

VIRTUALIZATION BEST PRACTICES

Cutting time to market! Beating your competition with new IT initiatives that help your company improve its competitive position in the marketplace. These are the fundamental goals of IT. Whether lowering cost by streamlining operations or increasing revenue by enabling a new approach to market, the ability to innovate is the essential difference among IT departments.



Virtualization

Business Strategy for a Successful Implementation

It's no surprise that a new entrant into a market often has the most innovative IT programs. Why? Because a new company can use 100 percent of its IT budget for innovation. What about you? If you are a typical IT executive, 80 percent of your IT budget is spent supporting legacy applications and infrastructure. What if you could free up an additional 10 percent? What if you could free up an additional 20 percent? What would it mean to you, your staff, and your company?

Admit it. You probably haven't had much time to think about helping your company beat its competition in the marketplace. Since the 1990s, when low-cost servers began proliferating across corporate departments, you've likely had your hands full just keeping the lights blinking in the right places across a sprawling, distributed computing environment populated with a frightening array of servers and proliferating storage. The 80/20 rule that has asserted itself in most IT shops is that 80 percent of the IT budget is spent holding legacy systems together and barely 20 percent is left for supporting business initiatives. Ironically, Wintel servers that are often at the source of the mayhem are working as much under capacity - typically 7 to 9 percent - as you and your staff are working over capacity - lots of late nights and weekends. The trend toward enterprise consolidation promises to change all that.

GAME CHANGING IMPACT

More than a technology, enterprise consolidation is-or should be—a strategic system-wide approach that encompasses several technologies and involves corporate finance, executive management, and, of course, corporate politics. IT managers and executives who are in a position to look up from the short-term crisis in front of them to the long-term changes that are being

put in place through consolidation are in a position to have a game-changing impact on their organizations.

Few other trends in technology have offered such a range of technical, financial, and even career opportunities. Just the savings from consolidation in terms of power consumption, floor space, hardware maintenance, and infrastructure growth containment can generate head-turning numbers.

A study Logicalis, a global provider of high-performance technology, completed for a large enterprise in the financial industry, for example, showed that consolidation could reduce the total cost of ownership of its IT environment from \$12.8 million over five years to \$5.2 million.

On a smaller scale, another Logicalis customer found that it was able to reduce the three-year cost of its infrastructure from \$740,000 to \$595,000, a savings that might be even more vital to a small company than the millions that can be saved in a Fortune 500 company.



COLLIDING ISSUES

Both customers faced the same colliding issues:

- IT infrastructure growth over the past decades has been based on getting an application in production as rapidly as possible.
- The relatively low cost of Wintel-based servers enabled a major change in producing new applications. Wintel IT was justified based on one application/one server. That approach was then extended to Unix, Linux, and other platforms.
- The one application/one server model eliminated the due diligence required for sharing resources.
- Applications that ran on their own server no longer had to work together.
- Low utilization of resources has been the inevitable result. The average utilization of a Windows server during normal business hours is under 10 percent, and the average utilization during peak hours is under 15 percent.
- Managing, maintaining, and supporting the proliferation of servers and storage devices, in turn, have become expensive and complex—and asset management, from both a technical and financial standpoint, has become increasingly difficult.

Consolidation addresses all of these issues for customers of all sizes. Not surprisingly, the market in IT consolidation is booming. According to IDC of Framingham, Mass., the IT consolidation market is expected to grow to \$24.7 billion by 2009, outpacing the growth of the overall IT market. Business will spend as much as \$15 billion on virtualization technology by that time.

This series of articles draws on Logicalis' experience with scores of consolidation projects and describes a strategic approach to consolidation with virtualization that promises to help get IT managers into a proactive, customer-centric and strategic approach that not only saves money and rationalizes IT management but also transforms IT strategies from cost containment to business innovation.

PANDORA'S BOX

Consolidation is not a new concept. The term has been bandied around in storage and Unix markets for more than a decade. What has propelled it to buzzword status today is the ability to consolidate in the very Wintel marketplace that opened the Pandora's box to rapidly decentralizing IT in the first place. Now that the Wintel world can be consolidated, there is no element of the IT environment—including servers, storage, desktops and networks—that cannot be re-configured in more effective and efficient form.

The central question now is not whether to consolidate but where to begin and how aggressively to proceed. Some will say, "start with storage," and others will say, "start with servers." There is no single right answer.

The simple fact that every IT environment is uniquely different means that every consolidation project is a custom job.

According to Logicalis Storage Solutions Consultant Chuck Gerstner, the most common problem customers want to solve with consolidation is the complexity within their infrastructure that has been created over time in response to growth. "What the people I talk to want first," he says, "is help getting their arms around all the complexity and then to create a more effective and efficient environment."

Other companies find a path to consolidation when they start looking at business continuity and disaster recovery solutions. It doesn't take much due diligence to reveal that an unwieldy infrastructure makes implementing those solutions much more difficult and the probability of success much lower. Consolidation, as a result, becomes one of the building blocks of business continuity and disaster recovery. Mergers and acquisitions, corporate moves, and data center relocations and centralization can all trigger the need to consolidate.

3 STEPS FOR ENTERPRISE READINESS

1. Assess the present.

- What do you have?
- What is the capacity?
- How is it performing?
- What is the utilization during peak and business hours?
- What is the workload on each asset and on the whole system?
- What is the cost of support and management?
- What is the cost of power and facilities?
- If you continue to operate in the same manner, how many new servers will have to be added over the next three years?
- At what cost?
- How many will have to be replaced?
- What is the impact on storage?
- What is the impact on the network?
- What is the total cost for three years?
- What is the cash utilization?

3. Create the plan.

- Define your timelines, goals, and metrics.
- Choose whether your approach will be fast and aggressive or slower and more measured.
- Define specific tasks and steps to reach the desired goals.

2. Model the future.

- What can you consolidate?
- What can't you consolidate?
- Why?
- What is the new capacity?
- What is the new utilization?
- What will be required to meet normal growth?
- What are the new costs of support and maintenance? Facilities and power? Growth and replacement? New equipment and software?
- What can be saved?
- What are the financial impacts of a consolidation project?
- What's the ROI, NPV, TCO Savings, and IRR (see the sidebar on page 9 for definitions of these terms)



CRITICAL STEPS

"The most important lesson we've seen," according to Logicalis Business Development Manager Bruce Hart, "is, first of all, you have to scope the project accurately, and then you have to get the right people involved throughout

the organization. It can't just be the IT guys. You've got to have executive support. You've got to have the finance people involved. If you don't, the project is not going to be successful." Too many organizations rush into

consolidation, without taking the time to develop a comprehensive consolidation plan. Logicalis experts have identified three key steps that should be taken before you move consolidation projects out of the sandbox and into the enterprise.

Your project plan will guide every step of the consolidation including staff training, physical to virtual migration and test, SAN and data migration, and change management.

Just starting small is not necessarily the safe course. According to Logicalis enterprise infrastructure expert Brandon Harris, unless each incremental step is part of a broader plan and strategy, you run the risk of missing major opportunities to leverage consolidation across the enterprise and may actually end up increasing the level of complexity that you originally intended to simplify.

Consolidation is a journey, not a destination. Similarly, capacity planning and asset management are never finished. They have to become a way of life. Establishing a post-consolidation plan and strategy for ongoing capacity planning, asset management, and operations, therefore, is as important as the consolidation plan itself.

FROM REACTIVE TO PROACTIVE

Relatively few IT departments have the people with the time and the skills to develop a comprehensive consolidation strategy on their own. In reality, with budget and staff meetings and whatever crisis du jour just hit their BlackBerry or mobile phone, most IT departments are thinking tactically, not strategically.

In addition to all the other benefits, a well-structured consolidation plan can switch an IT department's polarity from reactive mode to proactive mode. "The consolidation plan helps IT managers take a look at short-term needs and put a strategic framework around them," says Logicalis' Gerstner. "It keeps them focused on a bigger picture—where they may want to get to

THE GREEN SIDE OF CONSOLIDATION

Incentives to add to your savings

SAN FRANCISCO - Pacific Gas and Electric Company last year announced the first-ever utility financial incentive program to support virtualization projects in data centers, with industry support from VMware, Intel Corporation, and other high-tech leaders.

"Virtualization technology is helping our customers realize significant energy and cost savings, while addressing critical data center capacity issues," explained Helen Burt, Senior Vice President and Chief Customer Officer for PG&E. "By providing financial support, we hope to increase industry adoption of this technology."

PG&E customers in northern and central California who are interested in earning financial incentives for virtualization projects must apply for the rebate prior to pursuing a project. The incentives are based on the amount of energy savings achieved through data center consolidation. Qualifying customers can earn a rebate amount of as much as \$4 million per project site.

In addition to the rebate, customers can expect to save \$300 to \$600 in annual energy costs for each server that is removed. Those savings can almost double when reduced data center cooling costs are also taken into account.

You may not be located in the PG&E's service area, but it wouldn't hurt to ask your own power company about similar incentives. This is clearly a trend in energy prices that is worth encouraging.

18 months or three years down the road, and shows them how what they can do today fits into that. If they go about it right," he adds, "a comprehensive consolidation plan can provide a foundation that is going to be key to their success down the road."

Most IT shops don't start out with consolidation thinking it is the key to their success down the road, however. "The reason we are typically called in by a customer," according to Logicalis Solution Architect Tom Bolyard, "is because of limits on space and power. It's not until we complete a thorough analysis that customers begin to realize the full extent of the benefits of consolidation go much deeper: their ability to become more responsive to their user communities, for example, or the rapid deployment of server implementations."

Perhaps the best news is that the broad scope and level of detail required for a comprehensive consolidation strategy are part and parcel of a well-managed IT environment. (See the sidebar "The Measured Approach" on page 8 for the steps that Logicalis follows with its clients.) Once an inventory of everything included in the IT environment has been completed, consolidation becomes an enabler of IT management goals.

LINES OF RESISTANCE

For all the incentives to implement enterprise consolidation, there are also some powerful lines of resistance to overcome. Because many organizations don't have a centralized IT budget, Logicalis Senior Infrastructure Consultant Steve Pelletier observes, individual departments are often less than enthusiastic about surrendering hardware they purchased with their own money to the greater good of a consolidated IT infrastructure.

Managing the politics of ownership, as a result, can often be the key to a successful consolidation project. The distributed world was often built on ownership of the asset by the business unit with the IT department relegated to operations. That will change with consolidation, and particularly with virtualization. When you are deploying

virtual assets, the ownership of the physical asset resides with the IT department. So does the risk. It may take some creative educational and policy planning to get department heads to focus on the benefits of consolidation and virtualization and worry less about who owns specific devices.

In fact, the scope of a comprehensive consolidation strategy needs to extend beyond the realm of technology all the way to the corporate P&L. Because the implications of consolidation directly impact the bottom line, every consolidation initiative requires buy-in from the executive suite. It's particularly important that executive managers understand the realities of a consolidated IT infrastructure so they don't equate fewer servers with fewer heads in the IT department.

"What companies should be looking at is not just saving money on IT," according to Hart, "but on using consolidation and virtualization to get to the next level of investment so that IT becomes a strategic force in growing their business advantage."

Pelletier notes that some IT staffers fear consolidation as a threat to their jobs. Instead, both management and staff should see it as an opportunity to have the time to do new and important initiatives that will challenge them to develop new skills and bring new sources of revenue to the company. "With virtualization," he says, "your tool belt has so many more tools that you realize savings that you weren't aware you would get." Having the time for innovative projects that truly support business initiatives

is a common goal, and not having the time is a common frustration.

Resisting consolidation is clearly not an option. According to Pelletier, some customers have already developed policies that require that any new server be implemented virtually unless there is a very good reason that it needs to be physical.

Similarly, some customers are telling their software providers—internally and externally— that if the applications don't support virtualization, they won't support their applications. VMware Chief Scientist Dr. Mendel Rosenblum predicts that by 2009 every x86 server will ship with VMware pre-installed. Software vendors are scrambling to re-write licensing policies to accommodate new realities.

All these disparate forces are causing a sea of change within the IT environment that is going to result in different benchmarks for success both for the technology and the IT staff.

CHANGING ROLES

IBM uses the term “mainframe-inspired technology” to describe the technical capabilities of a consolidated IT environment. HP calls it the “agile enterprise” and the “mainframed window.” Although it is true that a consolidated environment will make it possible to enable resource sharing, workload balancing, global scheduling, and other mainframe-like functions, consolidation isn't about resurrecting an old model for IT.

The consolidated enterprise with a high level of virtualization is in fact a new model that promises to fulfill the vision of on-demand, pay-for-service, computing utilities. It will not only change the way that computing services are delivered to end users, but in the process, it will also change the role and the opportunity for IT managers within their corporations.

Those who see it as a threat to their control, if not their jobs, are likely to be swept away by its force. Those who see it as an opportunity to align

themselves more directly with overall business objectives will be able to position themselves and their departments as a valuable source of competitive innovation within their organizations.



THE MEASURED APPROACH: A CHECKLIST FOR YOUR CONSOLIDATION INITIATIVE

Many IT organizations are struggling over where to begin their consolidation efforts. A first step Logicalis often takes with a new consolidation customer is a Discovery Workshop designed to bring together the right people in the organization—including IT managers, financial executives, and senior management—to formulate an overall consolidation strategy that sets clear technical and financial benchmarks. Once these priorities are established, the next step is a detailed IT Infrastructure Assessment of the current IT environment and assets.

During the course of scores of enterprise consolidation projects, Logicalis has developed a comprehensive system-wide approach to assessments that has saved customers literally thousands of work hours and millions of dollars. This checklist can help guide your approach to developing a comprehensive strategy for enterprise consolidation.

ASSESSMENT GOALS

No matter how small you start out, every consolidation project needs to be part of a comprehensive strategy that is derived from a detailed assessment of the entire IT infrastructure as well as an understanding of future needs. Logicalis identifies the following assessment goals as the essential building blocks for a successful consolidation project:

- Detail the capacity, performance, and utilization of the current infrastructure.
- Understand the current total cost of ownership of the existing environment.
- Select target servers for consolidation and virtualization.
- Identify servers to be retired.
- Create a plan to aggregate workloads into an alternative, consolidated and virtual environment.
- Optimize performance and utilization and allow for growth and application isolation.
- Project the Total Cost of Ownership (TCO) of an alternative, consolidated environment.

- Compare the existing environment with the alternative and forecast Return on Investment, Net Present Value, and Payback of the consolidation project.

ASSESSMENT METHODOLOGY

The Logicalis Consolidation Assessment Methodology uses technology from FIMSOFT Inc. and VMware Inc. along with proprietary methodology for due-diligence data gathering, architectural simulation and modeling, and financial modeling and forecasting. The objectives of the assessment methodology are as follows:

- Identify, document, and understand the customer's detailed IT and related business requirements.
- Validate and gain agreement on the customer's needs, goals, resources, and objectives.
- Identify, document, and understand the customer's detailed cost structures, spending levels, and financial policies.
- Monitor and document existing capacity, utilization, and performance of existing IT assets and resources on a system-wide macro level and on an individual server or server subsystem basis.
- Identify and monitor peak hour, prime time, and business hour system and component utilization.
- Build and validate an architectural vision that represents the customer's stated and validated goals and objectives.
- Financially and architecturally model the most likely scenarios that will ensure compliance with the customer's agreed and validated architectural vision.
- Generate a detailed financial justification for each scenario.

HOW TO IMPRESS YOUR CFO: ACRONYMS YOU NEED TO KNOW

IT managers who want to make the most of the current trend in enterprise consolidation will need to become conversant in a new set of acronyms. Here is a short list of the terms that your CFO is going to want to apply before approving your enterprise consolidation budget.

NET PRESENT VALUE (NPV)

Net Present Value (NPV) is a widely used approach for evaluating an investment project. Under the net present value method, the present value (PV) of all cash inflows from the project is compared against the initial investment (I). The Net Present Value (NPV), which is the difference between the present value and the initial investment (i.e., $NPV = PV - I$), determines whether the project is an acceptable investment. To compute the present value of cash inflows, a rate called the Cost of Capital is used for discounting. Under the method, if the net present value is positive ($NPV > 0$ or $PV > I$), the project should be accepted. *Barron's*

INTERNAL RATE OF RETURN (IRR)

The internal rate of return (IRR) is a capital budgeting method used by firms to decide whether they should make long-term investments. The IRR is defined as any discount rate that results in a net present value of zero, and it is usually interpreted as the expected return generated by the investment. In general, if the IRR is greater than the project's cost of capital, or hurdle rate, the project will add value for the company. *Wikipedia*

RETURN ON INVESTMENT (ROI)

Return on investment (ROI) is performance measure used to evaluate the efficiency of an

investment or to compare the efficiency of a number of different investments. ROI is a very popular metric because of its versatility and simplicity. That is, if an investment does not have a positive ROI, or if there are other opportunities with a higher ROI, then the investment should be not be undertaken.

To calculate ROI, the benefit (return) of an investment is divided by the cost of the investment; the result is expressed as a percentage or a ratio. *Investopedia*

$ROI = \frac{\text{Gain from investment} - \text{cost of investment}}{\text{cost of investment}}$

TOTAL COST OF OWNERSHIP (TCO)

Total cost of ownership (TCO) is a financial estimate designed to help consumers and enterprise managers assess direct and indirect costs related to the purchase of any capital investment, such as (but not limited to) computer software or hardware. A TCO assessment ideally offers a final statement reflecting not only the cost of purchase but all aspects in the further use and maintenance of the equipment, device, or system considered. This includes the costs of training support personnel and the users of the system, costs associated with failure or outage (planned and unplanned), diminished performance incidents (i.e. if users are kept waiting), costs of security breaches (in loss of reputation and recovery costs), costs of disaster preparedness and recovery, floor space, electricity, development expenses, testing infrastructure and expenses, quality assurance, incremental growth, decommissioning, and more. TCO is sometimes referred to as total cost of operation. *Wikipedia*

ABOUT LOGICALIS

Logicalis is an international provider of integrated information and communications technology (ICT) solutions and services founded on a superior breadth of knowledge and expertise in communications and collaboration, data center optimization, application development and integration, and outsourcing and managed services.

With its international headquarters in the UK, Logicalis Group employs more than 1,600 people worldwide, including highly trained service specialists who design, specify, deploy, and manage complex ICT infrastructures to meet the needs of more than 6,500 corporate and public sector customers. To achieve this, Logicalis maintains strong partnerships with technology leaders such as Cisco, HP, IBM, and Microsoft.

The Logicalis Group has annualized revenues in excess of \$1 billion, from operations in the UK, US, Germany, and Latin America, and is fast establishing itself as one of the leading IT and Communications service providers, specializing in the areas of advanced technologies and services.

The Logicalis Group is a division of Datatec Limited, a \$4.2 billion revenue business listed on the Johannesburg and London AIM Stock Exchanges (LSE/JSE: DTC).

For more information, visit www.us.logicalis.com
or call 866.456.4422.