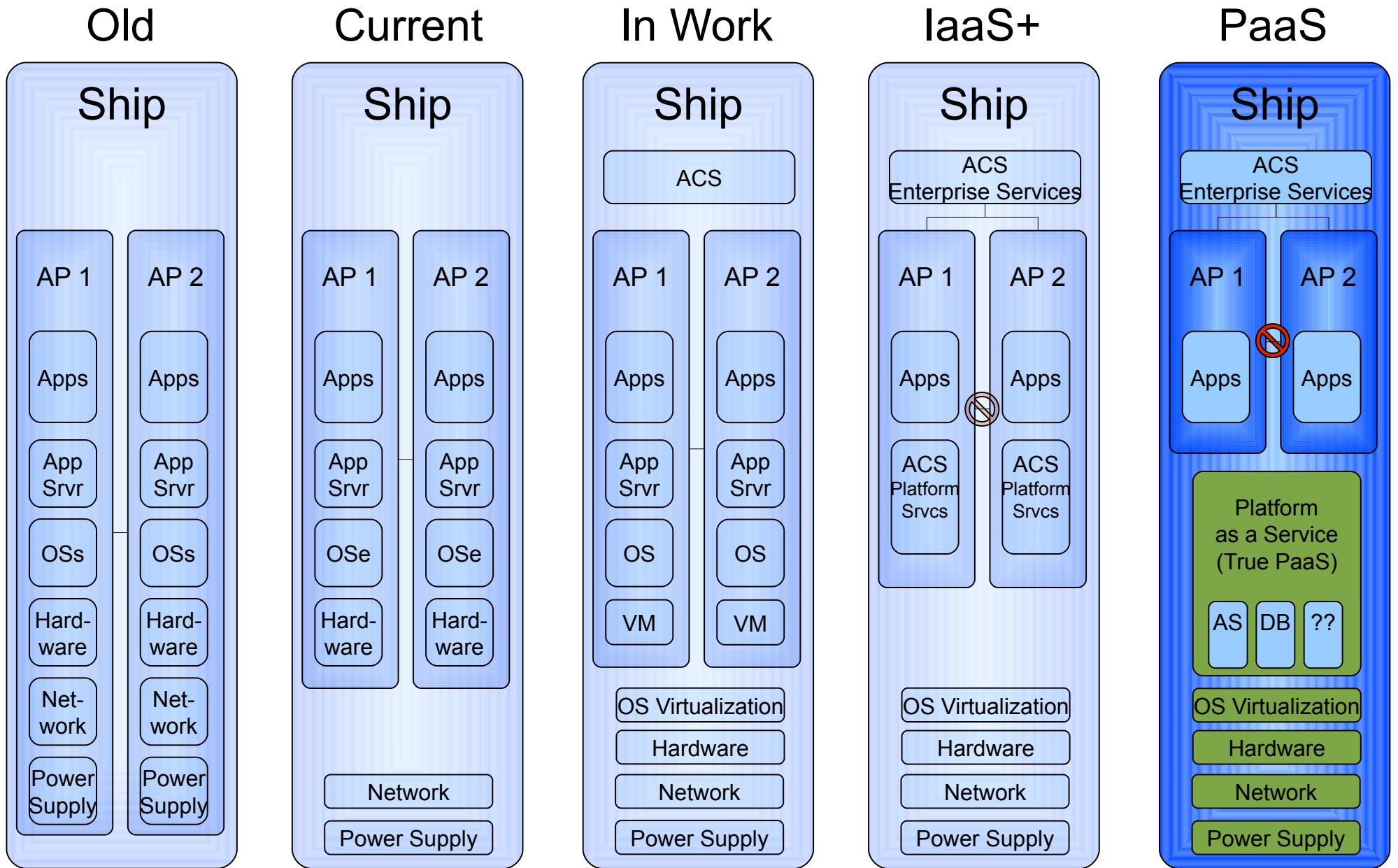


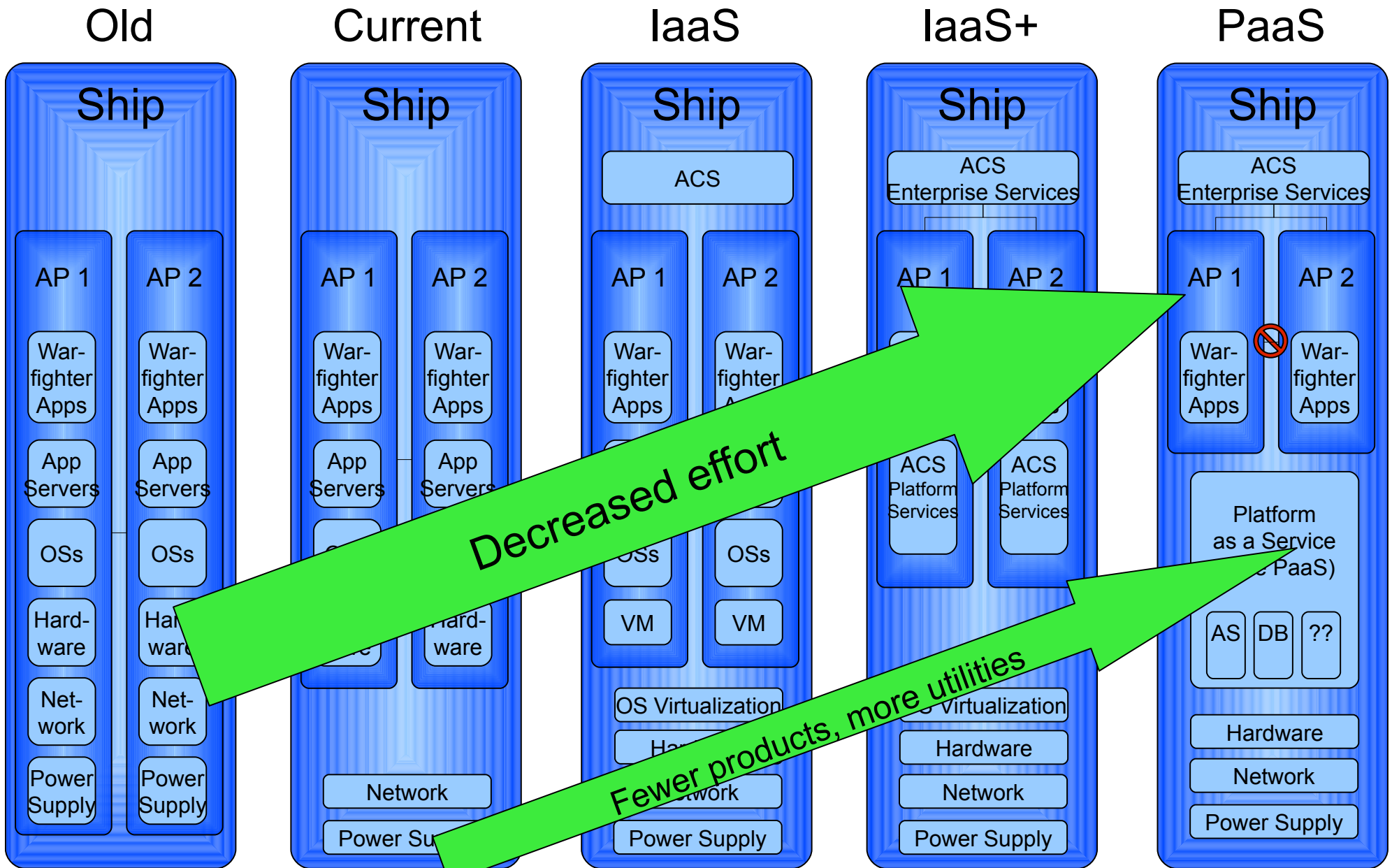
# IaaS



# IaaS+









**THANK YOU!**

# MRG Messaging

- Enterprise-leading messaging system that spans fast messaging, reliable messaging, large-file messaging in one implementation
- Uses **Linux-specific optimization** to achieve optimal performance on Red Hat Enterprise Linux and MRG Realtime
  - Provides messaging that is up to 100-fold faster than before
  - Takes advantage of RHEL clustering, IO, kernel, and more
  - Includes new high-performance AIO Journal for durable messaging
  - Provides native infiniband support for transient messaging
- Implements **AMQP**, the industry's first open messaging standard, for unprecedented interoperability that is cross-language, cross-platform, multi-vendor, spans hardware and software, and extends down to the wire level



# MRG Realtime

- Enables applications and transactions to run predictably, with guaranteed response times
  - Provides microsecond accuracy
- Provides competitive advantage & meets SLA's
  - Travel web site: missed booking
  - Program trading: missed trades
  - Command & Control: life & death
- Provides replacement kernel for RHEL 5.1+; x86/x86\_64
- Preserves RHEL Application Compatibility
- Red Hat Leads Upstream Linux Realtime Development

