WHITE PAPER: OCP Ready™ Data Centers - Program Mission, Methodology, and Case Studies

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Revision History

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Executive Summary

The OCP Ready™ program created by the Open Compute Project Foundation (OCP) in 2019 has been successfully operating and expanding globally since its inception. This white paper explains the program mission, methodology, and explores the drivers for certification, case studies, and future outlook for the program.

Definitions

OCP Accepted: Products that carry the OCP Accepted recognition comply 100% with an OCP approved specification and the design files are open sourced and available

OCP Inspired: Products that carry the OCP Inspired recognition comply 100% with an OCP approved specification

Circular Economy Hardware: Products that can be reused and repurposed with no residual waste

List of Abbreviations

ACS - Advanced Cooling Solution
ACF - Advanced Cooling Facilities
AI - Artificial Intelligence
AR - Augmented Reality
BBU - Battery Backup Unit
CUE - Carbon Usage Effectiveness
EIA - Electronic Industries Alliance
ESG - Environmental Social and Corporate Governance
HPC - High Performance Computing
IEC - International Electrotechnical Commission
LCA - Life Cycle Assessment
NEMA - National Electrical Manufacturers Association
OOB - Out-of-Band
OTS - Operation Technology and Security
PUE - Power Usage Effectiveness
PSU - Power Supply Unit
SLA - Service Level Agreement
VR - Virtual Reality
WUE - Water Usage Effectiveness

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Introduction

As a white paper contribution to the Open Compute Project (OCP), the document explains the purpose of the OCP-Ready™ program and explores the drivers for both Colocation Solution Providers (Colo SPs) that seek OCP-Ready™ certification, and OCP users who use the program to identify suitable data centers to host their OCP IT gear. Included in the document is an overview of the current OCP-Ready™ data center estate, case studies from current Colo SPs, and the outlook for the future development of the program.

Background

The OCP-Ready™ program since its inception in 2019, has two purposes, for OCP Colo Solution Providers it allows them to carry out a self audit so that they can understand their readiness to host OCP Open Racks and IT gear. If the facility meets the requirements that were created by the Data Center Facility community, they can pursue recognition and certification with the Open Compute Project Foundation. For OCP users it allows them to review the sub system attributes and the parameters of an OCP-Ready™ data center, so that they can determine if the Colo SP has a facility that is suitable for the deployment of their Open Racks and IT gear.

1 Drivers

There are many reasons that have been identified during the duration of the program for a Colocation Solution Provider to seek OCP-Ready™ certification for their data center, and for an OCP user to use this program to identify suitable data centers to host their OCP IT gear. These key drivers, identified from each of their different perspectives have been listed below:

Colo Solution Provider

- Vendor agnostic - System agnostic
  - Offers customers IT hardware technology flexibility
    - Does not restrict technology choices of other platforms, but optimized for OCP Hardware
  - Flexibility in supply chain (availability, cost etc.)
- Certification compliance
  - Demonstrates meeting 3rd party criteria
  - Meets customer certification requirements
- Sustainability credentials
  - Values and business alignment
  - Meets ESG customer requirements
- Colo Solution Provider differentiator
  - Competitive advantage provided to users through a reduced total cost of ownership (TCO) i.e., lower energy consumption, efficiency gains in maintenance
  - Follows hyperscale cloud solution provider data center infrastructure innovation
  - Reduced carbon footprint
- Fulfill the need of OCP users that want to move into a production environment
  - Attracts like-minded customer base
  - Provides data centers that support OCP Open Racks (21” form factor)
- Demonstrates excellence in data center design and technical engineering
  - Enables rapid deployment of equipment while maximizing mechanical performance and thermal and electrical efficiency

Vendor Agnostic - The adoption of OCP hardware into a colo solution provider's facility promotes the tenets of OCP including openness. Therefore, the OCP-Ready™ certification of a facility signals to the market their ability to adopt OCP hardware without the restriction of adopting additional technology choices of other systems or platforms. For example, OCP-Ready™ facilities are compatible with other certifications e.g. TIER including but not limited to, specific silicon technology or cooling methods that are not OCP 'Accepted' or 'Inspired' products, to best serve their customers' business needs.

Certification Compliance - To attract and secure new business, a colo solution provider must earn confidence in their customers. A known way to instill consumer confidence is through third party certification. The OCP-Ready™ certification process provides an objective review of data center facilities, attributes, and requirements, set within the OCP Colo Facility Guidelines for Deployment of Open Racks . Completing the colo site assessment distinguishes service providers as having a compliant environment for OCP hardware. The acceptance of a data center in the OCP marketplace provides additional value to OCP users. Customers of Colo SPs have confidence in the OCP-Ready™ certification mark as an assurance of Openness, Scalability & Efficiency.

Sustainability Credentials - The OCP-Ready™ certification confirms to OCP users that a colo solution provider shares its values in sustainability. Aligning the goals of users and solution providers creates ethical business relationships. Conscious consumerism and expectations of regulated reporting has raised the priority of ESG issues globally. Therefore, users are increasingly requiring solution providers to provide a higher level of transparency for ESG in the evaluation of their vendor selection process. By standardizing on the KPIs for sustainability, OCP Colo SPs and users are able to share data driven forms of communicating their ESG credentials.

Colo Solution Provider Differentiator - It has been proven that if a Colo SP follows hyperscale cloud solution provider data center infrastructure innovation, a competitive advantage is provided to both themselves and users. The benefits are achieved through a reduced total cost of ownership (TCO) i.e., lower energy, reduced water consumption and efficiency gains in maintenance.

OCP User

- OCP Readiness
  - Easily identifies data centers suitable for OCP hardware deployment
  - Provides confidence that a data center is compliant to all OCP requirements
  - Investment in OCP hardware can be moved to a colo data center
  - Proven resilience for mission-critical environments
  - Demonstrates support of hyperscale cloud solution provider innovation
  - Fast Open Rack deployment time
- Certification compliance
  - Demonstrates equipment is supported by a facility that meets 3rd party criteria
  - Meets corporate certification standard requirements
  - Required for public sector tender & framework agreements
- Proven benefits for hardware and software OCP Solution Providers
  - Provides partnership opportunities for improved sustainability of IT infrastructure
  - Hosting for 2nd user (circular economy) hardware
  - Belief and business alignment
  - Fulfils the need of OCP users that want to move into a production environment
  - Work with like-minded suppliers who understand OCP hardware requirements
  - Follows hyperscale cloud solution provider data center infrastructure innovation
- Industry leading efficiency and sustainability metrics
  - Lower than average PUE and WUE
  - Reporting and monitoring of WUE and CUE
  - Aligns with corporate ESG goals e.g. reduced carbon footprint for an enterprise's life cycle assessment (LCA)
- Reduced total cost of ownership (TCO)
  - OpEx cost advantage due to reduced energy consumption
  - Standardization avoids customised deployment requirements for each data center
  - Efficiency gains in maintenance

2 Attributes

The Colo Facility Guidelines for Deployment of Open Racks and the OCP-Ready™ requirements within it were created by the OCP DCF project team and serve as a reference for Colo SPs and OCP users who want to understand the fundamental facility requirements to deploy OCP IT gear into their IT technical space. Facilities that meet these guidelines by the successful completion of a colo site assessment can be approved by the DCF project and receive the certification as an OCP-Ready™ facility from the OCP Foundation.

The attributes within the colo site assessment focus on five data center infrastructure sub systems and three operational considerations:

Sub Systems

Data Center Access - When checking a colocation facility for the requirements needed to accommodate Open Racks, vehicular access, architectural and structural aspects need to be considered to allow a fully packaged/crated rack to be brought into the data center from the point of off-loading from the delivery vehicle, and then brought into the facility via the loading bay or dock to the goods-in area.

IT Technical Space (White Space) - OCP-Ready™ requirements for the structural attributes of a data center's IT technical space have been considered, as Open Racks that are fully populated are heavy in nature. Acceptable, Optimum and Exception parameters for solid or access floor loading of a data hall have been set for uniform, concentrated and rolling loads, along with recommended access floor clearances and floor to ceiling height.

Power - To provide sufficient power to an Open Rack, acceptable or optimum circuit capacities are required that utilize 3-phase supplies and IEC or NEMA standardized power receptacles. Also, if an Open Rack is reliant on a battery backup unit (BBU) as the UPS, acceptable and optimum generator load acceptance times are set as an OCP-Ready™ requirement. This ensures that there is sufficient autonomy time to keep IT gear functioning before the backup generator comes online.

Cooling - Cooling an Open Rack is very similar to cooling a rack of traditional IT gear. Generally, it has front to back airflow and the density can vary from low to high, depending on the configuration of equipment. In an OCP-Ready™ data center the Colo SP must be able to demonstrate that the facility, when housing an Open Rack or other equipment, has either an 'optimum' design that allows for a managed air flow from a 'cold aisle' entering through the front of the server, or other IT equipment and exhausting to the rear and into the 'hot aisle' which should be segregated. The alternative method, which is 'acceptable', is to use cold aisle containment.

Cabling - There are a number of considerations to take into account, for example, can network connections be routed to the front of the rack. Also, are two or three levels of containment available for Intra-Pod, Inter-Pod, and OOB cabling, and can any optical fiber type be provided as per the customer's requirements. Open Racks are rolled into place fully configured, so the facility infrastructure (power, networking, containment) needs to be set up in a way to allow for quick and easy installation and removal of full Open Racks.

Operational Considerations

Service - The service provided by an OCP Colo SP to an OCP user is critically important to help ensure continuous availability of their OCP IT gear in production. Having on-site availability of replacement OCP IT gear, PSU and BBU modules, and remote hands for replacement or expansion is a must have attribute for many users. Although the hardware is specific to OCP architecture, the skills required are far less than a traditional IT engineer. For instance, tools are replaced with clearly indicated toolless touch points with "OCP Green" tabs, reducing error and increasing efficiency in assembly and disassembly.

Efficiency - For an OCP-Ready™ data center to be considered efficient in operation, requirements have been set for a Colo SP to employ site operations standards, such as the OCP Critical Facility Operations Guidelines or the Bicsi 009-2019 Data Centre Operations and Maintenance Best Practices. Also, information is required on monitoring and measuring efficiency and sustainability metrics, such as PUE, WUE, and CUE. Through the open reporting of this data, it encourages the continuous improvement of efficiency by our OCP-Ready™ Data Centers.

Openness

The Open Compute Project's mission is to design, use and enable mainstream delivery of the most efficient designs for scalable computing. We believe that openly sharing ideas, specifications and other intellectual property is the key to maximizing innovation and reducing complexity in infrastructure. All OCP contributions must be open. This encourages as much open source contribution as possible. OCP understands in certain cases 100% open source contribution may not be possible.

OCP Ready COLO Facility Assessment	[Site #1 specific name]		
Self Assessment Status:	NOT COMPLETED		
Data Center Location Name			
Data Center Location Address			
Site Description: White Space Area			
Site Description: Critical IT Power			
Site Description: Network Provider Availability			
Site Description: Facility Features			
Site Description: Other Services			
Date Original Assessment is Completed			
Re-Assessment Date:			
REQUIREMENTS - Attribute (Must have an Optimum or Acceptable result)	Parameter	Result	Notes
ACCESS			
Building Access	0. Selection Required		
Delivery pathway, Loading dock to Goods in	0. Selection Required		
Delivery pathway, Goods in to White space	0. Selection Required		
Corridor floor rolling load	0. Selection Required		
Unboxing/pre-staging/storage area floor uniform load	0. Selection Required		
Unboxing/pre-staging/storage area floor concentrated load	0. Selection Required		
RAMPS			
Gradient	0. Selection Required		
Width	0. Selection Required		
Landing area	0. Selection Required		
Railings	0. Selection Required		
LIFTS / ELEVATORS			
Weight loading	0. Selection Required		
Door height	0. Selection Required		
Width	0. Selection Required		
Depth	0. Selection Required		
WHITE SPACE			
Floor rolling load	0. Selection Required		
Floor uniform load	0. Selection Required		
Floor concentrated load	0. Selection Required		
Finished floor to ceiling height	0. Selection Required		
Access floor clearance	0. Selection Required		
ELECTRICAL			
Number of independent circuits to the rack	0. Selection Required		
Maximum circuit capacity	0. Selection Required		
Circuit voltage	0. Selection Required		
Circuit frequency	0. Selection Required		
Power receptacle / WIP Type	0. Selection Required		
Circuit receptacle location	0. Selection Required		
Upstream UPS options	0. Selection Required		
Rack-based batteries permitted	0. Selection Required		
Generator load acceptance time	0. Selection Required		
COOLING			

Figure 1: OCP Ready colo site assessment

OCP Ready colo site assessment (Google Sheet version)

OCP Ready colo site assessment (Excel version)

3 Summary of OCP-Ready™ Facilities

Colocation Solution Provider	Country	OCP-Ready™ Data Center	White Space Area (sq metres)	White Space Area (sq feet)	Critical IT Power (MW)	Site Design PUE	Site Annualized PUE Current Achievement	Site WUE Monitoring (litres/kWh)	Site CUE Monitoring (Kg CO2eq/kWh)
Kao Data	UK	DC1	3400	36,597	8.8	1.2	1.5	0.39	0.36
Rackspace	UK	LON5	6606	71,106	12	1.2	1.5	Unavailable	Unavailable
Hydro66	Sweden	Hydrogränd 2	500	5,382	1.6	1.07	1.075	0.059	0.0428
Maincubes B.V.	Netherlands	AMS01	4,400	47,361	4.7	1.6	1.6	0	Unavailable
SpaceDC	Indonesia	JAK2	700	7,535	1.4	1.5	1.5	Unavailable	Unavailable
Chayora	China	TJ1	1000	10,764	18	1.2	To be updated when data center loading reaches design limits	Unavailable	Unavailable
Bulk Digital	Norway	N01 Campus	1300	13,993	4	1.2	Unavailable operation under 12 months	Unavailable	Unavailable
Bulk Digital	Norway	OS-IX Oslo Internet Exchange	8600	92,570	8	1.3	1.27	Unavailable	Unavailable
Bulk Digital	Denmark	DK01 Campus	512	5,511	1	1.2	1.36	Unavailable	Unavailable
Princeton DG	Singapore	SG1	6500	69,965	13	1.5	1.5	Unavailable	Unavailable
Nautilus DT	USA	Stockton 1	929	10,000	7	1.2	Unavailable operation under 12 months	Unavailable	Unavailable

Table 1: Summary of OCP-Ready™ data center estate Mar 16, 2022

Key Parameters

- Total White Space Area - 34,000 sq metres (371,000 sq feet)
- Total Critical IT Power - 79.5 MW
- Average Site Design PUE - 1.29
- Average Site Annualized PUE - 1.41

4 Case Studies

Case Study - maincubes AMS01

maincubes AMS01 is a colocation data center in Amsterdam Schiphol-Rijk that supports OCP infrastructure. OCP-Ready™ certified in December 2020 and 2021.

Figure 2: maincubes - AMS01

Colocation service provided for OCP users

Circle B, an OCP Solutions Provider, provides and manages its OCP hardware (server, racks, data center, etc.) at the maincubes' AMS01 colocation. Through the partnership between maincubes and Circle B, OCP-ready infrastructure is made available for several mid to large-scale enterprises, hosting companies, and various SaaS companies based on OCP.

OCP Use Case

What services does maincubes provide to Circle B?

- An optimized space with an entire room to host OCP hardware
- An Experience Center (collaboration b/w maincubes, Circle B, Rittal) so that customers can test their workloads beforehand
- Space to manage a denser setup of servers, due to OCP design energy consumption is efficient - airflow is optimized- less power is used for energy cooling
- The design of the room with cooling tiles, which helps achieve energy efficiency due to managing the airflow of the servers better

The maincubes data center colocation provides Circle B with an optimized space, with an entire room to host its OCP hardware. Due to the OCP design, maincubes provides Circle B with the area to manage a dense setup of at least 500 servers in tandem with relatively low power consumption. The server setup requires much less time and workforce for the installation and makes it easy to replace the components, reducing the dependence on more infrastructure technicians.

Together, the partnership pushes towards higher sustainability, as the data center's room is designed using cooling tiles which helps manage the airflow of the servers in a better manner. This way, less energy is consumed to cool off the servers, leading to optimal energy use.

maincubes hosts the location of the European OCP Experience Center, a joint initiative with Circle B and Rittal, located at the maincubes AMS01 facility. The European Experience Center provides an OCP-Ready™ infrastructure to the customers and allows them to test their workloads on the OCP infrastructure before the actual deployments. The clients can also try new 'OCP Accepted' and 'OCP Inspired' data center and telco solutions. It is also a physical location that can be visited on request for anyone interested to see OCP infrastructure in a live environment.

Figure 3: OCP Experience Center at maincubes AMS01

Key Drivers and Benefits of being Certified OCP-Ready™

- Standardization - The OCP related processes are embedded in maincubes' standard way of working
  - This avoids special and tailor made solutions with deviation from standard operations, processes and for example SLAs
- Compliance - Customers and prospects have the guarantee that the maincubes AMS01 data center is compliant to all OCP requirements.
  - This avoids operational issues during the time of implementation
- Differentiation - maincubes AMS01 is the only OCP-Ready™ data center in The Netherlands
  - Ease of implementation for customers without uncertainties
- Sustainability - Sustainability is one of maincubes' core values.
  - By implementing efficient OCP infrastructures the data center becomes more efficient; will need less cooling and power with a positive effect on the carbon footprint of the data center

maincubes corporate landing page

maincubes OCP marketplace listing

Case Study - Kao Data KLON-01

Founded in 2014, Kao Data was the first European data centre to become OCP-Ready™. Today it develops and operates high performance data centres for advanced forms of industrial-scale computing, providing enterprise, cloud, HPC and AI customers with a world-class, OCP-Ready™ home for their compute. The campus was OCP-Ready™ certified in March 2019, 2020, 2021 and 2022.

Kao Data's carrier-neutral, London-One (KLON-01) facility, located on its Harlow campus in the UK Innovation Corridor, is designed, engineered, and operated by one of the industry's most respected teams, to offer the highest calibre of Open Compute data centre certified environments. Its pioneering design engineering and sustainability ethos has positioned Kao Data as the UK's pre-eminent home for the most demanding types of computing infrastructure. The facility is powered by 100% renewable energy and utilises an ultra-efficient design to deliver an SLA-backed PUE of <1.2, even at partial loads.

Figure 4: Kao Data - London-One (KLON-01)

Colocation service provided for OCP users

Kao Data offers resilient power and carrier-neutral connectivity to support the most demanding OCP-Ready™ environments. Its facilities have been engineered to enable users to quickly and efficiently deploy pre-populated OCP racks and other customised architectures.

Key design features of its KLON-01 data centre include:

- High-strength service lifts – capable of lifting 2500kg direct from road-level to each level of the data centre
- High-capacity slab flooring – available throughout all areas of its facility to accommodate OCP and liquid-cooled, intensive computing workloads
- Direct level access to technology suites – no steps or platforms for ease of accessibility
- High-capacity design – all technical suites include wide, high access and no pillars
- Whitespace optimisation – overhead power supplies and connectivity
- Sustainable, energy efficient architectures – powered by 100% renewable energy, with free air-cooling and an SLA-backed PUE of <1.2 (even at partial loads)
- Technical excellence – specialist support teams available for deploying OCP, HPC and AI systems

OCP Use Case

In 2021, Kao Data secured a contract from Civo, a flexible, developer-first cloud platform, to launch its cloud region within the UK. Civo offers a world-first managed Kubernetes service based on K3s technologies, which is aimed at the start-up and enterprise developer communities.

Its unique cloud configuration, built on OCP Accepted™ hardware, offers users the ability to develop superfast clusters with industry-leading launch speeds of under 90 seconds. Further, its K3s containerised environment is housed within high-density, 15kW+, standardised, OCP Accepted™ rack enclosures, containing Intel Xeon servers and NVMe storage, all of which are hosted to the highest standards of technical excellence.

Figure 5: Fully populated Open Rack delivery for Civo at London-One

Key Drivers and Benefits of being Certified OCP-Ready™

As Europe's first OCP Ready™ data centre, Kao Data's cutting edge and high performance design has been engineered to future-proof and support the next generation of GPU-intensive computing. Further, its facilities enable users to reduce costs, increase efficiency, and meet sustainability goals, while driving resilience for their mission-critical environments.

Kao Data corporate landing page

Kao Data OCP marketplace listing

Case Study - Hydro66 Hydrogrand 2 - Hall1

HYDRO66

Hydro66, a Northern Data company, was the first OCP-Ready™ colocation facility in the Nordics. Data centers have morphed over time from on-premise server rooms into the extremely large hyperscale 21st century “data factories” that we see today. Hyperscalers have built data centers for their own applications whereas Hydro66 have made these design innovations and industrial economics available to the broader Enterprise market. OCP-Ready™ certified in July 2019, 2020, and 2021.

Figure 6: Hydro66 campus is 7000m2 and 40 MW installed capacity

Colocation service provided for OCP users

Being an OCP-Ready™ Colo Facility means Hydro66 offers Enterprise clients an assured way to deploy OCP servers, storage, and networking equipment in an extremely cost-effective and scalable way. Compliance means a proven method for accepting OCP pre-built racks, safe in the knowledge that the data center has been pre-vetted and meets or exceeds all the criteria for hosting OCP hardware.

Our OCP customers benefit from an ultra low cost of power and security of supply on increasingly stressed national grids. Our campus in northern Sweden is 100% served by a 4500 MW 14 TWh river hydro system. The highly skilled workforce in the region, a very cool average temperature, and respect for the natural environment, is a unique combination.

The Nordics are also well known for their extremely dense fiber networks and our campus is no exception. With multiple diverse fiber networks entering our separated telco meet me rooms, customers are assured of 100% availability for their mission-critical hardware and applications.

OCP Use Case

Hydro66 has delivered OCP colocation data center services to Nexedi, a French provider of Enterprise solutions based on open source hardware and software. This new IaaS platform will provide market-leading price and performance public cloud servers. Hydro66 will deliver this from their award winning data center, reducing clients' carbon footprint to near zero.

Headquartered in France, Nexedi is an innovative Enterprise solution provider, focused on delivering open source software and hardware to solve complex business applications issues (such as ERP and CRM) in a very short time and with maximum flexibility. Customers include Airbus, Mitsubishi, PSA and SANEF, amongst many others.

Jean-Paul Smets, CEO Nexedi, stated, "We have been strong advocates of OCP for several years now and we are delighted to begin working with Hydro66. They reflect our core values of delivering environmentally friendly solutions at a fraction of the "Big 5" market price. Further, our customers see a lot of value in a cloud solution deployed in the EU with an EU partner. Delivering our pre-built Rapid.Space racks to Hydro66 and having them

available to our customers in a matter of minutes is exactly the benefit we expected from an OCP colocation facility."

Key Drivers and Benefits of being Certified OCP-Ready™

OCP-Ready™ Means Design Efficiency - Hydro66 is a leader in ultra-efficient data center design and operation and has been working with the OCP team for almost four years. The award-winning facility has been operational since October 2015 and was designed and built with OCP compliance in mind.

Some of the pioneering design features enabling Hydro66 to comply with the OCP standard include:

- Ground floor design throughout with no ramps, stairs, or elevators
- Solid concrete slab floor including loading bay, customer storage, and IT white space
- Dedicated building use, designed and built as a data center from green field
- PUE 1.07, compared to EU average 1.7 meaning 90% less energy used on overheads
- 30x saving on data center water usage

“We're glad that society is moving towards a more conscious approach for operational footprint. Data Center services are relatively easy to solve. It is a big challenge and a large amount of data that's growing like crazy as we all know. The good news is that there are solutions available today for forward-thinking companies to deploy infrastructure in the right environment, in the right place.” Sara Grundstrom Country Manager Sweden

Hydro66 corporate landing page
Hydro66 OCP marketplace listing

5 Outlook for 2022-2025

- OCP-Ready™ facility program recognition for Advanced Cooling - Facilities
- Development of efficiency and sustainability metrics
- Incorporation of Operation Technology and Security requirements
- Alignment of OCP-Ready™ requirements for Open Rack V3.0

OCP-Ready™ facility program recognition for Advanced Cooling - Facilities - The Advanced Cooling – Facilities (ACF) subproject is collaborating on the integration of Advanced Cooling Solutions (ACS) into data center facilities via liquid distribution. One of the goals of the subproject is to develop a set of requirements and a colo site assessment document that will enable a data center to assess if its facility is suitable for an ACS deployment.

Development of efficiency and sustainability metrics - Develop guidelines for the standardization of metric monitoring and measurement with alignment to the goals of the OCP Sustainability Initiative. This enables progress towards net carbon zero goals, by addressing unique challenges and opportunities presented within the Open Compute Project ecosystem.

Incorporation of Operation Technology and Security requirements - Lack of standardization in security requirements for colocation data centers allows certain vulnerabilities to remain undetected in both physical and OT network layers. Requirements that would create a more resilient data center facility with open authentication and authorization mechanisms are being considered for inclusion in the OCP-Ready™ Program.

Alignment of OCP-Ready™ requirements for Open Rack V3.0 - The goal of Open Rack V3.0 (ORV3) design is to improve the flexibility of frame and power infrastructure to support a wider range of solutions within the OCP ecosystem. The Open Rack specification will be updated to include physical security for co-location deployment, thermal solutions for liquid cooling e.g., manifolds for cold plate solutions and door heat exchangers, and power and battery solutions that scale and accommodate different power input types. The OCP-Ready™ requirements will be updated to align with the new flexibility provided in ORV3.

6 Conclusion

The OCP-Ready™ Facility Recognition Program has proven since its inception that it has a key role to play in assisting with the increased adoption of OCP hardware outside of the hyperscale users. The program helps OCP users that want to follow hyperscale cloud solution innovation to build out their Cloud infrastructures, by identifying like-minded suppliers (OCP colocation solution providers), who fully understand and support their OCP hardware requirements. Future developments for the program will include giving recognition to data centers that are not only able to host air cooled Open Racks but also those that require liquid cooling in all their forms, immersion, cold plate, and door heat exchangers that are validated to support OCP IT gear. The inclusion of new forms of OCP-Ready™ facility recognition, that will improve energy efficiency and reduce carbon emissions, will enhance the program, and continue to support the increasing adoption of OCP hardware for HPC running AI, VR, AR, blockchains, and other high intensive workloads.

7 References

Resources for more information

1. https://www.opencompute.org/projects/ocp-readytm-facility-recognition-program
2. Colo Facility Guidelines for Deployment of Open Racks
3. OCP Ready colo site assessment (Google Sheet version)
4. OCP Ready colo site assessment (Excel version)
5. https://www.opencompute.org/products
6. OCP Critical Facility Operations Guidelines
7. https://www.opencompute.org/projects/sustainability-initiative
8. https://www.opencompute.org/projects/operation-technology-security-incubation
9. OCP Impact Study 2021 - Open Computing and Data Center Sustainability

8 License

OCP encourages participants to share their proposals, specifications and designs with the community. This is to promote openness and encourage continuous and open feedback. It is important to remember that by providing feedback for any such documents, whether in written or verbal form, that the contributor or the contributors organization grants OCP and its members irrevocable right to use this feedback for any purpose without any further obligation.

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9 About Open Compute Foundation

The Open Compute Project Foundation is a 501(c)(6) organization which was founded in 2011 by Facebook, Intel, and Rackspace. Our mission is to apply the benefits of open source to hardware and rapidly increase the pace of innovation in, near and around the data center and beyond. The Open Compute Project (OCP) is a collaborative community focused on redesigning hardware technology to efficiently support the growing demands on compute infrastructure. For more information about OCP, please visit us at http://www.opencompute.org