Delivering Utility Computing

Business-driven IT Optimization

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WILEY

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Time and IT March On

We live in an era of change; not only is change happening all the time, but the rate of change is accelerating and customers' requirements and the environments that provide them are not the only factors affected. While we were writing this book there were a number of large IT industry mergers, not least when the company we both work for, VERITAS Software, merged with Symantec Corporation in July 2005.

Utility Computing is all about delivering IT as a flexible, cost-effective service. One of the key premises is that the service needs to be delivered in a timely and secure manner and when developing a utility infrastructure time needs to be spent putting in place practices and procedures as well as technology to mitigate risk. As a company the new Symantec remains committed to Utility Computing and is now broadening the picture to include all aspects of security, from Intrusion Detection through anti-virus and anti-spam to data encryption. This combination of technology is resulting in a new sector, Information Integrity. The inclusion of security at all points in the IT infrastructure will not be new to administrators around the globe. However, the strong integration of security technologies with availability technologies will give rise to a new generation of products that will enable Utility environments to be rolled out more easily and with greater security than before.

Guy Bunker
Darren Thompson
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About the Authors

Dr. Guy Bunker is CTO for the Application and Service Management Division and Distinguished Engineer at VERITAS Software Corporation. He is responsible for the technical vision for utility computing at VERITAS and for running a number of related research projects.

Guy has worked for VERITAS for nearly a decade in a number of different product divisions, most recently leading research into service level management and the use of new technologies in a utility computing environment. He has been a member of a number of industry bodies driving standards in computer storage and management and is currently a member of the Global Grid Forum and the Grid Market Awareness Council.

Guy is a regular presenter at many conferences, including JavaONE, Tivoli World, Linux on Wall Street and the VERITAS user conference, VISION. Guy was also a co-author of the first VERITAS utility computing book: *From Cost Center to Value Center: Making the move to utility computing*.

Prior to VERITAS, Guy worked for a number of companies, including Oracle, where he was the architect for their Business Process Re-engineering tools.

Guy holds a PhD in Artificial Neural Networks from King's College London and is a Chartered Engineer with the IEE.

Darren Thomson works as Worldwide Practice Director, Utility Computing within VERITAS Global Services. He is responsible for the service development and strategic consulting delivery.

Since joining VERITAS in July 2003, Darren has been working closely with many global customers to help them to realize their utility computing visions. Before joining VERITAS, Darren worked at The Morse Group, a European systems integrator focused on the design and implementation of critical IT systems in the Financial Services, Telco and Media industries. His final position at Morse was as their Group Technical Strategist, focused on 'next generation' server and storage technologies. This role brought Darren into contact with many of today's leading edge companies such as Egenera, VMWare, EMC, Platform Computing and Datacore. A citizen of the UK, Darren was educated in Hertfordshire, England and now holds several IT related certifications, such as the Total Cost of Ownership Expert qualification from The Gartner Group.

Foreword[1]

In 2001 the technology sector took a major hit in the financial markets. I remember the year because my modest investment portfolio lost half of its value. The decline was first felt by dot.com companies that went bust as the market showed no mercy on firms with small to non-existent revenue streams, but the effects quickly spread across the entire industry. Internal Information Technology (IT) organizations began to feel the crunch as the budget axe fell upon projects and ongoing IT operations. At the International Monetary Fund (IMF or "Fund") where I lead the Server & Storage Infrastructure Team, the IT department was ill-prepared to defend its budgets as Fund management demanded increasing fiscal accountability. Each of you that works in Technology has surely felt the ramifications of the technology sector's fall. Our challenge is to restore faith in our industry and to reposition IT from a cost center to a value center.

Stagnant or decreasing IT budgets have not necessarily resulted in flat or decreasing demands on IT departments. While the "do more with less" mantra has become cliché to the point of annoyance, it is nonetheless reality for most IT professionals. By way of example, the Server & Storage Infrastructure Team at the IMF is responsible for maintaining twice as many servers and four times as much electronic storage in 2005 as it did in 2001, with the same level of funding.

[1] The views expressed in this foreword are those of the author and should not be attributed to the International Monetary Fund, its Executive Board, or its management.

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Meanwhile, user tolerance for outages has evaporated and security patching of our 400 Windows servers has become a monthly ritual.

To "do more with less" requires efficiency gains, which may seem frustratingly beyond one's grasp. At the IMF, my colleagues and I struggled to find a solution to our multifaceted dilemma, which is characterized by the items in the list below. We learned through external consultants and dicussions with peers in other organizations that our predicament is not unique, and that most medium to large IT organizations suffer from similar problems.

- Far too many people from across the IT organization have full administrative privileges in our Windows server environment;
- Few people outside of the IT Infrastructure group understand the services we provide;
- There is an inability to correlate our service offerings to a meaningful cost structure;
- Poor asset utilization exists – e.g. CPU and disk utilization are, on average, very low;
- IT project teams are able to acquire a low-end server for $8,000, with no responsibility for the annual server TCO of $15,000 (i.e. no exposure of ongoing operational costs);
- In the absence of Service Level Agreements (SLAs), project managers are hesitant to cede control of any part of the application stack (from the hardware to application layer);
- Human error contributes to 80-90% of service outages;
- In the absence of a structure that maps quality-of-service to cost, customers always choose "First-Class" service.

To address these, and similar problems across the IT organization, a plethora of initiatives have been undertaken. ITIL-based service management for change, release, incident, and problem management; a High Availability (HA) Program, and a server consolidation project represent some of main the initiatives affecting the team. Yet a more comprehensive approach is needed to tie these efforts together, optimize the value of these efforts, and ensure that ALL of our major problems are addressed. The cornerstone that binds our efforts together is a utility computing initiative.

Dr. Guy Bunker and Darren Thomson, utility computing thought leaders, have developed a methodology that is predicated on a perfect blend of concept and real-world experience. This book will

give you the conceptual knowledge and practical guidance to understand and implement utility computing in your organization whether you work in an internal, or a service provider, IT organization. Whether you are a CFO looking at the bottom line for your business, a CIO aligning IT with business goals, a system architect designing IT services, or an IT manager like me trying to move beyond survival mode to proactive management of your IT environment, this book offers a practical guide for transforming IT to a service-led organization.

At the Fund, the engineers in the Server & Storage Infrastructure Team have used the utility computing principles that Dr. Bunker and Mr. Thomson describe in detail in this book. Our IT Utility Service Environment (IT USE) initiative is quickly gaining traction because of the concrete objectives we were able to define using the model developed by the authors. We expect to realize clearly demonstrated cost savings through IT USE within two years. This compares favorably with service management initiatives (e.g. ITIL), which have been underway for several years, and will take several more to fully implement at the Fund. IT USE ensures that well-defined processes around our HA program are established, and the necessary controls over the server and storage environment to achieve HA, are implemented. We are confident that the shared IT USE infrastructure will help us to realize significantly higher resource utilization. More importantly, by addressing the process by which servers and storage are procured, deployed, maintained and, most importantly, costed, ensures that efficiency gains will be sustained.

If you are interested in IT organizational transformation that properly blends people and process while leveraging advances in technology (e.g. virtualization, workflow automation, provisioning, etc.) this book is definitely for you. The ultimate benefit to be derived from this book, however, is the repositioning of your IT organization as a value center and the establishment of a complementary relationship with the business side of your organization.

Thomas J. Ferris
Senior Information Technology Officer
International Monetary Fund

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This book could not have been written without the wholehearted support of our colleagues at work, or our managers, who turned a blind eye to the odd hour or two spent writing when we should have been doing something else. The list of colleagues is so long that we are bound to have forgotten someone, in which case our apologies. Here, for the record, are the ones who have proven to be most memorable: Bob Adair, Mark Bregman, Christopher Chandler, Cary Christopherson, Bill Forsyth, Peter Jeffe, Abhijit Kale and the team in Pune, Tom Lanzatella, Paul Massiglia, Chuck Palczak, Susan Rutherford, Bob Santiago, Kaajal Shaikh, Mike Spink, Mike Tardif and Charlie Van Meter. Finally, thanks to the many customers we have spoken to, who have helped us refine the methodology, and to Rob Craig for the proof review – the comments you made helped us to remove many of the sharp edges.

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