NSO Service Examples

L2 siteswitch_multipoint_bridging service and its reconciliation

Mikael Tidemar presenting on behalf of Fatih Ayvaz

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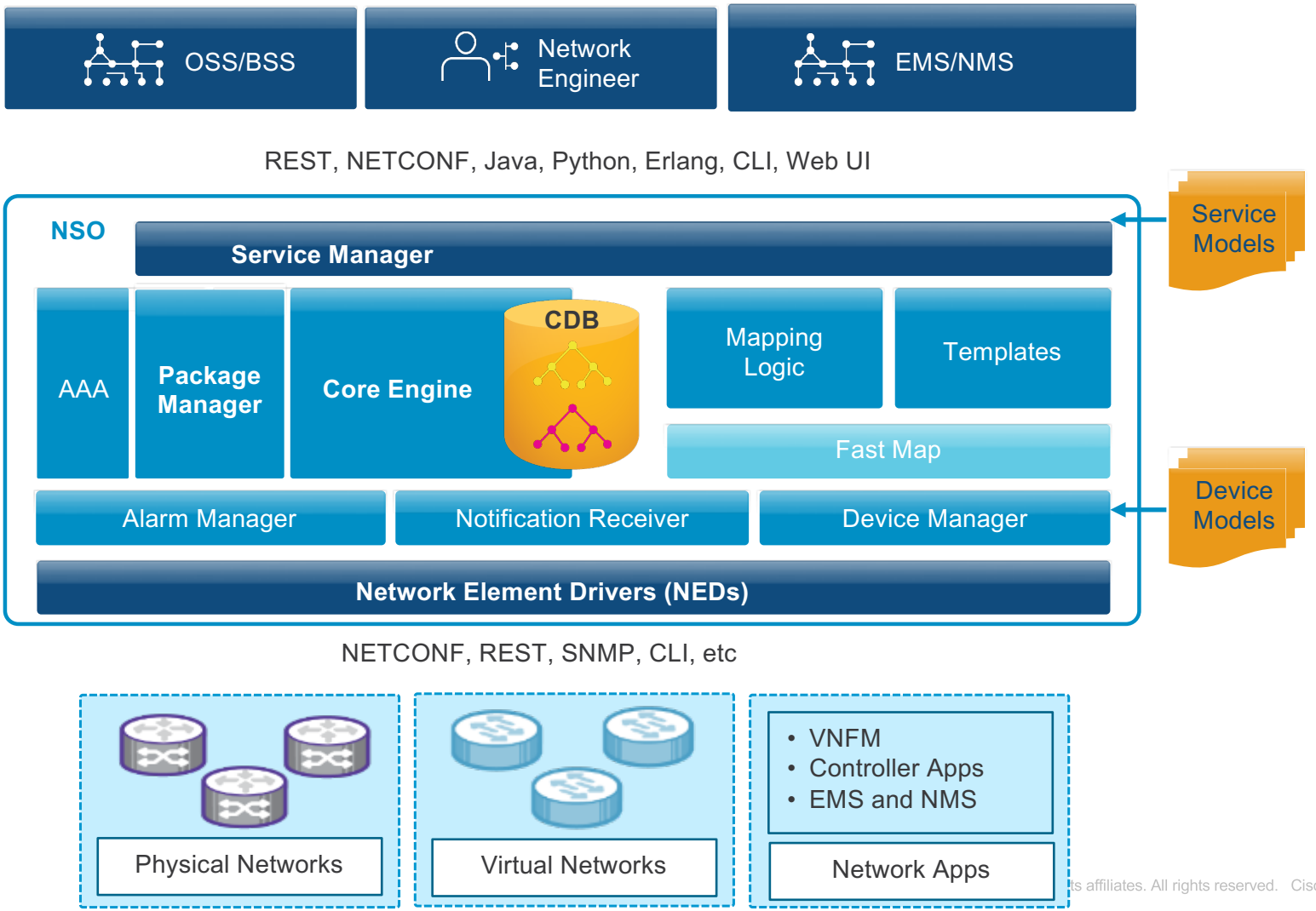
AS EMEAR C&NS

NSO Functional Architecture



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Brownfield Challenge: Reconciliation

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Potential problems in brownfield deployment

- Your network already has network services for business customers.
- Out of band changes are being performed by different teams.
- Existing device configurations must not change!
- Migration scenarios to NSO
  - from manual to automation with NSO
  - from another automation tool to NSO
- Resource allocations must be taken care of.
- Some service configurations do not match templates.
- Different organizations (i.e. operations, engineering) have different interests on the network services.

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Solution: Reconciliation on NSO

- Device configurations are source of truth.
- Service configurations are discovered from devices using a custom-built reconciliation code.
- Service input parameters are identified to match the YANG service model.
- Service instances are created “only” on NSO (FastMap).
- Consumed resources are registered to NSO’s resource manager (Reactive FastMap).
- Orphan services are removed from NSO.
- Automated.

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An Automated Reconciliation Use Case

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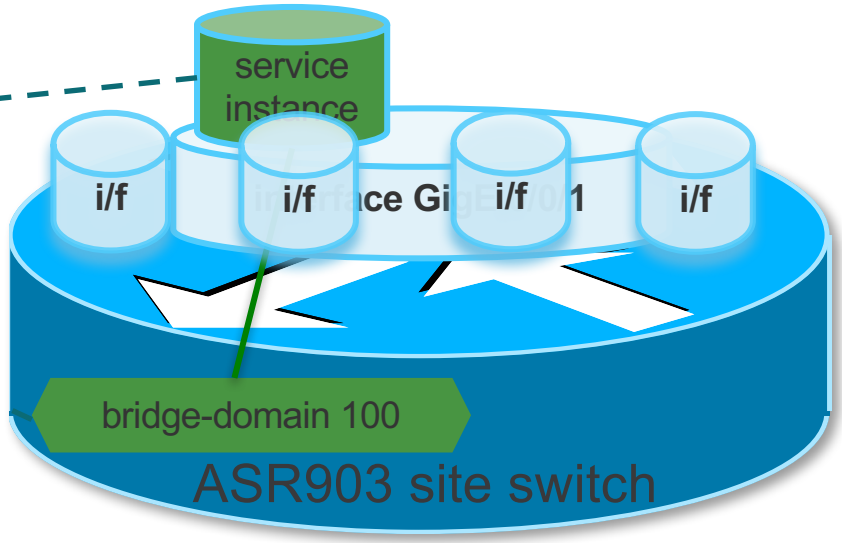
NSO Service: L2 site switch service

```
interface GigabitEthernet0/0/1
 service instance 3 ethernet
  description "a site switch service"
  encapsulation dot1q 100
  rewrite ingress tag pop 1 symmetric
 !
bridge-domain 100
member GigabitEthernet0/0/1 service-instance 3
!
```

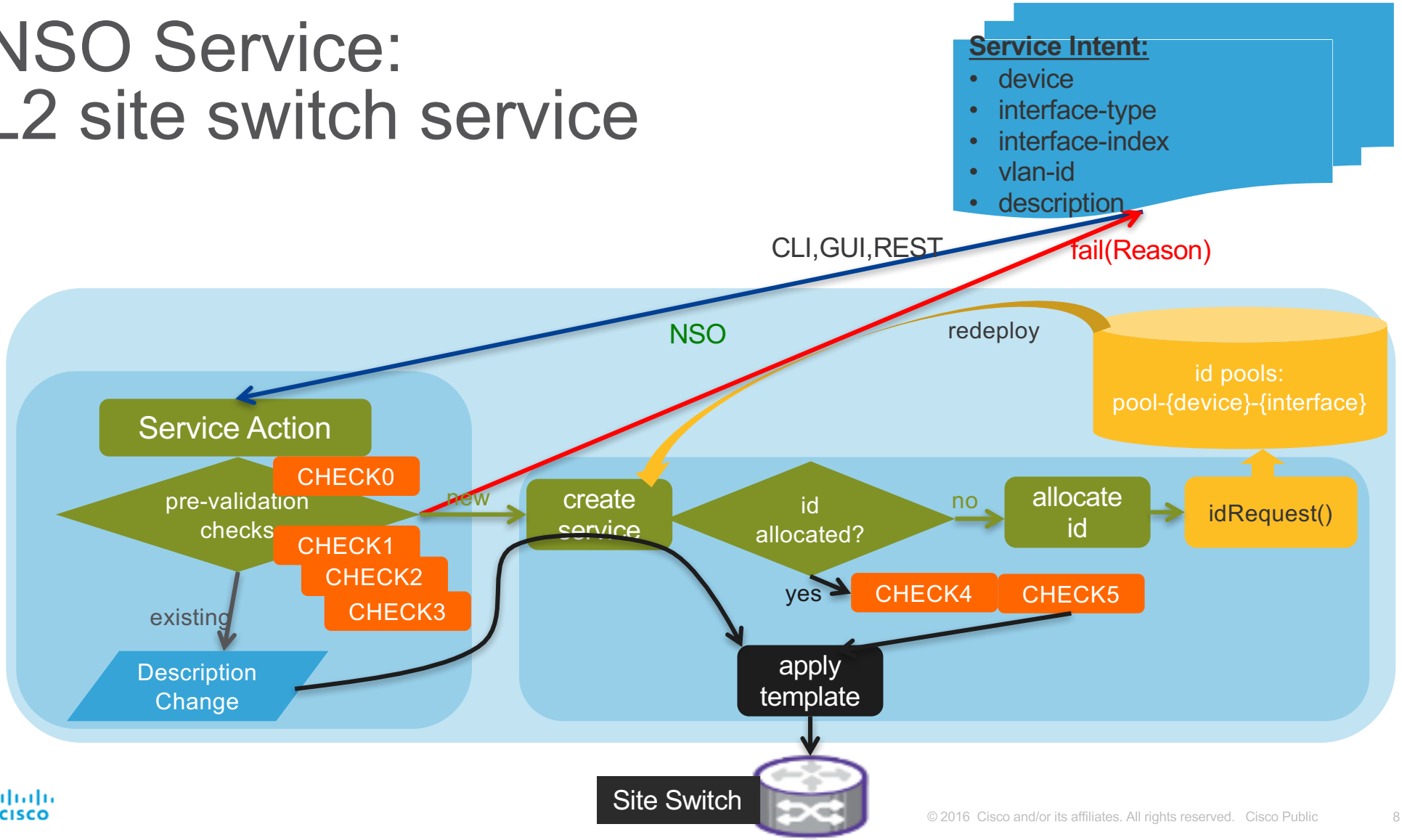


From Northbound

Service Parameters:

DEVICE	<- Operator
INTERFACE-TYPE	<- Operator
INTERFACE-INDEX	<- Operator
VLAN_ID	<- Operator
DESCRIPTION	<- Operator
*EVC_ID	<- NSO

NSO Service:
L2 site switch service



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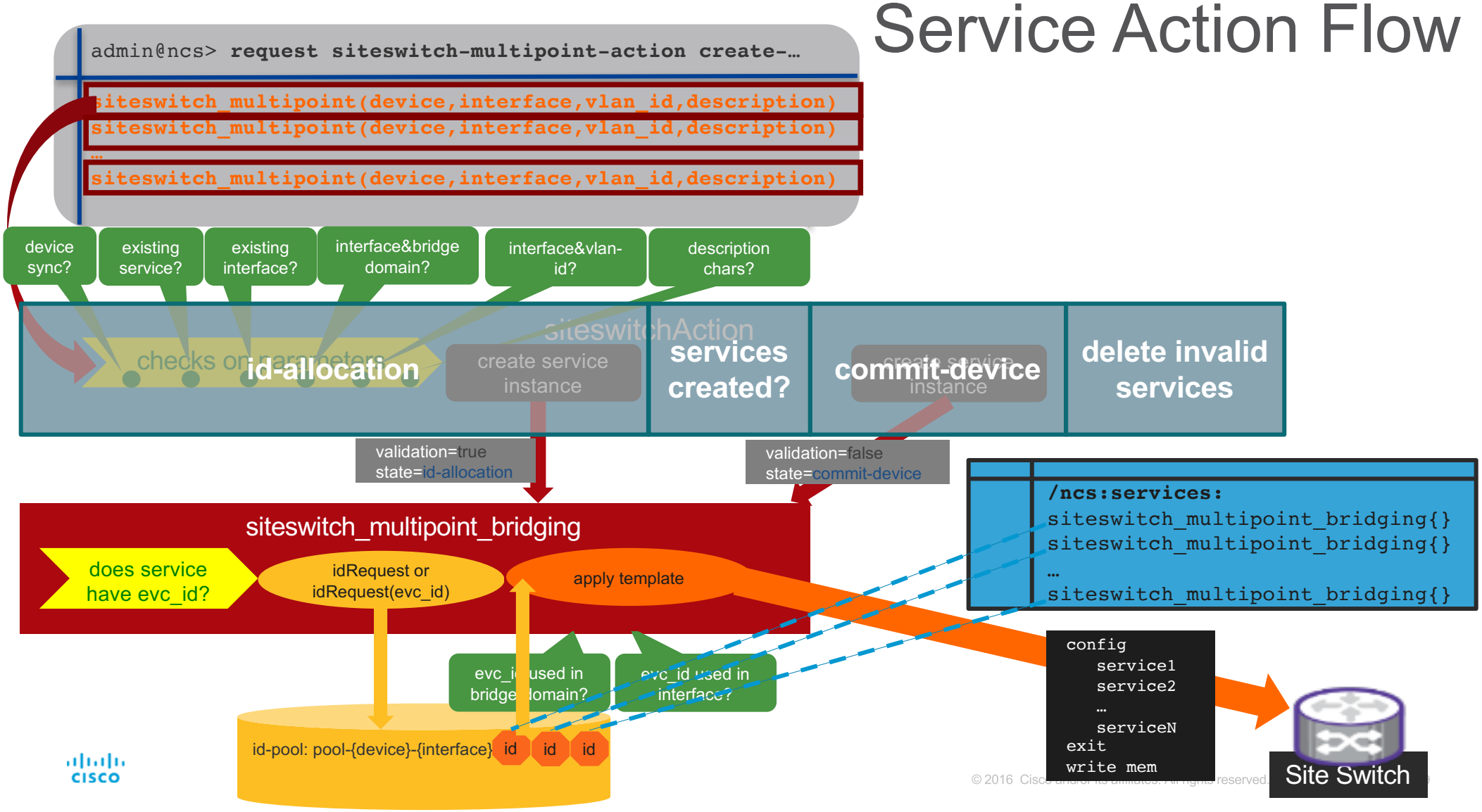
Service Action Flow



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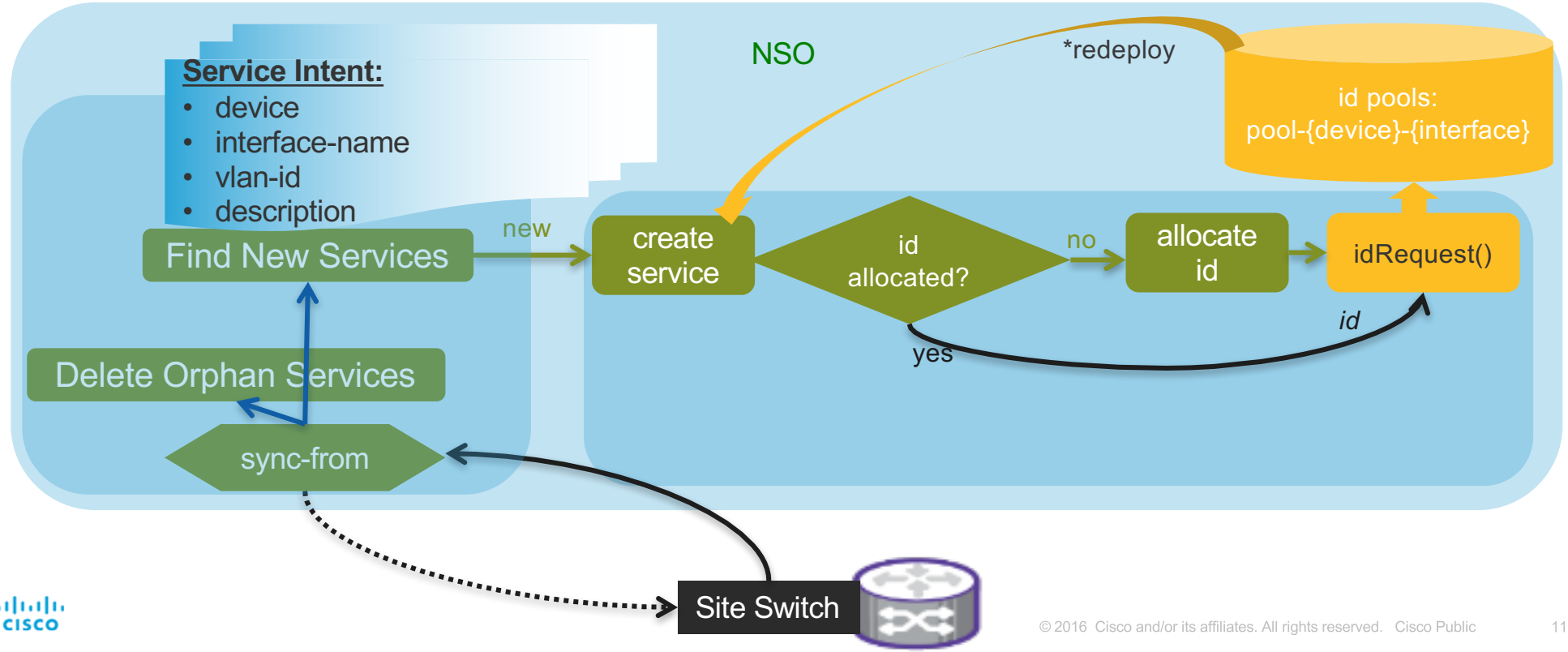
Service instances configured!

```
interface Port-channel1
service instance 3 ethernet
  description DSLAM Management
  encapsulation dot1q 4087
  rewrite ingress tag pop 1 symmetric
!
service instance 4 ethernet
  description WEVO_2
  encapsulation dot1q 2
  rewrite ingress tag pop 1 symmetric
 !
 service instance 5 ethernet
  description WEVO_3
  encapsulation dot1q 3
  rewrite ingress tag pop 1 symmetric
 !
!
interface Port-channel2
 service instance 3 ethernet
  description DSLAM Management
  encapsulation dot1q 4087
  rewrite ingress tag pop 1 symmetric
 !
 service instance 4 ethernet
  description WEVO_2
  encapsulation dot1q 2
  rewrite ingress tag pop 1 symmetric
 !
```

```
 service instance 5 ethernet
  description WEVO_3
  encapsulation dot1q 3
  rewrite ingress tag pop 1 symmetric
 !
!

bridge-domain 2
 member Port-channel1 service-instance 4
 member Port-channel2 service-instance 4
!
bridge-domain 3
 member Port-channel1 service-instance 5
 member Port-channel2 service-instance 5
!
bridge-domain 4087
 member Port-channel1 service-instance 3
 member Port-channel2 service-instance 3
!
```

Reconciliation



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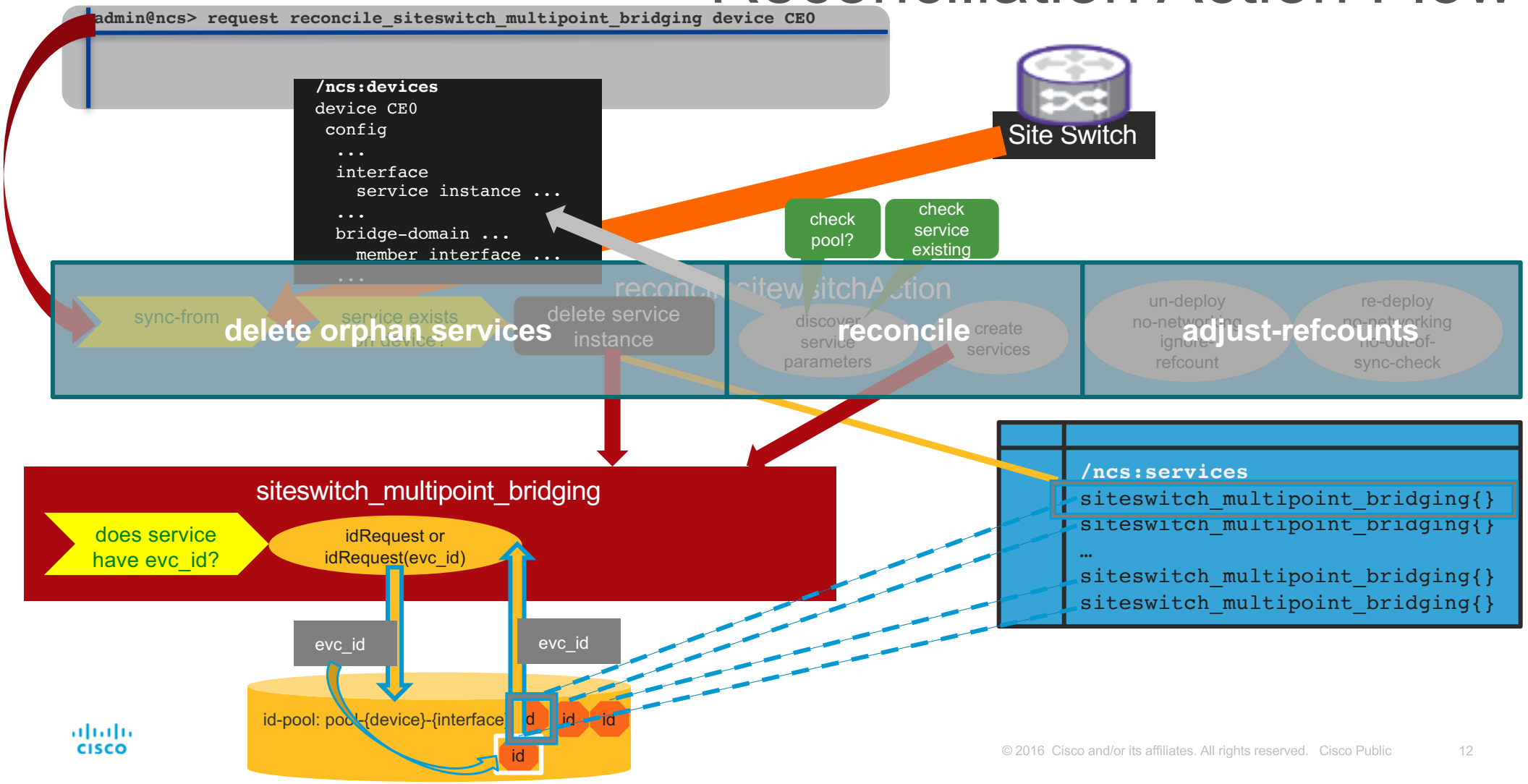
Reconciliation Action Flow



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