MICHAEL CAMPFIELD

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Experience

- **Advanced Molecular Detection Group, Center for Disease Control and Prevention (CDC)** Atlanta, GA
  Sr. System Administrator - Contractor June 2021 – Present
  - Primary Linux architect and administrator for mission-critical CDC activities in a High Performance Computing (HPC) research environment.
  - Systems administration of CentOS versions 8 and 7, Amazon Linux 2, and Ubuntu/Debian-based systems in mixed physical, on-premise virutal, and cloud environments.
  - Subject Matter Expert (SME) for stateful and diskless HPC clusters employing TORQUE, Slurm, and Grid Engine batch-queuing systems.
  - Integration of Kubernetes, Rancher, and container-based technologies into HPC environments.
  - Development of mixed Puppet and Ansible-based configuration management solutions.
  - Management of multi-petabyte storage systems from Dell/EMC, Pure Storage, and Cloudera.
  - Bash, Python, and Ruby programming with assistance in debugging C/C++.
  - Automated system creation, hardening, and compliance verification.
  - Engineering and implementation of full lifecycle system deployment and DevOps pipelines.
  - Extensive documentation development and reconciliation of projects, processes, policy, and designs.
  - Product and customer support utilizing ServiceNow.
  - 24/7 oncall support duties spanning multiple timezones.

- **Managed Services, Science Applications International Corporation (SAIC)** Oak Ridge, TN
  Principal System Administrator Feb. 2019 – May 2021
  - Primary Linux architect and administrator for multiple significant impact customer-facing and internal projects across on-premise datacenters, cloud-native, and hybrid environments.
  - Systems administration of RHEL and CentOS versions 8, 7, and 6, Amazon Linux 2, and Ubuntu/Debian-based systems.
  - Design and development of Puppet and Ansible-based cross-organizational and multi-project scalable configuration management architectures.
  - AWS and Azure cloud engineering, implementation, and optimization.
  - Deployment of shared DevOps environments using GitLab, Docker, Packer, Terraform, Vagrant, along with related technologies in use by multiple customers.
  - Management through Red Hat Satellite, Ansible Tower, GitLab, Jenkins, and related operations management tools.
  - Bash, Python, and Ruby programming.
  - Automated system image creation for cloud, VMware, and physical systems.
  - Engineering and implementation of full lifecycle system deployment and DevOps pipelines.
  - Extensive documentation development and reconciliation of projects, processes, policy, and designs.
  - Product and customer support utilizing ServiceNow.
  - Monitoring with CA Unified Infrastructure Management (UIM), Cacti, Splunk, and custom tools.
  - 24/7 oncall support duties spanning multiple timezones.

- **Research and Development Group, Oak Ridge National Laboratory** Oak Ridge, TN
  Neutron Sciences Directorate System Administrator June 2017 – Feb. 2019
  - Embedded team member serving Neutron Sciences Directorate's multi-facility research operations providing administration for 24x7 data acquisition systems, core infrastructure, scientific analysis workflows, multi-petabyte high performance storage, and researcher support.
  - Systems administration of RHEL and CentOS versions 7, 6, and 5 along with Ubuntu/Debian-based Linux distributions.
  - Development of Puppet-based cross-organizational configuration management environment.
  - Migration and refactoring of legacy CFEngine and partially implemented Puppet 3 environments into a unified Puppet 4 codebase.
  - Deployment, troubleshooting, and user assistance for scientific computational clusters and expansion into central lab OpenStack and Red Hat Enterprise Virtualization (RHEV) environment.
  - Selection and administration of hardware and software appliances for networking, virtualization, and storage.
  - Substantial documentation addition and updating for systems, processes, and project management targeting administration group, internal users, and visiting researchers.
- **National Center for Computational Sciences (NCCS), Oak Ridge National Laboratory** Oak Ridge, TN
  High Performance Computing 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 supercomputers.
  - Development and support of infrastructure systems supporting a large-scale research environment.
  - Configuration management design and development for Red Hat Enterprise Linux and CentOS versions 7, 6, and 5 using customized Puppet software deployment.
  - 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 Oct. 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.
  - Deployment, customization, and troubleshooting of TORQUE and Moab batch queuing systems.
  - Lead system administrator for a SGI UV1000 1024-core, large-memory, supercomputer targeted at visualization and designed procedures for major system upgrades.
  - System administrator on mid-size scientific clusters (Cray, SGI, and Beowulf) used for algorithm scaling to supercomputer-level parallelism.
  - Initiated and led redesign of and redevelopment of Puppet 2 environment into new 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 machines.
  - Administrator in charge of incorporating cross-nation DataOne project's systems, user environments, and policies from external control into NICS' management and security domain.
  - Service documentation and architecture guides targeting disparate experience levels and technical knowledge.

Relevant Skills and Certifications

- 15+ years experience with Linux server and workstation administration using distributions based on Red Hat Enterprise Linux/CentOS, Ubuntu/Debian, and SUSE/SLES operating systems.
- Red Hat Certified System Administrator (RHCSA) certified for RHEL 8. Cert. ID: 200-195-550.
- Red Hat Certified Engineer (RHCE) and RHCSA certified for RHEL 7 (inactive). Cert. ID: 150-136-190.
- HPC and Beowulf-style cluster deployment and administration using nfsroot, stateful provisioning, batch scheduling, and process load balancing.
- System and application hardening and continual compliance verification against multiple federal, state, and internal security standards (e.g., CIS and DISA STIG).
- Extensive experience designing, implementing, and extending configuration management solutions in Puppet and Ansible.
- Working knowledge of batch job scheduling systems and processes using Adaptive Computing's TORQUE, Moab, and Maui schedulers.
- Extensive experience developing Infrastructure as Code (IaC) utilizing the HashiCorp tools suite including Terraform, Packer, Vault, and Vagrant.
- High-availability, high-throughput, and load-balanced resource implementation and orchestration using cloud, Pacemaker/Corosync, HAProxy, and Linux Virtual Server (Keepalived/IPVS).
- Multi-tier data backup and recovery using Amazon S3/Glacier, AMANDA, Bacula, and BackupPC.
- Authentication and authorization tools including LDAP, PAM, PIV, and RSA.
- Project management with Atlassian products including JIRA and Confluence.
- Virtualization and container technologies utilizing AWS, Azure, VMware, Docker, LXC, Vagrant, and additional technologies.
- Programming in shell scripting, Python, and Ruby along with working knowledge of C and Perl.
- Monitoring and performance analysis with Check_MK, Nagios, Elasticsearch, Kibana, Cacti, and additional toolsets.
- PostgreSQL and MariaDB/MySQL replicated database cluster design, deployment, and optimization.
- Implementation, configuration, and updates for Request Tracker (RT) ticketing systems including in-source feature extensions and customization.
- AWS Certified Cloud Practitioner including deployment experience.
- Microsoft Certified: Azure Fundamentals including deployment experience.
- ITIL v4 Foundation Certified. Certification number: GR671115199MC.
- DevOps Institute: DevOps Foundation Certification. Certification number: GR797011428MC.
- Obtained US Department of Energy (DOE) L security clearance (inactive).

Open Source, Presentations, Research, and Papers

- "Tech-ronomicon: Keeping documentation that won't drive you mad." Presentation for the League of Professional Systems Administrators, East Tennessee (LOPSA-ETENN), February 2021.
- "mimeograph" A high-level configuration and templating environment for HashiCorp Vagrant. https://www.github.com/campfield/mimeograph
- "Designing Configuration Management for Friends and Enemies." Invited presentation for the US DOE's National Laboratories Information Technology (NLIT) Summit 2018, May 2018.
- "Resume Writing - From ACK to discard stack: How I learned to stop worrying and hate the resume." Presentation for the LOPSA-ETENN, February 2017.
- "Packing up and shipping out for hostile environments: DevOps utilizing Packer, Terraform, 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. DOI: 10.1145/2484762.2484792.
- ORCiD researcher ID: 0000-0002-9708-2879.
- American Library Association (ALA) membership ID: 2297939.

Education

- **Indiana University-Purdue University Indianapolis (IUPUI)** Indianapolis, IN
  Master of Library and Information Science (MLIS) 2023
  - Coursework synergy between information sciences and existing computer science specializations.
  - Knowledge and information acquisition, analysis, and curation.
  - Facilitated learning and research environment support.
  - Academic, private, and public library management.
- **University of Tennessee** Knoxville, TN
  Master of Science in Computer Science 2002
  - Member of Computer Science's Labstaff group responsible for systems administration of departmental systems including Linux, Solaris, and research clusters.
  - Experience with data mining, graph theory, and algorithm optimization.
  - Focus on computational theory, software engineering, and hardware design.
  - Fully developed operating system in C including kernel, task scheduler, and IO functionality.
  - 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 programming in C and Perl, 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."