OCP TENETS EXPLAINED

OPEN Compute Project

Making a HW/SW Contribution to OCP

When considering a HW or SW contribution to the OCP ecosystem, one needs to provide the following items to the Project Community:

1. Present the Concept Proposal to the respective Project Community during their monthly calls
2. Ensure your organization is an OCP Member in good standing.
3. Ensure your organization has signed the legal documents required to make a contribution to the OCP Community.
4. Pending consensus from the Community, provide a detailed Specification on your contribution, following the Specification Template.
5. Ensure that the contribution meets the core OCP Tenets.
6. Complete the Specification Checklist to insure that the Contribution Process is being followed correctly.

OCP TENETS

- EFFICIENCY
- IMPACT
- SCALABILITY
- OPENNESS
- Sustainability

EFFICIENCY

- All OCP contributions must have an efficient design. Some examples of efficiency may be
  - power delivery and conversion
  - thermal efficiency
  - platform performance (per-W for example)
  - reduction in overall infrastructure costs
  - reduction in code weight
  - reduction in latencies

IMPACT

- All OCP contributions must create meaningful positive impact within the OCP ecosystem. This may be attained by the introduction of
    - efficiency gains
    - utilization of new technologies
    - products that are valuable for scale out computing, creating a multiplier effect by building on top of already existing OCP solutions
    - enabling a more robust supply chain by contributing alternative compatible solutions.

OPENNESS

- All OCP contributions must be open. This encourages as much open source contribution as possible. OCP understands that in certain cases 100% open source contribution may not be possible.
- Whether fully open source or not, a contribution should strive to comply with a set of already existing open interfaces, at the very least be able to provide one.
- Providing a solution compatible with already existing OCP contributions is one way to implement existing (open) interfaces.

SCALABILITY

- All OCP contributions must be scalable. This means that the technology is designed with the right supporting features to allow for its maintenance in large scale deployments. This may include
  - physical maintenance
  - remote management
  - upgradability
  - error reporting
  - maintenance service (remote or on-premise)
- Management tools should be open-sourced or made available to adopters.
- Supporting documentation for each contribution should enable adopters towards a successful deployment, including
  - installation guidance
  - initialization process
  - configuration information
  - how to obtain service support.

Sustainability

- OCP contributions must be sustainable. Submissions should maximize transparency of environmental impacts of the contribution, with the aspiration of improvement over time.
- Other focuses:
  - Responsible use of our natural resources (land, air, power, water and materials)
  - Positively impact society
  - Reduced Costs (Energy, Water, materials)

Customer Examples of Meeting Tenets

The following slides are examples of how contributors have documented how a contribution submission meets the OCP tenets.

OCP Principles

Efficiency – Spec uses the lowest power ASIC for GPON OLT functions, and achieves additional power efficiency through removal of aggregation, memory, and flash compared to conventional designs. The result is a device with the lowest known watts-per-port for GPON. Deployment granularity is also made more efficient compared to common chassis-centric solutions deployed today. 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, SFP 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 is the first telco project specification. This is the first disaggregated network element. The spec sets an entirely new bar for efficiency & scale and opens the path to developing more meaningful use of data center infrastructure in telco environments and for communications workloads. The architecture described in the spec launches disaggregated networking and provides a basis for many follow-on specs and designs to be developed in shorter intervals and with less effort than legacy network elements or VNFs. It could even be said that development of this spec led to the formation of the Telco Project at OCP.

See long form principles: http://opencompute.org/about/mission-and-principles/

AT&T

PCIe ReTimer Card

P16RC

Efficiency

Performance and Reliability Improvement

Wiwynn P16RC card is designed to give maximum efficiency to the growing demand of increased data throughput and scalability.

Scale

PCIe Interconnection Enables Data Disaggregation

With Wiwynn P16RC card, connection between compute and storage become easy. It is now possible to disaggregate storage away from the compute and vice versa with no penalty to performance.

Openness

Yes, the design package has been contributed on 2017/7.

Impact

Best Flexibility for Data-intensive Applications

The Wiwynn P16RC card is a 32-channel (16-lane) retimer capable of 8 Gbps-per-channel transfers, providing a total of 256 Gbps of communication bandwidth, which is the best suited for data-intensive applications.

Thank You!

Any questions?

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OPEN Compute Project