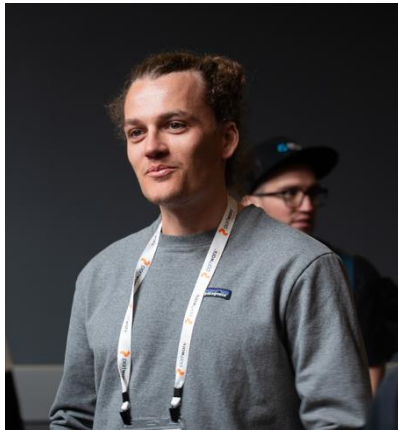


The Accidental Platform Team: Kubernetes Operators at Swisscom

March 2026, Jelena Malić, Fabian Schulz





Fabian Schulz

DevOps Engineer

fabian.schulz1@swisscom.com



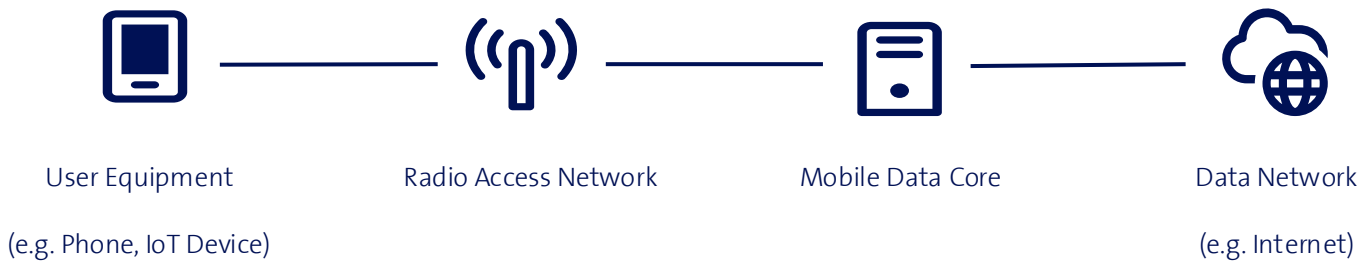
Jelena Malić

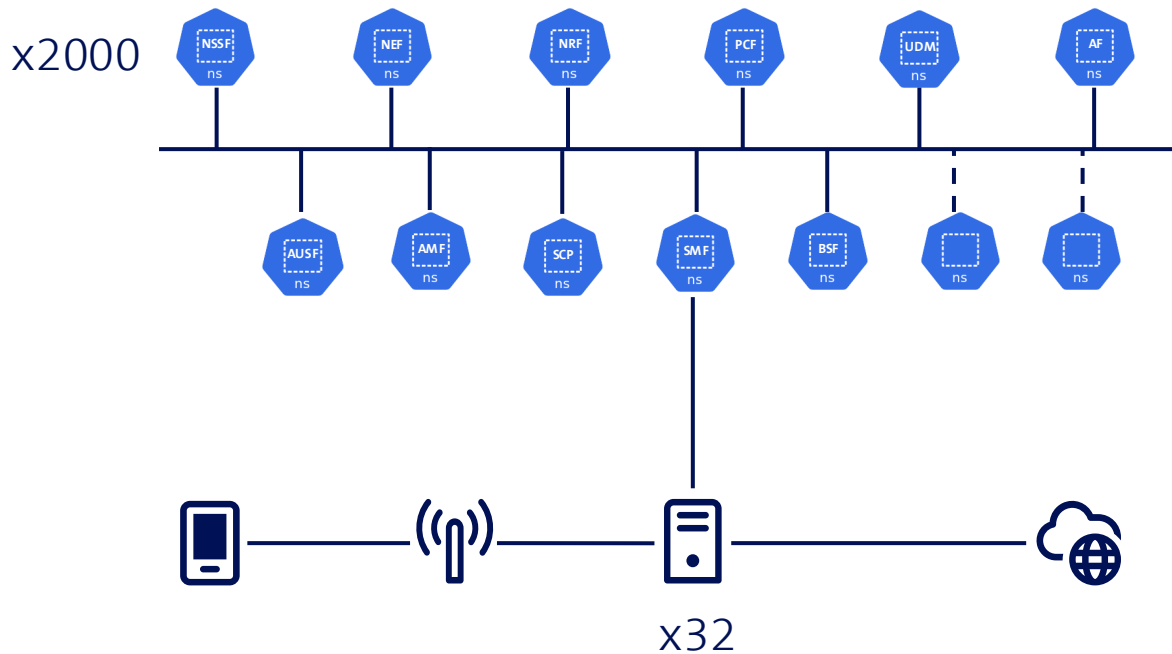
Product Owner

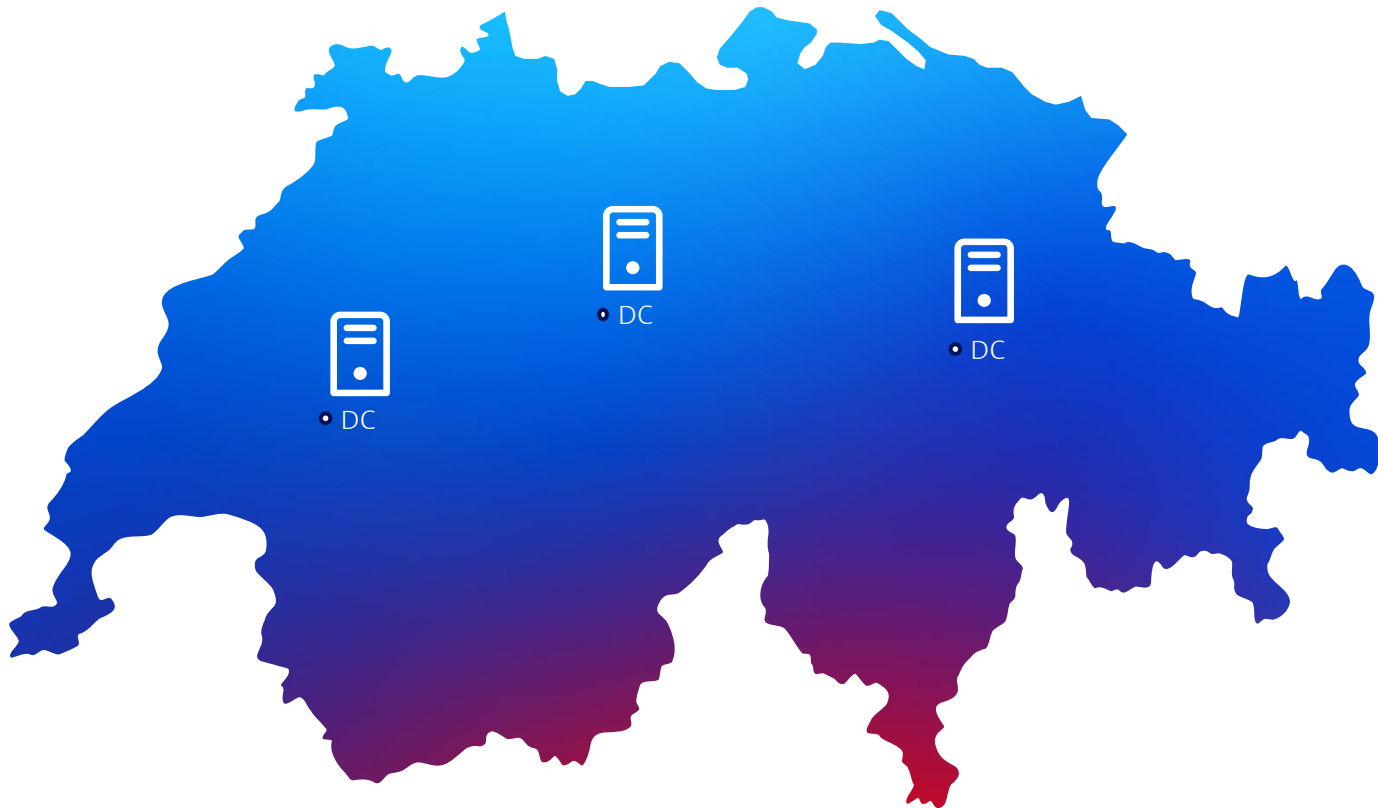
jelena.malic@swisscom.com



swisscom













5G core deployment

routers

Kubernetes

OS

Server Hardware

routers





Create IP assignments
2 days



Collect IP in IPAM
2 days



Populate inventory
1 day

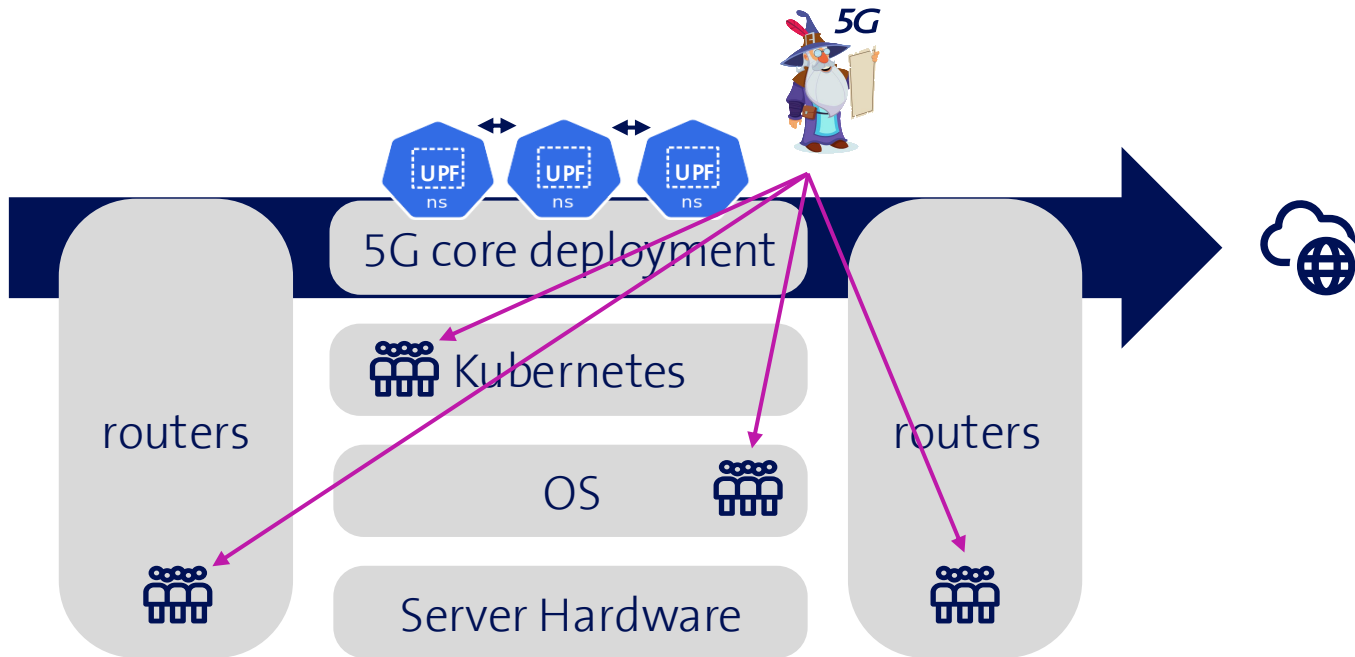


Create change requests
5-10 days



Integrate, test and observe
5 - 10 days







Easy, right?





Pain Points When Deploying a 5G Core Network



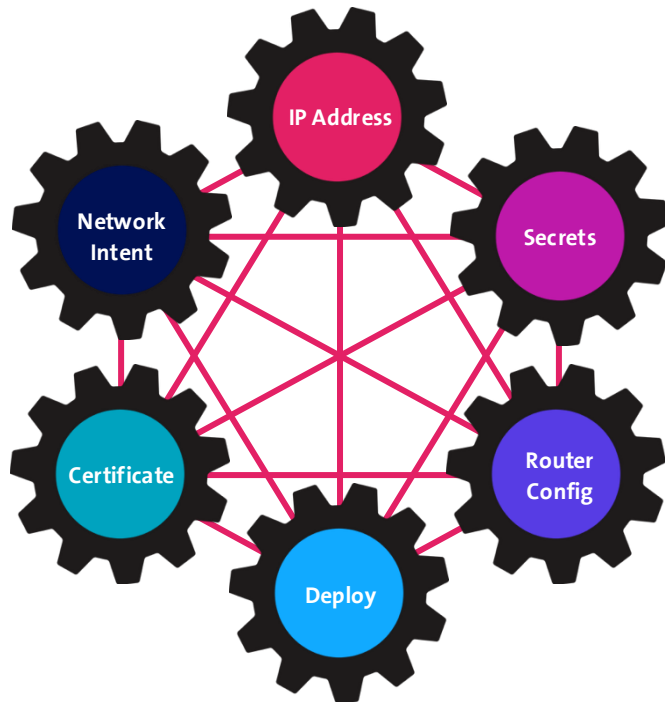
Cross-domain Knowledge

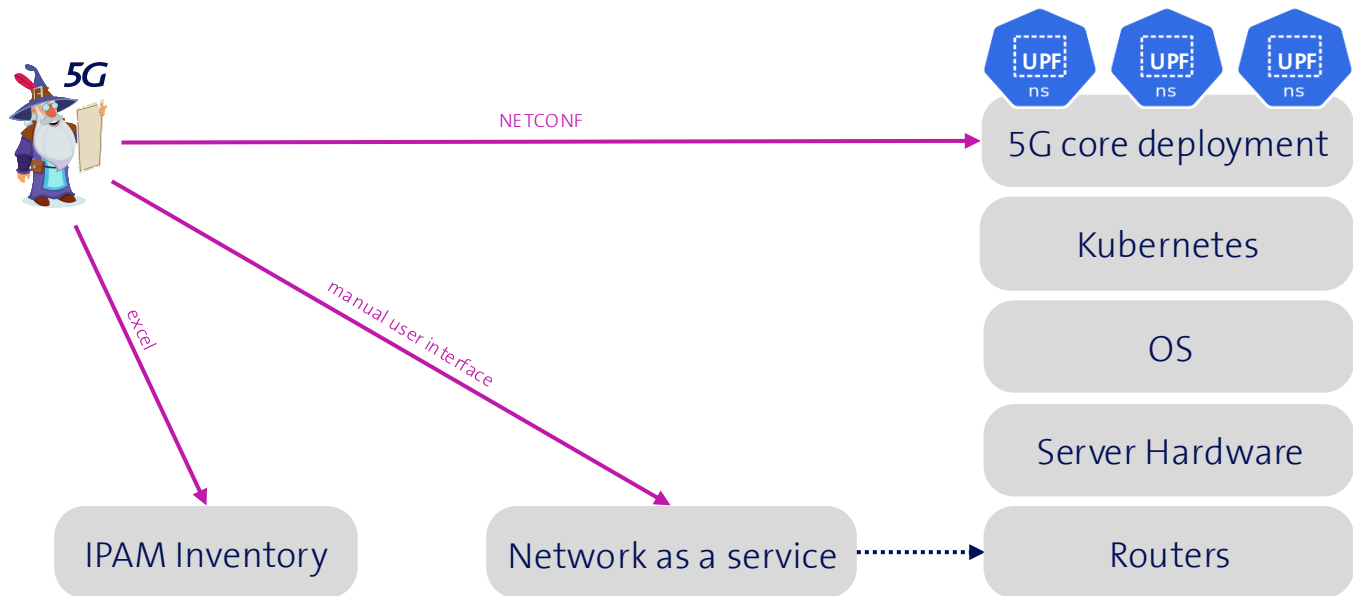


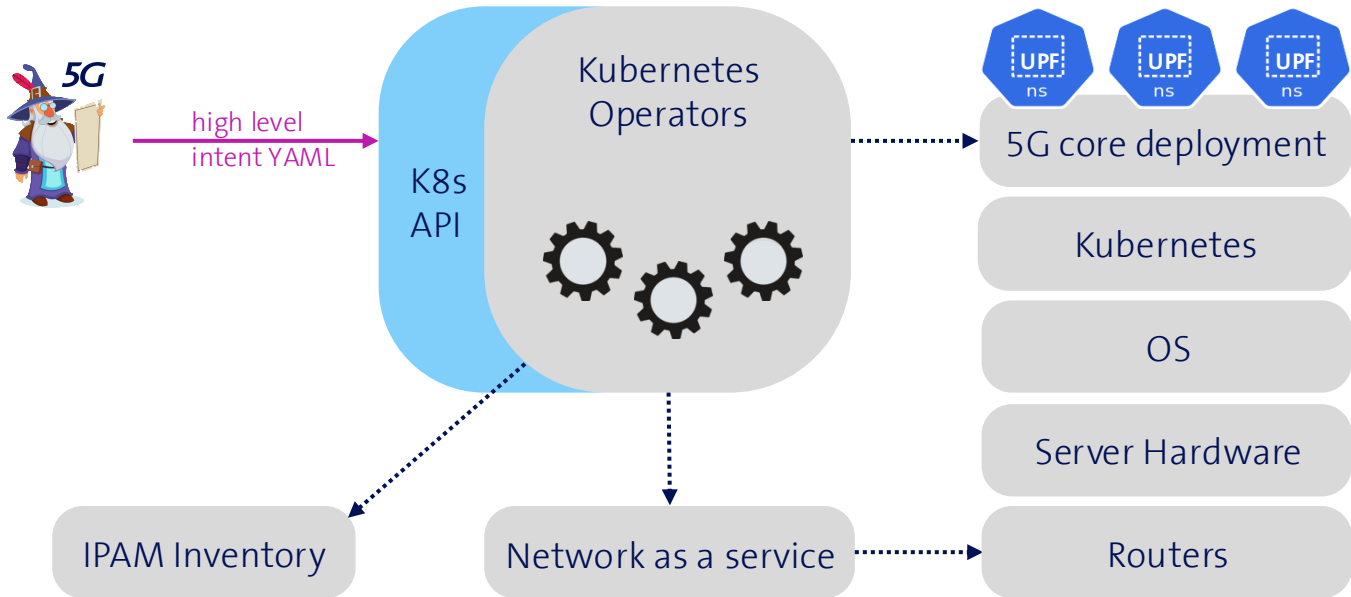
Manual Process



Static Config









**Cross-domain
Knowledge**



**Domain Knowledge
in Operators**



**Manual
Process**



Automation



**Static
Config**



**Constant
Reconciliation**



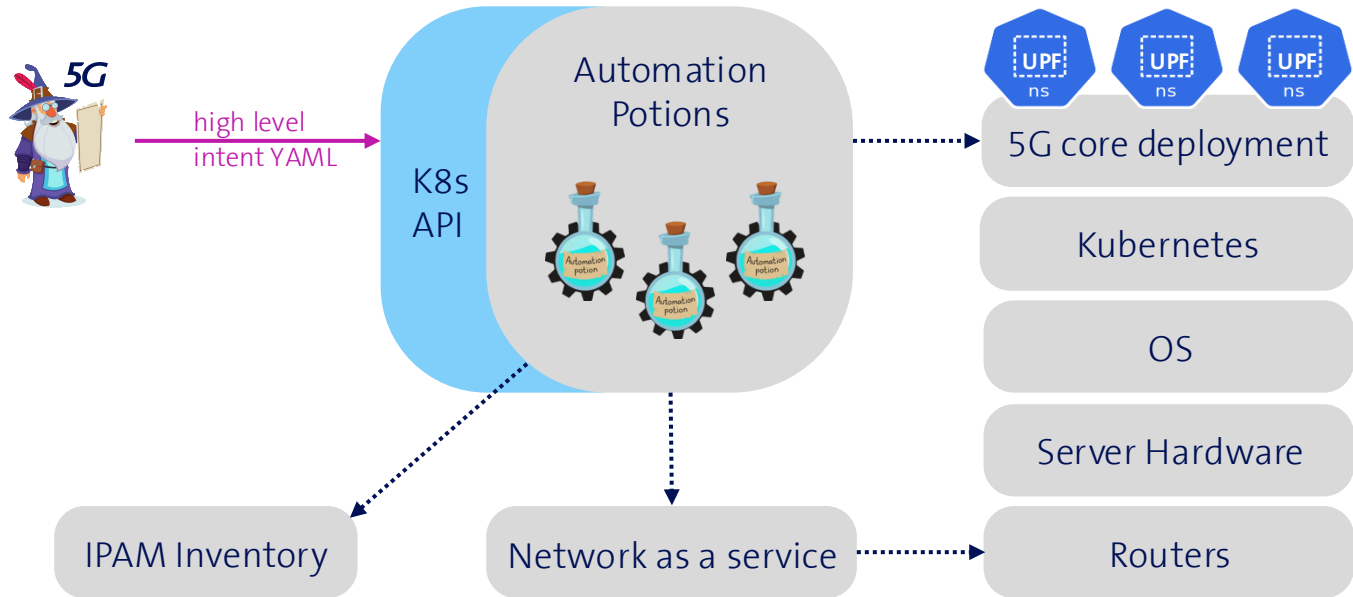
More details?





How brave do you feel?







Gradual Approach



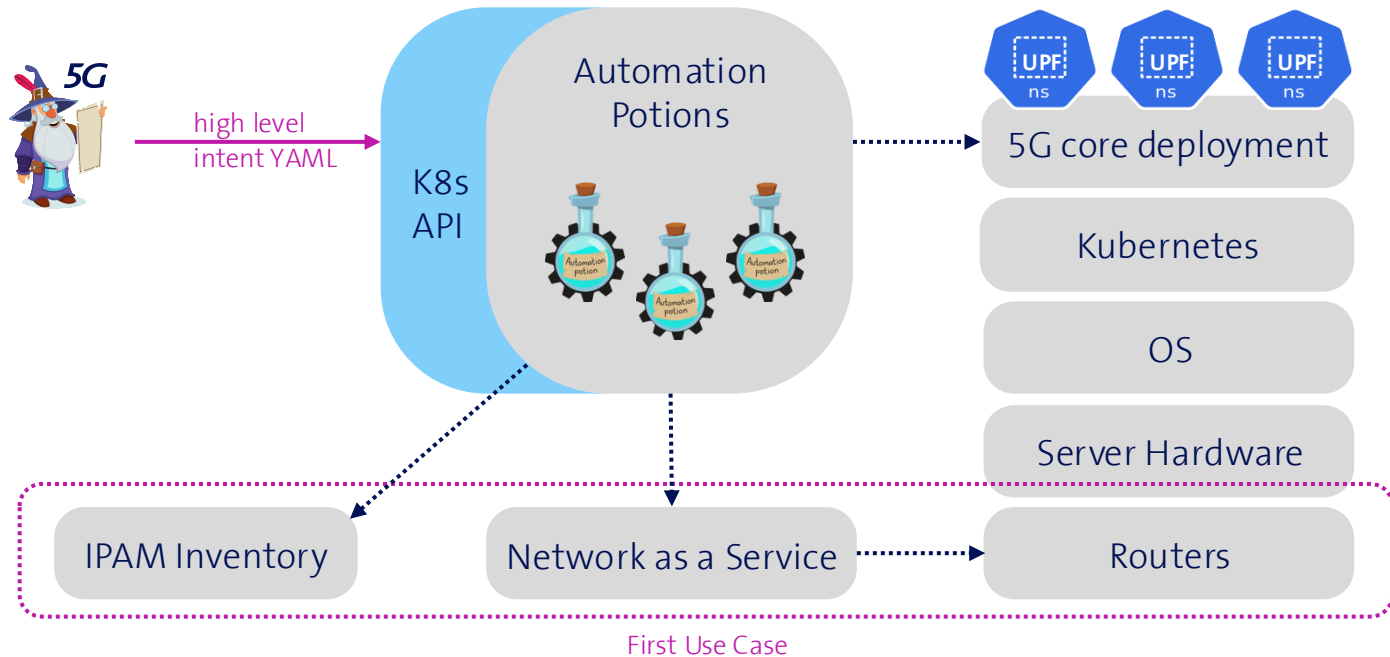
**Select first easy use
case**

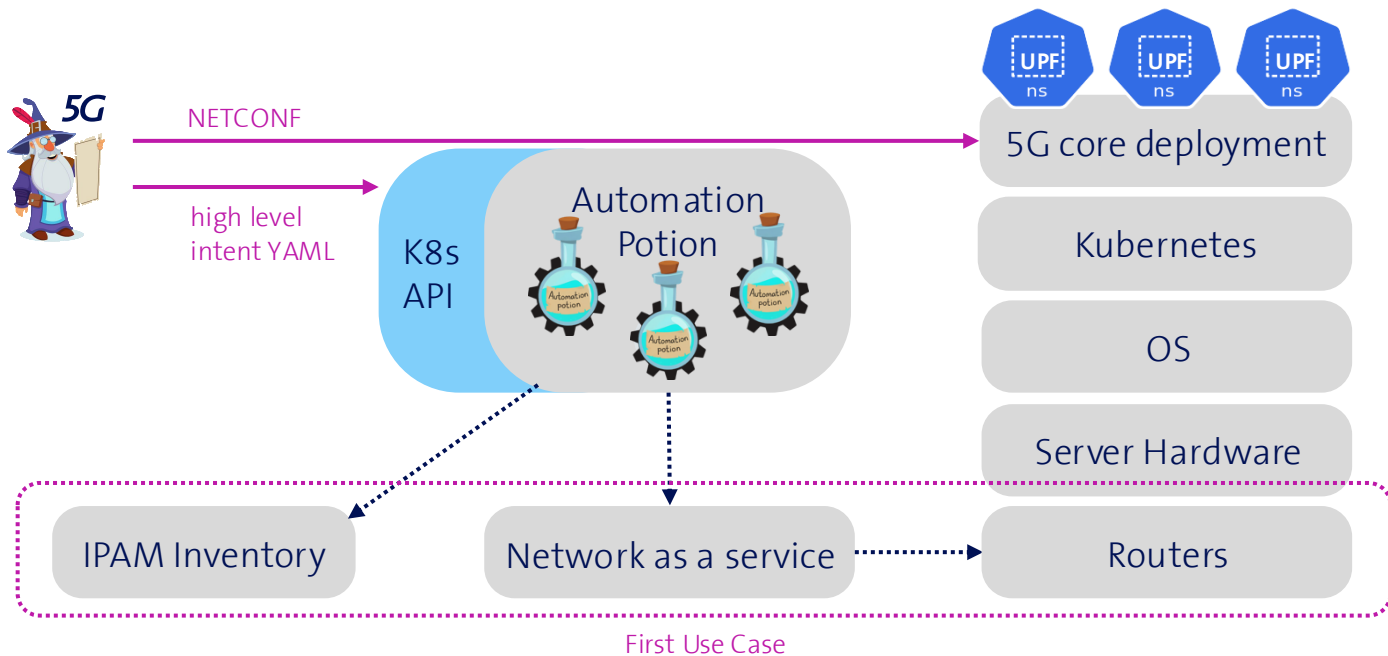


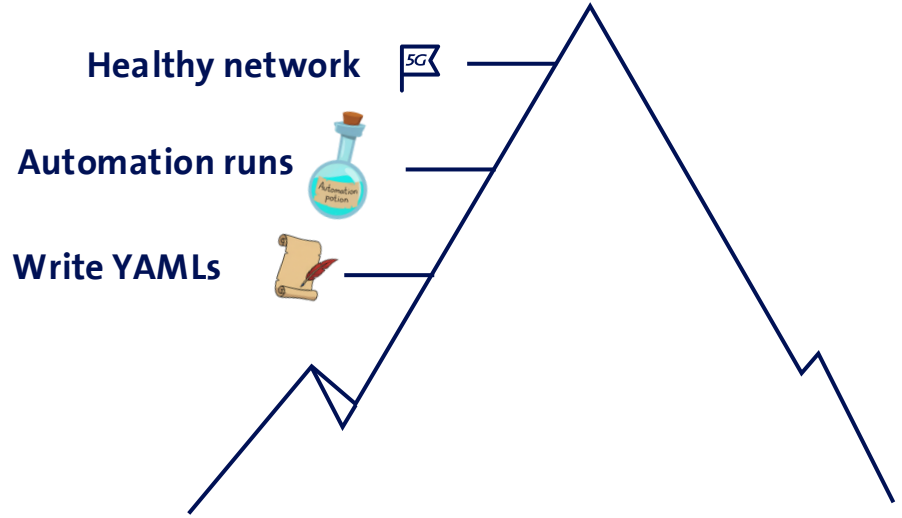
**Ship first prototype
early**



Iterate on feedback







Let's gooooo



We are done, right?





Maybe not quite:

- We don't have time to test your stuff.
- You cannot deploy a 5G Core with GitOps because there will always be manual changes on the box.
- How can I see which changes will be applied to the cluster?
- We had a UI which was more intuitive!
- How can I be sure it worked?
- I think we were faster the old way.
- How do we know where this change is coming from?
- I don't understand Kubernetes.
- I don't even know how to start using it.
- I just did it myself using a Gitlab pipeline, it's easier that way.





Oops we just built a platform...





- We don't have time to test your stuff.
- You cannot deploy a 5G Core with GitOps because there will always be manual changes on the box.



Gradual Adoption





How do we get our solution tested?

Focus on early adopters



high level
intent YAML

K8s
API

Kubernetes
Operators



Gradually adopt
more use cases



5G core deployment

Kubernetes

OS

Server Hardware

Routers

IPAM Inventory

Network as a service



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Gradual Adoption



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Graphical UI



 CR(D) Wizard

 **BFDProfile**
bfdprofiles.metallb.io

1 in 1

 **BGPAdvertisement**
bgpadvertisements.metallb.io

1 in 1

 **BGPPeer**
bgppeers.metallb.io

2 in 2

 **CcdPrimaryNetworkTopology**
ccdprimarynetworktopologies.configassembly.swisscom.com

1 in 1

 **CcdSecondaryNetworkTopology**
ccdsecondarynetworktopologies.configassembly.swisscom.com

Not in 1

 **Community**
communities.metallb.io

Not in 1

Schema Definition (v1beta2)

apiVersion string

APIVersion defines the versioned schema of this representation of an object. Servers should convert recognized schemas to the latest internal value, and may reject unrecognized values.

More info: <https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#resources>

kind string

Kind is a string value representing the REST resource this object represents. Servers may infer this from the endpoint the client submits requests to. Cannot be updated.

In CamelCase.

More info: <https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#types-kinds>

metadata object

▼ **spec** object

BGPPeerSpec defines the desired state of Peer.

bfdProfile string

The name of the BFD Profile to be used for the BFD session associated to the BGP session. If not set, the BFD session won't be set up.

connectTime string

Requested BGP connect time, controls how long BGP waits between connection attempts to a neighbor.

-  Home
-  **Clusters**
-  Namespaces
-  Nodes
-  Advanced Search (Beta)

-  Map
-  Workloads
-  Storage
-  Network
-  Gateway (beta)
-  Security
-  Configuration
-  Custom Resources
-  Flux

[+ Create](#)

Overview

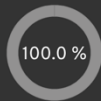
CPU ⓘ
2 units

Memory ⓘ
7.74 GB

Pods
18 / 19 Requested



Nodes
1 / 1 Ready



Events ☒ Only warnings (18)

Namespaces

Filter



☐	Type	Name	Namespace	Reason	Message	Last Seen	Actions
☐	Pod	netbox	default	FailedScheduling	0/1 nodes are available: 1 Insufficient cpu. no new claims to deallocate, preemption: 0/1 nodes are available: 1 No preemption victims found for incoming pod.	3m	
☐	Pod	crd-wizard	default	BackOff	Back-off restarting failed container crd-wizard in pod crd-wizard	34m	
☐	Pod	crd-wizard	default	FailedScheduling	0/1 nodes are available: 1 Insufficient cpu. no new claims to deallocate, preemption: 0/1 nodes are available: 1 No preemption victims found for incoming pod.	36m	

Clusters

Map

Workloads

Storage

Network

Gateway (beta)

Security

Configuration

Custom Resources

Flux

Namespaces

Filter

Gateway (beta), Custom Resources

Group By

Namespace

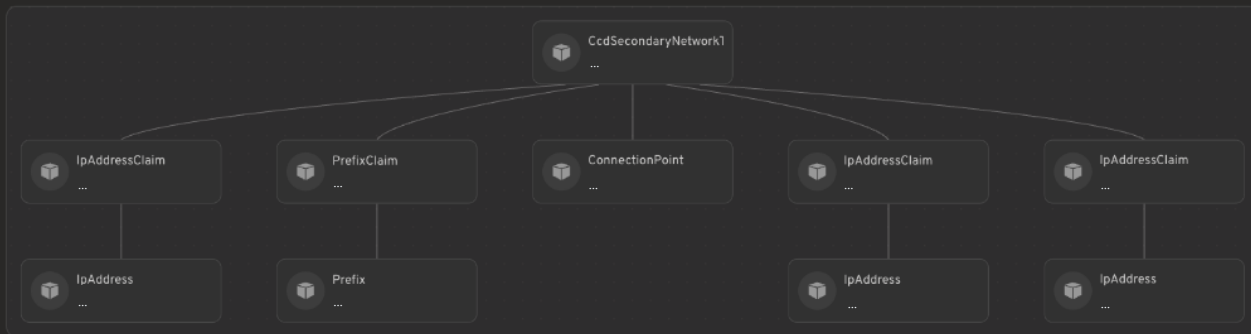
Instance

Node

Status: Error or Warning

Expand All

Start / Namespace 5gdmc / ccd





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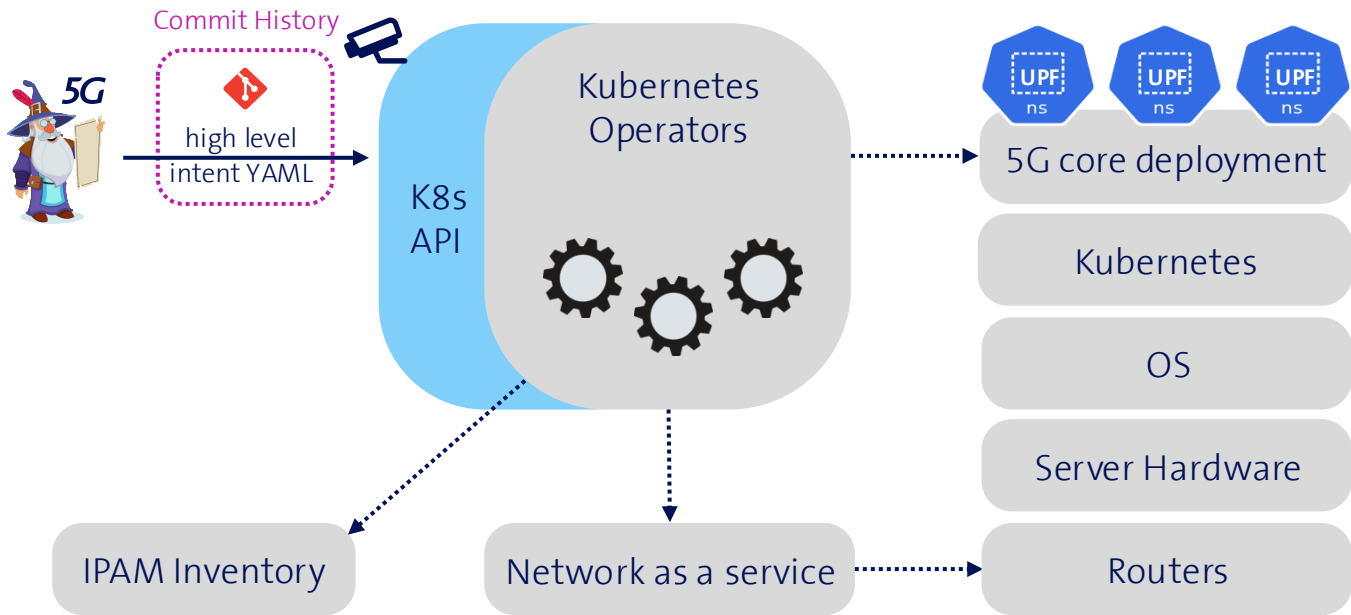


**Observability
and Traceability**





How do we know what happened?



IP Range Claims

134

MetalLB IP Pools

169

Status

Ready

Static Routes

Status

[illegible]



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Gradual Adoption



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Observability and Traceability



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- I don't understand Kubernetes.
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Knowledge Sharing





Establish Trust with Users

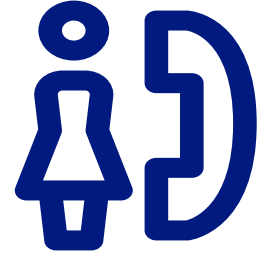
Design / Feedback Sessions



Focused Communication Channels

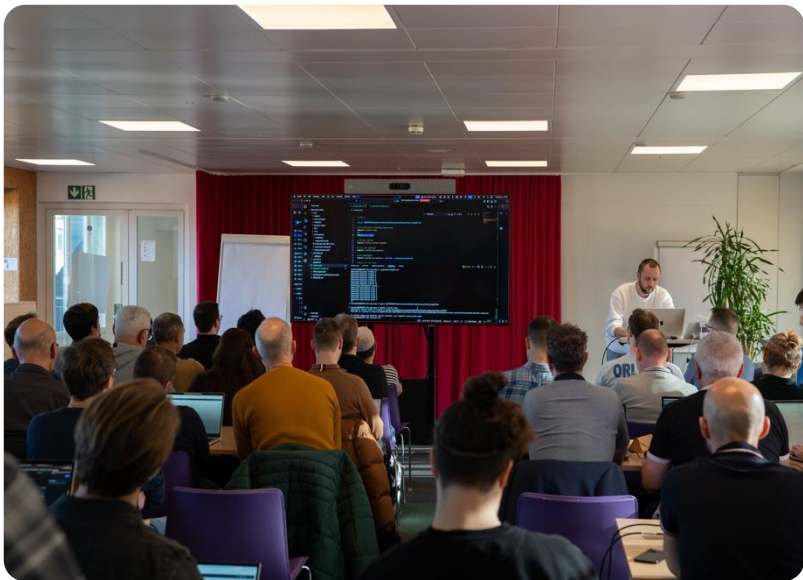


Regular Check-ins





Knowledge-Sharing Initiatives





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Gradual Adoption



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Graphical UI



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Observability and Traceability



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Knowledge Sharing



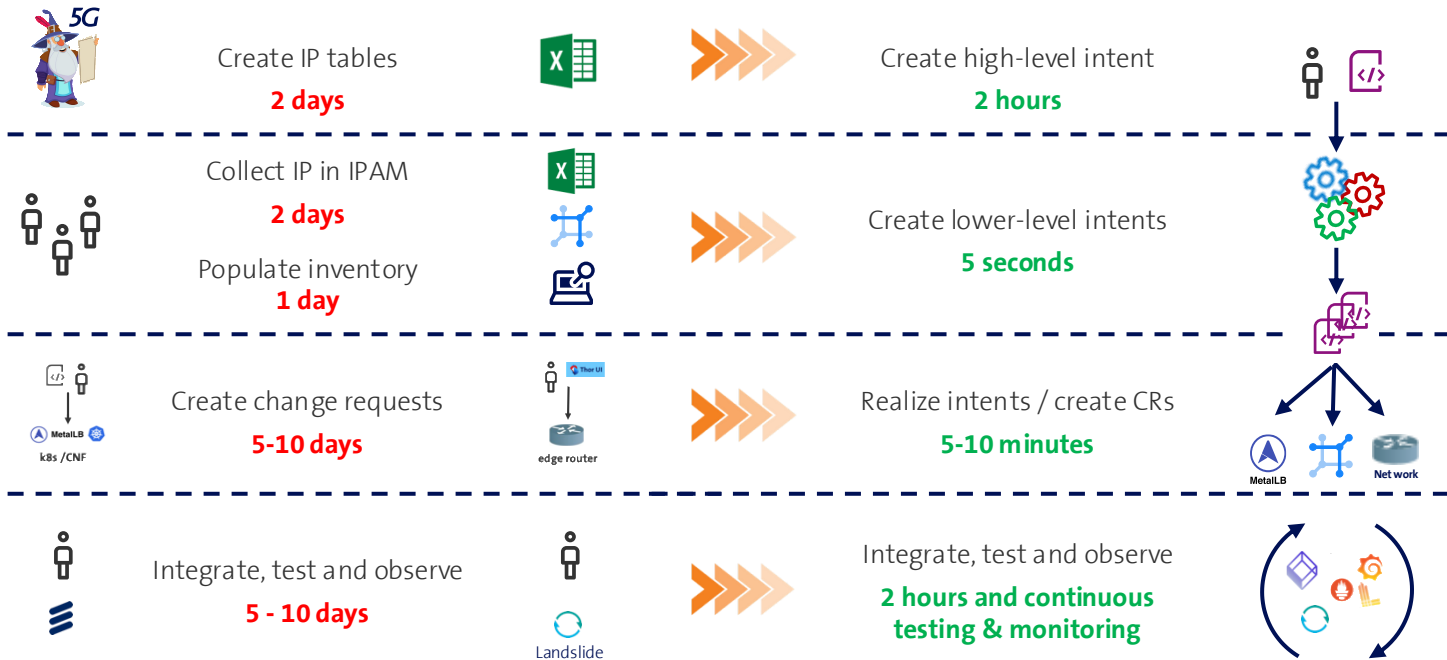


The Tale of the Accidental Platform Team





Does it actually work?





And how brave do you feel now?





Thanks to colleagues
for what we've
achieved **together** in
the past **1.5 years**.

We just created all
endpoints **without a
single error!**

I'm convinced that
we've **saved a week
or two of toil**.



Now, it took me **less
than one hour** to
create those
networks!



What does the future hold?

Automation of all steps

What do we do regarding manual steps?

Different types of systems

How about imperative systems?

AI

Where can we meaningfully use it?





How to survive as an Accidental Platform Team?





**How We Are Moving from
GitOps to Kubernetes
Resource Model in 5G Core**

KubeCon Europe

2024

**Just Claim It: Simplifying
Network Automation with
NetBox Operator**

Cloud Native Telco Day

2025

**The Cloud-Native Advantage:
Intent-based Network
Automation (SDC)**

Container Days Conference

2025

2024

**Building and Operating a
Highly Reliable Cloud Native
DNS Service With Open-Source
Technologies**

Container Days Conference

2025

**Keynote: Cloud Native
Evolution in Telecom: 5G, 6G
and Beyond!**

KubeCon + CloudNativeCon
Europe

[illegible]

github.com/swisscom/cloud-native-telco