ANSIBLE

SECURITY AUTOMATION WITH ANSIBLE

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redhat.

WHY SECURITY AUTOMATION

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INFO SEC AREAS

Application Security

Network Security

Forensics

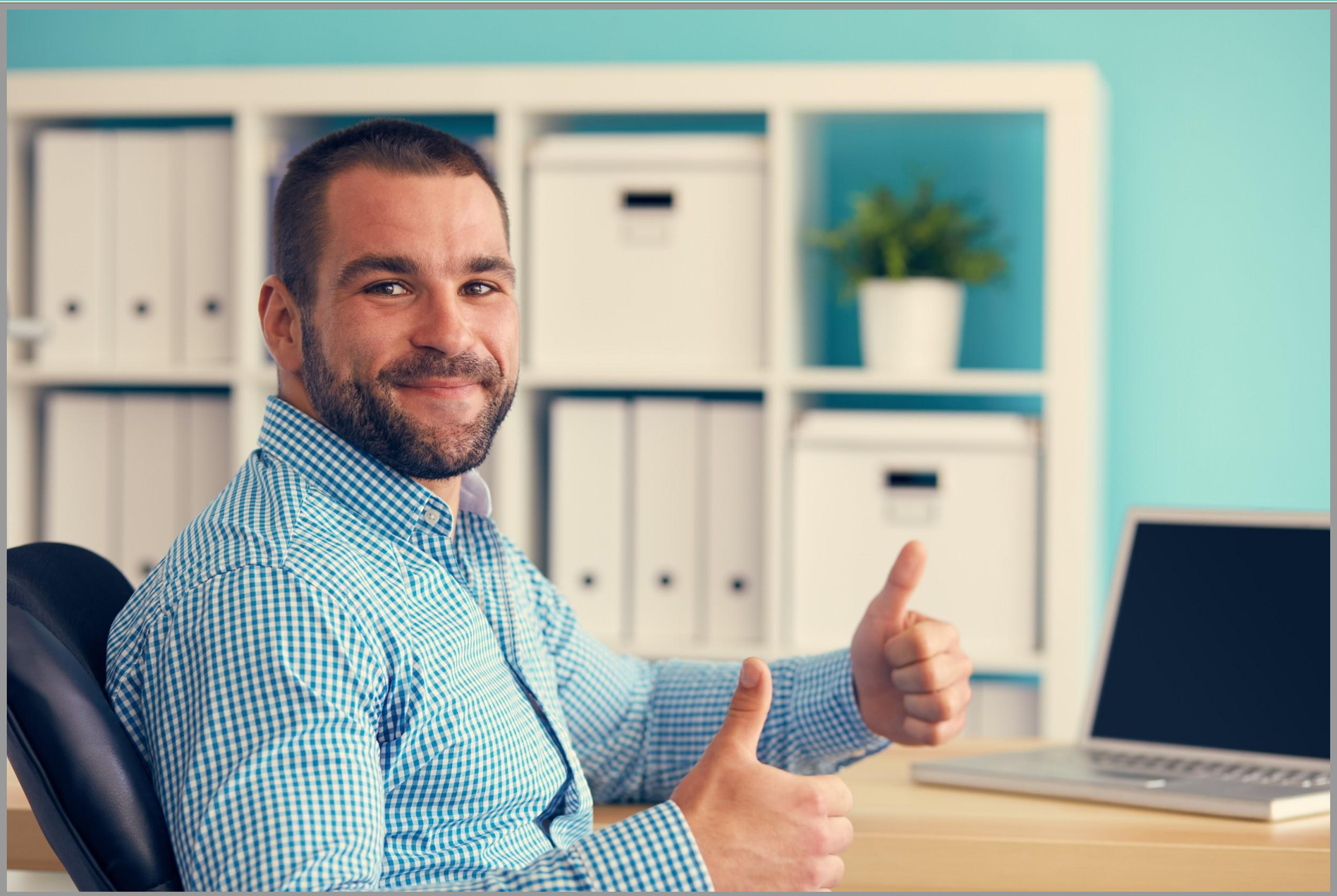
Incident Response

Penetration Testing

Fraud Detection and Prevention

Governance, Risk, Compliance

STORY OF MARKO



SEC OPS SILOS

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WALL OF SEPARATION

SECurity

Wants to ensure Information Assurance

OPerationS

Wants to ensure System Availability

https://www.niceideas.ch/roller2/badtrash/entry/devops-explained

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RUNBOOK ITEMS

Rule Title: The SSH daemon must not allow authentication using an empty password Linux servers .
Rule Title: Anonymous enumeration of shares must be restricted on Windows servers.
Rule Title: The network element must only allow management connections for administrative access from hosts residing in to the management network.
Rule Title: Change root password on all servers, according to policy every 60 days.
Rule Title: Ensure that all system components and software are protected from known vulnerabilities by installing applicable vendor- supplied security patches. Install critical security patches within one month of release.
Rule Title: Protect against CVE-2016-5696.
Rule Title: Fix and test shellshock.

PLANNING THE IMPLEMENTATION

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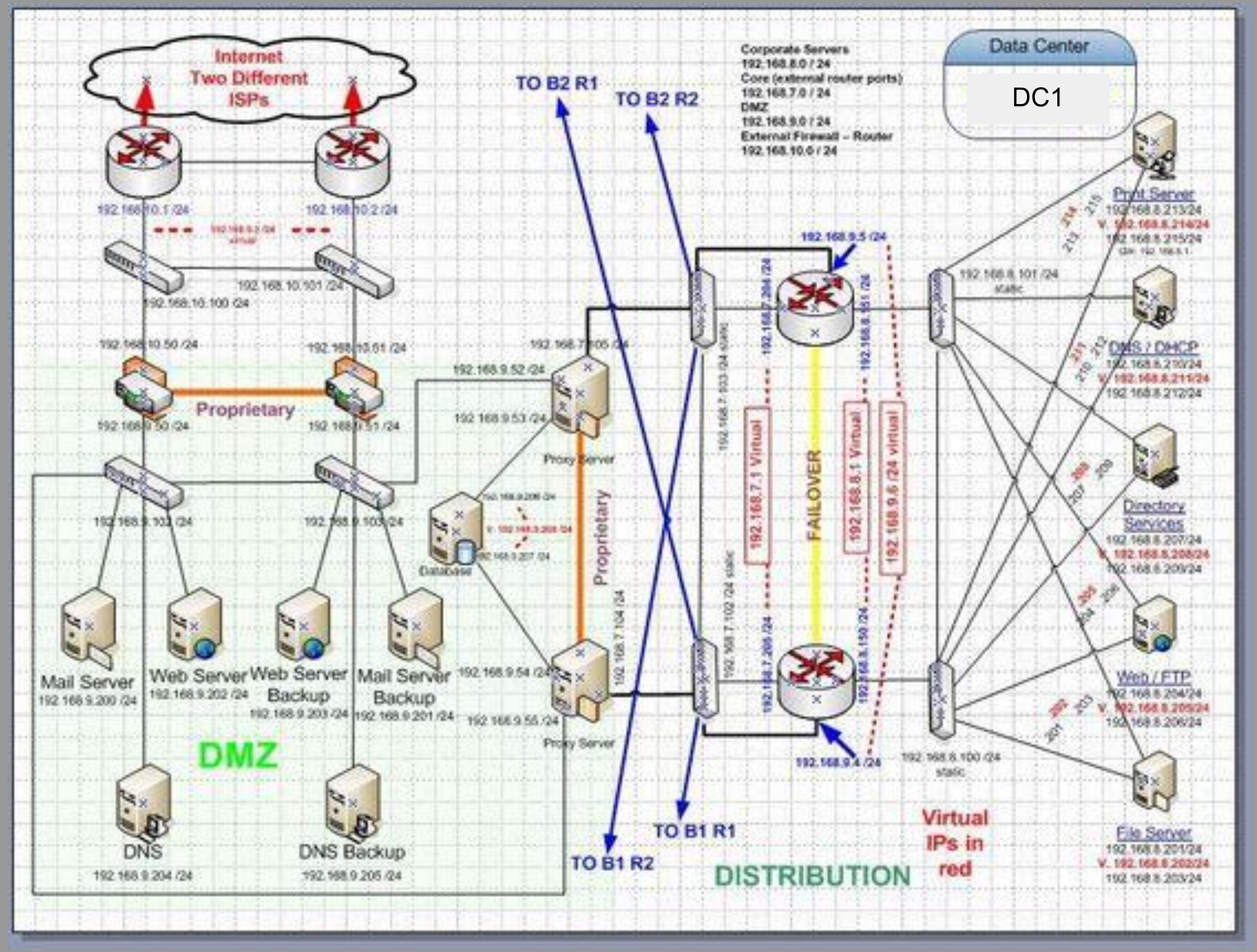

THE MELTDOWN

TROUBLESHOOTING

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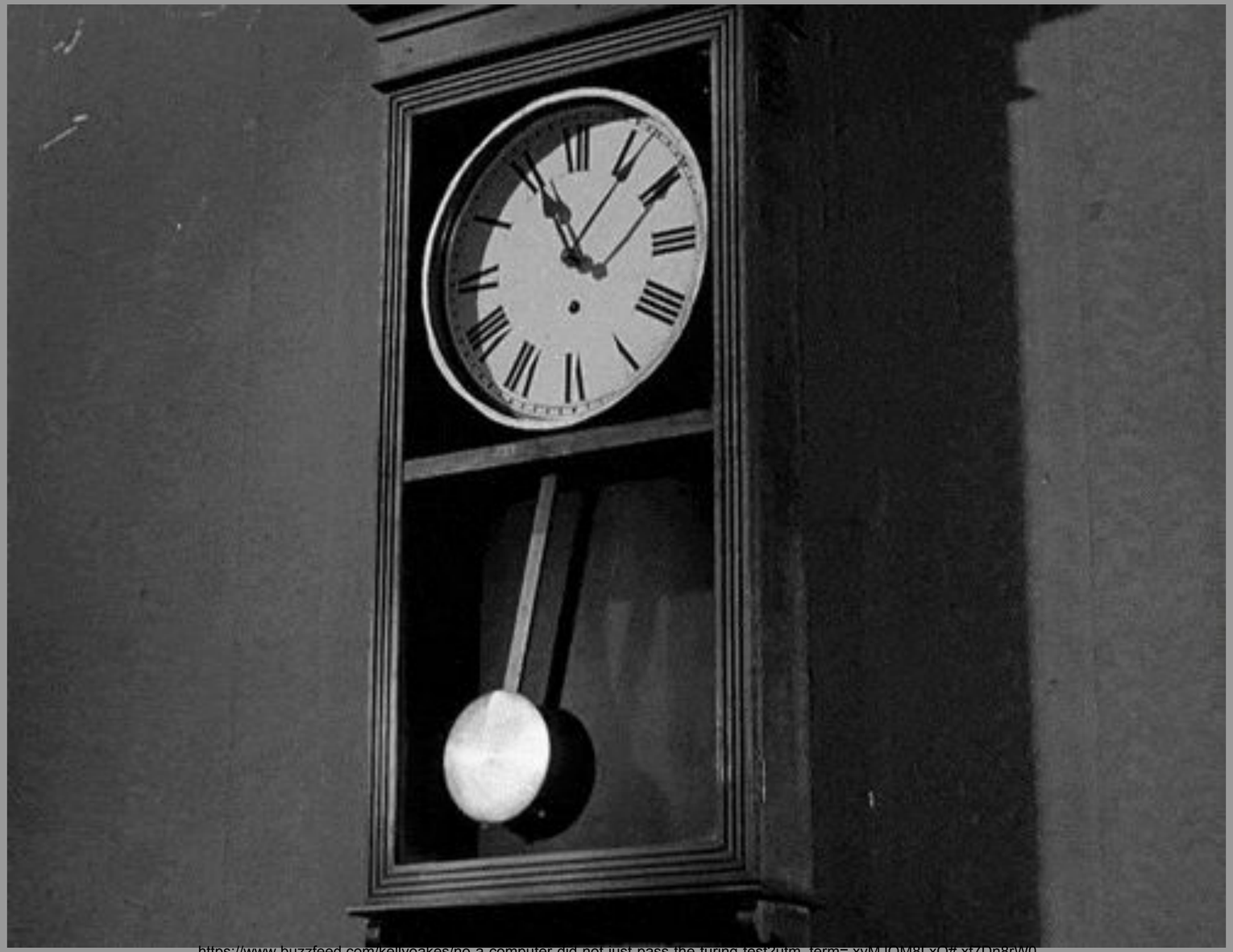

https://www.buzzfeed.com/kellyoakes/no-a-computer-did-not-just-pass-the-turing-test?utm_term=.xvMJQM8LxQ#.xf7Dn8rW0n

SYSTEM MELTDOWN

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Something has to change

WE NEED A SOLUTION

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DEVOPS AND AUTOMATION

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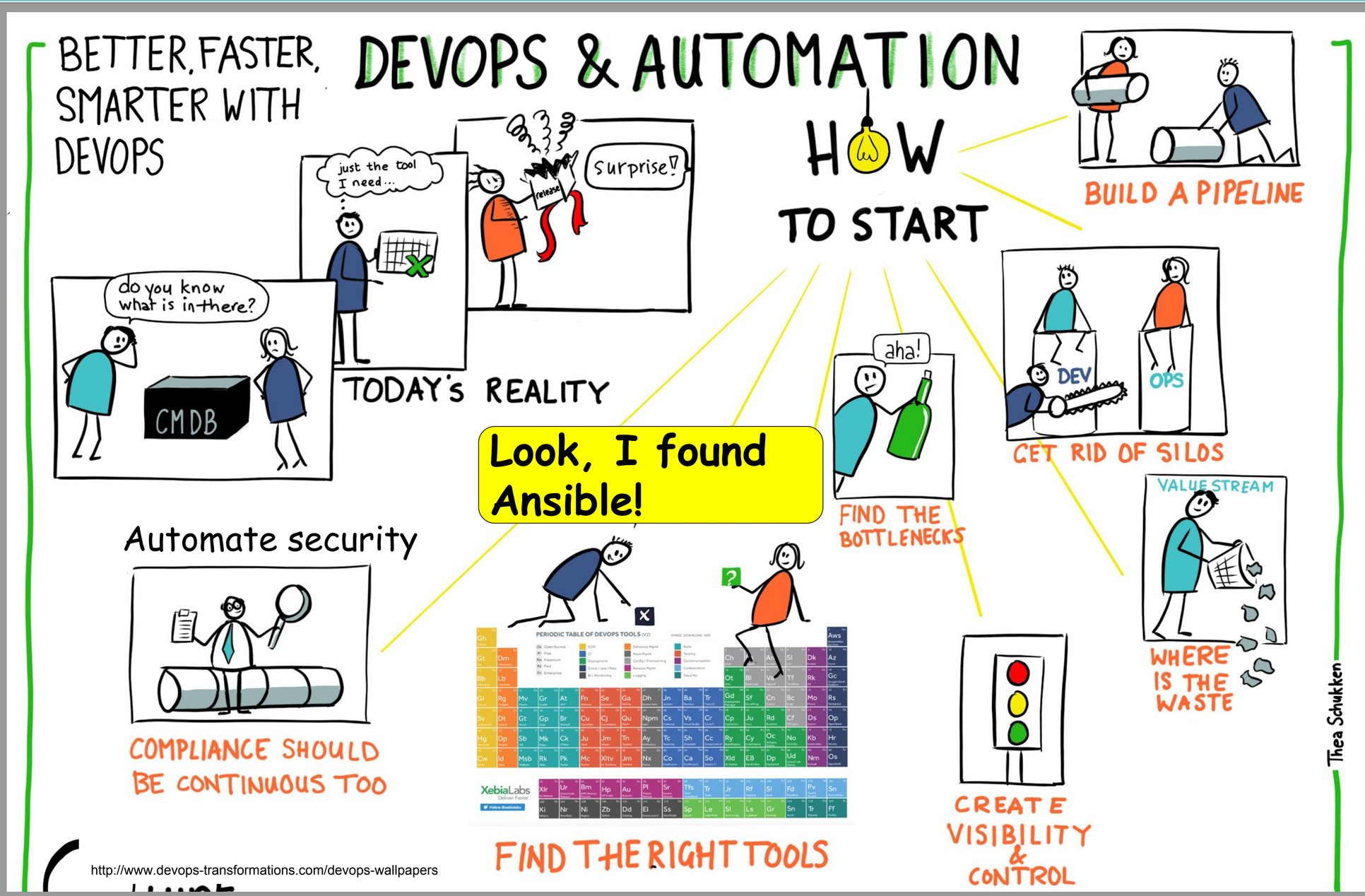

WHY ANSIBLE FOR SECURITY AUTOMATION?

- Agentless
- SSH/WinRM
- Desired State
- Idempotent
- Easy to learn
- Extensible and modular
- Push-based architecture
- Easy targeting based on facts

NOT ZERO SUM

+ !=

0

MORE SECURITY

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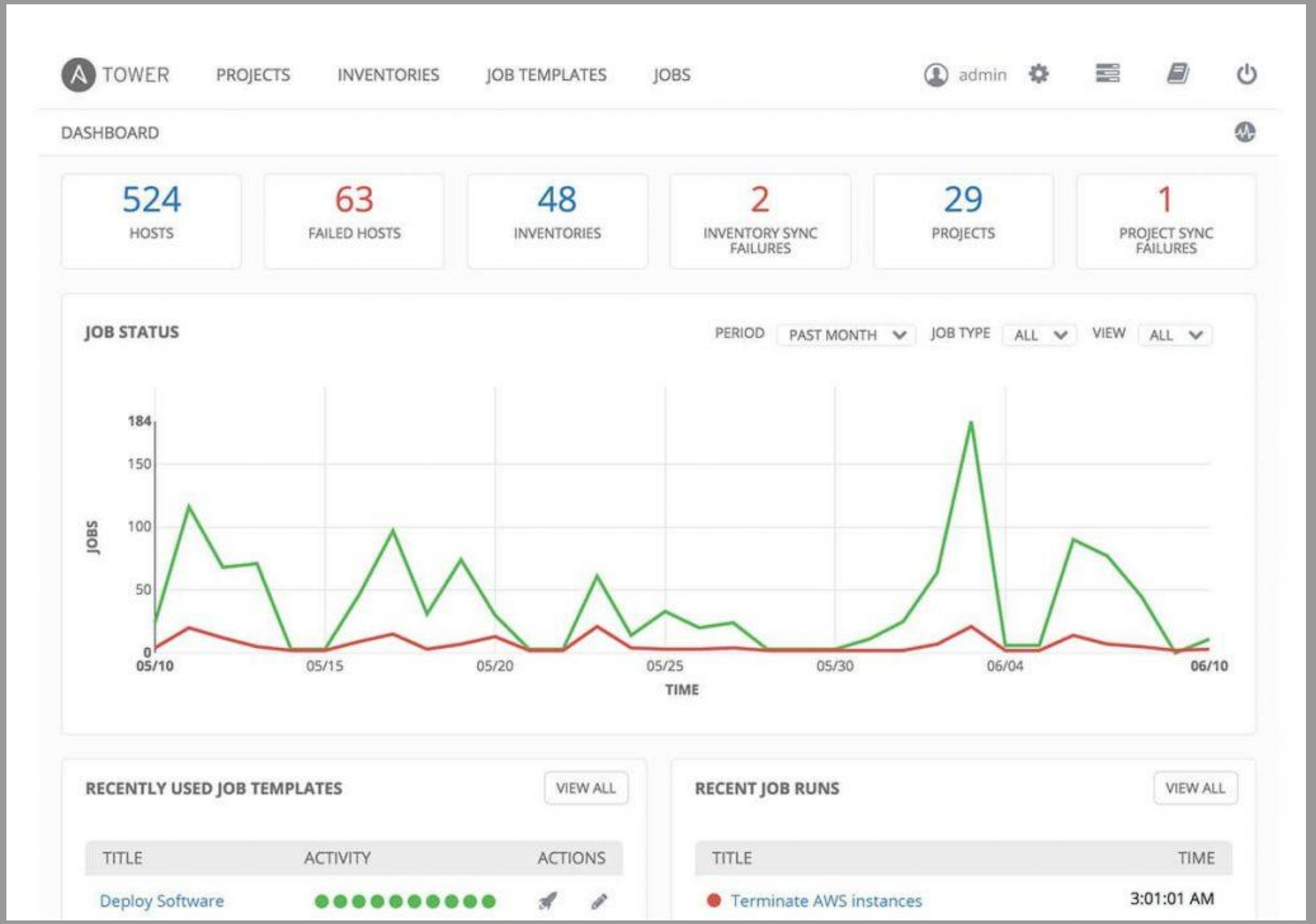
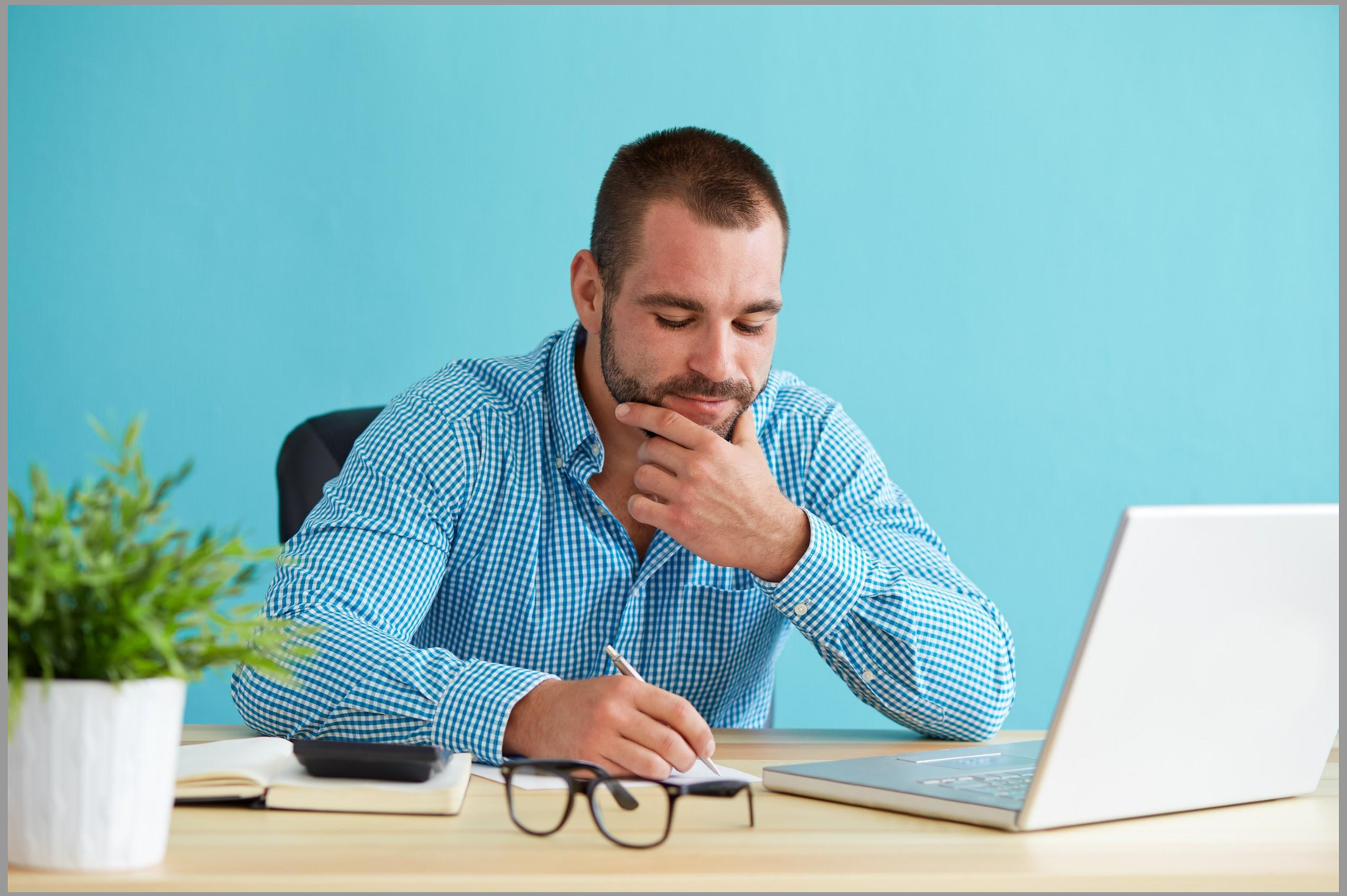


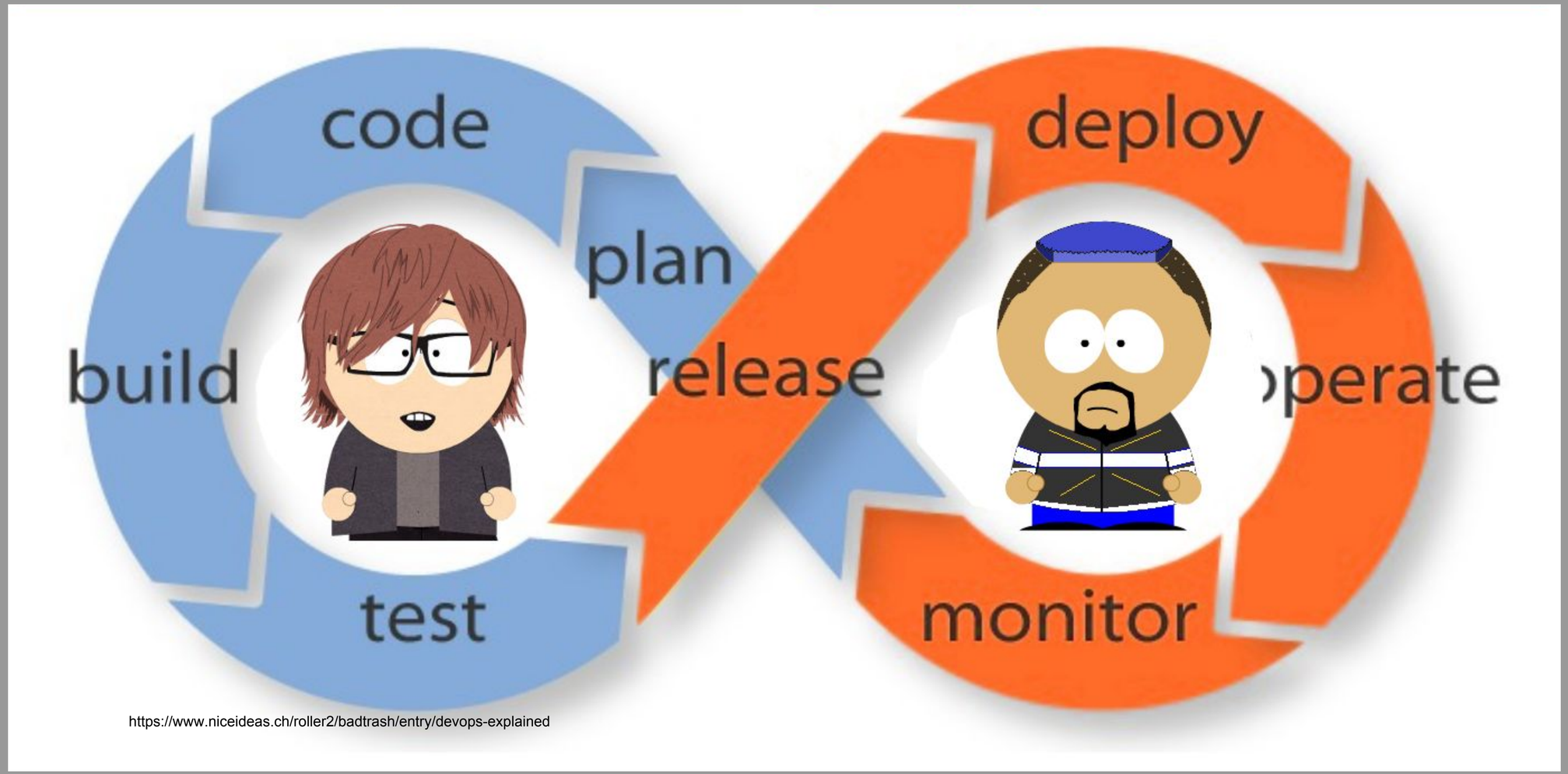
LET'S GET AUTOMATING

ANSIBLE



LET'S GET AUTOMATING

ANSIBLE



https://www.niceideas.ch/roller2/badtrash/entry/devops-explained

SECURITY POLICY - LINUX

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Rule Title: The SSH daemon must not allow authentication using an empty password.

Fix Text: To explicitly disallow remote logon from accounts with empty passwords, add or correct the following line in "/etc/ssh/sshd_con

line

/etc/ssh/sshd_config

PermitEmptyPasswords no

PermitEmptyPasswords no

```
- name: "HIGH | RHEL-07-010270 | PATCH | The SSH daemon must not allow authentication using an empty password."
  lineinfile:
    state: present
    dest: /etc/ssh/sshd_config
    regexp: ^#?PermitEmptyPasswords
    line: PermitEmptyPasswords no
    validate: sshd -tf %s
  notify: restart sshd
```


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SECURITY POLICY - NETWORK

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Rule Title: The network element must only allow management connections for administrative access from hosts residing in to the management network.

Fix Text: Configure an ACL or filter to restrict management access to [illegible] from only the management network.

ACL or filter

management network

```
- hosts: ios
  connection: local

  tasks:
    - name: Create management ACL
      ios_config:
        parents: ip access-list mgmnt
        before: no ip access-list mgmnt
        lines:
          - 10 permit ip host 192.168.1.99 log
          - 20 permit ip host 192.168.1.121 log

    - name: Harden VTY lines
      ios_config:
        parents: line vty 0 15
        lines:
          - exec-timeout 15
          - transport input ssh
          - access mgmnt in
```


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SECURITY POLICY - WINDOWS

Rule Title: Anonymous enumeration of shares must be restricted.

Fix Text: Configure the policy value for Computer Configuration -> Windows Settings -> Security Settings -> Local Policies -> Security Options -> "Network access: Do not allow anonymous enumeration of SAM accounts and shares" to "Enabled".

```
- hosts: windows

  tasks:
    - name: Restrict enumeration of shares
      win_regedit:
          key:
'HKLM:\System\CurrentControlSet\Control\Lsa'
          value: RestrictAnonymous
          data: 1
          datatype: dword
```

6.2 Ensure that all system components and software are protected from known vulnerabilities by installing applicable vendor- supplied security patches. Install critical security patches within one month of release.

```
- name: RHEL | Install updates
  yum:
    name: "*"
    state: latest
    exclude: "mysql* httpd* nginx*"
  when: “ansible_os_family == ‘RedHat’”

- name: DEBIAN | Install updates
  apt:
    update_cache: yes
    cache_valid_time: 7200
    name: "*"
    state: latest
  when: “ansible_os_family == ‘Debian’”
```

INTERNAL STANDARDS

Change root password every 60 days

```
- name: Change root password
  hosts: all
  become: yes
  vars:
    root_password: "{{ vault_root_password }}"
    root_password_salt: "{{ vault_root_password_salt }}"
  tasks:
    - name: Change root password
      user:
        name: root
        password: "{{ root_password |
password_hash(salt=root_password_salt) }}"
```

Protect against CVE-2016-5696

```
- name: Protect against CVE-2016-5696
  hosts: all
  become: yes
  become_user: root

  tasks:
    - name: CVE-2016-5696 | Limit TCP challenge ACK limit
      sysctl:
        name: net.ipv4.tcp_challenge_ack_limit
        value: 999999999
        sysctl_set: yes
```

Fix and test shellshock

```
- name: Fix and test shellshock
  hosts: all
  tasks:
    - name: Update bash
      yum:
        name: bash
        state: latest
        update_cache: yes

    - name: Test vulnerability 1
      shell: 'env x=''() { :;}; echo vulnerable'' bash -c "echo
this is a test"'
      executable: /bin/bash
      register: vulntest1
      failed_when: vulntest1.stdout | search('vulnerable')
      ignore_errors: yes
      changed_when: no
```

Fix and test shellshock - continued

```
- name: Test vulnerability 2
      shell: 'env X=''() { (a)=>'' bash -c ''echo date'';'
      executable: /bin/bash
      register: vulntest2
      failed_when:
        not vulntest2.stderr | search('error importing function
definition')
      ignore_errors: yes
      changed_when: no

    - name: Cleanup after vulnerability test 2
      file:
        path: ~/echo
        state: absent
```

THE END

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GET INVOLVED

Ansible Lockdown

Ansible Hardening

Mailing List

Ansible Galaxy

https://github.com/samdoran/demo-playbooks