Ansible Case Study – A Real Life Usage by NASA

Let us consider the business challenge that was faced by NASA.

NASA needed to move 65 applications from a traditional hardware based data center to a cloud-based environment for better agility and cost savings. The rapid timeline resulted in many applications being migrated 'as it is' to a cloud environment. This created an environment which spanned multiple virtual private clouds (VPCs) and AWS accounts that could not be managed easily. Even simple things, like ensuring every system administrator had access to every server, or simple security patching, were extremely cumbersome.

The solution was to leverage Ansible Tower to manage and schedule the cloud environment.

Hence, to solve the problems that NASA had with lack of centralized management and a diverse environment, they evaluated multiple solutions and decided on an implementation of Ansible Tower. NASA is now leveraging Ansible Tower to manage their environment in a very organized and scheduled way.

How NASA is using Ansible:

Ansible Tower provided with a dashboard which provided the status summary of all hosts and jobs which allowed NASA to group all contents and manage access permissions across different departments. It also helped to split up the organization by associating content and control permission for groups as well.

Ansible Tower is a web-based interface for managing Ansible. One of the top items in Ansible users' wishlists was an easy-to-use UI for managing quick deployments and monitoring one's configurations. Ansible management came up with Ansible Tower in response.

Further, Ansible divided the tasks among teams by assigning various roles. It managed the clean up of old job history, activity streams, data marked for deletion and system tracking info. Refer to the diagram below to understand how Ansible has simplified the work of NASA.

As a result, NASA has achieved the following efficiencies:

• NASA web app servers are being patched routinely and automatically through Ansible Tower with a very simple 10-line Ansible playbook.

• Ansible is also being used to re-mediate security issues and was leveraged to re-mediate OpenSSL issues. This not only saved time but allowed to quickly re-mediate a very daunting security issue.

• Every single week, both the full and mobile versions of www.nasa.gov are updated via Ansible, generally only taking about 5 minutes to do.

• OS level user accounts for mission critical staff are continually checked and created if missing. Now, everyone who needs access has access, even if that means adding or removing a user almost instantly from all servers.

• NASA has also integrated Ansible facts into their CMDB, CloudAware, for better management visibility of entire AWS inventory. As a result, it became possible to organize the inventory of AWS resources in a very granular way that was not possible before.

• Ansible is also used to ensure that the environment is compliant with necessary Federal security standards as outlined by FedRAMP and other regulatory requirements.

Results:

As a result of implementing Ansible, NASA is better equipped to manage its AWS environment. Ansible allowed NASA to provide better operations and security to its clients. It has also increased efficiency as a team.

If we see by the numbers:

• Updating **nasa.gov** went from over 1 hour to under 5 minutes

• Security Patching updates went from a multi-day process to 45 minutes

• Achieving near real-time RAM and disk monitoring (accomplished without agents) pla

• Provisioning OS Accounts across entire environment in under 10 minutes

• Baselining standard AMIs (Amazon Machine Image) went from 1 hour of manual configuration to becoming an invisible and seamless background process

• Application stacks set up time reduced from 1-2 hours to under 10 minutes per stack.