



OCP Telco Rack for Telco Central Office CORD Deployments

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KPN

Changing the Telco Central Office into a Datacenter



- A lot of telcos are implementing



- Often using  **OPEN** components.
Compute Project®

- But what does this mean for deployment?

- Does this mean Telcos can deploy OCP racks like a Hyperscaler does into a Hyperscaler OCP Datacenter ?

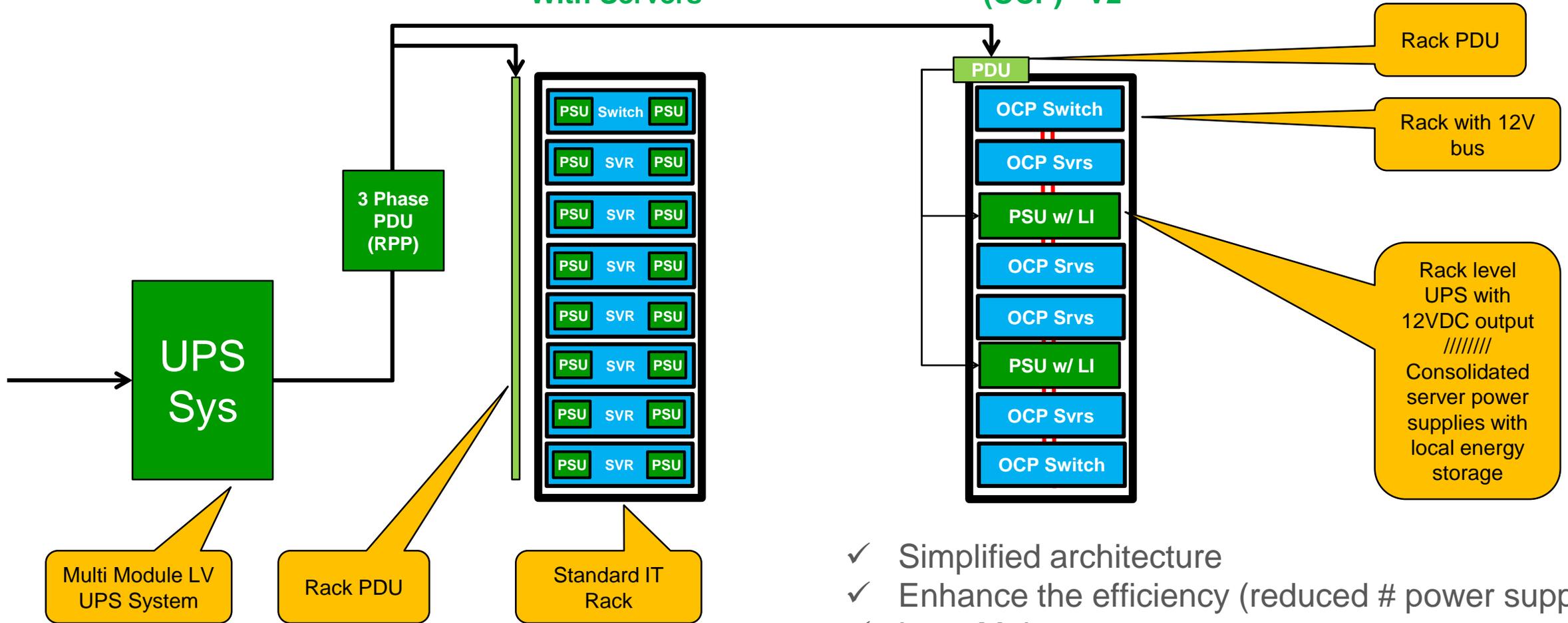
Comparison of traditional and OCP architecture

IT Architecture Evolution



Standard Rack With Servers

Open Compute Project (OCP) V2



- ✓ Simplified architecture
- ✓ Enhance the efficiency (reduced # power supplies)
- ✓ Less Maintenance

How do Hyperscalers put OCP racks into a Datacenter?



- According to: <https://www.opencompute.org/documents/colo-facility-guidelines-for-ocp-racks-v20>: **Racks arrive fully loaded: OCP gear is pre-installed into the rack by integrators, also known as solution providers.**

=> they just “roll” fully loaded racks into the DC



However, this is challenging in Telco Central Offices



- Pre-configured, pre-build, pre-cabled OCP v2 rack for “quick” upright rollout into KPN Telco CO:

Not possible



Example 1



Example 2

Not just KPN with this challenge



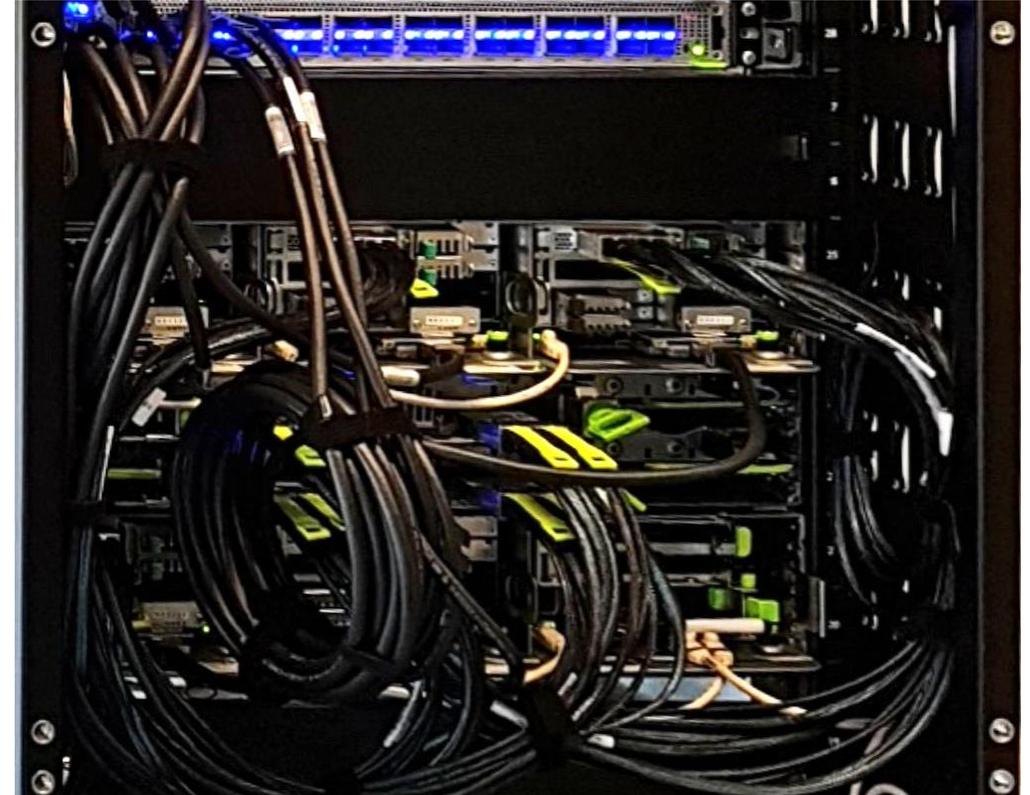
Photos above: courtesy of Alfonso Aurelio Carrilo from Telefonica

Other challenges in OCP V2 rack (1)

Cabling



- Standard OCP rack Cabling conflicts with easy access to components
- Disaggregated network components (BNG example: many, many interconnects in a single rack)
- Example uses DAC cables, but even with fiber it will remain challenging.



Other challenges in OCP V2 rack (2)

Power

- Hyperscaler OCP V2 rack in new, modern DC can use a lot of power.
- OCP V2 Rack specification & Design:
 - Rack is divided in 2 power zones
 - 15KW each
- 30KW is way, way more than the Telco Central Office can handle (typically 4k-10k max per cabinet due to cooling limitations (and to avoid hotspots in CO rooms)).

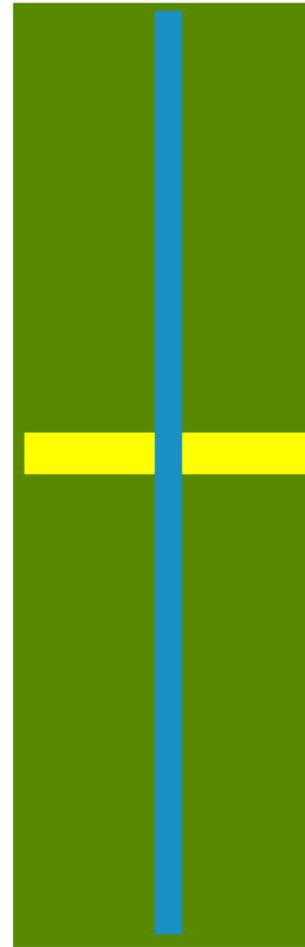


Proposed solution Telco CO rack, collaboration with Schneider Electric



New rack: adapted OCP v2 Rack: Telco CO Rack with 1 one power shelf

Rack Height	1658.6±3mm
Rack Width	800mm+0/-2mm
Rack Depth	1067mm+/-3mm
Server size/ Q'ty (Max)	2 OU/ 14 sets 1 OU/ 28 sets
Power shelf/ Q'ty	1 OU
Power shelf Location	17 OU
Switch bracket/Q'ty	1OU/ 2sets
Busbar Q'ty	1 sets
Busbar Location	Full height: 1 sets



2 OU for Switch

12 OU space

1 OU for PSU

16 OU space

- Special key points of KPN solution with Schneider Electric OCP Architecture
- ✓ 600mm width for IT device and 200mm width for cable routing
 - ✓ Height of rack is 31 OU, 1658.6mm;
 - ✓ If need add door at rear, the depth will increase to 1100mm;
 - ✓ 1 OU Power shelf at 17 OU place, 2 OU is also compatible solution;
 - ✓ One group DC output busbar is standard design, 3 groups is optional;
 - ✓ Switch space is 2 OU design for 2 sets of 1 OU switch bracket;

Intention to make this new rack



Telco CO Rack solution

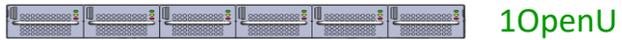
Telco CO Rack with 1 one Power Shelf or Power Shelf+ BBS



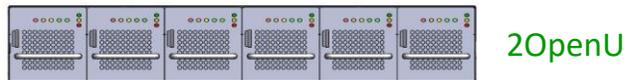
Typical solution of PS + BBU

- Full Rack Power Configuration in 30U (20U BBS +10U PSU Shelf)
- Full Shelf Power: 5 x 3.0kW PSU + 1 x 3.0kW BBU
- Hot Swappable
- Fully Modular
- 120 ~ 180 sec Runtime or long runtime >3 mins

PSU Shelf

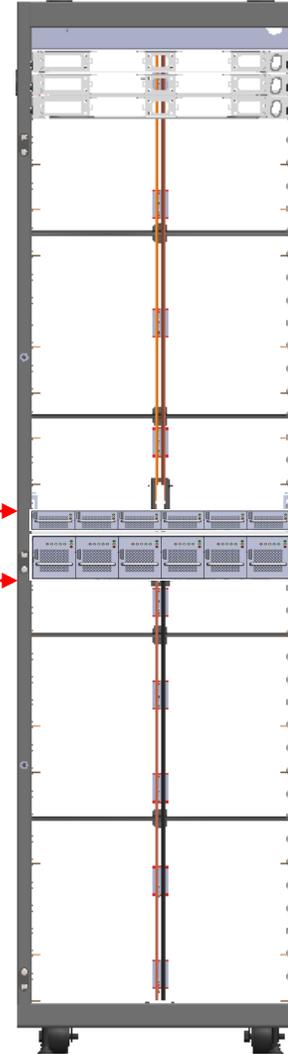


BBU Shelf



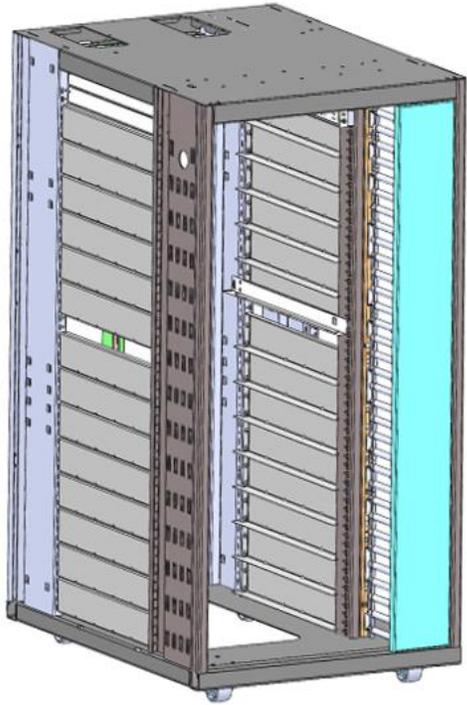
Long Runtime: > 3mins

PSU SHELF
+BBS

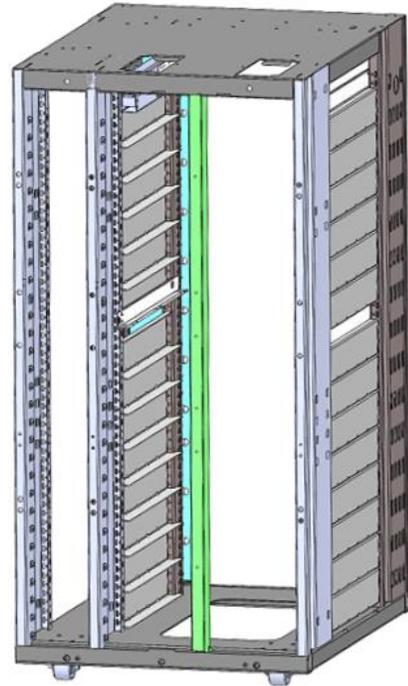


Total max 15kW, N+1 Rack

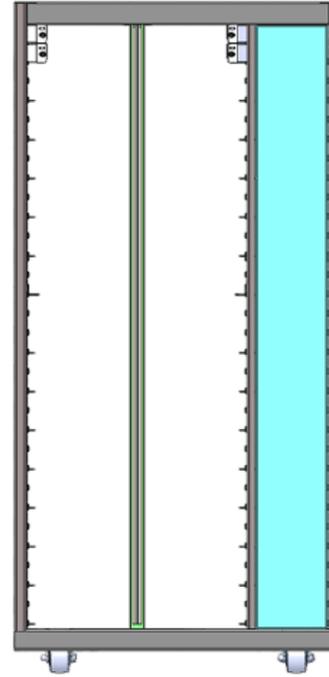
OCP Rack overviews



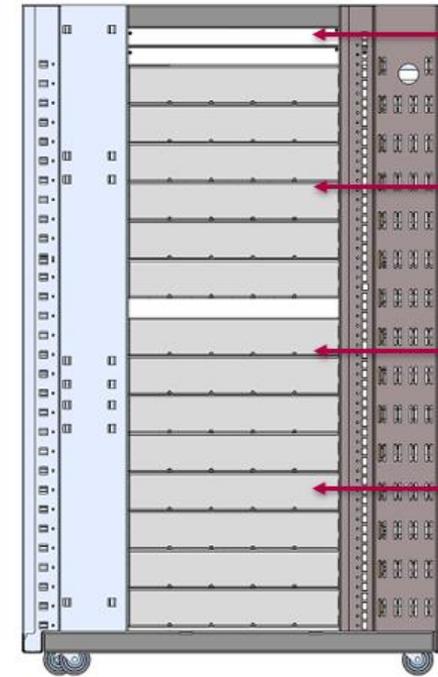
Front side



Rear side



One busbar



Side view

10U Switch
bracket/ 2sets

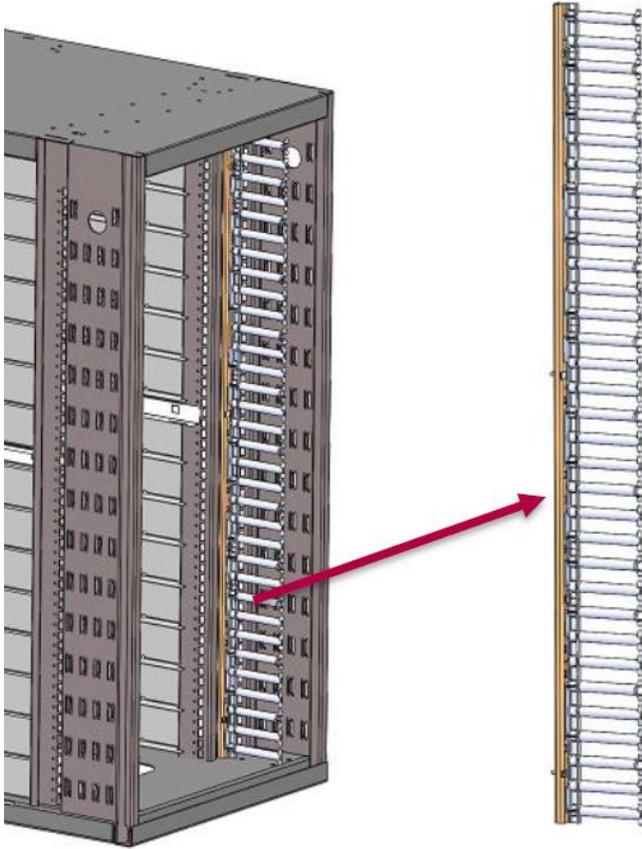
20U bracket
bracket/ 7 pcs

10U PSU

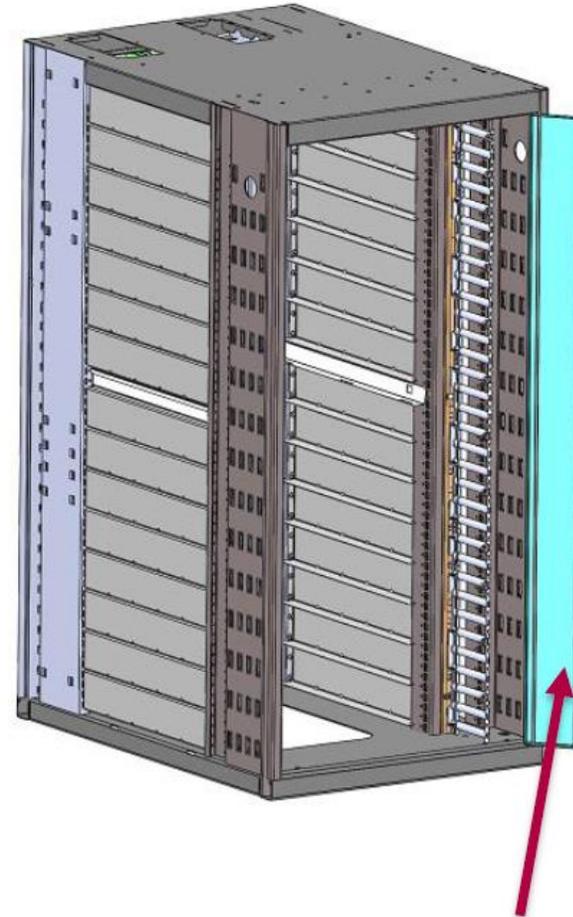
20U bracket
bracket/ 8 pcs

Notes:

All OU place have holes for different configure, like replace 4 sets 10U switch bracket with one 40U switch bracket etc.



Finger guard



Rotatable Metal cover

Additional cable space design:

1. Finger guard, integrated space with finger guard for cable management makes data cable laying, management and operation more convenient for customer;
2. Rotatable metal cover design makes cable space safety and overall organized with great visual expression.

But how to get the rack up the stairs?



- Current plan:
 - Logistic partner with “electric stair climbers”
 - Example how this could look like:

- Disadvantage: Max weight (400 Kg)

- Feasibility: currently under investigation



Questions, Comments, suggestions



- Any questions, comments or suggestions concerning this rack: please reach out to me (contactdetails: next slide).





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Thank You