

# MICHAEL CAMPFIELD

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## OVERVIEW

An experienced professional that combines in-depth work experiences in infrastructure, automation, cloud environments, and standards-based design with formal graduate level academic training in Information and Computer Sciences. Each project is a unique opportunity for creativity and the greatest challenges are solved by leveraging the ideas and experiences of others.

## Recent Experience

- **Office of Advanced Molecular Detection, Center for Disease Control and Prevention (CDC) Atlanta, GA** June 2021 – Present  
*Sr. System Administrator*
  - Senior administrator and architect for mission-critical activities in the High Performance Computing (HPC) research environment covering multiple extreme-visibility projects.
  - Systems administration of Red Hat Enterprise Linux (RHEL), CentOS, and Rocky Linux 9 - 7 along with Ubuntu/Debian-based systems 18.04+ in hybrid on-prem and multi-cloud environments.
  - Subject Matter Expert (SME) and primary administrator for Infrastructure as Code (IaC), HPC, batch scheduling, and petabyte storage systems.
  - SME for configuration management, authentication infrastructures, and data management strategies.
  - Development of Puppet and Ansible configuration solutions bridging siloed environments.
  - Integration of container-based technologies for scientific workflows (e.g., Docker and Singularity).
  - Engineering and implementation of full lifecycle workflow automation systems.
  - Systems and application development utilizing Python/Conda, Docker/Singularity, and Bash.
  - Authorship of formal policy documentation and data management plans.
  - Trainer and course author for Linux, HPC, and environment workshops.
  - Systems metrics solutions for multi-faceted systems management and performance analysis.
- **Managed Services, Science Applications International Corporation (SAIC)** Oak Ridge, TN  
*Principal System Administrator* Feb. 2019 – May 2021
  - Team lead and primary Linux architect and administrator for customer-facing and internal projects across on-premise data centers, cloud-native, and hybrid environments.
  - Systems administration of RHEL and CentOS versions 8 and 7, Amazon Linux, and Ubuntu/Debian-based systems.
  - Design and development of Puppet and Ansible-based cross-organizational and multi-project scalable service solutions.
  - AWS and Azure cloud engineering, security compliance, and auditing of solution design proposals.
  - Deployment of shared DevOps environments using GitLab, Docker, Packer, Ansible, Vagrant, along with related technologies in use by multiple research groups.
  - Management through Red Hat Satellite, Ansible Tower, GitLab, Jenkins, and related operations management tools.
  - Python, Bash, and Ruby programming.
  - Automated system image creation for cloud, VMware, and deployment of physical systems.
  - Engineering and implementation of full lifecycle system deployment and DevOps pipelines.

- **Research and Development Group, Oak Ridge National Laboratory**

*Neutron Sciences Directorate System Administrator*

Oak Ridge, TN

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 from 3 concurrent configuration management systems to standardized 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 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/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-style) 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**

- 18+ years experience with Linux server and workstation administration using distributions based on Red Hat Enterprise Linux and Ubuntu/Debian (e.g., CentOS, Rocky, and Amazon Linux 2).
- HPC and cluster deployment and administration with additional working knowledge of Hadoop.
- 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.
- Developing Infrastructure as Code (IaC) solutions frequently utilizing HashiCorp tools suite (e.g., Terraform, Packer, and Vagrant).
- Virtualization and container technologies utilizing AWS, Azure, VMware, Docker, Singularity, and whatever tools best satisfy an analysis of alternatives (AoA).
- Programming in Python, shell scripting, and Ruby with experience with additional C-family languages.
- High-availability, high-throughput, and load-balanced resource implementation and orchestration using cloud, Terraform, Pacemaker/Corosync, HAProxy, and Linux Virtual Server (Keepalived/IPVS).
- Implementation and management of batch job scheduling systems and processes using Grid Engine along with modular software environments.
- 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.
- AWS Certified Cloud Practitioner including deployment experience.
- Microsoft Certified: Azure Fundamentals including deployment experience.
- DevOps Institute: DevOps Foundation Certification. Certification number: GR797011428MC.
- ITIL v4 Foundation Certified. Certification number: GR671115199MC.
- Standard core Linux services known by heart (e.g., PostgreSQL, LDAP, and nginx).
- Multiple certifications for Thomson Reuters and LexisNexis legal research tools.
- LaTeX and BibTeX authoring, typesetting, and documentation systems.
- Maintained US Department of Energy (DOE) L security clearance (inactive).

## Open Source, Recent Presentations, and Research

- "tanagra" LaTeX and BibTeX document management and build system.  
<https://www.github.com/campfield/tanagra>
- "mimeograph" A high-level configuration and templating environment for HashiCorp Vagrant.  
<https://www.github.com/campfield/mimeograph>
- "Stormy Skies Ahead: Batten down the hatches with on-prem.", October, 2022.
- "Techronomicon: Keeping documentation that won't drive you mad.", February 2021.
- ORCID researcher ID: 0000-0002-9708-2879.

## Education

- **Indiana University-Purdue University Indianapolis (IUPUI)** Indianapolis, IN  
*Master of Library and Information Science (MLIS)* Dec. 2023
  - Academic librarian path focused on academic, research, and government environments.
  - Knowledge and information acquisition, organization, analysis, and curation.
  - Proposal design, feasibility analysis, and grant authorship.
  - Information policy and lifecycle development and ethical analysis.
  - Scholarly communication and information instruction.
  - Educational and research library service and management.
  - Digital and physical archival practices.
- **University of Tennessee** Knoxville, TN  
*Master of Science in Computer Science* 2002
  - Experience with data mining, artificial intelligence, graph theory, and image processing.
  - Software implementation methodologies, development in C and Perl, and algorithm design practices.
  - Member of Computer Science's Labstaff group responsible for systems administration of departmental systems including Linux, Solaris, and research clusters.
- **University of Tennessee** Knoxville, TN  
*Bachelor of Science in Computer Science* 1999
  - Extensive foundation in multiple areas of mathematics and various scientific disciplines.
  - Development in C and Perl, algorithm analysis, and software implementation processes.
  - Education in computational theory, software engineering, and hardware systems design.