

Meeting Date: December 10th 2007

Agenda Item: Approval to Purchase Servers from the Hewlett-Packard Company (Oak Park, CA), to Consolidate Servers and Support Implementation of the Information Technology Department's Green IT Initiative in the City's Data Center.

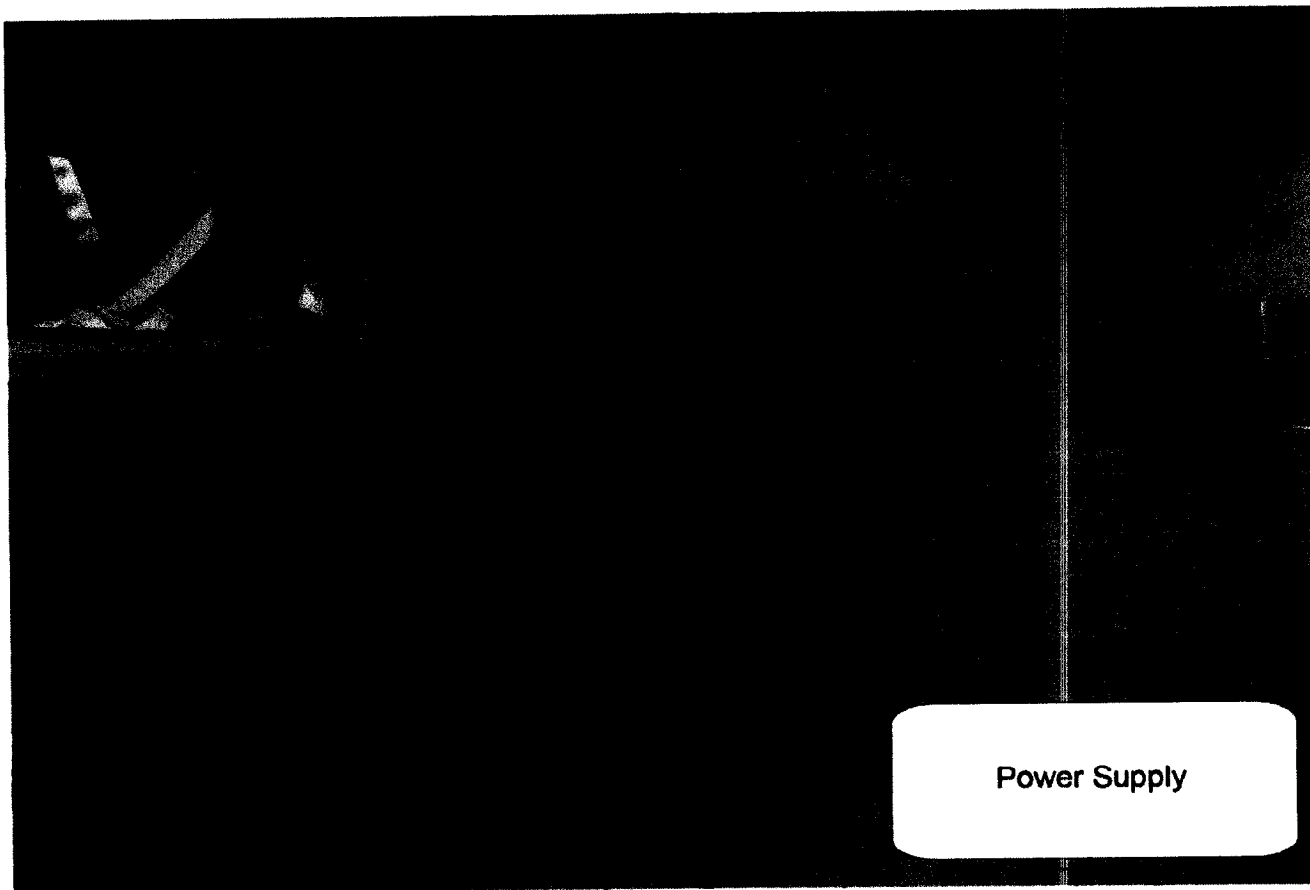
Attachments:

1. Data Center Servers
2. Data Center Photos
3. US Congress PL 109-431
4. Virtualization Diagram
5. HP Server Quote
6. Dell Server Quote
7. IBM Server Quote
8. EPA Report
9. Green Information Technology Initiative

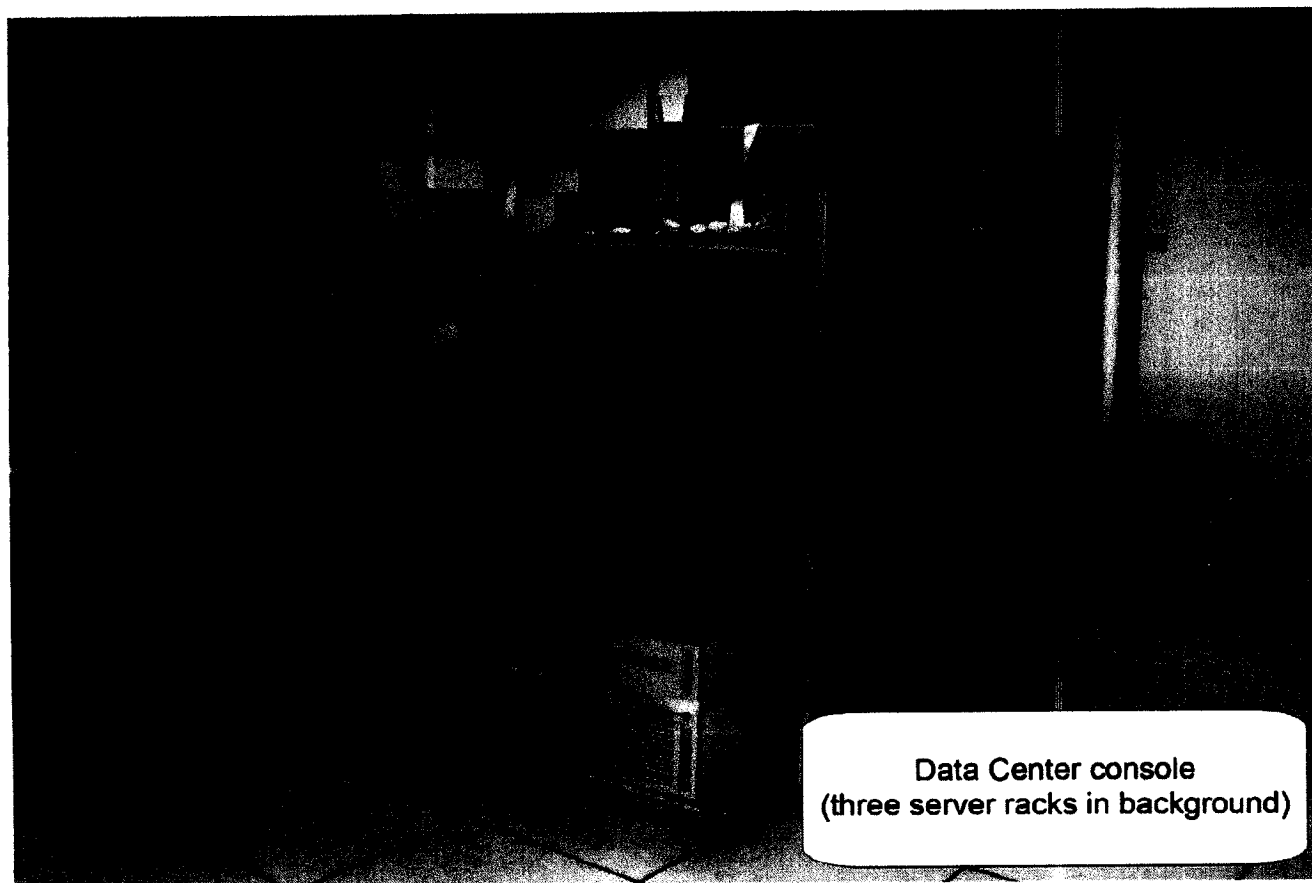
Attachment # 1

Data Center Servers		
Server Type	Function	End of Life or Out of Warranty Date
Dell - Small	Antivirus	OOW 12/1/08
Dell - Medium	None	OOW 2/23/09
Small; Clone PC - OOW	Council video streaming	OOW
Dell - Medium	Internet server	EOL 10/24/06
Dell - Small	GIS	OOW 9/5/09
Dell - Medium	GIS Storage server	OOW 11/1/07
Dell - Small	Backup software and card host	OOW 5/13/08
Small; Clone PC - OOW		OOW
Dell - Small	Crystal Reports server	OOW 7/24/09
Small; Clone PC - OOW	Call Accounting	OOW
Small; Clone PC - OOW		OOW
Dell - Medium	Council of Governments web	OOW 12/9/09
Dell - Medium	Digital photo management	OOW 4/24/08
Small; Clone PC - OOW	Encode council web stream	OOW
Dell - Small	Timekeeping	?
Dell - Small	Lancet, Firehouse	OOW
Dell - Small	Telestaff	OOW
Dell - Medium	GIS	OOW 6/14/08
Dell - Medium	New GIS server (rep Gaea)	OOW 3/18/10
Small; Clone PC - OOW	Backup print server	OOW
Dell - Small	Hirsch Controller	EOL 3/29/07
Appliance	Spam filtering/secure transmit	NA
Dell - Small	Heartstart	EOL 3/10/07
Dell - Medium	Small Application SQL Server	EOL 6/6/07
Dell - Medium	Install point for SMS	OOW
Small; Clone PC - OOW	LTO 1 library controller	OOW
Small; Clone PC - OOW	None	OOW
Dell - Small	Project Server	OOW 9/13/08
Large - HP	JDE Deployment server	OOW 3/1/08
Dell - Medium	Small Application Server	EOL 5/6/07
Dell - Medium	E-Mail	OOW 10/22/08
Dell - Medium	Intranet	OOW
Dell - Medium	Intranet	OOW 2/6/10
Dell - Medium	Intranet	OOW 4/11/08
Small; Clone PC - OOW	Help Desk software	OOW
Dell - Medium	V: drive host, IT Backup host	OOW 12/10/08
Dell - Small	DNS name server	OOW
Dell - Small	DNS name server	OOW
Dell - Medium	SMS Server	OOW
Large - Dell	JDE DR Application Server	OOW 7/4/09
Small; Clone PC - OOW	Print Server	OOW
Small; Clone PC - OOW	Backup Domain Server	OOW
Dell - Small	Fleet handheld application	OOW
Dell - Small	MS Help Desk Beta server	OOW 7/4/09
Dell - Medium	Engineering Server	OOW 1/14/08
Dell - Medium	Web Page server	?
Small; Clone PC - OOW	Web Page Testing	OOW
Small; Clone PC - OOW	Web Sense server	OOW

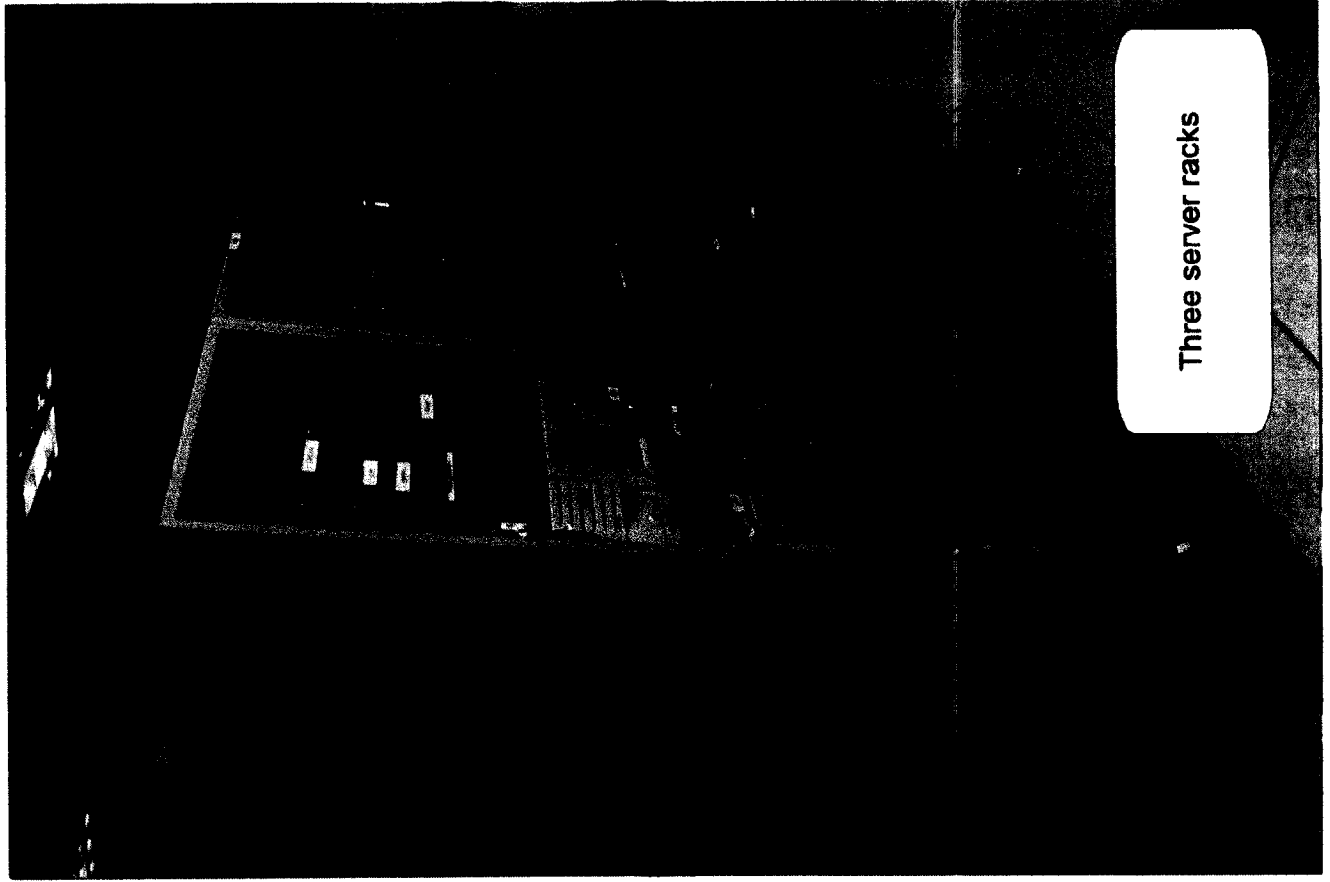
Data Center Servers		
Server Type	Function	End of Life or Out of Warranty Date
Small; Clone PC - OOW	Streaming server - Internal	OOW
Dell - Medium	Streaming server - External	EOL 3/29/07
Small; Clone PC - OOW	Streaming - Anissa	OOW
Dell - Small	Domain Controller	EOL 6/22/06
Dell - Small	FMLA (Personnel)	OOW 8/19/08
Medium; HP	Document Management	
Medium	Transportation SMS	
Dell - Small	Telestaff/Webstaff	OOW 3/30/09
Large HP; EOL Recycled	Backup JDE Server	OOW
Small; Clone PC - OOW	Video Camera server	OOW
Dell - Small	Domain Controller	EOL 6/22/06
Dell - Small	ISA Internet server	OOW
Small; Clone PC - OOW	Town Plaza	OOW
Small; Clone PC - OOW	Town Plaza	OOW
Dell - Medium	FA Suite Server	OOW
Small; Clone PC - OOW	Goodlink Software host	OOW
Large - HP	JDE Application Server	OOW 3/1/08
Dell - Small	Website blocking	
Dell - Medium	E-Mail front end	EOL 2/26/06
Medium; HP	GIS Proofing/JDE Backup	
Dell - Medium	New Web Server	OOW 10/9/08



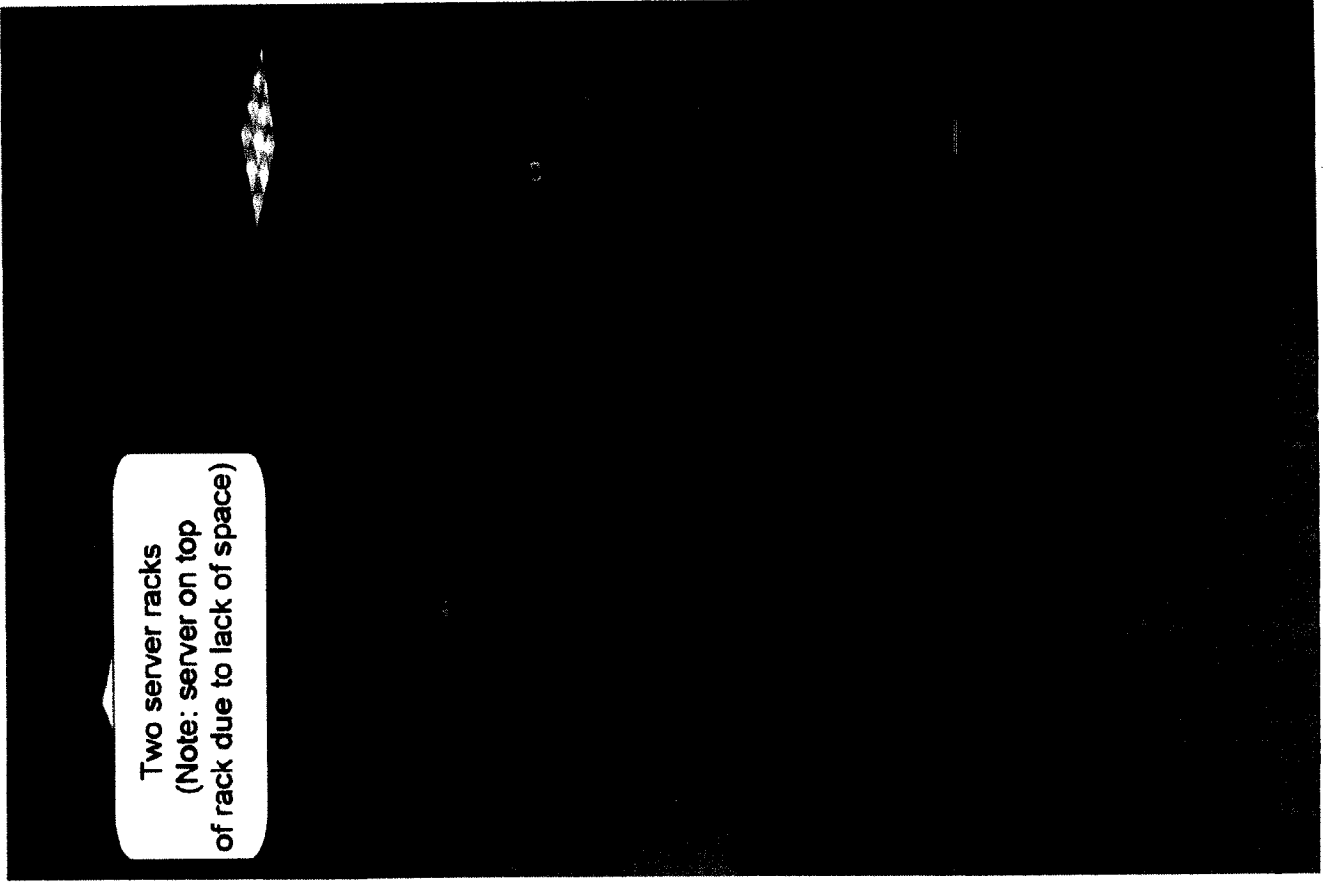
Power Supply



Data Center console
(three server racks in background)



Three server racks



Two server racks
(Note: server on top
of rack due to lack of space)

120 STAT. 2920

PUBLIC LAW 109-431—DEC. 20, 2006

Public Law 109-431
109th Congress

An Act

Dec. 20, 2006
[H.R. 5646]

To study and promote the use of energy efficient computer servers in the United States.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. STUDY.

Deadline.

Not later than 180 days after the date of enactment of this Act, the Administrator of the Environmental Protection Agency, through the Energy Star program, shall transmit to the Congress the results of a study analyzing the rapid growth and energy consumption of computer data centers by the Federal Government and private enterprise. The study shall include—

(1) an overview of the growth trends associated with data centers and the utilization of servers in the Federal Government and private sector;

(2) analysis of the industry migration to the use of energy efficient microchips and servers designed to provide energy efficient computing and reduce the costs associated with constructing, operating, and maintaining large and medium scale data centers;

(3) analysis of the potential cost savings to the Federal Government, large institutional data center operators, private enterprise, and consumers available through the adoption of energy efficient data centers and servers;

(4) analysis of the potential cost savings and benefits to the energy supply chain through the adoption of energy efficient data centers and servers, including reduced demand, enhanced capacity, and reduced strain on existing grid infrastructure, and consideration of secondary benefits, including potential impact of related advantages associated with substantial domestic energy savings;

(5) analysis of the potential impacts of energy efficiency on product performance, including computing functionality, reliability, speed, and features, and overall cost;

(6) analysis of the potential cost savings and benefits to the energy supply chain through the use of stationary fuel cells for backup power and distributed generation;

(7) an overview of current government incentives offered for energy efficient products and services and consideration of similar incentives to encourage the adoption of energy efficient data centers and servers;

(8) recommendations regarding potential incentives and voluntary programs that could be used to advance the adoption of energy efficient data centers and computing; and

(9) a meaningful opportunity for interested stakeholders, including affected industry stakeholders and energy efficiency advocates, to provide comments, data, and other information on the scope, contents, and conclusions of the study.

SEC. 2. SENSE OF CONGRESS.

It is the sense of Congress that it is in the best interest of the United States for purchasers of computer servers to give high priority to energy efficiency as a factor in determining best value and performance for purchases of computer servers.

Approved December 20, 2006.

LEGISLATIVE HISTORY—H.R. 5646:

HOUSE REPORTS: No. 109-538 (Comm. on Energy and Commerce).

CONGRESSIONAL RECORD, Vol. 152 (2006):

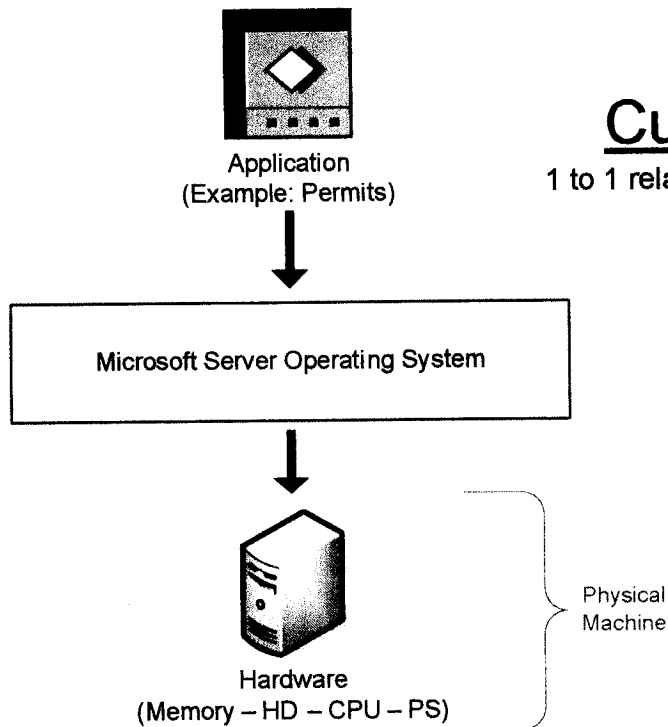
July 11, 12, considered and passed House.

Dec. 7, considered and passed Senate.



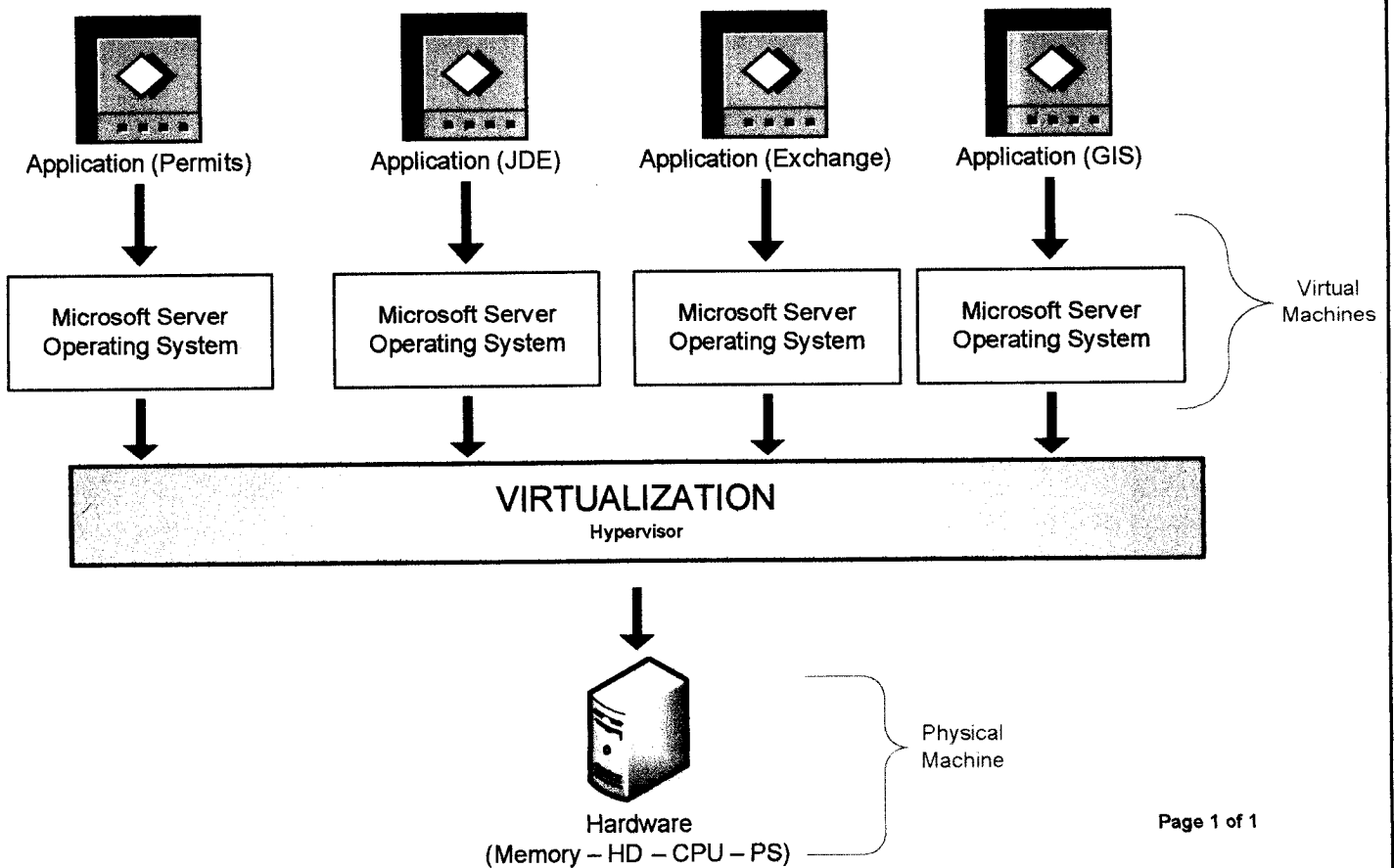
Current Server

1 to 1 relationship application to server



Virtualized Server

4 to 1 relationship applications to server



**PRICE QUOTATION**

Page 1 of 1

Quote Number: 1477806-2

November 28, 2007

Provided by: Roger Archuleta

David Leuck
CITY OF CULVER CITY

Contract: WESTERN STATES CONTRACTING ALLIANCE (A63309)

Product availability and product discontinuation is subject to change without notice. The prices in this quotation are valid for 30 days from quote date above. Please include the quote number and contract from this quote on the corresponding purchase order.

Item	Part No.	Description	Qty.	Unit Price	Extended
Group:					
1.	AF001A	HP 10642 G2 Pallet Universal Rack	1	\$1,187.00	\$1,187.00
2.	AF054A	HP 10642 G2 Side Panel	1	\$341.00	\$341.00
3.	AF062A	HP 10K G2 600W Graphite Stabilizer Kit	1	\$218.00	\$218.00
4.	AF074A	HP 10000 G2 Series Rack Grounding Kit	1	\$48.00	\$48.00
5.	252663-D74	HP 24A HV Core Only Modular Pwr Distribution Unit	2	\$180.00	\$360.00
6.		HP 24A High Voltage PDU	1	\$214.00	\$214.00
	252663-D72	Power distribution modules - High Voltage Modular PDU Model(s), 200 - 240 VAC, 24A Model - mPDU, 24A, High			
7.	UF367E	HP Startup VMware Virtl Infra Entpr SVC	1	\$8,690.00	\$8,690.00
SUB TOTAL :					\$11,058.00

TOTAL PRICE : \$11,058.00

Shopping cart items total (attached): \$143,512.00

\$154,570.00

Note: For detailed warranty information, please link to "URL" for more information www.hp.com/go/specificwarrantyinfo.
Sales taxes added where applicable. Freight is FOB Destination.



SHOPPING CART

Today's Date : 11/27/2007 5:14:32 PM

Contract: WESTERN STATES CONTRACTING ALLIANCE (A63309)

Product availability and product discontinuation are subject to change without notice. The prices in this shopping cart are valid for 30 days from the date above. If you do not wish to place this order electronically, please include this form when submitting your purchase order.

Show address and comment fields. Use the File - Print option to print this form for your future reference.

Items/description	Part no	Unit price	Qty	Ext price
HP BladeSystem c-Class c7000	Base	\$7,618.00	1	\$7,618.00
Enclosure 3-inch LCD - Single Phase				
HP BladeSystem c-Class c7000	403321-B22			
Enclosure				
Power module				
HP Single Phase Power Module				
Power supply				
2 HP BladeSystem c7000 Power Supplies				
Fan				
4 HP BladeSystem c7000 Fans				
Management module				
HP BLc7000 Management Module				
ProLiant Essentials software				
16 ICE-BL Licenses - Insight Control Environment for BladeSystem				
Warranty				
Warranty - 3 years - parts, labor, onsite - next business day				
*Note				
This product is pre-configured.				
Additional options ship separately				
HP c7000 Enclosure Power Supply	412138-B21	\$190.00	4	\$760.00
Option Kit (supplied with IEC C20 - C19 jumper cord)				
HP Redundant Onboard Administrator	412142-B21	\$607.00	1	\$607.00
Option				
HP Active Cool Fan Option Kit	412140-B21	\$114.00	6	\$684.00
HP Care Pack I&S service for HP c-Class BladeSystem Infrastructure - electronic	UE602E	\$3,350.00	1	\$3,350.00
HP GbE2c Ethernet Blade Switch for HP c-Class BladeSystem	410917-B21	\$970.00	4	\$3,880.00
HP Brocade 4/12 SAN Switch for HP c-Class BladeSystem	Base	\$4,799.00	2	\$9,598.00
HP Brocade 4Gb 4/12 SAN Switch for HP c-Class BladeSystem	AE370A			
Performance				
4 Gbps				
Maximum ports				
24				
Minimum ports				
12 ports				
Aggregate bandwidth				
192 Gbps (end-to-end)				
Protocol support				

HP Public Sector Online Store

Fibre Channel

Blade type supported

Supports HP BladeSystem c-Class

HP 3y 4h 24x7 4/24 SAN Switch HW Supp	UE438E	\$974.00	2	\$1,948.00
-Configurable- HP ProLiant BL480c server blade	Base	\$11,844.00	8	\$94,752.00
HP ProLiant BL480c server blade	404707-B21			
Quad-Core Intel® Xeon® E5345 (2.33GHz, 1333MHz FSB, 2x4MB L2 cache) Processor	435578-L21			
Quad-Core Intel® Xeon® E5345 (2.33GHz, 1333MHz FSB, 2x4MB L2 cache) Processor	435578-B21			
HP 24GB Fully Buffered DIMM PC2-5300 12X2GB Memory	397413-24G			
VMware Virtual Infrastructure Enterprise 2P License with 1-year 9x5 Support and Update Services	430341-B21			
Storage controller				
Embedded Smart Array P400i SAS Array Controller				
HP 146GB Hot Plug 2.5 SAS 10,000 rpm Hard Drive	431958-B21			
HP 146GB Hot Plug 2.5 SAS 10,000 rpm Hard Drive	431958-B21			
Network card				
4 Embedded Ethernet Ports				
HP SA P400i 512MB and Battery-backed write cache upgrade with battery	405148-B21			
HP NC364m Quad Port 1GbE BL-c Adapter	447883-B21			
QLogic QMH2462 4Gb FC HBA for HP c-Class BladeSystem	403619-B21			
Server management				
Integrated Lights-Out (iLO2) Management (integrated on motherboard)				
-Configurable- HP ProLiant DL380 G5 - Rack Server	Base	\$5,353.00	1	\$5,353.00
HP ProLiant DL380 G5 Server	391835-B21			
Quad-Core Intel® Xeon® E5345 (2.33GHz, 1333MHz FSB, 2x4MB L2 cache) Processor	437940-L21			
Quad-Core Intel® Xeon® E5345 (2.33GHz, 1333MHz FSB, 2x4MB L2 cache) Processor	437940-B21			
HP 4GB Fully Buffered DIMM PC2-5300 2X2GB Memory	397413-B21			
Slim Line CD-RW/DVD-ROM 24X Combo Drive Option Kit	331903-B21			
HP Smart Array P400/512 Controller - low profile	405162-B21			
HP 146GB Hot Plug 2.5 SAS 10,000 rpm Hard Drive	431958-B21			
HP 146GB Hot Plug 2.5 SAS 10,000 rpm Hard Drive	431958-B21			
Power supply				
HP 1000-W Hot-Plug Power Supply				
HP 1000-W Redundant Hot-Plug Power Supply (IEC)	399771-B21			
Redundant fan options				
HP Redundant Hot-Plug Fans				
Network card				
Embedded NC373i Multifunction Gigabit				

HP Public Sector Online Store

Network Adapter

HP Fibre Channel 1242BR 4GB PCI-Express Dual Channel HBAm - Low Profile **AE312A**

HP Integrated Lights Out (iLO) Advanced Pack 1 Server License **452141-B21**

Server management

Integrated Lights Out 2 (iLO 2) Standard Management

Warranty

HP Standard Limited Warranty - 3 Years Parts and on-site Labor, Next Business Day

-Configurable- HP ProLiant DL380 G5 - Rack Server **Base** \$5,736.00 1 \$5,736.00

HP ProLiant DL380 G5 Server **391835-B21**
Quad-Core Intel® Xeon® E5345 **437940-L21**

(2.33GHz, 1333MHz FSB, 2x4MB L2 cache) Processor

Quad-Core Intel® Xeon® E5345 **437940-B21**
(2.33GHz, 1333MHz FSB, 2x4MB L2 cache) Processor

HP 4GB Fully Buffered DIMM PC2-5300 **397413-B21**
2X2GB Memory

Slim Line CD-RW/DVD-ROM 24X **331903-B21**
Combo Drive Option Kit

HP Smart Array P400/512 Controller - low profile **405162-B21**

HP 146GB Hot Plug 2.5 SAS 10,000 rpm Hard Drive **431958-B21**

HP 146GB Hot Plug 2.5 SAS 10,000 rpm Hard Drive **431958-B21**

HP StorageWorks U320e SCSI Dual Channel Host Bus Adapter - Low Profile **AH627A**

Power supply

HP 1000-W Hot-Plug Power Supply **399771-B21**
HP 1000-W Redundant Hot-Plug Power Supply (IEC)

Redundant fan options

HP Redundant Hot-Plug Fans

Network card

Embedded NC373i Multifunction Gigabit Network Adapter

HP Fibre Channel 1242BR 4GB PCI-Express Dual Channel HBAm - Low Profile **AE312A**

HP Integrated Lights Out (iLO) Advanced Pack 1 Server License **452141-B21**

Server management

Integrated Lights Out 2 (iLO 2) Standard Management

Warranty

HP Standard Limited Warranty - 3 Years Parts and on-site Labor, Next Business Day

HP Care Pack, 3 Years, 4 Hours, 24x7, Hardware, ProLiant DL380 **U4545E** \$726.00 2 \$1,452.00

HP Install ProLiant DL38x Service - ProLiant Server DL38x - Installation for HP/ProLiant Servers (per event) per product technical data sheet - 8am-5pm - Std bus days excl HP hol **U4554E** \$277.00 2 \$554.00

VMware Virtualcenter Management Server License Software **430345-B21** \$4,152.00 1 \$4,152.00

HP 3y 4h 24x7 c7000 Enclosure HW **UE479E** \$732.00 1 \$732.00

HP Public Sector Online Store

Supp

HP 3y 4h 24x7 c-Class Svr Blade HW Supp	UE459E	\$292.00	8	\$2,336.00
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Subtotal: \$143,512.00

The terms and conditions of the WESTERN STATES CONTRACTING ALLIANCE will apply to any order placed as a result of this inquiry, no other terms or conditions shall apply.

To access the HP Public Sector Online Store where this form was created, go to:
<http://gem.compaq.com/gemstore/entry.asp?SiteID=12978>

* HP is not liable for pricing errors. If you place an order for a product that was incorrectly priced, we will cancel your order and credit you for any charges. In the event that we inadvertently ship an order based on a pricing error, we will issue a revised invoice to you for the correct price and contact you to obtain your authorization for the additional charge, or assist you with return of the product. If the pricing error results in an overcharge to you, HP will credit your account for the amount overcharged.

* Please contact HP Public Sector Sales with any questions or for additional information:

K12 Education:	800-888-3224	Higher Education:	877-480-4433
State Local Govt:	888-202-4682	Federal Govt:	800-727-5472
Fax:	800-825-2329	Returns:	800-888-3224

* For detailed warranty information, please go to www.hp.com/go/specificwarrantyinfo . Sales taxes added where applicable. Freight is FOB Destination.

HP Installation and Startup Service for VMware Virtual Infrastructure

HP Services

Technical data



HP Installation and Startup Service for VMware Virtual Infrastructure will provide you with a pre-installation session with an HP service specialist, installation and configuration of VMware Virtual Infrastructure, and an orientation session to help familiarize you with the product functionality.

The Installation and Startup Service of VMware Virtual Infrastructure is available in four package variations to help you best match your deployment needs with your VMware Virtual Infrastructure software licenses. Each package includes scheduling time to meet with the HP service specialist and prepare for the installation, deploying the software package, configuration of the software, and a customer orientation session. See the "Service deployment" section below for details on the service deliverables.

Package 1: Installation and Startup of Virtual Infrastructure Starter (1 day)

Package 2: Installation and Startup of Virtual Infrastructure Standard (2 days)

Package 3: Installation and Startup of Virtual Infrastructure Enterprise (5 days)

Package 4: Customized services based on a Statement of Work (SOW), which may include environment assessments, virtualization consulting, or custom installation and startup.

Service benefits

- Installation and startup by an HP technical specialist
- Availability of an HP service specialist to answer basic questions during the delivery of this service
- Delivery of the service at a mutually scheduled time convenient to your organization
- Verification prior to installation that all service prerequisites are met

Service features highlights

- Service planning
- Service deployment
- Installation verification tests (IVT)
- Customer orientation session

Specifications

Table 1. Service features

Feature	Delivery specifications
Service planning	An HP service specialist will plan all the necessary activities, including the identification of any prerequisites, and schedule the delivery of the service at a time mutually agreed upon by HP and the Customer, which shall be during local HP standard business hours excluding HP holidays, unless otherwise agreed by HP. Any services provided outside of HP standard business hours may be subject to additional charges.
Service deployment	Service deployment for Package 1: Virtual Infrastructure Starter includes the following: • Install VirtualCenter server • Install 1 ESX server • Create and configure 1 virtual machine (VM) Service deployment for Package 2: Virtual Infrastructure Standard includes the following: • Install VirtualCenter server • Install 2 ESX servers with VMFS and virtual SMP • Create and configure 1 VM • Create a copy of the VM on the first ESX server • Create up to 2 copies of the VM on the second ESX server Service deployment for Package 3: Virtual Infrastructure Enterprise includes the following: • Install VirtualCenter server • Install up to 4 ESX servers with VMFS and virtual SMP • Create and configure up to 2 different virtual machines • Create up to 2 copies of one of the configured virtual machines on each ESX server • Customer may choose 1 of the following: - Configure a sample VMware DRS - Configure a sample VMware consolidated backup
Installation verification tests (IVT)	HP will run the appropriate installation verification tests required for this service.
Customer orientation session	Upon completion of the installation, the HP service specialist will conduct an orientation session on product usage and special features and will be available to answer questions, as appropriate.

Service eligibility

Customers are eligible for the delivery of this service if they meet the following prerequisites:

- The Customer must be properly licensed for the Virtual Infrastructure product to be installed (Starter, Standard, Enterprise).
- The Customer must meet the hardware prerequisites for the Virtual Infrastructure product to be installed (Starter, Standard, Enterprise).
- Customer networks must be configured properly in accordance with the product documentation and completed in advance of HP's delivery of this service.
- For Virtual Infrastructure Enterprise, in order to demonstrate the VMotion functionality, the Customer will need to satisfy the network requirements according to the VMware Virtual Infrastructure product documentation.
- The Customer must have the appropriate operating system licenses.

Service limitations

- Customer environment assessments and consulting are not included as part of this service. Services outside the scope of the deliverables of this service may be performed as a custom service (Statement of Work).
- Physical-to-virtual (P2V) migrations are not included as part of this service and are available separately as a custom service (Statement of Work).
- VMotion will not be demonstrated as part of the Virtual Infrastructure Starter or Standard Installation and Startup Services.

Customer responsibilities

The Customer will:

- Contact an HP service specialist within 90 days of date of purchase to schedule the delivery of the service
- Ensure that all service prerequisites as identified in the 'Service eligibility' section have been met
- Uncrate products and place the boxes in the immediate location where the installation service will take place
- Assign a designated person from the Customer's staff who, on behalf of the Customer, will grant all approvals; provide information; ensure that all hardware, firmware, and software that the HP service specialist will need in order to deliver this service are available and that software products are properly licensed; and otherwise be available to assist HP in facilitating the delivery of this service
- Adhere to licensing terms and conditions regarding the use of any HP service tools used to facilitate the delivery of this service, if applicable
- Be responsible for all data backup and restore operations
- Provide a suitable work area for delivery of the service, including access to an outside telephone line, power, and any network connections required
- Allow HP full and unrestricted access to all locations where the service is to be performed

General provisions/Other exclusions

HP reserves the right to charge, on a time and materials basis, for any additional work over and above the service package pricing that may result from work required to address service prerequisites or other requirements that are not met by the Customer.

HP reserves the right to re-price this service if the Customer does not schedule and provide for subsequent delivery within 90 days of purchase.

HP's ability to deliver this service is dependent upon the Customer's full and timely cooperation with HP, as well as the accuracy and completeness of any information and data the Customer provides to HP.

Activities such as, but not limited to, the following are excluded from this service:

- Service deployment on hardware not covered by an HP warranty or service maintenance contract
- Service deployment on hardware covered by a third-party maintenance contract
- Services that, in the opinion of HP, are required due to unauthorized attempts by non-HP personnel to install, repair, maintain, or modify hardware, firmware, or software
- Service required due to causes external to the HP maintained hardware or software
- Any services not clearly specified in this document

Ordering information

This service can be ordered using the following service part number(s):

Package 1: Virtual Infrastructure Starter Installation & Startup—UF370E or HA114A1-5N0

Package 2: Virtual Infrastructure Standard Installation & Startup—UF366E or HA114A1-5N1

Package 3: Virtual Infrastructure Enterprise Installation & Startup—UF367E or HA114A1-5N2

Package 4: Virtual Infrastructure Custom Installation (Statement of Work)—HA329A1 or HA329AE

For more information

For more information on HP Services, contact any of our worldwide sales offices or visit one of the following Web sites:

HP support services: www.hp.com/hps/support

HP Care Pack Services: www.hp.com/hps/carepack

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HP Technology Services are governed by the HP Single Order Terms for Support or Customer's purchase agreement with HP.

DELL

Quote #	Amount
397742111	\$75,132.85
400037334	\$51,777.41
400038804	\$5,119.55
TOTAL:	\$132,029.81



QUOTATION

QUOTE #: 397742111

Customer #: 60343872

Contract #: 70137

Customer Agreement #: Dell Std Terms

Quote Date: 11/19/07

Date: 11/19/07 8:29:34 AM

Customer Name: CULVER CITY

TOTAL QUOTE AMOUNT:	\$75,132.85		
Product Subtotal:	\$70,650.10		
Tax:	\$4,482.75		
Shipping & Handling:	\$0.00		
Shipping Method:	Ground	Total Number of System Groups:	0

SOFTWARE & ACCESSORIES			
Product	Quantity	Unit Price	Total
VI3 Enterprise - 2 proc license - ESX SMP VC Agent Vmotion HA DRS VCB (A0688675)	6	\$5,175.00	\$31,050.00
VI3 Enterprise - 3yr Gold SNS - 12x5 support and full subscription (A0914247)	6	\$3,079.10	\$18,474.60
VI3 Media - VMware Infrastructure Media Kit - Media Only (A0688630)	1	\$135.00	\$135.00
VirtualCenter Mgmt Server 2 - license (A0688598)	1	\$4,500.00	\$4,500.00
VirtualCenter Mgmt Server 2 - 3yr Gold SNS - 12x5 support and full subscription (A0916409)	1	\$2,677.50	\$2,677.50
EDT VMware Implementation onto a Server (984-9947)	6	\$1,969.00	\$11,814.00
EDT VIRTUAL CENTER IMPLEMENTATION , SINGLE SERVER (984-9957)	1	\$1,999.00	\$1,999.00
Number of S & A Items: 7		S&A Total Amount: \$70,650.10	

SALES REP:	LUCIAN KACPERSKI	PHONE:	1888-977-3355
Email Address:	Lucian_Kacperski@Dell.com	Phone Ext:	7247095

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QUOTATION

QUOTE #: 400037334

Customer #: 60343872

Contract #: 70137

Customer Agreement #: Dell Std Terms

Quote Date: 11/29/07

Date: 11/29/07 9:45:36 AM

Customer Name: CULVER CITY

TOTAL QUOTE AMOUNT:	\$51,777.41		
Product Subtotal:	\$47,832.30		
Tax:	\$3,855.17		
Shipping & Handling:	\$89.94		
Shipping Method:	Ground	Total Number of System Groups:	1

GROUP: 1	QUANTITY: 6	SYSTEM PRICE: \$7,972.05	GROUP TOTAL: \$47,832.30
Base Unit:	Quad Core Xeon E5430 Processor 2x6MB Cache, 2.66GHz, 1333MHz FSB, PE2950 (223-4489)		
Processor:	Quad Core Xeon E5430 Processor 2x6MB Cache, 2.66GHz, 1333MHz FSB, PE2950 (311-7928)		
Memory:	32GB 667MHz (8x4GB), Dual Ranked DIMMs (311-6327)		
Keyboard:	No Keyboard Selected (310-5017)		
Video Card:	Broadcom TCP/IP Offload Engine Not Enabled (430-1765)		
Video Memory:	Riser with 3 PCIe Slots for PowerEdge 2950 (320-4607)		
Hard Drive:	73GB 15K RPM Serial-Attach SCSI 3Gbps 3.5-in HotPlug HardDrive (341-3029)		
Hard Drive Controller:	PERC6i SAS RAID Controller, 2x4 Connectors, Int, PCIe, 256MB cache, x6 Bkpl (341-5734)		
Floppy Disk Drive:	No Floppy Drive for x6 Backplane (341-3685)		
Operating System:	No Operating System (420-6320)		
Mouse:	Mouse Option None (310-0024)		
NIC:	Embedded Broadcom NetXtreme II 5708 Gigabit Ethernet NIC (430-1764)		
Modem:	Dell Remote Access Card, 5th Generation for PowerEdge Remote Management (313-3923)		
CD-ROM or DVD-ROM Drive:	24X IDE CD-RW/DVD ROM Drive for PowerEdge 2950 (313-3934)		
Sound Card:	Bezel for PE 2950 (313-3920)		
Speakers:	1x6 Backplane for 3.5-inch Hard Drives (311-7936)		
Documentation Diskette:	Electronic Documentation and OpenManage CD Kit, PE2950 (310-7415)		
Additional Storage Products:	73GB 15K RPM Serial-Attach SCSI 3Gbps 3.5-in HotPlug HardDrive (341-3029)		
Feature	Integrated SAS/SATA RAID 1, PERC 6/i Integrated/SAS6/IR (341-5722)		
Feature	Universal Sliding Rapid/Versa Rails, Includes Cable Management Arm (310-7412)		
Service:	Premier Enterprise Support Service Gold Welcome Letter (310-3785)		
Service:	GOLD Enterprise Support: 4 Hour 7x24 Onsite Service with Emergency Dispatch, 2 YR Ext (960-8322)		
Service:	GOLD Enterprise Support: 7x24 Escalation Manager, Hw/Sw TechPhone Support, Enterprise Command Center, 3Yr (960-8572)		
Service:	GOLD Enterprise Support: 4 Hour 7x24 Onsite Service with Emergency Dispatch, Init YR (970-4190)		
Service:	Dell Hardware Warranty Plus Onsite Service Init YR (984-1399)		
Service:	Dell Hardware Warranty, Extended YR (984-1417)		
Installation:	ONSITE INSTALLATION: PowerEdge Hardware Installation only (984-1067)		

Misc:	Redundant Power Supply with Y-Cord (310-9897)
Misc:	Intel PRO Quad Port 1GbE NIC PCIe-4 (430-2687)

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QUOTATION

QUOTE #: 400038804

Customer #: 60343872

Contract #: 70137

Customer Agreement #: Dell Std Terms

Quote Date: 11/29/07

Date: 11/29/07 9:45:37 AM

Customer Name: CULVER CITY

TOTAL QUOTE AMOUNT:	\$5,119.55		
Product Subtotal:	\$4,748.65		
Tax:	\$355.91		
Shipping & Handling:	\$14.99		
Shipping Method:	Ground	Total Number of System Groups:	1

GROUP: 1	QUANTITY: 1	SYSTEM PRICE: \$4,748.65	GROUP TOTAL: \$4,748.65
Base Unit:	Quad Core Xeon E5430 Processor 2x6MB Cache, 2.66GHz, 1333MHz FSB, PE1950 (223-4544)		
Processor:	Information, No Second Processor (311-1193)		
Memory:	4GB 667MHz (4X1GB), Dual Ranked Fully Buffered DIMMs (311-6154)		
Keyboard:	No Keyboard Selected (310-5017)		
Video Card:	Broadcom Dual Port TCP/IP Offload Engine Key Not Enabled (430-1748)		
Video Memory:	Riser with 2 PCIe Slots for PowerEdge 1950 (320-4648)		
Hard Drive:	73GB 15K RPM Serial-Attach SCSI 3Gbps 3.5-in HotPlug HardDrive (341-3029)		
Hard Drive Controller:	PERC6i SAS RAID Controller 2x4 Connectors, Int, PCIe 256MB Cache (341-5781)		
Operating System:	Windows Server 2003 R2 Standard Edition with SP2 Includes 5 CALs (420-7118)		
Mouse:	Mouse Option None (310-0024)		
NIC:	Dual Embedded Broadcom NetXtreme II 5708 Gigabit Ethernet NIC (430-1762)		
Modem:	Dell Remote Access Card, 5th Generation for PowerEdge Remote Management (313-3936)		
CD-ROM or DVD-ROM Drive:	24X IDE CD-RW/DVD ROM Drive for PowerEdge Servers, All OS (313-3918)		
Sound Card:	Bezel for PE 1950 (313-3937)		
Speakers:	1x2 Backplane for 3.5-inc Hard Drives (311-7958)		
Documentation Diskette:	Electronic Documentation and OpenManage CD Kit, PE1950 (310-7962)		
Additional Storage Products:	73GB 15K RPM Serial-Attach SCSI 3Gbps 3.5-in HotPlug HardDrive (341-3029)		
Feature	Integrated SAS/SATA RAID 1 PERC 6/i Integrated/SAS6/IR (341-5776)		
Feature	Sliding Rapid/Versa Rails and Cable Management Arm, Universal (341-3090)		
Service:	Premier Enterprise Support Service Gold Welcome Letter (310-3785)		
Service:	GOLD Enterprise Support: 4 Hour 7x24 Onsite Service with Emergency Dispatch, 2 YR Ext (960-7442)		
Service:	GOLD Enterprise Support: 7x24 Escalation Manager, Hw/Sw TechPhone Support, Enterprise Command Center, 3Yr (960-7862)		
Service:	GOLD Enterprise Support: 4 Hour 7x24 Onsite Service with Emergency Dispatch, Init YR (970-3530)		
Service:	Dell Hardware Warranty Plus Onsite Service Initial YR (984-1519)		
Service:	Dell Hardware Warranty, Extended YR (984-1528)		
Installation:	ONSITE INSTALLATION: PowerEdge Hardware and Windows OS Installation - Basic (984-1017)		
Misc:	Redundant Power Supply with Y-Cord (310-9929)		

SALES REP:	LUCIAN KACPERSKI	PHONE:	1888-977-3355
Email Address:	Lucian_Kacperski@Dell.com	Phone Ext:	7247095

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Attachment # 7

October 30, 2007

Mr. John H. Richo
Chief Information Officer
City of Culver City
9770 Culver Blvd.
Culver City, 90232

Dear John,

Key Information Systems is pleased to provide you this quotation for IBM BladeCenter solution. After meeting with you to better understand your requirements, we have proposed what we believe to be an IBM server solution which will meet your IT needs for today and the future. As the clear market share leader in Blades, IBM has a huge advantage over the competition with its lower power and cooling requirements as well as the flexibility to mix and match AIX and Wintel Blades (Intel and AMD) within the same chassis. We will also send you a formal SOW to implement and educate your staff on how to effectively use these blades along with the IBM management tool called IBM Director.

Description	Qty	Extended Price
BladeCenter H Chassis Configured with: (4) Power 2900W Power Supplies (4) IBM BladeCenter Copper Pass-Thru Module (2) 2.8m 200-240V Triple 16A IEC 320-C20 BladeCenter Redundant KVM/Advanced Mgmt. Module Warranty Uplift to 24x7x4 (36 Months)	1	\$8,880.83
BladeServer HS21 Each Configured with: (2) Intel Dual-Core 3.0GHz Processors with 8GB RAM (1) 146GB SAS Drives (1) iSCSI Expansion Card Warranty Uplift to 24x7x4 (36 Months) 3 Yr Remote Technical Support	14	\$126,397.66
Server/Hardware Integration	1	\$3,800.00
IBM Director (Will also serve as the VMware Management Console) with: x3250 Dual Core 2.4GHz with 1GB RAM with 2 Internal 73GB Hot-Swap IBM Software Distribution Premium Edition 5.1 IBM Remote Deployment Manager V.30 3 Yr 24x7x4 Hardware Maintenance 3 Yrs Remote Technical Support for (IBM Director)	1	\$3,996.77
DPI 60amp/250V Front-end PDU with IEC 309 2P+Gnd connector	2	\$927.10
VMware Infrastructure 3 Enterprise for 2 Processors	14	\$66,580.82
Platinum Support/Subscription for VMware Infrastructure 3	14	\$19,402.11
VMware VirtualCenter Management Server 2 for VMware Infrastructure	1	\$4,135.45
Platinum Support/Subscription for VirtualCenter Management	1	\$1,205.10
Solution Total:		\$234,398.74

Configuration Notes:

- 1) *Two Copper Pass-Thru modules will be dedicated for the iSCSI traffic, while the other two will be for network traffic.*
- 2) *The iSCSI adapter is a Standard Form Factor (sff) adapter and due to its orientation in the blade, will prevent installation of two internal drives.*
- 3) *Another option if two internal drives are required is to configure an IO Expansion Blade. However, this solution will limit the number of BladeServers that can be populated in the Blade Chassis.*

Thank you for the opportunity to provide you with your IBM Hardware Requirements. Please contact Rene Lapid at (714) 507-5738, or me with any questions you may have.

Sincerely,

Bart Fernandes
Sr. Account Executive

Notes:

- 1) *These prices do not include sales tax and shipping which will be billed separately.*
- 2) *These prices are net, include all applicable discounts and are valid for thirty (30) days from today.*
- 3) *Payment terms are net 30 days from invoice date for products, net 15 days from invoice date for services.*
- 4) *Quote#: QR-722362-1*

IBM@server

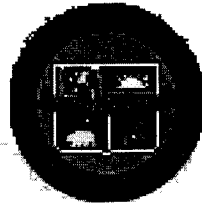
Proposal



Proposal Prepared by



for:



***Mr. John H. Richo
City of Culver City
9770 Culver Blvd.
Culver City, CA 90232***



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Key Information Overview

The Key Information Advantage

Key Information Systems delivers the IT expertise – from product fulfillment to complex custom solutions and implementations – to best solve your business challenges.

Key Information provides innovative access and enterprise technology solutions and services to corporations and government/education organizations, and to specialized markets such as healthcare.

Key Information's prominence as a technology solution provider is due to its highly collaborative relationships with customers and manufacturers, and its focus on best-in-class products and technology solutions in server and storage.

Key Information helps you align your business and IT investment strategies so that you meet the objectives of your organization with innovative technology solutions. Key Information knows that a holistic approach will help you better utilize your current IT resources and manage multi-vendor environments allowing you to reduce cost, reduce complexity, improve performance, and increase ROI.

Getting the Job Done

Key Information's experience delivering critical and complex installations reduces your risk and accelerates your ability to get your applications up and running, ultimately benefiting your organization with a quicker return on investment.

Key Information's sales and technical expertise can help you assess what you have, evaluate and choose what you need and can afford, design, procure and work collaboratively with you to help you implement a range of business critical solutions including:

- Business Continuity: Data Protection, Disaster Recovery, High Availability
- Storage: Assessment, Design
- IT Consolidation: Server Consolidation, Software Consolidation, Storage Consolidation
- Technology Financing
- Technology Procurement
- Technical Documentation
- Project Management & Implementation: Single Point of Contact, From Start to Finish

Key Information History

Key Information Systems has been an IBM Premier Business Partner since 1999. Key is a Systems Integration company and VAR founded in 1999. Headquartered in Woodland Hills, California, key has five offices in California, Arizona and Idaho. Key has over 500 customers and revenue in the IBM white space for i5/iSeries, p5/pSeries and xSeries servers including storage. Key's systems background is centered in infrastructure solutions with a systems availability portfolio for the IBM midrange.





Why IBM BladeCenter?

During the development of IBM BladeCenter, IBM worked closely with clients to ensure that IBM BladeCenter's innovative modular technology and leadership density and availability were designed to help solve a multitude of real-world problems.

For organizations seeking server consolidation, IBM BladeCenter centralizes servers for increased flexibility, ease of maintenance, reduced cost and streamlined human resources. Companies that need to deploy new e-commerce and e-business applications can achieve speed while ensuring flexibility, scalability and availability. For enterprise requirements like file-and-print and collaboration, IBM BladeCenter is designed to offer reliability, flexibility for growth and cost effectiveness. And clients with compute-intensive applications that need highly available clustering can use IBM BladeCenter to help achieve high degrees of scalability and performance.

IBM BladeCenter builds on the IBM commitment to integrating server, storage and networking functionality with technology exchange and heterogeneous management. IBM BladeCenter offers the ease, density, availability, affordability, and scalability that are central to the blade technology promise, and IBM BladeCenter's features help lead the way in enabling the self-optimization, self-healing, and self-protection crucial to the on demand computing revolution.

Using the IBM Director console, all IBM BladeCenter chassis can be monitored and managed from single location — the same console you use to manage other components in your computing infrastructure. IBM BladeCenter can also be managed through an easy-to-use graphical interface that allows remote connection from any terminal connected to the module's network.

IBM BladeCenter lets you take advantage of chassis and blade auto-discovery features and graphical visualization. IBM Director tools like Remote Deployment Manager and IBM BladeCenter's unique deployment wizard make deployment and redeployment easier than ever. Get automated system updates, power on and off, able and disable local switching, set boot sequences, update firmware on an individual blade, redeploy and reprovision — all from a single location. Leveraging existing investment in self-diagnostic autonomic technology, IBM BladeCenter represents the next step in simply smart management.

And IBM Director management can be upwardly integrated into an enterprise management system like IBM Tivoli, CA Unicenter and HP Openview, encompassing all management tasks in a single architecture.

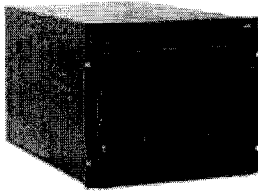
IBM BladeCenter carries on the IBM commitment to open standards for enterprise architecture, helping ensure solutions that are industry-leading and interoperable.

To support the deployment of third-party software and hardware technologies, IBM BladeCenter's architecture is based on industry standards. Enhanced for advanced blade management, IBM Director also provides extensive support for managing multiple clients, including Linux clients. Launching the IBM BladeCenter Alliance program, IBM is working with industry-leading technology companies to deliver innovative business solutions running Windows, Linux and Novell operating systems.





IBM BladeCenter H



- With an innovative architecture, BladeCenter H tightly integrates servers, storage, networking, I/O and applications, allowing clients to build robust and flexible IT infrastructures using common building blocks.
- Flexible modular technology integrates Intel® Xeon, AMD Opteron and IBM POWER™ processor-based blade servers supporting a wide range of operating systems.
- Take command of your data center with powerful IBM Cool Blue™ technology, a portfolio of products and tools to help customers plan, manage and control power and cooling in the data center—helping to build greener infrastructures.
- BladeCenter Open Fabric is a highly adaptable portfolio of products and tools that delivers a flexible, open, connected infrastructure to help optimize application performance.
- A powerful set of management tools helps simplify the management environment. BladeCenter provides tools that are open, easy, and seamlessly integrated, allowing you to focus on your business not your IT.
- BladeCenter H offers added performance capabilities of 10 Gigabit Ethernet, and 4X InfiniBand-capable fabrics and larger power supplies—making BladeCenter H the ideal platform to run the next-generation, high-performance business-critical applications.

Product Features:

- 9U chassis features all the functionality of BladeCenter with the added performance capabilities of 10 Gigabit Ethernet, 4X InfiniBand-capable fabrics and larger power supplies
- Advanced proactive management, providing rich and broad systems management capabilities

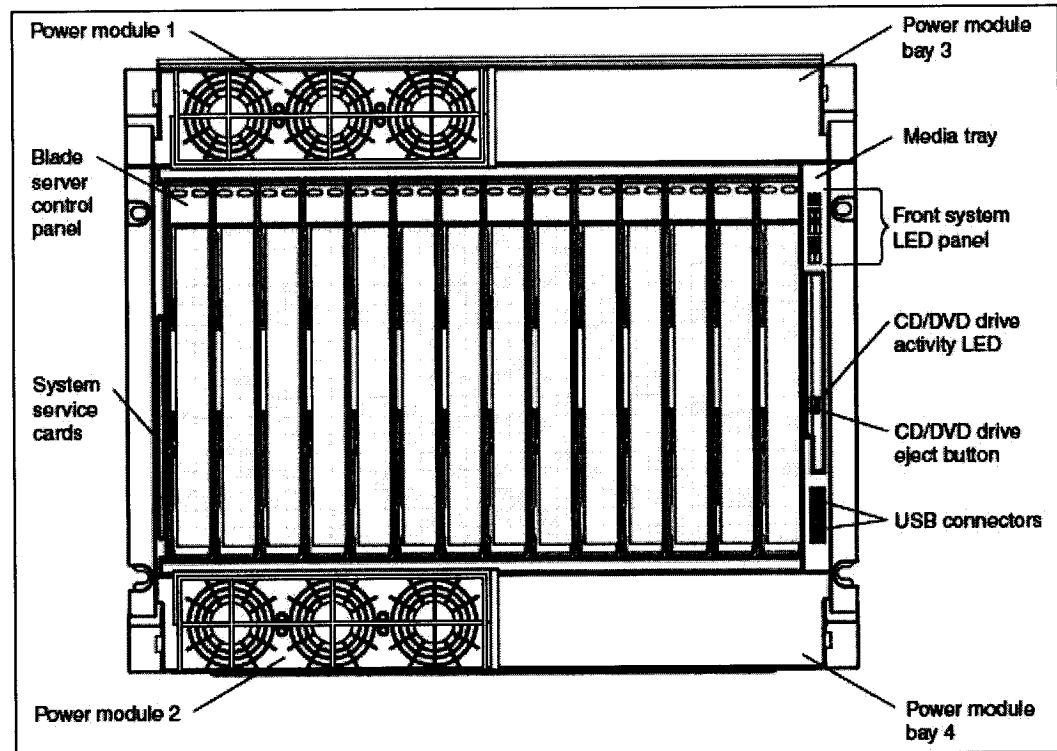


Figure 1-6 BladeCenter H front view showing the key features of the chassis

The following are the key features on the front of the BladeCenter H:

- A media tray at the front right, with a DVD Drive, two USB v2.0 ports, and system status LED panel
- One pair of 2,900-watt power modules. An additional power module option (containing two 2,900 W power modules) is available. The second power module is required to fully populate the chassis with 14 Blade Servers and High-Speed IO modules.
- Two hot swap fan modules (two extra hot swap fan modules are included with the additional power module option).
- 14 hot swap blade server bays supporting different blade server types.

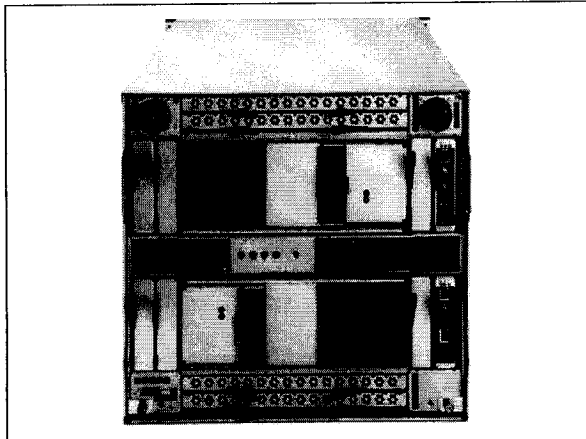


Figure 1-7 BladeCenter H rear view

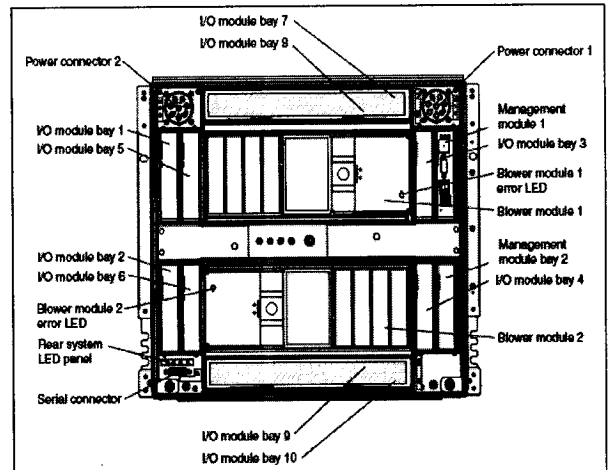


Figure 1-8 BladeCenter H rear view showing the key features of the chassis

The following are the key features on the rear of the BladeCenter H:

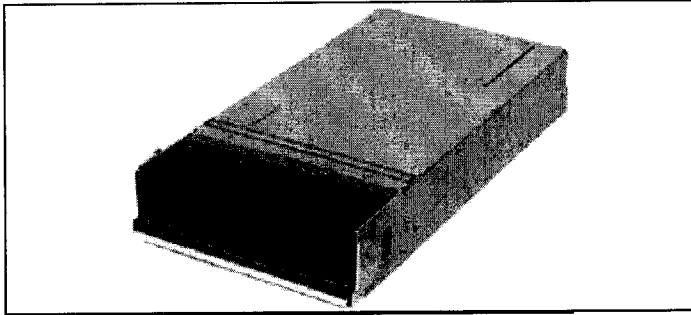
- Two hot-swap blower modules as standard
- Two hot swap management-module bays - with one management-module as standard
- Four traditional fabric switch modules
- Four high speed fabric switch modules
- Serial port breakout connector to give direct serial connection to installed blades (for those blades with the functionality)

The BladeCenter H chassis allows for either 14 single-slot blade servers or seven double-slot blade servers. However, you can mix different blade server models in one chassis to meet your requirements. The BladeCenter H chassis ships standard with one Advanced Management Module. This module provides the ability to manage the chassis and well as providing the local KVM function. The optional redundant Advanced Management Module provides the IBM BladeCenter H with higher levels of resiliency. While in the chassis, the second module is in passive or standby mode. If the active or primary module fails, the second module is automatically enabled with all of the configuration settings of the primary module. This function provides clients with easy remote management and connectivity to the BladeCenter H chassis for their critical applications.

The BladeCenter H does not ship standard with any I/O modules. You choose these I/O modules based on your connectivity needs. An Ethernet Switch Module (ESM) will be required in I/O module bays 1 and 2, to enable the use of both Ethernet ports on a Blade Server. The I/O modules required in I/O module bays 3 and 4 will depend on the I/O Expansion Card installed in the blade servers. The I/O modules required in the high speed I/O module bays 7, 8, 9 and 10 will depend on the I/O Host Channel Adapter cards installed in the Blade Servers.



BladeCenter H Power Modules and Requirements



The standard power modules in bays 1 and 2 are used to power blade servers in blade bays 1 through 7 and I/O modules in I/O module bays 1 through 4 and 7 through 10. Optional power modules are needed in power module bays 3 and 4 if you install blade servers in blade bays 8 through 14 or if you install I/O modules in any of I/O module bays 5 through 10 (see Table 2-43).

Table 2-43 Devices powered by each power module

Devices ^a	Power module 1 (Standard)	Power module 2 (Standard)	Power module 3 (Optional)	Power module 4 (Optional)
Blades 1-7	Yes	Yes		
Blades 8-14			Yes	Yes
I/O modules 1 & 2 (SM 1-2) ^b	Yes	Yes	Yes	Yes
I/O modules 3 & 4 (SM 1&2/BM 3&4)	Yes	Yes		
I/O modules 5 & 6 (BM 1 & 2)			Yes	Yes
I/O modules 7 & 8 (HSSM 1 & 3)	Yes		Yes	
I/O modules 9 & 10 (HSSM 2 & 4)		Yes		Yes
Management modules ^b	Yes	Yes	Yes	Yes

a. SM = switch module; BM = bridge module; HSSM = high speed switch module.

b. The two management modules and I/O modules 1 and 2 are powered by any power module.

Note: Management module bays 1 and 2 and I/O modules 1 and 2 are powered from any/all power, that is, any of four power supplies can supply power to them.

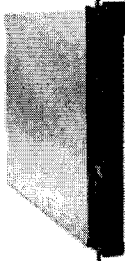
Each pair of power modules is redundant. If either power module fails, the remaining power module continues to supply power, but there is no redundancy; the failed power module must be replaced as soon as possible.

Each power supply has its own 3-fan pack used for power supply cooling. Power supply itself has no any external power connectors. Two special power connectors are located at the rear of chassis.

There are no power cables shipped with either BladeCenter H chassis or the power module option and should be attached to high-voltage PDUs.



IBM BladeServer HS21



The BladeCenter HS21 offerings are positioned as high-density servers. They represent a new approach to the deployment of application servers where two-way, SMP-capable Xeon processing, high-availability design, systems management, and easy setup features are combined in an extremely dense package.

The HS21 blades require less space and power resources, when compared to an equivalent standard 1U server, because of their high-density design, reduced power requirements and single environment systems management.

The supported operating systems include those from Microsoft, Red Hat, SUSE Linux, VMware and Novell.

Features, functions, support, and services at your command include:

Blade servers supported in all BladeCenter chassis.

- Intel® Xeon dual and quad core processors.
- 4 MB L2 cache (shared between both cores).
- 1066 MHz or 1333 MHz front-side bus speed.
- Dual Gigabit Ethernet connections.
- Four DIMM sockets standard, supporting up to 16 GB of high-speed memory with 4 GB DIMMs.

When coupled with the Memory and I/O (MIO) Expansion Blade, an additional four DIMM sockets are made available for a total of eight sockets (32 GB using 4 GB DIMMs).

- Up to two non-hot swap SAS SFF HDDs with RAID-0 or RAID-1 supported via the onboard LSI Logic 53C1046E controller.
- Supports optional expansion blades:
 - IBM BladeCenter Storage and I/O (SIO) Expansion Blade with support for up to three additional hot-swap SAS SFF HDDs with RAID-0 and RAID-1 (via ServeRAID 8k-1 adapter as standard) as well as two additional I/O expansion slots. An optional ServeRAID 8k adapter is available that will add RAID-5 capability and a battery backed cache.
 - IBM BladeCenter Memory and I/O Expansion Blade allows expansion up to 32 GB of high-speed memory with ECC (eight DIMM slots x 4 GB DIMMs), one additional I/O Expansion slot, and additional two Dual Gigabit Ethernet connections (total of four).
- Advanced high-availability and systems-management features.
- Concurrent keyboard, video, mouse (cKVM) support with addition of the optional IBM BladeCenter Concurrent KVM feature card.



IBM BladeServer HS21 – iSCSI Solutions

iSCSI uses traditional Ethernet network for block I/O between storage system and servers, that is, servers are connected to the LAN, storage systems is connected to the LAN also, and they use SCSI over IP protocol (iSCSI) to communicate with each other. Because iSCSI uses standard TCP/IP stack it is possible to use iSCSI connections across LAN, MAN, or even WAN connections.

In general iSCSI can be implemented in two ways: using software iSCSI initiator or using hardware iSCSI initiator.

- A software iSCSI initiator is an operating system's driver that provides iSCSI capabilities for standard Ethernet NICs. Software initiators can be obtained from the operating system vendor, for instance, Microsoft has Software iSCSI Initiator available for download.
- A hardware iSCSI initiator is a separate expansion card that provides processing of iSCSI protocol in dedicated hardware. IBM offers hardware iSCSI initiator - QLogic iSCSI Expansion Card for IBM BladeCenter (32R1923). It is possible to boot from iSCSI when using hardware iSCSI initiator.

Note: It is highly recommended that you use a separate network segment for iSCSI traffic, that is, NICs, switches (or VLANs), and storage system ports participating in iSCSI communications should be isolated from other traffic.

If you plan for redundancy then you have to use multipath drivers. Generally, they are provided by the operating system vendor for iSCSI implementations, even if you plan to use hardware initiators.

It is possible to implement HA clustering solutions using iSCSI, but certain restrictions may apply. For instance, Microsoft Cluster Services are not supported with multipathing for IBM iSCSI solutions (DS300 and N3700).

When planning iSCSI solution considers the following:

- IBM blade hardware, initiators, and operating system should be supported by iSCSI storage system - check the compatibility guides from storage vendor.
- Multipath drivers exist and are supported by operating system and storage system (in case of plan for redundancy) - check the compatibility guides from the storage vendor and operating system vendor.

iSCSI will enable you to "Remote Boot" or "Root Boot", this is where the Server's OS is installed on a logical drive (LUN) that is not resident locally to the server chassis.



IBM Director

IBM Director is an integrated, easy-to-use suite of tools that provide customers with flexible systems management capabilities to help realize maximum system availability and help lower IT costs. With IBM Director, IT administrators can view and track the hardware configuration of remote systems in detail and monitor the usage and performance of critical components, such as processors, disks and memory.

IBM Director is provided at no additional charge for use on IBM Systems.

- An easy-to-use, integrated suite of tools with consistent look-and-feel and single point of management simplifies IT tasks
- Automated, proactive capabilities that help reduce IT costs and maximize system availability
- Streamlined, intuitive user interface to get started faster and accomplish more in a shorter period of time
- Open, standards-based design and broad platform and operating support enable customers to manage heterogeneous environments from a central point
- Can be extended to provide more choice of tools from the same user interface

New capabilities are designed to deliver superior hardware manageability and maximum system availability, while reducing IT costs:

- Simplified installation. Using default values and a simplified task list, the new IBM Director Express Installation can simplify installation. Choose it for essential operations, and add other tasks after installation, if desired.
- Management for updates. A new Update Manager task provides integrated management of firmware and driver updates.
 - Profiles can be used to define approved sets of updates.
 - New updates are automatically downloaded based on defined profiles.
 - Levels on managed systems can be compared against defined profiles.
 - Reports are generated and systems can be brought up-to-date.
- Security improvements. IBM Director 5.20 provides security improvements in these areas:
 - Support for LDAP server authentication.
 - Support for hierarchy of global or domain local user groups.



- Task authorization for both parent tasks and subtasks.
 - Command line support for user and group authorization tasks.
- Expanded command line interface. IBM Director 5.20 provides a command line interface that has been expanded to allow command-line creation of dynamic groups.
- Inventory collection now collects firmware information for more devices, including hard disk drives, SCSI tape drives, NIC adapters, and RSA video BIOS for most managed systems.
- Includes support for new IBM hardware.
- An updated, comprehensive, Web-based information center provides easy access to the most up-to-date product information available.



IBM Director Extensions

Extensions to IBM Director are available for customers who want additional capabilities from a consistent, single point of management.

- **Remote Deployment Manager (RDM)** helps automate deployment tasks such as initial operating system installation, BIOS updates, and disposal of retired systems for both IBM and non-IBM systems. Tasks are performed remotely, reducing travel and labor costs. Integration into IBM Director means a single console for inventory, system health, and deployment. The combination of IBM Director, RDM, and Software Distribution Premium Edition provides a potent set of tools for managing your systems.
- **Capacity Manager** is an optional IBM Director extension that helps optimize your servers' performance and availability. It monitors the utilization of your servers' resources, helps identify existing or future bottlenecks and makes recommendations for improvement. Its predictive, proactive capabilities help reduce downtime costs and its built-in, intelligent features optimize server throughput, utilization and performance, maximizing your server investment.
- **System Availability** is an optional, no-charge IBM Director extension that helps you track and report the availability of your servers. Its automated capabilities and flexible graphical views save you time tracking the availability of your servers so that you can rapidly respond to problems and help maintain maximum system availability.
- **IBM Virtualization Manager** is an extension to IBM Director that allows you to discover, visualize, and manage both physical and virtual systems from a single console. Virtualization Manager simplifies management of VMware, Xen Microsoft® and POWER based Virtual Server environments. Virtualization Manager also integrates with and complements VMware VirtualCenter, linking together management for physical and virtual resources.
- **The IBM PowerExecutive™** solution is available for selected IBM BladeCenter® and System x™ servers and allows direct power monitoring through IBM Director. This solution helps customer monitor power consumption to allow better utilization of available power resources.
This application software enables customers to trend actual power consumption and corresponding thermal loading of BladeCenter Servers running in their environment with their applications.
- **Software Distribution Premium Edition** is a powerful optional feature of IBM Director that enables you to easily create and distribute software packages to the systems on your network, helping save travel and labor costs. The standard software distribution included with IBM Director enables you to distribute IBM-provided software packages. Premium Edition is an optional priced feature for IBM Director that enables you to both build and distribute your own software packages for Windows and Linux environments.

Large Business

Standard Performance Contract

The SPC program offers financial incentives to offset the capital cost of installing high efficiency equipment or systems. Project examples may include common retrofits like lighting, HVAC and refrigeration upgrades, or more specialized process improvements and customized equipment replacements. Retrofit or new equipment installations are eligible.

Incentives are based on the type of measure installed and the kWh saved over a 12-month period. Applicants are eligible to receive up to 50% of the cost for each measure type.

The incentive limitation is \$2,400,000 annually, per customer site.

For more information on the 2007 program, visit "**What's New in 2007**".

Eligibility

SPC is open to all SCE business customers, regardless of size or energy usage. All non-residential customers must 1) receive services from SCE, 2) pay the public purpose program surcharge listed on their SCE bill.

Direct access, co-generation, or stand-by customers are eligible for incentives, however the savings and incentive may not exceed the amount of kWh purchased from SCE. The usage history is for the 12 months prior to applying to the program.

2007 Incentives Rates

Incentives are based on the energy savings achieved beyond Title 24 or minimum industry standards. For the purpose of calculating savings, projects use Title 24 or minimum industry standard as the baseline, compared to the efficiency of the proposed equipment.

Based on the type of measure installed, the following SPC incentive rates apply:

Measure Category	Incentive Rates
Lighting Fluorescent, metal halide or other lighting installations, LED traffic or pedestrian signals, and lighting controls	\$0.05 per kWh
Other Air compressors, EMS controls, injection molding machines, motors, server virtualization, variable frequency drives, process load, or other specialized equipment	\$0.08 per kWh
Air conditioning & refrigeration (AC&R) Chiller systems, cooling towers, packaged units ≥ 12 tons, refrigeration systems. <i>Some major AC&R system replacements also apply.*</i>	\$0.14 per kWh

* Specific examples are listed in Table 1-4.

Green Information Technology Initiative

BACKGROUND

Information Technology “greening” covers a range of issues that can be divided into three broad categories:

1. E-Waste – Most, if not all IT related hardware is in time replaced, and disposed. Many of the component parts of IT related hardware is composed of hazardous materials and the Environmental Protection Agency estimates that e-waste accounts for 2% of the solid waste stream in the United States.
2. Power Consumption and Air Conditioning – Computing devices are powered by electricity. Desktop computers, peripherals, Data Center servers, storage devices, Uninterruptable Power Supplies, and other hardware that consume power also generate heat which leads to additional power consumption for air conditioning. Current estimates are that 30% of the power used is converted into heat.
3. The EPA Report to Congress – This report, (Attached) estimated that in 2006 Data Centers consumed about 61 billion kilowatt-hours (kWh) (1.5 percent of total U.S. electricity consumption) for a total electricity cost of about \$4.5 billion. The Report also indicates that power consumption of Data Centers is expected to double in the next five years. Preliminary estimates done by IT working with SoCal Edison indicates that our Data Center uses 18.5% of the power used by City Hall.

The Culver City Information Technology Department has responded to the above challenges by developing a Green Information Technology Initiative. This matrix of actions provides a clear comprehensive list of actions that can be measured and monitored on an ongoing basis.

The Initiative will be posted on our web site, in both the Environmental and Information Technology sections.

**Green Information Technology Initiative
(Action Items)**

Initiative	Priority	Comment	Status
Continue to Replace CRT monitors with Energy Star Flat Panels	1	Flat panel monitors are about 30% more efficient than CRT. In addition to this direct savings, since CRTs generate more heat there will be savings in air conditioning.	The city began replacement of CRT monitors in 2005. There are approximately 80 CRT monitors yet to be replaced. AI will be replaced by fall 2008.
EPEAT certification for all desk top PCs purchased	1	EPA supported EPEAT certifies PCs in categories bronze, silver and gold. www.epeat.net	Early in 2007 the department began a policy of purchasing PCs that were certified at a minimum "silver" certification. This policy will remain in effect.
Meter Power Use in Data Center	1	In order to effectively control power use it must be measured	Currently, (as of 12/07) working with Public Works to install metering of power to the Data Center.
Implement Server consolidation(virtualization)	1	Server consolidation is one of the top strategies suggested by the EPA report.	Staff report to City Council 12/07. Implementation will begin in February 2008.
Research raising temperature in Data Center	1	We may be over aggressive in cooling the Data Center. Raising the temperature will reduce indirect cost and power use for AC	Implement optimal temperature in January 2008, after metering is implemented.
Research network power off Desktop PCs	2	To ensure that all PCs are powered off during off work hours, IT will affect the shut down via our network.	Research to be conducted by Technical services staff. Implement spring 2008.

Initiative	Priority	Comment	Status
Implement Storage virtualization	1A	Storage virtualization has the potential of saving energy on a scale similar to server virtualization.	Implementation consideration will begin soon after we begin server virtualization as part of our overall virtualized environment. Staff report to Council in July 2008.
Research Desktop virtualization	3	Virtual Desktop Infrastructure (VDI) may produce energy savings if this, or similar technologies are implemented.	Availability of staff resources will put off this project until fall 2008, at earliest.
Energy use profile of UPS and air conditioning	1	Energy efficiency can range from 80-95%. We need to ensure that we are using high efficiency UPS and AC.	Complete by January 2008.
Include environmental language in contracts and purchasing for hardware	1	Environmental related Contract and Purchasing language should reflect "in practice" policies.	Review with Purchasing and City Attorney. Complete by February 2008.
Produce a semiannual report on status and progress for the City Manger, City Council, and public.	1	To ensure continual review of and priority of environmental impact of IT.	Update web site as action items change. Written review/report in June and January each calendar year.
Review Data Center Structure	3	There may "construction related" issues that could be addressed that could increase the cooling efficiency of the room.	Identify any cost effective action that could be implemented. Complete by June 2008.