How well do name nodes scale with number of clients?

- Name nodes scale with number of clients, running experiments to see if the name nodes would handle the increased load.
- Each name node services 25 clients in parallel, using 4 name nodes.
- Experiment: measure the performance of name nodes under increased load from 25 to 100 clients.
- Conclusion: name nodes scale well with number of clients.

Root-based applications

- Root-based applications measure performance and scalability of root-based applications (e.g., IOZone).
- How does read BW vary with number of clients?
- Multiple replicas have little effect on read BW.

Data Access Tests

- Test data access rates for different file systems.
- How well do VM clients perform vs. Bare Metal clients?
- Bare Metal Reads are (~10%) faster than VM Reads.

BlueArc vs. Lustre

- BlueArc storage performs well in comparison to Lustre.
- BlueArc vs. Lustre: BlueArc performs ~7.9% faster than Lustre.

IOZone

- IOZone measures performance and scalability of file systems.
- How well do VM clients perform vs. Bare Metal clients?
- Bare Metal Reads are (~10%) faster than VM Reads.

Storage Testbed

- On-Board clients vs. External clients.
- On-Board Bare Metal vs. External clients.
- On-Board clients outperform External clients in terms of performance.

MetaData Comparison

- How well do VM clients perform vs. Bare Metal clients?
- Bare Metal clients have better performance than VM clients.

Conclusions

- Name nodes scale well with number of clients.
- Consider distributed architecture of name nodes.
- Current design of name nodes has performance bottlenecks.
- Future directions: improve performance of name nodes.

Root Benchmark

- Roots vs. VMs: Roots outperform VMs.
- How well do VM clients perform vs. Bare Metal clients?
- Bare Metal clients perform better than VM clients.

Hadoop

- Hadoop benchmarks measure performance and scalability of Hadoop.
- How well do VM clients perform vs. Bare Metal clients?
- Bare Metal clients perform better than VM clients.

OrangeFS

- OrangeFS measures performance and scalability of parallel file systems.
- How well do VM clients perform vs. Bare Metal clients?
- Bare Metal clients perform better than VM clients.