OPEN
Compute Project

Projects Consolidated Charter

1 Revision History

Revision	Date	Name	Description
0.5	TBD	TBD	Released to project members for comment
0.9	TBD	TBD	Final Submission to Incubation Committee
1.0	TBD	TBD	Approved by Incubation Committee

2 Table of Contents

3 Project Organization

3.1 Participation

An OCP Project is made up of participants (members and non-members) who are committed to moving the project forward between meetings. Those who are interested in an OCP Project are encouraged to actively participate which includes but not limited to attend online project meetings, engineering workshops, provide thought leadership, advice, feedback on shared specifications and designs and more. To participate in an OCP Project, one does not need to be an OCP Member. However, to contribute a specification or vote in the project lead elections one must be a member of Open Compute Project.

All participants of the project shall subscribe to the mail list. Mail list subscription is found at:

http://lists.opencompute.org/mailman/

While membership in the Open Compute Project is not required to subscribe to the mailing list or participate in the project, Open Compute Project membership is encouraged. Individual memberships are available, see http://opencompute.org/community/get-involved/tiered-membership/individual-ocp-community-membership/

3.2 Project Chairperson

An OCP Project chairperson (aka a project lead) will be elected by the active participants of an OCP Project, OCP Board Members and OCP Foundation Employees. The chairperson responsibilities include but not limited to: facilitate the flow of information, determine consensus, commit documents, liaison with the Foundation, schedule meetings, maintenance of project wiki pages, and plan sessions for Engineering Workshops

3.3 Project Incubation Committee (IC) Representative

Each Project shall have a representative on the Incubation Committee (IC).   The IC committee representative will act as a liaison to the Project. The IC liaison will assure that submissions ready for IC review are properly considered for acceptance.

The first Project Incubation Committee (IC) Representative will be appointed by the Foundation and its representatives. The initial appointment will last until the next full IC election).

3.4 Meetings

An OCP Project will have at a minimum a monthly online meeting. Exact times and dates will be determined based on community feedback.

3.5   Contributions

The goal for any work activity within the project is eventual product submission to the foundation and it is expected that products submissions meet one of two product classification: OCP Accepted™ or OCP Inspired™.

These product classifications and the process to achieve the classification is documented in *OCP Specifications, Designs and Product Submissions Classifications and Flow.*

Revisions and addendums to existing specifications are typical for hardware projects with ongoing corrections and improvements. These will be treated formally as addendums to the existing specification. The chair and the IC liaison determine whether the changes are minor enough to approve directly or whether the changes should be sent through the full IC voting process.

3.6   Collaboration and Information Sharing

All specifications under consideration by a PROJECT shall be posted to the Project WIKI and designated as "SPECIFCATIONS UNDER REVIEW". In extreme situation is the case of a confidential submission, the project chair and the IC Representative liaison will provide feedback on the specifications. Upon agreement between the chair and the liaison, the specification will move to the IC. It is the submitter's responsibility to ensure that appropriate legal procedures for handling confidential information is met.

Product Specifications that have been accepted shall be posted to the projects wiki website.

4   Legal and Patent Policy

All specifications and work in an OCP Project shall be covered under the OCP license and legal agreements as determined by the contributor

5 Chartered Projects

5.1 Server Project

5.2 Networking Project

5.2.1 Overview

The Open Networking Project is to facilitate & enable new and innovative open networking hardware & software standards, design creations & collaborations, project validation & testing, and OCP Community contributions. The Open Networking Project is also to bring to networking technologies what has already enabled OCP open servers & storage including:

- Circumnavigate traditional closed & proprietary network switch H/W & S/W via fully open, nonlock-in networking technology stack.
- Fully disaggregated and open networking hardware & software
- Operating System - Linux based operating systems & developer tools, and ReST API's
- Fully automated configuration management & bare metal provisioning
- Universal & Multi-Form Factor Switch motherboard hardware (a la Roadrunner)
- Fully open integration & connectivity
- Energy efficient power & cooling designs
- • Software Defined Networking (SDN)

Initial open switch projects are to target top-of-rack form factors, port counts, etc., while later projects are to also target spine switches & potentially other switch types.

5.2.2 In-Scope Technology Categories

The initial "in-scope" coverage of the Open Networking Project is described by the following layers / categories of networking technologies:

Level "3" (initially out of scope)	Developer Tools, Management Tools, ReST API's, SDN
Level "2"	Device Drivers, Boot Loader, Bare Metal Provisioning, Firmware, BIOS, Open Linux OS's
Level "1"	Universal Form Factor "Common Motherboard" H/W Standards Based H/W, Frame Processor (optional) Interconnects & Integration, Standards

	Based Cabling OpenRack + 19" Form Factors Energy Efficient Power Supplies & Cooling

Later phases of the project may also include exploration of a Network ASIC Chip Open Interface Layer, as a conceptual analog of how OpenCL enables a multi-language, common developers API for both multiple GPU device types and FPGAs, LibVirt & Vagrant enable a multi-language, common developers API's for multiple hypervisors, …, etc.

5.2.3   Out-of-Scope Technology Categories

This project does not intend to develop areas including protocol stacks & virtualization, nor dictate network architectures & topologies. Other areas that are initially out of scope include hardware abstraction layer, deep packet inspection, hardware based security, firewall feature sets and load balancing. The project does, however, expect the results of its initiatives and contributions to support a wide variety of technologies and protocols.

5.2.4   Key Project Focus Areas

Per the collaborative team efforts at the First Open Compute Engineering Summit at MIT Stata Center on May 16th 2013, the following key focus areas were captured and summarized by PK per the working groups collaborative discussions & debates. (Original event content marker board photo in Appendix

Open Switch Hardware
- Silicon Examples: Broadcom, Intel / Fulcrum, Marvell, Netronome, Mellanox
- Speeds, Feeds, and Environmentals
- Frame Processor and Add-In Board Interface
- Switch Control Processor / CPU: X86, ARM
- Operating System Agnostic
- Power Supplies: Input voltage, Watts, Efficiency … OpenRack and 19" standard enterprise
- Universal Motherboard Form Factor: OpenRack and 19" standard enterprise

Form Factor:
- Leaf / Top of Rack
- Spine
- Non-bladed
- N 'U' Universal Form Factor – OpenRack & 19" Traditional Enterprise
- Cooling

Power Supplies
- Input
- Watts
- Efficiency
- N 'U' Universal Form Factor – OpenRack & 19" Traditional Enterprise

5.2.5   Project Specific Guidance

• Open Switch Hardware Definition - Leaf / Top of Rack - Spine
• Open Switch Software Definition
           -    Operating System Independent (Linux Based)

- Open Boot Loader
- Bare Metal Provisioning (PXE, Uboot, ONIE, …, others)
- Network ASIC Chip Open Interface "Driver"
- "OpenCL Analog"
- OCP Open Hardware Management Analog

- Key Drivers

  - Common, Standard form factors
  - Capex & Opex reduction
  - Tier1 & Tier2 Multi-Vendor Implementation, Standards Based
  - Interop C&I Tests and metrics … similar to OCP Server C&I Panel
  - 100% open source core, low-layer
  - 100% standards based hardware implementation
  - Analogous to BigData, NoSQL, …, etc . (Independent) Software & Hardware layers Potential Futures
  - Switch Hypervisor versus Linux Containers / LXC ?

5.3   Open Rack Project

5.4 TELCO Project

5.4.1 Overview

With the convergence and similarity between data center equipment and computing in telecom networks there is an industry desire to apply the OCP model to the creation of open telecom optimized hardware An OCP Project shall enlist participants from telecom companies and carriers as well as sub systems, software, board and semiconductor suppliers who are seeking to transition from existing proprietary solutions to Open Compute Project (OCP) solutions and enable open systems free of proprietary single supplier lock in

In response, hardware and software suppliers are changing their offerings to keep up with these innovations and meet the market's changing needs and expectations.
We know that as we move more services to the cloud, handle more data, and bring connectivity to the world, we must do it in the most efficient, economical, and sustainable way. Hardware must become commoditized, open and democratized created in a open commuting with an evolving set of products optimized for these challenges.

5.4.2 Scope

An OCP Project shall collaborate with all chartered OCP Projects to ensure broad adoption of OCP Products into the telecom market. Whenever possible, the Telco Project shall avoid duplication of efforts underway or chartered by the other workgroups.
Whenever possible, the Telco Project shall utilize products and specifications that achieve OCP Accepted™ and OCP Inspired™ classification.
The Telco Project shall be a community for sharing "proven and new " designs across end users and suppliers. In some respect, a "makers" community of cloud hardware for telecom and carriers.

5.4.3 In Scope Technology Categories

When OCP Accepted™ and OCP Inspired™ products are not sufficient nor deliver the technology needed by and for deployment into telecom and carrier data center or infrastructure, the Telco Project shall promote the creation of such products and specifications.
The scope of this project shall include any and all Telco/Carrier products that meet the following conditions, categories, or usages:
   a) that are compatible (e.g. tested) with OCP Accepted™ products and specifications
   b) Derived from OCP Accepted™ products and specifications,
   c) Supplement or compliment OCP Accepted™ and OCP Inspired™ products and specifications.
   d) When targeted for deployment out of the traditional Data Center or Central Office, shall not be limited to a 19" or OpenRack form factor
   e) …

5.4.4   Out of Scope Technology Categories

The Telco project shall not cover nor address:
- Standards creation (such as those produced or administered by IEEE, PCI SIG, DTMF, etc.), unless such standard is supported by OCP Accepted™ and OCP Inspired™ products.
- Products and/or items already covered in existing or emerging OCP projects such as server, storage, networking and other groups

5.4.5   Key Areas of Focus

- Reliability and Safety needs for the Telecom & Carrier Data Center
- Extended environmental needs for the Telecom & Carrier Data Center
- Low Latency, Multi-tenet Hardware to support Network Function Virtualization
- Access Layer Hardware
- Mobile Network Edge Computing Hardware
- Any type of computing that pushes data center functions into the Telco network that may evolve in the future, and that MAY not be part of today's network topologies
- [feedback from project needed]
- Computing functionality for both wired and wireless networks
- (We may want to add a provision in here for computing from airborne access nodes (ex Drones or even shipborne equipment that could be developed in the OCP Telco)

5.4.6   Project Specific Guidance

Environmental, Electrical, Mechanical, and Spatial Considerations

OCP recognizes that telecom providers and carriers install IT equipment in a wide variety of buildings, geographies, climates, & seismic areas of which local & national authorities place unique requirements on that IT equipment. The requirements are different and unique from that of the scale out cloud data center.   For example, unique requires have been documented in the Telcordia **NEBS** (Network Equipment-Building System) criteria. The NEBS documents are the most common set of safety, spatial and environmental design guidelines applied to telecommunications equipment in the United States. It is an industry requirement, but not a legal requirement.

An OCP Project shall neither embrace nor discourage unique requirements. Product contributions and corresponding specifications and collateral shall define the unique features or requirements.   For example, a contributed product may support a subset of the NEBS requirements. Those requirements shall be solely determined by the contributor (design source) and the supplier partners.   Further ruggedization/reliability requirements above and beyond what contributors have provided may be added to OCP Telco contributions by consumers who may use the modifications privately or choose to contribute back to the community for wider proliferation

To promote wide adoption of OCP products and specifications, the project may document desired features and/or requirements.

5.4.7   Manageability and Debug

Dealing at scale requires rock-solid management solutions. Service providers will require scalable and consistent tools to ensure service levels are maintained while consolidating operational silos and reducing "swivel chair" methods of operations. An OCP Project shall promote the use of existing OCP management interfaces, protocols, commands and debug interfaces as appropriate . As experience is gained using these tools, contributions of modifications and improvements to these tools may be submitted to improve existing submissions.