VOLTTRON™ Deployment Management

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Deployment Management

► CETC Deployment History
► Decisions
► Current State
VOLTTRON™ Campus Deployment (The Goal)
PNNL Campus Deployment (The Beginning)

► First collection on a leased building
  ■ Data pushed to cloud instance for storage
  ■ Initial use case for Forwarder Agent
  ■ Simple, manual install and monitoring

► Expanded out piecemeal to other buildings (currently at 8)
► Manual updates become untenable
► Monitoring even more important
► Wider potential impact of problems
Deployment Driven Requirements (The Needs)

► Possible Networking Issues
  ■ Alerts
  ■ LogWatcher
  ■ External Monitoring

► Experiments on Real Buildings
  ■ Override/Revert of Known Good State
  ■ Threshold Detection

► External Collaboration
  ■ Topic replacement
    ● Anonymization of Building Source
  ■ Filtering of topics forwarded off-site

► External Logging Real Time Monitoring
  ■ Splunk
  ■ Grafana
  ■ Prometheus
Configuration Management (The Pain)

► Original Process:
  ■ ssh into box
  ■ Install dependencies
  ■ Clone (pull) repository
  ■ Configure Instance(s)
  ■ Package, configure and install many agents
  ■ Setup keys for forwarder and VOLTTRON™ Central Management

► Repeated on every instance!

► Updates can be painful and require almost the same level of work
Automated Configuration Management (The Solution!)

► Options
  ■ Chef
  ■ Puppet
  ■ Ansible

► Selected Ansible
  ■ Requires SSH and simple-json
  ■ No service running on the target system
  ■ Active development open source environment
  ■ Ansible Galaxy
    ● Roles for just about everything
VOLTTRON™ Roles for Different Platform Responsibilities

► **volttron-common**
  - Configures and bootstraps the volttron environment.

► **volttron-service**
  - Starts volttron as a systemd based service

► **volttron-central**
  - Installs volttron central, volttron central platform and platform historian, alerter, emailer

► **volttron-collector**
  - Installs masterdriver, actuator, volttron central platform

► **volttron-agents**
  - Allows ad-hoc agents to be installed on an instance

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Benefits

► Declarative
► Repeatable
► Easy to Modify at Scale
► Saves Time