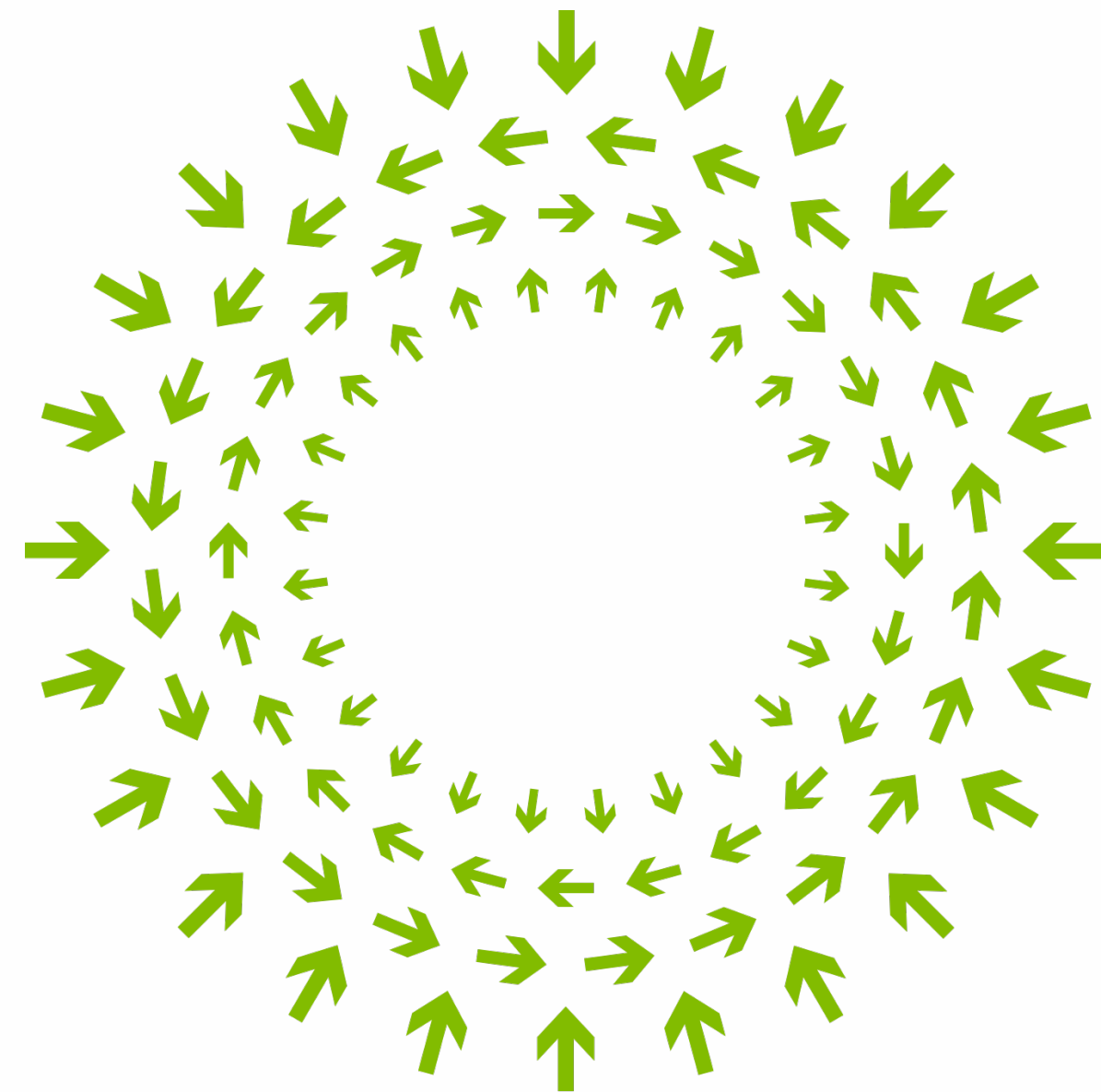


# AT&T Open XGS-PON NFV 1RU OLT

OCP Telco Engineering Workshop, Dallas, 09.25.2017



**OPEN**  
Compute Project



**Architecture & Planning**  
1057 Lenox Park Blvd.  
Room A473  
Atlanta, GA 30319

+1.404.499.7003  
tom.anschutz@att.com

**Tom Anschutz**

## What's an XGS-PON?

### GPON

GPON is a well-established and understood PON standard based on Gigabit speeds (2.5 x 1.25)

Used for AT&T GigaPower, Google Fiber, and Verizon FiOS, as well as many other Fiber to the X deployments around the world.

### XGS-PON

A much newer ITU standard for PON networks.

10Gbps – Symmetric – Passive – Optical – Network

Uses different wavelengths for upstream and downstream traffic, so can co-exist with GPON on the same passive optical network.

Higher speeds and symmetric bandwidth better supports emerging 5G small cell backhaul, as well as high-speed Internet access service.

## Contributors and License Agreement

### Submitter

AT&T submits the contribution.

### Contributors

AT&T has authored the contribution, with some figures contributed by Accton/Edgecore.

Feedback has been received and incorporated into the spec from the Telco WG and IC.

### Spec and Design

AT&T has authored the specification and is contributing that to OCP.

The spec includes both mandatory and optional aspects – facilitating multiple potentially compliant designs.

Accton/Edgecore has developed a compliant design to meet the spec with the intent to contribute their design to OCP.

AT&T is aware of other designs in progress.

### License Agreement

AT&T licenses the spec contribution using OCP-CLA Permissive.



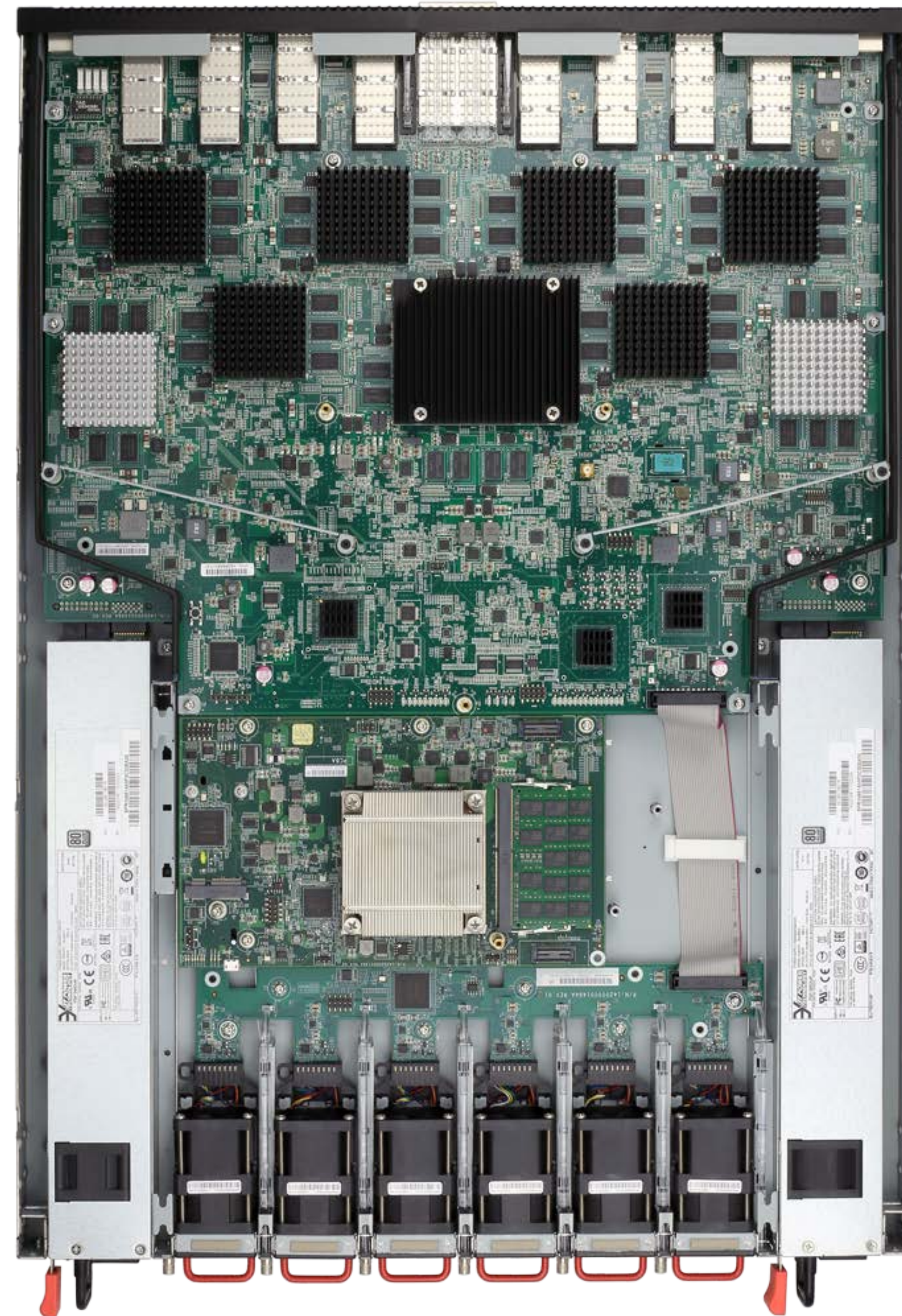
SKU

Accton / Edgecore

Model: ASFX816BBX-0716-EC

Meets criteria in specification (see next chart)

Available for purchase since July 2017





## Specification Criteria

### Met by SKU

Form factor, size

Redundancy for fans / power supplies as well as options for power feed and airflow

Specified merchant silicon and system block diagram

Number, speeds, and layout of interfaces. Optics and DAC options

BMC, ONIE, ONL, local CPU

R-CORD system support

Environmental requirements for power, mechanicals, safety, electromagnetics, ROHS

### Not met by SKU

The SKU meets all mandatory aspects described in the specification.

## OCP Principles

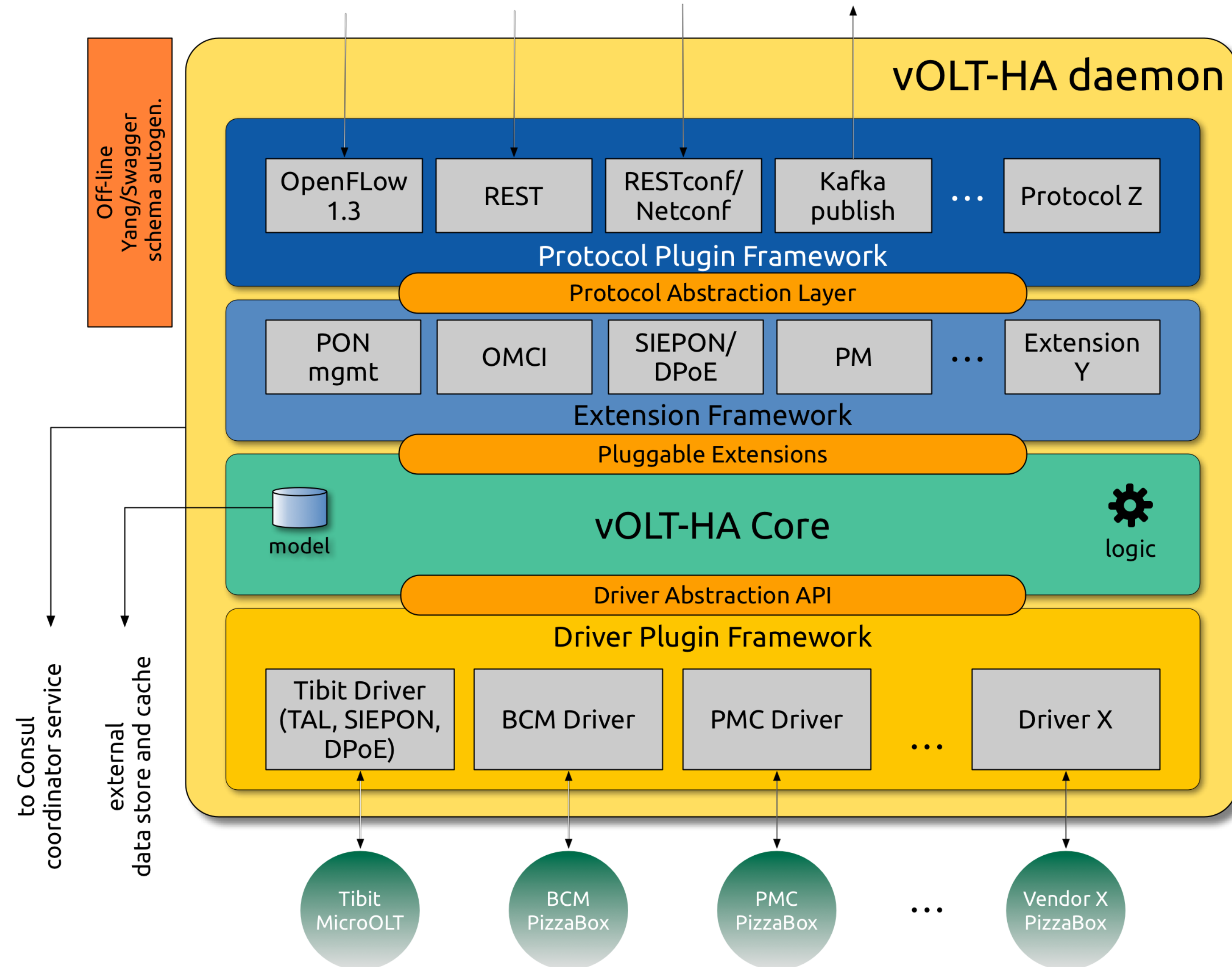
**Efficiency** – Spec achieves power efficiency through a planned software path to allow removing the local host module. When deployed in large numbers, this will allow consolidation of management and control functions on a small number of servers (or containers in a server) and reduce cost, power and cooling requirements for lower TCO than conventional designs. Deployment granularity is also made more efficient compared to common chassis-centric solutions deployed today. As with the previous GPON spec, the architecture has proven to be low cost and extremely competitive to legacy approaches.

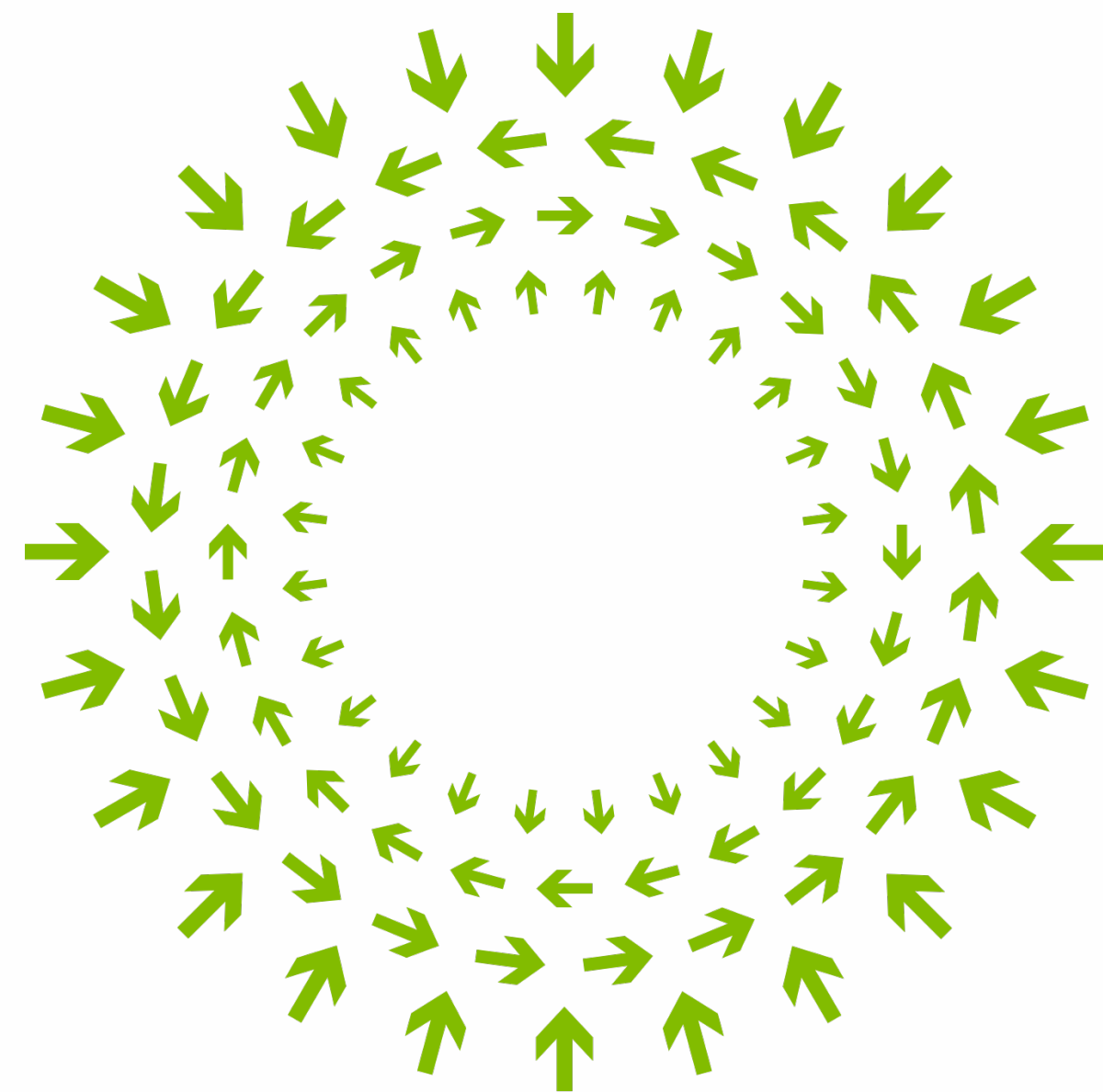
**Scale** – The Spec is a disaggregated network peripheral for NFV Infrastructure. In contrast to previous chassis-centric designs, the spec is designed to scale-out similar to data center fabrics, and can scale both down to a single box as well as out to a 16 rack deployment. The system is ONIE loaded and management is performed using SDN (NETCONF and OpenFlow).

**Openness** – The spec builds toward an open system approach with community support. The spec espouses the common form factor, layout and operational paradigms from ToR switch designs. Espouses ONIE, BMC, and Linux OS. Re-uses common power supply and fan components. Standard, non-locked, XFP and QSFP optical ports. The software stack is similarly open and is the R-CORD project in the Linux Foundation. R-CORD software is open-source with FRAND IP rules. (N.B. like most cases, the silicon firmware and associated API libraries are proprietary and licensed with the sale of the silicon.) Lastly, not only hardware and software are open, but the process used to develop the spec was open and transparent, with the Telco WG having numerous presentations and feedback sessions to help guide the work and make it useful to the larger community.

**Impact** – This spec builds on the Open GPON spec, and those impacts. It also brings brand-new access technology in the form of XGS-PON and raises the bar on what open, disaggregated network architectures can provide.

## Software Stack





# OPEN

Compute Project

