



# MET LABS Data Center Storage Testing

Samuel Tetteh

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## SNIA Emerald™ Training

*SNIA Emerald Power Efficiency  
Measurement Specification,*  
for use in EPA ENERGY STAR®

July 14-17, 2014

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# Agenda

- **Company Background**
- **Services**
- **Data Center Storage Testing**
  - ◆ **EPA Data Submission**

# Company Background

- MET Laboratories is an independent testing & certification lab
- Over 50 years in business
- Provides true single-source testing in four world-class laboratories in Maryland, California & Texas, and operations in China, Taiwan, Korea & Italy.

# MET Labs Services

- Product Safety Testing & Certification
- EMC / EMI Testing
- Environmental Simulation Testing
- Telecom / NEBS Testing
- Wireless & RF Testing
- Energy Efficiency Testing & Certification
- Global Market Access
- On-Site & Field Testing
- Battery Testing

# Data Center Storage Testing

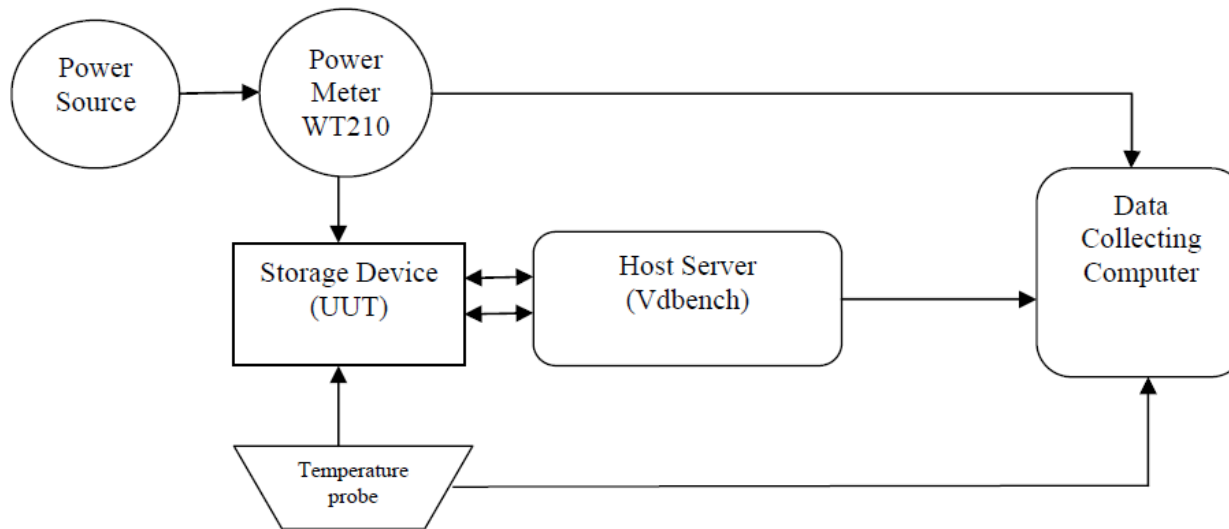
## ➤ System Configurations

- ◆ Transaction Optimized Configurations
- ◆ Mostly HDD
- ◆ Rack mount (2U & 4U)
- ◆ Online 3
- ◆ Scale-up

# Data Center Storage Testing

## ➤ Test Execution

- ◆ Test Set-up
  - › Simple and Easy



# Data Center Storage Testing

## ➤ Test Execution

- ◆ Test Scripts
  - › Can Easily be modified
  - › Real time output data

## ➤ Testing Challenges

- ◆ System configuration
  - › Ensuring the EUT is configured for optimal performance
  
- ◆ Test set-up Bottlenecks
  - › Host Server
  - › Host Bus Adapters (HBAs)
  - › Controllers
  
- ◆ Thread count for RTA (HB,RW, RR) not exceeding 20ms
  - › The Rule of thumb does not always work.



## ➤ Testing Challenges

- ◆ Data collection
  - › 2 separate output files (Vdbench Flatfile and Power data)
  - › Synchronizing and Calculating the performance metrics values IOPs/W and MB/s/W can be very time consuming.
  
- ◆ Test data to be collected and logging interval
  - › Vdbench logs data every 5 seconds
  - › Section 7.4.3.4 of the measurement specification states the active test data to be collected at 1-minute intervals
  - › Is this derived or calculated from the Vdbench output files? Guidance needed

# Data Center Storage Testing

## ➤ Testing Challenges

- ◆ COM Verification
  - › C-program (source code) for data generation not compatible with all C-compilers

# Data Center Storage Testing

## ➤ EPA Data Submission

- ◆ The submission process is very effective with the QPX system
  - › Product Families requires a single submission
- ◆ Concerns
  - › QPL: Very difficult to Identify a product family without knowing what additional product information means.
  - › Is the SNIA TDR Template file needed? File name required during submission

# Data Center Storage Testing



-Thank You