



The Top 10 Track Results

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The End User Problem

- Addressing the growing datacenter power consumption and carbon emissions have become a corporate priority
- Increasing density and costs coupled with complex and diverging technology is complicating datacenter design and operations
- Unclear, inconsistent, or non-existent standards and/or metrics for the datacenter.
- Current capital crisis is forcing the reuse and optimization of aging datacenter infrastructure
- Data Center Owners & Operators can no longer afford to make reactive decisions

What Data Center Pulse is...

- A global organization of experienced individuals who face similar challenges and share common interests around the purchase and consumption of products and services in the data center.
- An independent, neutral, unified voice creating common themes that organize the thoughts, challenges and needs of the end user community to influence the Data Center & IT industries
- The Data Center customer

What Data Center Pulse is NOT...

- NOT - A for-profit organization
- NOT - Directed or Influenced by any vendor or outside body
- NOT - Competing with other organizations
- NOT - The final answer to all questions & problems

How do we measure success?

- 675 members from 400+ companies in 34 countries, in 59 industries in just five months.
- User created and driven content
- User participation in both face to face and remote activities. They are giving their time.
- How far we can influence the industry through end users.

The First Global Summit

- The goal was to engage the global community to discuss, debate and rapidly report the top interest areas of the membership.
- Member selected topics: Alignment, Certification, Cloud Computing, Emerging Cooling Technologies, Power & Metrics
- Face to face in California, on-line globally with localized final content review in the Netherlands and India.
- The top 10...

Disclaimer

- The Top 10 list is meant to raise the issues and needs of the datacenter end users to the companies and agencies creating products, services and standards
- It is meant to be a snapshot of the current trends, problems, and requests from the data center customer
- Our intent is to engage with the industry to help move these requests and trends forward
- These are requests, not demands

1. Align Industry Organizations

- An global consortium that:
 - Is an independent, neutral, non-profit organisation of customers representing the voice of the customer
 - Aligns different audiences (customers, vendors, academia, government, industry groups)
 - Increases visibility for opportunities
 - Is the focal point for data center issues

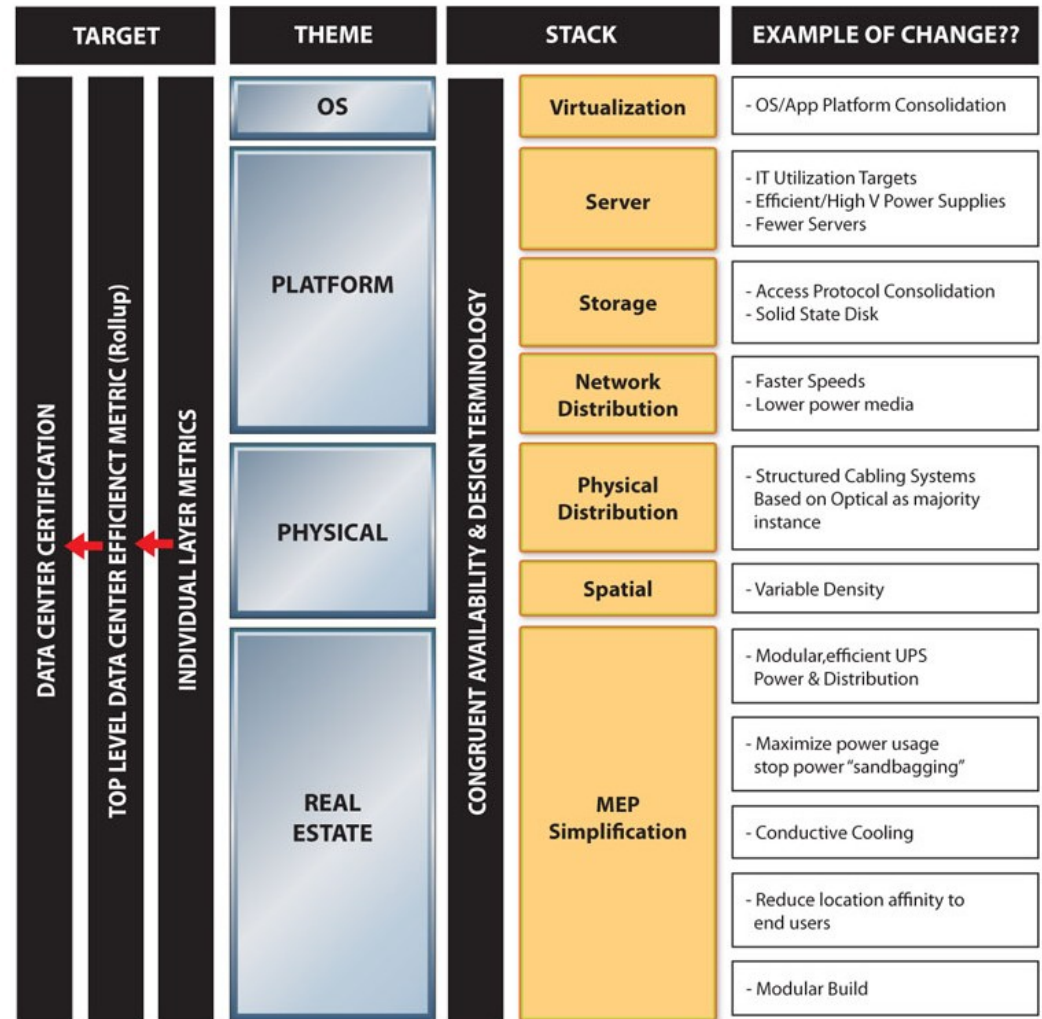
2. Data Center Certification Standard

- Consistent standard to baseline and measure the efficiency of your datacenter
- Drive improvements by adhering to the standard and reporting results over time
 - > Simple management metric for Data Center Performance
- Can lose certification if efficiency levels are not maintained
- Encourages healthy efficiency competition
- Engage with global organizations to define
 - > DOE, International equivalent
 - > TGG, ASHRAE, Uptime, 7x24, AFCOM, others

3. Standard Data Center Stack

- An industry adopted stack that covers all layers
- Enables Unified Metric Adoption & Roll Up
- First step towards Data Center Certification

Standardized Data Center Stack Proposal
 Draft 1 - February 18, 2009



4. Update or dump Tier Levels

- IT & Facilities definitions are flipped
 - > A Tier 1 MEP is exact opposite of a Tier1 IT Application
- Tier is not a complete design definition
 - > Can negatively affect business decisions made from “tier” levels
- Tier level definitions are not keeping pace with changes in the datacenter
 - > Only accounts for M&E layer
 - > Does not account for multi-tier, mixed environments
 - > A consistent measures for all layers is needed

5. More products enabling Modularity

- Stop the fixed, over-provisioned designs
- Enables pro-active, simple expansion or contraction of datacenter capacity
- More plug and play datacenter capacity
 - > Rack power, UPS, generators
 - > In-room cooling, chillers, towers
- Need design firms and consultants to embrace approach

6. Simple, Top Level Efficiency Metric

- One accepted, standardized “roll up” metric
 - > Show the efficiency of a datacenter regardless of industry, redundancy level and work load that is done there
 - > Other metrics for different layers are acceptable, but need to feed rollup metric
- Consistent language
- Analogies
 - > A Miles Per Gallon (MPG) rating for datacenters
 - > An annual SMOG test for datacenter
- Enable performance comparisons of peer datacenters or industries

7. End to End IT/Fac Measurement

- Common communication standard to monitor all layers of the power delivery system
 - > IP/SNMP preferred
- Interface between the IT equipment and the support equipment
 - > Power line communications - Example: server, in-rack PDU, primary PDU and UPS are communicating and validating the same information
 - > Consider x10 on steroids
- Universal measurement standard across the entire electrical system
 - > Reduces vendor specific measurement types
 - > Vendor agnostic - All are measured to the same standard

8. Standard Conductive Cooling Interface

- Standardize on a 'thermal interface' between cooling equipment and compute equipment
 - > This will allow different solutions to the cooling problem (coolant vs water vs other), and encourage innovation.
- Encourage global standards bodies to establish and publish standards for thermal interface
 - > ASHRAE seems like likely body to create standard
 - > Also to be vetted through LEED, Labs21, and others

9. 480/277V Power Supplies

- Compute device power supplies that can accommodate 100V-277V
 - > Expand current 100V-230V auto-switching power supplies
 - > Expanded range enables Data Center implementations over time
- Drives higher efficiency by removing one layer of step down transformers
- We understand their are design challenges but we're confident compute/storage/networking vendors can solve it.
- Complimentary power delivery solutions (in-rack PDUs) required

10. Independent DC Data Repository

- A neutral location to house and present data center resource content
- Content examples:
 - > Documentation & Publications – white papers, blueprints, case studies, product performance reports, manuals, news articles, blogs
 - > Specific IT hardware type/config load measurements vs nameplate
 - > Support equipment performance measurements vs expectations
 - > Vendor evaluations, user ratings of product & service implementations, Co-lo provider locations, incentives, etc.
 - > Location performance (site selection) *Example: Sweden -100% green power, no natural disasters, concentration of telco termination points*
- Enables End User Content Ranking
 - > All content will be rated by users so good automatically rises to the top