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ANSIBLE ARCHITECTURE AND LANGUAGE TOOLS

Ansible is a system for configuration management automation. Its target items are computer systems and network equipment. Ansible automates the management of remote systems and controls their desired state. Its configuration scripts are human readable while being machine parsable. A basic Ansible environment has three main components: the control node (a system on which Ansible software is installed); a managed node (a remote system or host, that Ansible controls; inventory (a list of managed nodes that are logically organized). Language base includes Python scripts, Linux shell scripting and the YAML – a human-readable data serialization language. YAML, like many other data serialization languages (such as JSON), is based on several simple concepts such as declarations, lists, associative arrays. Whitespace indentation is used for denoting the structure of a document.

Inventories describe managed nodes in centralized files that provide Ansible with system information and network locations. Using an inventory file, Ansible can manage a large number of hosts simultaneously with a single command.

Modules are the units of code executed by Ansible. Ansible works by connecting to the hosts (without the need for a special agent to be installed on the host itself, the default connection method is via ssh), and by pushing modules to the hosts. The modules are then executed locally on the host, and the output is pushed back to the Ansible server. Modules are executed directly on remote hosts through playbooks or by running them individually from the command line.

Playbooks are Ansible executable files (scripts) that combine configuration, deployment, and orchestration functions. Playbooks provide a way of automating the remote systems in a consistent and repeatable manner. A playbook contains one or more plays (which is a specific name for Ansible scenarios); a play may include tasks. Each task must contain a key which provides the name of a module and a value with the arguments to that module. The YAML parser considers arguments as strings. Large arguments may be spread into multiple lines, with the use of the YAML folding syntax. Playbooks support variables and conditional actions. Handlers are one of the conditional forms. A handler is similar to a task, but it runs only if it has been notified by a task, by passing the handler's name as the argument.