

**whamcloud**

The logo for Whamcloud features the word "whamcloud" in a bold, dark grey, lowercase sans-serif font. A thick blue horizontal line underlines the text. On the right side, a blue graphic element consisting of two curved segments forms a stylized '3' or a partial circle that overlaps the end of the text and the underline.

# Big Data Benchmarking for Lustre File Systems

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These slides come from initial discussions  
between Whamcloud and NetApp.



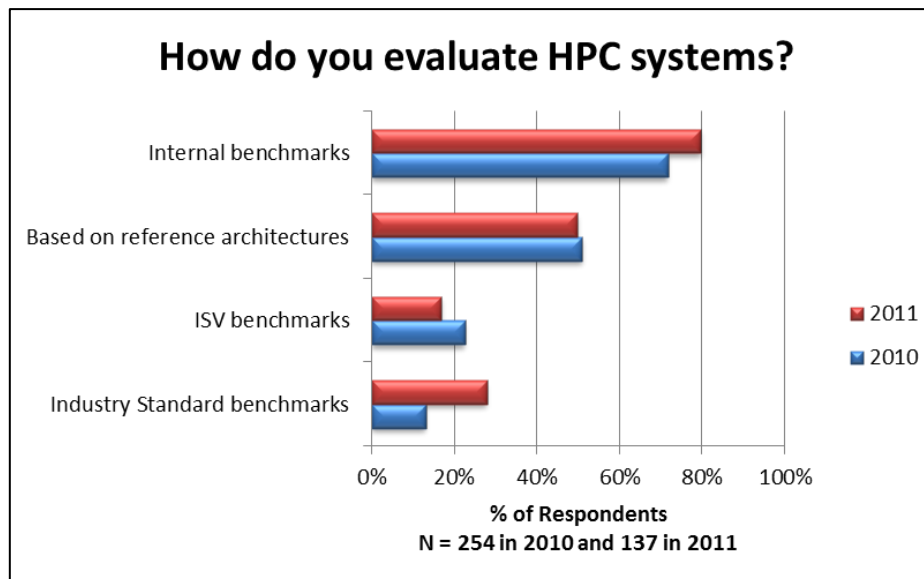
**"The maturation of the Lustre community, anchored by OpenSFS and Whamcloud, was the most significant trend in HPC in 2011."**

– Addison Snell, CEO of Intersect360 Research



# The Need

- Provide HPC community with industry standard Lustre benchmark data, on a defined “scalable system unit”
- More informed and quicker time to decision making
- Credible, transparent, repeatable and objective



Source: Courtesy  
Intersect360 Research,  
2011

# Proposed Tests

- Aggregate Bandwidth.
  - Aggregate Bandwidth means the average of read and write bandwidth, calculate as follows:  
Aggregate Bandwidth = (Read Bandwidth + Write Bandwidth)/2, in GB/s.
- Bandwidth Density.
  - Bandwidth density means the Aggregate Bandwidth per U, calculated as follows:  
Bandwidth Density = Aggregate Bandwidth/U per Architecture, in GB/s/U.
- Capacity Density.
  - Capacity Density means the storage capacity per U, calculated as follows:  
Capacity Density = Total raw disk capacity/U, in TB/U.

# Proposed Tests (continued)

- Power Density

- Power density means the power consumed per read , calculated as follows:

Power Density = Total power/read, in W/GB/s.

- Price Performance

- Price Performance means the price per TB of raw storage, calculated as follows:

Price Performance = Price/Aggregate bandwidth, measured in \$/GB/s.

Price may be either published list price or discounted off list price, so long as submitter clearly states the discount percentage off of list price.

