

TeraFlow
SDN
by ETSI

TFS Hackfest 4 Results

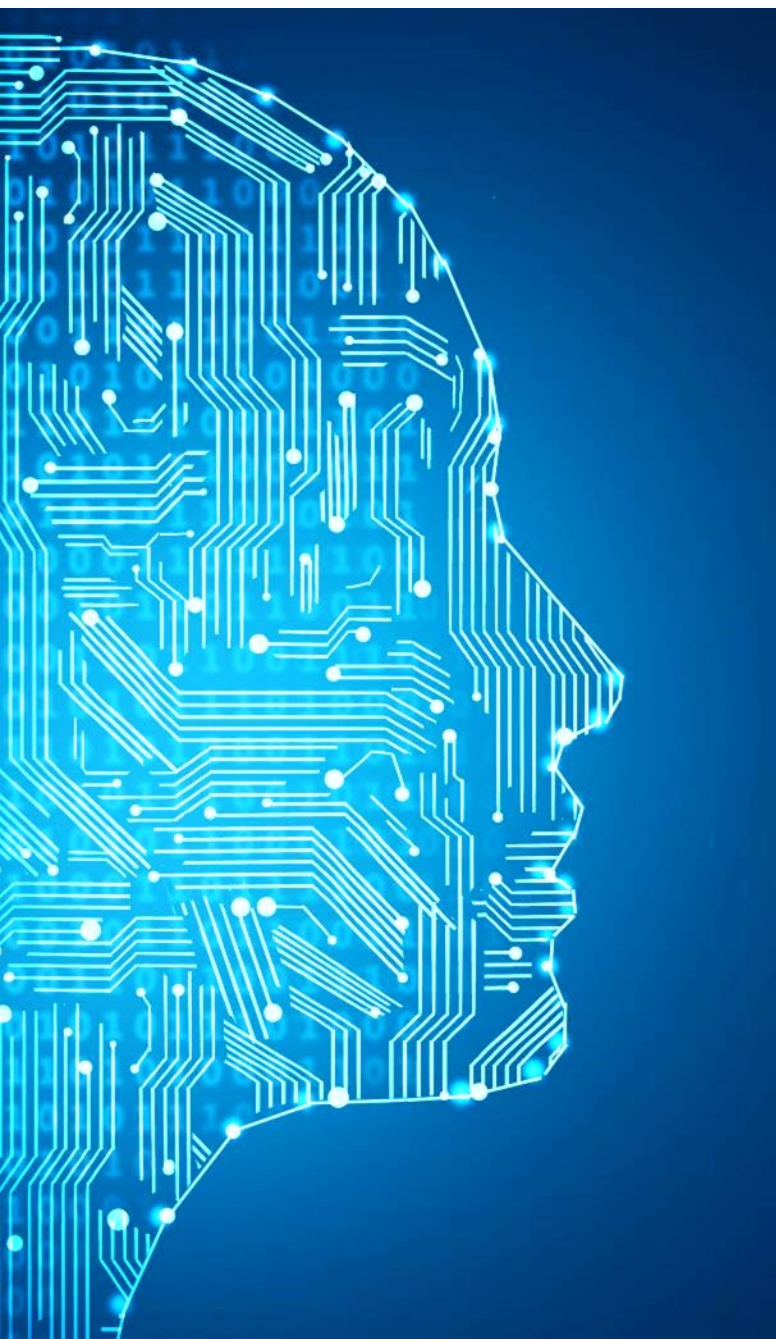
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Agenda

- Task Progress/Solutions
- Challenges/Difficulties



Solutions-Challenge 1

- Challenge 1 -> Change WebUI license
 - Solution:
 - Navigate to file: ../tfs-ctrl/src/webui/service/templates/base.html
 - Edit line -> `<p class="text-center" style="color: white;">© 2022-2024 ETSI TeraFlowSDN (TFS) OSG</p>`
 - Output:

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Solutions-Challenge 2

- Challenge 2 -> Modify Device upload
 - Solution:
 - Navigate to file: ../tfs-ctrl/src/webui/service/device/forms.py
 - Edit line -> `device_config_settings = TextAreaField('connect/settings',default='{"username": "", "password": "", "vendor": "CISCO", "force_running": false, "hostkey_verify": false, "message_renderer": "pyangbind", "look_for_keys": false, "allow_agent": false, "commit_per_rule": true, "device_params": {"name": "iosxe"}, "manager_params": {"timeout": 120}}',validators=[DataRequired(), Length(min=2)])`
 - Difficulties:
 - Adding the json text as one line string

Solutions-Challenge 2

- Challenge 2 -> Modify Device upload

- Output:

Add New Device

ID	<input type="text"/>
Type	<input type="text" value="network"/>
Operational Status	<input type="text" value="UNDEFINED"/>
Drivers	<input type="checkbox"/> UNDEFINED / EMULATED <input type="checkbox"/> OPENCONFIG <input type="checkbox"/> TRANSPORT_API <input type="checkbox"/> P4 <input type="checkbox"/> IETF_NETWORK_TOPOLOGY <input type="checkbox"/> ONF_TR_532 <input type="checkbox"/> XR <input type="checkbox"/> IETF L2VPN <input type="checkbox"/> GNMI OPENCONFIG <input type="checkbox"/> OPTICAL TFS <input type="checkbox"/> IETF ACTN
Configuration Rules	
connect/address	<input type="text" value="127.0.0.1"/>
connect/port	<input type="text" value="0"/>
connect/settings	<pre>{"username": "", "password": "", "vendor": "CISCO", "force_running": false, "hostkey_verify": false, "message_renderer": "pyangbind", "look_for_keys": false, "allow_agent": false, "commit_per_rule": true, "device_params": {"name": "iosxe"}, "manager_params": {"timeout": 120}}</pre>

Solutions-Challenge 3

- Challenge 3 -> Correct Component-reference inventory parameter

- Solution:

- Navigate to file: ../tfs-ctrl/src/device/service/drivers/openconfig/templates/Inventory.py
- Add code ->

```
component_parent = xml_component.find('ocp:state/ocp:parent', namespaces=NAMESPACES)
if not component_parent is None:
    add_value_from_tag(inventory, 'parent-component-references', component_parent)
    component_parent_name = inventory['parent-component-references']
    component_reference.append(component_parent_name)

if component_parent is None:
    add_value_from_tag(inventory['attributes'], 'parent-name', component_name)
    component_name_text = inventory['attributes']['parent-name']
    component_reference.append(component_name_text)

#component_reference.extend([parent_types[inventory['parent-component-references']]])

response.append((' /inventory/{:s}'.format(inventory['name']), inventory))

# for tupla in response:
#     if inventory['parent-component-references'] in tupla[0]:
#         component_reference.extend([tupla[1]['class']])

inventory['component-reference'] = component_reference
```


Solutions-Challenge 3

- Challenge 3 -> Correct Component-reference inventory parameter
 - Output:

/inventory/Rack 0

- **attributes:** {'description': 'Cisco IOS-XRv 9000 Centralized Virtual Router', 'empty': 'false', 'hardware-rev': 'V01', 'location': 'Rack 0', 'manufacturer-name': 'CISCO SYSTEMS, INC', 'parent-name': 'Rack 0', 'removable': 'true', 'serial-num': 'C27C03AE4B9', 'software-rev': '7.11.1'}
- **class:** idx:CHASSIS
- **component-reference:** ['Rack 0']
- **name:** Rack 0
- **parent-component-references:**



/inventory/Rack 0-Line Card Slot 0

- **attributes:** {'description': 'Cisco IOS-XRv 9000 Line Card Slot', 'empty': 'false', 'location': 'Rack 0', 'removable': 'false'}
- **class:**
- **component-reference:** ['Rack 0']
- **name:** Rack 0-Line Card Slot 0
- **parent-component-references:** Rack 0



Solutions-Challenge 3

- Challenge 3 -> Correct Component-reference inventory parameter
 - Difficulties:
 - Understanding of the requirements
 - Adding our changes to the **component_reference** array

Solutions-Challenge 4&5

- Challenge 4&5 -> Remove inventory/endpoints config rules

- Solution:

- Navigate to file: ../tfs-ctrl/src/device/service/drivers/openconfig/templates/Inventory.py
- Navigate to file: ../tfs-ctrl/src/device/service/drivers/openconfig/templates/EndPoints.py
 - On both files set the returned response element as empty list -> **response = []**

- Output:

Configurations:	
Key	Value
_connect/address	<ul style="list-style-type: none"> • 192.168.159.31
_connect/port	<ul style="list-style-type: none"> • 830
_connect/settings	<ul style="list-style-type: none"> • username: cisco1 • password: Teraflow1 • vendor: CISCO • force_running: False • hostkey_verify: False • message_renderer: pyangbind • look_for_keys: False • allow_agent: False • commit_per_rule: True • device_params: {'name': 'iosxe'} • manager_params: {'timeout': 120}
/interface[MgmtEth0/RP0/CPU0/0]/subinterface[0]	<ul style="list-style-type: none"> • address_ip: 192.168.159.31 • address_prefix: 24 • index: 0 • name: MgmtEth0/RP0/CPU0/0 • type: ethernetCsmacd

Solutions-Challenge 6

- Challenge 6 -> Extend Logical Inventory: interfaces
 - Solution:
 - Navigate to file: ../tfs-ctrl/src/webui/service/templates/device/logical.html

- Add code ->

```

<li><span class="caret">Interfaces</span>
  <ul class="nested">
    {% set int_names = [] %}
    {% for config in device.device_config.config_rules %}
      {% if config.WhichOneof('config_rule') == 'custom' %}
        {% if '/interface' in config.custom.resource_key %}
          {% set int_name = config.custom.resource_key.split('interface['][1].split(' ')[0] %}
          <li><span class="caret">{{ int_name }}</span>
            <ul class="nested">
              <li><span>{{ config.custom.resource_value }}</span></li>
            </ul>
          </li>
        {% endif %}
      {% endif %}
    {% endfor %}
  </ul>
</li>

```

- Difficulties:
 - Finding the appropriate endpoint of “interface” and how to split it

Solutions-Challenge 6

- Challenge 6 -> Extend Logical Inventory: interfaces

- Output:

- ▶ Routing Policy

- ▼ Interfaces

- ▼ MgmtEth0/RP0/CPU0/0

- {"address_ip": "192.168.159.33", "address_prefix": 24, "index": 0, "name": "MgmtEth0/RP0/CPU0/0", "type": "ethernetCsmacd"}

- ▼ MgmtEth0/RP0/CPU0/0

- {"name": "MgmtEth0/RP0/CPU0/0", "type": "ethernetCsmacd"}

- ▼ GigabitEthernet0/0/0/0

- {"address_ip": "192.168.13.3", "address_prefix": 24, "index": 0, "name": "GigabitEthernet0/0/0/0", "type": "ethernetCsmacd"}

- ▼ GigabitEthernet0/0/0/0

- {"name": "GigabitEthernet0/0/0/0", "type": "ethernetCsmacd"}

- ▼ GigabitEthernet0/0/0/1

- {"address_ip": "192.168.35.3", "address_prefix": 24, "index": 0, "name": "GigabitEthernet0/0/0/1", "type": "ethernetCsmacd"}

- ▼ GigabitEthernet0/0/0/1

- {"name": "GigabitEthernet0/0/0/1", "type": "ethernetCsmacd"}

- ▼ GigabitEthernet0/0/0/2

- {"name": "GigabitEthernet0/0/0/2", "type": "ethernetCsmacd"}

- ▼ GigabitEthernet0/0/0/3

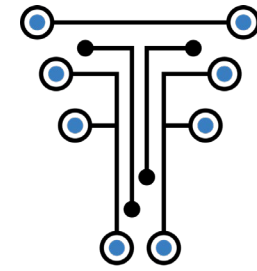
- {"address_ip": "192.168.23.3", "address_prefix": 24, "index": 0, "name": "GigabitEthernet0/0/0/3", "type": "ethernetCsmacd"}

- ▼ GigabitEthernet0/0/0/3

- {"name": "GigabitEthernet0/0/0/3", "type": "ethernetCsmacd"}

- ▼ Null0

- {"name": "Null0", "type": "other"}



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Thank You