Future Directions

An Ansible Developer and Ecosystem Story

Timothy Appnel
Senior Product Manager, Ansible

GitHub: @tima
Twitter: @appnelgroup

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```
$ git show f31421576b00f0b167cdbe61217c31c21a41ac02

Author: Michael DeHaan <michael.dehaan@gmail.com>
Date:   Thu Feb 23 14:17:24 2012 -0500

    Genesis.

diff --git a/README.md b/README.md
new file mode 100644
index 0000000000..60bbc9f813
--- /dev/null
+++ b/README.md
@@ -0,0 +1,88 @@
:
```

THE ANSIBLE WAY

SIMPLE

Human readable automation

No special coding skills needed

Tasks executed in order

Usable by every team

Get productive quickly

POWERFUL

App deployment

Configuration management

Workflow orchestration

Network automation

Orchestrate the app lifecycle

AGENTLESS

Agentless architecture

Uses OpenSSH & WinRM

No agents to exploit or update

Get started immediately

More efficient & more secure

OPTIMIZED FOR CONTRIBUTION

“Modularity and option value create opportunities for the exchange of valuable work among developers, opportunities that do not exist in codebases that are not modular or have no option value.”

SOURCE: The Architecture of Participation. Carliss Y. Baldwin, Kim B. Clark, Harvard Business School, Oct. 2005.

BATTERIES INCLUDED

Ansible ships with a rich and versatile standard library which is immediately available without making the user download separate packages.

- cloud
- clustering
- containers
- cryptography
- database
- DNS
- files
- inventory
- identity
- messaging
- monitoring
- network
- notifications
- packaging
- security
- source control
- storage
- system
- testing
- utilities
- web infrastructure
- windows

IT HAS BEEN WORKING

Octoverse 2018: #7 for unique contributors (~4100)

14,000

FORKS

35,000

STARS

40k

COMMITS

“Whenever an individual or a business decides that success has been attained, progress stops.”

Thomas J. Watson

GROWING PAINS

- Volume of contributions is weighing down releases
- Bottlenecks to participation
- Different release cadences of integrations
- Dramatic expansion of the use cases over time
- Opportunities to provide more value to users
- Embedding of Ansible in other projects/products

What Does This Mean?

Fee

Ansible is evolving and needs to become a **platform** for automation

A few sane options are needed to supplement the ease and simplicity of the “batteries included” distribution model

CURRENT ASSUMPTIONS

Current assumptions under the “batteries included” only distribution model will no longer be valid and cannot be relied on going forward.

- Only `ansible/ansible/devel` matters
- Compatibility, namespace conflicts & quality checks managed thru code review
- Streamlined testing -- only the current version matters
- Functionality is part of a single bundle

ASSUMPTIONS CHANGE

In adjusting to these changes in the assumptions that Ansible has relied upon, these issues now need to be addressed:

- Managing namespace conflicts & incompatibilities
- Initialization performance
- Quality control and testing
- Versioning

NEW REQUIREMENTS

New and additional tooling will have to be developed for the platform ecosystem to thrive

- A New Packaging Format for Ansible Content
- Content Package Management
- Developer Tools
- Enhance Roles
- Enhance The Galaxy Hub (galaxy.ansible.com)

A NEW PACKAGING FORMAT

Ansible will need a new means of packaging and shipping content that is independent and external to the core engine

- The Ansible Role packaging format is insufficient
- Simple, lightweight and consistent with the Ansible way
- Can contain multiple Ansible modules, plugins, roles and maybe more

ANSIBLE CONTENT COLLECTION

A new format for delivering content independently of the Ansible core engine

- A new means to distribute Ansible content
    - An artifact format for consistent content structure
    - Contains roles, modules, plugins and module utilities
    - Enables versioning of external content
    - Enables consistent delivery independent of Ansible distributions
    - Installable as system, user or project resources
- Immediate use of the content found within the artifact
- Namespacing support built into the collection

ANSIBLE CONTENT COLLECTION PREVIEW

```
.
├── galaxy.yml
├── plugins
│   ├── action
│   │   └── ping.py
│   ├── module_utils
│   │   └── pingutils.py
│   └── modules
│       └── ping.py
└── roles
    ├── ping_bootstrap
    │   ├── defaults
    │   ├── filters
    │   ├── meta
    │   ├── tasks
    │   └── vars
    └── ping_deploy
        ├── defaults
        ├── meta
        └── tasks
```

ANSIBLE CONTENT COLLECTION PREVIEW

```
hosts: somehosts
collections:
  - tima.pinger
  - redhat.open_ping

tasks:
  - tima.pinger.ping:

  - ansible.builtin.ping: # use only the ping packaged in core

  - ansible.legacy.ping: # use core or library(etc)/ping.py
    when: thing | tima.pinger.filter == 42

  - ping: # searches collections “path” otherwise…
          # still works, == ansible.legacy.ping:
```

CONTENT PACKAGE MANAGEMENT

You woke up this morning, rolled out of bed, and thought, “Y’know what? I don’t have enough misery and suffering in my life. I know what to do—I’ll write a language package manager!”

- Sam Boyer
https://medium.com/@sdboyer/so-you-want-to-write-a-package-manager-4ae9c17d9527

CONTENT PACKAGE MANAGEMENT

The introduction of a new content packaging format requires a means of managing it

- The `ansible-galaxy` CLI is insufficient (and not really package manager)
- Minimize the inherent pitfalls of package management
- Prioritize simplicity over flexibility and package management norms
- Focus strictly on management functions and not development
- This requirement will be addressed by Mazer
    - https://github.com/ansible/mazer

DEVELOPER TOOLS

New tools are needed to provide an effective and standardized means of developing content that is independent of the core engine

- The Ansible core engine benefited from the extensive developer tools for its own development and testing
- Some additional tools exist expressly for Ansible development as a convenience
- These tools are insufficient outside of the single repo “batteries included” model
- Needs to encourages participation, reuse, stability and best practices in an Ansible way as possible -- being simple, powerful and frictionless.
- Needs to automate and scale more of what’s been done through manual code review by core committers and others

DEVELOPER TOOLS

New tools are needed to provide an effective and standardized means of developing content that is independent of the core engine

- Molecule: An Ansible testing framework
  - http://github.com/ansible/molecule
  - Lots of improvements and alignment planned -- too many to list
  - Collections support
  - ansible-test lint and sanity tests integration
    - https://github.com/ansible/ansible/tree/devel/test/runner

DEVELOPER TOOLS

New tools are needed to provide an effective and standardized means of developing content that is independent of the core engine

- ansible-lint: Static analyser for Ansible best practices and other checks
  - http://github.com/ansible/ansible-lint
  - Already integrated into new galaxy.ansible.com submissions
  - More rules and continue functionality

ENHANCE ROLES

Feature enhancements and design patterns for Roles to support greater reuse and reduce the need for fork-and-modify activities

- Implement role argument spec validation similar to modules
    - https://github.com/ansible/proposals/issues/39
    - https://github.com/ansible/ansible/pull/44983
- Implement “adhoc” role execution
- Provide standardized embedded documentation format functionality of roles
    - https://github.com/ansible/proposals/issues/19

ENHANCE THE GALAXY HUB

https://galaxy.ansible.com/

- Support for Collections and Mazer
- Continued search, feedback and UX improvements
- Address the “dash quandary” in namespaces
- Lay groundwork to break dependency on GitHub
  - Tech preview push architecture using Pulp infrastructure

So when are we getting this?

WHEN?

We’re at the beginning of a ***multi-year effort*** with details and new features incementally emerging over time

Now

- Changes to the Galaxy Hub are continuing to roll out
- Molecule and ansible-lint are now official Ansible projects
- Tech Preview of Collections
- PluginLoader enhancements
  - Collections Content Path Support
  - Namespace Support

“Soon”

- Collection support in Mazer & Molecule
- Documentation
- Role enhancements
  - Argument spec validation
  - “Adhoc” role execution
- Native Collections support in Tower

CONTRIBUTING

Try it out and open issues please

- github.com/ansible/galaxy
- github.com/ansible/mazer
- github.com/ansible/ansible-lint
- github.com/ansible/molecule
- galaxy-dev.ansible.com
- #ansible-galaxy on IRC
- #ansible-molecule on IRC

#ANSIBLEFEST2019

SEPTEMBER 24-26
ATLANTA, GA

Thank you

redhat.