

CITY OF EL PASO, TEXAS
AGENDA ITEM DEPARTMENT HEAD'S SUMMARY FORM

DEPARTMENT: INFORMATION TECHNOLOGY

AGENDA DATE: January 27, 2009

CONTACT PERSON/PHONE: GERALD GORDIER (915) 541-4288

DISTRICT(S) AFFECTED: Terrence Freiburg, Purchasing Manager, 541-4313
ALL

SUBJECT:

Request that the Purchasing Manager, Financial Services, Purchasing Division, be authorized to issue a Purchase Order to INX, Inc. for the purchase of a NetApp Storage System through the State Department of Information Resources (DIR) contractor under DIR State Contract DIR-SDD-286.

BACKGROUND / DISCUSSION:

The purchase of this hardware is part of the Information Technology Department's plan to streamline and consolidate technology for the City. Our goal is to consolidate our storage to a newer, fully supported platform. Currently, our storage is fragmented throughout City facilities and much of it is out of support. This purchase allows the IT Department to upgrade the City's storage capacity and allow for more efficient use of storage technology.

PRIOR COUNCIL ACTION:

Has the Council previously considered this item or a closely related one?

YES

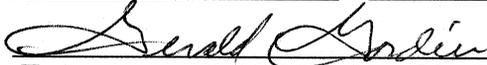
AMOUNT AND SOURCE OF FUNDING:

Total: \$240,768.59
Funding is available in the following Capital Accounts:
\$175,466.00 = 04102010-27503-508035-P540010CTY-All Years
\$28,131.00 = 04252003-27260-508010-PMB0004130-All Years
\$37,171.59 = 04102010-27503-508028-P540010CTY-All Years

BOARD / COMMISSION ACTION: Enter appropriate comments or N/A
NA/

*****REQUIRED AUTHORIZATION*****

LEGAL: (if required) _____ **FINANCE:** (if required) _____

DEPARTMENT HEAD: 
(Example: if RCA is initiated by Purchasing, client department should sign also)
Information copy to appropriate Deputy City Manager

APPROVED FOR AGENDA: _____

CITY MANAGER: _____ **DATE:** _____

FINANCIAL SERVICES, PURCHASING DIVISION

DATE: January 15, 2009

TO: Municipal Clerk

FROM: Terrence Freiburg 

Ray Heredia 

FINANCIAL SERVICES,
PURCHASING DIVISION

PROCUREMENT ANALYST

Please place the following item on the Regular Agenda for the Council Meeting of January 27, 2009.

Item should read as follows: That the Purchasing Manager be authorized to issue a Purchase Order(s) to INX in the amount of \$240,768.00 a State Department of Information Resources (DIR) contractor under DIR State Contract DIR-SDD-286 for NetApp Storage System. Participation by the City of El Paso in the DIR Program was approved by Mayor and Council on February 27, 2007.

Award amount is \$240,768.59

Funds & Fund Source available in: \$175,466.00 from 04102010-27503-508035-P540010CTY-COMMUNICATION EQUIPMENT-CAPITAL OUTLAY, \$28,131.00 from 04252003-27260-508010-PMB0004130, DATA PROCESS EQUIP, FY03 CO'S CITY CAPITAL EQUIPMENT AND \$37,171.59 from 4102010-27503-508028-P540010CYT-COMMUNICATION EQUIP, PROJECT CONSULTING, CAPITAL OUTLAY

Department: Information Technology

SPECIAL INSTRUCTIONS:

City Clerk's Use

ITEM NO. _____

Dedicated to Outstanding Customer Service for a Better Community

S E R V I C E S O L U T I O N S S U C C E S S



To: Terrence Freiburg, Purchasing Manager
Ed Hyatt, Administrative Analyst

From: Gary Gordier, CIO & Director of I.T.


Authorized Signature

Date: January 13, 2009

Re: Texas Department of Information Resources, Contract DIR-SDD-286

The Information Technology Department recommends purchasing this NetApp storage system. The purpose of this hardware purchase is to increase the City's storage capabilities to satisfy Department requirements. Also, this hardware will provide centralized storage and scalability and flexibility needed for the City's Departments.

1. *Is there an urgent need for the product/service? In other words, is time of the essence?*

Yes. These are core components necessary for the IT department to provide storage and server capacity to support City Departments. This will facilitate the optimized use of our high speed storage allowing applications that do not need high speed storage needs to be managed on this device.

2. *Does the purchase through the Program promote the standardization of equipment?*

Yes. The City has found that NetApp provides high quality with a good quality price point as well.

3. *Does the purchase through the Program support local business? If not, is there a comparable product/service available locally?*

Yes, local business is supported. INX is a national company which has a local presence in El Paso for a number of years.

4. *Do the available vendors have prior work experience and/or familiarity with the City?*

Yes. INX has long been a vendor we've used for technology and support.

5. *Is the pricing reasonable as compared to other similar products/work performed for the City of El Paso in the past or as quoted from other companies?*

Yes. This pricing is below DIR negotiated pricing. Retail price for this system is approximately \$407,040.93. DIR price for this bundle is approximately \$330,758.70. We are getting this system for \$240,668.49. That is a savings of approximately \$90,090.21.

The participation by the City of El Paso in the Texas Department of Information Resources was approved by Mayor and City Council on February 27, 2007. The standard factors used to determine the use of a Cooperative Purchasing program were approved by City Council on June 24, 2008.

2 Civic Center Plaza - City Hall - El Paso, Texas 79901 - (915) 541-4288

Mayor
John F. Cook

City Council

District 1
Ann Morgan Lilly

District 2
Susannah M. Byrd

District 3
Emma Acosta

District 4
Melina Castro

District 5
Rachel Quintana

District 6
Eddie Holguin Jr.

District 7
Steve Ortega

District 8
Beto O'Rourke

City Manager
Joyce A. Wilson

Dedicated to Outstanding Customer Service for a Better Community

S E R V I C E S O L U T I O N S S U C C E S S



TO: David Almonte, Director
Office of Management & Budget

THRU: Raul Escobedo, Budget Strategic Advisor

FROM: Gerald Gordier, CIO and IT Director
Information Technology Department *Gerald Gordier*

DATE: January 13, 2009

SUBJECT: INX – NetApp Storage System - \$240,768.59
RQ2009001324

JUSTIFICATION: This requisition is for Storage hardware needed to support the City Departments.

This equipment is for the storage capacity needed by City Departments. In particular, this system will facilitate the storage of low speed storage needs termed Tier II and Tier III.

AMOUNT AND SOURCE OF FUNDING: \$240,768.59

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\$37,171.59 = 04102010-27503-508028-P540010CTY-All Years

Thank you for help and consideration on this issue.

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Vendor	Part Number	Description	Qty	List Price	Unit Price	Ext Price
NetApp FAS3140 Controller and Related Hardware						
NetApp	FAS3140-R5		1		\$0.00	\$0.00
NetApp	DOC-31XX-C	Documents,31XX,-C	1	\$0.00	\$0.00	\$0.00
NetApp	DSX-14.0TB-R5-C	DS14MK2 SHLF,14.0TB SATA,-C,R5	3	\$35,006.00	\$18,343.14	\$55,029.42
NetApp	FAS3140A-BNDL3-R5	FAS3140A NetApp Select,CFO,ISCSI,FCP,R5	2	\$17,500.00	\$9,170.00	\$18,340.00
NetApp	FAS3140A-CHASSIS-R5-C	FAS3140,ACT-ACT,Chassis,AC PS,-C,R5	1	\$0.00	\$0.00	\$0.00
NetApp	X1558A-R8-C	Cabinet Component Power Cable,48-IN,-C,R8	12	\$0.00	\$0.00	\$0.00
NetApp	X2054B-R8-C	HBA,FC,4-port,PCle,4Gb,-C,R8	6	\$4,000.00	\$2,096.00	\$12,576.00
NetApp	X8521-R8-C	Loopback,Optical,LLC,-C,R8	4	\$50.00	\$26.20	\$104.80
NetApp	X8530-R8-C	Cable,Patch,FC SFP to SFP,0.5M,-C,R8	2	\$0.00	\$0.00	\$0.00
NetApp	X8539-R8-C	SFP,Optical,4.25Gb,-C,R8	16	\$120.00	\$62.88	\$1,006.08
NetApp	X8553-R8-C	Cable,OPT,50u,2GHz/KM,MM,LC/LC,2M,-C,R8	20	\$125.00	\$65.50	\$1,310.00
NetApp	X8730B-R8-C	Storage Equip Cabinet,4PDU,30A,NEMA,-C,R8	1	\$4,850.00	\$2,541.40	\$2,541.40
NetApp	X8773-R8-C	Mounting Bracket,Tie-Down,Multiple,-C,R8	1	\$0.00	\$0.00	\$0.00
NetApp	X94015A-ESH4-R5-C	DS14MK4 SHLF,ACPS,14x300GB,15K,HDD,ESH4,-C,R5	2	\$36,700.00	\$19,230.80	\$38,461.60
NetApp	X1088A-R8	HBA,QLogic QLE2402,2-Port,4Gb,PCle,R8	8	\$1,700.00	\$890.80	\$7,126.40
NetApp	X8536-R8	Cable,Optical,50u,2000MHz/Km/MM,LC/LC,5M,R8	16	\$150.00	\$78.60	\$1,257.60
FAS3140 Software and Protocols						
NetApp	SW-T3C-CIFS-C	CIFS Software,T3C,-C	2	\$9,113.00	\$5,558.93	\$11,117.86
NetApp	SW-SSP-VFM-ME-T3C	SW Subs,VFM Migration Edition,Tier3C	2	\$1,212.00	\$739.32	\$1,478.64
NetApp	SW-T3C-VFM-ME-CIFS	Software,VFM Migration Ed,CIFS,Tier3C	2	\$3,375.00	\$2,058.75	\$4,117.50
NetApp	SW-T3C-ASIS-C	A-SIS Deduplication Software,T3C,-C	2	\$0.00	\$0.00	\$0.00
NetApp	SW-T3C-NEARSTORE-C	Nearstore Software,T3C,-C	2	\$0.00	\$0.00	\$0.00
NetApp	SW-T3C-SME-C	SnapManager Software,Exchange,T3C,-C	2	\$21,250.00	\$12,962.50	\$25,925.00
NetApp	SW-T3C-SRESTORE-S-C	SnapRestore Software,Special,T3C,-C	2	\$3,600.00	\$2,196.00	\$4,392.00
NetApp	SW-SDRIVE		1	\$0.00	\$0.00	\$0.00
NetApp	SW-DSM-MPIO-WIN	Software,Data ONTAP DSM for Windows MPIO	8	\$1,000.00	\$810.00	\$6,480.00
NetApp	SW-FAK-WIN	FCP Windows Host Utilities	8	\$0.00	\$0.00	\$0.00
NetApp	SW-FAK-WIN-MKIT	Media Kit,FCP Windows Host Utilities	8	\$0.00	\$0.00	\$0.00
NetApp	SW-SDR-WIN	SnapDrive Software,Windows	8	\$659.00	\$401.99	\$3,215.92
NetApp	SW-SSP-DSM-MPIO-WIN	SW Subs,Data ONTAP DSM for Windows MPIO	8	\$120.00	\$73.20	\$585.60
NetApp	SW-SSP-SDR-WINDOWS	SW Subs,SnapDrive for Windows	8	\$120.00	\$73.20	\$585.60
NetApp	SW-SMBR		1	\$0.00	\$0.00	\$0.00
NetApp	SW-SMBR-500PK	Single Mailbox Recovery Software,500PK	1	\$4,220.00	\$3,418.20	\$3,418.20
NetApp	SW-SSPVN-SMBR-500PK	Vendor SW Sub SMBR, 500pk	1	\$756.00	\$461.16	\$461.16
NetApp	SW-T3C-VFM	VFM Enterprise Edition Software,Tier3C	0	\$19,350.00	\$15,673.50	\$0.00
NetApp	SW-VFM-NODE	VFM Enterprise Edition Software,1 Server	0	\$2,000.00	\$1,620.00	\$0.00
Maintenance and Support						
NetApp	CS-O-N8D	SupportEdge Premium, Next Bus Day Onsite	1	\$31,674.93	\$25,656.69	\$25,656.69
NetApp	SW-VFM		0	\$0.00	\$0.00	\$0.00
NetApp	SW-SSP-VFM-NODE	SW Subs,VFM,1 Server	0	\$360.00	\$291.60	\$0.00
NetApp	SW-SSP-VFM-T3C	SW Subs,VFM,Tier3C	0	\$3,480.00	\$2,818.80	\$0.00
FREE Training Credits						
NetApp	ED-TU-100	Training Units 100,Exp.1yr from invoice	1	\$7,500.00	\$0.00	\$0.00
NetApp	ED-TU-50	Training Units 50,Exp.1yr from invoice	1	\$3,750.00	\$0.00	\$0.00
Power Backup						
APC	SUA5000RMT5U	APC Smart-UPS 5000VA 208V Rackmount/Tower	1	\$3,960.00	\$2,381.12	\$2,381.12
					\$0.00	\$0.00
SERVICES						
INX	INX-SVCS-PDIO	INX Professional Services	1	\$13,200.00		\$227,568.59
						Product Subtotal

Vendor	Part Number	Description	Qty	List Price	Unit Price	Ext Price
						Maint Subtotal
						Sales Tax
						Prof Svcs Total
						Shipping
						Grand Total



Go DIRECT

DIR-SDD-286 --- NetApp

Quote # 1118MR08_FAS3140

The City of El Paso
Data Management Solution

Prepared by:

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and

Andrew Guerra
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Revision Date: January 13, 2009
Quote Valid for 30 Days

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1. Introduction

1.1. Executive Summary

The following proposal represents a scope of work for the implementation and deployment of a Network Appliance (NetApp) centralized storage solution for The City of El Paso. The proposed system will allow connectivity via IP SAN and/or Fiber Channel providing the scalability and flexibility required to support Microsoft Exchange, and file services in both a SAN and NAS configuration. The proposed solution will provide the City of El Paso reliable and scalable solution for Tier II and Tier III centralized data management, as well as providing robust features for the backup and restoration of Microsoft Exchange. The City of El Paso can expect the following features and benefits:

- Easily recover any-size Exchange databases in minutes instead of hours or days.
- Schedule and perform fully-automated backups, recoveries, archiving, and remote mirroring of Exchange databases.
- Simplify the management of existing Windows and Exchange Server infrastructures.
- Increase uptime with rapid restores, non-disruptive backups, and instantaneous storage provisioning.
- Easily expand and provision storage for regulated e-mail and archival uses.

This proposal also addresses the technical and business requirements set forth by the City of El Paso. There are five distinct sections of this proposal that include Background and Objectives, Solution Overview, Project Roadmap, Support and Detailed Quotes. The result is a clearly articulated proposal which conveys how a NetApp solution meets and exceeds the data consolidation and future disaster recovery requirements as well as the business and administrative benefits a NetApp solution can provide to the City of El Paso.

Network Appliance's (NetApp) unique "Single Architecture" provides a foundation for gained efficiencies in data management in the City of El Paso Information Technology Enterprise. This architecture provides a single operating system and GUI administrative tool across NetApp's entire primary and secondary storage solution set. In addition this architecture supports all NAS and SAN protocols across the product line. This unique combination provides the City of El Paso the agility to meet current and future requirements with minimal administrative resources including data in place upgrades when additional capacity and performance is required.

NetApp's patented Snap Technology provides backup, restore and replication technology with the virtually no impact on performance and lowest impact on storage in the industry. SnapShots can be taken with 1/3 the I/O requirements of other storage vendors. What does this mean to the City of El Paso? You may protect your data with no impact to your production system at a lower total cost of ownership than any other storage system.

To summarize, NetApp brings simplicity to the City of El Paso enterprise by leveraging a single architecture, robust backup and restore and replication technologies while providing for a lower total cost of ownership over time.

2. Background and Objectives

2.1. Business Case

The INX customized solution for the City of El Paso includes a NetApp FAS3140-R5 cluster, providing a data consolidation model that allows for ease of management, as well as increasing storage capacity on demand as storage requirements fluctuate within the organization. This model greatly reduces the administrative cost of managing data and will provide the City of El Paso with a high level of confidence that data can easily be restored in the event of loss, corruption, or even virus infection. This robust functionality includes the ability to restore a corrupted or loss Microsoft Exchange database in only a few minutes!

NetApp's unique "Single Architecture" will provide multiple benefits for the City of El Paso, which typically our competitors can only emulate using multiple hardware platforms with different management interfaces. NetApp's architecture provides a single operating system and GUI administrative tool across the entire solution set. The single architecture also supports all NAS and SAN protocols across the product line. With the proposed strategic approach to data management, the City of El Paso will have the necessary tool set to meet current requirements for Tier II and III data, and have flexibility to adapt to future objectives with minimal administrative resources. If desired, a Tier I architecture can be easily adopted in the future.

INX and NetApp will bring simplicity to the City of El Paso by leveraging patented Snap Technology using a single architecture, which provides robust backup, restore and replication technologies with no impact on performance and the lowest impact on storage in the industry. Snapshots can be taken with 1/3 the I/O requirements of other storage vendors. This means OSU can protect critical data with no impact to your production system at a lower total cost of ownership than any other storage system.

Summary:

- Ease of Management
- Increased Productivity with Less Downtime
- Lower Cost of Ownership
- Ease of Backup and Restoration of Data
- Single Architecture and Operating System
- Application Suite – Custom design for OSU!

2.2. Project Requirements

The City of El Paso requires a storage and backup solution to facilitate the growth of their existing MS Exchange environment. The solution will currently be used to address Tier II and Tier III storage consolidation and capacity requirements.

3. Solution Overview

3.1. Executive Summary: Solution

INX Inc. recommends the deployment of a NetApp FAS3140-R5 clustered unified storage system. The NetApp FAS3140-R5 cluster offers outstanding performance and expandability, delivering high-end storage and data management value with affordability. Network Appliance unified storage facilitates the deployment of a single, integrated storage solution. This enables you to focus on application requirements rather than technology, while ensuring that your storage network will be capable of seamlessly supporting your long-term storage needs. In addition to its scalability, the FAS3140-R5 cluster supports both Fiber Channel (FC) and Serial ATA (SATA) disk technology simultaneously. INX Inc. has strategically configured the appropriate SAN / NAS solution to meet the immediate MS Exchange needs of the City of El Paso, as well as a centralized storage area for scanned images. The system will also come complete with onboard tape backup capabilities via fiber channel or iSCSI connectivity to the tape device. NetApp enterprise storage systems function as "unification engines" that simultaneously support Fiber Channel and IP storage area networks (SAN) and network-attached storage (NAS). The system utilizes a highly optimized and scalable NetApp Data ONTAP storage operating system, enabling you to minimize complexity and costs while bringing unequaled flexibility to your storage environment.

The NetApp FAS3140-RF cluster will come loaded with the following applications and protocols:

SnapManager for Exchange

SnapManager 4.0 for Microsoft Exchange now supports both Microsoft Exchange Server 2007, as well as Exchange Server 2003.

SnapManager for Microsoft Exchange speeds and simplifies application data management. It empowers Exchange administrators to utilize the capabilities of NetApp storage systems from an Exchange-centric approach. It automates and simplifies the complex, manual and time-consuming processes associated with the backup, recovery and verification of Exchange databases. It is integrated with native Microsoft technology and frameworks. Using SnapManager with FC or IP SANs, customers can:

- Scale their storage infrastructure
- Meet their Tier1 SLA commitments, and
- Improve the productivity of both email and storage administrators

With SnapManager for Microsoft Exchange, Network Appliance Inc. continues the drive to address the business critical needs of customers worldwide. It

leverages NetApp's distinctive Snapshot® technology to execute full backups and recoveries in a fraction of the time, compared to legacy approaches. Extremely fast backups are executed without the need to bring Exchange databases/mailboxes offline, and can be done without any significant performance degradation. Snapshot technology also allows organizations to efficiently store 250+ copies of the data, allowing for much faster and granular recovery, based on specific points in time.

Single Mailbox Recovery

Single Mailbox Recovery for Microsoft Exchange (SMBR) enables Microsoft Exchange administrators to easily sift through copies of their Microsoft Exchange databases and execute quick and granular retrievals that can take hours or even days of manual effort today. SMBR integrates with both NetApp and third-party technology to allow administrators to quickly and accurately retrieve individual mailboxes, email messages, and even attachments using a powerful set of advanced search criteria.

SMBR is a powerful tool that can save significant administrator time and effort related to requests for specific Exchange information. It is especially useful in specific situations such as:

- Legal Searches—SMBR can be used to establish/verify email evidence around compliance requests. It can be used by legal firms to quickly and easily sift through any given set of Exchange email records based on specific search criteria
- Human Resources—SMBR allows companies to quickly retrieve just the relevant emails/attachments when investigating HR-related issues

With Single Mailbox Recovery for Microsoft Exchange, there is no extra storage required and there are no pre-requisites. SMBR does not have to be installed prior to its first use and it works with existing copies of your Exchange Server databases.

SnapDrive

The Challenge: In today's global marketplace, enterprises of all sizes are producing enormous amounts of business-critical information from a variety of sources-enterprise applications, corporate e-mail, data warehouses, and line-of-business applications. While trying to keep up with the explosion of digital information, companies have created cumbersome, expensive-to-maintain storage infrastructures. Now such organizations are struggling with the high costs of managing enterprise information.

The Solution: With SnapDrive software from Network Appliance, you can reduce the cost and complexity of managing storage for your company by enabling flexible and efficient utilization of storage resources to improve data and application availability. SnapDrive software offers a rich set of

capabilities to virtualize and enhance storage management for Microsoft Windows and UNIX environments. It is tightly integrated with the native file system and provides a layer of abstraction between application data and physical storage associated with that data.

SnapRestore

The Challenge: Achieving Fast Data Recovery from Backups

The threats to enterprise data and business continuance are huge and ever present. At any time, a new virus can penetrate system defenses. A simple software upgrade can fail and stop operations cold. An order entry clerk can accidentally delete valuable client records. With traditional data recovery technologies, any of these events can cost hours of productivity and millions of dollars of revenue.

The Solution: Virtually Instant Data Restoration with SnapRestore Software

NetApp® SnapRestore software allows an enterprise to recover almost instantly from these disaster scenarios. In seconds, SnapRestore software can recover anything from an individual file to a multiterabyte volume so that operations can be quickly resumed. NetApp SnapRestore software makes recovering your data fast and easy.

Restore Any Amount of Data in Seconds: Using the unique Snapshot™ feature of NetApp's Data ONTAP® operating system, SnapRestore quickly restores lost files using stored Snapshot copies. From a single home directory to a huge production database, SnapRestore does the job in seconds regardless of file or volume size.

Cost and Storage Efficiency: NetApp's Snapshot technology makes extremely efficient use of storage by storing only block-level changes between each successive Snapshot. Since the Snapshot process is automatic and virtually instantaneous, backups are significantly faster and simpler. SnapRestore software uses Snapshot technology to perform near-instantaneous data restoration. In contrast, alternative storage solutions copy all of the data and require much more time and disk storage for the backup-and-restore operations.

SnapRestore also saves staffing resources. Whether your business employs a small group of end users or an enterprise-scale user community and IT support team, SnapRestore's easy single-command restoration eliminates complexity and reduces errors. Not only that, but using SnapRestore requires no special training or expertise.

More Than Just Data Protection: With SnapRestore, data can be restored from any one of the Snapshots stored on the file system. This allows an application development team, for example, to revert to Snapshots from various stages of their design, or test engineers to quickly and easily return

data to a baseline state. Restoring to the base environment takes only seconds, and the restored environment is identical to the point at which the Snapshot copy was created.

Key Features

- **Fast and Efficient**—Recover entire volumes or individual files in seconds.
- **Simple Single-Command Operation**—No special expertise required, virtually eliminating the chance of operator error.
- **File or Full Volume Restore**—Choose to restore only affected files or the entire volume.
- **Multiple Recovery Points**—Restore the most recent clean copy from any Snapshot.
- **Unsurpassed Reliability**—Far more dependable than traditional data restoration methods.

SnapRestore lets you:

- Restore databases quickly
- Test with frequent returns to baseline
- Quickly recover from virus attacks
- Recover data after a user or application error

FlexVol

NetApp FlexVol technology enables true storage virtualization to lower overhead and capital expenses, reduce disruption and risk, and provide the flexibility to adapt quickly and easily to the dynamic needs of your organization. FlexVol technology pools storage resources automatically and enables you to create multiple flexible volumes on a large pool of disks. This flexibility means you can focus on managing data, not hardware, and make changes quickly and seamlessly. The result is that you can add storage when and where you need it without disruption and at the lowest incremental cost.

Dynamic, Nondisruptive Storage Provisioning: FlexVol is a breakthrough technology in which volumes are logical data containers that can be managed and moved independently from the underlying physical storage. Since FlexVol volumes have access to all available physical storage in the NetApp system, FlexVol technology provides substantial improvements in storage provisioning, utilization, and volume sizing. Data volumes can be sized and resized quickly and dynamically as application requirements change, and this may be automated based on space management policy.

Superior Storage Utilization Lowers Cost: Since FlexVol technology allows all data volumes to share a single pool of physical disk storage, storage utilization is dramatically improved. Compared to alternative technologies, FlexVol can double storage utilization, which means that you can significantly reduce the cost of disk drive acquisition. Additionally, the availability of thin provisioning provides the added benefit of "just-in-time" storage, which further reduces your acquisition costs.

Increased Disk Performance: With FlexVol, I/O performance is also improved, since volumes can be distributed across all available disk drives. This is particularly important for "spindle-bound" applications such as those with heavy database utilization. Also, since I/O bottlenecks are dramatically reduced, less expensive SATA disk drives may be utilized for a wider range of applications.

Common Internet File System (CIFS) The availability of the CIFS protocol on the FAS3050 controller will allow for file shares to be available to users with different platforms and computers without the need of installing any additional hardware or software. This protocol runs over TCP/IP and uses the Server Message Block (SMB) protocol found in Microsoft Windows for file and printer access. The CIFS protocol will allow for all applications, not just web browsers to open and share files across the Internet.

Network Attached Storage

NAS has become synonymous with reliability, simplicity, and the lowest TCO of any storage networking solution. Originally deployed in data sharing environments, NetApp NAS solutions have become a preferred solution for enterprise applications and database environments where automated performance tuning and sophisticated data management capabilities can reduce costs, improve data availability and simplify operations.

RAID DP

Dual-parity RAID 6 protection without compromise:

As disk drive capacities continue to grow, protection from disk-related failures can be critically important to system availability and continuous operation of your applications. Traditional types of RAID protection have provided solid resiliency to storage systems, but the increasing possibility that more than a single disk drive failure per RAID group may occur raises some valid concerns.

Protection from Double Disk Failures: RAID-DP, a RAID 6 implementation, provides double-parity RAID protection against data loss with negligible performance overhead and no cost penalty compared to single-parity RAID. RAID-DP is a standard feature of Data ONTAP® and prevents data loss in the event of a second drive failure without excessive redundancy costs. Using an elegantly simple solution, a second parity drive is added to each RAID group, and parity for this drive is calculated differently from the first parity drive. The second parity drive utilizes a diagonal stripe that provides enough information to ensure reconstruction after a dual drive failure.

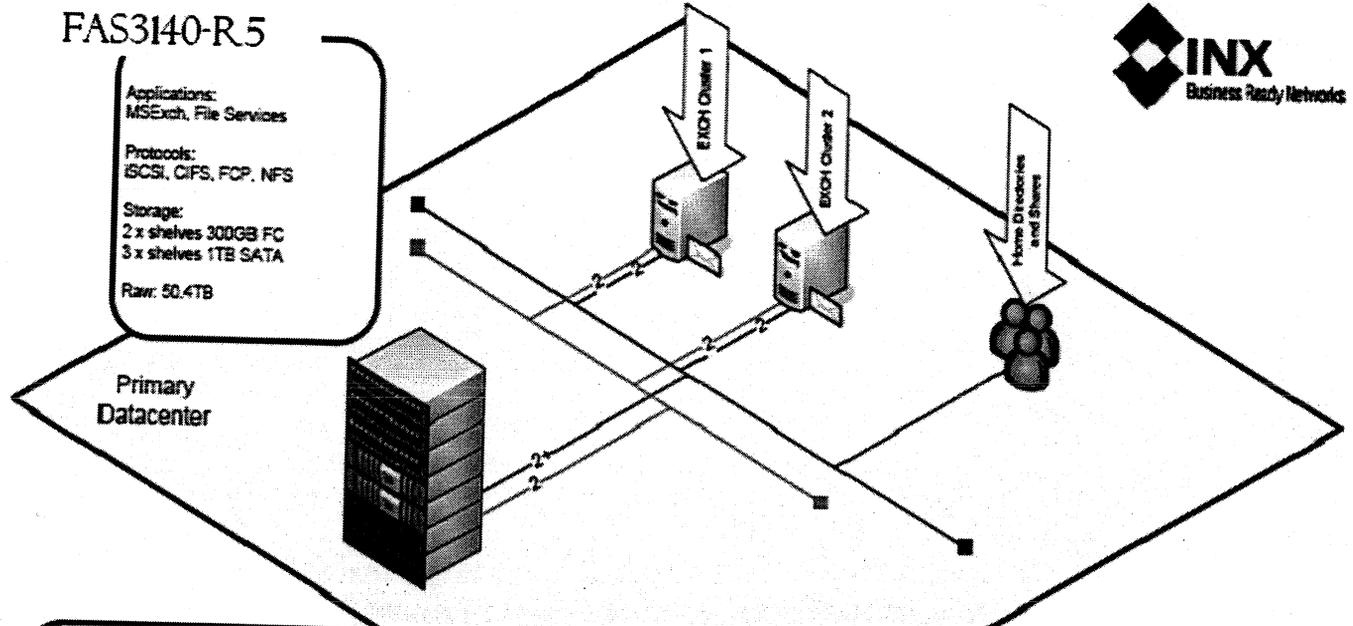
Superior Reliability, High Performance, Lower Cost: Unlike other RAID 6 offerings, RAID-DP is integrated with the NetApp WAFL file system to ensure that dedicated parity drives do not become a performance bottleneck. As a result, RAID-DP safeguards data from double disk failures while providing the performance that even the most demanding applications require. RAID-DP can also lower your storage acquisition costs, since less expensive SATA disk technology is now a viable choice for enterprise-class applications.

Foundation for Storage Resiliency: For ultimate storage resiliency, SyncMirror can be layered on top of RAID-DP to offer additional protection against enclosure failure, triple (or more) disk failures, or FC loop failure. The combination of SyncMirror and RAID-DP provides maximum subsystem fault tolerance that exceeds RAID1, but with similar cost overhead and read performance benefits.

Data De-Duplication

The primary advantage of data de-duplication is that it conserves physical disk space when storing data on disk. The average UNIX® or Windows® disk volume contains thousands of duplicate data strings. Traditionally, when copies of these volumes are created, every duplicate data string is also copied, resulting in an inefficient use of secondary storage. De-duplication helps to remove this inefficiency and yields a more effective cost per gigabyte in the data center.

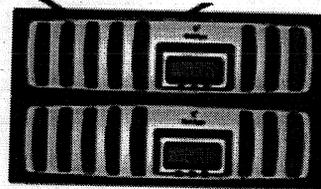
3.2. Design



Benefits at a Glance:

- * SnapShots - Frequent, nondisruptive, space-efficient and quickly restorable backups
- * FlexVols - Fast, simple and flexible "on-the-fly" storage provisioning and expansion
- * SnapRestore - Near-instantaneous recovery of files, Exchange databases and complete volumes
- * RAID-DP - Double-parity RAID protection against data loss and the ability to sustain a double-disk failure
- * AutoSupport - "Dial-home" support enabling instant support notification
- * SnapDrive - Provides host-based LUN provisioning and "on-the-fly" expansion

NETAPP



FAS3140-R5 CLUSTER

4. Project Roadmap

4.1. Scope of Work

INX Inc shall provide Data Managed and Disaster Recovery Services, as described in the following scope, to include:

- Full migration and data consolidation from customer Exchange host systems with direct attached storage (DAS) to a NetApp FAS2020 storage system.

The objective of these Services is to consolidate data from existing Exchange host systems onto a NetApp storage system with minimal disruption to data access. INX Inc will provide Services in accordance with this SOW, which will begin upon a mutually agreed to start date, until completion of the final deliverable.

INX Inc shall provide Services under the terms of this SOW, as set forth below:

Assessment

Data Migration Services vary significantly based upon the source and target storage subsystems, equipment location(s), networked storage topology (NAS or SAN), and most importantly, the allowable downtime, if any, associated with each application in the project. A "Migration Spreadsheet" will be used to provide the information for each application/environment to be migrated. INX Inc will execute the following tasks:

- Perform Business Impact Analysis and Discovery (Note: all collected data is recorded in a "Migration Spreadsheet").
- Understand customer goals, requirements, and dependencies.
- Record NAS information.
- Record CIFS share and ACL information.
- Record SAN switch information.
- Record SAN hosts information.
- Record all storage system options.

Design

- Design the FlexVol environments and data layout.
- Create the migration plan using the "Migration Spreadsheet" as input.
- Plan for Snapshot Integration.
- INX Inc will execute the following tasks:
 - Detail Snapshot Requirements: Determine the frequency and retention periods appropriate for Snapshots on each server.
 - Snapshot Control Selection: Identify the best practice for event/script, software, scheduled and/or manually driven initiation of Snapshots on a per application basis.
 - Consolidation Analysis: Group Snapshots with common schedules, retention policies, and if applicable, restoration methods to simplify overall Snapshot structure.
 - Recovery Process: Document procedures to be used for full or partial restoration of data from a Snapshot for each application.

Implementation

Note: Customer should, if possible, monitor these steps as they will act as a beneficial tutorial for ongoing storage management in conjunction with INX Inc.

- Prepare the target storage system.
- Create initial RAID groups and volumes on the storage system.
- Create the aggregates for the FlexVol volumes.
- Create the destination FlexVol volumes.
- Complete installation verification procedures as appropriate.
- Configure clustered environments and test failover and giveback functionality for each cluster if applicable.

- Perform a pre-migration test for proof of concept and testing purposes.
- Migrate data and cutover.
- INX Inc will plan and execute the data migration from the installed storage system to the secondary system at the DR site as follows:
 - Establish base line data sets: A static copy of data will be created for initial population on the new (or existing for same system migration) equipment. This may be based upon a level 0 file system backup, a database checkpoint, or other means appropriate to the application software environment. Once a base line is established, processing may continue in the original environment as long as incremental backups or transaction logs, etc, are created from the base line forward.
 - Transfer site data: Base line data sets will be moved, either via media transfer or electronically, to the new site.
 - Perform initial data load: Base line data will be loaded into the INX Inc environment in accordance with the approved data migration plan.
 - Perform Data Verification: Customer and INX Inc will verify that the initial data load has completed successfully.
 - Perform data updates: Incremental changes and/or redo logs will be applied to target data so that it is ready for processing. Processing at the source site will stop before creation of the last update.
 - Go live: Application servers or application users, as is applicable, will be connected to the new environment and production processing can start or resume.
- Demonstrate that the FlexVol system(s) is production-ready.
- Provide an overview of, and documentation for, the new FlexVol system(s).

4.2. Project Deliverables

- INX Inc will provide the Customer with the following Deliverables:
- A data migration planning document which both Customer and INX Inc project leads will utilize to ensure that all aspects of the data migration process is documented.
- A project schedule that details all required staffing resources, tasks and the overall project timeline.
- As-built documentation of the storage solution, including storage systems, switches and servers

4.3. Detailed Costs

This project will be billed on a **Fixed-Cost** basis. The cost is based on the above scope-of-work, project schedule and resource requirements to complete the project tasks. All labor and miscellaneous costs are included.

The following is a detailed proposal costs for equipment, software and professional services.

4.4. Payment Terms

Payment for services will be due NET30 day upon completion project cutover and INX invoicing.

Payment for equipment and software will be due upon NET30 days of delivery and INX invoicing.

5. Responsibilities

5.1. Project Initiation

Upon receipt of purchase order, a kickoff meeting will be held with the City of El Paso and INX personnel. At the meeting, the project plan will be reviewed with all stakeholders and involved personnel. At this time, actual dates for all project tasks will be determined.

5.2. INX

INX will be responsible for the following:

- INX will provide regular project status updates to the project sponsor.
- Upon receipt of a purchase order, INX will coordinate a kickoff meeting with all stakeholders to review and finalize work schedules, project plans and communication schedules.

5.3. Customer

City of El Paso will be responsible for the following:

- City of El Paso will assign a project sponsor who will be the single-of-point for project updates and issues.
- City of El Paso will make available all required resources for this project.
- City of El Paso will coordinate scheduling of network downtime and other planned outages.
- City of El Paso will be responsible for coordinating installation of cabling, circuits and power necessary for proposed equipment.
- City of El Paso will sign off on deliverables to indicate task and project completion.

5.4. Contact Information

The following list contains the core team members for this project:

Name	Company	Role	Phone	E-mail
	City of El Paso	Project Sponsor		
	City of El Paso	Project Manager		
	City of El Paso	Technical Lead		
	City of El Paso	Project Team		
	City of El Paso	Billing Contact		
James Covey	INX	Account Executive	O 915.533.6382 X167 M 915.494.3057	jcovey@inxi.com
	INX	Technical Lead		
Klaus Mueller	INX	Managing Consultant	O 505.256.9047 M 505.980.5502	klaus.mueller@inxi.com
Ted Bonnell	INX	Regional Director of Operations	O 505.256.9047 M 505.980.5500	tbonnell@inxi.com
Mike French	INX	Regional Vice President	O 505.256.9047 M 505.980.5501	mfrench@inxi.com

5.5. Project Communications

Communications about project status amongst all project team members and stakeholders is critical to a successful completion. INX will commit to the following schedule to ensure an appropriate level of communications.

Kickoff - Upon project initiation, a kickoff meeting will be held with all project team members and stakeholders. The purpose of this meeting will be to review the project scope of work, schedule, tasks and responsibilities.

Status Updates - INX will broadcast e-mail status updates to all project team members and stakeholders upon completion of major tasks or milestones. Additional periodic status update e-mails may be sent at intervals as agreed to by the project team during the kickoff meeting.

Project Meetings - A schedule for project update meetings will be determined during the kickoff meeting. The purpose of the update meetings will be to review completed tasks as well as to review plans for upcoming scheduled events. This meeting will also serve as a forum to review changes to scope, updates on issues, scheduling changes and other changes to the project plan.

Confirmations - INX will confirm appointments for major tasks 2 - 3 days prior to scheduled times for these tasks via e-mail or phone. Nevertheless, it is assumed that City of El Paso will communicate any scheduling changes

with the INX Account Executive or Project Lead at least 1 day prior to any scheduled events.

Sign-off – Upon completion of the project, a sign-off meeting will be held with all project team members and stakeholders. The status of any outstanding issues will be reviewed along with plans to address closure of these issues. A “plus/delta” review will be performed to identify what went well with the project as well as what could have been done better. The project sponsor will sign the project signoff sheet (see appendix B) to indicate successful completion of the project.

5.6. Project Management

Successful project management hinges on communications between all involved parties. In most projects, there will be changes in schedules, personnel, and possibly scope and expectations. Communications and quick attention to possible issues is the key to happy project conclusion. We urge City of El Paso to actively participate in the project and request that City of El Paso utilize the Change management and Escalation procedures if there are any concerns about the project.

5.7. Change Management Process

Any change in the Scope of Work of the project must be submitted to your INX Account executive using the Change Request form. This form will be signed by both INX (Project Manager) and City of El Paso (Project Sponsor). Impacts of the change on project cost and/or schedule will be assessed and agreed upon during this process.

5.8. Knowledge Transfer

INX believes in the free flow of information – it is our core business. We encourage customer participation and ownership of knowledge. This project will deliver a complete assessment of City of El Paso infrastructure that will allow management to make wise decisions to support the City of El Paso mission. We will do our best to answer questions and provide information during the process and at final delivery.

6. About INX

6.1. About INX

INX, founded in 1997, is a network infrastructure professional services firm delivering best-of-class services to its clients. Originating as a team of select senior consulting engineers, INX built its business primarily through existing relationships and referrals, a strong testament to the quality of leading-edge technology services provided. In November of 2000, INX merged with InterNetworking Sciences to create a mature, comprehensive network services firm. The foundation of network technology expertise coupled with an experienced management team allows the stronger INX to deliver services and solutions to some of the largest Enterprise and Service Provider clients in the United States. The services generated are a result of a synergy between INX's service delivery methodology, its professional services practice areas, its web-based systems and its talented engineering staff.

INX's culture is focused squarely on our most important asset: our people. The value we place on our employees and other members of our team is apparent in the projects that we undertake, the relationships that we foster and the individuals that collectively make up INX.

7. Support

7.1. Support and Problem Resolution

Problems and issues that arise during the course of the project are to be reported via phone or e-mail to the INX project lead as defined in section 5.4. Every effort will be made to resolve these issues in a timely manner.

7.2. Escalation

If issues are not being resolved to City of El Paso's satisfaction it is expected that these issues be escalated to INX in the following manner:

1. Notification of issues to INX's project lead.
2. Escalation to City of El Paso's Account executive.
3. Escalation to INX Executive Management.

Contact information for INX's project lead, account executive and executive management can be found in section 5.4.

7.3. Terms of Support

INX will assume technical support and problem resolution responsibilities for issues that are directly related to the scope of this project until the date of project completion (as determined by project signoff) at no additional cost to City of El Paso.

Technical support and problem resolution for issues that are not directly related to the scope of this project will be only undertaken with prior approval of INX's project lead and account executive and of City of El Paso's project lead or decision maker. Support for these issues will be billed on a time-and-materials basis at INX's standard engineering rates, unless otherwise specified.

After the date of project completion (as determined by project signoff) all technical support and problem resolution performed by INX, whether relating to the scope of the project or not, will be billed on a time-and-materials basis at INX's standard engineering rates, unless covered by a INX/NetSurant support contract, or other agreements are made between INX's account executive and City of El Paso.

7.4. Hardware and Software Support

INX assumes no liabilities for hardware and/or software issues, but will assist in correcting these within the bounds of the support terms outlined above.

8. Services Agreement

Signature indicates acceptance of this proposal in full.

INX

By: _____

Name: _____

Title: _____

Date: _____

City of El Paso

By: _____

Name: _____

Title: _____

Date: _____

9. Change Request Form

In reference to the Change Management Procedure, detailed in Section 5.7 of the proposal, both parties agree, by the signature of an authorized representative, that is Change Management Request will amend and be fully incorporated into the existing Scope of Work.

Reason for Change Request:

Changes to Scope of Work:

Schedule Impact:

Cost Impact:

- Original Value of SOW: \$0.00
- Added Value of Change Request \$0.00
- New Value of SOW: \$0.00

Except as changed herein, all terms and conditions of the Scope of Work remain in full force and effect.

INX
By: _____
Name: _____
Title: _____
Date: _____

City of El Paso
By: _____
Name: _____
Title: _____
Date: _____

10. Project Completion Agreement

By signing below, City of El Paso and INX are agreeing that the project as described in this Scope of Work, including all executed Change Requests, has been completed.

INX

City of El Paso

By: _____

By: _____

Name: _____

Name: _____

Title: _____

Title: _____

Date: _____

Date: _____

11. Appendix A – Support Contract Information

INX Inc. Local Support

INX Inc. in the Southwest region covering Albuquerque, New Mexico and El Paso, Texas offers the largest staff of qualified certified engineers to provide very high levels of support to our customers. In reference to centralized storage solution, in the El Paso office we offer the services of Mr. Andrew Guerra. Mr. Guerra represents INX Inc. in the Southwest region as the companies Storage Engineer for Enterprise Storage Solutions and is a native El Pasoan. In addition to his degree in Electrical Engineering at the University of El Paso and his background as senior database administrator for some very large corporations, Mr. Guerra is a Network Appliance Certified Expert and a Cisco Certified Network Associate. Mr. Guerra services will be rendered for the initial deployment of the proposed solution.

Included within this proposal, INX Inc. is recommending NetApp SupportEdge Services which includes 24 X 7 remote support to the City of El Paso. These services will be available to CEP for a one year period and should be renewed on a yearly basis. In the event that CEP requires on-site support, Mr. Guerra's services are available on a time and material basis if needed.

NetApp SupportEdge Services

INX Inc. and NetApp have the ability to mold a support contract that is structured to best meet the needs of our customers. INX Inc. is recommending NetApp SupportEdge which is available to CEP as an optional Premier Service, or a Standard Service. Although both types of service are available, INX Inc. has included Standard Service in the proposal because CEP has an appropriately staffed IT department with the necessary skills to manage a centralized storage solution.

With SupportEdge Standard, NetApp helps your IT staff resolve hardware and software issues through 24x7 remote phone support and online services from the NetApp NOW Web site, which includes a comprehensive knowledge base and technical library, diagnostic tools, software downloads, technical feedback from our support engineers, and many other tools to help you get the most from your NetApp investment. SupportEdge Standard services include:

- **AutoSupport**

An automated alert system that sends regular system status to NetApp plus alerts whenever critical system events occur. NetApp Global Support Centers use information from AutoSupport to proactively respond to and prevent potential problems and to quickly resolve any problems that occur.

- **Software subscription plan**
Provides regular updates for critical operating software, firmware, and add-on software.
- **Both Standard and Premium SupportEdge services can be enhanced through the addition of: Technical Global Advisor**
A NetApp professional is assigned to monitor and coordinate support services across all your locations to ensure consistency and maximum effectiveness. Your global advisor understands the details of your environment and applications and serves as a liaison to NetApp to facilitate problem resolution and coordinate activities between customer locations, NetApp Global Services, and NetApp engineering.
- **Semiannual storage availability audit**
Performed every six months by NetApp professionals working remotely, this regular health audit offers benefits similar to those provided with the SupportEdge Premium service. A complete review of installed NetApp equipment is followed by a personally delivered report that identifies potential problems and trends; proactively highlights capacity planning issues; and suggests opportunities to improve availability, performance, operational efficiency, and stability.

SupportEdge Standard includes:

- Access to software updates so that applications perform optimally.
- Proactive scheduled reviews of your storage infrastructure by a NetApp Professional Services engineer.
- Reduced part-delivery time - when Next Business Day is too long to wait.
- 24x7 monitoring alerts your staff and NetApp to potential issues.
- Award-winning Knowledge Services at your fingertips when you need documented best practice, reference architecture and the latest updates from NetApp Technical Support from the Web.
- Technician to replace parts - this was previously only available to SupportEdge Premium customers and is now available to SupportEdge Standard customers as well. Consult your sales representative to learn more.