



Adapting WFO to Your Business Needs

ESnet's current customizations & implementation

The background is a solid blue color. It features a central bright white point from which numerous thin, white, fiber-optic-like lines radiate outwards, creating a starburst effect. Scattered throughout the background are many out-of-focus white circles of varying sizes, resembling bokeh or light particles.

Dry-Run

Challenges and Limitations

- Stuck Workflows
- Self-service issues
- Clicking “abort” button
- Requires manual database fix by dev team
- Network engineers can’t troubleshoot during maintenance windows outside of dev working hours

Workflow Orchestrator Local Development Engine is RUNNING

Workflow subscription

Workflow descriptions

Workflows

Workflow data

Workflow logs

Generate port description and assemble payload for NSO
success - 6/3/2025, 3:28:44 PM
Duration: 00:00:00

NSO Yang-patch Dry Run
success - 6/3/2025, 3:28:45 PM
Duration: 00:00:00

Confirm NSO Dry Run Results
suspend - 6/3/2025, 3:28:45 PM
Duration: 00:00:00

NSO 'dry run' results

```
devices {  
  global-settings {  
    ned-settings {  
      alu-sr {  
        transaction {  
          config-abort-warning "Cannot modify the port binding, remove the port binding first" (  
            +  
          )  
        }  
      }  
    }  
  }  
}
```

Confirm NSO 'dry run' results
☐ Confirm NSO 'dry run' results

Resume workflow

Confirm NSO Dry Run Results
pending

Yang-patch NSO
pending

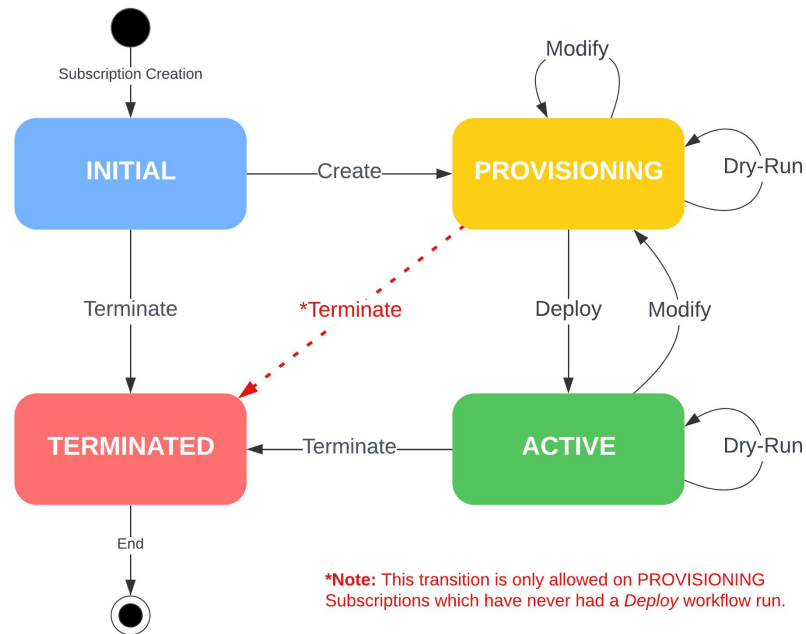
The Proposed Fix

Five workflows

Create, Dry-run, Modify, Deploy,
Terminate
(and Validate)

State Transitions

Represent current operational state
of Subscriptions



Build a Custom Database Table

- DryRunResults table (SQLAlchemy **Mapped**)
 - **@classmethods** for convenient saving/converting models
- Accompanying Pydantic model
 - Validate column data coming from database
 - Convert to custom **Result** type

Display the Results in the WFO UI

The screenshot shows the Workflow Orchestrator (WFO) UI. The top navigation bar includes the WFO logo, 'Local Development' status, and 'Engine is RUNNING' with a green checkmark and '0' notifications. The left sidebar has a 'New subscription' button and a menu with 'Start', 'Subscriptions' (selected), 'Workflows', 'Tasks', 'Metadata', and 'Settings'. The main content area shows the subscription 'CUST1 conn-a: loc1-cr6:1/1/c20/1 100G' with a lightning bolt icon. Below the title are tabs for 'provisioning' and 'in-sync'. The 'General' tab is active, showing 'Subscription details' with fields for 'Subscription ID' (2dd403bf-a692-4522-a5f1-12b15d9dbb50) and 'Product name' (Physical Connection). An 'Actions' dropdown menu is visible on the right.

Subscription Dry Run Data

Last Dry Run Success true

Timestamp 6/3/2025, 11:35:37 PM

Dry Run Results

Click to expand

```
devices {
  global-settings {
    ned-settings {
      alu-sr {
        transaction {
+         config-abort-warning ".*Cannot modify the port binding, remove the port binding first*" {
+         }
+         config-abort-warning ".*Port has network egress queue-groups defined.*" {
+         }
        }
      }
    }
  }
  device loc1-cr6 {
    config {
+     port 1/1/c20/1 {
+       description loc1-cr6---CUST1::conn-a:show:na;
+       ethernet {
+         mode access;
+         report-alarm signal-fail no-frame-lock high-ber;
+         encap-type dot1q;
+         mtu 9212;
+       }
+       shutdown false;
+     }
  }
}
}
services {
+ port loc1-cr6 1/1/c20/1 {
+   arch_id 2dd403bf-a692-4522-a5f1-12b15d9dbb50;
```

$$\frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right)$$



0 1446 440



o!

$$E = mc^2$$

$$\frac{1}{s^2} \frac{\partial^2 u}{\partial t^2} = \frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} + \frac{\partial^2 u}{\partial z^2}$$

Looking Ahead

Future work & design considerations

- Non-traditional workflows like “Bulk Deploy”
- Customer self-service
- Cross-organizational service configuration (NSI/SENSE, IRI)

Questions?