

Scott & White Launches Capacity Planning Strategy with TeamQuest Performance Software

Case Study

TeamQuest specializes in IT Service Optimization

Client Info at a Glance

Company: Scott & White

Location: Texas



Company Overview: Ranked four consecutive years as one of the Top 100 Hospitals in the country, Scott & White is the largest multi-specialty practice in Texas. Scott & White boasts more than 500 physicians at its 15 regional clinics throughout central Texas

Summary

Edward Ley, a UNIX system administrator at Scott & White Hospital and Clinic, leads a team that manages a complex and evolving environment. This paper discusses Scott & White's IT infrastructure and how Ley and his team use TeamQuest software to monitor their enterprise and support their capacity planning strategies.

Large Hospital, Complex IT Environment

Scott & White, an affiliate of Texas A&M Medical School, is a 500-bed hospital that employs 750 doctors and also operates 15 regional clinics. With the delivery of quality healthcare relying squarely on a sophisticated IT infrastructure, Scott & White maintains a data center that is home to nearly five hundred servers — almost one per bed — including 80 UNIX servers, 60 NetWare servers and around 340 Windows servers.

Performance and capacity management are critical to Scott & White. The cost of poor IT service performance is not just financial to them; it's also reputation, quality of care and patients' lives.

"Praemonitus praemunitus," says Edward Ley, UNIX system administrator at Scott & White Hospital and Clinic. "To be forewarned is to be forearmed. Knowledge of imminent problems prepares us to overcome them, and TeamQuest has become an important, strategic element to staying one step ahead of trouble."

Monitoring Systems is Essential for Capacity Planning

In order to conduct effective capacity planning, it is essential to monitor all existing systems. The hospital uses AutoIT v3, a freeware BASIC-like scripting language designed for automating

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the Windows GUI and for general scripting. It uses a combination of simulated keystrokes, mouse movement, and window/control manipulation in order to manipulate tasks in a way not possible or reliable with other languages.

Managing IT infrastructure complexities and adapting to new demands in a hospital environment is challenging and requires a proactive approach. Scott & White uses TeamQuest software to plan for capacity requirements and monitor the enterprise for impending bottlenecks.

“TeamQuest On the Web has been invaluable in monitoring systems and managing capacity. It provides us with instant access to metrics such as overall CPU utilization, hard disk reads/writes per second, CPU queue lengths, free memory, network packets per second, IO activity by workload and memory paging requests,” says Ley.

TeamQuest Model is used to predict capacity requirements for desired throughput. “For example,” says Ley, “if our business is going to double, can our current resources handle the load? And if more resources are being added, will they be enough to handle the load? Using TeamQuest Model for capacity planning ensures that the correct answers are obtained — and in enough time so that the necessary upgrades can be implemented.”

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Prediction Precision versus Investment

Some people attempt to achieve perfection through capacity planning. Their idea is to be able to predict every possible situation and occurrence with absolute precision. While this is a noble goal, it is probably unobtainable.

In reality, Ley notes it is possible to achieve a high degree of precision — probably in excess of 80 percent — within a reasonable budget.

“Once you seek to go beyond that threshold, however, the cost rises exponentially. And throwing more money into a capacity plan will not necessarily increase prediction precision. In our experience, therefore, it is advisable to find a minimum threshold and accept its limitations. TeamQuest Model is a very cost effective way to plan for capacity requirements, typically accurate to within five percent.”

Obviously it is essential that such thresholds align closely with Service-Level Agreements. SLAs provide an outline of user expectations with regard to response time, throughput, system availability and reliability. They should focus on easy-to-understand metrics and set easily measurable goals. IT costs should be tied to such SLAs.

Project Plan

Scott & White implemented a capacity planning methodology in four important and distinct phases.

1. Strategy phase: Determined overall goals, the scope of the project, the methods to be employed, and the modeling methodologies to use.
2. Build Phase: Characterized workloads and created the modeling environment.
3. Execution phase: Simulated the workloads, applied the mathematical model, and validated the results.
4. Interpretation phase: Analyzed, summarized and presented the results.

“TeamQuest software was integral to the Scott & White capacity planning strategy and supplied the modeling structure,” notes Ley. “For our architecture, that meant ensuring that IT requirements were met 100 percent of the time.”

To accurately predict capacity requirements, Ley first defined workloads and workload sets provided by TeamQuest software, Ley found it simple to add and edit workload definitions to suit his specific needs.

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Next, the capacity planning team decided to base their model on a period of peak usage. “As our hospital needs change and demand for IT services fluctuates, our IT infrastructure has to accommodate. Average or typical usage was not enough,” he says. “We used TeamQuest View to identify usage patterns over time so the proper amount of capacity to comfortably take care of the loads during peak periods could be calculated.”

The team selected an appropriate time period, and the performance data from that time period was used as input to the model. After calibrating the model to closely match reality, Ley and his team used the model to experiment with different configurations and changes in workloads to predict the capacity necessary to sufficiently support demand at desired service levels.

The Case for Server Consolidation

Scott & White uses TeamQuest software daily and continues to exploit its advantages in a variety of projects. Most recently, TeamQuest software was used to aid in a server consolidation project. Managing the environment had become more costly than the hardware itself, due primarily to power, cooling and space costs that far outpaced the cost of servers and other IT gear.

“In our case, TeamQuest View proved that consolidating our server population would maximize CPU and RAM utilization,” says Ley. “Modeling showed that higher utilization — while still maintaining service levels — could easily be achieved through micro-partitioning.”

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