



A Look Inside An OCP Optimised Data Center In Southeast Asia

Consume. Collaborate Contribute. Singapore – July 8th, 2020





Stuart Crowley Editor, W.Media



Market Insights Report

Philippines Market Insights 2020

In the Philippines, the relationship between the Telco industry and Cloud Computing is Singapore Market Insights 2020

The rise of Singapore in the Cloud Computing, and Datacenter sphere is remarkable, and March 2020 Thailand Market Insights 2020

According to a study by Frost & Sullivan, global traffic between data centers will grow by 28%





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Get involved in the Q+A



Select **"?"** on the right side of your GoToWebinar window and type in your question(s).



Speakers

Steve Helvie Open Compute Project (OCP)

steve@opencompute.org





Resul Altinkilic Project Manager Global Key Accounts IT

altinkilic.r@rittal.de





Darren Hawkins CEO and Founder

darren.hawkins@spacedc.com







Today's Agenda

Time Topic

- 11.00am Welcome Address
- 11.05am Introduction to OCP
- 11.10am Open Rack An Overview Of The OCP Rack Efficient Design
- 11.20am OCP Ready[™] facility An Introduction To An OCP Optimised DC

11.40am Q&A and Closing Address







Open Compute Project

A collaborative community focused on redesigning hardware technology to efficiently support the growing demands on compu infrastructure.

Our Projects



https://www.opencompute.org/proj



150+ companies 190+ contributions 6K engineers

150+ OCP Accepted[™] & OCP Inspired[™] Products

OCP Ready[™] Facilities







The Impact of AI on the average Density per Rack



Source: 451 Research 2019

Gartner, Inc., predicts that more than 30 % of data centers that fail to sufficiently prepare for AI will no longer be operationally or economically viable.









DCP READY[™]



COLO SOLUTION PROVIDER

Architectural

DC Access

IT White Space

Cooling

Electrical Systems

Telecom & Cabling

Pathways





What's inside a Facebook Datacenter Open Compute Rack?



181,903 views • 15 Mar 2019

1 2.1K ♥ 91 → SHARE =+ SAVE ...



https://www.youtube.com/watch?v=2l6gl-ksdKs&t=6s



Facebook and Microsoft announce Open Rack V3 to address the power demands from artificial intelligence and networking

By Bhagyashree R - March 18, 2019 - 10:44 am 💿 1441 🔍 0



Converged rack frame

Flexible power shelf

Universal AC power interconnect

Pluggable DC power shelf output interconnect

Battery backup systems









Resul Altinkilic Project Manager Global Key Accounts IT

altinkilic.r@rittal.de





Rittal Open Hardware. Open Solution. Open Future

Resul Altinkilic, Project Management Global IT Key Accounts



Rittal Global Footprint

Worldwide product availability



employees worldwide





58

subsidiaries all over the world

1961_{est}.

Headquarter Herborn / Germany 100% family-owned business



Global Footprint

Company profile: Close to our customers / Production at 11 sites on three continents





Why Open Hardware Development

Trend

- Data volumes are increasing exponentially
- Efficient and fast data processing will in future more and more decisive for business success

OCP Platform

- Reduce investment and operating costs
- Reduce energy consumption
- Environmental impact of data centers by way of innovative, full standardised IT architectures
- Sharing ideas and know-how



Why Open Hardware Development

- Cost reduction and power efficiency biggest drivers for OCP servers
- Standardization is a big influence of OCP adoption for switches
- Survey from OCP users "Why OCP?"





Rittal – OCP Engagement

Platinum Member

OCP Platinum Member since 2018

- Enables actively to participate on events and develop products and influence future OCP Roadmaps in Rack, Cooling and Power
- Contributed specification in the rack & power working group
- Participating actively at OCP Summits in US and Europe, including workshops, presentations and panel discussion at the shows









Open Rack Infrastructure Open Compute Project – Rittal's experience





Open Rack Infrastructure Rittal OCP V3

- 48vDC Busbar
- Power shelves in any rack position
- Tool-less rack rails
- RU gear support
- Modular rack cabling option
- Moveable horizontal frame support
- Max. IT gear weight 1.600kg







Open Rack Infrastructure 12vDC & 48vDC Busbar

- 48 V DC
- 1 Power zones
- 1 bus bars/zone
- 15 kW/Zone
- 15 kW/Rack
- 1450 kg Payload
- 600 x 2210 x 1068





- 12 V DC
- 2 Power zones
- 1 bus bars/zone
- 6.6 kW/Zone
- 13.2 kW/Rack
- 1450 kg Payload
- 600 x 2210 x 1068







Open Rack Infrastructure Rittal and Partners Solutions for OCP



Consume. Collaborate. Contribute.

OCP Cooling

- Two-Phase, direct contact cooling, non-conductive liquid
- Closed single loop, Low Pressure, on demand

OCP Power

- Join collaboration with Bel Power Solution, Rittal provides power supplies for OCP racks.
- Innovative and efficient power distributors are a key element of any OCP architecture
 - PDU, Power supply unit, Power shelves













Introduction to Space^{DC} Data Center Provider

Darren Hawkins I Chief Executive Officer



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Who is Space^{DC}?



Mission

"Help customers unlock opportunities in fast moving digital markets by providing an efficient, reliable and network rich data center space to grow their business on".



At Space^{DC} we deliver



Flexibility Modular and scalable space



Connectivity Network rich ecosystem



Reliability Uninterrupted power



Security 8 layers of physical access controls



Cooling Continuous cooling with chilled water



Sustainability Reduced carbon footprint 30%



ID01 Campus 25.45MW IT Load

Site Location









ID01 Campus Facilities



24

1.2

Wholesale

Hyperscale











JAK2

1.45

1.3

Colocation

Wholesale





PUE



OCP Ready COLO Facility Assessment		JAK2	
Self Assessment Status:	COMPLETE	-MEETS REQUIR	EMENTS
Data Center Location Name		SpaceDC JAK2	
Data Center Location Address	JI. Daan Mogot KM. 18 No.18, RT.11/RW.6	, Kalideres, Jakarta B	arat 11840, Indonesia
Site Description: White Space Area	1 x data hall, 70	00m2 data hall.	
Site Description: Critical IT Power	1,	400kW per data hall	
Site Description: Network Provider Availability	Carrier neutral site, with more than 7 network providers.		
Site Description: Facility Features	Site includes 2 story admin building, technical support spaces including UPS, generator and cooling plant, loading docks, MMRs and security. 2 x single story data halls.		
Site Description: Other Services	We provide business continuity seating, custo	omer desking, offices	, lockers and meeting spaces upon request.
Date Original Assessment is Completed	6-12-2020		
Re-Assessment Date:			
REQUIREMENTS - Attribute	Parameter	Result	Notes
(Must have an Optimum or Acceptable result)			
ACCESS			The building has disability access provided, in
Building Access	2. Road level with step and threshold free access	Acceptable	addition to a dock.
Delivery pathway, Loading dock to Goods in	1. ≥2.7m (108in) H x ≥2.4m (96in) W x ≥2.4m (96in) D unobstructed access and threshold free	Optimum	We have a 6m wide roadway to the loading dock with unobstructed height.
Delivery pathway, Goods in to White space	1. ≥2.4m (96in) H x ≥1.8m (72in) W unobstructed access and threshold free	Optimum	We have a controlled pathway with depacking, test and build rooms, prior to data hall delivery.
Corridor floor rolling load	1. ≥680kg (1500lb) (6.67kN)	Optimum	We have a concrete floor throughout the facility.
Unboxing/pre-staging/storage area floor uniform load	2. ≥732kg/m2 (150lb/ft2) (7.17kN/m2)	Acceptable	We have depacking, pre-staging storage areas on the ground floor.
Unboxing/pre-staging/storage area floor concentrated load	2. ≥567kg (1250lb) (5.56kN)	Acceptable	We have depacking, pre-staging storage areas on the ground floor.
RAMPS			
Gradient	1.1:12 or less	Optimum	Compliant with international standards for access.
Width	1. ≥1.5m (60in)	Optimum	We generally provide 1.8m minimum access to all critical spaces.
Landing area	1. ≥1.5m x 1.5m (60in x 60in)	Optimum	We provide landing areas.
Railings	1. ≥900mm (36in) and <1000mm (40in)	Optimum	Where required to meet code, these are provided.
LIFTS / ELEVATORS			



JAK2 1.45MW – Tier III Facility





Facility	 1 X 1,450kW data halls Tier III - 99.982% availability Two story administration building
Data Hall	 380 racks per data hall Average rack density: 3.8kW Maximum rack density: 15kW Rack dimension 600 (W) x 1050mm (D) x 2300 (H) 48U 800 (W) x 1200mm (D) x 2300 (H) 48U
Connectivity	 Carrier neutral Multiple ISPs 4 X Meet Me Rooms Multiple entry points and diverse underground cable pathways







Racks







Overview – Security and Protection



Monitoring and Security	 24/7 onsite security personnel Cardkey access control and biometric authentication procedures Sitewide CCTV surveillance 24/7 onsite NOC monitoring power, HVAC and critical operations 24/7 Singapore office security monitoring and NOC CSMS monitors all building functions including BMS, SCADA, fire, security and access
Fire Protection	 Double interlock, dry pipe, per action sprinkler system to data halls VESDA overhead and concealed space smoke detection to data halls Emergency warning and indication systems through facility Water mist suppression to generator enclosures

Overview - Power



Power Supply

20kV mains supply and dedicated transformers.

N+N on site diesel generators provide backup power.

36 hours fuel storage at full load.

Isolated fuel storage tanks for each generator.

UPS

N+N distributed redundant uninterruptable power supply to each data hall.

UPS battery backup time of 5 minutes at full load.

N+N mechanical UPS to power to pumps and fans for uninterrupted cooling

Power Distribution

Dual overhead busbar above each suite with dual supplies to each rack.

Takeoff box with metering and power monitoring.

Integrated site power quality monitoring and energy management system.

Overview - Cooling





Cooling Plant

Full backup cooling provided by N+N high efficiency electric chillers.

Chilled water cooling with absorption chillers utilizing waste heat from gas generators.

Tier III concurrently maintainable chilled water ring main

N+N Mechanical UPS power to pumps and fans for uninterrupted cooling



Air Handling

Data halls served by N+2 Fanwalls.

Fanwall separated from data hall in services corridor with maintenance from corridor.

Hot aisle containment and return air ceiling plenum.

Data hall internal conditions in accordance with ASHRAE TC9.9 A1 recommended range

Fanwall – Operating Principle





Data halls served by N+2 Fanwalls.

Fanwall separated from data hall in services corridor with maintenance from corridor.

Data hall "flooded" with low velocity cool air from fanwall unit.

Hot aisle containment and return air ceiling plenum returns hot air to fanwall.

Raised floor not required

Greater flexibility in rack density and location.





Space to grow

www.spacedc.com





OCP Marketplace https://www.opencompute.org/products

Past Events (recordings and slides) https://www.opencompute.org/events/past-summits

https://www.opencompute.org/events/past-events

Social



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Data Center Selection & Migration in Asia Pacific

Thursday 23rd July

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Questions?







Thank You!

