



Keeping Applications in Business™

## Arthur Rutenberg Homes Uses RTO's TScale to Build Room for Applications



**Arthur Rutenberg  
Homes**

Arthur Rutenberg Homes, Inc., is the country's largest network of home building franchises, with more than 13,000 homes sold since 1980. By 2000 it had 31 franchised building operations in more than 60 communities in Florida.

As a part of its franchise program, Arthur Rutenberg Homes hosts Microsoft Office and a comprehensive set of internally developed applications for the franchisees to manage the building and design process with their customers.

### Would you Like to Evaluate TScale Advanced?

*If you would like to evaluate TScale Advanced and help your Terminal Server systems improve scalability the same way that it helped Arthur Rutenberg Homes, email RTO at [sales@rtosoft.com](mailto:sales@rtosoft.com) or call 678-987-4302.*

Business was growing so fast franchisees needed more room to maximize the performance of their customer service applications. Ironically, the age-old question of whether to move or renovate existing room was firmly resolved with use of TScale, RTO's server application monitoring tool, without the addition of more servers.

### Benefits of Implementing TScale

Results were impressive. Jan Broucinek, System Manager for Arthur Rutenberg Homes said, "Adding TScale to our existing three servers is equivalent to buying a whole new server—for a fraction of the cost. We found TScale provided multiple scalability benefits to our systems."

- Number of sessions each server could support increased by 44%, from 90 to 130 sessions (the TScale server actually supported 146 sessions before degradation was noticed).
- Page file utilization at our average load of 70 sessions per server was reduced by 46%, from 806 MB to 432 MB.
- Virtual memory consumed by our key and frequently used applications declined by an average of 29%.
- Page faults generated by our key and frequently used applications declined by an average of 31%.



### Summary Scalability Benefit Analysis

Maximum Supported Sessions Per Server Without TScale	90
Maximum Supported Sessions Per Server With TScale	130
Page File Utilization Without TScale (K)	806,360
Page File Utilization With TScale (K)	432,052
Percentage Reduction in Page File Utilization For All Applications	46%
Percentage Reduction in Virtual Memory for Key Applications	29%
Percentage Reduction in Page Faults for Key Applications	32%

### Summary Virtual Memory Benefit Analysis

Application Name	Instances	Avg VM Before(K)	Avg. VM After (K)	Avg. VM Savings(K)	Total VM Savings (K)	Percent Savings (K)
Winword	11	2,510	2,344	167	1,834	6.64%
Outlook	21	3,960	2,758	1,201	25,225	30.34%
Oracle Report Writer	23	12,306	6,773	5,533	127,264	44.96%
Oracle Forms	18	11,798	10,591	1,207	21,721	10.23%
Totals		606,161			176,044	29.04%

TScale reduced the virtual memory utilization by the key applications in Jan's environment. These virtual memory reductions contributed to the reduction in page file usage, which also contributed to the reduction in page faults.

### Summary Page Fault Benefit Analysis

Application Name	Instances	Avg. Page Faults Before	Avg. Page Faults After	Avg. Page Fault Reduction	Total Page Fault Reduction	Percent Savings (K)
Winword	11	4979	3981	998	10,981	20.05%
Outlook	21	8140	6193	1,947	40,895	23.92%
Oracle Report Writer	23	5411	4212	1,199	27,578	22.16%
Oracle Forms	18	16314	9438	6,876	123,775	42.15%
Totals		643,826			203,229	31.57%

TScale reduced the page faults for typical key applications usage. Since page faults directly impact system performance, the reduction is a large contributor to the improved scalability.

## System Environment

Arthur Rutenberg Homes custom applications are developed in Oracle Forms. The hosting production applications environment consists of the following hardware and software:

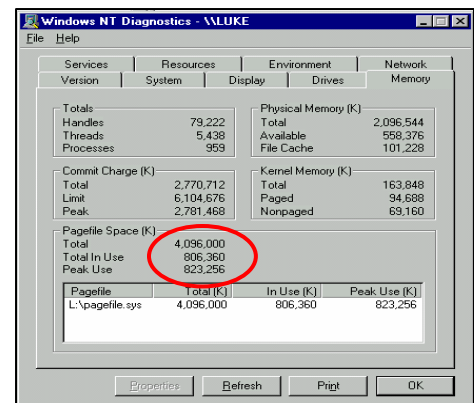
- 3 Compaq Proliant Quad Xeon processors, 2GB RAM, 25GB of hard disk
- NT 4.0 TSE SP6
- Citrix Metaframe 1.8 SP2 FR1
- ICA browser hotfix Q269214
- Office 97 & Outlook 98
- Oracle Forms and Report Writer
- 210 Internet connected remote users

## Testing & Implementation

The TScale test and evaluation was done in the following steps:

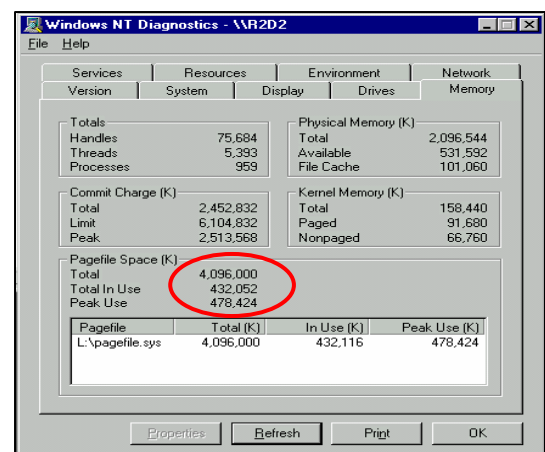
1. Installed TScale on one of two identical production servers for continuous comparison with and without TScale. Running identical applications sets, the load was balanced with the required numbers of sessions distributed equally.
2. Ran and installed the TScale EXE self-extracting install file.
3. Scheduled an optimization to occur early the next morning after servers had been automatically rebooted and restarted.
4. After the first two optimization sessions ran, Windows NT Diagnostics ran on both servers when the load was almost identical. The results of the two diagnostic sessions are depicted above and below:
5. Load balancing across the two servers was altered and a live scalability test was performed. Performance of the server without TScale became unacceptable when it had to support 90 sessions. The number of sessions on the TScale server was increased until it was supporting 130 sessions with acceptable performance.

Server without TScale



Totals		Physical Memory (K)	
Handles	79,222	Total	2,096,544
Threads	5,438	Available	558,376
Processes	959	File Cache	101,228
Commit Charge (K)		Kernel Memory (K)	
Total	2,770,712	Total	163,848
Limit	6,104,676	Paged	94,688
Peak	2,781,468	Nonpaged	69,160
Pagefile Space (K)			
Total	4,096,000	Total In Use	806,360
Total In Use	806,360	Peak Use	823,256
Peak Use	823,256		
Pagefile	Total (K)	In Use (K)	Peak Use (K)
L:\pagefile.sys	4,096,000	806,360	823,256

Server with TScale



Totals		Physical Memory (K)	
Handles	75,694	Total	2,096,544
Threads	5,393	Available	531,532
Processes	959	File Cache	101,060
Commit Charge (K)		Kernel Memory (K)	
Total	2,452,832	Total	158,440
Limit	6,104,832	Paged	91,680
Peak	2,513,568	Nonpaged	66,760
Pagefile Space (K)			
Total	4,096,000	Total In Use	432,052
Total In Use	432,052	Peak Use	478,424
Peak Use	478,424		
Pagefile	Total (K)	In Use (K)	Peak Use (K)
L:\pagefile.sys	4,096,000	432,116	478,424