

Rich Goldstein

rg@ngnc.biz

802-473-1010

<http://richgoldstein.net/KB/kb.html>

Summary:

Unix/Linux/Storage professional with a breadth of experience including Storage Architecture and Solutions Architecture, Cloud-based Storage, C programming and scripting, fibre-channel SAN support, Unix/Linux and Windows systems administration, large project management, Big Data, Data Science, and Python...

- A computer technologist, with the skills and experience to function within many different environments; from support to design, architecture, and implementation.
- In enterprise production environments, supported SAN and Storage environments (EMC, 3PAR, HDS) consisting of multiple, and large distributed data centers.
- Previously supported Unix, Linux, Windows, and ESX/VMWare users and admins in production environments running large fibre-channel SANs and Storage environments.
- An enterprise, production Unix sysadmin, supporting large scale users implementing very large, Oracle database applications.
- SAP preparation, implementation and roll-out

Experience:

Pivotal Data

Denver, CO

Data Product Manager

Oct 2015 to Present

Apply my knowledge and experience with software development, enterprise systems administration, networking, storage, and object based storage to grow into the **Big Data** world. Build and develop The Pivotal Center of Excellence (located in Denver and virtually), working with some of the best **Postgres**, **Greenplum**, **Java Spring**, data scientists around.

- Expanding my knowledge and understanding of Postgres and Greenplum databases and how to deploy and support within massively parallel (MPP) environments.
- Built Greenplum, **HAWQ**, **HortonWorks Hadoop** environments (with Ambari).
- Data environments were built on physical platforms (EMC DCA some with EMC Isilon storage using HDFS) as well as within **Amazon (AWS)**, **Microsoft (Azure)** and **Google (GCP)**. All running on Linux (CentOS, Redhat, or Debian).
- Wrote data import/export routines using Python (**Anaconda**, **Numpy**, **Pandas**) to manipulate big-data sets.
- Developed scripts using bash and python to manipulate AWS environments (using aws CLI).
- Created and built Hadoop environments running on Hadoop HDFS

Charter Communications

Denver, CO

Storage Test Engineer

Jul 2015 to Oct 2015

As a consultant working with the Charter team, I set up the Cloud DVR (cDVR) test bed consisting of Cisco UCS c3160 Colusa servers, EMC Isilon, JMeter in a Cisco COS and CentOS environment. Working with Charter, Cisco, Cleversafe, I designed and implemented JMeter test scripts in order to do phase one testing of the environment and to evaluate object-based storage vendors and solutions.

- Design and build out a **6-node storage cluster test environment** with **2.3PB of storage** (10x36x6TB) and a 21 physical server test environment running CentOS and VMware ESXi 5.5.

Comcast Viper

Denver, CO

Storage Test Engineer

Dec 2014 to Jul 2015

As a consultant working with Comcast VIPER (Video IP Engineering & Research, a startup division within Comcast's Technology and Product Division spun out from IP Video and online projects originated within Comcast Interactive Media) I evaluate, test and benchmark leading **Object-based Storage solutions (Amplidata, Cleversafe, DataDirect Networks, EMC, Scality, Cisco COS, RedHat/Inktank Ceph, and Caringo)**. I have evaluated object-storage performance using **COSBench** and **JMeter** along with custom written python scripts.

- Design and build out a **10-node storage cluster test environment** with **2.3PB of storage** (10x36x6TB) and a 21 physical server test environment running CentOS and VMware ESXi 5.5.
- Implemented and tested a 6 node **Cisco UCS c3160 cluster environment (1.4PB - 6x54x4TB)**
- Developed custom **threading Python scripts** to load and exercise the object storage systems and to monitor and compare relative performance between vendor solutions.
- Using **JMeter, LocustIO, and COSBench**, load tested and reported on performance for vendor provided solutions. The results of this testing were used to select next generation cloud storage solutions.
- Worked closely with object storage vendors (Scality, DDN, Redhat, Cleversafe, Amplidata, Cisco) to install and configure these solutions into the test environment for testing and performance evaluation

VMware, Inc

Broomfield, CO

Sr. Technical Support Engineer

Sept 2013 to Nov 2014

As a member of the Global Support organization, I provided infrastructure support to VMware customers world wide. Includes troubleshooting storage (**iSCSI, Fibre-Channel, NFS, and VSAN**) and host networking issues in **vSphere ESXi 5.x and ESXi 5.5** environments. Applied knowledge of fibre channel storage, SAN

switching, FCoE, iSCSI to analyze SCSI issues on ESXi hosts. Utilized scripting abilities (**PowerShell/PowerCLI, python, pysphere, bash, perl and ruby**) to analyze, automate, and facilitate host troubleshooting. Additionally worked with automatic deployment technologies (**PUPPET, Orchestrator**, Auto Deploy, etc.)

EMC

Highlands Ranch, CO

Senior Solutions Architect

March 2013 to Aug 2013

Resident, onsite at VISA in Highlands Ranch, CO. Migration, switch and storage refreshes of 38 Clariion CXs to VMAX and VNX storage arrays. Created Ad hoc configuration database environment for all servers, arrays and switches (Brocade DCX, 8510, and McData) involved in the storage and switch refreshes. Used a combination of EMC tools with PERL and awk scripting to extract and build database of devices and LUNs to be migrated. Implemented Federated Tiered Storage (FTS) by encapsulating external Clariion LUNs and presenting these LUNs to the VMAX. Clariion LUNs were later/eventually migrated using VLUN migration onto internal VMAX LUNs.

EMC

Nashville, TN

Senior Solutions Architect

Oct 2012 to March 2013

Resident, onsite at Asurion in Nashville, TN. Provided assistance configuring, implementing, provisioning, migrating, and automating a growing distributed environment consisting of multiple VMAX, VNX and Clariion storage arrays, Cisco MDS switches, and a mix of standard and virtualized compute servers on UCS and traditional platforms. Utilized my scripting skills in **PERL, awk, sed, bash, Python**, etc. to automate and manage customer environment.

- Server-edge switch migration from many smaller Cisco MDS switches (9148, 9134, 9222i, 9509) to a consolidated MDS 9513 core/edge configuration.
- Migrated R2 pairs from an existing DR array to a new DR array using concurrent SRDF
- Scripted collection of disk and meta information from existing DR VMAX in order to migrate some RDF groups to new groups on a new VMAX array.
- Created plan to migrate 180 production servers from existing edge switches to new Cisco 9513 edge switches. Included a strategy to optimize path and asic/portgroup utilization on the switch to maximize path redundancy.
- Created plan to migrate DR servers from existing edge switches to new Cisco 9513 edge switches within customer DR site.
- Remediated all servers to insure compliance and compatibility with new switches.
- Wrote scripts to parse collected grabs and create a rudimentary SAN-specific CMDB (configuration database) for the customer.

- Created daily backup scripts of switch configurations and array configurations (ACLX, symapi_db, getall and spcollects).
- Created powershell scripts to check server powerpath configuration and to insure multi-pathing of servers. Scripts also cleared/restored dead paths.
- Tools/software used: **symcli, navisecli, Unisphere, SMC, ECC, Cygwin, Perl, Python, bash, mysql**

VCE

Westborough, MA

Contract: SAN/Storage Deployment Engineer Oct 2011 to Oct 2012
Deploy new VBlocks at customer datacenter locations. New deployments are turned over to the customer, fully operational and integrated into the existing datacenter environment.

- VCE is a joint venture between Cisco, EMC and VMWare.
- Depending upon configuration, VBlocks are deployed with VNX (5300, 5500, 5700, 7500), VNXe, Clariion, or VMAX storage.
- Install, cable, initialize, upgrade, configure and provision storage for the VBlock storage arrays.
- Provision block and file datastores (storage pools) and boot LUNs (RAID Groups) for ESX servers
- Setup of VNX Block and File Unified storage, control stations, data movers and creation of block storage and file pools
- symcli, navisecli, Unisphere, VIA (VNX Installation Assistant), SMC, ECC, CMDCE are all used in order to create customer environment.
- Cisco MDS: install, license, configure and for non-UIIM builds, zone UCS ESXi servers with storage

InfoCrossing/Wipro

Broomfield, CO

Contract: Storage Migration Engineer April 2011 to Oct 2011
Analyze, plan, organize and implement external customer data/storage migrations to offsite/co-located datacenter facilities.

- Dependent upon customer requirements, use a suite of storage/data migration tools (Open Replicator, Open Migrator, PowerPath Migration Enabler, Federated Migration, etc) to move customer datacenters to offsite locations.

JP Morgan Chase

Columbus, Ohio

Storage Operations SAN Support October 2009 to March 2011
Lead Engineer

Support for all Production SAN and Storage environments within JP Morgan Chase.

- Support 50+ global data centers, 30+ regional data centers, and a varying number of smaller data centers.
- Environments consist of Cisco, Brocade and McData fibre-channel directors facilitating access to EMC (Symmetrix, DMX, VMAX, and Clariion) , HDS (USP, USP-V, and AMS) and IBM (XIV) storage

arrays. (325+ Symmetrix, DMX, VMAX; 240+ CLARiiON; 1425+ Fibre-Channel switches)

- Use Unix/Linux/Windows/VMWare knowledge to work with server/cluster sysadmins in order to resolve server-san/storage issues.

Cisco Systems, Inc RTP, North Carolina
SAN/Storage Level 3 TAC Engineer April 2001 to December 2009

- Provide level-3, back line support for Cisco Storage Networking Products.
- Work with OEM Partners: EMC, HDS, IBM, SUN, Xiotech, 3Par
- Direct support for large, external customers with production and implementation issues
- Support for MDS Storage Networking products: IVR, IOA, SAN-OS NX-OS

Cisco Systems, Inc San Jose, California
Senior Enterprise Unix Sys Admin February 1996 to April 2001

Manage enterprise ERP infrastructure distributed geographically across four global data centers.

- Oracle Financials running 24x7 with "no downtime" initiative
- Sequent CC-NUMA Dynix, SUN Solaris, HP-UX, Linux
- Provide support for main business functions by maintaining Disaster Recovery Site
- Archive transaction data to support Disaster Recovery
- Provide performance metrics on all production-class servers
- Work closely with Oracle DBAs to monitor and track database usage and resource consumption
- Capacity tracking and planning on all existing development and production systems
- Involvement with user community to discuss, plan and budget for all projects involving IT on a quarterly basis
- Manage very large, Enterprise disk requirements supporting databases approaching 1 TB in size.
- Provide support for Cisco's Customer Advocacy Response group running on Oracle and Clarify reporting environments
- Hot and cold backups of databases and applications using additional mirrors, merge and splitting of mirrors using EMC² smmf software and Veritas.
- Migrated ERP Environment from Sequent Symmetry Systems running Oracle Parallel Database to Sequent CC-NUMA 2000 Clustered environment
- Performance measurement and monitoring
- Capacity planning

SUN Consulting Services

Boca Raton, Florida

Lead Technologist February 1993 to February 1996

- Left SUN Microsystems and started Sun Consulting Services. Customers included: Motorola, W.R. Grace, Robert Trent Jones, Delta Airlines and NaBanco among others.
- Various engagements for customers including SAP implementation and Acquisition Logistics (company acquisitions).

Fibre-Channel SAN / Storage Experience:

- EMC: Symmetrix, DMX, VMAX, VNX, Clariion, Solutions Enabler, Navicli, Navisecli, Symcli, SRDF, BCV, SymClone, ECC, SMC, CMDCE, PowerPath Migration Enabler, Open Replicator, Open Migrator, Federated Migration
- Hitachi/HDS: USP, USP-V, AMS, Storage Navigator, Device Manager
- IBM: XIV
- Cisco: TAC Engr, MDS, IOA, IVR, FCIP, Port-Channel
- Brocade / McData: Silkorm, DCX, 48K, EFCM, stuck VCs, slow drain ports
- QLogic: SANBox2
- Network Appliance (NetApp)
- Other: Finisar, Agilent
- iSCSI

Unix / Linux / VMWare Experience:

Sun Microsystems: Solaris {8,9,10}

HP: HP-UX 11x

Linux: various flavors - primarily RedHat, Fedora, Debian, Ubuntu

Sequent: Dynix ptx

VMWare ESX Server 3.5

Windows Server

Additional Affiliation and Work Experience:

NGNForum / IMSForum

Denver Colorado

IT Manager / Webmaster

June 2006 to Present

- NGN and IMS Forum is a global non-profit industry association dedicated to the advancement of IP Multimedia Subsystem applications and services interoperability.
- The mission of the IMS/NGN Forum is to accelerate the interoperability of IMS applications and M-Play NGN services and networks, enabling enterprise and residential consumers to quickly benefit from the delivery of quadruple play voice, video, internet and mobile services over broadband via wireless, cable and fixed networks.
- IMS applications and services comprise enhanced VoIP, IP Centrex / IP PBX and business unified communications including fixed-mobile converged services, femtocell, LTE, videoconferencing and

- web-collaboration, entertainment including IPTV and gaming, NGN/IMS networks include GSM, UMTS, Wi-Fi, WiMAX, DSL
- Areas of Research: Cloud Computing, Expanded Role of SAN/Storage in the Cloud

Software Experience - various and sundry:

- Scripting and Programming languages: C, C++, Objective-C, PERL, Python, pysphere, korn, bash, csh, sh, Ruby, tcl, php, CLISP
- Database (not a DBA): mysql, oracle, postgres
- HTML and Web: php, apache, drupal
- Veritas - VCS, VxFS, VxVM

Employment Timeline:

- 2013 EMC Resident @ VISA, Consultant
- 2012 EMC Resident @ Asurion, Consultant
- 2011 VCE SAN/Storage Architect, Consultant
- 2011 InfoCrossing/Wipro Data/Storage Migration Engineer
- 2009 JP Morgan Chase SAN/Storage Lead Engineer
- 2001 Cisco Systems CSE, Storage Networking
- 1996 Cisco Systems Sr. Unix Sys Admin
- 1995 TransQuest (Delta Airlines, AT&T) Consultant
- 1995 1st Merchant Data Svcs / NaBANCO Consultant
- 1995 Palm Beach County Water Utilities Consultant
- 1994 MacVicar, Federico and Lamb Consultant
- 1993 W. R. Grace and Company Consultant
- 1993 KPMG Peat Marwick Consultant
- 1993 IBI Systems Consultant
- Citicorp Interop Lab AVP
- Robert Trent Jones / Florida Golf Consultant
- Motorola Sr. Unix SysAdmin
- Sun Microsystems Tech SE

Education + Training:

State University of New York, StonyBrook StonyBrook, New York

BS CS/EE

Rice University Interactive Game Programming in Python	2013
Game Programming with CLISP	2013
Stanford University Cryptography I – Dan Boneh	2014
University of Illinois at Urbana-Champaign Cloud Computing Specialization / Concepts	2015
Harvard University CS50x: Computer Science	2015
MIT edx / Microsoft Training DAT208x: Intro to Python for Data Science	2016

References: Available upon request