Adam DeConinck

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SUMMARY

Systems engineer with experience building, managing, and supporting large high-performance computing systems used for scientific research, software development, and production workloads.

PROFESSIONAL EXPERIENCE

Los Alamos National Laboratory 2014 - 2017
HPC Cluster Administrator *Los Alamos, NM*

- Production support for several Top 500 HPC systems, including "capability" platforms (*Cielo* and *Trinity* Cray systems) as well as commodity clusters with Infiniband or Ethernet interconnects.
- Stand-up and production integration of *Trinity* (19,000+-node Cray XC-40) and associated testbeds.
- Internal tools development for automation, monitoring and testing (in Python, Perl, Ansible, Cfengine)
- Design and deployment of clustered HPC monitoring systems, including a dedicated monitoring cluster for *Trinity* supercomputer.
- Publish papers and reports on production experiences, systems deployment, and design.
- Coordinate our change-management process for production HPC platforms.

NVIDIA 2012 - 2014
HPC/Cloud Systems Engineer *Santa Clara, CA*

- Designed, deployed, and supported several HPC development platforms at NVIDIA, including Infiniband clusters, Cray XK7, and Cray XC-30 systems.
- Supported a broad user base including internal and external developers, customer trials, and marketing.
- Designed and deployed both on-premise and cloud-based CUDA training platforms for training events at GTC 2013, GTC 2014, and Supercomputing 2013 conferences.
- Provided HPC systems expertise and support for Solution Architect team during pre-sales activities.

R Systems NA, Inc 2010 - 2012
Systems Engineer *Champaign, IL*

- Designed, deployed, and supported custom cluster deployments for commercial customers.
- Experience with a wide variety of technologies, including several workload managers (Slurm, Torque/Maui, Grid Engine, and Windows HPC) and operating systems (RHEL, Ubuntu, Windows server).

University of Illinois Urbana-Champaign 2007 - 2010
Graduate Research Assistant *Urbana, IL*

EDUCATION

University of Illinois Urbana-Champaign *2010*
M.S. in Materials Science & Engineering

Michigan Technological University *2007*
B.S. in Physics; Minors in Mathematics and in Electronic Materials

PROGRAMMING LANGUAGES

Python	Systems management tools, command-line scripts, small webapps. Some simulations and data analyses using NumPy, SciPy, and Matplotlib.
Perl	Systems management tools and command-line scripts.
Go	Personal projects; mostly small network servers and command-line tools.
C & Fortran	Scientific computing, mostly writing or helping to debug MPI code.

SYSTEMS MANAGEMENT TECHNOLOGIES

Hardware platforms	Cray XE6, XK7, XC-30, XC-40; "Commodity clusters" on Dell, HP, SuperMicro, and Cray (Appro) hardware
Workload Managers	Slurm, Torque, Moab/Maui, Grid Engine (production clusters); Mesos, Kubernetes (testbed deployments)
Config. management	Ansible, Cfengine, Chef
Monitoring	Nagios, Zenoss, Splunk, ELK stack, collectd; LDMS, Baler, Ganglia
System deployment	Warewulf, Perceus, Cobbler/Kickstart, CloudFormation (EC2)
Distributed filesystems	Lustre, Panasas (production); HDFS, GlusterFS (testbeds)

OPEN SOURCE CONTRIBUTIONS

EasyBuild 2013-2014
Tool to automate software builds on HPC clusters *Python*

Wrote initial "dry-run" functionality; added build recipes for several packages.

Warewulf 2011-2012
Cluster provisioning framework *Perl*

Alpha tester for 3.0 rewrite; IPMI "console" functionality; early version of REST API; bug-fixes.

SELECTED PUBLICATIONS

A. DeConinck, H. Nam, D. Morton, A. Bonnie, C. Lueninghoener, J. Brandt, A. Gentile, K. Pedretti, A. Agelastos, C. Vaughan, S. Hammond, B. Allan, M. Davis and J. Repik, "Runtime collection and analysis of system metrics for production monitoring of Trinity Phase II" *Proc. Cray User's Group*, May 2017.

A. DeConinck, A. Bonnie, K. Kelly, S. Sanchez, C. Martin, M. Mason, J. Brandt, A. Gentile, B. Allan, A. Agelastos, M. Davis and M. Berry, "Design and implementation of a scalable monitoring system for Trinity", *Proc. Cray User's Group*, May 2016.

S. Sanchez, A. Bonnie, G. Van Huele, C. Robinson, **A. DeConinck**, K. Kelly, Q. Snead and J. Brandt, "Design and implementation of a Scalable HPC Monitoring System", *Wrk. on Monitoring and Analysis for High Performance Computing Systems Plus Applications (HPCMASPA) Proc. IEEE Int'l Parallel and Distributed Processing Symposium (IPDPS)*, May 2016.

A. DeConinck and K. Kelly, "Evolution of Monitoring Over the Lifetime of a High Performance Computing Cluster," *Wrk. on Monitoring and Analysis for High Performance Computing Systems Plus Applications (HPCMASPA) Proc. IEEE Int'l Conf. on Cluster Computing (CLUSTER)*, September 2015.

A. J. DeConinck, "Tools and Tips for Managing a GPU Cluster," GPU Technology Conference, March 2014.

H. Zhang, **A. J. DeConinck**, S. C. Slimmer, P. S. Doyle, J. A. Lewis and R. G. Nuzzo, "Genotyping by alkaline dehybridization using graphically encoded particles," *Chemistry: A European Journal*, February 2011.

E. Bozin, M. Schmidt, **A. J. DeConinck**, G. Paglia, J. F. Mitchell, T. Chatterji, P. G. Raedelli, Th. Proffen and S. J. L. Billinge, "Understanding the Insulating Phase in Colossal Magnetoresistance Manganites: Shortening of the Jahn-Teller Long-Bond across the Phase Diagram of $La_{1-x}Ca_xMnO_3$," *Physical Review Letters*, March 2007.