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CU I&E Submission: Automation for Research Computing Infrastructure [1]

Team Information

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What

I set up Ansible and Terraform to connect to our existing computing infrastructure and wrote custom specifications for them, to allow IBS to keep its computing infrastructure maintained and up to date. These specifications range from simple things like reporting on changes to configuration, to updating software, to doing clean-up and maintenance on existing computers, to creating entirely new virtual computers with custom configurations and software installed according to the exact needs of our researchers in a consistent and repeatable way.

Why

Formerly, updates to operating systems required multi-day rolling downtimes, and creating new virtual computers for researchers took a couple of days. Now both of these processes can be condensed into an hour or less, allowing researchers to keep working how and when they want to. Other maintenance processes were simply too time-consuming to do by hand as often as necessary. The infrastructure and software required to update and create virtual computers allowed me to automate those other complex maintenance processes much more easily, and now I can do them weekly or monthly as needed.

When

I first began implementing Terraform in August 2019, Ansible in December 2019, and over the course of 2020, I have developed more than a hundred different custom specifications for different processes by hand.

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