

Richard A. Ray II

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- Objective: To obtain a position involving the design and deployment of production HPC systems
- Education: **B.S. in Computer Engineering, Cum Laude**, North Carolina State University, December 1992
- Certifications: **Red Hat Certified Engineer**, Red Hat 8 (2002) and Red Hat EL5 (2007) certification # 110-491-412
Red Hat Certified System Administrator, Red Hat EL7 (2015) certification # 110-491-412
- Experience: **28 years** of continuous Linux / UNIX experience in business, government, and university settings

HPC Systems Administrator, Oak Ridge National Laboratory, Oak Ridge, TN, 3/2014 – present
<https://www.olcf.ornl.gov/directory/staff-member/rich-ray>

Responsible for supporting these production resources:

- 4608+ node IBM Summit supercomputer (#1 on 2018 Top 500 <https://www.top500.org/lists/2018/11>)
- 18688+ node Cray Titan supercomputer (#9 on 2018 Top 500 <https://www.top500.org/system/177975>)
- 1100+ node Cray NOAA cluster running SuSE Enterprise Linux
- 300+ physical and virtual servers running Red Hat Enterprise Linux, CentOS, SuSE Enterprise Linux
- 435TB NetApp 8040 four-node NFS array running Clustered Data ONTAP 8
- 60-node VMware ESX/ESXi farm on HP hardware
- 18-node Cray development cluster running SuSE Enterprise Linux on ARM64
- 18-node HPE development cluster running Red Hat Enterprise Linux on ARM64

Project contributions:

- Implementation of Precision Time Protocol on IBM Summit supercomputer
- Migration of VMware ESXi environment from 4.5 to 5.5 on new hardware
- Configuration of NetApp 8040 and migration of data from NetApp 3160
- Organized and attended on-site Red Hat RH300 class for 20 colleagues
- Integration of syslog, NTP, Torque, and Moab into Puppet

Training and Conferences:

- Attended Red Hat Summit 2018 in San Francisco, CA
- Attended Red Hat Summit 2017 in Boston, MA
- Attended Cray XC System Administration training in Chippewa Falls, WI
- Attended Supercomputing 2016 in Salt Lake City, UT
- Attended Red Hat Summit 2016 in San Francisco, CA
- Attended Red Hat Summit 2015 in Boston, MA
- Attended Red Hat RH300 class in 2015, achieved RHCSA

Senior Systems Administrator, Great Bay Energy, San Juan, PR, 3/2012 – 3/2014

Responsible for supporting these enterprise resources:

- Red Hat Enterprise 6 HPC cluster for production analysis jobs
- CentOS 6 workstations and python development environment for quantitative analyst team
- Windows 2008R2 environment including domain controllers, MS-SQL, file and print
- Windows 7 workstations and laptops for traders and back-office personnel
- Multi-site network infrastructure based on Vyatta routers, OpenVPN tunnels, and OpenBSD firewalls

Project contributions:

- Design and implementation of outbound WAN load-balancing using multiple Internet providers
- Design and deployment of custom-built CentOS workstations and kickstart installation environment
- Design and deployment of HPC analysis cluster based on Red Hat Enterprise Linux 6
- Design and deployment of Windows 7 workstations for traders
- Implementation of enterprise-wide monitoring utilizing Nagios

- Design and deployment of UPS infrastructure for servers and trade floor
- Migration of production computing infrastructure to co-location facility

HPC Systems Administrator, Oak Ridge National Laboratory, Oak Ridge, TN, 7/2008 – 3/2012

Responsible for supporting these enterprise resources:

- 300+ physical and virtual servers running Red Hat Enterprise Linux, CentOS, SuSE Enterprise Linux
- 80TB NetApp 3160 NFS and fiber channel disk array
- 10-node VMware ESX/ESXi farm on HP hardware

Project contributions:

- Deployment of external login nodes for Jaguar XT4/XT5 supercomputers
- Design and implementation of VMware ESX/ESXi farm with shared NetApp 3160 storage backend
- Automation of Linux and Solaris server installations utilizing PXE, Kickstart, and Jumpstart
- Centralization of server configurations via Cfengine and Bcfg2
- Implementation of centralized logging and analysis via syslog-ng and Splunk
- Deployment of license servers, proxy servers, web servers, and content management servers

Training and Conferences:

- Attended Red Hat Summit 2011 in Boston, MA
- Attended Supercomputing 2011 in Seattle, WA

Senior Systems Administrator and Team Lead, IdleAire Technologies Inc., Knoxville, TN
1/2007 – 7/2008

Responsible for supporting these enterprise resources:

- 250+ physical and virtual servers running Red Hat Enterprise Linux / CentOS at 139 sites
- 24TB IBM DS4800 fiber channel disk array
- 9-node VMware ESX farm on IBM BladeCenter
- Oracle RDBMS and Data Warehouse
- Apache Tomcat

Project contributions:

- Installation of new SAN drive shelves and firmware updates
- Upgrade of Oracle servers from RHEL3 to RHEL4
- Automation of Linux server installations using PXE and Kickstart
- Deployment of YUM repository server and Red Hat Proxy Server for software updates
- Creation of incremental snapshot backup routines for remote systems
- Migration of physical servers to VMware virtual machines
- Implementation of Moodle-based on-line training environment
- Deployment of centralized logging using syslog-ng and Splunk
- Configuration of centralized role-based permissions using LDAP, SSH, and sudo
- Migration of complex DHCP configurations supporting site equipment upgrades
- Documentation for Sarbanes-Oxley and Payment Card Industry compliance initiatives

Training and Conferences:

- Achieved RHCE re-certification on RHEL5 with a perfect exam score of 100
- Attended Red Hat Summit 2007 in San Diego, CA

Systems Analyst, Wake Forest University, Winston-Salem, NC. 8/2000 – 1/2007

Primary analyst for these Linux-based enterprise applications and technologies:

- Blackboard Academic Suite, using Oracle 9i RDBMS, Tomcat, and Apache
- Sophos PureMessage email scanning, using Sendmail, PostgreSQL, Apache, and Perl
- SCT Banner administrative systems, using Oracle 9i RDBMS and Oracle 10gAS
- Linux and Windows server consolidation, using VMware ESX

Systems and network infrastructure responsibilities:

- Analysis of hardware requirements and configuration of servers to be purchased

- Assembly, installation, and configuration of server hardware
- Automated installations of Red Hat Enterprise Linux, using PXE, kickstart and cfengine
- Management of IBM DS/4000 storage arrays and Cisco fiber-channel switches
- Analysis of TCP/IP requirements and configuration of firewall rulesets
- Development and testing of backup routines, restores, and high availability strategies
- System and service monitoring, paging, and on-call duties
- General administration of Linux and AIX, including SSH, DHCP, DNS, LDAP, Apache, Samba, Sendmail, ipchains, iptables, user authentication, SSL certificates
- Research, analysis, and remediation of security vulnerabilities
- Diagnosis and resolution of hardware malfunctions
- Performance analysis, operating system tuning, hardware upgrades
- Interaction with hardware and software vendors in support situations

Departmental project contributions:

- Snapshot data integration between SCT Banner and Blackboard courseware systems
- Implementation of AMaViS, MailScanner, and Sophos PureMessage for virus- and spam-filtering of incoming email
- Implementation of an Electronic Thesis and Dissertation web server for the graduate school
- Migration of servers from the old flat campus network to the new subnetted VLAN network
- Development of a CD-based Samba server for recovering data from unbootable Windows laptops
- Coordination of formal and informal Red Hat training for the systems team
- Co-development of a Knoppix- and VMware-based performance testing suite for the campus intranet
- Testing of the Windows XP standard image for student laptops
- Development of Linux / Windows dual-booting laptop configurations
- Integration of Active Directory into the central account management database
- Implementation of secure remote management with SSH port forwarding and VNC
- Research and testing of Linux-based clustering technologies

Training:

- Achieved RHCE certification on Red Hat 8 with an exam score of 92.

Systems Engineer, Business Solutions Inc., Archdale, NC 2/1994 – 8/2000

Implementation of networked systems consisting of UNIX, Windows NT, and Windows 95/98:

- Analysis of customer needs and preparation of sales proposals
- Design and construction of UNIX servers, Windows NT servers, and Windows 98 clients
- Installation of servers, clients, hubs, routers, printers, terminals, modems, scales, etc.

Integration of UNIX, Windows NT, and Windows 95/98:

- Configuration of Ethernet, ISDN, and PPP interfaces on clients and servers
- Installation and configuration of UNIX and Windows applications and connectivity suites
- Configuration of UNIX and Windows NT user environments, email, file and printer sharing

Operating system environments:

- SCO Unixware 2.x and 7.x, Unisys SVR4, SCO UNIX and SCO Openserver 5, IBM AIX 3.x
- Microsoft Windows NT 4.0, Windows 95/98, Windows for Workgroups, Windows 3.1, DOS 6.2

UNIX programming and administration:

- Development of C programs and ksh shell scripts for communications and task automation
- Centralization and automation of server and client backup routines
- Administration including kernel tuning, hardware and OS upgrades, and disaster recovery plans

UNIX applications:

- TechGAP accounting package from Tech Systems (formerly R and D systems)
- Sendmail electronic mail delivery package
- Facetterm character-based windowing system
- VSIFAX facsimile software

Windows programming and administration:

- Development of websites utilizing Microsoft FrontPage and Microsoft Word

- Centralization and automation of server and client backup routines

Windows applications:

- Microsoft Excel, Word, Powerpoint, Access, Outlook, Exchange, FrontPage
- Netscape Navigator, Microsoft Internet Explorer and Internet Information Server
- ESKER Tun Plus and Century Tiny Term TCP/IP connectivity suites

Macintosh Assistant, Computer Science Department, NCSU 2/1991 – 12/1992

- Installed and upgraded software on faculty Macintosh machines
- Collected and reviewed Macintosh public-domain software from Internet resources

References: Available upon request