

State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Request for Quotation

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POMEROY COMPUTER RESOURCES SAL
4013 WASHINGTON STREET WEST

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SECRETARY OF STATE

BUILDING 1, ROOM 157K 1900 KANAWHA BOULEVARD, EAST CHARLESTON, WV 25305-0770 558-6000

F.O.B SHIP VIA FREIGHT TERMS TERMS OF SALE DATE PRINTED 06/08/2006 BID OPENING DATE: BID OPENING TIME 01:30PM 06/21/2006 ITEM NUMBER UNITPRICE AMOUNT QUANTITY UOP LINE 920-49 LS \$118,989.77118,989.12 10001 1 HARDWARE AND SOFTWARE TO PROVIDE HARDWARE AND SOFTWARE FOR THE SECRETARY OF STATE'S OPTICAL STORAGE MIGRATION PROJECT PER THE ATTACHED SPECFICATIONS PLEASE NOTE THE MANDATORY INFORMATION IN THE FAILURE TO PROVIDE THIS REQUESTED SPECIFICATIONS. INFORMATION WILL RESULT IN DISQUALIFICATION OF THE BID. BEGINNING DATE OF THE MAINTENANCE SHALL BE ESTABLISHED BY CHANGE ORDER. VENDOR PREFERENCE CERTIFICATE CERTIFICATION AND APPLICATION* IS HEREBY MADE FOR PREFERENCE IN ACCORDANCE WITH WEST VIRGINIA CODE. 5A-3-37 (DOES NOT APPLY TO CONSTRUCTION CONTRACTS). APPLICATION IS MADE FOR 2.5% PREFERENCE FOR THE REASON CHECKED: BIDDER IS AN INDIVIDUAL RESIDENT VENDOR AND HAS RESIDED CONTINUOUSLY IN WEST VIRGINIA FOR FOUR (4) YEARS IMMEDIATELY PRECEDING THE DATE OF THIS CERTIFICATION; OR BIDDER IS A PARTNERSHIP, ASSOCIATION OR CORPORA-TION RESIDENT VENDOR AND HAS MAINTAINED ITS HEAD-DUARTERS OR PRINCIPAL PLACE OF BUSINESS CONTINUOUSLY IN WEST VIRGINIA FOR FOUR (4) YEARS IMMEDIATELY PRECEDING SEE REVERSE SIDE FOR TERMS AND CONDITIONS SIGNATURE 301-1196-4131 XIIO 15-21-06 ADDRESS CHANGES TO BE NOTED ABOVE 6-1352158



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SEE REVERSE SIDE FOR TERMS AND CONDITIONS

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West Virginia Secretary of State Request for Quotation

The Information Technology Division of the West Virginia Secretary of State's Office (WV-SOS) is soliciting quotations from qualified Vendors for its Optical Storage Migration Project (Project).

The Project consists of three (3) phases:

Phase One - Deliver and install the hardware and software, as detailed in Attachment 1.

Phase Two - Migrate all data from the existing hardware to the new hardware.

Phase Three – Maintenance and support for all hardware and software included in the Project, for a minimum of two (2) years.

The successful vendor will be required to complete all three (3) phases of the Project according to the specifications provided within this document and attachments.

Current Environment

Hardware

Dell PowerEdge 2850 Server running Microsoft Windows Server 2003, Standard Edition (Imaging Server).

Microsoft SQL Server 2000, Service Pack 4, hosting the database for FileNet Version 5.4.

Legato DiskXtender Version 5.60.049.

Hewlett-Packard SureStore Optical 600MX (Jukebox), with 64 slots for Dual-Sided Optical Disks. Of which, 50 slots are populated. Bach Optical Disk has a maximum capacity of 9.1 Gigabytes. The Total Current Storage In-Use is 330 Gigabytes.

Software

There are a number of applications used by the WV-SOS to create Document Images that are stored on the Jukebox. These applications do not directly communicate with the Jukebox. The Document Images are initially stored in a folder on the Imaging Server.

Once the Document Images are stored, Legato DiskXtender transfers the Document Images from the Imaging Server to the Jukebox, using a policy-based process. Legato DiskXtender also manages the retrieval process.

Proposed Environment

Hardware

Replacement of the Jukebox with a Write-Once Read-Many compliant, Content-Addressed Storage System, providing a minimum of one (1) terabytes of usable space in a redundant configuration, and capable of backup via removable media to an off-site location for disaster-recovery (Proposed Hardware).

Software

Legato DiskXtender will continue to interface between the Imaging Server and the hardware replacing the Jukebox. No changes will be made to any of the software applications now in use, beyond those required to implement the Project.

General Requirements

It is essential to the successful completion of the Project that the Vendor understand the potential impact the Project will have on the daily operations of the WV-SOS Office. During Phase 1 and Phase 2, the Vendor shall notify the WV-SOS before any action is taken that could potentially disrupt daily operations. Any planned disruption of daily operations, that is required for the successful completion of the Project, must have the prior approval of the WV-SOS.

Therefore, upon acceptance by the WV-SOS of the successful Vendor's RFQ response, the Vendor shall immediately submit to the WV-SOS a detailed description of the steps necessary to successfully complete each phase of the Project.

Phase 1 Requirements

Vendors shall not propose hardware or software for the Project that does not meet the specifications as detailed in Attachment 1.

The successful vendor shall:

- Supply and install all hardware and software (Solution) listed in Attachment 1 at the State Capitol Complex, Building 1 Suite 157-K, 1900 Kanawha Boulevard East, Charleston, West Virginia 25305.
- 2. Supply the WV-SOS with a Single Point of Contact (SPOC) that can be contacted by the WV-SOS for all issues relating to the Project.
- 3. Provide delivery of the Solution, according to these specifications:
 - a. Delivery must occur during normal business hours, Monday through Friday, 8:30 AM to 5:00 PM.
 - b. Delivery arrangements must be approved by the WV-SOS, Information Technology Staff (IT Staff) with a minimum of 48 hours notice prior to delivery for all items requiring "loading dock access".
 - c. All deliveries, regardless of routing, must be sent "Adult signature required".
- 4. Provide installation of the Solution, according to these specifications:
 - a. Installation must occur during normal business hours, Monday through Friday, 8:30 AM to 5:00 PM.
 - b. Installation will be scheduled at a time mutually agreed upon by the Vendor and the IT Staff, based on the installation plan submitted.

- c. The IT Staff will provide the on-site access needed to successfully complete the Project and will participate in the installation process. However, it is the Vendor's responsibility to execute the installation of all hardware and software directly related to the Project.
- 5. Provide a "Transfer of Knowledge" to the IT Staff; which includes, but is not limited to:
 - a. The original documentation that is normally supplied with the Solution.
 - b. A copy of all documentation created by the Vendor related to the Project. Such as, but not limited to: installation notes, configuration settings, and any information not found within the original documentation.
 - c. Tips for installation.
 - d. Programming related to routine operations.
 - e. Recommendations for routine maintenance and support.
 - f. Other information deemed important by the Vendor.

Phase 2 Requirements

The successful vendor shall be responsible for migrating the data from the Jukebox to the Solution according to these specifications:

- 1. Zero-Loss-Data (100% of the data transferred and verified).
- 2. Accomplished on-site, by qualified Technical Staff who are industry certified on products included in the Solution. Proof of certification shall be included in the quote package.
- 3. Provide a list of references for past projects completed by the Vendor where the products included in the Solution used. References shall be included in the quote package.
- 4. The Technical Staff (# 2 above) shall have available to them, any and all resources from the Vendor and Original Equipment Manufacturer (OEM, if different from the Vendor) required for the successful completion of the migration.
- 5. The migration will be performed at a time mutually agreed upon by the Vendor and the IT Staff.
- 6. The "cut-over" from the Jukebox to the Solution shall take place on a Saturday morning, between the hours of 8:00 AM and 12:00 PM. The actual date of the "cut-over" will be mutually agreed upon by the Vendor and the IT Staff.

Phase 3 Requirements

The successful vendor shall:

- 1. Include a Hardware Service and Maintenance Contract (HSMC) that meets the following specifications:
 - a. For a minimum term of two (2) years from the completion date of the Project.
 - b. On-Site, Same Day, 4 Hour Response by a member of the OEM's Technical Support Staff to resolve any and all issues.

c. Provides direct contact with the OEM's Help Desk. The routing of support calls through a third-party contact is unacceptable.

d. Include Labor and Materials according the OEM's standard practice for this level of

support.

- e. Include all regular, applicable updates offered by the OEM with an Opt-In for Automatic Notification via e-mail.
- 2. Include a Software Service and Maintenance Contract (SSMC) that meets the following specifications:

a. For a minimum term of two (2) years from the completion date of the Project.

b. Provides 24 hour / 365 day, direct access to the OEM's Help Desk to resolve any and all issues. The routing of support calls through a third-party contact is unacceptable.

c. Assistance can be provided by a member of the OEM's Technical Support Staff via phone and remote access according the OEM's standard practice for this level of support. However, the SSMC shall provide the option for next-day, on-site technical support when requested by WV-SOS (a cost schedule for this must also be included).

d. Include all applicable updates (patches) and upgrades (newly released versions) offered by the OEM with an Opt-In for Automatic Notification via e-mail for when updates and

upgrades become available.

- 3. Ensure the HSMC and SSMC are active before the completion of the Project.
- 4. Provide any and all documentation on the HSMC and SSMC. This shall include, but is not limited to, the full text of the HSMC and SSMC.
- 5. Provide information and pricing for optional extended HSMC and SSMC that are available after expiration of the initial contracts. Information shall include specific details on the type of coverage and all exclusions, if applicable.

STANDARD CONTRACTUAL PROVISIONS

- 1. PRICES: All prices shall be quoted F.O.B. Charleston, West Virginia, delivered, installed, tested, and designated personnel trained to the WV-SOS's satisfaction, in accordance with the RFQ specifications. The Vendor's response to this RFQ must include a completed Bid Form (Attachment 2) with all prices clearly stated. Failure to complete the Bid Form will automatically disqualify the Vendor from consideration.
- 2. INVOICES: The WV-SOS will accept a single invoice on the acceptance and approval by the WV-SOS of the completely installed and operational Solution, in accordance with the RFQ specifications. The WV-SOS shall endeavor to pay a correct invoice within thirty (30) days of acceptance. The WV-SOS will make every effort to notify the Vendor within ten (10) days of receipt of invoice of any items questioned. The Vendor shall prepare verification data for the amount claimed and provide complete cooperation during such investigation of any areas in the invoice subject to question.
- 3. SELLING, TRANSFERRING OR ASSIGNING CONTRACT: No contract awarded under these terms, conditions and specifications shall be sold, transferred or assigned without the written approval of the WV-SOS.
- 4. CONTRACTS / AGREEMENTS: The WV-SOS reserves the right to review any and all extended maintenance contracts, or software license agreements. The Vendor shall include a copy of the standard maintenance form(s) as a part of the RFQ response.
- 5. TIMELINE: The Vendor shall be required to complete the Project by July 31, 2006.
- 6. RELATED EXPENSES / TRAVEL EXPENSES: All related expenses the Vendor may incur in relation to the successful completion of the Project shall be the sole responsibility of the Vendor and shall be included as part of the total price quotation.
- 7. WARRANTIES OF USAGE: Any estimated quantities listed are for information and tabulation purposes only. No warranty or guarantee of quantities needed is given or implied. It is understood that the Vendor will furnish the WV-SOS 's needs as they arise.
- 8. INDEPENDENT CONTRACTOR: The Vendor is an independent contractor under this Agreement and shall not be considered an employee of the WV-SOS. Personnel services provided by the Vendor shall be by employees of the Vendor and subject to supervision by the Vendor, and not by officers, employees, or agents of the WV-SOS. Personnel policies, tax responsibilities, social security, health insurance, employee benefits, purchasing policies and other similar administrative procedures applicable to services rendered under this Project shall be those of the Vendor.
- 9. SUB-CONTRACTORS: The Vendor may sub-contract a portion of the Project to another contractor with the expertise to best accomplish that portion of the Project. However, the Vendor shall:
 - a. Clearly identify all sub-contractors that will be used and what portions of the Project each sub-contractor will be responsible for completing.

- **b.** Supervise the sub-contractor. For the duration of the Project, the sub-contractor shall not be considered a employee of the WV-SOS, and as such, shall be bound by the terms of Section 8 Independent Contractor.
- c. Ensure the sub-contractor has the appropriate qualifications and industry certifications for the products the sub-contractor will install and configure.
- d. Proof of the sub-contractor's certification shall be included in the quote package.
- 10. INDEMNITY/HOLD HARMLESS AGREEMENT: The Vendor agrees to protect, defend, indemnify, and hold harmless the WV-SOS and its officers, employees and agents from and against any and all losses, penalties, damages, settlements, claims, costs, charges for other expenses, or liabilities of every and any kind including attorney fees, in connection with or arising directly or indirectly out of the work agreed to or performed by Vendor under the terms of any agreement that may arise due to the bidding process. Without limiting the foregoing, any and all such claims, suits, or other actions, relating to personal injury, death, damage to property, defects in materials or workmanship, actual or alleged violations of any applicable statute, ordinance, administrative order, rule or regulation, or decree of any court, shall be included in the indemnity hereunder.
- 11. RECORDS, AUDITS: The accounts and financial records, with respect to the services performed under the Project, shall be kept separate or identifiable from those relating to the Vendor's other activities. The Vendor shall, with reasonable prior notice, make available, during reasonable business hours, to the WV-SOS's Representative or Internal Auditor for inspection and audit all records and files relative to this Project. The Vendor shall maintain and make available such records and files for the duration of the Project, including any extension terms plus two (2) years.

Such records shall be maintained as an independent certified public accountant would need to examine in order to certify a statement of Vendor's operations according to generally accepted auditing standards.

- 12. UNCONTROLLABLE CIRCUMSTANCES ("Force Majeure"): The WV-SOS and Vendor will be excused from the performance of their respective obligations under this agreement when and to the extent that their performance is delayed or prevented by any circumstances beyond their control including, fire, flood, explosion, strikes or other labor disputes, act of God or public emergency, war, riot, civil commotion, malicious damage, act or omission of any governmental authority, delay or failure or shortage of any type of transportation, equipment, or service from a public utility needed for their performance, provided that:
 - A. the non performing party gives the other party prompt written notice describing the particulars of the Force Majeure including, but not limited to, the nature of the occurrence and its expected duration, and continues to furnish timely reports with respect thereto during the period of the Force Majeure;
 - **B**. the excuse of performance is of no greater scope and of no longer duration than is required by the Force Majeure;
 - C. no obligations of either party that arose before the Force Majeure causing the excuse of performance are excused as a result of the Force Majeure; and

D. the non performing party uses its best efforts to remedy its inability to perform.

Notwithstanding the above, performance shall not be excused under this Section for a period in excess of two (2) months, provided that in extenuating circumstances, the WV-SOS may excuse performance for a longer term. Economic hardship of the Vendor will not constitute Force Majeure. The term of the agreement shall be extended by a period equal to that during which either party's performance is suspended under this Section.

- 13. PROPOSAL COSTS: All costs submitted for this RFQ shall remain firm for acceptance for a minimum of one hundred and twenty (120) days from the date of the RFQ bid opening.
- 14. CONFIDENTIALITY: The successful Vendor shall be required to have all its employees and contractors who work on the Project to sign a Confidentiality Statement prepared by the WV-SOS.

Attachment 1

Hardware List

The Vendor shall supply the hardware as stated in these specifications. Substitution of alternate hardware is permissible; however, the alternative hardware must meet these requirements:

- a. Meet or exceed the performance specifications of the hardware it is replacing.
- b. Provide equal or greater storage capacity as the specified hardware.
- c. Be Write-Once Read-Many compliant, with Content-Addressable storage.
- d. Compatible with the software currently in use by the WV-SOS.

Should the Vendor propose alternative hardware, the Vendor shall provide in their RFQ response, documentation to prove the above requirements have been met.

Any and all rack-mountable hardware shall be installed in a Dell Computer Rack provided by the WV-SOS.

A complete list of any and all utility connections (electrical, network connectivity, phone, etc), with detailed specifications, that are required for the installation of the Solution shall be provided with the quote. Upon review by the IT Staff and acceptance of the quote, the WV-SOS shall make provision for the required utilities in a timely manner.

The Vendor shall insure that the proper cables, as specified by the OEM, required for the installation are included in the quote and delivered with the hardware. Should the Vendor fail to do so, the Vendor shall provide the missing cables at the Vendor's expense.

Original Equipment Manufacturer: EMC Corporation

Item 1 "Centera" Content-Address Storage System – 4 Node Base G4

Setup in a redundant configuration with 1 Terabyte of user available storage

PRODUCT ID: CNR4N5MBAG4 OUANTITY: 1

Item 2 "Centera" Licensing

PRODUCT ID: CNRGPLLIC QUANTITY: 1

Item 3 "Centera" Warranty

PRODUCT ID: WARCNRHWPRM QUANTITY: 1

Original Equipment Manufacturer: 3COM Corporation

Item 4 SuperStack 3 Switch 3812

Gigabit switch for connecting "Centera" unit with the Imaging Server

PRODUCT ID: 3C17401 QUANTITY: 1

Original Equipment Manufacturer: Intel Corporation

Item 5 PRO/1000 MT Dual Port Server Adapter Gigabit Network Interface Card PRODUCT ID: PWLA8492MT

QUANTITY: 1

Original Equipment Manufacturer: Misc

Item 6

UTP CAT-6 Network Cable – length = 2 Meters

QUANTITY: 6

Software List

The Vendor shall supply the software as stated in these specifications. Substitution of alternate software is permissible; however, the alternative software must meet these requirements:

- a. Be fully compatible with the hardware proposed in the Vendor's RFQ response.
- b. Meet or exceed the performance specifications of the software it is replacing.

Should the Vendor propose alternative software, the Vendor shall provide in their RFQ response, documentation to prove the above requirements have been met.

Original Equipment Manufacturer: EMC Corporation

Item 7

"Centera" Compliance Edition Software

PRODUCT ID: CNR4NCEPLSLIC

QUANTITY: 1

Item 8

"Centera" Compliance Edition - Software Maintenance

PRODUCT ID: CNRSW-PPM-PRM

QUANTITY: 1

Backup Requirement

The WV-SOS currently uses Computer Associates BrightStor (ARCserve) Backup version 11.1 to backup the WV-SOS servers. However, ARCserve is not certified for the backup of an EMC Centera. One goal of the Project is utilize a single product to backup all WV-SOS operational data, regardless of the type of storage device.

Therefore, Vendor shall supply a backup solution as an integral component of the Project as stated in these specifications. Substitution of alternate hardware and / or software is permissible; however, the proposed alternative must meet these requirements:

- a. Compatible with the Dell PowerVault 132T, Tape Library (configured with a SDLT160/260GB tape drive) currently in use.
- b. Compatible with the hardware and software proposed in the Vendor's RFQ response.
- c. Meet or exceed the performance specifications of the hardware and / software it is replacing.
- d. Capable of supporting the following server configuration:
 - i. Sixteen (16) servers running Microsoft Windows 2000 Server or higher.
 - ii. Microsoft SQL Server 2000 or higher.
 - iii. Microsoft Exchange Server 2000 or higher.
 - iv. Each server has one (1) 100 Megabit Ethernet connection to the LAN.
- e. Include hardware and software extended service as stated in the Phase 3 Requirements.

Should the Vendor propose and alternative, the Vendor shall provide in their RFQ response, documentation to prove the above requirements have been met.

Item 9	"Centera Backup and Recovery Module" (C	BRM) Software
	PRODUCT ID: CNRCBRMLIC	QUANTITY: 1
Item 10	Veritas NetBackup Enterprise Server versio	n 6.0
	PRODUCT ID: A159818-20000000	QUANTITY: 1
Item 11	Veritas NetBackup Client version 6.0	·
	PRODUCT ID: A159878-00000000	QUANTITY: 15
Item 12	Veritas NetBackup Database Agent version	
	PRODUCT ID: A159998-20000000	QUANTITY: 1
Item 13	Veritas NetBackup Exchange Server Agent	version 6.0
	PRODUCT ID: A160008-200000	QUANTITY: 1
Item 14	Veritas NetBackup Option Library Based T	
	PRODUCT ID: A15988C-00000000	QUANTITY: 1
Item 15	Dell SDLT160.320GB Tape Drive for a Po	
	CUSTOMER KIT: 340-8421	QUANTITY: 1

AGREEMENT ADDENDUM

WV-96 Re**Y7** 5/94

In the event of conflict between this addendum and the agreement, this addendum shall control:

- 1. ARBITRATION Any references to arbitration contained in the agreement are hereby deleted. Disputes arising out of the agreement shall be presented to the West Virginia Court of Claims.
- 2. <u>HOLD HARMLESS</u> Any clause requiring the Agency to indemnify or hold harmless any party is hereby deleted in its entirety.
- 3. GOVERNING LAW The agreement shall be governed by the laws of the State of West Virginia. This provision replaces any references to any other State's governing law.
- 4. TAXES Provisions in the agreement requiring the Agency to pay taxes are deleted. As a State entity, the Agency is exempt from Federal, State, and local taxes and will not pay taxes for any Vendor including individuals, nor will the Agency file any tax returns or reports on behalf of Vendor or any other party.
- 5. PAYMENT Any references to prepayment are deleted. Payment will be in arrears.
- 6. INTEREST Should the agreement include a provision for interest on late payments, the Agency agrees to pay the maximum legal rate under West Virginia law. All other references to interest or late charges are deleted.
- RECOUPMENT Any language in the agreement waiving the Agency's right to set-off, counterclaim, recoupment, or other defense is hereby deleted.
- 8. FISCAL YEAR FUNDING Service performed under the agreement may be continued in succeeding fiscal years for the term of the agreement, contingent upon funds being appropriated by the Legislature or otherwise being available for this service. In the event funds are not appropriated or otherwise available for this service, the agreement shall terminate without penalty on June 30. After that date, the agreement becomes of no effect and is null and void. However, the Agency agrees to use its best efforts to have the amounts contemplated under the agreement included in its budget. Non-appropriation or non-funding shall not be considered an event of default.
- STATUTE OF LIMITATION Any clauses limiting the time in which the Agency may bring suit against the Vendor, lessor, individual, or any other party are deleted.
- 10. SIMILAR SERVICES Any provisions limiting the Agency's right to obtain similar services or equipment in the event of default or non-funding during the term of the agreement are hereby deleted.
- 11. ATTORNEY FZES The Agency recognizes an obligation to pay attorney's fees or costs only when assessed by a court of competent jurisdiction. Any other provision is invalid and considered null and void.
- 12. <u>ASSIGNMENT</u> Notwithstanding any clause to the contrary, the Agency reserves the right to assign the agreement to another State of West Virginia agency, board or commission upon thirty (30) days written notice to the Vendor and Vendor shall obtain the written consent of Agency prior to assigning the agreement.
- 13. <u>LIMITATION OF LIABILITY</u> The Agency, as a State entity, cannot agree to assume the potential liability of a Vendor. Accordingly, any provision limiting the Vendor's liability for direct damages or limiting the Vendor's liability under a warranty to a certain dollar amount or to the amount of the agreement is hereby deleted. In addition, any limitation is null and void to the extent that it precludes any action for injury to persons or for damages to personal property.
- 14. RIGHT TO TERMINATE Agency shall have the right to terminate the agreement upon thirty (30) days written notice to Vendor.
- 15. TERMINATION CHARGES Any provision requiring the Agency to pay a fixed amount or liquidated damages upon termination of the agreement is hereby deleted. The Agency may only agree to reimburse a Vendor for actual costs incurred or losses sustained during the current fiscal year due to wrongful termination by the Agency prior to the end of any current agreement term.
- 16. RENEWAL Any reference to automatic renewal is hereby deleted. The agreement may be renewed only upon mutual written agreement of the parties.
- 17. INSURANCE Any provision requiring the Agency to insure equipment or property of any kind and name the Vendor as beneficiary or as an additional insured is hereby deleted.
- 18. RIGHT TO NOTICE Any provision for repossession of equipment without notice is hereby deleted. However, the Agency does recognize a right of repossession with notice.
- 19. ACCELERATION Any reference to acceleration of payments in the event of default or non-funding is hereby deleted.
- 20. <u>AMENDMENTS</u> All amendments, modifications, alterations or changes to the agreement shall be in writing and signed by both parties. No amendment, modification, alteration or change may be made to this addendum without the express written approval of the Purchasing Division and the Attorney General.

STATE OF WEST VIRGINIA	VENDOR
	Company Name: Pomorof TT. Solutions
Signed:	Signed:
Title:	Title: Sole Account Exec.
Date:	Date: 6-21-06

ATTACE	HMENT
P.O.#	9

This agreement constitutes the entire agreement between the parties, and there are no other terms and conditions applicable to the licenses granted hereunder.

Agreed		
Taith le 6-21-06		•
Signature Date	Signature	Ďate
Solos Decound Exec.		
Title	Title	
Gomeray L.T. Solutions		
Company Name	Agency/Division	<u></u>

DELL

QUOTATION

QUOTE #: 300927489

Customer #: 24311420

Contract #: 74123

Quote Date: 6/21/06

Date: 6/21/06 10:38:31 AM Customer Name: POMEROY COMPUTERS

TOTAL QUOTE AMOUNT:	-		·
Product Subtotal:			
Tax:	-		
Shipping & Handling:	<u> </u>		
Shipping Method:		Total Number of System Groups:	0

SOFTWARE & ACCESS	ORIES		
		: ·	
Product	Quantity	Unit Price	Total
PowerVault 132T, 1 drive, SDLT160/320GB, Customer Klt (340-8421)	1		, e galaren .
Number of S & A Items: 1	S&A Tot	al Amount:	

SALES REP:	NICK KELLY	PHONE:	1800-274-0696
Email Address:	Nick_Kelly@Dell.com	Phone Ext:	7265312 .

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Creation Date:

50043785-0

01-Jun-2006

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Ordering Information		(All prices are quoted in US Dollars)			
Part Number	Tier	Description	Qty	List Price /Unit	Extended Price
License					
A159818-200000	2	NetBackup Server, Windows, Enterprise Server, v6.0, License Tier 2	1	•	
A159878-000000		NetBackup Client, Windows, Protect Server, v6.0, License	15		
A159998-200000	2	NetBackup Database Agent, Windows, SQL Server Agent, v6.0, License Tier 2	1		
A160008-200000	2	NetBackup Database Agent, Windows, Exchange Server Agent, v6.0, License Tier 2	1		
A15988C-000000		NetBackup Option, Cross Platform, Library Based Tape Drive Support, v6.0, License	1	•	·
		License Subtotal:			
Support		•			
W159818-200236	2	NetBackup Server, Windows, Enterprise Server, v6.0 Tier 2 Extended Support, 3 Yr 24x7	1	£	
W159878-000236		NetBackup Client, Windows, Protect Server, v6.0 Extended Support, 3 Yr 24x7	15		
W160008-200236	2	NetBackup Database Agent, Windows, Exchange Server Agent, v6.0 Tier 2 Extended Support, 3 Yr 24x7	1		
W159998-200236	2	NetBackup Database Agent, Windows, SQL Server Agent, v6.0 Tier 2 Extended Support, 3 Yr 24x7	1		
W15988C-000236		NetBackup Option, Cross Platform, Library Based Tape Drive Support, v6.0 Extended Support, 3 Yr 24x7	1		
		Support Subtotal:		N/F	21
		Total:		Birth	. •

Comments:

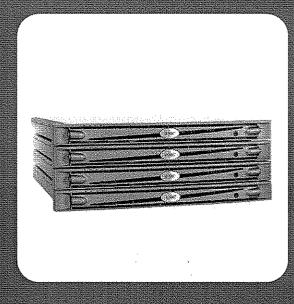
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EMC Centera Content-Addressed Storage



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Chapter 1

Introduction

Surveys of Global 2000 enterprises indicate that the fastest growing type of data is socalled "fixed content." Fixed content comprises any form of digitized information assets retained for reference and value: documents, e-mail, check images, streaming video/audio, X-rays, final-form CAD drawings, etc.

This rapid accumulation of fixed content demands a new category of storage designed for the secure, online storage and retrieval of such information for years and years—content-addressed storage (CAS). Rather than access a data object by its file name at a physical location, a CAS device uses a content-address to store and retrieve the object. Because content often accumulates without any upper limit, a CAS repository must be extremely easy to scale to petabytes (1,024 terabytes) while maintaining sub-second access performance.

EMC CenteraTM content-addressed storage is a purpose-built, hardware and software disk-based storage product that fulfills the challenge of securely holding hundreds of terabytes of business content online for months, years, or decades. Centera complements EMC's CLARIION®, and Symmetrix®, block access storage devices that are optimal for transaction-oriented, update-intensive, data store solutions. Similarly, EMC Celerra® file servers excel at providing file-based access for collaborative applications.

Traditional disk storage systems with block or file access schemes are well suited to the storage of tens of terabytes, typical of transactional and collaborative applications. But today, organizations also need to keep large, rapidly growing repositories of fixed content information online, and this content needs to be accessed by a variety of network attached clients. It becomes a challenge to manage the logistics of data placement and capacity scaling while also assuring authenticity of the content over its life. Centera, with its CentraStar® software, and advanced modular disk-based hardware architecture, handles the management of the physical storage resources transparently to the user and application. Content management applications can easily interface to Centera facilities to permit painless scaling to a petabyte.

Market Overview

While transactional data stores and applications based on relational database technologies are growing at an annual rate of between 30 to 50 percent, the content explosion is increasing storage capacity requirements in some markets by as much as 100 percent or more. Customers need new ways to manage these increasing amounts of fixed content, which is typically unchanged once it is created, and which can create additional business value when accessible online.

The content-addressed storage market cuts across multiple industry segments such as:

 Healthcare and Life Sciences: The effectiveness of patient care depends on effective sharing of fixed content information (X-rays, MRI, drug trial results). Centera allows users to easily store, retrieve, and preserve content so regulatory requirements are adequately satisfied. Faster access to information helps improve the quality of care.

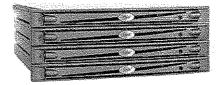


- Financial Services: Centera addresses two major needs: 1) stringent regulations that mandate content integrity, and 2) cost-effective online access as a way to repurpose information for new service offerings and revenue streams.
- Enterprise Content Management: Across the enterprise, from e-mail messages and attachments to Web transactions, fixed content is growing exponentially. Centera can help users manage this growth—without disruption.
- File Systems Archiving: Fixed and static content increase management costs for traditional file servers. By moving this data to an automated archive, backup times can be reduced and server growth can be more easily managed.
- Film, Broadcast and Media: The creation, reuse, and sale of video, film, and audio
 assets are key revenue sources that must be protected. Centera can be used as a digital asset repository to address the issues of long-term retention and content authenticity for copyright protection.
- Applications for all industries: Centera addresses significant challenges presented by the growth of fixed content in federal and state governments, telecommunications, discrete manufacturing, oil and gas, and more.

In each of these market segments, content must be preserved intact for years, if not decades. Particularly, in regulated industries, such as financial services, life sciences, healthcare, and government, data must not be altered or erased within the legally defined retention periods. In the past, data has often ended up on tape or optical disk. These are sub-optimal solutions based on inadequate access speed and unverified reliability and integrity. The solution needed is EMC Centera, content-addressed storage (CAS).

The following examples illustrate the need for Centera CAS solutions:

Medical imaging: Over 400 million patient studies were completed in the U.S. in 2000. Each study is composed of one or a series of images, which range in size from about 30 MB for standard digital X-rays to over 1 GB for oncology studies. As X-rays are created in the radiology department of the hospital, they are stored online for immediate use by attending physicians for a period of approximately 60-90 days. At the point where the patients are cured or discharged, the access needs for their particular X-rays drop off dramatically, However, HIPAA requirements stipulate that these studies must be kept in their full lossless image formats for a minimum of seven years. Beyond 90 days, hospitals may back up images to tape or send them to an offsite archive service for long-term retention. The cost of restoring or retrieving an image when in long-term storage could be 5-10 times more expensive than leaving the image online, and recovery times can often be measured in hours or days. Medical image solution providers offer hospitals the capability of viewing medical studies such as X-rays online with sufficient response times and resolution to allow rapid assessment of patient situations. Centera is the optimum and most cost-effective storage solution to facilitate long-term storage and immediate access of medical images online, within a hospital or at a clinician's office.



Financial Services: Check images, each with a size of about 25 KB, are created at the bank, and they can be stored internally or sent to a check imaging service provider who may process 50 to 90 million check images a month. Typically, check images are actively processed in transactional systems for about five days. For the next 60 days, check images may be requested by regional banks or individual consumers for verification purposes, at a rate of about one-half percent of the total check pool (250,000 to 450,000 requests for check look-ups). Beyond 60 days, access requirements drop dramatically to as few as one for every 10,000 checks. In this case, the check images would be stored on Centera starting at day 60 and held there indefinitely. It should also be noted that check imaging is not the only financial services application requiring the content storage facilities of Centera. Customer transactions initiated by e-mail, contracts, and security transaction records also need to be kept online for as long as 30 years.

Research shows that customers want higher reliability and faster access to fixed content than current solutions (tape or optical) provide. Many of the technologies currently addressing the content market do not provide immediate, online access to the information. The customer accepts a tradeoff, giving up functionality (typically response time) in order to achieve a lower initial acquisition price. In some tape and optical-based applications, multiple concurrent users accessing content is cumbersome to implement and creates bottlenecks.

Although tape and optical solutions may appear less expensive due to lower initial acquisition costs, in the long run they cost more as they require increased focus on manual media management (movement of tapes, conversion to new formats, etc.). And they are more difficult to manage through migrations and changes in technology. Likewise, when dealing with large quantities of fixed content, low-end NAS or SAN alternatives also create management challenges because they do not have the content-addressing and self-healing/self-managing features of Centera.

Chapter 2

The Value of Centera

The Centera approach to storing fixed content offers the end user many benefits:

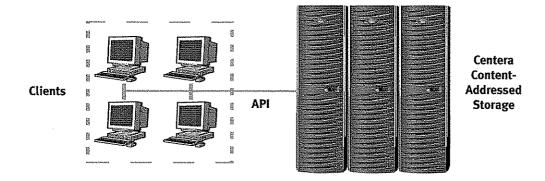
- Purpose-built magnetic-disk-based storage that overcomes the limitations of tape and optical technologies
- · Facilitates governance and compliance needs for retention and preservation
- Self-management and self-configuration capabilities allow you to manage more content with fewer staff at lower cost
- Future-proof architecture—Leverages technology to maintain long-term retention, assured content integrity
- Self-healing—Redundant Array of Independent Nodes (RAIN) architecture, no single-points-of-failure, continuous data integrity checking/repairing, non-disruptive repair, phone-home capability, dual AC power sourcing

Product Overview

Accessing Centera

Centera introduces a new data access paradigm known as content addressing. Instead of requiring an application to store and retrieve static content in the traditional address location-based approach, Centera presents a flat address scheme to the archive program. When a reference data object is initially stored in the Centera repository, the application is given a "claim check" that is uniquely derived from the object's content.

Figure 1

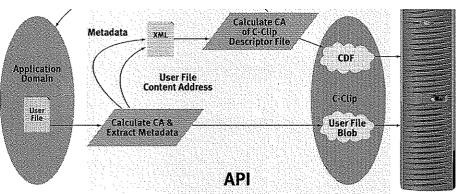


Subsequent access of that data object is made by simply giving the claim check that uniquely identifies the object back to the repository and the data object is returned. Content-addressing greatly simplifies the storage resource management tasks, especially when handling hundreds of terabytes of static objects.

Centera stores a data object, also known as a BLOB (Binary Large Object) synchronously as shown in Figure 2.

- An application delivers a data object to the Centera application programming interface (API), which calculates a 256-bit claim check, i.e., the content address (CA), from the object's binary representation.
- 2. The Centera repository then stores the BLOB and a mirror copy.
- 3. This CA, which is unique for the object's content, and metadata about the object (e.g., file name, creation date, etc.) are then inserted into an XML file, called a C-Clip™ Descriptor File (CDF), which in turn has its content-address calculated. Note: The C-Clip is the union of the CDF and its content object.
- 4. This C-Clip CA is only returned to the application once two copies of the CDF and two copies of the BLOB have been safely stored in the repository.





Future requests for the retrieval of the data object occur when the application submits the C-Clip's CA for that object to the repository via the API. There is no centralized directory in Centera and no pathnames or URLs are used. Only the C-Clip's CA is used as a reference. Where the data is physically stored in Centera is transparent to the application.

C-Clip Functionality

The CA is essentially a fingerprint that assures the authenticity of the stored object (i.e., the User File BLOB). If an object is retrieved and altered by one bit, when the modified object is subsequently stored, the Centera API will produce a new CDF with a new content-address for the altered BLOB. The original object is still unchanged and accessible by its original content address. This Write Once Read Many (WORM) attribute assures a level of versioning integrity that file servers can't provide. Additionally, Centera features an operational mode where data cannot be deleted prior to the expiration of a defined retention period. These non-rewritable and non-erasable properties of Centera give it WORM attributes without sacrificing online performance.

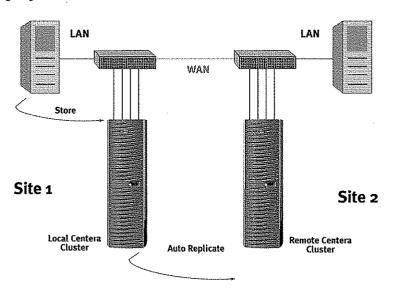
Another benefit of the C-Clip access method is that if multiple clients store the same BLOB in the Centera repository, only one instance of the object (plus a mirror copy) will be stored while each referencing client gets its own C-Clip CA pointing to the common object. This is very useful in optimizing space consumption in applications such as email attachment archiving.

The C-Clip method ensures that application developers, users, and storage managers do not need to think about where data is physically or logically located. The C-Clip's CA is a globally unique identifier permitting a data object to be retrieved from anywhere, exactly as it was stored, irrespective of the relative locations of the content and the user.

Because Centera uses the location independent addressing scheme described earlier, the result is data mobility that facilitates a simple yet robust disaster recovery topology. When a data object is initially stored in the local Centera, the object can also be asynchronously and automatically replicated to the remote site over a wide area network (WAN) such that the object resides both locally and remotely. Replication is offered as a CentraStar software option to be configured on both local and remote Centera systems.

If a disaster should occur locally, when the local site is rebuilt the remote site will be able to re-populate the local Centera as needed. Note that this replication facility can be operated bi-directionally in an active-active topology.

Figure 3



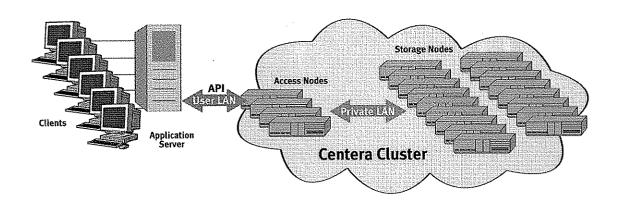
Users access EMC Centera through content-based software applications that incorporate Centera's powerful API. Examples of the type of third-party software that use the Centera API include content/document management, medical imaging, e-mail archiving, and a wide variety of vertical applications that benefit when large amounts of content objects are accessible online and shareable by a large number of users.

Centera Architecture

The Centera architecture presents a "no-single-point-of failure" platform that is highly scalable and implements non-disruptive servicing. Centera is built upon a Redundant Array of Independent Nodes (RAIN) architecture that is deployed in one or more six-foot NEMA standard 19-inch cabinets. Each cabinet can be configured with 5.12 to 60 raw (2.3 TB to 25.8 TB mirrored, or 12.24 TB to 48.46 TB parity-protected) storage capacity.* Capacity is added in increments of 4 nodes, configured as storage nodes and/or access nodes. Each storage node contains processing power, 2 TB raw (up to .9 TB mirrored or up to 1.53 TB parity-protected) storage capacity, and is interconnected with all other nodes in the cluster via a private LAN.* Each node executes its own instance of the CentraStar operating environment in two operational modes:

- Storage Node: the node facilitates long-term storage of BLOBs and CDFs
- Access Node: the node is the conduit for interaction between the application server and the storage nodes (Access Nodes can serve a duel role as access and storage nodes.)

Figure 4



The throughput needs of the application (e.g., medical imaging) will determine how many access nodes must be configured at the time of installation. Access nodes are configured in pairs. Each access node is connected to the application server infrastructure via a 1 gigabit-per-second Ethernet cable. Given that Centera will be connected to the application via multiple access nodes, the application will enjoy not only scalable bandwidth with low access latency, but also high availability.

The usable capacity of a specific deployment is a function of the number of storage nodes and the user-selected means of protection: either Content Protection Parity (CPP) or Content Protection Mirroring (CPM). Mirroring protection places two physical copies of a data object on two different nodes within the cluster. (CPM mirrors data objects as opposed to mirroring a disk or a node.) Therefore, CPM utilizes 50 percent of the raw capacity of the storage nodes to facilitate usable data object storage. CPP employs a more space-efficient parity algorithm. Any data object greater in size than 20 KB will be

^{*} Usable capacity calculated for an average file size of 250 KB. Usable capacity will depend on the file size and the number of storage nodes. Minimum allowed configuration for parity protection is 16 nodes.

broken into six separate data fragments, and a seventh parity fragment will automatically be created through an "exclusive OR" calculation on the six data fragments. Each of the seven fragments are then stored on separate storage nodes. If a node or disk were to fail, the missing fragment can be recreated on the fly by using the same exclusive OR process. From a usable capacity perspective, CPP utilizes approximately 75 percent of the raw storage capacity, depending upon the mix of sizes of data objects being processed.

Content Protection Parity, like CPM, executes at the data object level and not the disk or node level. Therefore, when a device fault occurs, CentraStar software can employ the power of many storage nodes in parallel to regenerate the missing fragments of the impacted data objects. In contrast, in a RAID (Redundant Array of Independent Disks) device, only a handful of peer disks of a failed disk would be heavily exercised simultaneously to recreate the missing data.

CPP is available for all Centera cabinet configurations, except the four-node entry system. Also, it is important to note that in applications involving average object sizes < 1 MB, mirroring will offer higher object/hour throughput rates for store and retrieve operations as compared to parity protection.

This architecture gives Centera its extreme scalability for capacity and performance as well as its radically unique simplicity of managing physical storage resources. Capacity scaling is accomplished merely by non-disruptively adding nodes in increments of eight. As capacity is scaled, Centera's performance is also scaled to handle the management of data across the incremental nodes. Additionally, the number of access nodes can also be augmented to facilitate more bandwidth to the application server.

Perhaps the most significant benefit of Centera's architectural implementation is that the addition of nodes requires no time-consuming, complex management effort on the part of either the application (or developer) or the system administrator. This benefit permits a single administrator to handle hundreds of terabytes of content storage—far greater capacity than can be managed in traditional storage products.

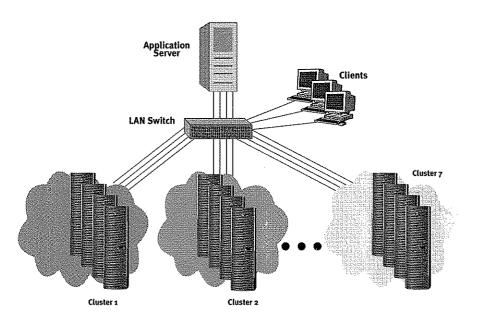
Multiple Centera racks can be configured as a single "cluster." The Centera repository connects directly to one or more Windows or UNIX application servers via multiple TCP/IP LAN connections. The client application API can reference several clusters, as depicted in Figure 5, to access multiple petabytes of data. Building such a network of clusters is simply a matter of non-disruptively connecting new clusters to the application server's LAN infrastructure as older clusters are filled.

Continuous Content

Availability and Authenticity

Centera features complete redundancy to protect against component faults that will inevitably occur. Every data object is mirrored. Should there be a disk drive failure, Centera will "self-heal" by detecting the fault and generating new mirror copies of content objects. Failed components can be replaced non-disruptively.

Figure 5



The Centera cabinet can be powered by two different AC power sources to permit the application server to have continuous ability to store and retrieve objects even if one AC power source is lost. In environments where AC power loss occurs momentarily and with some frequency, the customer is advised to power Centera with third-party uninterruptible power supplies (UPS) to ride through such outages with no loss of function.

The management of storage resources has been a primary cost factor, especially when content repositories grow to hundreds of terabytes. Centera makes quantum leaps in ease of management throughout its introduction of the concept of organic management (i.e., self-management), its RAIN architecture which is dynamically expandable when more storage is required, and with self-healing that occurs after hardware failures. When new storage units are added to the cluster and powered-on, they are automatically "auto-discovered" and join the cluster.

Using CentraStar, Centera's operating software, when drives fail, they are "fenced off" from the cluster by the system and affected objects are regenerated to ensure that a fully redundant mirror copy of the content is always available. In the event of hardware failures, the user data remains available at all times. No power down or restore is required. Additionally, data integrity checking is run in the background. This task continuously recalculates content addresses of all the objects and compares the calculations to the content addresses originally stored in the CDF. The existence of protected copies of objects in the cluster is also verified.

Centera Management

Managing Centera operations over its multi-year life is extremely simple as the Centera software, CentraStar, does the work of handling the logistics of storing and retrieving data objects. CentraStar delivers storage, retrieval, and network-awareness intelligence. It provides the Centera system with the capabilities of self-management, auto-configuration, self-healing, non-disruptive maintenance and upgrades, and content replication. The software technology that determines and assigns a unique address to every stored object is also part of CentraStar.

Centera's content-addressing scheme permits easy capacity scaling of the repository while also enabling stored objects to be mobile across a user's content infrastructure. The content address, a unique identifier to a data object, assures the authenticity of the referenced information, no matter where in space and time the object is accessed. Retrieval requires no knowledge of the storage environment or physical location of the objects. Those relationships are maintained by the CentraStar operating environment.

The system administrator doesn't need to worry about volume creation and management or file system structure and maintenance. All the system administrator needs to do is monitor Centera's available capacity and its object store/retrieval performance. The system administrator uses a GUI, Centera Viewer, that provides a simple means of displaying capacity utilization and operational performance. Centera Viewer runs on any Windows PC that is LAN-connected to Centera's access nodes. Centera Viewer also permits the system administrator to change any site-specific information such as the Centera's public IP addresses and subnet masks and end-user contact name and e-mail address.

The system administrator can also enable the use of Simple Network Management Protocol (SNMP) to alert an enterprise network management system as to any faults that might occur within normal Centera operation. A "green" status signifies all is well with Centera. A "yellow" status means a self-healing fault has occurred, such as a disk or node fault, but because regeneration is underway, the Centera is fully functional. A "red" indication would mean that a fault requiring immediate attention has occurred, such as a loss of an network device that could not be self-healed.

As mentioned previously, if more capacity is needed, it is simply a matter of either installing more storage nodes within a cabinet if there is sufficient rack space, or adding another cabinet of storage to the existing cabinet(s) via gigabit Ethernet LAN cables—true "plug-n-play" storage. Centera content-addressed storage represents a new and radically simpler means of storing hundreds of terabytes of fixed content online, providing fast access time at essentially zero management cost.

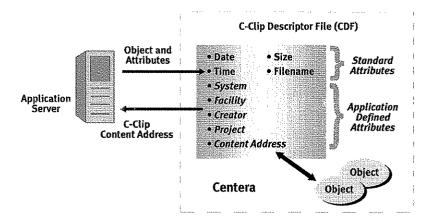
Increasingly, system administrators require the ability to integrate a Centera into a secured network environment. Centera Viewer provides access to a pull-down CLI menu that permits a system administrator to optionally assign a login and password for an application community hosted on a server that will be verified every time that application community accesses the cluster to store or retrieve data. If the login and password don't verify, then access is denied as the access attempt is judged to be illegitimate. The system administrator can also define a set of authorized functions (store, retrieve, delete, query, etc.) that a specific application community is permitted. In this way, the end-user system administrator can facilitate secure access to the Centera repository, especially in a deployment where multiple application communities are involved.

Chapter 3

Centera's Application Programming Interface (API)

As was described previously, application server access to the Centera repository is facilitated by use of a simple, robust set of API commands combined with a powerful "claim-check" mechanism, the C-Clip. A C-Clip Descriptor File (CDF) is an XML description for the referenced data object. It contains not only the content-address pointer(s) to a particular data object(s), but also standard system-generated metadata and any application-specific metadata associated with the object (e.g., a C-Clip pointing to an engineering document may include system name, facility location, creator, project name, etc.).

Figure 6



A content-based application will typically use a database to connect "owners" of content to their specific collections of images, documents, etc. (e.g., X-rays, check images, scanned mortgage contracts, and more). The database would be indexed by account number or medical record number and would contain fields pointing to the various data objects. It is very easy to adapt such an application's database to Centera's API by simply using the C-Clip content-address as the pointer to specific objects. When a patient's X-ray is stored, its C-Clip CA is then inserted into the database as a field in his/her medical record database. When the physician needs to review the patient's X-ray, the application simply uses the C-Clip CA claim check entry in the patient database to retrieve the X-ray.

A very powerful feature of the C-Clip Descriptor File is that it can store metadata generated by the application for each stored object by use of XML tags. Each tag will have a name designated by the application and can have one or more attributes. As an example, suppose Centera is used to store all the recorded music of a musical artist in MP3 format. Each song would be a separate MP3 file that Centera will store as a BLOB; each BLOB will have its own unique content-address. The song title could be stored in the CDF as part of the application metadata.

Suppose this music library spanned many albums, such that a number of highly popular songs would have shown up on a "greatest hits" album as well as the original album. Centera's content-address scheme would ensure that such songs would only be stored once, but could be referenced by both an original album CDF and a greatest hits album CDF.

In applications where data must be retained in its original form for a specified number of years, typically driven by regulations, a retention period value can be specified in the metadata of each object. Centera software will enforce the retention period by preventing the data object's deletion prior to the expiration of the retention period. Retention periods are set by the application for each individual C-Clip or for a class of C-Clips. In the latter case, the retention period class is assigned a retention period.

Another example demonstrating the storage efficiency of Centera is the archiving of email attachments. If 25 people received a multi-megabyte presentation, Centera would store only one instance (but mirrored for continuous availability) of the presentation with 25 CDFs pointing to the attachment object linking each addressee with the common attachment object.

Basic API Functions

There are five basic API functions: Store (Write), Retrieve (Read), Exists, Delete, and Query. The Store and Retrieve functions are self-explanatory and are arguably the most commonly used API functions. Exists is used by the application to check to see if a particular object is already stored in a Centera repository. If an object is already stored, there is value in not consuming time and network cycles by transmitting the BLOB a second time over the LAN connection between application server and Centera, especially if the BLOB is very large. The second attempt to store an object should simply cause a second CDF to be generated for the new reference to the already stored BLOB. Delete is an important function in at least two situations. In one instance, an application may need to deterministically remove a data object that must be expunged. Or, the end user might need to delete objects that meet some criteria (e.g., objects older than seven years) to reclaim the capacity for storing new content.

As mentioned previously, in regulated environments where data items have legally mandated retention periods, Centera API permits compliant applications to store each data object with a specified time to delete (generally multiple years). All attempts to delete such protected objects will fail until the retention period expires giving Centera non-erasability. In special cases where non-expired data must be deleted, for instance as the result of a court order, a separate API function is made available to override the retention period. This API function requires special authorization and is logged for audit purposes.

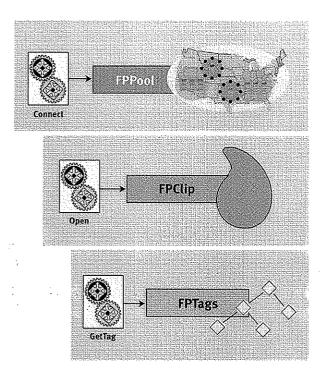
Once all CDF pointers have been deleted, the space occupied by the data object will be reclaimed by a background process known as "garbage collection." Optionally, for privacy or security reasons, the deleted data may be overwritten ("shredded") as the space is reclaimed.

Query permits the application to determine what data objects have been stored in the Centera over a specified time interval.

EMC offers a Software Developer's Kit for Centera that allows the application developer to select one of two basic approaches. The fastest and simplest API adoption approach is to use the high-level toolbox functions, referenced above (which are aggregates of lower-level APIs) that permit an application to be quickly and easily modified to execute basic store and retrieve functions. The toolbox permits C-Clip storage (or retrieval) to be accomplished in one single ANSI C function rather than via multiple API function calls.

The second, more flexible and powerful approach is to use the low-level API functions themselves. This approach permits the application to interact with Centera at the pool, clip, and tag level.

Figure 7



Functions at the pool level include opening a connection to Centera cluster (the "FPPool") to permit storage or retrieval of an object. When storing an object, the application would then create a new, empty C-Clip structure ("FPClip"), followed by the opening and creation of a tag ("FPTag"). The object would then be stored in the repository via an FPWrite function, at which point Centera would return the object's C-Clip CA to the application. The application then terminates the object write by closing the C-Clip and then closing the pool.

This is a very simplistic overview of a write transaction. There are a number of access modes available to the application developer, as well as a number of "returns" that the application must be prepared to handle. The low-level API functions are implemented in both ANSI C and Java and the Centera API is thread-safe.

Centera's API supports Windows NT, Windows 2000, Windows 2003 Server, Windows XP Professional, Solaris, AIX, HP-UX, IRIX, Linux, and IBM z/OS applications. For more information, please refer to the Centera Programmer's Reference Guide.

Chapter 4

EMC Services

To help you realize the full potential of your networked storage infrastructure, EMC Services puts an industry-leading network of interlinking services at your disposal. This network provides a continuum of "best-in-class" services that support you throughout your complete information lifecycle—as you acquire, as you deploy, and as you grow your infrastructure.

Key EMC Services components include:

- Professional Services: surrounds you with strategic planning, implementation, and operations management services
- Customer Service: available around-the-clock to optimize the efficiencies of your E-Infostructure
- Global Education: educates and empowers you with the skills and knowledge needed to self-sufficiently manage and leverage your information infrastructure

These components, while independent in areas of expertise, complement each other so customers achieve competitive advantage. Your business success through your EMC information infrastructure is our sole concern, and we do whatever it takes to attain 100 percent customer satisfaction.

Professional Services

As a company, EMC has focused, information storage experience, unparalleled in the industry. Within EMC Services, the Professional Services organization represents more than 1,200 Professional Services experts, boasting an average of 20 years of industry-related expertise overall. EMC has categorized our areas of focus to areas we know are important to you. Each solution set includes multiple offerings ranging from consulting, planning, and design services, to consolidation, migration, and operations management.

Operations Management Consulting

EMC Professional Services analyzes a customer's current testing processes and methodologies.

Based on the customer capabilities, Professional Services recommends improvements in the areas of human resources, process, and technology. EMC Professional Services consultants can also be engaged to go onsite at the customer's location to augment inhouse staff. These expert consultants facilitate knowledge transfer to the customer's staff until the staff is properly trained and able to manage the environment on their own.

An Operations Management engagement helps you address the following business challenges:

- . Meeting the demands of instituting effective storage management practices
- Understanding storage management is instrumental to leverage advanced software features
- Maintaining control of data while receiving the assistance needed to manage it
 effectively

Creating storage management self-sufficiency, the most cost effective management model

An Operations Management Consulting engagement consists of the development of a storage management strategy. This includes defining the best approach to managing infrastructure operations, developing processes and metrics, and the selection, implementation, and integration of storage management products.

Operations Management Consulting offerings include:

- · Operations Management Planning
- · Operations Management Design and Implementation
- Operations Management Support

Information Storage Integration

During an Information Storage Integration engagement, Professional Services presents you with a comprehensive storage systems strategy, based on the unique information gleaned from an in-depth consultation. From there, the conceptual storage architecture and design is identified, and a plan for the installation and integration of storage infrastructure products is created. Information Storage Integration services assists you in building a storage architecture foundation to meet current and future business requirements.

As you continue to focus on decreasing your storage costs, you will typically experience increasing data requirements driven by new applications and increasingly complex storage architectures. Members of the EMC Professional Services team are experts in managing and protecting information storage, and they can give you the knowledge and assistance you need to meet those challenges.

Information Storage Integration offerings include:

- · Storage Infrastructure Strategy and Planning
- Storage Infrastructure Design and Implementation

Information Storage Consolidation

EMC Professional Services provides all services, including project management, for a full data center migration project. This engagement uses an EMC best practice methodology which includes risk analysis, planning and design, implementation, and management. There are two offerings Professional Services will deliver in an Information Storage Consolidation engagement:

- Information Storage Consolidation Planning develops and delivers a strategy and architectural approach that addresses consolidation needs at a variety of levels. The strategies range from specific application consolidations to enterprise wide multi-environment situations. The Professional Services consultants delivering this offering review the current storage architecture and technology and identify current and future storage requirements for scalability and opportunities to leverage operational efficiencies. An information storage consolidation strategy and architecture is developed to support both customer business objectives and IT requirements. Technical components are recommended, and high-level deployment and migration plans are developed. Overall cost and ROI are calculated and a formal business case is proposed to support the consolidation effort.
- The Data Migration offering provides the detailed planning and physical migration of data from one storage environment to another. This effort could involve a small- to medium-data set migration that is moving data to a new storage base or a full data reorganization in a data center.

Business Continuity

The Business Continuity services that EMC Professional Services consultants offer include the development of a comprehensive plan for data availability—the availability of storage assets as part of a business continuance initiative. Included in the plan is a strategy and tactical details on the implementation of data replication devices and hierarchical storage technologies. Customers receive a proposal based on the unique needs of their businesses that reveals the financial impacts of not having an effective, business continuity plan in place.

EMC understands the challenges customers face delivering realtime data, and we also acknowledge the need to reduce cycle time for backups. EMC provides comprehensive business continuity solutions that meet multiple levels of availability and business continuance requirements. EMC Professional Services has the experience and expertise to help determine the right solution for each customer. Moreover, we'll implement that solution quickly and cost-effectively.

Customer Service

EMC Customer Service (CS) provides optimum availability of customers' information. EMC CS delivers service excellence through a number of key attributes and functions, including:

- A global organization with 5,500 field and support center staff
- · A proactive infrastructure based on resolving potential issues before they are problems
- 24X7 coverage
- · Technical expertise in hardware, software, and multi-vendor environments
- · Advanced remote support
- · Comprehensive e-services
- Best practices change control

A large part of EMC CS success is its investment center philosophy. EMC CS is not measured on a profit and loss basis as most organizations. Rather, it is measured purely on the customer's level of satisfaction. This structure creates a culture of unyielding service and customer commitment. All CS staff, from the support center to the field-based customer engineer and regional service manager, has one common mission—do whatever it takes to meet customer expectations.

Field staff provide onsite ongoing maintenance and problem resolution as necessary. An EMC customer engineer (CE) will be sent to your site with parts or equipment to remedy any issues. While the CE is en route to your site, the support center continues to analyze the system remotely to pinpoint the cause of the issue, providing additional information to the CE for use upon arrival at the site.

Additionally, EMC has self-help, e-services capabilities via the EMC Powerlink website. This robust, Web support engine searches the EMC Knowledgebase for known solutions to frequently asked questions and allows customers to open, update, track, and resolve service cases online via the Web.

Remote Support

EMC's sophisticated remote support capabilities provide the support you need, before you even know you need it. We recognize that constant information availability is critical to your business success. With our highly advanced remote support, your EMC system is never alone. Through automatic status notification, the EMC system permits our service experts to monitor your installation 24-hours a day, 365-days a year. And by dialing back into the EMC system, we take action quickly, analyzing events and abnormalities in your system, and resolving the majority of issues before they have a chance to affect your business. This proactive and pre-emptive service approach is unmatched in the industry.

Escalation

EMC's Global Technical Support organization has an automatic escalation policy to ensure that every service call receives prompt attention. The escalation and notification procedure is an integral part of the EMC customer service philosophy. It outlines escalation contacts and guidelines, and translates error codes to priority levels. This provides EMC support staff with a clear and concise plan of action with definitive milestones to resolve service issues and ensure rapid response and resolution. Escalation is based on the impact an issue has on the customer, and not on a specific technical or non-technical problem.

Examples of EMC Severity Levels:

- Severity Level One—Severe Customer Business Impact: Customer or workgroup cannot perform normal job functions
- Severity Level Two—Moderate Customer Business Impact: Customer or workgroup performance of job function is degraded
- Severity Level Three—Limited Customer Business Impact: Customer or workgroup performance of job function is largely unaffected

Change Control

EMC's industry-leading change control process enables customers to take full advantage of the outstanding connectivity, flexibility and upgrade capability engineered into every EMC system. Every change made to your IT environment introduces risk. EMC's change control process mitigates that risk so you continually realize the full value of your information infrastructure. Our dedicated change control team meticulously plans and orchestrates changes to your EMC solution. From standard microcode upgrades to massive data center relocations, our disciplined process ensures that your customized changes are implemented correctly and timely the first time.

Installation Support

EMC specialists install and configure the Centera system according to a customer's needs in a process that typically takes less than two hours. Centera installation is a matter of unpacking the cabinet, moving it to its operating site, cabling power, modem, and LAN connections, and then booting the unit. The user-supplied network connection and site-specific information is then entered into the Centera. The final step is to verify that the customer can store data to, and retrieve it from, the Centera.

Post-sale Warranty and Product Support

Coverage of the Centera system includes a two year Scheduled Service Warranty on hardware, as well as an upgrade option to Premium Response Service. Scheduled Service provides for free installation and configuration and maintenance visits every six months to replace faulted capacity. The Premium Response Service option extends the coverage of the Scheduled Service Warranty by ensuring that an EMC specialist will make service visits whenever any component fault is observed. Coverage of installed Centera systems is provided on a 24-hour, seven-day-a-week basis.

Both the Scheduled Service Warranty and the Premium Response Service upgrade can be extended beyond their two-year terms. Centera software warranty is 90 days and can be extended in one-year terms. Software warranty and post-warranty maintenance include software upgrades for the purchased software.

EMC Technical Support and Contact Information

EMC has multiple globally dispersed support centers, including dedicated software assistance centers and a Microsoft Competency Center, which are available 24x7. The support centers are also connected via an intelligent call-management system enabling EMC to leverage its worldwide pool of resources and provide customers fast and effective problem resolution. Use the following numbers to contact EMC and obtain technical support:

US: (800) 782-4362 (SVC-4EMC)

Canada: (800) 543-4782 (543-4SVC)

Other locations: 1 + (508) 497-7901, or contact the nearest EMC office

EMC Global Education

The EMC Global Education department has developed a comprehensive customer education program. The educational offering is a blended solution of e-learning and instructor-led courses. Students can attend courses at one of EMC's training facilities, or if a particular customer has a large group of employees that require training, instructors will provide training at the customer site.

Developing in-house talent is beneficial because it creates a self-sufficient staff and reduces reliance on service calls for problem mitigation and resolution. Although focused on providing students with the knowledge and skills needed to operate and maintain the information infrastructure, the courses also teach students how to use EMC products at optimum efficiency and to leverage system capabilities in the overall IT environment.

Both e-learning and traditional instruction are available. Our Web-based program offers access to training whenever it is convenient for you.

The EMC Proven Professional

Certification Program

The EMC Proven™ Professional Certification Program is aligned with other IT industry certification programs, notably Microsoft and Cisco. Students can achieve an Associates or a Masters level of certification in the Proven Professional program. Four tracks are offered, based on IT job roles: Operator, Builder, Architect, and Instructor.

- Operator: manage data center operations
- · Builder: implement and integrate data centers
- · Architect: design enterprise storage networking solutions
- Instructor: knowledge transfer of networked storage infrastructure

E-learning

EMC e-learning incorporates online learning into the suite of training, education, and certification solutions available to customers, partners and employees.



EMC Corporation Hopkinton Massachusetts 01748-9103

01748-9103 4-508-435-1000 III North America 1-866-464-7381

In North America 3-866-464-7383.

EMC², EMC, EMC Control Center, Alpha Stor, Application Xiender, Captiva, Catalog Solution, Celerra, Centra Star, CLaRaiert, CLaRidion, Client Pak, Connectrix, Costandby Server, Danitz, Direct Martix Architectura, Disk Xiender, Disk Xiender 2000, Dorumentum, Emalikaminer, Emalikardere, Emalikraci, expounder FARE, Highkoad, Navisphere, Open Scale, Power Path, Rainfinity, RepliStor, Resource Pak, Retrospect, Smarts, Snap Shot Server, Snap View/IP, SRDF, Symmetrix, Timerinder, Visual SAN, VSAM-Assist, WebXtender, where information lives, Xiender, and Xiender Solutions are registered trademarks and EMC Developers Program, EMC On Course, EMC Proven, EMC Snap, EMC Storage Administrator, Acartus, Access Logis, ArchiveXtender, Autientic Problems, Automated Resource Manager, AutoSart, AntoSwap, AVALONidm, CClip, Celerra Replicator, Centera, CLARevent, Codebook Correlation Technology, Common Information Model, CopyCross, CopyPoint, DatabaseXtender, Direct Matrix, EDM, E-Lab, Enginity, FarPoint, Global File Virtualization, Graphic Visualization, InfoMover, Invista, Mirrorview, NetWim, NetWorker, OnAlert, PowerInd, PowerPint, Replicate, Satelane, SAN Advisor, SAN Copy, SAN Manager, SDMS, Snaplmage, SnapSure, SnapView, StorageScope, SupportMate, SymmAn, SymmEnabler, Symmetrix DMX, UltraPoint, UltraScale, Viewlets, and Visual SEM are trademarks of EMC Corporation, Alliother trademarks used herein are the property of their respective owners.

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Product Description Guide

www.EMC.com

Attachment 2

Bid Form

Complete an entry for every item listed here and submit the completed Bid Form with your RFQ response. Any omissions will result in the automatic disqualification of the entire RFQ response. The item numbers (Item #) listed below, correspond with the items specified in Attachment 1. If an alternative is proposed for any item, you must clearly state that in the description and provide the additional documentation listed under the applicable requirements. Attach additional sheets as needed and reference the item number on the additional sheet.

Item #	Part #	Description	Qty	Unit Cost	Extended Cost
		EMC Centera			
1	CNRMODEMG4	CNR MODEM GEN 4	2	\$0.00	\$0.00
2	CNRGPLLIC	CNR GEN PUBLIC LIC SW	1	\$0.00	\$0.00
3	CNRCBRMLIC	BACKUP & RECVRY RTU LIC	1	\$2,796.95	\$2,796.95
4	CNRCBRMBSW	CNR BACKUP AND REC MOD	1	\$0.00	\$0.00
5	CNR4NMSWG4	MIRR SW RTU LIC	1	\$22,846.70	\$22,846.70
6	CNR4NCEPLSLIC	NODE COMP PLUS SW LIC	1	\$3,650.76	\$3,650.76
7	PS-BAS-CIS	CAS INT SINGLE CLUSTER QS	1	\$8,680.20	\$8,680.20
8	WARCNRHWPRM	CNR HW WAR UPG 7X24 4HR	1	\$2,229.44	\$2,229.44
9	CNR4N5FBAG4	4NODE 500GB FIELD BASE G4	1	\$28,735.03	\$28,735.03
10	CNRSW-PPM-PRM	CNR PPMNT PRM SW	1	\$2,002.03	\$2,002.03
		Symantec Software			
11	A159818-200000	NetBackup Server, Windows, Enterprise Server, v6.0,	1	\$5,583.00	\$5,583.00
		License Tier 2			
12	A159878-000000	NetBackup Client, Windows, Protect Server, v6.0,	15	\$609.00	\$9,135.00
		License			
13	A159998-200000	NetBackup Database Agent, Windows, SQL Server	1	\$1,720.00	\$1,720.00
		Agent, v6.0, License Tier 2			
14	A160008-200000	NetBackup Database Agent, Windows, Exchange	1	\$1,720.00	\$1,720.00
		Server Agent, v6.0, License Tier 2			
15	A15988C-000000	NetBackup Option, Cross Platform, Library Based Tape	1	\$3,045.00	\$3,045.00
		Drive Support, v6.0, License			
		Suport			
16	W159818-200236	NetBackup Server, Windows, Enterprise Server, v6.0	1	\$3,852.00	\$3,852.00

	_			Total	\$118,989.12
					, , , , , , , , , , , , , , , , , , ,
23	PS-CUS-ESGLGT	Migrating the data from Jukebox onto Centera and pointing the disk extender to the Centera.	16	\$315.00	\$5,040.00
***************************************		8421)			
22	300927489	PowerVault 132T, 1 drive, SDLT160/320GB, Customer Kit (340	1	\$2,678.00	\$2,678.0
21	Symantec installation	Netbackup implimentation	1	\$4,500.00	\$4,500.00
		Drive Support, v6.0 Extended Support, 3 Yr 24x7			
20	W15988C-000236	NetBackup Option, Cross Platform, Library Based Tape	1	\$2,101.00	\$2,101.00
		Agent, v6.0 Tier 2 Extended Support, 3 Yr 24x7			
19	W159998-200236	NetBackup Database Agent, Windows, SQL Server	1	\$1,187.00	\$1,187.00
	10000 200200	Server Agent, v6.0 Tier 2 Extended Support, 3 Yr 24x7			
18	W160008-200236	NetBackup Database Agent, Windows, Exchange	1	\$1,187.00	\$1,187.00
~~~~		Extended Support, 3 Yr 24x7			
17	W159878-000236	NetBackup Client, Windows, Protect Server, v6.0	15	\$420.00	\$6,300.0
		Tier 2 Extended Support, 3 Yr 24x7			

	61-1352158	304-746-4434 X110
Vendor Signature	FEIN	Phone #

## AFFIDAVIT

#### West Virginia Code §5A-3-10a states:

No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owned is an amount greater than one thousand dollars in the aggregate.

#### **DEFINITIONS:**

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions.

"Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

#### **EXCEPTION:**

The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

#### LICENSING:

Revised 02/08/06

The vendor must be licensed in accordance with any and all state requirements to do business with the state of West Virginia.

#### CONFIDENTIALITY:

The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures and rules. Vendors should visit www.state.wv.us/admin/purchase/privacy for the Notice of Agency Confidentiality Policies.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), it is hereby certified that the vendor acknowledges the information in this said affidavit and are in compliance with the requirements as stated.

Vendor's Name:	famoray .	I.T. Selvi	dions	,	
Authorized Signature		1/2	Date:	6-21-06	
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