



NETAPP WHITEPAPER

## REPLICATORX™ HOST EDITION CPU BENCHMARK

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### EXECUTIVE SUMMARY

To illustrate how the ReplicatorX client behaves in a real configuration, a benchmark was performed to compare CPU utilization with and without ReplicatorX, for various I/O workloads. This white paper describes the benchmark configuration and results.

The benchmark shows that, on a standard desktop-class machine, the ReplicatorX client increases CPU utilization by a maximum of 3%, even with high I/O workloads. And, for typical I/O workloads, the ReplicatorX client has a negligible impact on % CPU utilization. These results are consistent with numerous customer tests that show application and database performance metrics are unaffected by ReplicatorX.

# 1 INTRODUCTION

ReplicatorX utilizes enterprise-class replication technology to deliver data migration and validation, disaster recovery, development and testing, and backup consolidation solutions.

ReplicatorX provides a SAN-based solution for replication of Fibre Channel storage devices with zero application host footprint and impact. ReplicatorX also supports all other block storage devices, including DAS, internal server and system drives, and iSCSI SANs, with a lightweight client solution that is available for all major open systems platforms.

The unique architecture of ReplicatorX eliminates the bottlenecks that plague traditional products. For example, the ReplicatorX client does not need to perform synchronous journaling or complex consistency algorithms on the application server (host), which are notorious for creating major impacts to production applications and server resources. Instead, these and other “heavy” tasks are performed by the ReplicatorX server component, which runs on a separate software appliance.

# 2 BENCHMARK CONFIGURATION

## SERVER

- HP DX6120
- Single 3.0 GHz Intel Pentium 4 CPU
- 800MHz FSB
- 1GB Dual DDR RAM
- 2 IDE 80GB drives

## OPERATING SYSTEM

- Windows® Server 2003, Standard Edition SP1

## REPLICATION SOFTWARE

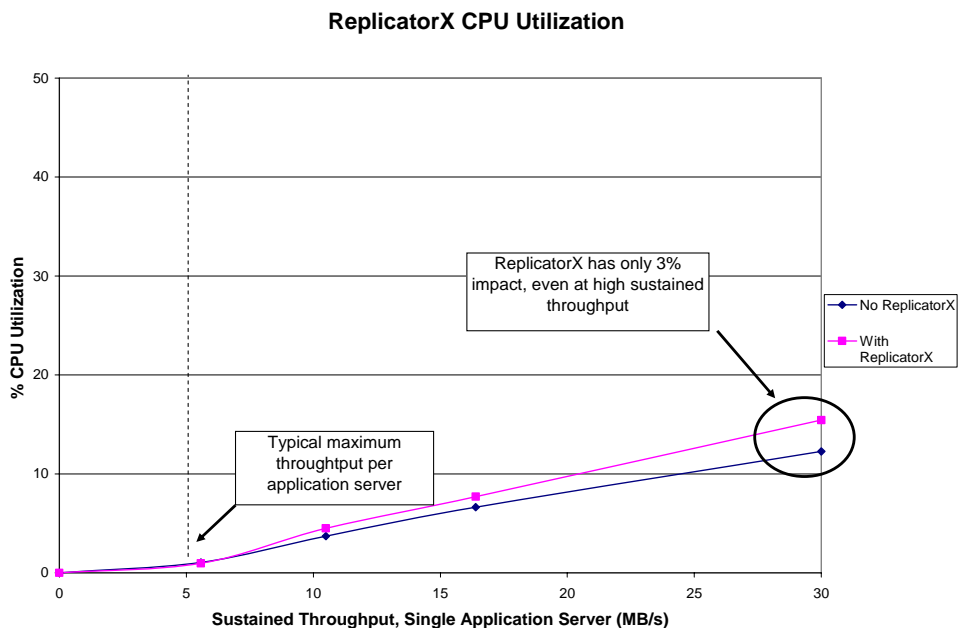
- ReplicatorX R3.0
- Memory buffer size: 16MB
- VRR mode: enabled
- Transfer mode: enabled
- Apply mode: enabled
- Bitmap hardening: off
- DPR: off
- Compression: off

## I/O WORKLOAD GENERATION

- Iometer
- Read/write distribution: 80% / 20%
- I/O size: 10KB

### 3 RESULTS

For each I/O workload, CPU utilization data was collected with and without a ReplicatorX client replicating the workload. The following figure summarizes the results.



The maximum I/O workload used was 30MB/sec, which is a very heavy workload for the typical application server. Even with such a workload, the ReplicatorX client increased the CPU utilization by only 3%. A more common workload for an application server is 5MB/sec. At this workload, the CPU utilization due to the ReplicatorX client is negligible.

These results illustrate the benefit of the ReplicatorX architecture, and are consistent with customer testing of ReplicatorX replication for file systems, databases, and applications.

