

# ISSUE: CAPTURING THE STRATEGIC AND PRACTICAL ISSUES SURROUNDING VIRTUALIZATION ROI/TCO

MIS Practicum  
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## General Issue related

- Principal Problem related to:
- Legacy systems – inflexibility, outmoded, integrated, and monolithic.
- Virtualization technologies are complex with a technology stack that has emergent components.
- Project estimations for TCO defined, ROI is purely subjective and contextual.
  - VMM complicate the context make it difficult for decision makers to accurately capture all costs in estimation models.
  - Subset of people with historical experience with virtual technologies
  - Business drivers are not the same today as before
  - VMM hype driven because of revolutionary impact potential on enterprise.

## Is it a hard problem?

- Current monolithic server use (1 server per function) yields low utilization rates.
- As the number of functions and data capacity increases, power costs in the data center become larger cost than equipment purchased.
- IT Infrastructure unable to adapt rapidly enough due to:
  - ▣ Competition: new entrant or technology
  - ▣ All initiatives being very closely monitored and scrutinized for ROI and maximum TCO

## The situation

- Historically:
  - 85% of the expense of IT operations was maintenance function, while new companies are "late adopters" that can use the latest emergent technologies.
  - Power consumption of the data centers is outstripping the cost of the new equipment as scale increases.
  - Alternatives such as "cloud computing" and outsourcing options present clear issues with firm security, compliance, and control of business functions.
- Lack of IT agility to provide resource space, limits firms options to offer innovation in area of:
  - CRM – Customer Relationship Management
  - ERP – Enterprise Resource Planning capabilities
  - SaaS/SOA – More flexible and cost effective but difficult to implement due to complex software interactions and required firm culture shift to use the technique effectively. . .
- TCO is normal method for cost estimating, however, ROI is the actual impact on the business.
- ROI is very difficult to quantify what "value" is due to context current architecture frameworks.
- Lack of Support by existing software vendors to offer certified virtual version of their software causes "hold up" to adopt virtualization
- By abstracting the hardware physical layer from the logical layer, creates highly competitive software landscape, thus lower profit margins for developers.
- Large capitalized firms were only adopters of high-cost specialized virtualization equipment and services. Impossible for small firms to use virtualization techniques and capture ROI/TCO of the technology.

## The Answer: VMM Virtualization

- VMM solutions in the enterprise have proof of concepts that can reduce cost in:
  - Server Consolidation: Most enterprises that are currently deploying virtual technologies
  - Product Lifecycle: New software can rapidly deploy and test multiple versions of software, and then execute rapid deployment to the virtual environment
  - Dynamic Load Balancing: Server utilization rates approach 85-90%, as server functions dynamically shift to underutilized servers
  - Disaster Recovery: System crashes create huge economic losses, but now can be accomplished in shorter time with minimal impact to the end users.
  - Virtual Desktop Infrastructure: Standardizations, wasted resources, and high procedural business control overhead needed to maintain business continuity. Also allows high degree of centralization of common functions who savings scale with the size of the deployment footprint.

## Barriers for Virtual Adoption

- Technology is not supported by existing corporate software suppliers
- Lack of methods to capture ROI and TCO
- Organizational resistance from IT culture of the traditional lifecycle, capital budgeting methods become difficult to find the monetary “value” of VMM technologies.
- Lack of ability on IT’s technical expertise
- Lack of tools and controls to monitor and control the infrastructure
- Early adopters in the marketplace tell horror stories of unforeseen costs and little ROI on the investment.
- Capabilities are seen as beyond the skill set, applicability or capability of both large and small firms.

## Other Sources of Barriers

- **Incompatibility:** Mixed promises for large ROI, but little validation for external applications
- **Slow Adoption due to Cost and Culture:** Past virtualized solutions were venue of expensive commercial niche packages, or were the venue of the open source community, there was no middle ground.
- **Severe Lack of Training and Expertise:** Firms with large I.T. departments support multiple protocols, frameworks and methods. The training industry offered little if any training courses or books on the subject. Thus, organizations were remiss to be able to hire, or recruit talent that can successfully install and manage a virtual environment they couldn't support.
- **Unknown Management Costs and Lack of Tools:** It promises significant ROI by over competing capital expenditure (CAPEX) solutions, but current adopters indicate solution costs were either entirely unknown, and firms would have to develop their own application management tools and environment tools to manage the virtual environment.
- **Complex Technical Support:** Virtual framework exists in the complex kernel-level operations, and creates new classes of errors. In the past, specialists would recreate a particular problem in a smaller test environment. Technique fails as scale of adoption increases, its practically impossible to replicate the density of a virtual solution.

## Strategic Issues

- Competition is using virtualization or will:
  - ▣ In 2006 Global Server Virtualization Survey revealed 76% to 96% by 2010 to deploy virtualization technology.
  - ▣ TCO and ROI is complex as network and processes virtualize
- Leverage Higher Resource Utilization
- Gain Business Agility
- Ensure Compliance and Business Continuity
- Manage new Security Compliance and Regulations and new technology threats associated with

## Challenge:

- Management will have to
  - Identify requirements for operational intelligence for business support and performance management of the I.T. function and quantify complex ROI
  - Identify selected processes and address which aspects of virtualization into firm I.T. Roadmaps
  - Attempt to demonstrate value add that results from integrated approach using business cases to introduce virtualization to the environment
  - Account technological, business-related and cultural obstacles