CHRISTOPHER COFFEY

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Experience

July 2022 – Present	Northern Arizona University	Director

- Director of the Advanced Research Computing (ARC) team responsible for NAU's High-Performance Computing (HPC) environment and general research computing technologies
- Support the NAU mission of excellence by providing powerful, equitable, easy, and seamless research computing technologies to researchers and students
- Developed key funding strategies to allow principal investigators to buy-in to central HPC resource (monsoon) to provide a higher quality of service for demanding projects
- Direct the technical aspects of large, complex projects; managing the efforts of technical support staff in the performance of assigned projects. Review completion and implementation of system additions and/or enhancements
- Architect highly performing and reliable solutions across computing platforms to meet and exceed technological and capacity demands
- Lead the NAU HPC advisory committee meetings involving key members from all research groups and centers with a need for computational research or big data solutions
- Leader and outreach coordinator for all matters associated with research computing and big data efforts at NAU
- Planning, budgeting, and advising on current and future research computing technologies to AVP, VP, and CIO
- Advise and educate research faculty and staff on transforming current scientific analyses and methods to optimally take advantage of HPC cluster and big data technologies resulting in higher resolution and quicker time to solution.
- Analyze scientific workloads and develop solutions for user and group project problems

Jan 2014 – Jun 2022	Northern Arizona University	Research Computing Team Lead

- Joined organization to architect and deploy the university's first supercomputer "Monsoon" and research computing ecosystem from the ground up including developing support staff, policy, software stacks, workshops, documentation, and training
- Develop and deliver training tools, workshops and documentation to the research enterprise
- Architect highly performing and reliable solutions across computing platforms to meet and exceed technological and capacity demands
- Expanded Monsoon's compute, storage and high-speed infiniband interconnect capacity tenfold since inception to today's research jewel of 4K cores, 2.3PB storage, 27 GPUs and HDR infiniband
- Developed scheduling policies to allow research groups fast and fair access to compute cycles for research and the classroom
- Develop and implement novel solutions that support cutting-edge, compute intensive, big data research involving high-performance computing

Feb 2007 – Dec 2013	USGS	Senior Linux Systems Administrator

- Designed, built and support two RHEL 6, Moab / Torque compute clusters, 140 and 120 cores
- Create custom fair share policy in Moab to create a fair usage environment taking into consideration of 1 week of usage with a decay factor
- Designed, built and support QDR Infiniband interconnect network for low latency and high throughput computing
- Designed, built and support 132TB Lustre parallel filesystem achieving ~8GB/sec aggregate throughput
- Write documentation on architecture and support specifics
- Test and patch cluster with security fixes and upgrades as needed
- Provide technical support in creating and troubleshooting job submission scripts and software for use on clusters

- Put on "brown bags" and discussions on cluster usage and architecture details quarterly
- Actively tune and improve performance of servers and applications using tools such as sar, OProfile, and valgrind
- Support and create Linux and Mac policy as a member of USGS Bureau Unix Support Team
- Serve as a Security Point of Contact for the Flagstaff USGS campus which involves scanning, remediation of vulnerabilities on a monthly basis
- Design and manage large, multipathed petabyte SAN utilizing LVM, XFS, NFS, QDR Infiniband, and 10Gb Ethernet technologies
- Support and manage large Citrix Virtualization cloud consisting of 16 hypervisors
- Create generic filesystem snapshot strategy based on Bash, Rsync, NFS, and Samba providing snapshot access to Linux, Mac, and Windows
- Design and implement strategy to safely and quickly backup 750TB of data via QDR Infiniband interconnect
- Create robust, intelligent Perl and Bash scripts to facilitate mission critical data management tasks
- Design and implement Nagios monitoring solution of 100+ Linux and Mac systems
- Manage large projects involving many groups, people and resources with a small budget
- Educate and assist in growing skills and confidence in other group members
- Deploy and support web applications and services using Tomcat, Apache, MySQL, and PostgreSQL

Certifications and Training

- RHCE on Red Hat Enterprise Linux 7 - #100-047-968
- RHCE on Red Hat Enterprise Linux 5 - #805008697531158
- GIAC Certified Incident Handler
- Red Hat Certificate of Expertise in clustering and storage management
- RH442 Enterprise Performance Tuning
- SANS 504 – Hacker Techniques, Exploits and Incident Handling

Education

Master of Science in Computer Science   December 2020
Northern Arizona University, Flagstaff, AZ

Bachelor of Science in Computer Science   December 2003
Arizona State University, Tempe, AZ