MICHAEL CAMPFIELD

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Experience

- **Research and Development Group, Oak Ridge National Laboratory** Oak Ridge, TN
  Neutron Sciences Directorate System Administrator June 2017 – Present
  - Embedded team member serving Neutron Sciences Directorate's multi-facility research operations providing administration for 24x7 data acquisition systems, computational clusters, researcher support, and core infrastructure.
  - Systems administration of Red Hat Enterprise Linux (RHEL) and CentOS versions 5 - 7 along with Ubuntu/Debian-based Linux distributions.
  - Development of Puppet-based cross-Directorate configuration management infrastructure.
  - Creation of DevOps environments using Docker, HashiCorp Packer, Vagrant, and related technologies.
  - Refactoring of legacy CFEngine and partially implemented Puppet 3 environments into a unified Puppet 4 codebase.
  - Responsible for 2 petabyte high-performance filesystem for critical research data.
  - Substantial documentation addition and correction for systems, processes, and projects targeting administration group, internal users, and visiting research teams.
  - Administration of software appliances for centralized storage, virtualization, and security systems.

- **National Center for Computational Sciences (NCCS), Oak Ridge National Laboratory** Oak Ridge, TN
  High-Performance Computing (HPC) System Administrator April 2015 – June 2017
  - Member of HPC Operations group supporting the US Department of Energy's Oak Ridge Leadership Computing Facility hosting multiple petaflop-class high-performance supercomputers.
  - Development and support of infrastructure systems supporting a large-scale research environment.
  - Configuration management design and development for Red Hat Enterprise Linux (RHEL) and CentOS versions 5 - 7 using Puppet software.
  - Creation of DevOps environments using Docker, HashiCorp Packer, Vagrant, and continuous integration tools.
  - Configuration and management of clustered VMware virtualization and NetApp storage technologies.
  - Design and testing of new hardware and software systems for integration into team, group, and center-wide initial deployments and for enhancement of existing services.

- **University of Tennessee (UT) National Institute for Computational Sciences (NICS)** Oak Ridge, TN
  Senior Linux System Administrator/HPC System Programmer June 2011 – April 2015
  - Deputy manager for the Extreme Science and Engineering Discovery Environment (XSEDE) Systems Operations group with responsibilities including staff organization, project management, service deployment, quarterly report authoring, and key performance indicator evaluation.
  - Infrastructure team leader with technical supervision responsibilities over team projects and goals.
  - Initiated and led redesign of complete redevelopment of legacy Puppet environment into new forward-looking Puppet 3 deployment incorporating common IT systems services, high-availability tools, security systems, virtualization management, patch cycle control, and specialized HPC requirements.

  - Design, deployment, and management of VMware vSphere primary and disaster recovery sites, migration of majority of existing infrastructure and non-specialized hardware to virtual systems.
  - Lead system administrator for a SGI UV1000 1024-core large-memory supercomputer used for visualization and designed procedures for major system upgrades.
  - Administrator in charge of incorporating cross-nation DataOne project's systems, user environments, and policies from external control into NICS' management and security domain.
  - Technical requirements gathering, solution evaluation, and recommendation reporting for future project directions.
  - Service documentation and architecture guides targeting disparate experience levels and technical knowledge.

- **UT Social Work Office of Research and Public Service (SWORPS)** Knoxville, TN
  System Administrator/IT Specialist February 2005 – October 2011
  - Development, implementation, and maintenance of statewide file, email, authentication, development, and security systems over departmental networks utilizing OpenLDAP, SAMBA, AMANDA, OpenVPN, Nagios, and associated open-source tools.
  - Creation of centralized automated configuration and information management systems in formerly disparate environment utilizing Puppet, Perl, and shell scripting.
  - Virtualization of application servers and development environments through VMware to maximize existing hardware utilization and lower procurement costs.
  - Design and creation of data mining software for use in statistical analysis by departmental staff.
  - Integration of open-source solutions into previously closed-source environment resulting in cost reductions.
  - Implementation of high-availability and high-throughput systems for reliability and improved content delivery.
  - Tier 3 administration and client support for multi-user, distributed server applications.
  - Authored end-user guides and system documentation for customer support and administration reference.

Relevant Skills and Certifications

- Red Hat Certified Engineer (RHCE) and Red Hat Certified System Administrator (RHCSA).
- 15+ years experience with Linux server and workstation administration using distributions based on Red Hat, Debian, and SUSE operating systems with a focus on infrastructure services.
- Extensive experience designing and implementing Puppet configuration management solutions.
- Virtualization and container technologies utilizing VMware, Docker, KVM, Vagrant, and Linux Containers.
- HPC and Beowulf-style cluster systems administration.
- Programming in Python, Perl, and shell scripting along with working knowledge of C/C++.
- High-availability and load-balanced resource implementation and orchestration using Pacemaker/Corosync and Linux Virtual Server (Keepalived/IPVS).
- Authentication and authorization tools including LDAP, PAM, PIV, and RSA.
- PostgreSQL and MariaDB/MySQL replicated database cluster design, deployment, and optimization.
- Multi-tier data backup and recovery using various open-source technologies.
- Deployment, configuration, and upgrades of Request Tracker (RT) ticketing systems including feature extensions and customizations in source.
- Batch job scheduling systems using Adaptive Computing's TORQUE and Moab with working knowledge of the Maui scheduler.

Presentations and Papers

- "Resume Writing - From ACK to discard stack: How I learned to stop worrying and hate the resume." Presentation for the League of Professional Systems Administrators, East Tennessee (LOPSA-ETENN), February 2017.
- "Packing up and shipping out for hostile environments: DevOps utilizing Packer and Vagrant." Presentation for LOPSA-ETENN, March 2016.
- "Serving up virtualization two different ways (with a side of hash tags)." Booth presentation at the Supercomputing 2014 conference (SC14) and LOPSA-ETENN, November 2014, January 2015.
- "Pulling no 'Punches' with Puppet." Presentation for LOPSA-ETENN, July 2013.
- "The XSEDE Ticket System: From Concept to Implementation." Paper and presentation for the XSEDE 13 conference, July 2013.

Education

- **University of Tennessee** Knoxville, TN
  Master of Science in Computer Science 2002
  - Focus on computational theory, software engineering, and hardware design.
  - Developed and tested full POSIX-style operating system in C.
  - Thesis topic: "Design and simulation of self-organizing microbial computational automata."
- **University of Tennessee** Knoxville, TN
  Bachelor of Science in Computer Science 1999
  - Focus on algorithm design and software implementation processes.
  - Extensive foundation in multiple areas of mathematics and various scientific disciplines.
  - Thesis topic: "Prediction of weight patterns in neural network training."