

Update and Demo on
draft-irtf-nfvrg-unify-recursive-programming
and
draft-unify-sfc-control-plane-exp

Robert Szabo (Ericsson) and Balazs Sonkoly (BME)

NFVRG
IETF 96

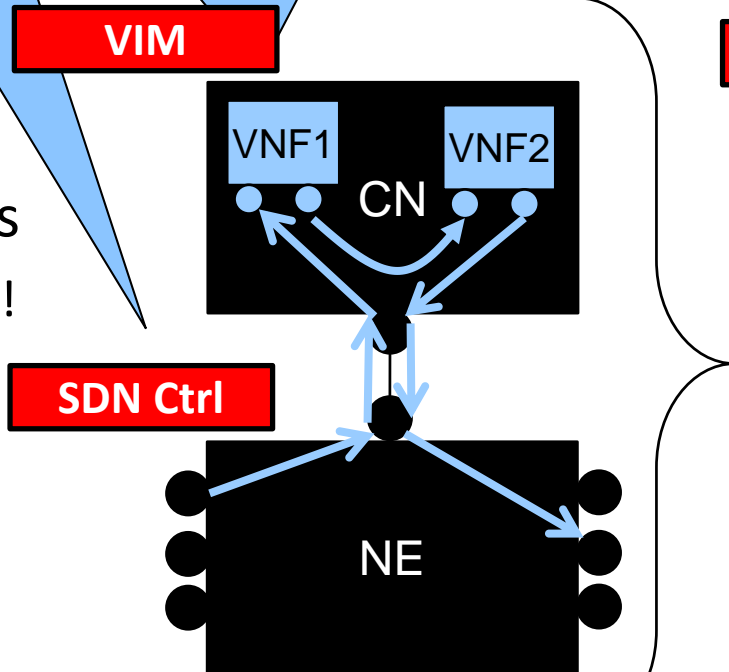
draft-irtf-nfvrg-unify-recursive-programming

“Atomic” joint configuration of

- VNF placements
 - Defines **ports!!!**
- Forwarding definition
- Technology agnostic

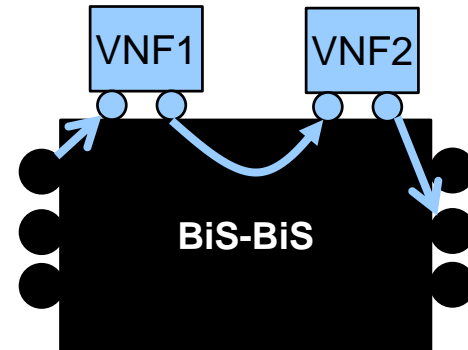
Step 2: Overlay definition

Step 1: VNF deployment



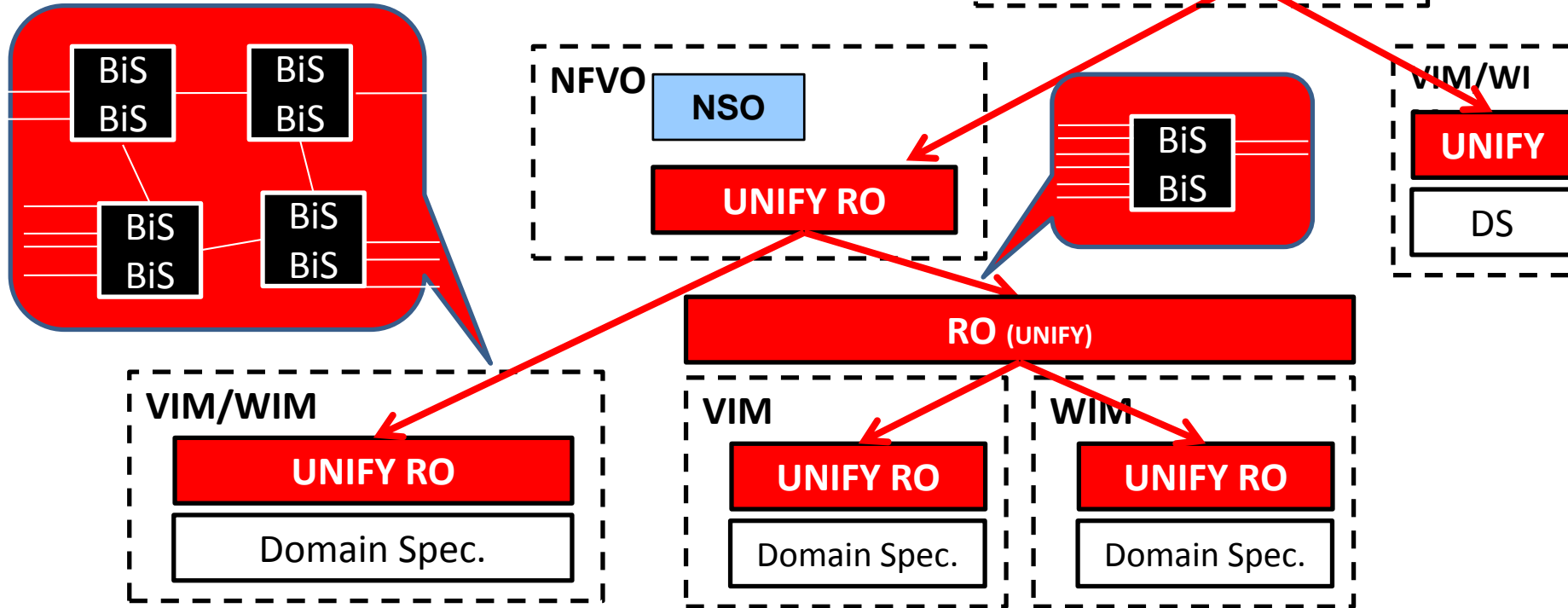
VNF requests WITH forwarding definition (SFC)

Compute & Network Prog. API



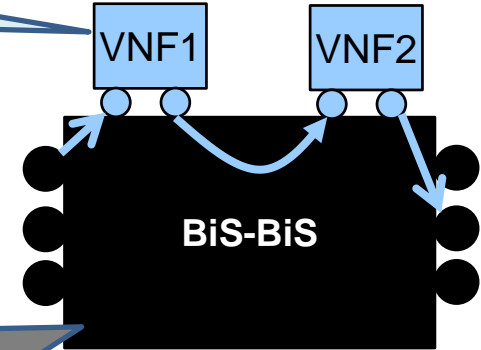
Big Switch with
Big Software
(BiS-BiS)

Topology of BiS-BiS (res: sw & net, cap, ...)



Resources & Capabilities

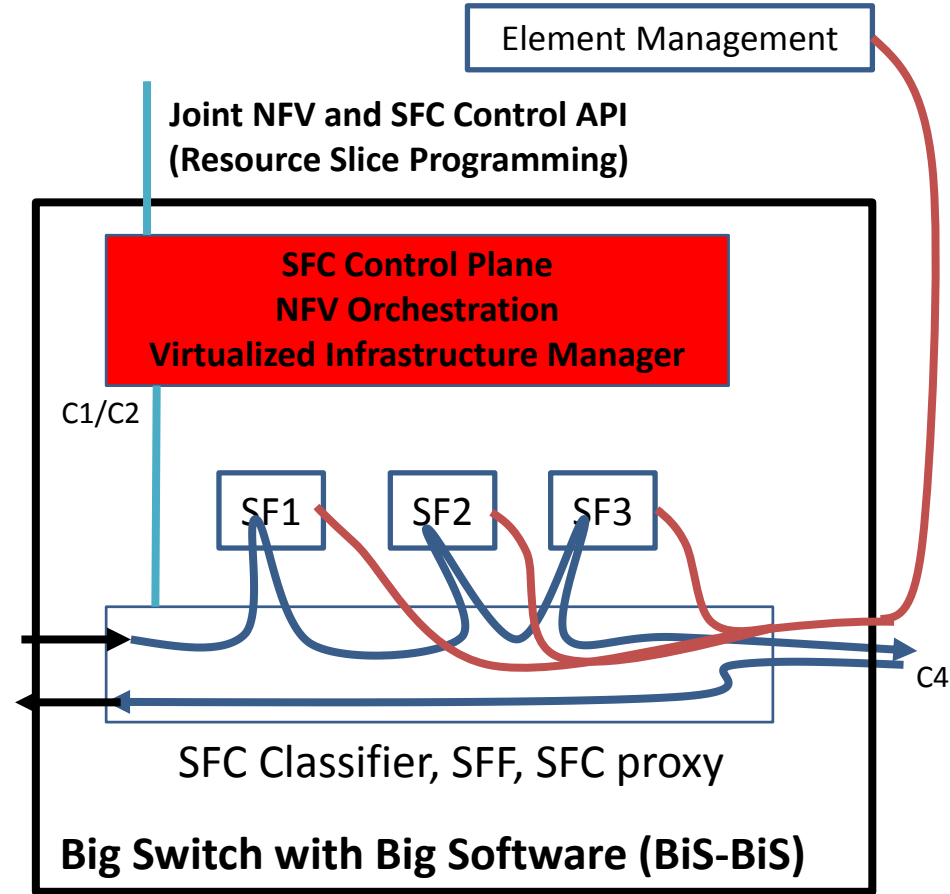
- VNF request
- {cpu, mem, storage}
OR
{delay, bandwidth}
between any two
VNF ports



- Supported VNFs
- Per supported NF type
- {cpu, mem, storage}
↔
{delay, bandwidth}
between any two
VNF ports

draft-unify-sfc-control-plane-exp

- Combined control of NFV and Forwarding to realize SFC
- Can describe single node, nodes, domains, administrations, ...
- I-D: step-by-step 'transformation' of an SFC Control plane to the figure right



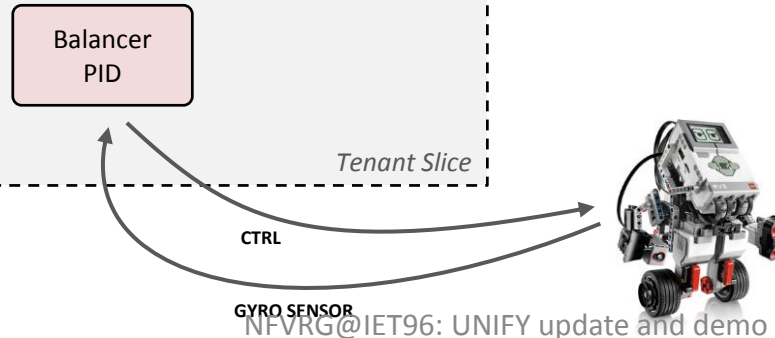
Use-case

- Robot-local control
 - PID controller invoked every 20 ms

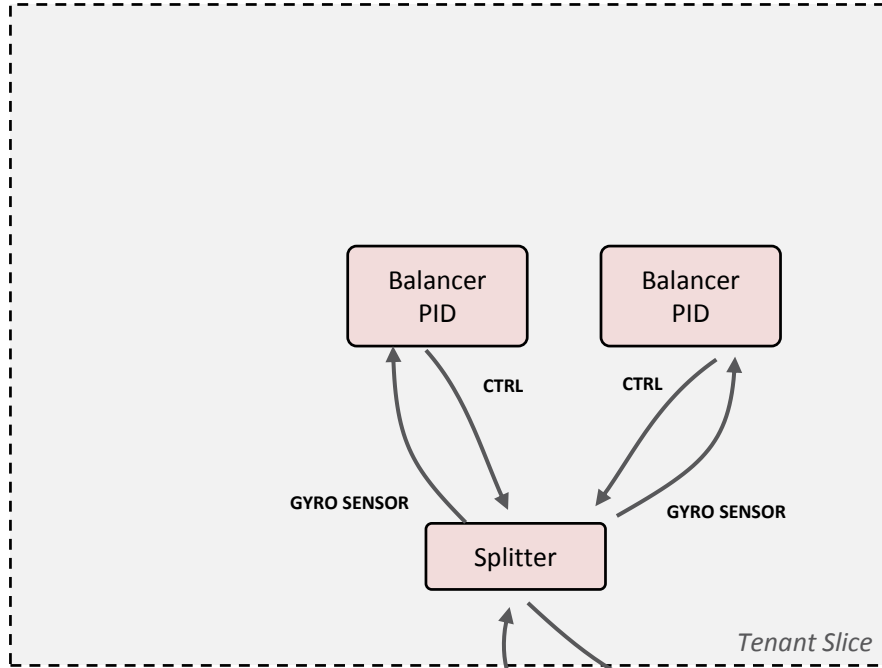


Use-case

- Robot-local control
 - PID controller invoked every 20 ms
- Move the logic into the cloud
 - Robot requests control every 20 ms



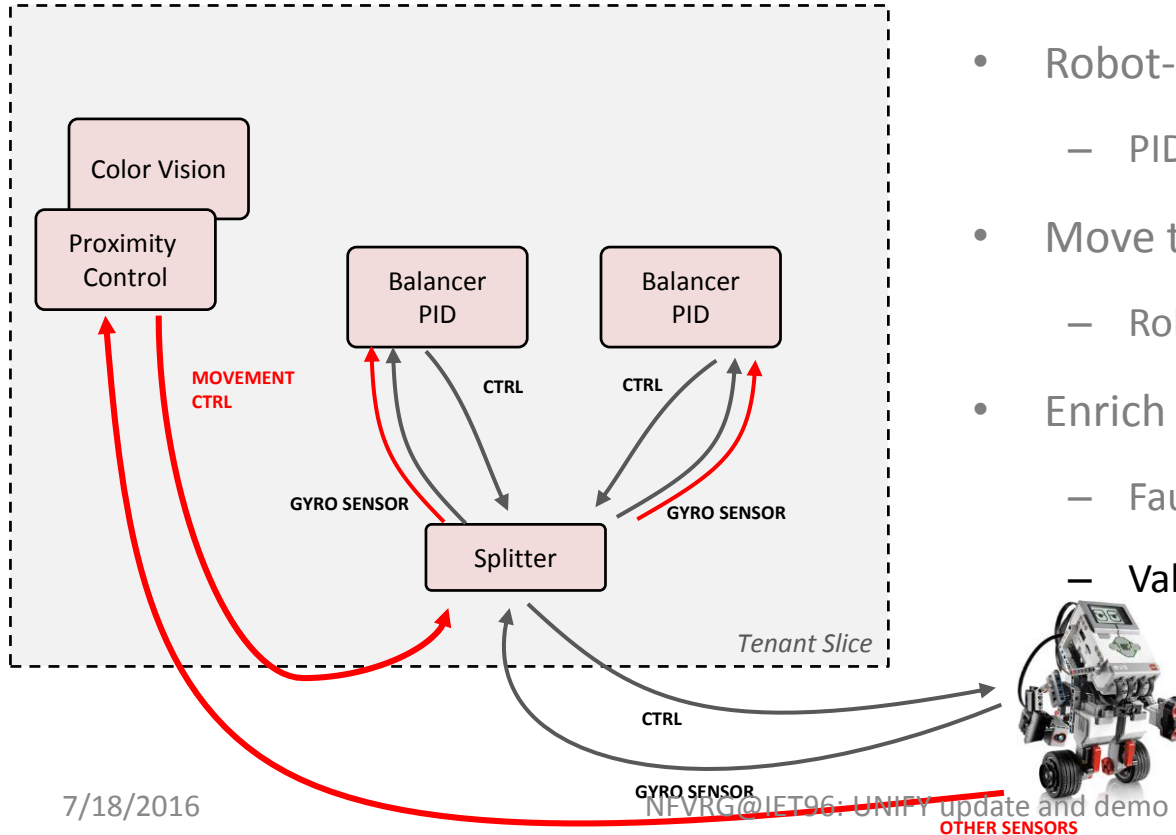
Use-case



- Robot-local control
 - PID controller invoked every 20 ms
- Move the logic into the cloud
 - Robot requests control every 20 ms
- Enrich service:
 - Fault tolerance

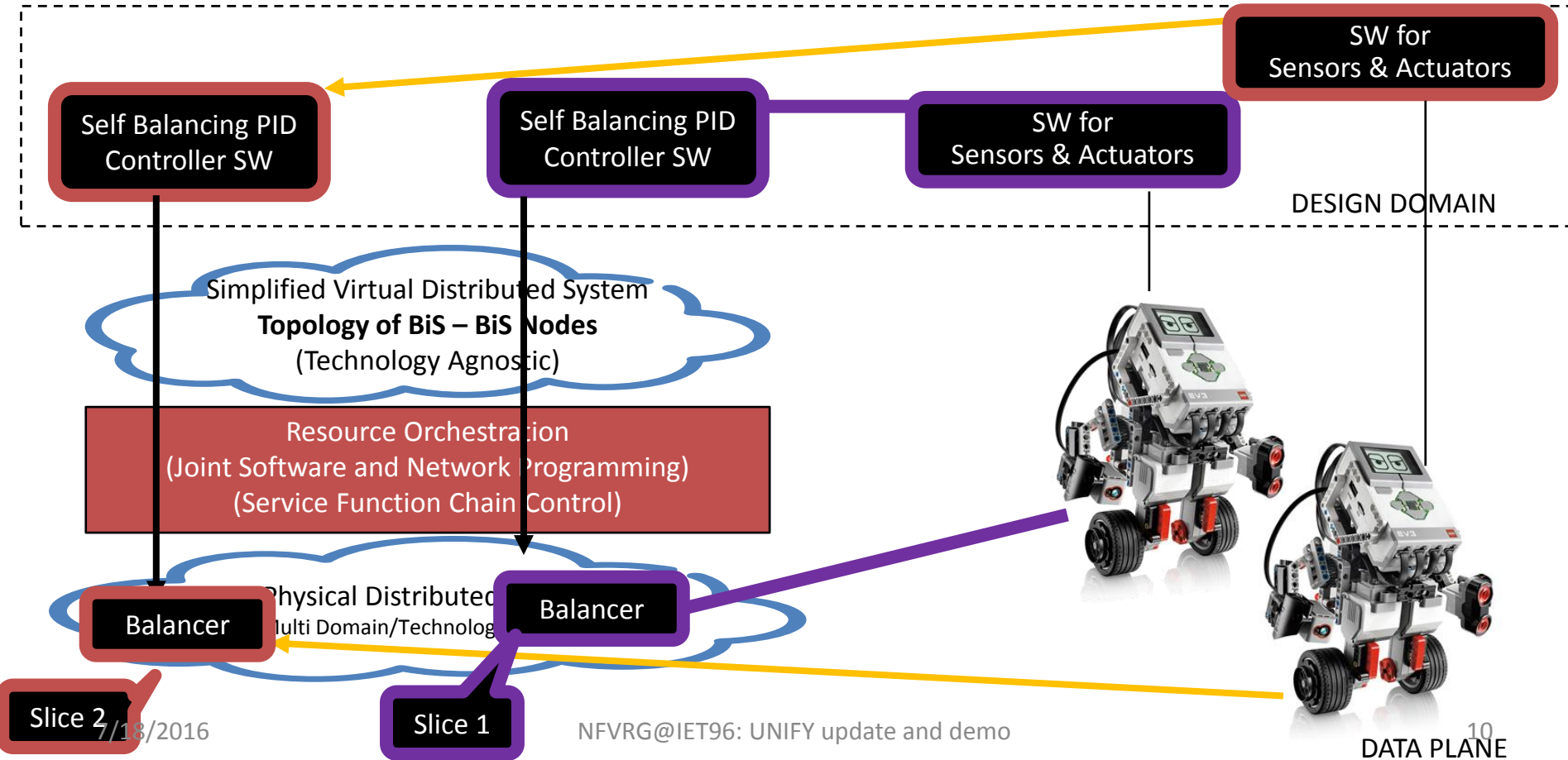


Use-case



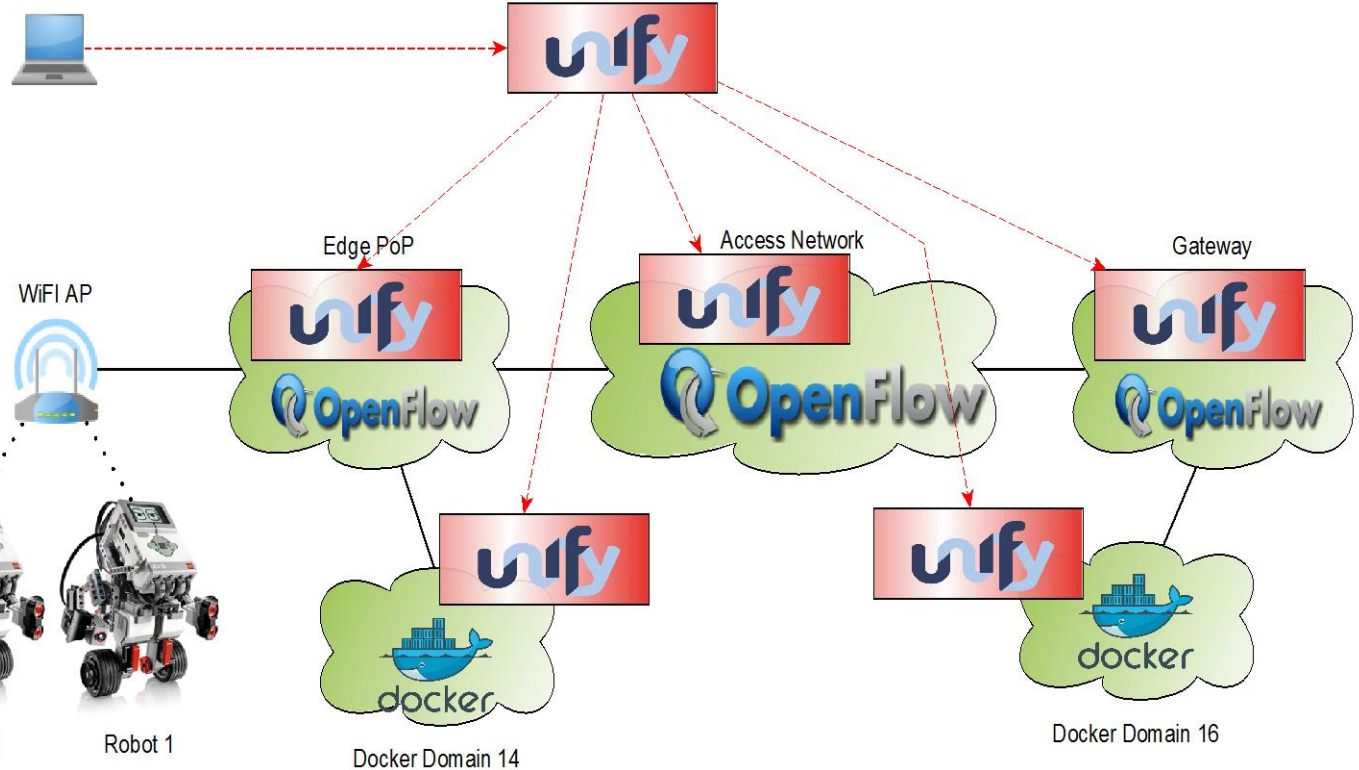
- Robot-local control
 - PID controller invoked every 20 ms
- Move the logic into the cloud
 - Robot requests control every 20 ms
- Enrich service:
 - Fault tolerance
 - Value added service functions

SW to SFC: Joint Network & Cloud Programming



Network Scenario

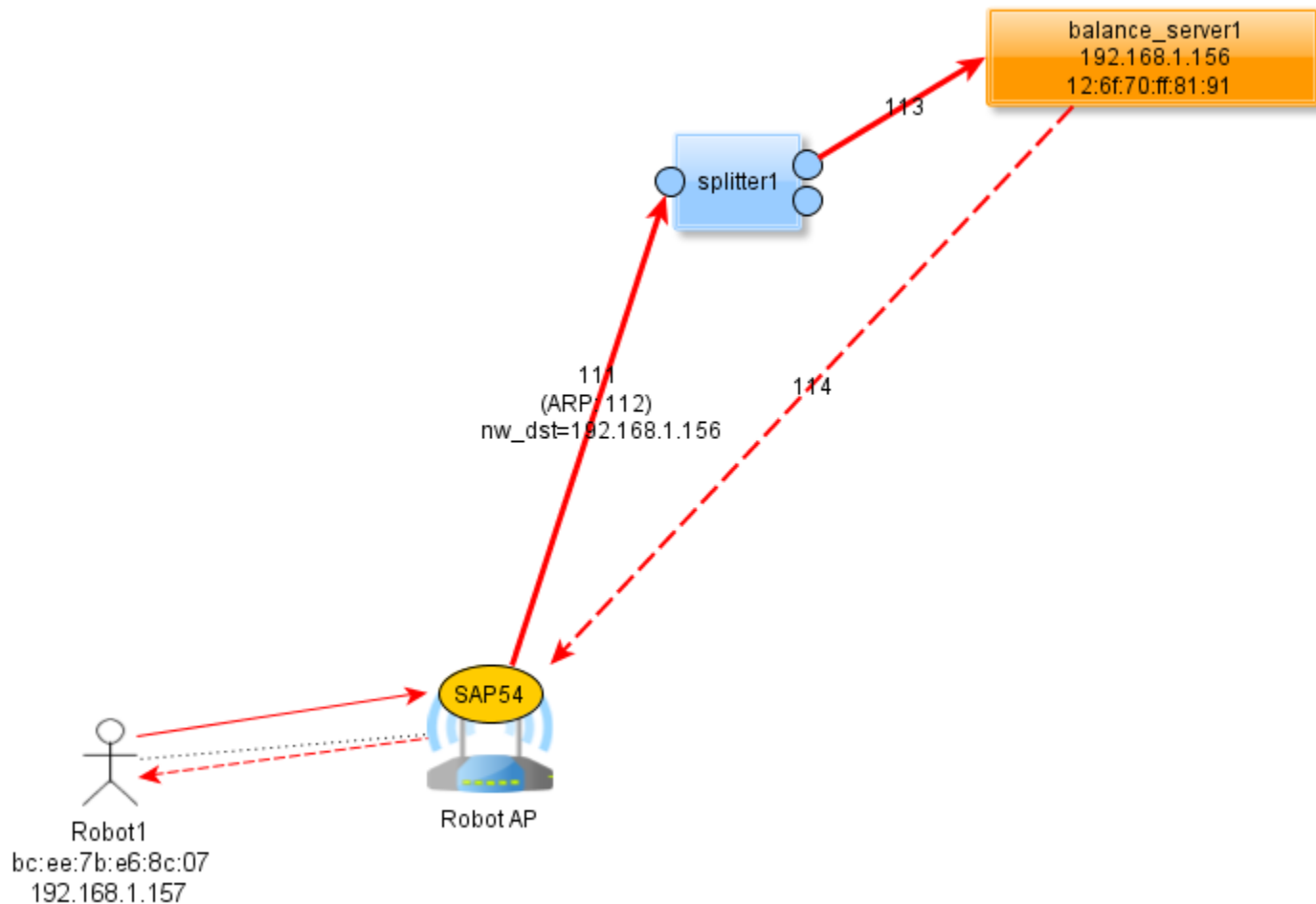
Joint Network & Cloud Resource Orchestrator



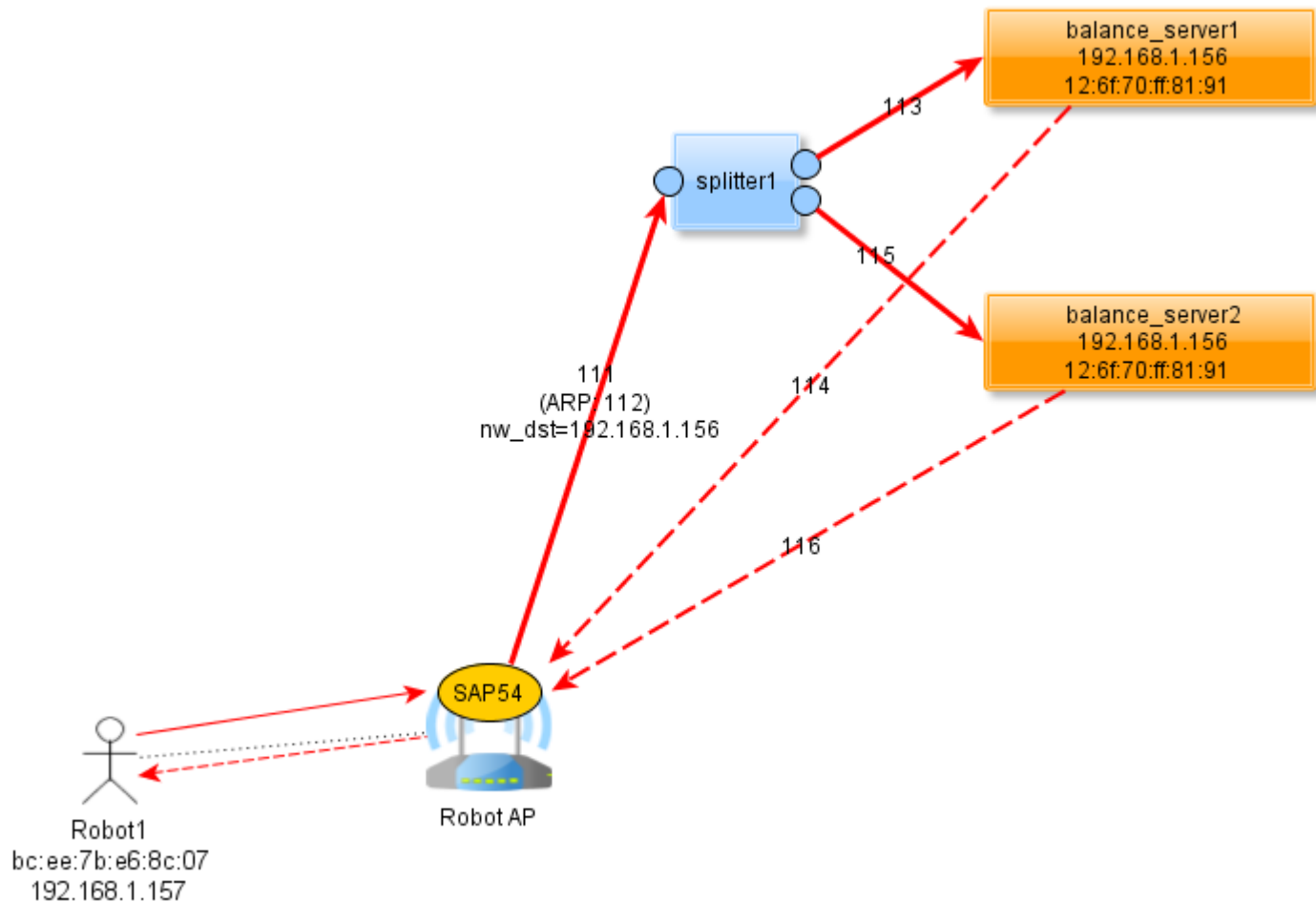
Recurring
virtualization
and control

[draft-irtf-nfvrg-unify-recursive-programming](#)

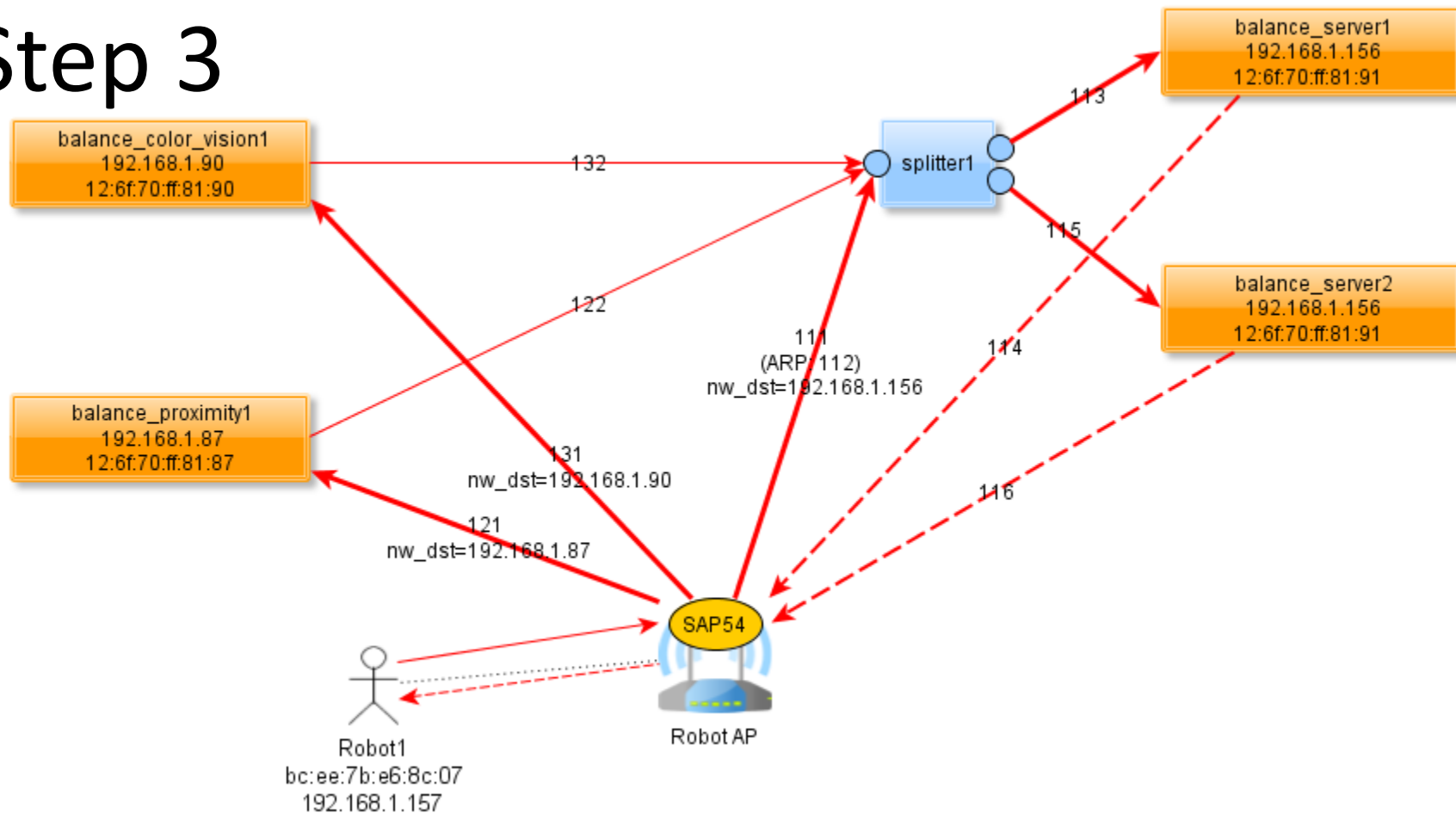
Step 1



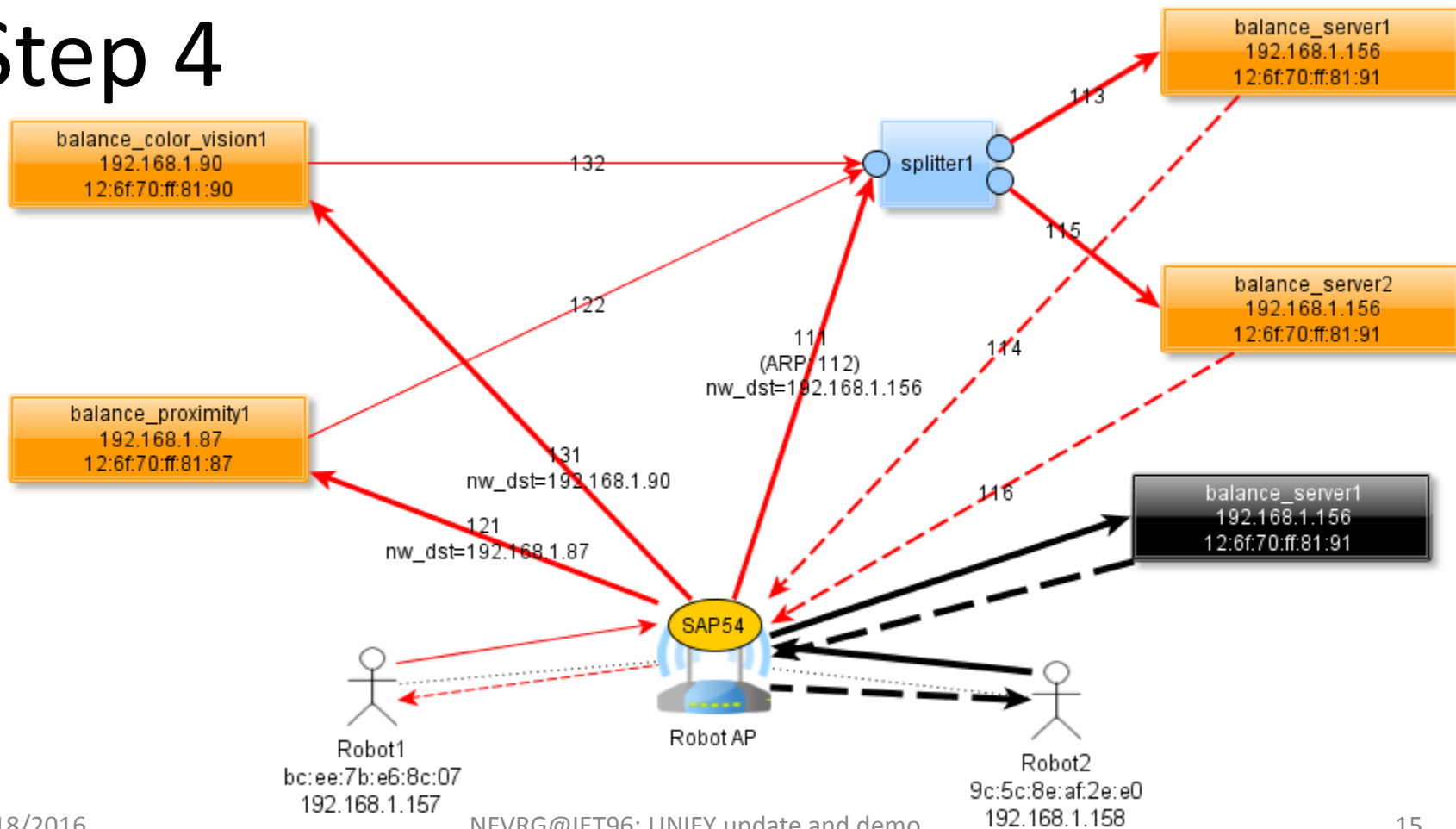
Step 2



Step 3



Step 4



UNIFY Demos @ Bits'n'bites

- Flexible Service Function Chain orchestration and control in multi-technology and multi-domain environments [[draft-unify-sfc-control-plane-exp](#)]
- An Elasticity Control API of the UNIFY Resource Orchestrator with a Control and Data Plane split VNF (an elastic router) based on the joint software and network programming API [[draft-irtf-nfvrg-unify-recursive-programming](#)] → Elastic Router
- Dynamic aggregation [[draft-cai-nfvrg-recursive-monitor](#)] for results from low-overhead passive SDN measurements

Summary

I-D

- Recurring domain virtualization and control
- Resources and Capabilities

Implementation

- Multi technology/domain support
 - OpenStack, Docker, SDN
- Network Slicing
- Automated:
 - SW defined apps
 - Service Function Chain
 - Network Slice

Acknowledgement: EU FP7 UNIFY

UNIFY consortium
(Nov 2013 –
July 2016)

This work is supported by FP7 UNIFY, a research project partially funded by the European Community under the Seventh Framework Program (grant agreement no. 619609). The views expressed here are those of the authors only. The European Commission is not liable for any use that may be made of the information in this document.

Major Service Providers:



Research Institutes:



Major Vendors:

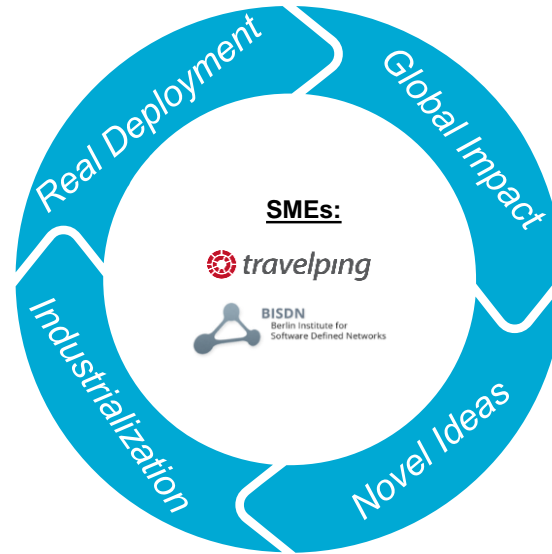


Coordinator

Universities:



Euskal Herriko Unibertsitatea



Project Management: **eict**