CONTACT INFO

Scott L Hamilton
26546 County Rd. 6070
Edgar Springs, MO 65462
E-mail: shamilton@techshepherd.org
Web-site:http://www.techshepherd.orghttp://sites.google.com/site/scottlhamiltonresearcher
Mobile: 573-202-5703
Google Voice: 505-398-3245
Contact Preference: E-Mail, Mobile, Google Voice

Experience

11/1/2018-present – ATOS, Purchase, NY

Senior Hyperscaler Lab Architect

- Responsible for requirements gathering and specification writing for large scale SAP/HANA and in memory database systems. The flagship product under my responsibility is the BullSequana S series products. I am responsible for providing high level specifications to:
    - product development
    - mechanical engineering
    - electrical engineering
    - thermal engineering
    - firmware development
    - BMC hardware/software
    - BIOS development
- The job duties require a thorough understanding of
    - Intel x86 motherboard design
    - Intel Processor and Memory specifications
    - AST2600 SoC integration
    - system firmware
    - BIOS
    - ARM architectures
    - RISC V architectures
- Daily duties include the studdy of
    - competing hardware vendor specifications

- upcoming technology like
  - SmartNICs
  - FPGAs
  - Quantum Accelerators
  - GPUs

8/1/2018-present TechShepherd.org, Edgar Springs, MO

Sole Proprietor/Blogger

- Site Creator, Editor and Author responsible for all content creation and site promotion of a STEM blog that covers topics across the spectrum of Science Technology Engineering and Mathematics. Occasionally content covers Biblical and Historical topics as well. All "Tech Talk" content is also published in the local newspapers.
- The goal behind the site is to educate the general public on unique topics related to STEM research.

8/1/2018-12/2020 - Licking Newspaper, LLP, Licking, MO

Partner/Co-publisher

- Responsible for the computers and equipment necessary to operate a full-service print shop and newspaper publication facility. We publish a weekly small-town newspaper consisting of 16 pages covering area news and events. I am responsible for the technology section of the paper and maintaining the web presence of the organization. This is a part time effort less than 10 hours a week.

8/1/2015-11/1/2018 – ATOS, Purchase, NY

Senior Expert in Emerging Technologies

- Job duties include the design and implementation of complete HPC solutions including, data-center design, system and physical security, support staff structuring, application deployment, pricing, financial modeling, and documentation. I am the leader of the emerging technologies expert community within the company which involves the evaluation of all new technologies, including, Quantum Computing, CPU architectures, biological processors, FPGAs, robotics, and sensor technologies. As a part of the evaluation processes, I perform security tests and report system vulnerabilities.
- I am responsible for pre-sales, deployment, and support of the Atos Quantum Learning Machine, which is a hardware agnostic gate-based Quantum Processor simulation appliance. I developed the training materials and user's manuals for the beta version of the appliance and was responsible for the first installation in Oak Ridge National Lab.
- Presenting research at international conferences.

- Google cloud migration for high performance computing work loads, including infrastructure and software deployment, testing, benchmarking and optimization.
- I am in the process of developing the corporate cloud product line around high performance computing workloads utilizing Google Cloud Platform.

4/1/2012-present Missouri University of Science and Technology , Rolla, MO

System Administrator Architect

- Job duties include the Specification, design, installation, and maintenance of Departmental High Performance Computing including Clusters, Workstations, Cloud Computing resources from XSEDE, Penguin Computing, Amazon Cloud service, and the Pittsburgh SuperComputing Institute. I am the primary engineer in charge of Application benchmarking and performance enhancement through the design of custom computer node configurations for optimal performance of both open-source software and commercial products. Current software supported on the High-Performance Computing resources (HPC) include: Ansys, Abaqus, Fluent, Molpro, COMSOL, FUN3D, OpenFoam, Matlab, Mathematica, Octave, SAS, and custom software written in C, C++, FORTRAN, R, Java and Python.
- Assist research staff in the preparation of Proposals both in response to Request for Proposals (RFPs) and Request for Information (RFIs) as well as in the preparation of RFPs and RFIs for internal projects.
- Prepare Statement of Work (SOW) documentation for both inter-departmental and external projects.
- Support VMWARE ESXi software/hardware stack and nearly 200 virtual linux systems.
- Support Microsoft SCCM for Windows System Management
- Oversee and develop Departmental Website including Tutorial and Users Guides.
- Manage the High-Performance Computing Data Center Infrastructure.
- The current cluster configuration includes a production Lustre file system, a fat tree FDR InfiniBand network, and Nvidia C2075series CUDA technology. I also support development cluster systems running the Franhoffer File system, GPFS, and OrangeFS. I have performed benchmarks on the afore mentioned file systems and found that they all have varying weaknesses and strengths. The overall performance metrics at the time of evaluation initiated the purchase of a commercially supported Lustre system that is our current production high performance file system.
- All clusters on the campus run the NPACI ROCKS cluster system. I am one of the primary developers of the ROCKS cluster system in the realm of supplying patches to early release candidate versions as well as providing custom Sofware rolls for the cluster system. I have been involved in the mainstream development since 2004.
- 30 years combined experience in Parallel Computing, High Performance Computing, and Grid Computing Technologies.

- 30 years combined experience in Linux System administration, programming, installation and management.
- Developed scripts for the automated installation and patch management of 200+ Ubuntu 14.04 Linux Systems to xCat.
- Developed custom management scripts for our 400 node/3000 core high performance computing cluster.
- I have some limited experience with Platform Computing from an evaluation standpoint and made the decision to stick with the ROCKS cluster distribution as I have been among the primary support and development of ROCKS since version 1.0 and did not want to abandon the project.
- Migrated a production GPFS file system to Lustre after showing stronger performance numbers on the customer problem sets.
- Instrumental in the design and marketing of our University Booth at SC12 and the Great Plains Network booth at SC13. I have limited involvement in the GPN booth for SC14 as we have chosen to market our university through direct contact at SC14 instead of being tied to a booth as we felt more contact could be made.

4/1/2010-4/1/2012 Missouri University of Science and Technology , Rolla, MO

System Administrator Principle

- Instrumental in the planning and promotion of the newly formed IT Research Support Services Team.
- Job duties were extended in April of 2010 with the formation of a new Research Support Services Team within the Information Technology Department to include Electromechanical Systems Design, Project Management of Undergraduate and Graduate Research projects, and Campus workstation Linux Support.
- Major projects included the migration of approximately 100 Linux/Unix systems from RedHat Enterprise Linux and Solaris to Ubuntu Linux. The project involved coordinated efforts between six major University Departments in a collaborative effort to make sure the needs of all faculty and students involved were met.
- Job Duties Still include the management of the Research Computing Facility including budgeting for equipment repairs, replacement, and maintenance as well as the management of a team of student workers that assist in the maintenance of the cluster and Linux Workstations on the campus.
- Instrumental in promoting the University at the SuperComputing2011 and obtaining a booth for promoting the research at the University during SuprtComputing2012, two of the largest international Super Computing Conferences.

4/1/2008-4/1/2010 Missouri University of Science and Technology, Rolla, MO

System Administrator Expert

- Provided support services for a Computational cluster consisting of 200 Dell Servers interconnected with 10G Ethernet, and FDR Infiniband and operating on the NPACI ROCKS 6.0 platform. I have been the sole support for the cluster over the past four years and have been active in the development of 15 additional software "Rolls" for the Rocks Cluster Distribution.
- Provided support of the Linux Workstation Infrastructure on the campus consisting of 100+ Workstations across the campus including 2 Classroom Learning Centers. This process involved writing a custom web-based software application for system deployment of Ubuntu Linux. It was recently overhauled to support the latest Long-Term Release Ubuntu 12.04.
- Planning and implementing an upgrade from NPACI ROCKS 4.2 to NPACI ROCKS 5.0 in 2010 to ROCKS 5.4 in 2011 and most recently to ROCKS 6.0 this upgrade involved developing ROCKS Rolls for various in-house software as well as commercial products that are in use on the computational cluster. Among the products supported are SAS, Matlab, FLUENT, Abaqus, Tecplot, and MCNPX.
- Provide Code Review for peer developed software that manages in house system. Our team is responsible for software that manages system configuration, user accounts, database management, DNS management, and general IT support service.
- Provide management of Student Design Team and Graduate Research Projects from the level of assigning responsibilities and overseeing the job performance of the students involved. This involves assisting in the project plans and providing solutions for project continuity and optimal uptime.

08/1/2007-4/1/2008 Self Employed Fairmont, WV

Software Research and Development

- Private consulting along with the following team members on a project for NASA involving the design of the Golubovic Rotating Space Elevator.
    - Steve Knudsen, GRIDOPTZ
    - Dr. Francis Canning, Simply Sparse Technologies
    - Dr. Leonardo Golubovic, West Virginia University
    - Casey Corder, West Virginia University Student Intern
    - Matt McMahon, MSM Consulting
- The research performed during this project involved the design and implementation of parallel genetic algorithms for the Parabon Engine Grid Computing Platform. Much of the difficulties overcome in this project involved the translation of scientific simulation calculations from C++ code to Java for use on the Global Grid Exchange (http://www.g2ex.org). Areas of contribution to the project included the implementation of a genetic algorithm class for generating children based on genetic mutations of parents. The genetic algorithm score mechanism was written by the project leads Steve Knudsen and Dr. Golubovic. Implement web-based applications in J2EE as well as various genetic algorithm techniques and grid optimization methods. The final report

to NASA from this project is available on my project web site at http://sites.google.com/site/scotthamitonresearch/projects.

11/2004-10/31/2007 Galaxy Global Corp. Fairmont, WV **Software Research and Development**

- Contracted to work at the Institute for Scientific Research in the areas of Cluster Computing and Visualization Research. They later merged with the West Virginia High Technology Consortium Foundation. I recently left employment there to begin private research. In the areas of Computer Graphics, Computer Vision, and Scientific Simulation Software support.
- Areas of Specialization include LIDAR data processing, image recognition systems, and World Mapping Server research.
- During this contract period I have published research papers in cluster computing conferences as well as computer vision conferences. Titles and abstracts of those papers are available upon request.
- Provided support for various computation clusters throughout the state of West Virginia as a part of my research work. Among these were 10 small clusters at various Colleges and Universities. All the clusters ran a custom installation of Ubuntu Linux comprised on additional software for cluster management.
- Developed a suite of cluster management scripts for maintaining Ubuntu based Linux HPC after many failures of bleeding edge hardware while attempting to use ROCKS 4.0 to install visualization cluster utilizing Nvidia 8800 GTX graphics processors.
- Installed three Graphics Processing Unit clusters for research into the areas of Fluid Mechanics, Climate Modeling, and Plasma Generator Simulations. Assisted scientific researcher in the design and implementation of matrix-based calculations utilizing OpenGL and the techniques discussed on http://www.gpgpu.org to improve performance of CPU based algorithms. Among the area of study were hurricane prediction modeling, LIDAR feature detection algorithms, Flight control system algorithms for unmanned aerial vehicles, flood prediction, plume simulations, and wildlife detection from aerial thermal infrared imagery.

11/2002 - 10/2004 Galaxy Global Corp. Fairmont, WV **Director of Biometrics and Network Security**

- Provides analysis of information assurance requirements for various systems based on direct communication with the government representatives and product vendors. Provides support for the design and development efforts for hardware and software-based systems, including biometrics and Common Access Card. Provides simulations, scenarios, and demonstrations for testing of new and existing information assurance software used at the Biometrics Fusion Center (BFC). Analyzes cryptographic solutions, and security enhancements for systems, networks, and platforms, including Cisco, Dell, Microsoft Windows, Microsoft SQL 2000, Symantec Firewall, Checkpoint Firewall 1, Linux, Solaris, BSD, and Mac OS 7.0 - 10.0. Implements Public Key Infrastructure (PKI) and Secure Socket Layer (SSL) based on the Department of Defense Policies, procedures, and standards. Conducts extensive research into various security standards such as NIST, NSA, and DOD. Provides hardware and support for the server platforms utilized in the Data

Repository Systems. Including various clustering solutions, SQL Server, Web Server, IDS, and Firewall Systems.

- Provides system hardware analysis for the storage, backup, and disaster recovery plans for the Department of Defense Biometrics Test Database (DBTDB), Common Access Card Biometric Repository, the Department of Defense Biometrics Knowledgebase, and ongoing BFC Projects. Provides full analysis of available solutions for recommending hardware specifications for large information stores for these projects. Provides design, development, testing, and maintenance of several databases. These projects each involve extensive research in the available hardware, software, and network marketplace for high availability systems as well as image manipulation, storage, and template generations.
- Provides Senior Level Internet Technologies Support including the configuration of switches, routers, IPsec boxes, firewalls, Intrusion Detection Systems and Secure Socket Layer accelerators. Maintaining Microsoft Active Directory and Microsoft Exchange Server in a multi-site environment. Provides UNIX System administration and maintenance services.
- Provides services of a Network Security Specialist for the Biometrics Fusion Center networks, including the research of network vulnerabilities, network and Operating System vulnerability testing, intrusion detection, patching of operating systems, and networking components, and penetration testing of the networks and systems.
- Provides user training, and assistance in the use of Microsoft SharePoint and Project Server for documentation management, version control, and file sharing. Develops custom web-based applications for use with the facility to track software hardware and maintenance renewal contracts.

11/2001-11/2002 STS International Berkeley Springs, West Virginia

Senior Information Assurance Development Engineer

- Provides analysis of information assurance requirements for various systems based on direct communication with the government representatives. Provides support for the design and development efforts for hardware and software-based systems. Provides simulations, scenarios, and demonstrations for testing of new and existing information assurance software used at the Biometrics Fusion Center (BFC). Analyzes cryptographic solutions, and security enhancements for systems, networks, and platforms, including Cisco, Dell, Microsoft Windows, Microsoft SQL 2000, Symantec Firewall, Checkpoint Firewall 1, Linux, Solaris, BSD, and Mac OS 7.0 - 10.0. Implements Public Key Infrastructure (PKI) and Secure Socket Layer (SSL) based on the Department of Defense Policies, procedures, and standards. Conducts extensive research into various security standards such as NIST, NSA, and DOD. Provides hardware and support for the server platforms utilized in the Data Repository Systems. Including various clustering solutions, SQL Server, Web Server, IDS, and Firewall Systems.
- Provides system hardware analysis for the storage, backup, and disaster recovery plans for the Department of Defense Biometrics Test Database (DBTDB), Common Access Card Biometric Repository, the Department of Defense Biometrics Knowledgebase, and ongoing BFC Projects. Provides full analysis of available solutions for recommending hardware specifications for large

information stores for these projects. Provides design, development, testing, and maintenance of several databases. These projects each involve extensive research in the available hardware, software, and network marketplace for high availability systems as well as image manipulation, storage, and template generations.

- Provides Senior Level Internet Technologies Support including the configuration of switches, routers, ipsec boxes, firewalls, Intrusion Detection Systems and Secure Socket Layer accelerators. Maintaining Microsoft Active Directory and Microsoft Exchange Server in a multi-site environment. Early stages of this task involved the migration of the network from Windows NT 4.0 and Exchange 5.5 to Windows 2000 and Exchange 2000. Provides UNIX System administration and maintenance services.

- Provides services of a Network Security Specialist for the Biometrics Fusion Center networks, including the research of network vulnerabilities, network and Operating System vulnerability testing, intrusion detection, patching of operating systems, and networking components, and penetration testing of the networks and systems.

7/2001-12/2001 Peace of Mind Consulting, LLC Fairmont, West Virginia**Senior Technician / Partner**

- Advises and assists users and small business owners in the analysis of customer information assurance requirements. Evaluates, designs, and implements appropriate solutions for customer requirements including the development and enhancement of user interfaces. Analyzes system vulnerabilities and selects and installs appropriate Information Center tools to provide full information assurance and avoid resource manipulation, resource denial, and destruction of resources. Provides technical knowledge and analysis of operating systems, applications, and networks.

10/2000-5/2001 Fairmont General Hospital Fairmont, West Virginia

Information Support Analyst

- Provided information assurance expertise by configuring the Hospital's and protection framework as a Virtual Private Network (VPN) using Checkpoint Firewall-1 for communication with other Hospital entities. Maintained Database critical infrastructure continuity and integrity across several databases from various vendors using Oracle on Data General Unix, Sybase on AIX, FoxPro, Microsoft SQL Server 7.0 and 6.5, and several proprietary database systems. Designated as the technical expert on the hospital's applications, operating system, and Intranet as well as Internet capabilities. Designed test scenarios, exercises and simulations for the testing of enhanced software products and establishing a high level of information assurance in the hospital's enterprise system.

8/1997 - 9/2000 Adnet Systems, Inc. Fairmont, West Virginia

Senior Software Engineer

- Took full responsibility for the programming/software design, configuration management, coding, testing, debugging, and documentation of the employee database. Evaluated, designed, and implemented the existing NASA IV&V facility network backbone by installing a 750-node switch network and integrating 14 networks consisting of 9 pure IP networks, 4 IP/IPX Novell

networks, and 1 Appletalk Network creating a complete information assurance system. In-depth coding and scripting experience in PERL, JAVA, Visual Basic, C / C++, UNIX shell languages and Delphi. Developed database applications in both JAVA for the Web and Visual Basic for the Desktop. Developed a web-based database engine for tracking visitors and inventory of the Educational Resource Centers. Analyzed complex information assurance requirements and supported the design, development and integration of software-based solutions. Provided enhanced employee database security, system security, and network security through software applications and cryptographic solutions. Configured the benchmark/testing/database analysis lab.

- Built the second Beowulf HPC system within the NASA organization utilizing retired workstations as a side project. The HPC was used to do simple scientific calculations and as a proof-of-concept code was developed to calculate pi and find prime numbers. This system was built just after the release of MPI 1.0

8/1997 - 9/2000 Self Employed Poplar Bluff, MO

Computer Technician

- Operated a small business designing and implementing database applications for insurance consultant. Analyzed existing systems in Insurance industry and customer requirements to implement appropriate solutions for business. Provided work direction and guidance to the sales staff.

9/1995 - 1/1996 Trans-A-Matic, Inc. Teckpak/Fitzall

Senior Electrical Engineer

- Organized mechanical and electrical prints on software applications and developed a computerized quality control center. Designed and constructed industrial test equipment. Designed Automatic transmission parts, including plastic molds, and metal dies to produce such parts. Developed procedures for ensuring the accuracy of work performed by the assembly department.

Education

12/1993 West Virginia University

Bachelors of Science, Electrical