Storage Performance Analyzer (SPA) –
Measuring, Monitoring, and Modeling of I/O Performance in Virtualized Environments

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Motivation

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- Two part framework
  - i) Benchmark harness with included I/O benchmarks
  - ii) Tailored analysis library to analyze the results
- Tailored and pre-packaged for performance evaluation storage systems in distributed and virtualized environments
- Accepted in SPEC RG repository of peer-reviewed tools
  
  http://research.spec.org/tools/
Storage Performance Analyzer (SPA)

- Design aspects and Practical benefits
  - Synchronized execution on multiple targets
  - Automation of experiment runs with parameter variation
  - Persisting results and avoid piles of log files
  - Easy and powerful statistical evaluation
Architecture

- **Benchmark harness**
  - Coordinates the execution of attached benchmarks and monitors
  - Written in high-level programming language (Java) → Easy to debug

- **Easy data persistence**
  - Lightweight SQLite Database

- **Tailored analysis library**
  - Processes and evaluates the collected data and measurements
  - Integrated into statistics tool R (http://www.r-project.org/) → Full control over the analysis
SPA in Action – Case Studies

- Run the benchmark and analyze the results

I. System Analysis and Evaluation

II. Statistical Analysis and Statistical Modeling

III. System Analysis and Explicit Modeling
Conclusion

Storage Performance Analyzer (SPA)

- Systematic analysis of I/O performance in virtualized environments
- Measuring, Monitoring, and Modeling of I/O Performance
- Peer-reviewed tool allowing analysis with high degree of automation

Download

- SPA Project Website
  http://storageperformanceanalyzer.github.io/SPA/
  - Sources and prepared drops for common platforms
  - Documentation and examples

- SPEC RG Tool Repository
  http://research.spec.org/tools/
  - Peer-reviewed tools

http://www.descartes-research.net/tools/