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WHY NFV FORCES THE TELCO INDUSTRY TO REINVENT ITSELF

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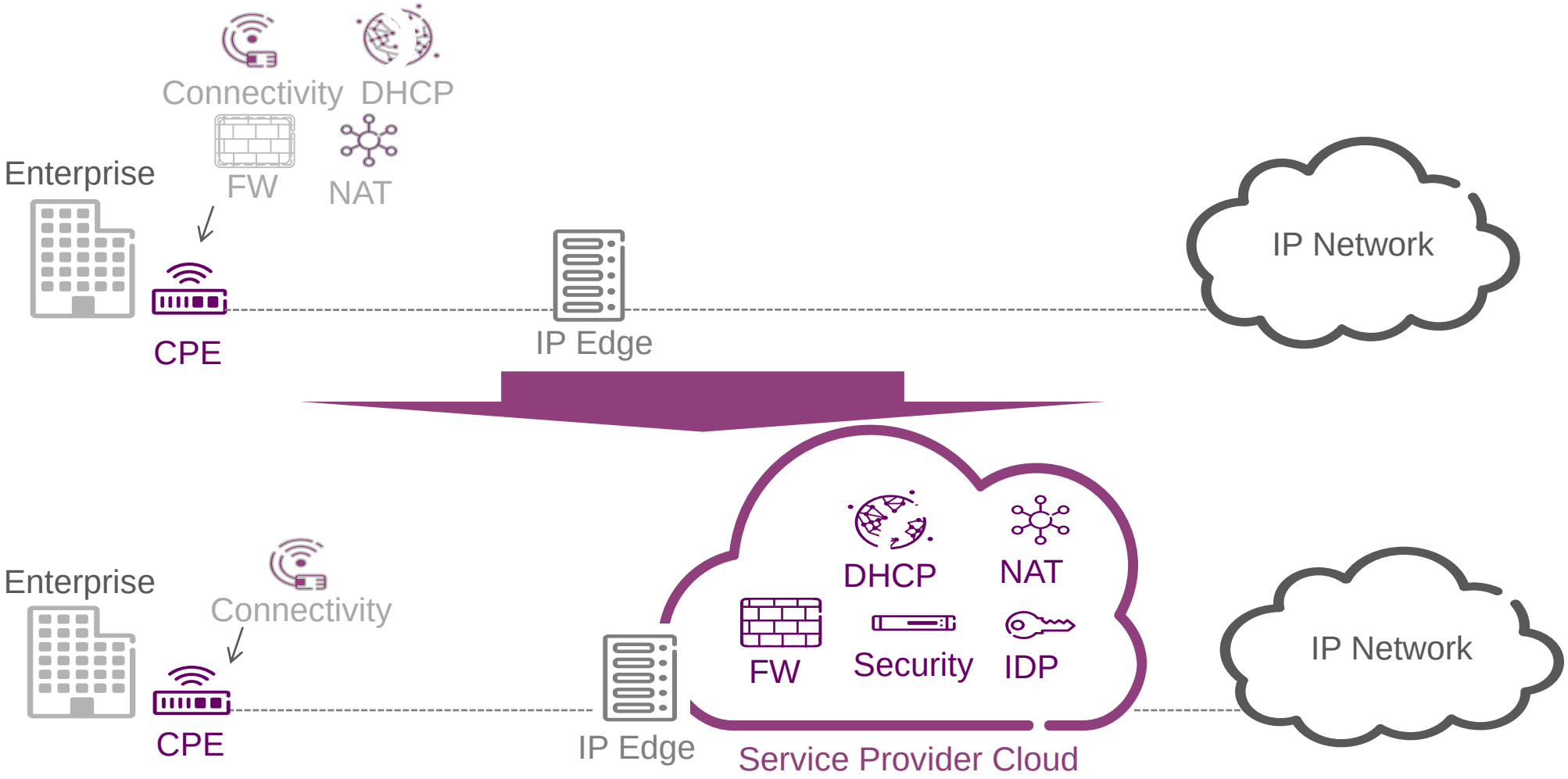
NETWORK FUNCTION VIRTUALIZATION
EXAMPLE CASE: VIRTUAL ENTERPRISE GATEWAY

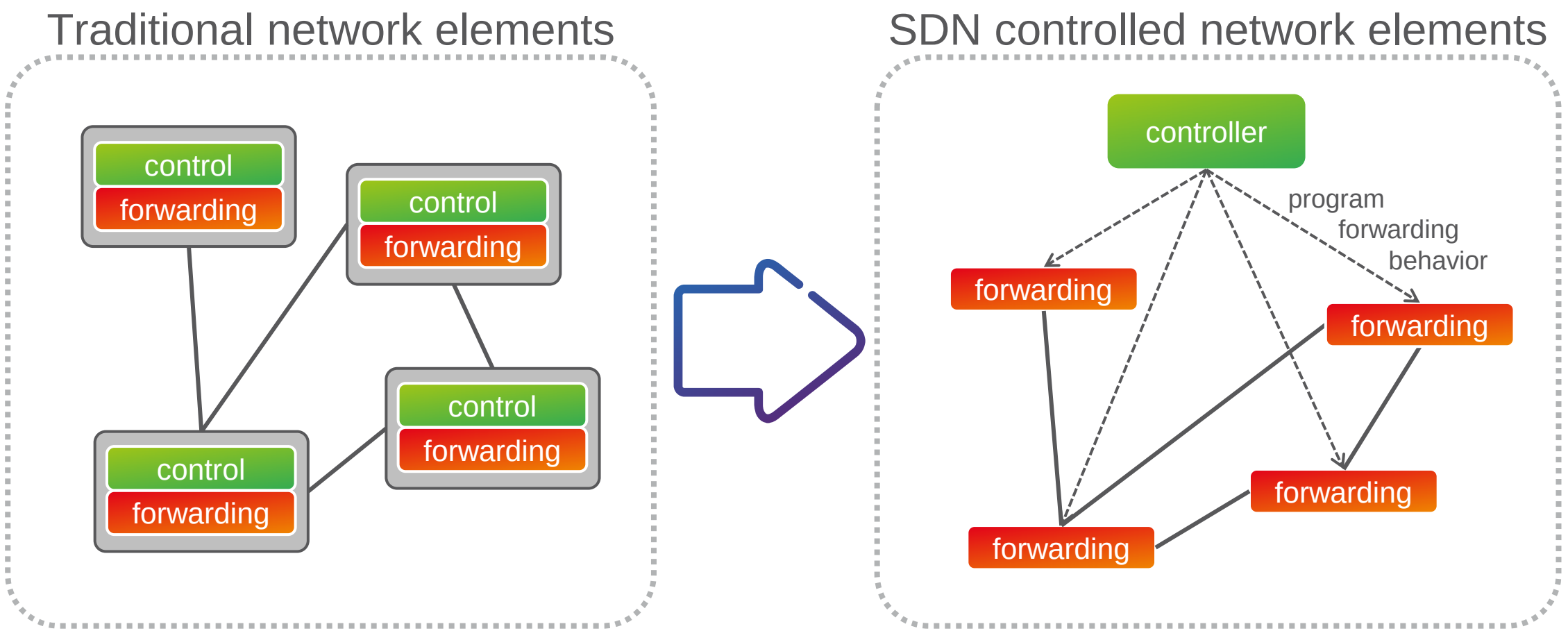


THE NFV CHALLENGE

- Applying Cloud principles to the Telco world
- Cloud is essentially about flexibility – decoupling software from hardware
  - Brings additional complexity – more components, more interfaces, more things that can go wrong
- Flexibility is why Cloud is highly interesting for Telco applications since one of the main innovation roadblocks in Telco is cost & lead time of change
- Key difference IT Cloud vs. Telco Cloud: advanced networking needs to be automated
  - Things that so far highly specialized engineers barely managed to accomplish (“never touch a running system” is today’s prevalent paradigm) suddenly need to be done by machines

…and that is how SDN enters the picture

SDN IN A NUTSHELL



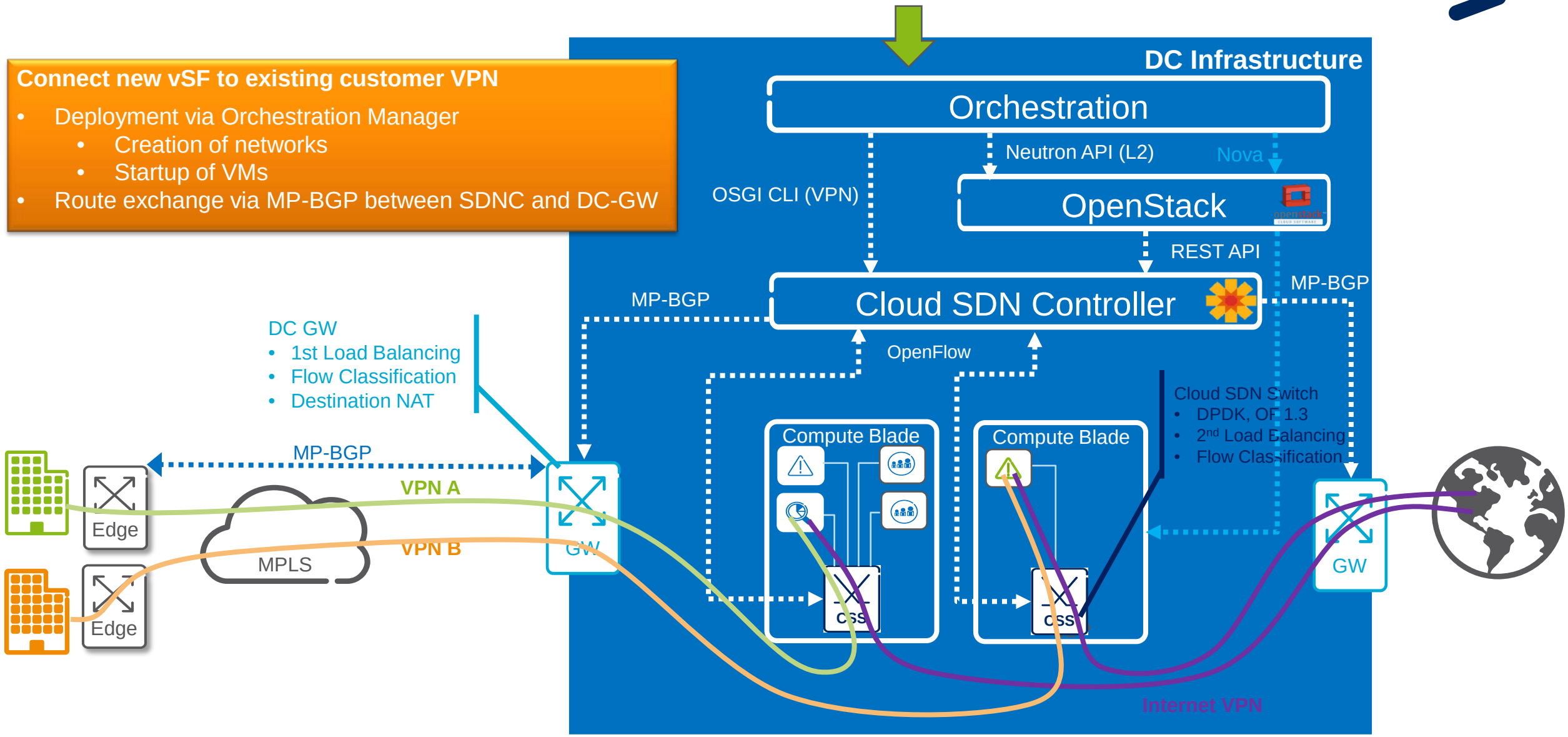
ERICSSON CLOUD SDN

Ericsson Cloud SDN brings full IP routing capabilities to data center networking, offering a true seamless interworking and management with existing IP/MPLS networks.

WHAT SDN DOES FOR NFV

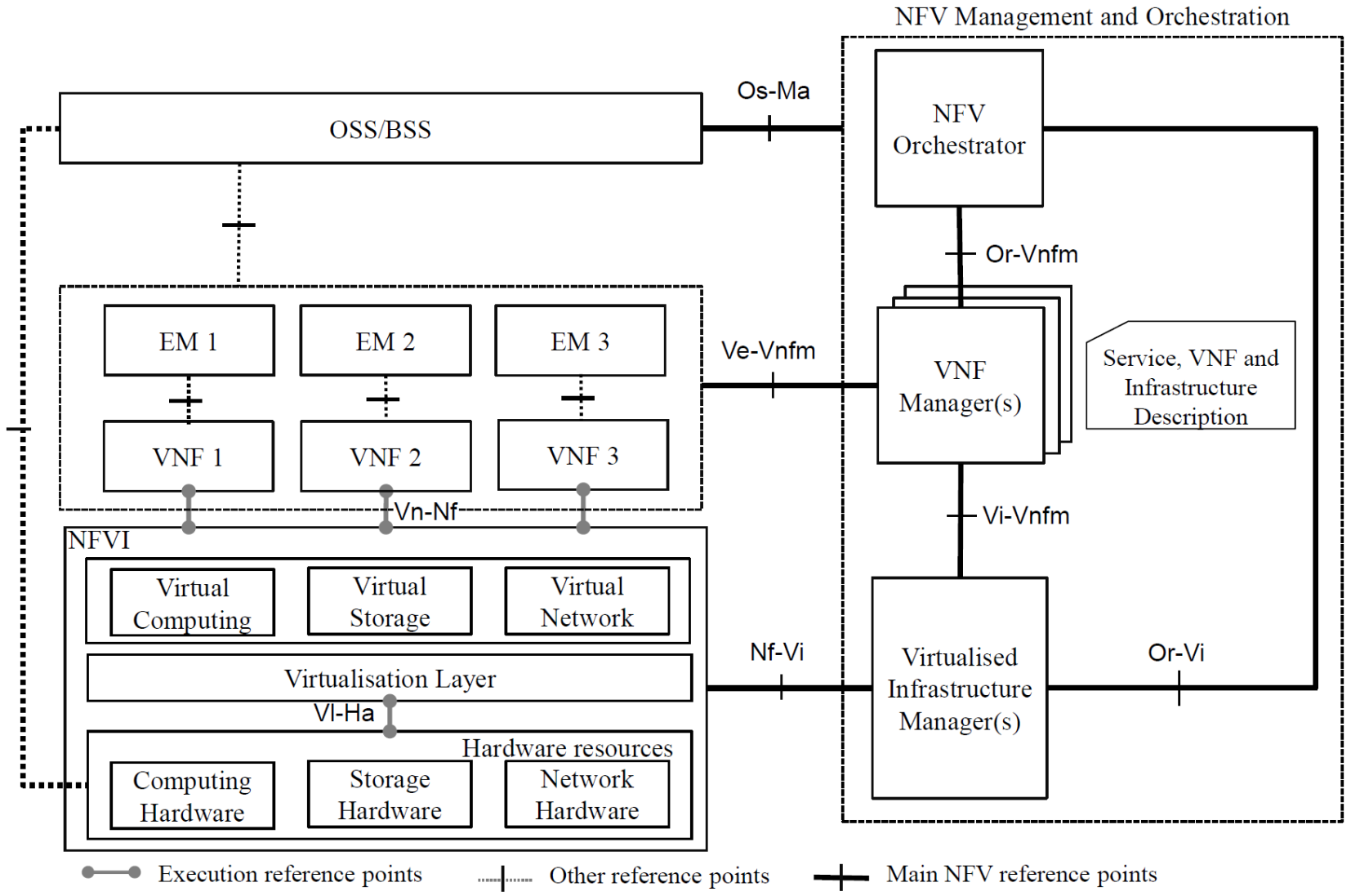
Connect new vSF to existing customer VPN

- Deployment via Orchestration Manager
  - Creation of networks
  - Startup of VMs
- Route exchange via MP-BGP between SDNC and DC-GW



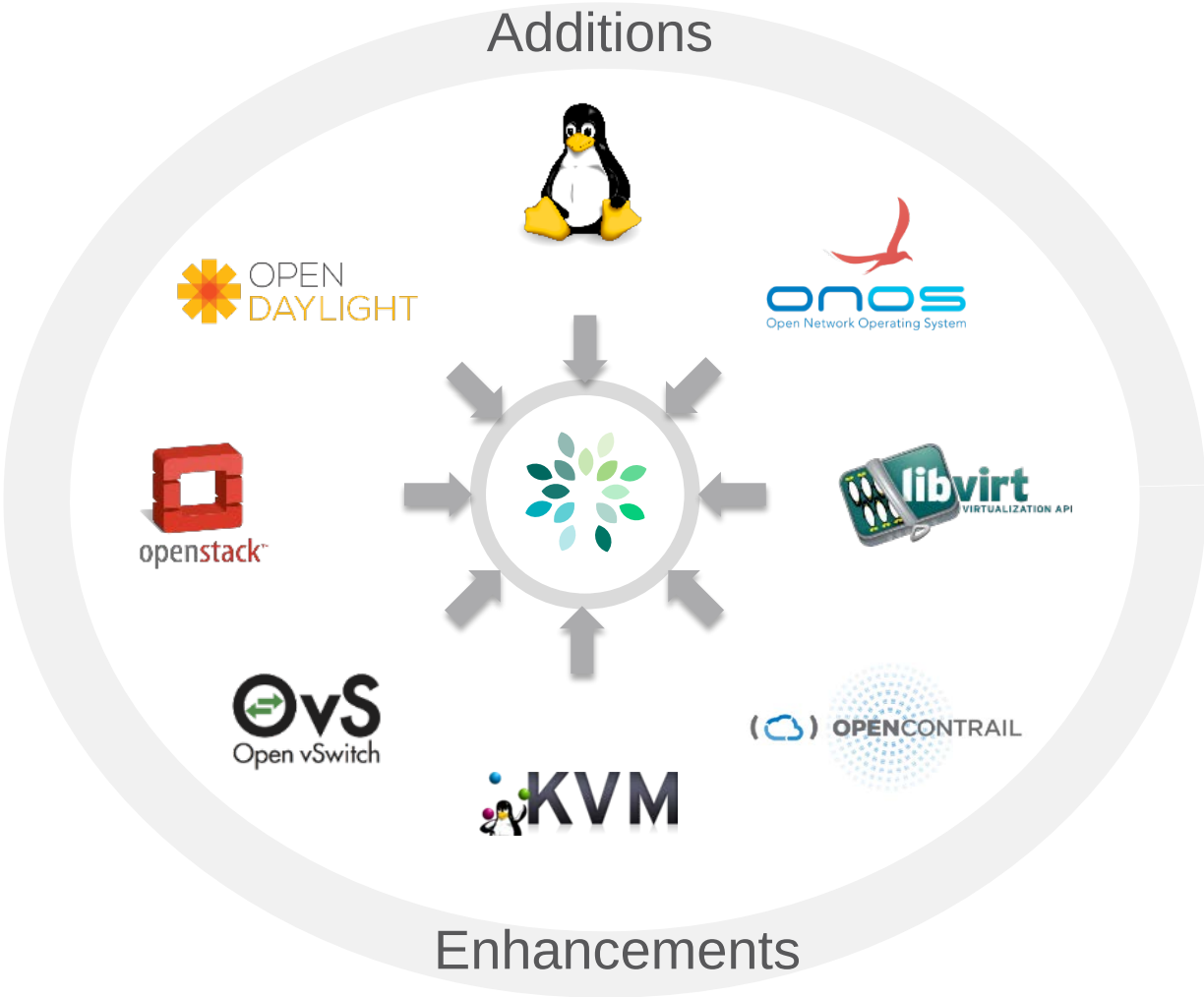
ETSI NFV ARCHITECTURE

- NVF Infrastructure (NFVI)
- Management and orchestration (MANO)
  - Virtualized Infrastructure Manager (VIM)
  - VNF Manager
- VNFs and their Element Managers (EM)
- OSS/BSS



ASSEMBLING AN OPEN PLATFORM FOR NFV

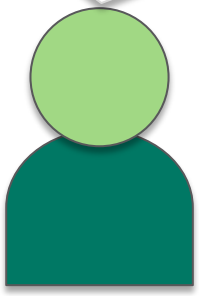
- Open source = collaborative development
- When?
  - Hard problem that everyone has to solve
  - Highly repetitive
  - Low on Intellectual Property & differentiation
- Share effort for doing the base layer, on top of which players can differentiate, cf. Linux
- In the NFV space there is an emerging base layer as well
  - OpenStack, ODL/ONOS/OpenContrail, OVS/fd.io/io.Visor
- Developed in silos → integration?
  - Hard problem, repetitive, low differentiation, which calls for…



OPNFV – SYSTEMS INTEGRATION AS AN OPEN COMMUNITY EFFORT.

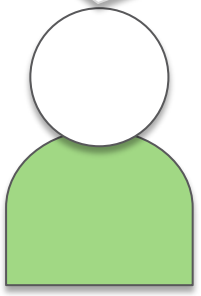
SERVING DIFFERENT AUDIENCES – RUN, TEST, CREATE

Could I get a NFV-I foundation with common UX to run any VNF on?



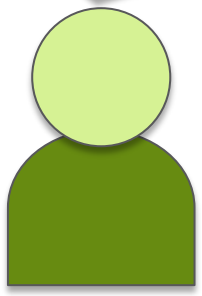
End-User

Could I get a tested foundation that avoids me re-starting all test-work with every new release?



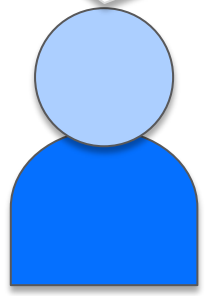
Systems-Integrator/ Tester

Does my new patch work at NFV-I system level?



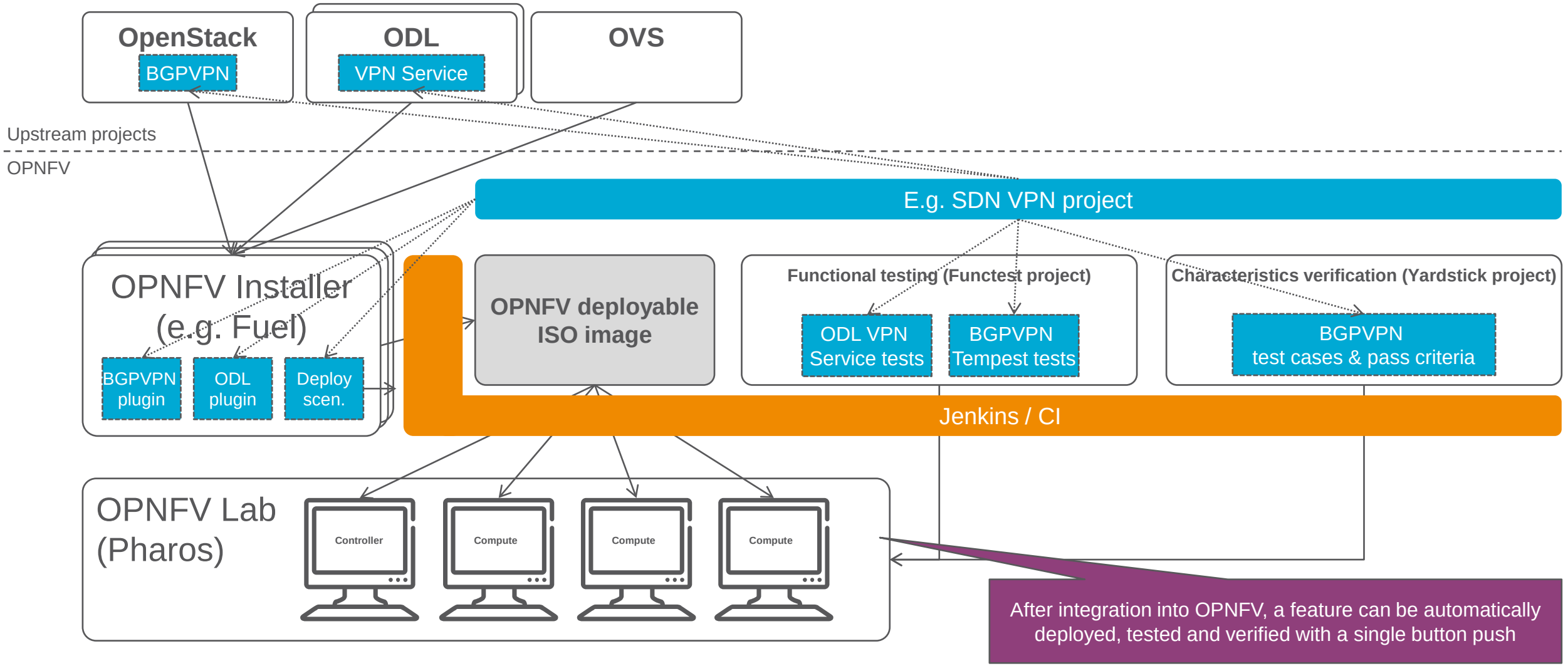
Developer in active Upstream Projects

How can I get my patches integrated/ accepted (OPNFV and Upstream)?



Developer of new features not yet in Upstream (NFV specific requirements)

OPNFV WORKFLOW



SUMMARY

- NFV promises the solution to the Telco industry's TTM and TCO problem
  - TTM = time-to-market
  - TCO = total cost of ownership

- A working NFV ecosystem requires standardization and collaborative development of the non-differentiating base layer
  - ETSI NFV, IETF, …
  - OpenStack, OpenDaylight (ONOS, OpenContrail, …), Open vSwitch (fd.io, io.Visor …)
  - System integration as a collaborative effort – OPNFV
- And this changes everything – required competence, organizations, ways of working, competitive landscape, you name it…

- One good thing about it: open source gives a significantly lowered entry barrier for small players, startups, universities, individuals

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