



April 2007

Document **G98**

## **ROI CASE STUDY MICROSOFT VISUAL STUDIO TEAM SYSTEM DELL**

### **THE BOTTOM LINE**

**By using Microsoft Visual Studio Team Foundation Server to deploy a global source code management platform, Dell is able maintain a centralized repository for all source code and provide it to developers on a just-in-time basis regardless of their location. Improved source code management has also enabled Dell to consolidate its source code onto fewer servers, redeploy 100 system administrators, and improve the productivity of its developers.**

**ROI: 225%**

**Payback: 6 months**

### **THE COMPANY**

Dell designs, develops, manufactures, markets, sells, and supports a wide range of computer systems. Dell's enterprise systems product offering includes servers, storage devices, workstations, and networking products. The company's client systems product offering includes notebooks and desktop computer systems. Dell is well known for selling its products directly to large corporate, government, healthcare, and education accounts, as well as small-to-medium businesses and individual consumers. Dell operates principally in the United States, Europe, Middle East, Africa, and Asia Pacific-Japan, is publicly held, headquartered in Texas, and has over 65,000 employees.

### **THE CHALLENGE**

In mid-2005 Dell determined that it needed to bring more uniformity and consistency to its source code management. The company had development staff all over the globe and the various teams each had their own solutions and practices for storing and retrieving source code.

Dell was using both Microsoft Visual SourceSafe and CA Harvest Change Manager for source code management, but neither solution supported global source code management. During 2004, Dell had run a pilot test of IBM ClearCase, which supports global replication for global development, but had not been fully adopted by the development staff because of perceived cost issues. Without a uniform source code strategy, development staff was having difficulty locating, retrieving, managing, and reporting on source code.

**RELATED RESEARCH**

G97 Microsoft Visual Studio Team System ROI Case Study – Social Networking Web site

G96 Microsoft Visual Studio Team System ROI Case Study – EDS

G92 Microsoft Visual Studio Team System ROI Case Study – Global Manufacturer

G6 Accelerating your SOA roadmap

F106SOA 101

**THE STRATEGY**

The company decided to deploy a centralized and global source code management strategy that would enable Dell to:

- Reduce the time developers spent locating, retrieving, and managing source code
- Minimize both software and training costs by deploying one solution across its global footprint
- Consolidate servers in order to reduce hardware, administration, and maintenance costs.

In order to find a solution that would support this strategy, Dell evaluated CA Harvest Change Manager, Microsoft Visual SourceSafe, IBM ClearCase, and Microsoft Visual Studio Team Foundation Server. The company evaluated the solutions by scoping the deployment complexities of each and ran pilot tests of both IBM ClearCase and Microsoft Visual Studio Team System. In February 2006, the company selected Microsoft Visual Studio Team Foundation Server as its standard source code management tool for a number of reasons:

- CA Harvest Change Manager was not selected because it did not have global replication capabilities. It was also perceived to have usability issues that had previously caused non-adoption by some of Dell's development staff.
- IBM ClearCase was not selected because it would have required extra investments in hardware, administration, and training.
- Microsoft Visual SourceSafe would have required integration with another solution in order to have global capabilities.

Microsoft Visual Studio Team Foundation Server was also selected because it had the required global replication capabilities, performed well during the 5-month proof-of-concept project, and required minimal training and administration.

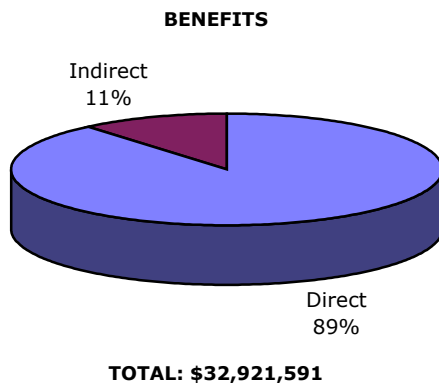
In early 2006, 11 Dell employees began working on the deployment of Team Foundation Server with consultants from Notion, who helped Dell identify its user base, locate custom code, import it into Visual Studio, and create hardware specifications for the new platform. The team then installed 21 servers for running Microsoft Visual Studio Team Foundation Server and storing all of the company's source code. After transferring an initial portion of the source code over to the new platform, five of the servers were set up as proxies so that regional users gained performance improvements when accessing source code. During the deployment, Dell also undertook some customizations to integrate the solution with a defect-tracking tool from Mercury Interactive. At the end of the deployment, Dell provided 300 developers and project managers with two days of training on the application.

Microsoft Visual Studio Team Foundation Server has been fully deployed since mid-2006 and supports global development around the clock by enabling 2,000 of Dell's developers and managers to locate, retrieve, manage, and store source code in one centralized system.

## KEY BENEFIT AREAS

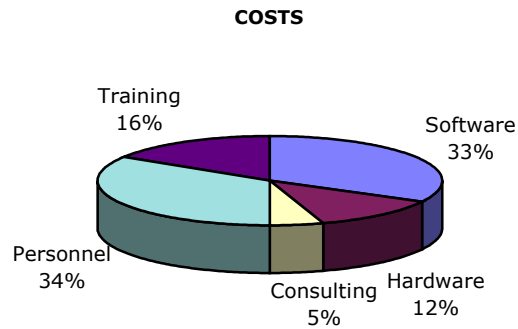
By using Microsoft Visual Studio Team Foundation Server to adopt a global source code management strategy, Dell was able to redeploy 100 system administrators and improve the productivity of its developers. Key benefits from the solution include:

- Improved administrator productivity. Because management of all source code has been centralized on four servers, Dell's system administrators have been relieved of source code management tasks. Before the deployment, each of Dell's 400 servers required 25 percent of an employee for source code management. Now that this support is no longer required, Dell has redeployed 100 system administrators to more value-added tasks, which is a direct benefit.
- Improved developer productivity. Microsoft Visual Studio Team Foundation Server has reduced the amount of time developers and project managers spend retrieving source code. Before the deployment, it took the old system an average of 2.5 hours to deliver the latest version of source code to a developer. With Team Foundation Server, this only takes two minutes. This has eliminated an average of 30 minutes of down time per week for 2,000 of Dell's developers and managers, which is an indirect benefit.



## KEY COST AREAS

Key cost areas for the deployment included software, personnel, hardware, training, and consulting. Because Dell purchased the solution under an enterprise license agreement, software costs are based on list pricing for the application with a typical discount that would be received by a company of Dell's size. Personnel consisted of 11 Dell employees who worked for a year on both the vendor selection process and the deployment. Personnel costs also include two people who spend a portion of their time supporting Microsoft Visual Studio Team Foundation Server on an ongoing basis. Hardware consisted of 21 servers that store both the source code and Microsoft Visual Studio Team Foundation Server. Training costs consist of trainer and employee time for two days of training of 1,300 developers and project managers. Consulting costs consisted of assistance provided by Notion during the deployment.



**TOTAL: \$4,893,117**

### LESSONS LEARNED

During the deployment, Dell's team was challenged because the company had numerous custom processes and workflows. Although Dell accommodated these by making customizations to Microsoft Visual Studio Team Foundation Server, companies considering an investment in the solution should be aware that the solution has a structure that can accommodate most workflows related to development and source code management. During a deployment, companies should first look to making modifications to their workflows and procedures rather than Microsoft Visual Studio Team Foundation Server in order to minimize deployment and maintenance complexities that can be caused by customization.

### CALCULATING THE ROI

Nucleus calculated the projected costs of software, personnel, hardware, training, and consulting investments over a 3-year period to quantify Dell's total investment in Microsoft Visual Studio Team Foundation Server.

Projected direct benefits consisted of the redeployment of system administrators to higher value functions after the deployment. Projected indirect benefits consisted of improved productivity of developers. Both benefits were calculated based on the average fully loaded cost of these employees. A discount factor of 50 percent was applied to developer productivity improvements in order to reflect the inefficient transfer of time from time saved to time dedicated to new tasks.

*Nucleus Research is a global provider of investigative technology research and advisory services. Building on its unique ROI case study approach, Nucleus Research delivers insight and analysis on the true value of technology and strategies for maximizing current investments and exploiting new technology opportunities. For more information or a list of services, visit [NucleusResearch.com](http://NucleusResearch.com), call +1-781-416-2900, or e-mail [info@NucleusResearch.com](mailto:info@NucleusResearch.com).*

# DETAILED FINANCIAL ANALYSIS

DELL

## SUMMARY

Project:	<b>Microsoft Visual Studio Team Foundation Server</b>
Annual return on investment (ROI)	<b>225%</b>
Payback period (years)	<b>0.46</b>
Net present value (NPV)	<b>9,823,112</b>
Average yearly cost of ownership	<b>1,631,039</b>

<b>ANNUAL BENEFITS</b>	<b>Pre-start</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
Direct	0	9,754,545	9,754,545	9,754,545
Indirect	0	1,219,318	1,219,318	1,219,318
<b>Total Benefits Per Period</b>	0	10,973,864	10,973,864	10,973,864

<b>DEPRECIATED ASSETS</b>	<b>Pre-start</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
Software	1,000,000	0	0	0
Hardware	600,000	0	0	0
<b>Total Per Period</b>	1,600,000	0	0	0

<b>DEPRECIATION SCHEDULE</b>	<b>Pre-start</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
Software	0	200,000	200,000	200,000
Hardware	0	120,000	120,000	120,000
<b>Total Per Period</b>	0	320,000	320,000	320,000

<b>EXPENSED COSTS</b>	<b>Pre-start</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
Software	0	200,000	200,000	200,000
Hardware	0	0	0	0
Consulting	250,000	0	0	0
Personnel	1,073,000	195,091	195,091	195,091
Training	250,349	534,496	0	0
Other	0	0	0	0
<b>Total Per Period</b>	1,573,349	929,587	395,091	395,091

<b>FINANCIAL ANALYSIS</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
Net cash flow before taxes	10,044,277	10,578,773	10,578,773
Net cash flow after taxes	5,182,139	5,449,386	5,449,386
<b>Annual ROI - direct and indirect benefits</b>			<b>225%</b>
Net cash flow after taxes (direct only)	4,572,479	4,839,727	4,839,727
Annual ROI - direct benefits only			199%
<b>Net present value (NPV)</b>			<b>9,823,112</b>
<b>Payback (years)</b>			<b>0.46</b>
Average annual cost of ownership			1,631,039
3-year IRR			213%

## FINANCIAL ASSUMPTIONS

All government taxes	50%
Discount rate	15%