

### Don't Be Contained

R Systems' friendly support staff can help guide you through creating Singularity workflows that will reduce the friction inherent in migrating your workflow between environments. With our help, now you can easily share Singularity workflows with colleagues, and be confident your application will run with performance and simplicity, all while maintaining the native security of each environment.

Learn more about Singularity at: <http://singularity.lbl.gov/> or contact us at: [Sales@r-hpc.com](mailto:Sales@r-hpc.com) to see how Singularity can benefit you and your HPC needs.



#### Office

1902 Fox Drive, Suite F  
Champaign, Illinois 61820  
Office: 217.954.1056

### R Systems Adds Support for Singularity Application Containers

Containers allow for service and application portability to external or internal resources that would otherwise have to tailor the environment to the application, or vice versa. Security concerns for container systems generally lead to containers either being disallowed outright or living within virtual machines on shared resources. This often results in reduced performance of applications.

Singularity containers allow for application and workflow portability across varying environments; production, testing, development, as well as external cloud resources without forgoing security. Images are composed of the minimally required data, libraries, and environment variables needed to run your application - no large image repositories or dependency trees required. Applications execute in user-space without requiring escalated permissions to launch. The container and all resources related to it run in the context of the executing user; significantly reducing vulnerability to privilege escalation attacks.

### Access Resources Native to Your Environments While Maintaining Security

Unlike with most alternate containerizing solutions, a new namespace is not needed with this architecture. Singularity containers have the same access to local and shared file systems for data access and scratch space as native applications. Applications perform at 100% of their native speed, as there are zero translation layers. MPI applications do not need additional configuration to add any given environment's hosts, users, SSH keys, or other ancillary configurations to the image.

In addition to simplifying container workflow, Singularity is also MPI aware. This allows you to launch container instances as an MPI process, reducing startup latency even further.

