

Summary of Qualifications

HPC specialist with nineteen years' experience in Linux system administration, kernel customization, PXE deployments and complex software installations. Highly skilled in using Bash scripting to automate complex tasks and provide tools for systems management. Proven ability to work well in small or large team environments as either a team member or leader.

Select Accomplishments

- Technical lead for the development of a 3D accelerated, remote workstation and collaboration solution utilizing Red Hat Virtualization, Red Hat Cloud Suite, and Nvidia vGPU technology.
- Integrated Scale MP's vSMP Foundation in to Moab and xCAT to provide a solution for automated, dynamic deployment of vSMP nodes using preexisting cluster resources.
- Developed an automated system for cluster deployment, inventory collection, and burn in.

Certifications

RHCSA

Redhat ID: 160-218-087

Valid: January 2017 - January 2020

Experience

Sr. HPC Architect

PCPC Direct, Houston, Texas

February 2014 - Present

Technical lead for the development of a 3D accelerated, remote workstation and collaboration solution utilizing Red Hat Virtualization, Red Hat Cloud Suite, and Nvidia vGPU technology. Team Lead for teams managing multiple remote clusters in a managed services environment including all systems administration tasks, maintaining and tuning schedulers/resource managers, performance tuning, and system monitoring. Responsible for deploying multiple clusters at client sites ranging from single rack clusters to clusters utilizing hundreds of nodes. Responsible for onsite testing of non-managed clusters prior to hand-off to clients. Developed an automated system using xCAT to deploy clusters, collect inventory, run burn in, and validate results in order to drastically reduce the man hours necessary to complete the integration and testing process. Architected a burn in suite utilizing FOSS tools to simulate various HPC workloads in order to reduce the number of failures after cluster delivery. Responsible for software stack architecture for all HPC related RFPs from including OS, scheduler/resource manager, development tools, and applications for all hardware vendors. Documented internal processes for cluster deployment, testing, burn in, and validation. Developed cluster administration documentation for in house use as well as for client use.

Skills

Scripting:
Bash
Perl
Python

Linux Distributions:
RHEL
CentOS
Ubuntu
Debian

CMS:
Bright Cluster
Manager
xCAT
HP CMS

Schedulers/Resource
Managers
Torque
Moab
Slurm

Monitoring:
Nagios
Icinga
Ganglia
Cacti

UNIX Sysadmin

MD Anderson Cancer Center, Houston, Texas

April 2012 – October 2013

Responsible for maintaining a 336 node/8064 core HPC cluster using HP CMU. Development of cluster node images. Responsible for maintaining centralized installs for Perl, Python, R, and various NGS processing packages. Project lead for converting the cluster from CentOS 5.5 to RHEL 5.5 and from RHEL 5.5 to RHEL 6.2. Designed and deployed a cluster health monitoring system using Icinga and a cluster metric gathering system using Ganglia. Participated in the development and execution of a move of all computing resources from one an old data center to a newer facility. Team lead for migration of the research and development environment to a new filesystem.

HPC Administrator

Repsol YPF, The Woodlands, Texas

February 2012 – April 2012

Responsible for maintaining an HPC cluster using HP CMU. Responsible for developing a desktop RHEL image for use with Parallels. Responsible for day to day tech support of Linux workstations. Developed and implemented an automated reporting package for tracking cluster storage usage

HPC Administrator

Total Technical Services, Houston, Texas

April 2011 – January 2012

Responsible for maintaining three heterogeneous clusters in a research environment using xCAT 2.x for node deployment and Platform LSF for scheduling. Developed multiple images for each cluster based on the needs of the research team. Responsible for maintaining cluster hardware and software infrastructure including storage, Infiniband, 10GB and 1GB Ethernet. Developed KPI reporting for upper management. Implemented Platform RTM for cluster performance monitoring. Helped design and implement a 40 node GPU cluster and integrated it into the existing xCAT and LSF systems. Designed and deployed a cluster health monitoring system using Icinga. Participated in maintaining DDN Lustre, NetApp, and iSilon storage systems. Participated in upgrading storage capacity and infrastructure for both DDN and Isilon.

Infrastructure Systems Analyst

August 2010 – April 2011

Alertlogic, Houston, Texas

Responsible for automating deployment of patches and updates to over 1800 Debian appliances in the field using in house tools and scripts. Developed tools to update MySQL databases containing customer and appliance information. Member of a team responsible for developing monitoring solutions for in house backend infrastructure and appliances in the field as well as troubleshooting issues with the appliances ranging from network connectivity to software issues. Member of the on-call team responsible for backend infrastructure. Responsible for writing Nagios/Opsview plugins to monitor appliance health as well as maintaining the various packages necessary to deploy the plugins across the appliances in the field. Worked with a team to develop a RHEL/CentOS load for appliances.

HPC Architect

April 2009 – July 2010

GeoComputing Group LLC, Houston, Texas

Member of a team responsible for setting worldwide standards for Linux clusters, servers and desktops for a multi-national oil and gas firm where all the solutions provided had to be completely automated. Personally responsible for developing custom initrds in order to integrate newer hardware into Rocks 4.3 clusters as well as testing hardware for inclusion in the cluster standard. Developed custom rolls to provide updates and bug fixes to Rocks 4.3 cluster installations worldwide. Built numerous RPMs to allow custom software and services to be included in custom RHEL 4 and RHEL 5 server and desktop builds. Developed a benchmarking system for hardware that included booting using PXE and automated result comparison using the Phoronix test suite as

a backend. Personally developed an entirely automated solution for updating the BIOS and DRAC firmware included in DELL systems. Helped develop a team standard for RPM builds using existing tools. Documented existing and new standards and procedures for a global standards team as well as for the clients of the global standards team. Responsible for troubleshooting issues with Exceed on Demand applications deployed worldwide using Redmine for issue tracking. Member of a team developing a RHEL 5 build to replace the legacy RHEL 4 server and workstation builds. Researched options for an updated cluster standard to replace the legacy Rocks 4.3 cluster standard.

Linux Technical Analyst

May 2008 – January 2009

X-ISS, Houston, TX

Responsible for deploying large and small Linux based clusters for academic and corporate clients using: NPACI Rocks (Centos 4.x -5.x/RHEL 4.x-5.x), Rocks+ (Centos 4.x-5.x/RHEL 4.x, 5.x), PlatformOCS (RHEL 4.x), and xCAT (Centos 4.2). Deployment included configuration of all hardware including any supported storage systems, networking components including InfiniBand, and all server hardware. Developed custom deployment solutions for xCAT and NPACI Rocks/Rocks+ systems based on customer requirements. Custom solutions including developing a custom Anaconda kernel and initrd in order for CentOS 4.2 to deploy on Intel quad core processors not recognized by the standard Kickstart/Anaconda environment. Developed custom install environments for clients using the Rocks XML Kickstart environment to configure IPMI, InfiniBand devices, DRAC virtual devices, provide custom partitioning, add external storage, create mountpoints, add custom mountpoints to fstab, install custom RPMS, and add custom metrics to the Ganglia monitoring system. Developed course and lab materials for a commercially available NPACI Rocks training class. Responsible for teaching the NPACI Rocks training course