Flexible Pod Based Designs for OCP & Mixed Deployments

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Hyperscale platforms were viewed as developments purely for cloud providers

Open Compute Project, and its community, driving the benefits of hyperscale platforms beyond just the largest cloud providers

Mutual interest in ensuring energy usage is efficient & sustainable
Legacy IT technology is traditionally installed onsite. Empty racks are deployed, IT devices racked and stacked on the whitespace floor.

Hyperscale platforms typically integrated/tested offsite, by an integrator, delivered as a fully loaded rack to the whitespace floor.

Integrated racks simply rolled into place, connected to power/network, and are ready to go!
Deployment Method Shift – new platforms driving new way of deploying IT

IT Building Block
Server → Rack

Whitespace Building Block
Rack → Pod
Open Compute Project – dealing with hybrid deployments and rapid innovation

Challenges In The Whitespace

Hybrid Deployments

• Proof of Concept Stage
• Phased Approach for New Workloads

New Innovations

V1-V2
12v DC-48v DC
Olympus

• Multiple Platforms In Short Space of Time
• Innovation Continuing To Accelerate
Customers Are Asking For A Better Way To Deploy Their IT

- How can we keep up with ever changing technology?
- Is there a faster way to scale massive IT capacity?
- How do we transition to OCP style deployment?
- Is there a cleaner and more cost efficient way to deploy IT?
- Can we pre-install a flexible IT backbone?
Traditional Data Centers Were Not Designed With Flexibility In Mind

> Containment typically mounts directly to IT racks

> Limited flexibility for varying rack sizes or different power/cooling architectures

> Requires cutting & drilling onsite to seal containment

> Makes adds/moves/changes difficult and time consuming
Ceiling support structures are inflexible, costly, time-consuming, and invasive.

Incorrect use of raised floors creates airflow obstructions.

Construction work in IT environments is difficult to manage.
Increasing trend of fully configured IT racks being integrated off site and rolled into the data center.

Traditional data center designs require racks be in place DURING construction.

IT equipment in an unfinished data center increases risk of damage or theft during construction.
Pod Based System: A Better Way to Deploy Today’s IT

- Shorten deployment cycle by building pods fully with containment before IT racks are delivered
- Easily mount power and data cables to the frame, ready for racks
- Roll racks into place & “plug” into the pod
- Predict infrastructure completion timeline more accurately
Pod Based System: Flexible Free-Standing Frame

- Free-standing frame to allow racks to roll in and out
- Flexibility to adjust to different size and number of racks
- Ability to support a mix of IT rack platforms
- Expands to multi-frame deployments for larger pods
- Pod frame provides air containment (hot or cold)
- Support perimeter, row-based, or outside IT room cooling
Pod Based System: Flexible Power Distribution

- Support branch power distribution on the pod frame
- Support for busway systems on the pod frame
- Incorporate row based power distribution panels into pod design
- Support copper cable trays and fiber runners on the pod frame
Pod Based Deployment Capex Savings

16% Capex Savings

- Traditional: $1,604,062
- Pod Design: $1,345,481

Cost Differences:
- Containment cost difference: $29,298
- Reduced ceiling grid construction: $64,222
- Shorter raised floor & no cutouts: $120,234
- No under floor cable ladders: $16,692
- Frame cabling supports: $62,496
- Reduced networking ladders: $16,692
- Reduced whip lengths: $10,174
- Lower cost frame-mounted panels: $63,765

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**Pod Based Deployment Time Savings Entitlement**

**Total Project Timeline**
- 84 days Traditional
- 66.5 days Hyperpod
- 17.5 Days saved
- 21% % Savings

**Labor savings**
- 4 days Reduced ceiling grid work
- 7 days Install under-floor cable trays and cutouts/install grommets
- 1.5 days Quicker containment assembly
- 2 days Quicker running of power whips on pod vs. underfloor
IT is changing rapidly requiring greater flexibility, increased speed, reduced deployment time, & reduced cost.

Addressing these needs has lead to the development of pod-based systems.

Benefits of pod-based architecture, using free standing pod frames:

- Roll racks in and out more easily, providing greater flexibility with equipment
- Deploy pods quickly, independent of IT rack delivery
- Avoid costly, time consuming, and invasive construction
- Save 16% capex and reduce deployment time by 21%
Pod Based Deployment Resources

- White Paper 260: Specifying Data Center IT Pod Architectures
  [Link](http://download.schneider-electric.com/files?p_Doc_Ref=WTOL-AHAPRN_R0-EN)
- White Paper 263: Data Center Pod Frames: Reduce Cost and Accelerate IT Rack Deployments
  [Link](http://www.apc.com/salestools/WTOL-AJDHLT/WTOL-AJDHLT_R0_EN.pdf)
- Reference Design 65: 5.2MW Pod-based Build
- Trade-off Tool: Pod Sizing Calculator