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| Scope of Work | Program/Project | **Network Automation Integration** |
| Revision No/Date | 2/13/2020 |
| Author(s) | Larry Carter |

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| **Initiative/Project Description** |

Integrate the framework for network automation for the CHC Network Engineering team. Network automation will:

* Maintain overall business stability and continuity
* Standardize our build consistency
* Minimize the impact of human error.
* Reduce manual steps in building simple and complex tasks.
* Enhance Quality Assurance of work.
* Decrease project timelines.

**Key Objectives:**

1. Create a structured Network Automation Framework that is specific to the CHC Network Engineering standards for both Engineering and Operations team use.
2. Identify technologies to be automated
3. Deploy Ansible Servers and Toolsets.
4. Design test environment.
5. Create build standards and build consistency for internal and external customers.
6. Test playbook and scripts.
7. Deploy playbooks for production builds.
8. Create and update all documentation
9. Implement training modules for Engineering to effectively learn Standard and Best Practices for Network Automation.
10. Apply development process to identified technologies

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| **Project Scope** |

**In Scope:**

* + Everything damn thing

**Out of Scope:**

* + Network Support hand-off and training

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| **Milestones** |

**Discovery**

* Collect current automation scripts in circulation
* Determine technologies to be automated
* Identify security concerns or gaps with moving to automation
* Identify toolsets that will be used for Automation

**Pre-Implementation**

* Capture current build time for manual processes
* Check consistency of builds for existing technologies

**Framework Development**

* Develop standards for each toolset
  + Ansible
    - Version of Ansible deployed
    - Default language used in coding
    - Template Engine for Variables
  + GitLab
    - Create Team Page within GitLab (NetAnsibleDevOps)
    - Secure Access to Team Page
    - Create Individual Projects per technology
  + VSCode
    - Default Source Code Editor
    - Default set to YAML defined specs for tool
* Develop and Provide standards for Automation Playbooks
  + Develop Standards, Structure and Formats for Playbooks
  + Identify user interaction with Playbooks
  + Develop framework and structure on data inputs for operation
  + Identify Output format and locations
  + Design and develop verification report
  + automation

**Technologies Development Process** *(Outlined steps below will be repeated per technology)*

* Coding
  + Gather modules for associated technology
  + Transfer input tables to formatted data structures
  + Create Playbooks for associated technologies
* Testing
  + Begin initial testing within Sandbox environment
  + Open testing environment for super-user
  + Document results and resolve any outstanding issues
* Deployment
  + Release code for production environment builds (super-users only)
  + Monitor and manage live production
  + Update code patches (as necessary)
* Training
  + Provide training for remaining Network Engineers (non super-users)
  + Upload all documentation to central repository (SharePoint)

**Operational Documentation**

* Creation of SOP’s and training documents for network automation workflow.
  + Network Automation Flow Docs
  + Network Automation User Guide
    - Ansible Runbook
    - GitLab Runbook
    - VSCode Runbook
    - Automation Runbook (Overall Architecture)

**Internal Training (Network Engineering)**

* Network automation training
  + Ansible
  + GitLab
  + VSCode
* Network Automation work flow process
  + Architecture
  + Data Flows

**Support Teams**

***Technical Support***

* Network Automation Team (Ansible)
* Identity IQ Team (GitLab)
* Network Automation Team (VSCode)
* Linux Systems Team (Ansible Servers)

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| **Risks** |

* Resources to build the framework
* Hitting deadlines
* Insufficient development/testing environment
* Potential Security???

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| **Initial Timing** |

* Initial Kick-Off Call: 11/1/19
* Project Plan Build: 1/13/20-1/17/20
* Project Time Line: 2/1/20-5/1/20
* Go Live: TBD-June 2020

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| Key Performance Indicators (Performance Productivity) |

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| **Metric** | **Definition of Metric** | **Key Performance Indicator Expectation** | **Report** | **Frequency** | **Responsible Party** | **Baseline Metric** |
| Build Time | Time it takes to complete a specific build by technology |  | Excel Spreadsheet | Weekly | Automation Team |  |
| Error Reduction | Number of CR’s that have to be revisited because build was done incorrectly |  | Dashboard | Weekly | Automation Team |  |
| Build Consistency | Compare current build configurations with new automation standards |  | Word | Monthly | Automation Team |  |

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| **Executive Sponsor** |

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| **Name** | **Role** |
| Neal Britt | Sr Director Network Engineering |

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| Core Project Team | |
| **Name** | **Role** |
| Larry Carter | Network Engineering (Automation Team) |
| Jose Rios | Network Engineering (Automation Team) |
| Todd Gay | Sr. Manager Network Engineering |
| Key Contributors-Super Users | |
| **Name** | **Role** |
| Rob Defreitas | Network Engineering (ACI) |
| Nancy Vanasse | Network Architect |
| Daniel Callaway | Network Engineering |