A YANG Network Model of Network Inventory Software Extensions

draft-ietf-ivy-network-inventory-software

IVY WG, IETF#124

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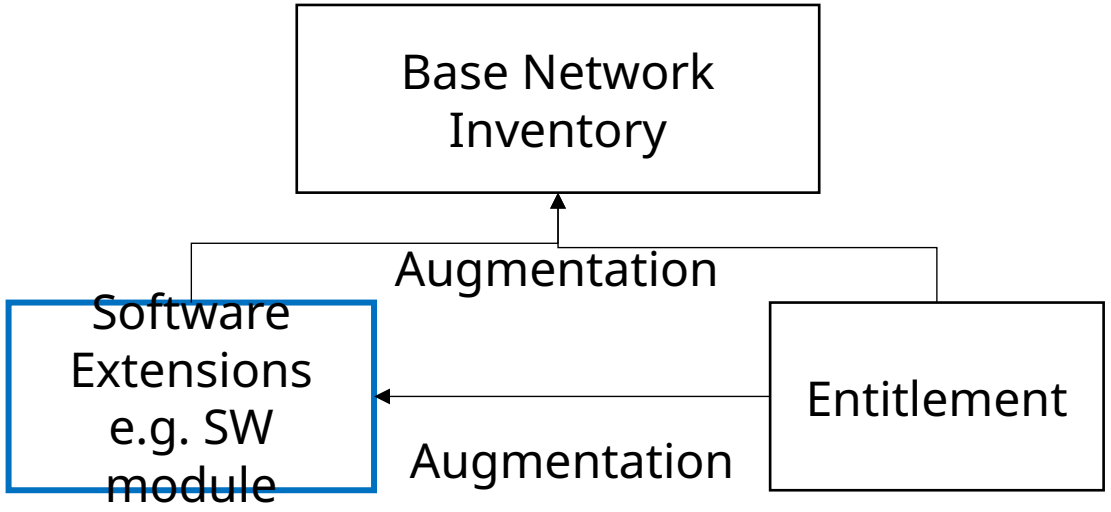
IETF#124 : Refreshing the Context



The SW extensions extend the base Network Inventory YANG model to support non-physical network elements (NEs) and software components like software modules.

No open issues:
https://github.com/ietf-ivy-wg/network-inventory-software/issues

YANG Tree Overview

- This update adds software status and time stamp information to the software revisions and patches of the base inventory.

```
module: ietf-network-inventory
     +--ro network-inventory
        +--ro network-elements
           +--ro network-element* [ne-id]
              +--ro ne-id              string
              +--ro ne-type?           Identityref
              …
              +--ro software-rev* [name]
              |  +--ro name            string
              |  +--ro revision?       string
              |  +--ro patch* [revision]
              |     +--ro revision     string
              --ro components
                 +--ro component* [component-id]
                    +--ro component-id       string
                    +--ro class              union
                    …
                    +--ro software-rev* [name]
                    |  +--ro name            string
                    |  +--ro revision?       string
                    |  +--ro patch* [revision]
                    |     +--ro revision     string
```

```
module: ietf-network-inventory-sw-ext
          augment /nwi:network-inventory/nwi:network-elements
                    /nwi:network-element/nwi:software-rev:
            +--ro status?                identityref
            +--ro installation-time?     yang:date-and-time
            +--ro activation-time?       yang:date-and-time
          augment /nwi:network-inventory/nwi:network-elements
                    /nwi:network-element/nwi:software- rev/nwi:patch:
            +--ro status?                identityref
            +--ro installation-time?     yang:date-and-time
            +--ro activation-time?       yang:date-and-time
          augment /nwi:network-inventory/nwi:network-elements
                     /nwi:network- element/nwi:components/nwi:component
                    /nwi:software-rev:
            +--ro status?                identityref
            +--ro installation-time?     yang:date-and-time
            +--ro activation-time?       yang:date-and-time
          augment /nwi:network-inventory/nwi:network-elements
                    /nwi:network-element/nwi:components/nwi:component
                    /nwi:software-rev/nwi:patch:
            +--ro status?                identityref
            +--ro installation-time?     yang:date-and-time
            +--ro activation-time?       yang:date-and-time
```

SW Extension Example

- We add an example of a router with softwares and the patchs, showing the status and timestamp

```
{
  "network-inventory": {
    "network-elements": {
      "network-element": [
        {
          "ne-id": "router-01",
          "software-rev": [
            {
              "name": “FOO-OS",
              "revision": "7.9.2",
              "status": "software-activated",
              "installation-time": "2024-08-01T12:00:00Z",
              "activation-time": "2024-08-01T12:05:00Z",
              "patch": [
                {
                  "revision": "P1",
                  "status": "software-activated",
                  "installation-time": "2024-09-15T10:30:00Z",
                  "activation-time": "2024-09-15T10:32:00Z"
                },
                {
                  "revision": "P2",
                  "status": "software-installed",
                  "installation-time": "2024-10-01T14:00:00Z",
                  "activation-time": null
                }
              ]
            }
          ],
```

```
  "components": {
            "component": [
              {
                "component-id": “lpu/1/1",
                "class": "line-card",
                "software-rev": [
                  {
                    "name": "fp-image",
                    "revision": "2.1.0",
                    "status": "software-activated",
                    "installation-time": "2024-08-01T12:00:00Z",
                    "activation-time": "2024-08-01T12:06:00Z",
                    "patch": [
                      {
                        "revision": "2.1.0.P1",
                        "status": "software-installed",
                        "installation-time": "2024-10-01T14:10:00Z",
                        "activation-time": null
                      }
                    ]
                  }
                ]
              }
            ]
          }
        }
      ]
    }
  }
}
```

Next Step

- Request WGLC after further examples have been provided