



Enterprise Data Storage Solution

RFP 12-2066

Metro Information Services Department

600 NE Grand Ave.
Portland, OR 97232
503-797-1700

Project Manager

Les McCarter
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503.797.1610

Procurement Analyst

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503-797-1613

Notice is hereby given that proposals for RFP 12-2066 Enterprise Data Storage Solution shall be received by Metro, 600 NE Grand Avenue, Portland OR 97232 until close of business on April 16, 2012. It is the sole responsibility of the proposer to ensure that Metro receives the Proposal by the specified date and time. All late Proposals shall be rejected. Proposers shall review all instructions and contract terms and condition.

Request for Proposals (RFP 12-2066)

I. INTRODUCTION

The Information Services Department of Metro, a metropolitan service district organized under the laws of the State of Oregon and the Metro Charter, located at 600 NE Grand Avenue, Portland, OR 97232-2736, is requesting proposals for Enterprise Data Storage Solution. Proposals will be due as indicated on the RFP cover page.

Details concerning the project and proposal are contained in this document.

II. BACKGROUND/HISTORY OF PROJECT

Metro has several storage solutions that have been acquired over the years, sometimes from different programs of the agency. As with many enterprises, data storage needs continue to increase at Metro. Metro has yet to implement a systematic data tiering or file-based life cycle program.

At a high level, the storage consists of:

- 50 to 60 directly attached storage disks for Windows servers
- A dedicated 12 terabyte Windows managed NAS which is a department file system
- Three NetApp appliances with two of them located at the Metro Regional Center data center and the third at the Zoo location. An EMC SAN, at the Oregon Convention Center, for the MERC venue storage needs.
- iSCSI attached dedicated storage for our Exchange servers.
- Four HP Unix servers with directly attached storage for our HR and ERP enterprise applications

Strategically, Metro is moving to Windows server virtualization with six Cisco USC blade servers running VMware 4.1. Each blade is currently running an average of ten virtual servers.

The majority of the storage equipment listed above is coming to the end of its useful life. Additionally, new facilities are being brought online in response to changing program needs. Metro is now faced with the prospect of piecemeal equipment purchases that run the risk of perpetuating the status quo and not realizing the benefit of advances in strategies for managing and leveraging the storage of data.

III. PROPOSED SCOPE OF WORK/SCHEDULE

Metro is seeking proposals from qualified firms for a strategic solution that can help the agency manage the increasing costs of data storage and to become the preferred data storage solution for Metro.

Metro intends to select one vendor for the design, supply, installation, and staff training of an integrated (hardware and software) and comprehensive storage solution to support Metro's key information systems, with an immediate installation for core storage, but capable to sustain future growth over the next three to five years. The solution must be highly scalable, reliable, and redundant and should include hardware and software service support contracts. The system should integrate with and allow for optimum utilization of Metro's existing servers and include management software. The solution may include tools, processes, or procedures for data management (including data tiering), but must be easily administered by Metro's existing dedicated staff which serves multiple IT technologies throughout Metro. The solution should therefore be a unified strategy which minimizes technical staff ongoing support. While Metro will consider a hybrid of right sized technology from different vendors, the ease of management and integration will be strongly evaluated.



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As indicated in Table 1 Category & Requirements, the categories include Operations, Performance, Protection, Application Interactions, Security, Migration, Services, Support and Cost. The proposed solution should be designed to effectively meet all of the capabilities that are labeled "1-Required" and as many as possible for the items labeled "2-Highly Desired." Items listed as "2-Highly Desired" and "3-Desired" are not critical, but can play a factor in separating solutions that meet the core requirements when all else is equal. Items labeled "4-Optional" might be of interest to Metro based on the stated features and will be evaluated based on costs and capabilities.

Sizing should meet the existing storage quantities as listed in the appendix reports, and provide a path for future growth. It is recognized that techniques, policies and technologies can provide for increased efficiencies in Metro's storage strategy and these approaches should be included in the proposed solution to manage existing and future storage demands.

Both a phased implementation over several years and a larger complete replacement conversion to new technologies will be studied; driven by cost and required manpower. Metro anticipates this solution will be purchased by May 15, 2012.

Metro requests that all manufacturers provide their business partners equal access to preferred resources and pricing. Metro intends to select technology and implementation services from the business partner that is most qualified to meet the needs of Metro. Should a manufacturer "preselect" a preferred business partner, Metro may elect to select another vendor's technology solution.

IV. QUALIFICATIONS/EXPERIENCE

Proposers shall have the following qualifications:

- (1) Minimum five (5) years developing and implementing enterprise storage solutions
- (2) A minimum of two staff members that are vendor certified to configure and install proposed solution.
- (3) Manufacturer authorization to sell and install proposed solution.

V. PROJECT ADMINISTRATION

Les McCarter, Metro's project manager, will administer the project. Proposer shall indicate one point of contact for the resulting contract.

VI. PROPOSAL INSTRUCTIONS

A. Submission of Sealed Proposals

Three (3) copies of the proposal shall be furnished to Metro in a sealed envelope, addressed to:

Metro Procurement Services
Attn: Sharon Stiffler RFP 12-2066
600 NE Grand Avenue
Portland, OR 97232-2736

B. Deadline: Proposals will not be considered if received after the date and time indicated on the RFP cover page.

C. RFP as Basis for Proposals

This Request for Proposals represents the most definitive statement Metro will make concerning the information upon which Proposals are to be based. Any verbal information which is not addressed in this

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RFP will not be considered by Metro in evaluating the Proposal. All questions relating to this RFP should be addressed to Sharon.Stiffler@oregonmetro.gov. Any questions, which in the opinion of Metro, warrant a written reply or RFP addendum will be furnished to all parties receiving this RFP. Metro will not respond to questions received after 3:00 pm on April 9, 2012.

D. Information Release

All Proposers are hereby advised that Metro may solicit and secure background information based upon the information, including references, provided in response to this RFP. By submission of a proposal all Proposers agree to such activity and release Metro from all claims arising from such activity. In Accordance with Oregon Public Records Law (ORS 192), proposals submitted will be considered part of the public record, except to the extent they are exempted from disclosure.

E. Minority, Women and Emerging Small Business Program

In the event that any subcontracts are to be utilized in the performance of this agreement, the Proposer's attention is directed to Metro Code provisions 2.04.100, which encourages the use of minority, women and emerging small businesses (MWESB) to the maximum extent practical. Copies of these MWESB requirements are available from the Metro Procurement Office, 600 NE Grand Avenue Portland, OR 97232, 503-797-1648.

All pricing information should also be compared to list price, with a stated percentage discount. Metro also requests that bidders provide a secondary quote for additional storage purchases with a stated discount price from list that would be honored for 24 months after the acceptance of the bid, so that Metro can continue to grow their storage system over time.

F. Pre-Proposal Conference

A voluntary pre-proposal conference will be held at 600 NE Grand Ave, Portland, Oregon on April 3, 2012 from 11:00am to 12:00pm. Interested proposers are encouraged to attend the conference in order to gain information about the RFP requirements.

VII. PROPOSAL CONTENTS

The proposal should contain no more than seventy five (50) pages of written material (excluding biographies resumes and brochures, which may be included in an appendix), describing the ability of the consultant to perform the work requested, as outlined below. The proposal should be submitted on recyclable, double-sided recycled paper (post consumer content). No waxed page dividers, folders, binders or non-recyclable materials should be included in the proposal.

A. Transmittal Letter: Indicate who will be assigned to the project, who will be project manager, and that the proposal will be valid for ninety (90) days.

B. Approach/Project Work Plan: Describe how the work will be done within the given timeframe and proposed budget. Include a proposed work plan and schedule. As indicated in Table 1 Category & Requirements, provide responses for each category and subcategory as requested. Identify items or functionality that could be added to the storage solution at a future date and the cost implications.

C. Staffing/Project Manager Designation: Identify specific personnel assigned to major project tasks, their roles in relation to the work required, percent of their time on the project, and special qualifications they may bring to the project. Include resumes of individuals proposed for this contract.

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Metro intends to award this contract to a single firm to provide the services required. Proposals must identify a single person as project manager to work with Metro. The consultant must assure responsibility for any sub-consultant work and shall be responsible for the day-to-day direction and internal management of the consultant effort.

- D. Experience: Indicate how your firm meets the experience requirements listed in section IV. of this RFP. List projects conducted over the past five years which involved services similar to the services required here. For each of these other projects, include the name of the customer contact person, his/her title, role on the project, and telephone number. Identify persons on the proposed project team who worked on each of the other projects listed, and their respective roles.
- E. Cost/Budget: Present the proposed cost of each area of the project (design, supply, installation, and training) and the proposed method of compensation. List hourly rates for personnel assigned to the project, total personnel expenditures, support services, and sub-consultant fees (if any). Requested expenses should also be listed.
- F. Diversity in Employment and Contracting:
- Work Force Diversity – Describe your work force demographics (number of employees, race and gender) and the measurable steps taken to ensure a diverse work force, including company policies and practices that promote the hiring and retention of women and ethnic minorities.
 - Diversity in Contracting – Describe your history of working with diverse firms, including any MWESB-certified firms. Describe a project for which you worked with minorities, women or emerging small businesses. Please provide the project name, method used to achieve participation – for example, joint ventures, subcontracts or purchase of equipment or supplies from a certified firm – and the dollar amount or percentage of the project budget expended on such participation.
 - Diversity of Firm – Describe the ownership of your firm and whether or not your firm is certified by the State of Oregon as an MBE, WBE or ESB. Provide certification number, if applicable.
- G. Sustainable Business Practices
- Environment: Describe your business practices to reduce environmental impacts of your operations. This may include energy efficiency, use of non-toxic products, alternative fuel vehicles, waste prevention and recycling, water conservation, green building practices, etc.
 - Economy: Describe your support of local businesses and markets within the Portland Metro region. Include what steps your company has taken in the past to support local businesses, and what steps would be taken if selected for this project.
 - Community: Describe the employee compensation structure of your organization. Include wage scales for employees, including trainee, probationary, entry level, journey level, and supervisory. Also include policies regarding annual cost of living adjustments (COLA) to employee wages. Details of the healthcare program (including, medical, dental, prescriptions, preventive care, etc.) as well as out of pocket and deductibles, and employee contributions for themselves and family members. All other employee benefits are to be including, such as vacation, sick leave, pension, disability insurance, profit sharing, childcare, health memberships, company vehicle, public transportation, etc.
- H. Exceptions to Standard Agreement and RFP: Carefully review the Standard Agreement attached hereto as Exhibit A and incorporated herein. This is the standard agreement that successful respondents to this

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RFP will be required to execute. RFP respondents wishing to propose any exceptions or alternative clauses to the agreement or to any specified criteria within this RFP must propose those exceptions or alternative clauses in their proposal; Metro shall not be required to consider contract revisions proposed during contract negotiation and award. Proposed exceptions or alternative clauses should be accompanied by explanatory comments that are succinct, thorough and clear.

VIII. GENERAL PROPOSAL/CONTRACT CONDITIONS

- A. Limitation and Award: This RFP does not commit Metro to the award of a contract, nor to pay any costs incurred in the preparation and submission of proposals in anticipation of a contract. Metro reserves the right to waive minor irregularities, accept or reject any or all proposals received as the result of this request, negotiate with all qualified sources, or to cancel all or part of this RFP.
- B. Billing Procedures: Proposers are informed that the billing procedures of the selected firm are subject to the review and prior approval of Metro before reimbursement of services can occur. Contractor's invoices shall include the Metro contract number, an itemized statement of the work done during the billing period, and will not be submitted more frequently than once a month. Payment shall be made by Metro on a Net 30 day basis upon approval of Contractor invoice.
- C. Validity Period and Authority: The proposal shall be considered valid for a period of at least ninety (90) days and shall contain a statement to that effect. The proposal shall contain the name, title, address, and telephone number of an individual or individuals with authority to bind any company contacted during the period in which Metro is evaluating the proposal.
- D. Conflict of Interest. A Proposer filing a proposal thereby certifies that no officer, agent, or employee of Metro or Metro has a pecuniary interest in this proposal or has participated in contract negotiations on behalf of Metro; that the proposal is made in good faith without fraud, collusion, or connection of any kind with any other Proposer for the same call for proposals; the Proposer is competing solely in its own behalf without connection with, or obligation to, any undisclosed person or firm.
- E. Equal Employment and Nondiscrimination Clause Metro and its contractors will not discriminate against any person(s), employee or applicant for employment based on race, color, religion, sex, national origin, age, marital status, familial status, gender identity, sexual orientation, disability for which a reasonable accommodation can be made, or any other status protected by law. Metro fully complies with Title VI of the Civil Rights Act of 1964 and related statutes and regulations in all programs and activities. For more information, or to obtain a Title VI Complaint Form, see www.oregonmetro.gov.

IX. EVALUATION OF PROPOSALS

- A. Evaluation Procedure: Proposals received that conform to the proposal instructions will be evaluated. The evaluation will take place using the evaluation criteria identified in the following section. Interviews may be requested prior to final selection of firm(s). Award will be made to the highest ranked Proposer according to the evaluation criteria. If contract negotiations are unsuccessful with the highest ranked firm, Metro reserves the right to enter into negotiations with the next highest ranked Proposer.
- B. Evaluation Criteria: This section provides a description of the criteria which will be used in the evaluation of the proposals submitted to accomplish the work defined in the RFP.



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	Percentage of Total Score
Project Work Plan/Approach	
1. Architectural Design	20
2. Solution Feature Set	20
Project Staffing Experience	
1. Vendor Experience	10
2. Vendor Technical Staff Expertise	5
Budget/Cost Proposal –	
1. Projected cost and future maintenance expense	25
Diversity	10
1. Work Force Diversity, Diversity in Contracting, Diversity of Firm	
Sustainable Business Practices	10
1. Environment, Economy, Community	
	100%

X. APPEAL OF CONTRACT AWARD

Aggrieved proposers who wish to appeal the award of this contract must do so in writing within seven (7) days of issuance of the notice of intent to award by Metro. Appeals must be submitted to Metro Procurement Officer, 600 NE Grand, Portland, Oregon 97232 and must state the specific deviation of rule or statute in the contract award. Metro will issue a written response to the appeal in a timely manner.

XI. NOTICE TO ALL PROPOSERS -- STANDARD AGREEMENT

The attached agreement included herein reflects preliminary, draft contract language and selected, proposed contract terms for this procurement. Proposers should be aware that such language terms and provisions are for illustrative purposes only and that Metro reserves the right, following submission and ranking of all proposals submitted in response to this procurement, to amend, modify or negotiate over any and all such contract language, terms and provisions before making a final determination regarding the issuance of the Notice of Intent to Award the agreement arising from this procurement. By submitting a proposal in response to this procurement, proposers acknowledge that they are aware of and do not object to any later, potential amendment and modification of such preliminary, draft language and terms. In addition, by responding to this procurement, proposers acknowledge that they are aware of their ability to offer alternatives to any of the preliminary, draft contract language and proposed contract terms set forth herein.



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Personal Service Agreement over \$50,000

THIS AGREEMENT is between Metro, a metropolitan service district organized under the laws of the State of Oregon and the Metro Charter, located at 600 N.E. Grand Avenue, Portland, OR 97232-2736, and Company Name, referred to herein as "Contractor," located at address, City, State Zip.

In exchange for the promises and other consideration set forth below, the parties agree as follows:

1. Duration. This personal services agreement shall be effective Month XX, 201X and shall remain in effect until and including Month XX, 201X, unless terminated or extended as provided in this Agreement. IF CONTRACT IS SUBJECT TO RENEWAL OR EXTENSION, INCLUDE SUCH LANGUAGE i.e. This agreement may be renewed or extended for XX additional one-year periods at Metro's sole discretion.
2. Scope of Work. Contractor shall provide all services and materials specified in the attached "Attachment A -- Scope of Work," which is incorporated into this Agreement by reference. All services and materials shall be provided by Contractor in accordance with the Scope of Work, in a competent and professional manner. To the extent that the Scope of Work contains additional contract provisions or waives any provision in the body of this Agreement, the Scope of Work shall control.
3. Payment. Metro shall pay Contractor for services performed and materials delivered in the amount(s), manner and at the time(s) specified in the Scope of Work for a maximum sum not to exceed XXXXXXXX AND XX/100THS DOLLARS (\$XXXXXX.XX). Payment shall be made by Metro on a Net 30 day basis upon approval of Contractor invoice.
4. Insurance. Contractor shall purchase and maintain at the Contractor's expense, the following types of insurance, covering the Contractor, its employees, and agents:
 - (a) The most recently approved ISO (Insurance Services Office) Commercial General Liability policy, or its equivalent, written on an occurrence basis, with limits not less than \$1,000,000 per occurrence and \$1,000,000 aggregate. The policy will include coverage for bodily injury, property damage, personal injury, contractual liability, premises and products/completed operations. Contractor's coverage will be primary as respects Metro;
 - (b) Automobile insurance with coverage for bodily injury and property damage and with limits not less than minimum of \$1,000,000 per occurrence;
 - (c) Workers' Compensation insurance meeting Oregon statutory requirements including Employer's Liability with limits not less than \$500,000 per accident or disease; and
 - (d) Professional Liability Insurance, with limits of not less than \$1,000,000 per occurrence, covering personal injury and property damage arising from errors, omissions or malpractice. PROFESSIONAL LIABILITY REQUIRED FOR ARCHITECTURAL & ENGINEERING SERVICES - DELETE PROFESSIONAL LIABILITY INSURANCE LANGUAGE IF NOT REQUIRED

Metro, its elected officials, departments, employees, and agents shall be named as ADDITIONAL INSUREDS on Commercial General Liability and Automobile policies.

Contractor shall provide to Metro 30 days notice of any material change or policy cancellation.

Contractor shall provide Metro with a Certificate of Insurance complying with this article upon return of the Contractor signed agreement to Metro. Certificate of Insurance shall identify the Metro contract number.

5. Indemnification. Contractor shall indemnify and hold Metro, its agents, employees and elected officials harmless from any and all claims, demands, damages, actions, losses and expenses arising out of or in any way connected with its performance of this Agreement, or with any patent infringement or copyright claims arising out of the use of Contractor's designs or other materials by Metro and for any claims or disputes involving subcontractors.

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6. Ownership of Documents and Maintenance of Records. Unless otherwise provided herein, all documents, instruments and media of any nature produced by Contractor pursuant to this agreement are Work Products and are the property of Metro, including but not limited to: drawings, specifications, reports, scientific or theoretical modeling, electronic media, computer software created or altered specifically for the purpose of completing the Scope of Work, works of art and photographs. Unless otherwise provided herein, upon Metro request, Contractor shall promptly provide Metro with an electronic version of all Work Products that have been produced or recorded in electronic media. Metro and Contractor agree that all work Products are works made for hire and Contractor hereby conveys, transfers, and grants to Metro all rights of reproduction and the copyright to all such Work Products.

- a. Contractor and subcontractors shall maintain all fiscal records relating to such contracts in accordance with generally accepted accounting principles. In addition, Contractor and subcontractors shall maintain any other records necessary to clearly document:
 - (1) The performance of the contractor, including but not limited to the contractor's compliance with contract plans and specifications, compliance with fair contracting and employment programs, compliance with Oregon law on the payment of wages and accelerated payment provisions; and compliance with any and all requirements imposed on the contractor or subcontractor under the terms of the contract or subcontract;
 - (2) Any claims arising from or relating to the performance of the contractor or subcontractor under a public contract;
 - (3) Any cost and pricing data relating to the contract; and
 - (4) Payments made to all suppliers and subcontractors.
- b. Contractor and subcontractors shall maintain records for the longer period of (a.) six years from the date of final completion of the contract to which the records relate or (b.) until the conclusion of any audit, controversy or litigation arising out of or related to the contract.
- c. Contractor and subcontractors shall make records available to Metro and its authorized representatives, including but not limited to the staff of any Metro department and the staff of the Metro Auditor, within the boundaries of the Metro region, at reasonable times and places regardless of whether litigation has been filed on any claims. If the records are not made available within the boundaries of Metro, the Contractor or subcontractor agrees to bear all of the costs for Metro employees, and any necessary consultants hired by Metro, including but not limited to the costs of travel, per diem sums, salary, and any other expenses that Metro incurs, in sending its employees or consultants to examine, audit, inspect, and copy those records. If the Contractor elects to have such records outside these boundaries, the costs paid by the Contractor to Metro for inspection, auditing, examining and copying those records shall not be recoverable costs in any legal proceeding.
- d. Contractor and subcontractors authorize and permit Metro and its authorized representatives, including but not limited to the staff of any Metro department and the staff of the Metro Auditor, to inspect, examine, copy and audit the books and records of Contractor or subcontractor, including tax returns, financial statements, other financial documents and any documents that may be placed in escrow according to any contract requirements. Metro shall keep any such documents confidential to the extent permitted by Oregon law, subject to the provisions of section E.
- e. Contractor and subcontractors agree to disclose the records requested by Metro and agree to the admission of such records as evidence in any proceeding between Metro and the Contractor or subcontractor, including, but not limited to, a court proceeding, arbitration, mediation or other alternative dispute resolution process.
- f. Contractor and subcontractors agree that in the event such records disclose that Metro is owed any sum of money or establish that any portion of any claim made against Metro is not warranted, the Contractor or subcontractor shall pay all costs incurred by Metro in conducting the audit and inspection. Such costs may be withheld from any sum that is due or that becomes due from Metro.

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- g. Failure of the Contractor or subcontractor to keep or disclose records as required by this document or any solicitation document may result in debarment as a bidder or proposer for future Metro contracts as provided in ORS 279B.130 and Metro Code Section 2.04.070(c), or may result in a finding that the Contractor or subcontractor is not a responsible bidder or proposer as provided in ORS 279B.110 and Metro Code Section 2.04.052.
7. Project Information. Contractor shall share all project information and fully cooperate with Metro, informing Metro of all aspects of the project including actual or potential problems or defects. Contractor shall abstain from releasing any information or project news without the prior and specific written approval of Metro.
8. Independent Contractor Status. Contractor shall be an independent contractor for all purposes and shall be entitled only to the compensation provided for in this Agreement. Under no circumstances shall Contractor be considered an employee of Metro. Contractor shall provide all tools or equipment necessary to carry out this Agreement, and shall exercise complete control in achieving the results specified in the Scope of Work. Contractor is solely responsible for its performance under this Agreement and the quality of its work; for obtaining and maintaining all licenses and certifications necessary to carry out this Agreement; for payment of any fees, taxes, royalties, or other expenses necessary to complete the work except as otherwise specified in the Scope of Work; and for meeting all other requirements of law in carrying out this Agreement. Contractor shall identify and certify tax status and identification number through execution of IRS form W-9 prior to submitting any request for payment to Metro.
9. Right to Withhold Payments. Metro shall have the right to withhold from payments due to Contractor such sums as necessary, in Metro's sole opinion, to protect Metro against any loss, damage, or claim which may result from Contractor's performance or failure to perform under this Agreement or the failure of Contractor to make proper payment to any suppliers or subcontractors.
10. State and Federal Law Constraints. Both parties shall comply with the public contracting provisions of ORS chapters 279A, 279B and 279C, and the recycling provisions of ORS 279B.025 to the extent those provisions apply to this Agreement. All such provisions required to be included in this Agreement are incorporated herein by reference. Contractor shall comply with all applicable requirements of federal and state civil rights and rehabilitation statutes, rules and regulations including those of the Americans with Disabilities Act.
11. Situs. The situs of this Agreement is Portland, Oregon. Any litigation over this agreement shall be governed by the laws of the State of Oregon and shall be conducted in the Circuit Court of the state of Oregon for Multnomah County, or, if jurisdiction is proper, in the U.S. District Court for the District of Oregon.
12. Assignment. This Agreement is binding on each party, its successors, assigns, and legal representatives and may not, under any circumstance, be assigned or transferred by either party without Metro's written consent.
13. Termination. This Agreement may be terminated by mutual consent of the parties. In addition, Metro may terminate this Agreement by giving Contractor seven (7) days prior written notice of intent to terminate, without waiving any claims or remedies it may have against Contractor. Termination shall not excuse payment for expenses properly incurred prior to notice of termination, but neither party shall be liable for indirect or consequential damages arising from termination under this section.
14. No Waiver of Claims. The failure to enforce any provision of this Agreement shall not constitute a waiver by Metro of that or any other provision.
15. Modification. Notwithstanding and succeeding any and all prior agreement(s) or practice(s), this Agreement constitutes the entire Agreement between the parties, and may only be expressly modified in writing(s), signed by both parties. Metro may approve changes and modifications to the original contract, including deletions of work, order of additional materials, and additional services reasonably related to the original work scope. Contractor may propose



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changes in the work that Contractor believes are necessary, will result in higher quality work, improve safety, decrease the amount of the contract, or otherwise result in a better or more efficient work product. If such changes are approved by

Metro, they shall be executed by written contract amendment signed by both parties. Such changes shall not relieve Contractor of any obligation or warranty under the contract. No oral statements by either party shall modify or affect the terms of the contract.

CONTRACTOR

METRO

By _____

By _____

Print Name _____

Print Name _____

Date _____

Date _____



Metro

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1. Purpose and Goal of Work

2. Description of the Scope of Work

3. Deliverables/Outcomes

4. Payment and Billing

Contractor shall perform the above work for a maximum price not to exceed XXXXXXXX AND XX/100TH DOLLARS (\$XXXXXX.XX).

INCLUDE HOURLY RATES OR TASK BASED PAYMENTS IF APPLICABLE

The maximum price includes all fees, costs and expenses of whatever nature. Each of Metro's payments to Contractor shall equal the percentage of the work Contractor accomplished during the billing period. Contractor's billing invoices will include the Metro contract number, an itemized statement of work done and expenses incurred during the billing period, will not be submitted more frequently than once a month, and will be sent to Metro, Attention: Accounts Payable, 600 NE Grand Avenue, Portland, OR 97232-2736 or metroaccountspayable@oregonmetro.gov. Payment shall be made by Metro on a Net 30 day basis upon approval of Contractor invoice.

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Appendix

- Table 1 – Category & Requirements
- Table 2 – Description of Current Storage Usage
- Exhibit A – Description of Current Storage Devices
- Exhibit B - HP Unix Enterprise Applications
- Exhibit C - Top User File Types by Extension
- Exhibit D - File Inventory by Age

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Table 1 – Category & Requirements

ID	Category & Requirements	Importance	Description
1.00	Operations		
1.01	Reporting	1-Required	Provide details of included reporting capabilities; plus costs for additional reporting services if advantageous or necessary.
1.02	Monitoring	1-Required	Live monitoring and alerting of errors or events capabilities via email, SMS or other methods.
1.03	"Phone Home" / Automated Support Notification	1-Required	Ability for system to immediately and directly notify vendor support of significant issues that require service attention.
1.04	Tuning Tools	1-Required	Ability to change configuration to meet changing performance requirements (auto tuning is a bonus)
1.05	Quotas	1-Required	A realistic method of putting in place quotas for users, departments, groups across storage systems.
1.06	Multi-tenancy	1-Required	Ability for multiple tenants use secure "partitions or compartments" with a shared storage system.
1.07	Ease of Management	2-Highly Desired	Our limited sized existing staff requires a system that is not complex or time consuming to manage.
1.08	Firmware management	2-Highly Desired	Ability to monitor and update firmware; also to be notified of needed firmware upgrades.
1.09	Capacity Planning	2-Highly Desired	Ability to look at past trends and do future forecasting with various performance and cost scenario models.
1.10	Tools: Snap, Clone, others	2-Highly Desired	List capabilities of tools that could be helpful in management, such as snap or clone tools. Pricing should be included if extra (including maintenance).
1.11	Virtual Storage - Provisioning	2-Highly Desired	Ability to "over provision" storage assignments and manage such allocations so as to be warned when physical storage might be exceeded.
1.12	Virtual Storage - LUN Management	2-Highly Desired	Virtualizing the naming convention to provide freedom from hard coding devices for worldwide name space. Ability to mount storage space for other servers.
1.13	Support Synergies	2-Highly Desired	Ability to bundle support team for SAN, VMware environment and existing Cisco's USC installation.
1.14	Identify and move off "old" data; protect "forever" documents; prune dead files	3-Desired	Ability to have a process (best if automated or user controlled) to identify the differences between abandoned storage, rarely used files and must protect "forever" files. These may all look the same from a use or date perspective, but are different classes of storage
1.15	Data Deduping	3-Desired	Reducing storage space of identical files or very "similar" files.
1.16	Single Instance Storage	3-Desired	Identify identical files and use pointers/stubs back to a single intendance

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ID	Category & Requirements	Importance	Description
1.17	Base Environment; with cloned differentials (for test and development environments)	3-Desired	Ability to take an application environment and "clone" just the differential items to create a second or third environment without consuming identical amount of space.
1.18	eDiscovery - Legal Holds	4-Optional	Ability to "lock" a collection of files away that might be needed in a legal hold; maintaining meta data with verifiable hash tags
2.00	Performance		
2.01	IO Speed	1-Required	While not all storage must be high speed access, the ability to provide high speed storage [both read and write] is important. Refer to Appendix for description of application and storage usage.
2.02	IO Bandwidth	1-Required	Ability to absorb and distribute large sets of data and minimize choke points
2.03	Hot Spot Avoidance	1-Required	Ability to avoid or move data location to avoid hot spots or traffic bottlenecks
2.04	Load balancing	1-Required	Ability to split traffic demands across multiple systems
2.05	Scalability	1-Required	Ability to grow the system both in depth of storage and in performance if required.
2.06	Access data over WAN	2-Highly Desired	Metro has users across a WAN and it is desirable to understand how we might improve the experiences for those people that are not in the same physical location as the storage systems.
3.00	Protection		
3.01	High Availability	1-Required	Describe features to support high availability of data
3.02	Able to withstand "two" hardware failures	1-Required	Describe how system can withstand two simultaneous failure events; is there any combination of failure that could result in lost data? Subsystems to include but be limited to: power, disk, backplane, network data path, management modules, firmware.
3.03	Levels of redundancy	1-Required	How many levels of data redundancy exist? Describe.
3.04	Against disk failure	1-Required	Describe ability to withstand one or more disk failures
3.05	Against network failure	1-Required	Describe ability to withstand one or more storage network failures
3.06	Against bus failure	1-Required	Describe ability to withstand one or more bus subsystem failures
3.07	Ways to help with RPO and RTO	2-Highly Desired	Describe any feature, option, tool that can improve the Recovery Point Objectives (RPO) and Recovery Time Objectives (RTO).
3.08	Backup Integration or Partnership	3-Desired	Describe either built in tools that can be used for backing up storage or partners that provide complementary tools
3.09	Specific tools for Microsoft SQL data backup	3-Desired	Describe tools that aid Microsoft SQL backups. They probably don't have a specific solution for MySQL, but that would be interesting.

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ID	Category & Requirements	Importance	Description
3.10	Specific tools for Oracle data backup	3-Desired	Describe tools that aid Oracle backups
3.11	Specific tools for MySQL data backup	3-Desired	Describe tools that aid MySQL backups
3.12	Specific tools for Microsoft Exchange data backup	3-Desired	Describe tools that aid Exchange Email backups
3.13	Specific tools for Microsoft SharePoint data backup	3-Desired	Describe tools that aid SharePoint backups, including site and element items
3.14	Data replication	4-Optional	Ability to protect data through remote replications (and associated tools, licenses and hardware costs)
4.00	Application Interaction		
4.01	VMware - Server	1-Required	Describe ability to integrate & compliment VMware (include costs, tools and modules) for servers
4.02	Support for Microsoft CIFS (Common Interface File System) and NFS (Network File System) Protocols	1-Required	Must be able to serve up files and folders via both CIFS and NFS file sharing protocols and include support for Microsoft ACLs and auditing.
	Integration with Microsoft Active Directory and Unis NIS	2-Highly Desired	Tools and network shares should be able to integrate into Microsoft's latest Active Directory and the Unix NIS
4.03	Desktop Virtualization	3-Desired	Describe ability to integrate & compliment a desktop VDI implementation
4.04	XENServer – Server	3-Desired	Describe ability to integrate & compliment XENServer (include costs, tools and modules) for servers
4.05	Video Editing and storage (need for scratch workspace, active serving and critical archiving)	3-Desired	Video editing holds special challenges both in the need for large raw workspace, and then other storage needs for active files, and then the ability to keep historic files for future use. Each stage has different access speed requirements.
4.06	Photo & Graphic Editing and storage (need for scratch workspace, active serving and critical archiving)	3-Desired	Photos and graphic files have different challenges both in the managing large collections in number and size of files, and then the ability to keep historic files for future use. Each stage has different access speed requirements.
4.07	Cloud Storage	4-Optional	Describe extra capabilities to tap cloud storage vendors
4.08	Front End Engine/Tool - Management of backend storage from other vendors	4-Optional	Describe any tools or add-on products that would let us manage existing and disperse products as a front end management console. Include costs.
5.00	Security		
5.01	Encryption at file, folder, disk and volume levels	3-Desired	List capabilities to encrypt data at rest on the storage system.
6.00	Migration		

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ID	Category & Requirements	Importance	Description
6.01	Strategies to move from the "here and now" to the future world	1-Required	Metro cannot instantaneously move to new environment; vendor must provide both a long term migration plan that will fit budget and useful life of existing storage; plus actual data migration plan.
6.02	Tools to migrate	1-Required	List and description of both vendor tools and then customer tools that can be used to migrate files and data
6.03	Sample project plan with milestones	1-Required	Provide high level project plan complete with milestones that would highlight the effort required to migrate to new platform
7.00	Services		
7.01	Migration	1-Required	Provide a migration path (both immediate and long term) that can either be done by customer or as a client service; provide pricing if any.
7.02	Regular Health Checks	1-Required	Provide detailed timeline and scope of work for regular health checks; include pricing. Minimum time line is first 24 months.
7.03	Training	1-Required	Describe necessary staff training; describe approach, content and pricing
8.00	Support		
8.01	Support Choices / Costs	1-Required	Describe support structure and costs; include 4 hour response support, 4 hour business day response, next day contracts (or of similar nature).
8.02	Local Expertise	3-Desired	Describe local support staff expertise within the Portland, Oregon Metro area. List staff or support organization certifications that are pertinent.
8.03	Planning Analysts Availabilities	3-Desired	List and price any analysis services for planning a migration, data life cycle design and other storage related analytical services.
9.00	Cost		
9.01	Module "add ons"	1-Required	Detail other modules that are required or recommended. Include costs to acquire and annual maintenance.
9.02	Annual Maintenance costs	1-Required	Include maintenance cost package for the first three years; plus a second cost package for the first five years.
9.03	Recommended equipment life span	1-Required	Describe the typical component life cycle used for future planning; also include end of life estimates
9.04	Recommended "maintenance" service calls	1-Required	Describe the recommend service / maintenance schedule / program
9.05	Provide cost estimates for increasing size of storage	1-Required	Vendor will provide pricing to meet existing Metro's storage area, but they are also to include costs (today) to increase storages size in 1 terabyte increments.
9.06	Storage Tiering	2-Highly Desired	Ability to match the data to the proper costing / performance / protection disks.
9.07	Archiving	3-Desired	Ability to move data that is seldom used or data that is kept "forever" to less expensive storage.



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ID	Category & Requirements	Importance	Description
9.08	"Total Cost of Ownership"	4-Optional	Describe the total cost of ownership benefits in a narrative format
9.09	Competitive Upgrade Discounts	4-Optional	Describe any trade-in value of existing equipment that can aid in pricing and migration to new systems; which might help accelerate the acceptance of a new strategy compared to normal life cycle planning.
9.10	Block and/or File deduplication	4-Optional	Describe how file and block dedupe might provide cost savings and translated into estimated savings.

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Table 2 – Description of Current Storage Usage

Not all of this data will be immediately migrated, but the information is provided as background material.

<u>Application</u>	<u>Type</u>	<u>Size</u>	<u>Performance</u>	<u>Nature of Data</u>	<u>Availability</u>
Files (work ,team)	CIFS/NFS	3.1TB	Low	Growing	Med
Files (jobs ,rlis)	CIFS/NFS	550GB	Low	Static, small growth	Med
Oracle (sde and web DBs)	NFS	700GB	High	Static, small growth	High
Sharepoint	iSCSI	250GB	Med	Growing	High
ArcGIS Server	iSCSI/CIFS	3.1TB	Med	Static	High
ERP (erp, apps)	CIFS	300GB	Low	Static, small growth	Med
Web (www)	CIFS/NFS	200GB	Low	Static, small growth	High
System (profiles, common)	CIFS/NFS	50GB	Low	Static, small growth	Low
Shared (SWR)	CIFS	100GB	Low	Static, small growth	Med
Trim	CIFS	110GB	Low	Growing	High
VMware	NFS	800GB	High	Growing	High
Email	Local	600GB	High	Growing	High
Finance (HP PeopleSoft)	Local	100GB	Med	Static	High
HR (HP PeopleSoft)	Local	35GB	Med	Static	High
HR (Win PeopleSoft)	Local	?	Med	Static	High
DRC Projects	CIFS	12TB	Low	Growing	Med
Files (work ,team)	CIFS	1.5TB	Low	Growing	Med
Images	CIFS	375GB	Low	Static, growing	Low
ERP (erp, apps)	CIFS	100GB	Low	Static, growing	Med
System (profiles ,common)	CIFS	3GB	Low	Static, growing	Low
Email	Local	200GB	High	Growing	High
TRMS	CIFS/NFS	15.5TB	Low	Growing	Med
Email	Local	120GB	High	Growing	High
Files	Local	370GB	High	Growing	Med
Files	Local	330GB	Low	Growing	Med
Files	Local	200GB	Low	Growing	Med
Files	Local	200GB	High	Growing	Med
Files	Local	100GB	Low	Growing	Med

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Exhibit A – Description of Current Storage Devices

Not all of this data will be immediately migrated, but the information is provided as background material.

- All SANS are iSCSI based, no fiber channel
- **NETAPP** – Three storage systems totaling over almost 30 terabytes
 - **ALEX**
 - Model: FAS3050
 - OS: 7.3.1
 - Protocols: NFS, CIFS, iSCSI, Near Store Option, ASIS
 - Location: Computer Room
 - Age: 5 years
 - Size:
 - Total Usable Space: 11 TB
 - % free: ~10%
 - **Name: ATLAS**
 - Model: FAS3140
 - OS: 7.3.3
 - Protocols: NFS, CIFS, iSCSI
 - Location: Computer Room
 - Age: 1 year
 - Size:
 - Total Usable Space: 17 TB
 - % free: ~30%
 - **Name: RAMA**
 - Model: FAS2020
 - OS: 7.3.3
 - Protocols: CIFS, iSCSI
 - Location: Oregon Zoo
 - Age: 3 years
 - Size:
 - Total Usable Space: 2.43 TB
 - % free: 14%
- **EMC (MERC)**
 - **Name: EMC**
 - Model: Clarion AX4-51
 - OS: EMC Clarion / EMC CIM Server Version 2.6.6.2.0.6
 - Flare (firmware) Code 2.23.50.5.705
 - Protocols: iSCSI
 - Number of Controllers 2

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- Number of Front-end Ports 4
- Number of Back-end Ports 2
- Number of physical disks: 20
- Location: Convention Center
- Age: 3 years
- Size:
 - Total Usable Space: 4.5TB
 - % free: 40%
- **Windows Server “Appliance” - TERRA**
 - **Name: Terra**
 - Model: A Windows based “terastationION3” server
 - Storage of 12.3 terabytes with almost 9 consumed.
 - OS Version Windows Server 2003 family 5.2.3790 Service Pack 2
 - Processor Count 4
 - Processor Type 586 Genuine Intel x86 Family 6 Model 15 Stepping 11 1995 MHz
 - Physical Memory MB 4090
 - Swap Space MB 1873
 - System Model S5000
 - Manufacturer ION
 - Nic Speed (MBPS) 1000
 - Over 20 separate disks in a RAID system, presented as two disks:
 - **Disk #1** Windows \\.\PHYSICALDRIVE0 715,237.62mb AMCC 9650SE-24M8 SCSI Disk Device
 - **Disk #2** Windows \\.\PHYSICALDRIVE1 12,874,403.00mb AMCC 9650SE-24M8 SCSI Disk Device
- **Windows Servers**
 - **Name: Genesis**
 - OS Version Windows Server 2003 family 5.2.3790 Service Pack 2
 - Processor Count 4
 - Processor Type 586 Genuine Intel x86 Family 15 Model 6 Stepping 4 2992 MHz
 - Physical Memory MB 2047
 - Swap Space MB 2945
 - System Model PowerEdge SC1430
 - Manufacturer Dell Inc.
 - Nic Speed (MBPS) 1000
 - Disks presented to OS
 - 1 Windows \\.\PHYSICALDRIVE0 238,472.69mb SAMSUNG SP2504C
10/24/2012 11:09:13

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- 2 Windows \\.\PHYSICALDRIVE1 139,235.23mb Dell VIRTUAL DISK SCSI Disk Device
- **Name: MERC-DATA**
 - OS Version Windows Server 2003 family 5.2.3790 Service Pack 2
 - Processor Count 4
 - Processor Type 586 Genuine Intel x86 Family 15 Model 4 Stepping 3 2793 MHz
 - Physical Memory MB 4095
 - Swap Space MB 7019
 - System Model PowerEdge 2850
 - Manufacturer Dell Computer Corporation
 - Nic Speed (MBPS) NA
 - Disk presented to OS:
 - #1 Windows \\.\PHYSICALDRIVE0 419,698.12mb PERC LD 0 PERCRAID SCSI Disk Device
- **Name: MERC-DATA2**
 - OS Windows
 - OS Version Windows Server 2008 6.0.6002 Service Pack 2
 - Processor Count 4
 - Processor Type 586 Genuine Intel Intel64 Family 6 Model 15 Stepping 6 3000 MHz
 - Physical Memory MB 2045
 - Swap Space MB 5059
 - Dis presented to OS:
Windows \\.\PHYSICALDRIVE0 559,928.19mb HP LOGICAL VOLUME SCSI Disk Device
- **Name: MERC-DATA3**
 - OS Version Windows Server 2008 6.0.6002 Service Pack 2
 - Processor Count 2
 - Processor Type 586 Genuine Intel Intel64 Family 6 Model 23 Stepping 10 3099 MHz
 - Physical Memory MB 2035
 - Swap Space MB 4294
 - System Model HVM domU
 - Manufacturer Xen
 - Nic Speed (MBPS) 2000
 - Disk presented:
 - 1 C:\ NTFS 32,765mb 0 0 \\.\PHYSICALDRIVE0
 - 2 D:\ NTFS 163,837mb 0 1 \\.\PHYSICALDRIVE1

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- **A VMware Environment**
 - 4 ESX Hosts running on individual blades in a Cisco USC cluster with 39 VMs
 - CPU Core Count 48
 - CPU Thread Count 96
 - Total CPU (MHz) 121,248.00
 - Effective CPU (MHz) 107,604.00
 - Total Memory (GB) 383.74
 - Effective Mem (GB) 346.60

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Exhibit B - HP Unix Enterprise Applications

Four separate HP Unix servers that have directly attached storage to hold our enterprise ERP and human resource applications and Oracle database servers.

For reference, we are including the mounted file system logs:

FSAPP – ERP App Server

```

/home          (/dev/vg00/lvol5   ): 2063632 blocks    32482 i-nodes
/opt          (/dev/vg00/lvol6   ): 169496880 blocks  2669230 i-nodes
/tmp          (/dev/vg00/lvol4   ): 2047664 blocks    32241 i-nodes
/usr          (/dev/vg00/lvol7   ): 5570608 blocks    87725 i-nodes
/var          (/dev/vg00/lvol8   ): 11231888 blocks   176829 i-nodes
/stand        (/dev/vg00/lvol11  ): 3057776 blocks    282451 i-nodes
/             (/dev/vg00/lvol13  ): 1714768 blocks    26990 i-nodes
Filesystem    kbytes  used  avail %used Mounted on
/dev/vg00/lvol3 1179648 315568 857376 27% /
/dev/vg00/lvol11 1776056 69560 1528888 4% /stand
/dev/vg00/lvol8 8912896 3253560 5615944 37% /var
/dev/vg00/lvol7 4587520 1780296 2785304 39% /usr
/dev/vg00/lvol4 1048576 16816 1023832 2% /tmp
/dev/vg00/lvol6 109051904 23636232 84748440 22% /opt
/dev/vg00/lvol5 1048576 8640 1031816 1% /home
  
```

FSDATA – ERP Database Server (Oracle DB)

```

/dba          (/dev/vg00/ps01   ): 83105998 blocks  11080684 i-nodes
/home         (/dev/vg00/lvol5   ): 2058256 blocks    32390 i-nodes
/opt/oracle/oraarch (/dev/vgora/oraarch ): 336183302 blocks  44823194 i-nodes
/opt/oracle/oradata (/dev/vgora/oradata ): 361081344 blocks  48143804 i-nodes
/opt          (/dev/vg00/lvol6   ): 167342496 blocks  2635064 i-nodes
/tmp          (/dev/vg00/lvol4   ): 2047616 blocks    32236 i-nodes
/usr          (/dev/vg00/lvol7   ): 6177024 blocks    97271 i-nodes
/var          (/dev/vg00/lvol8   ): 13476992 blocks   212206 i-nodes
/stand        (/dev/vg00/lvol11  ): 3068720 blocks    282515 i-nodes
/             (/dev/vg00/lvol13  ): 1631216 blocks    25676 i-nodes
Filesystem    kbytes  used  avail %used Mounted on
/dev/vg00/lvol3 1179648 357648 815600 30% /
/dev/vg00/lvol11 1776056 64088 1534360 4% /stand
/dev/vg00/lvol8 8912896 2121440 6738496 24% /var
/dev/vg00/lvol7 4915200 1802376 3088512 37% /usr
/dev/vg00/lvol4 1048576 16968 1023808 2% /tmp
/dev/vg00/lvol6 109051904 24729120 83671248 23% /opt
/dev/vgora/oradata 629145600 436570371 180540672 71% /opt/oracle/oradata
/dev/vgora/oraarch 249561088 70268312 168091651 29% /opt/oracle/oraarch
/dev/vg00/lvol5 1048576 11408 1029128 1% /home
/dev/vg00/ps01 104857600 60534857 41552999 59% /dba
  
```



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HRAPP – HR App Server

```

/dba (hrdata:/opt/oracle/oradata): 171992352 blocks 22932285 i-nodes
/home (/dev/vg00/lvol5 ): 31712 blocks 474 i-nodes
/opt/oracle/oradata (/dev/vgora/oradata ): 207073380 blocks 27609759 i-nodes
/opt (/dev/vg00/lvol6 ): 46934288 blocks 738864 i-nodes
/tmp (/dev/vg00/lvol4 ): 1218352 blocks 19151 i-nodes
/usr (/dev/vg00/lvol7 ): 4294704 blocks 67622 i-nodes
/var (/dev/vg00/lvol8 ): 6780000 blocks 106737 i-nodes
/stand (/dev/vg00/lvol1 ): 459504 blocks 34198 i-nodes
/ (/dev/vg00/lvol3 ): 472864 blocks 7436 i-nodes
Filesystem kbytes used avail %used Mounted on
/dev/vg00/lvol3 557056 318848 236424 57% /
/dev/vg00/lvol1 314736 53504 229752 19% /stand
/dev/vg00/lvol8 4718592 1302032 3390048 28% /var
/dev/vg00/lvol7 3932160 1767920 2147352 45% /usr
/dev/vg00/lvol4 622592 8952 609176 1% /tmp
/dev/vg00/lvol6 56262656 32618072 23467144 58% /opt
/dev/vgora/oradata 292913152 182474107 103536690 64% /opt/oracle/oradata
/dev/vg00/lvol5 32768 16808 15856 51% /home
hrdata:/opt/oracle/oradata
408944640 317215488 85996176 79% /dba

```

HRDATA – HR Database Server (Oracle DB)

```

/dba (/dev/vg00/ps01 ): 43592546 blocks 5812320 i-nodes
/home (/dev/vg00/lvol5 ): 27360 blocks 404 i-nodes
/opt/oracle/oraarch (/dev/vgora/oraarch ): 32669824 blocks 4355966 i-nodes
/opt/oracle/oradata (/dev/vgora/oradata ): 171992352 blocks 22932285 i-nodes
/opt (/dev/vg00/lvol6 ): 67091840 blocks 1056017 i-nodes
/tmp (/dev/vg00/lvol4 ): 1218640 blocks 19172 i-nodes
/usr (/dev/vg00/lvol7 ): 4307168 blocks 67818 i-nodes
/var (/dev/vg00/lvol8 ): 6343744 blocks 99872 i-nodes
/stand (/dev/vg00/lvol1 ): 368496 blocks 34186 i-nodes
/ (/dev/vg00/lvol3 ): 428960 blocks 6738 i-nodes
Filesystem kbytes used avail %used Mounted on
/dev/vg00/lvol3 557056 340968 214464 61% /
/dev/vg00/lvol1 314736 99008 184248 35% /stand
/dev/vg00/lvol8 4718592 1522200 3171872 32% /var
/dev/vg00/lvol7 3932160 1761648 2153584 45% /usr
/dev/vg00/lvol4 622592 9056 609320 1% /tmp
/dev/vg00/lvol6 62554112 28761360 33545920 46% /opt
/dev/vgora/oradata 408944640 317215486 85996176 79% /opt/oracle/oradata
/dev/vgora/oraarch 88801280 71377413 16334912 81% /opt/oracle/oraarch
/dev/vg00/lvol5 32768 19032 13680 58% /home
/dev/vg00/ps01 104857600 81608307 21796273 79% /dba

```

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Exhibit C - Top User File Types by Extension

Row	File Type	Size MB	File Type Count	Users
1	tif	4,438,161.53	116,172	352
2	las	1,624,320.54	7,629	2
3	pst	869,474.71	1,615	388
4	pdf	818,290.05	540,839	718
5	jpg	771,779.27	585,236	675
6	jp2	664,546.56	16,989	7
7	zip	554,161.38	16,171	347
8	adf	449,404.70	147,496	37
9	gdbtable	443,789.34	28,509	46
10	shp	368,986.68	54,514	120

Exhibit D - File Inventory by Age

