

SURFnet Automation & Orchestration

GLIF TECH, TRONDHEIM JUNE 11TH 2018



Source: TMFORUM.ORG

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Orchestration Horizon

Speed up provisioning



Institutions in Control



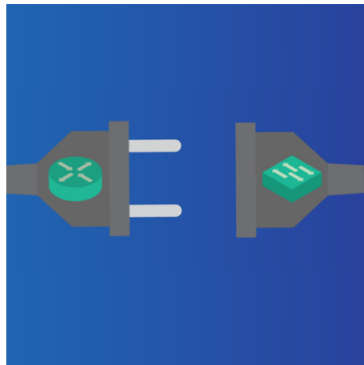
Combined Services



International



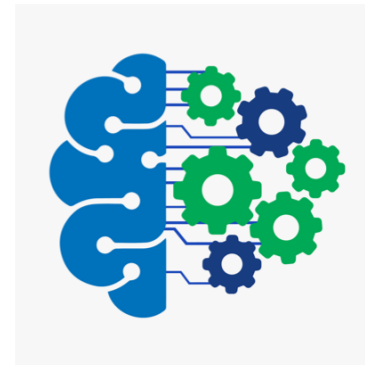
Campus Integration



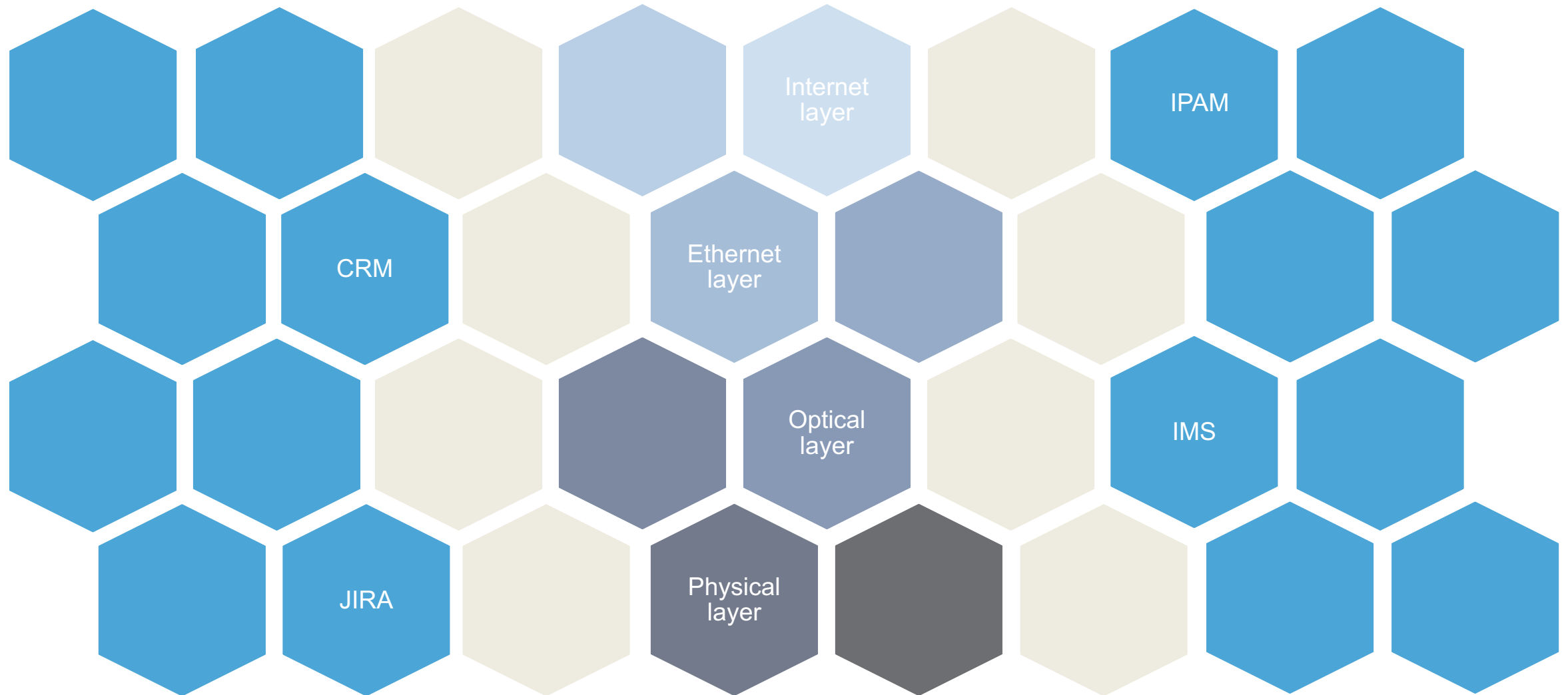
5G



Self learning network

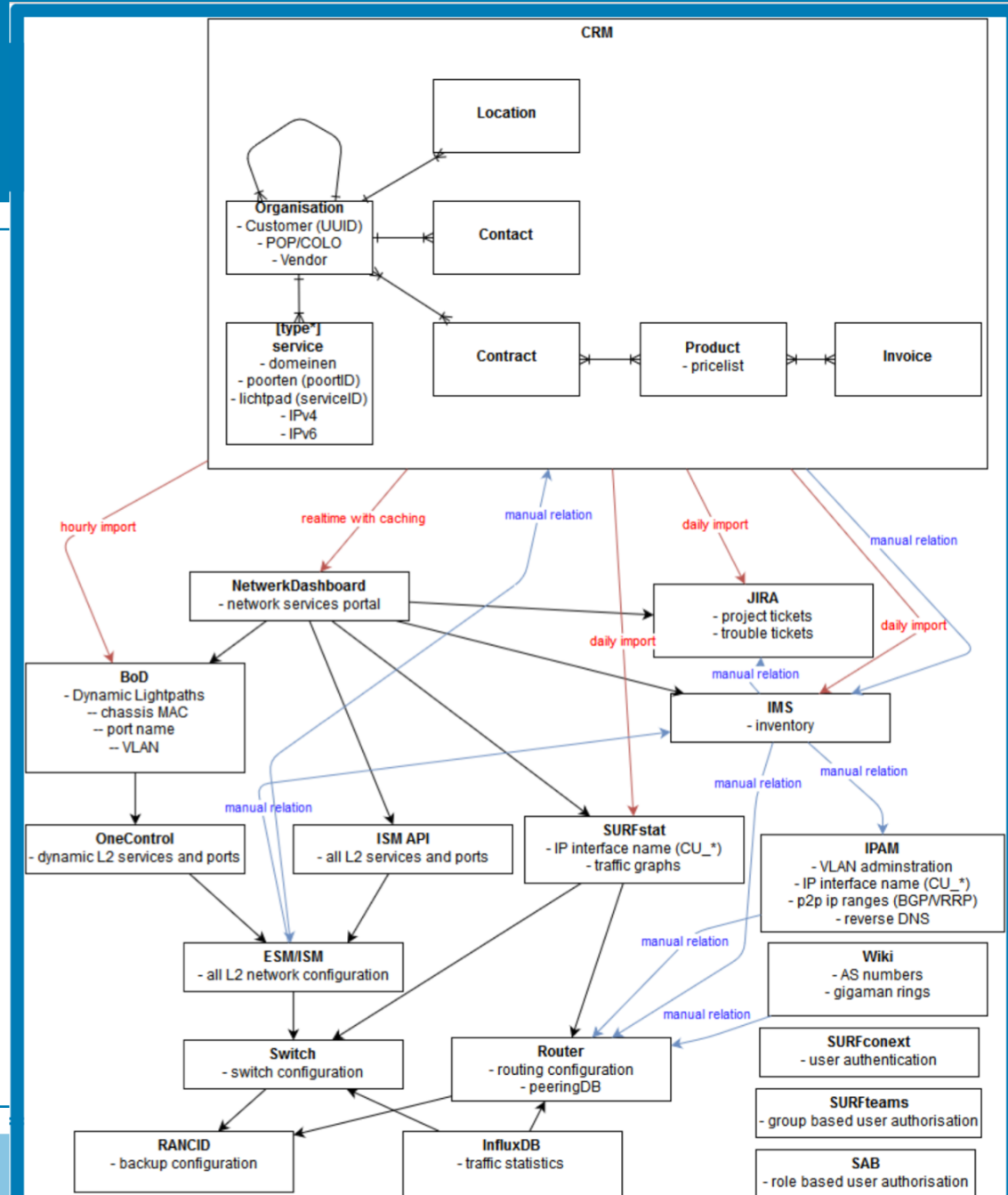


Layered SURFnet network



Origin

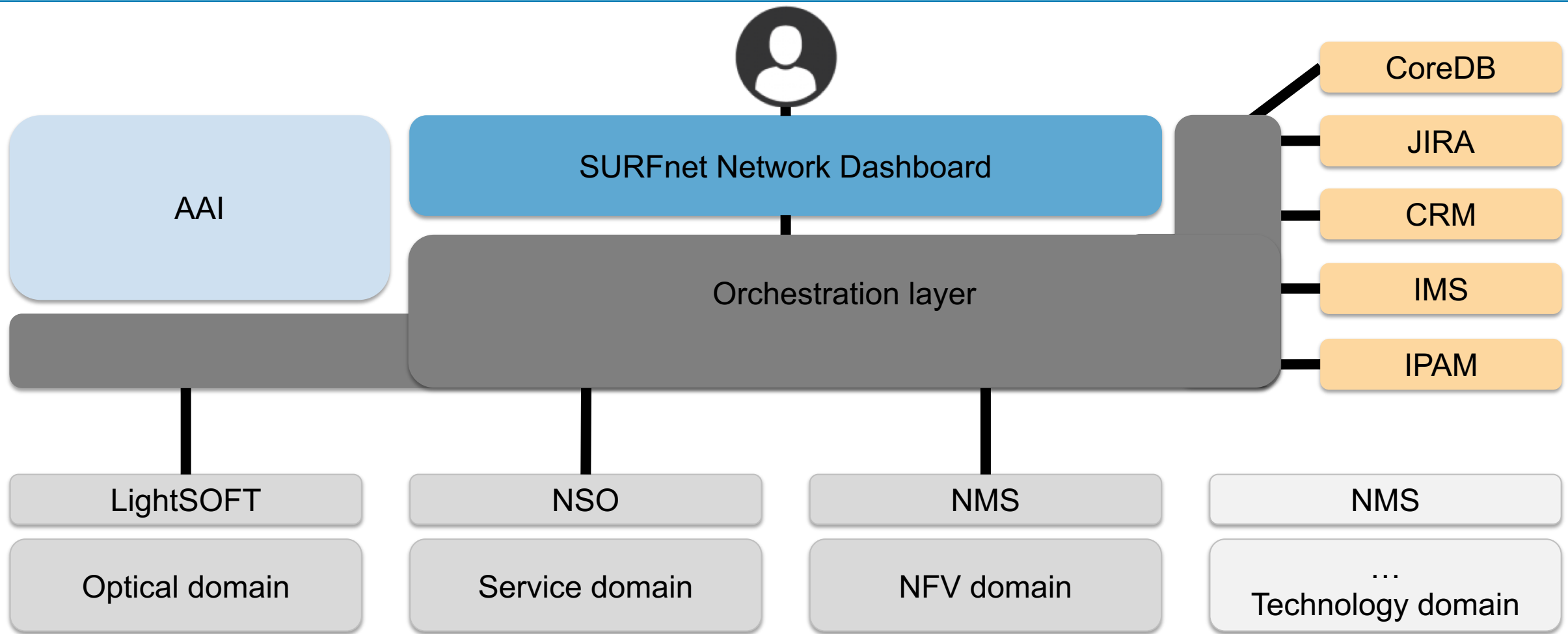
- Different ways to synchronise
 - Realtime (using caching)
 - Daily/weekly imports
 - Manually
- Causing
 - Slowness
 - Unclarity
- No clear/authoritative owner of information



Automation utopia

- Define Single Points of Truth for information
- Restructure the information model
- Standardized interfaces for components/domains
- Predetermined service delivery
- No more undocumented specials, always a known product
- Automate everything ... if we can
 - Manual tasks will always remain
- SURFnet8

Automation & Orchestration architectural vision

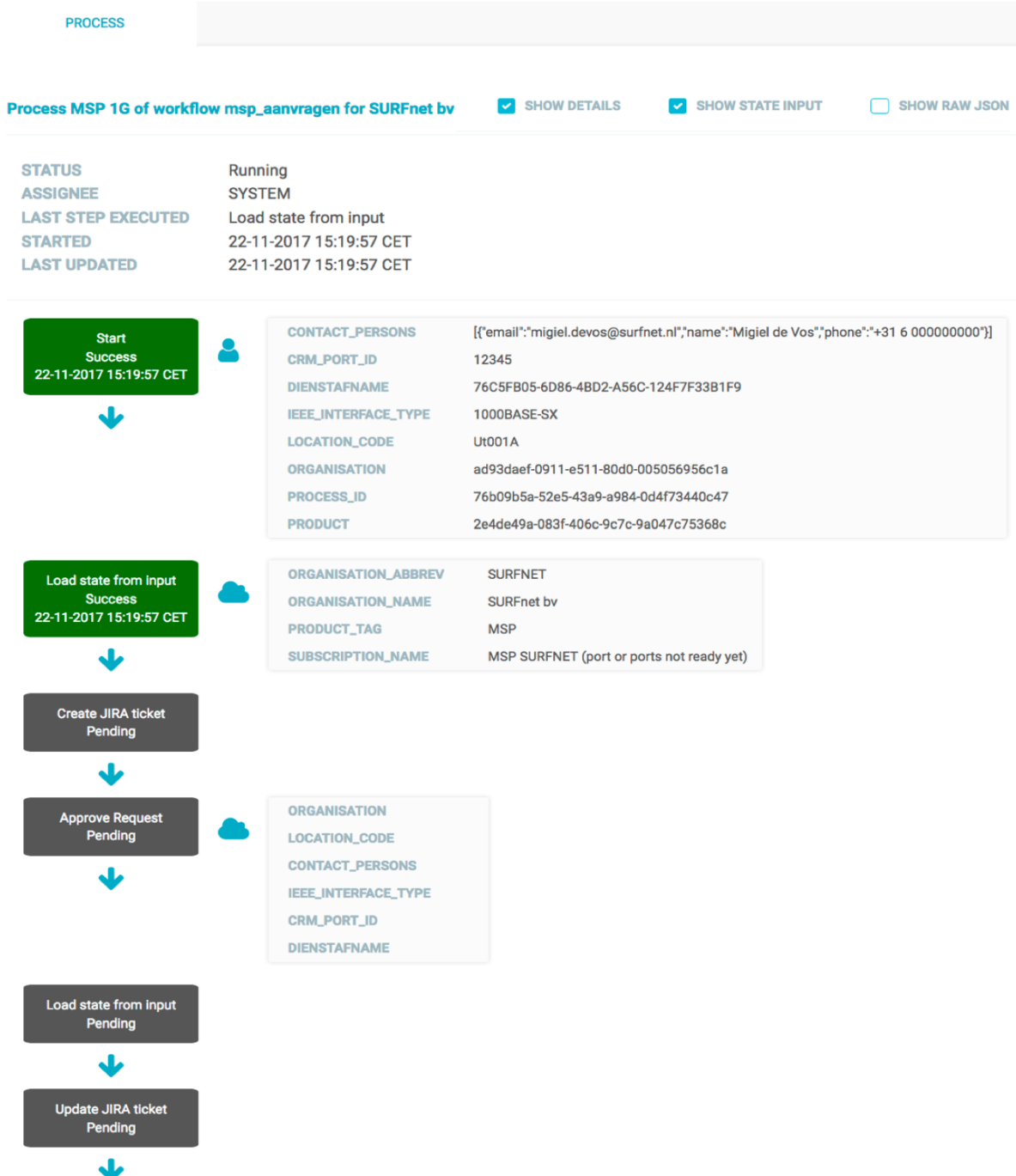


Products

- Ports
 - Single Service Ports
 - Multi Service Ports
 - NetherLight Multi Service Ports
- LightPaths (L2 PtP)
 - Within SURFnet/NetherLight
 - NSI signaled
- IP Service
- ELAN Service
- L3VPN (SURFnet8)
- IP peerings
- Nodes (network elements)
- Core Links (between nodes)
- IPv4/IPv6 prefix (customer prefix administration)

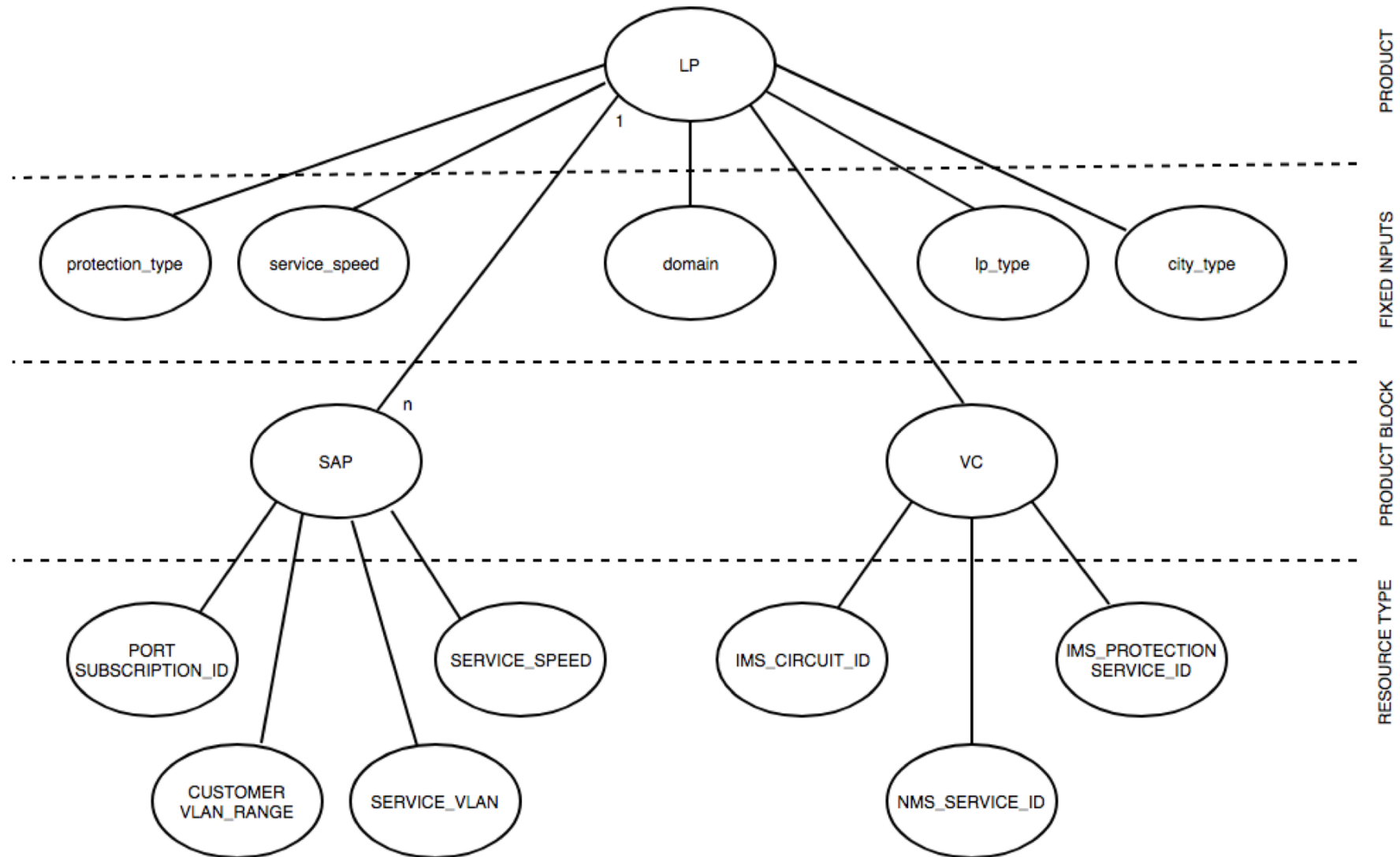
Orchestrator Workflows

```
280 def msp_aanvragen():
281     return init \
282         >> load_state_from_input \
283         >> create_ticket \
284         >> approve_request >> load_state_from_input \
285         >> update_ticket >> approve_ticket \
286         >> create_subscription >> store_process_subscription \
287         >> input_free_port \
288         >> assign_ticket(None) \
289         >> reserve_free_port \
290         >> update_subscription_description_with_free_port \
291         >> update_ticket_with_free_port \
292         >> add_msp_to_ticket \
293         >> configuration_ready >> set_port_in_service \
294         >> update_subscription \
295         >> complete_ticket >> assign_ticket("-1") >> start_ticket \
296         >> send_confirmation_mail \
297         >> close_ticket >> activate_subscription \
298         >> done
```

```
{
  "assignee": "SYSTEM",
  "current_state": {
    "contact_persons": [
      {
        "email": "migiel.devos@surfnet.nl",
        "name": "Migiel de Vos",
        "phone": "+31 6 000000000"
      }
    ],
    "crm_port_id": "12345",
    "dienstafname": "76C5FB05-6D86-4BD2-A56C-124F7F33B1F9",
    "ieee_interface_type": "1000BASE-SX",
    "location_code": "Ut001A",
    "organisation": "ad93daef-0911-e511-80d0-005056956c1a",
    "organisation_abbrev": "SURFNET",
    "organisation_name": "SURFnet bv",
    "process_id": "76b09b5a-52e5-43a9-a984-0d4f73440c47",
    "product": "2e4de49a-083f-406c-9c7c-9a047c75368c",
    "product_tag": "MSP",
    "subscription_name": "MSP SURFNET (port or ports not ready yet)"
  },
  "customer": "ad93daef-0911-e511-80d0-005056956c1a",
  "failed_reason": null,
  "id": "76b09b5a-52e5-43a9-a984-0d4f73440c47",
  "last_modified": 1511360397,
  "product": "2e4de49a-083f-406c-9c7c-9a047c75368c",
  "started": 1511360397,
  "status": "running",
  "step": "Load state from input",
}
```

Product and product blocks (lightpath example)



Subscription

Subscription ID	5dbcc949-09ac-4b8e-aea8-89b73b589aa0
Name	SURFlichtpaden 750P - Inner-City
Description	BREEDBAND BREDA LP UT001A-GN001A 750 Mbit/s
Start date	6-6-2018 CET
End date	
Status	active
In sync	☒
Customer	Breedband Breda
Customer UUID	3bf4e471-0c11-e511-80d0-005056956c1a

Fixed Inputs

city_type	inner_city
domain	SURFNET7
netherlight	False
protection_type	Protected
service_speed	750

Product Blocks

SAP - Service Attach Point

PORT_SUBSCRIPTION_ID	 b19da0b2-74cf-4030-b71e-6cc476262fe0
VLANRANGE	1002

SAP - Service Attach Point

PORT_SUBSCRIPTION_ID	 be3a9711-0c24-4935-b063-f51d796570c8
VLANRANGE	

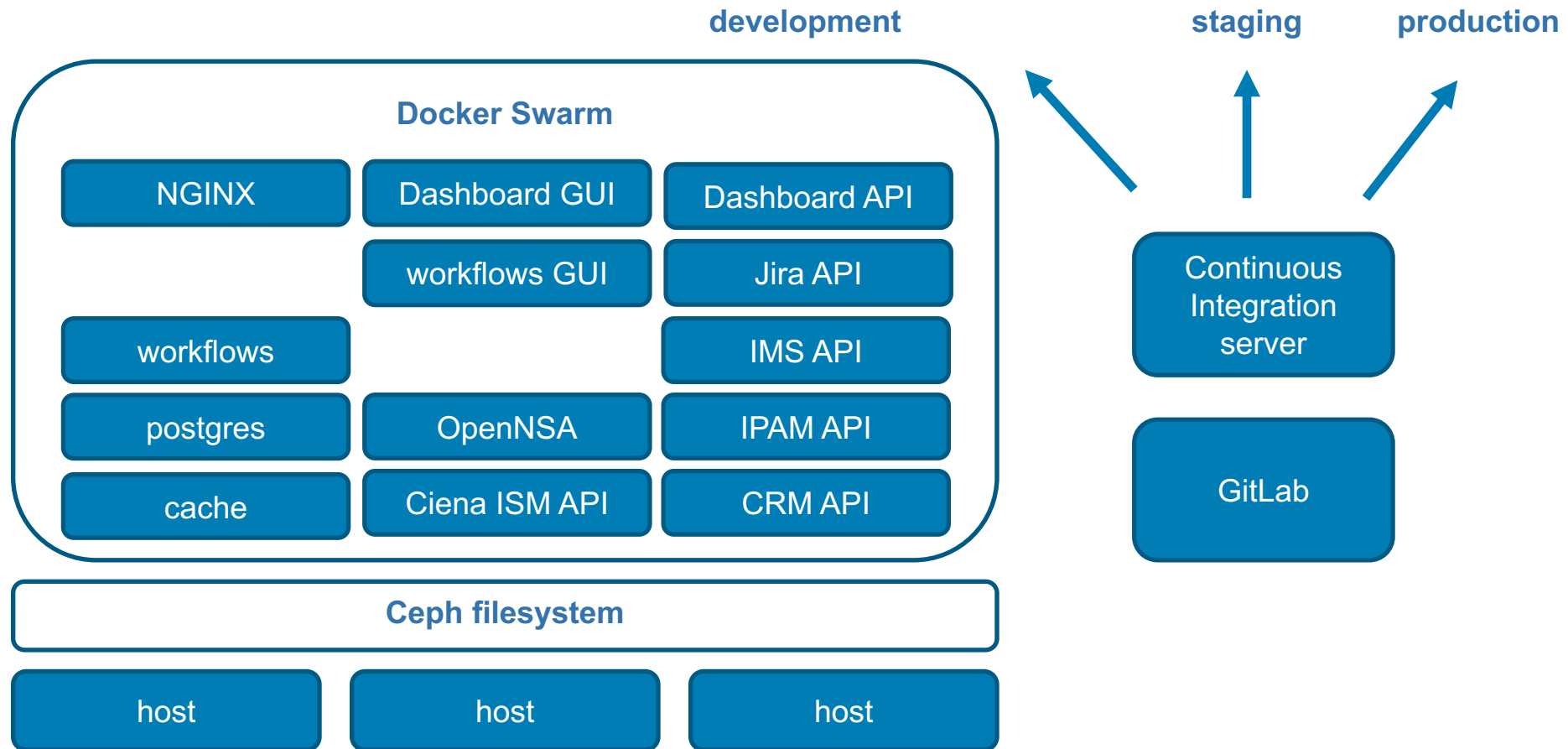
VC - Virtual Circuit

IMS_CIRCUIT_ID	 26622
NMS_SERVICE_ID	7601
SERVICE_SPEED	750

Actions

Terminate Subscription
Upgrade to Redundant LP
Modify Service Speed

Deployment infrastructure



WORKFLOWS SUBSCRIPTIONS

 Explain



PRODUCT	WORKFLOW	CONFIGURATION
NAME	richtpad (P)	Circuit
DESCRIPTION	richtpad in een SS	it_id
WORKFLOW	richtpad aanvrag	ice_id
VALIDATION	ue	eed → ice_id
PRODUCT BLOCK	PRODUCT BLOCK	Attach Point
RESOURCE TYPE	RESOURCE TYPE	on_id → ssp_a.subscription_id
Resource type ID vs Workflow ID	Resource type ID vs Workflow ID	port_subscription_id → destination
		vlanrange → destination_vlan



PRODUCT	WORKFLOW MAPPING CONFIGURATION
NAME	Ethernet Circuit
FLAN	

WHAT **SURF** CAN DO