

Panel topic – Power Trends

- Higher efficiency Power Supplies (80 Plus)
- Distributed UPS
 - ◆ Power supply with built in battery for short term power.
 - ◆ Rack level battery back-up for short term power
 - ◆ Rack level Fuel Cell power back-up
- “Free power Quality” for data center
 - ◆ Reduced UPS that relies on Power Company higher up time.
 - ◆ True dual feed from Power Company (Alternate sites)
 - ◆ UPS for “Critical only systems”
 - ◆ Faster switching to Back-up Generators (Fuel Cell?)

Panel topic – Power Trends

- DC data center distribution
 - ◆ High Voltage DC with Step down options
 - ◆ 240 V or 380 V DC distribution in the Data Center
- Alternative Energy Solutions for Data Centers
 - ◆ Solar Powered with Power Grid back-up
 - ◆ Solar Powered with Generator back-up
 - ◆ Solar Powered with Battery/Fuel Cell back-up
 - ◆ Fuel Cell Powered

Panel topic – Cooling Trends

- **Extended Operating Temperature**
 - ◆ Current ASHRAE CLASS A-1
 - ◆ EU Code of Conduct and Green Grid: ASHRAE Class A-2
 - ◆ Future (~ 5 years) move to ASHRAE Class A-3
- **High Density/High Power**
 - ◆ Forced Air with localized refrigeration units
 - ◆ Liquid cooling