ESnet

ESnet Orchestration and Core Data

Using Workflow Orchestrator with NSO

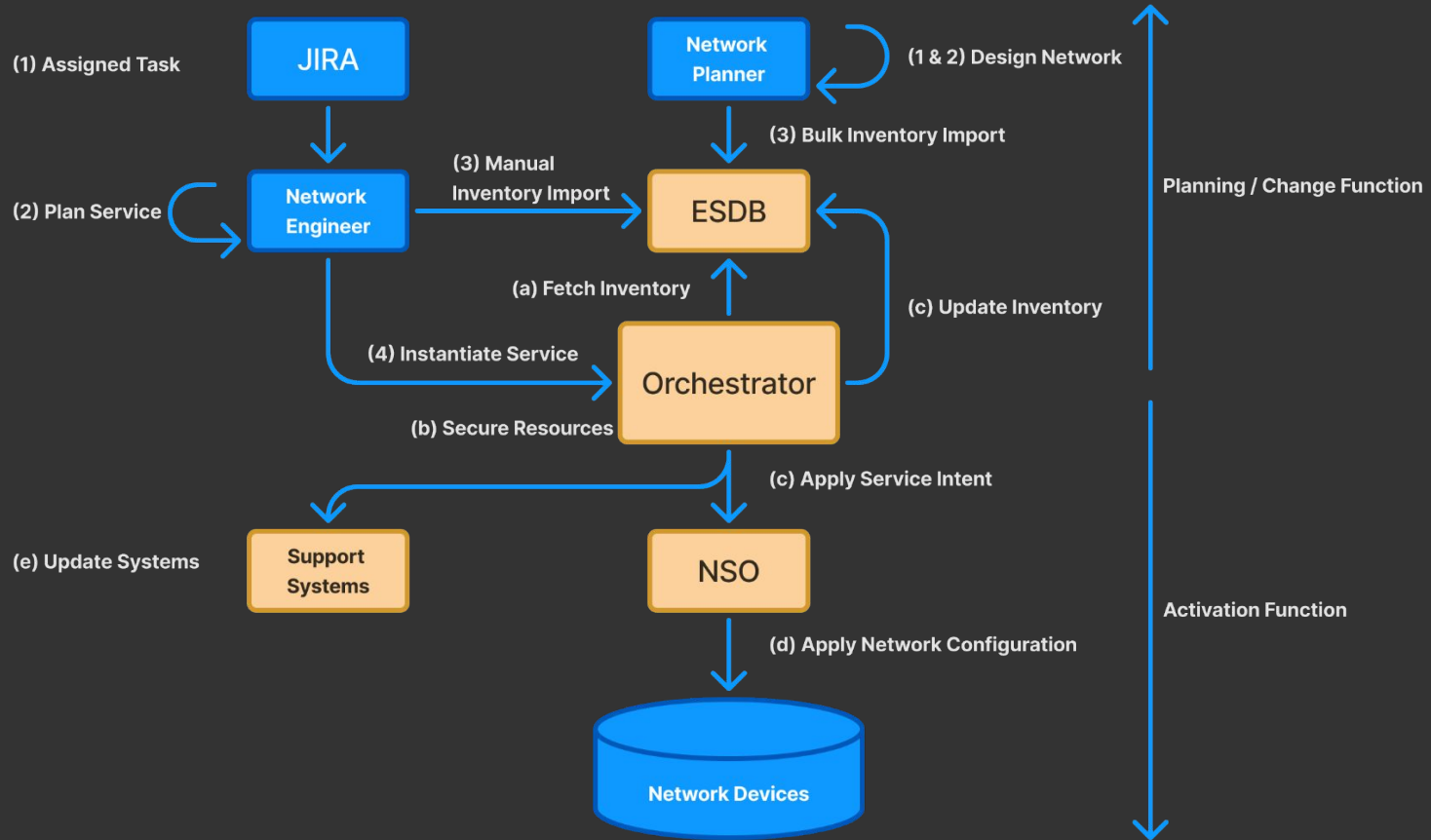## Scott Richmond

Orchestration and Core Data Group Lead

Overview

- ESnet's Automation Process

- ESnet's Automation Architecture
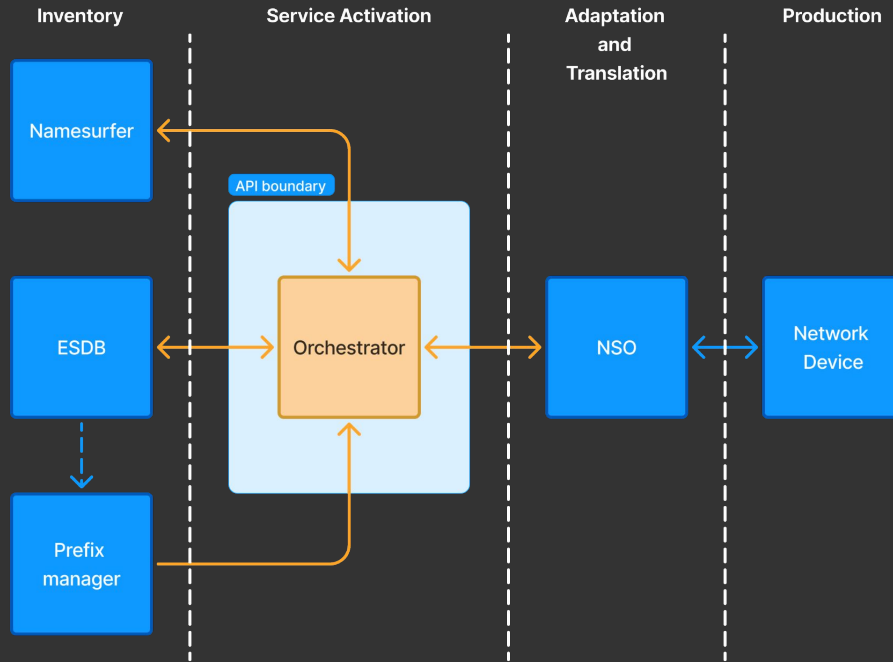
- Live Demo

ESnet Process
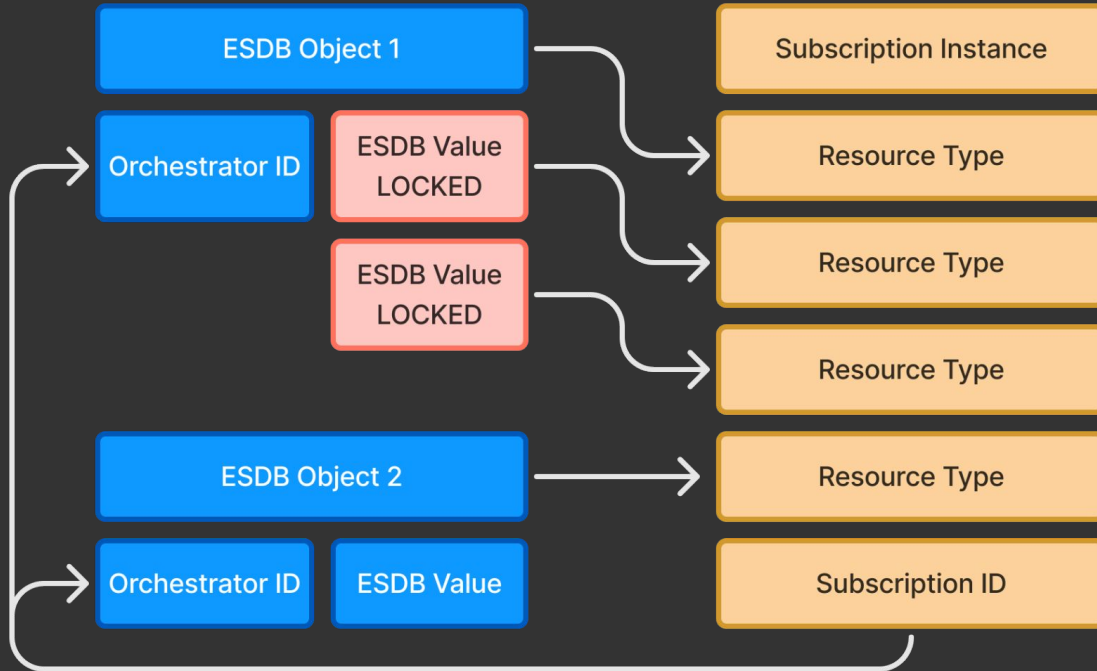
ESnet Provisioning Workflow
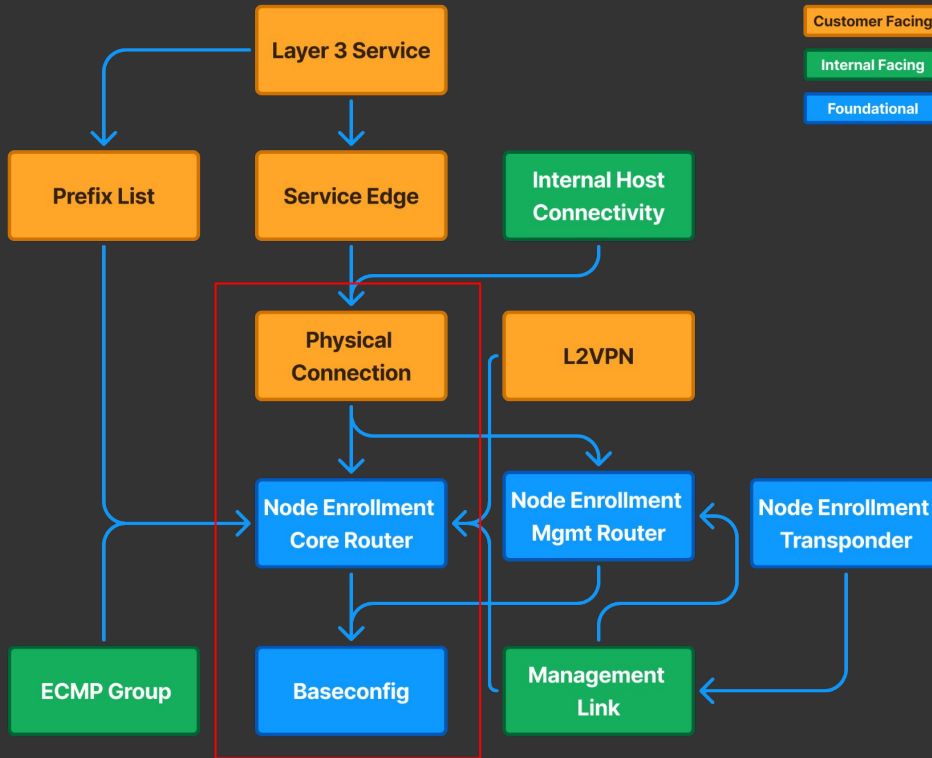
ESnet Architecture

Information Data Flow

- Inventory is passed to Orchestrator

- Orchestrator Activates services using workflows

- NSO translates service data into device specific network config

- Orchestrator writes back to Inventory, locking resources in use

Resource Locking

ESDB Object 1 → Subscription Instance

Orchestrator ID | ESDB Value LOCKED → Resource Type

ESDB Value LOCKED → Resource Type

Resource Type

ESDB Object 2 → Resource Type

Orchestrator ID | ESDB Value → Subscription ID

- Subscription Instances store references to SoT object IDs at a minimum

- Some references may be values such as strings or integers from those objects

- Subscription IDs are written back to SoT objects

- SoT objects with Subscription IDs are "Locked" and no longer available to be used in a new subscription until released

ESnet's Product Suite

Legend:
- Customer Facing (orange)
- Internal Facing (green)
- Foundational (blue)

Diagram boxes:
- Layer 3 Service
- Prefix List
- Service Edge
- Internal Host Connectivity
- Physical Connection
- L2VPN
- Node Enrollment Core Router
- Node Enrollment Mgmt Router
- Node Enrollment Transponder
- ECMP Group
- Baseconfig
- Management Link

- Products depend on other Products

- Dependencies can block actions, such as modifications or terminations

- Implicit order of operations to Subscription creation

Demo

Service Containers

ESDB Orch NSO PMS Name Surfer

Each service container is connected to the OOB management interface of the network elements.

cr6 devices are Nokia vSIMs running 20.10R5
mpr1 devices are experimental vQFXs running 18.4
customer/(nsp/host) devices ar running
SR-Linux:latest