Model-driven Design

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How can we make a leaner more agile networks?

Vendor lock-in
Coupling of SW with HW
Long TTM
Manually built
Passively operated
Low-to-no reusability

Open Source
De-coupling of SW and HW
Short TTM: agility
Automatically built
Built-in network intelligent
Reusability is the key.

Design with Lego pieces not with snowflakes.
Multi-dimensional design was always our mission.

Deploy  
i.e., Local/geo-redundancy ? Both ? Which cloud environment ?

Orchestrate  
i.e., Can we use a generic orchestration flow ? Do we need anything specific

Connect  
i.e., Which type of networks to use ? Do we need IP addresses ? V4 ? 6 ? How many ?

Configure  
i.e., do we have VNF generic configuration ? do we have specific VNF configuration ?

Monitor  
i.e., on which standard are we going to do Monitoring ? SNMP ? Syslog ? what we would like to achieve ? an Alarm ? an automatic response ?

Operate & Maintain  
i.e., How do we handle upgrades ? Fixes, patches ? How do we handle scale in/out ? Delete ?

Automate as much as you can.
A reusable network starts from the bottom.

Rely on standards.

Model-driven design

• Well-defined “atoms”. *i.e., what is a port? what is a network?*

• Atoms build molecules, molecules build even more complex molecules (organisms).
Use abstractions - well-defined model’s “first-class citizens”: VFC, VL, CP, VNF, Service, etc.
Unlock new ways to design the network and control runtime execution.

Abstract!
ONAP Service Design & Creation (SDC)

VNF Onboarding
Automate onboarding of software-based network functions and in large quantities and with rapid speed.

Catalog
Single master catalog, maintaining E2E Models for run-time metadata-driven execution.
Maximize model-driven and minimize code changes to the operating platform.

Design
Compose, deploy, and operationalize services with shareable and reusable functional components. Flexibility is the key.
Create Vendor Software Product (VSP):

- Deployment artifacts, *i.e.*, HEAT
- License artifacts
- Images
- Monitoring artifacts, *i.e.*, SNMP-MIB
- Configuration artifacts
- Documentation
- ...

Validation:

- Standard validation
- Syntax validation
- Security checks.
- ...

Enrichment with:

- Operational requirements
- Deployment requirements
- Dependencies
- Functional and non-functional requirements
- Build license model

VNF Onboarding
Let’s start.