Test Lab Presentation

Dennis Martin, Demartek
Agenda

- About Demartek
- SNIA Emerald and EPA ENERGY STAR Data Center Storage
- Use Case example
- Resources
About Demartek

- Computer Industry Analysts with on-site Test Lab in Golden, Colorado, specializing in
  - Performance testing and reporting for servers and storage
  - Lab validation testing
  - Ease of use studies
  - Deployment guides, solutions guides and reference architectures
  - Enterprise data center technologies
- Our lab includes enterprise servers, networking and storage (DAS, NAS and SAN)
- We run SNIA Emerald/EPA tests and real-world applications to test servers and storage solutions
Demartek: Industry Recognition

- ISO/IEC 17025:2005 accredited for Electrical Testing
- SNIA Emerald™ Recognized Tester
- EPA-recognized test lab for ENERGY STAR Data Center Storage testing
Demartek: Our Environment

- We have a fully provisioned IT test lab with servers, infrastructure and automation.
  - Ethernet networking (1GbE, 10GbE, 40GbE) switches & adapters
  - Fibre Channel (8GFC, 16GFC) switches & adapters
- Our staff has the know-how to drive the energy efficiency testing and submit official test results.
- We have power meters and power sources to monitor power and keep input power at specified voltage tolerances.
- We have a climate-controlled lab and temperature and humidity meters to monitor conditions and comply with parameters required by specification.
Demartek understands:

- SNIA Emerald Power Efficiency Measurement Spec 2.0.2
- EPA ENERGY STAR Data Center Storage 1.0
- The relationship between the two specifications

Demartek is involved in upcoming specifications

Demartek helps answer customer questions regarding the specifications.
Demartek has developed the expertise to help customers navigate the:
- SNIA Emerald and EPA ENERGY STAR Data Center Storage testing process
- The submission process for EPA ENERGY STAR Data Center Storage.

Demartek has automated the process to collect performance data, power meter data and temperature sensor data to produce the SNIA Emerald TDR.

Demartek has performed the testing for several dozen entries that appear on the EPA ENERGY STAR Data Center Storage list.
## Online Categories

<table>
<thead>
<tr>
<th>Connectivity</th>
<th>Storage Protection</th>
<th>No SPOF</th>
<th>Reports Input Power*</th>
<th>Minimum COMs Required</th>
<th>Maximum Supported Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EPA Only</strong></td>
<td>RAID</td>
<td>Yes</td>
<td>Yes (not RAID)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Online 2</strong></td>
<td>Connected to single or multiple hosts</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
<td>0</td>
</tr>
<tr>
<td><strong>Online 3</strong></td>
<td>Network-connected</td>
<td>Required</td>
<td>Optional</td>
<td>Required</td>
<td>1</td>
</tr>
<tr>
<td><strong>Online 4</strong></td>
<td>Network-connected</td>
<td>Required</td>
<td>Required</td>
<td>Required</td>
<td>1</td>
</tr>
</tbody>
</table>

* Must be user accessible, not just field engineer feature
## Power Supplies

<table>
<thead>
<tr>
<th>% of Rated Load</th>
<th>115v Internal Non-Redundant</th>
<th>230v Internal Redundant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10%</td>
<td>20%</td>
</tr>
<tr>
<td>80 PLUS</td>
<td></td>
<td>80%</td>
</tr>
<tr>
<td>80 PLUS Bronze</td>
<td></td>
<td>82%</td>
</tr>
<tr>
<td>80 PLUS Silver</td>
<td></td>
<td>85%</td>
</tr>
<tr>
<td>80 PLUS Gold</td>
<td></td>
<td>87%</td>
</tr>
<tr>
<td>80 PLUS Platinum</td>
<td></td>
<td>90%</td>
</tr>
<tr>
<td>80 PLUS Titanium</td>
<td>90%</td>
<td>92% PFC .95</td>
</tr>
</tbody>
</table>
Use Case Example

Demartek Use Case Example Video (0:05:22)
EPA ENERGY STAR Data Center Storage

➤ **EPA ENERGY STAR Data Center Storage certified products:**
  [https://data.energystar.gov/Government/ENERGY-STAR-Certified-Data-Center-Storage/gqtf-hp7x](https://data.energystar.gov/Government/ENERGY-STAR-Certified-Data-Center-Storage/gqtf-hp7x)

➤ **EPA Product Shipment Data**
  - SNIA has been appointed as the Storage Shipment Data Aggregator by the EPA
  [http://www.snia.org/emerald/EPA_Reporting](http://www.snia.org/emerald/EPA_Reporting)
Demartek Resources

- Demartek Test Lab:  
  www.demartek.com/TestLab

- Demartek Monthly Newsletter:  
  www.demartek.com/Newsletter

- Questions?  
  Call us at +1 (303) 940-7575