Virtual Desktop ROI

Calculating Comparative Return On Investment for Virtual Desktops

White Paper
Theory and principles

Executive Summary

Citrix has created a return on investment (ROI) calculator for centrally-delivered virtual desktops, using Forrester's Total Economic Impact™ methodology. This novel tool compares acquisition and operation costs of four kinds of desktops; data-center-based virtual desktops, PC blades, terminal-services-based desktops and traditionally deployed desktops. Optionally, users can include potential revenue gains from virtual desktops in the aggregate ROI. Using conservative default assumptions, Citrix XenDesktop may reduce desktop operations costs by an average of 40% and pay for itself within 6 months.

Purpose

Separating desktop logic from desktop devices offers a range of opportunities to improve IT services and reduce costs. Desktop logic can be hosted in the data center using virtual machines, terminal servers or PC blades to meet the needs of a broad range of connected users. Security, reliability, maintainability, and frequency of application upgrades can be enhanced. However, desktop virtualization requires new architectural and management components, creating new costs to account for.

This calculator is intended to help IT decision makers analyze and assess the potential return on investment impacts of various paths to desktop virtualization for their organizations. Each virtual desktop method is compared to a traditional PC "baseline" set of operational costs to determine individual savings and ROI.

Since most organizations are likely to require a mix of different desktop types, an ROI calculator should allow a decision maker to compare the relative savings associated with each desktop type so as to weigh the technical and financial tradeoffs when determining the optimal mix of desktops for their organization.

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Theory and Principles

To model the financial costs, opportunities and risks as accurately as possible, Citrix consulted with Forrester Research, Inc. Forrester recommended use of their Total Economic Impact™ methodology for creating a comprehensive ROI calculator. Per Forrester (http://www.forrester.com/TEI);

> "Total Economic Impact™ (TEI) is a highly customized methodology that helps IT professionals make better, more cost-effective decisions regarding the selection of technology vendors. TEI systematically looks at the potential effects of technology investments across four dimensions; **Cost** — impact on IT; **Benefits** — impact on business; **Flexibility** — future options created by the investment; **Risk** — uncertainty."

Costs

Citrix collected sample data on acquisition costs, installation costs, and annual operations costs for each of four kinds of desktops being modeled. These default values provide a reasonable starting place, and can be customized if desired. This reveals the cost saving opportunities for each type of desktop.

Potential Benefits

Having evaluated potential revenue enhancements enabled by virtual desktops. Citrix identified business impacts including potential productivity enhancements from:

- Enabling formerly-tethered employees to telecommute or day extend.
- Recovering lost productivity via faster moves, adds and changes.
- Accelerating rate of adopting newer, higher productivity applications.
- Streamlining desktop data security processes, since data is physically secured in data center.

Flexibility

Citrix evaluated how virtual desktops enhance business continuity, desktop OS refresh and upgrade, more efficient provisioning of remote and offshore workers, and increased use of telecommuting. Virtual desktops can have a profound impact on business because they are substantially easier to deliver, whether to a desktop appliance or to an unmanaged PC.

Risk

The Citrix XenDesktop ROI Calculator includes several easy ways for the user to factor in uncertainty. For revenue impacts, Citrix created a pick list which allows users to select "low, medium, or high" yield on potential revenue gains, or to select "none" to eliminate potential revenue gains from the equations. Citrix chose conservative default numbers for annual operation costs; lower than those of most other researchers. To further mitigate risk, acquisition and operation cost assumptions can be adjusted. Additionally, this calculator can factor in the net present value of money, and offers and adjustable discount factor to allow modeling unexpected depreciation or appreciation of currency.

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Key Inputs

- Number of desktops (all types) within organization
- Proportion of each desktop type
  - This tool models four methods of delivering or deploying desktop computing capability.

Terminal Services %	Thin clients or PCs share a single instance of an OS which is run on a central server. Typically these simple, shared operating systems are used by task workers such as service representatives, bank tellers, and medical staff.
Virtual Machines %	Each user accesses a virtual machine PC session run on a server in the data center. These personalized operating systems are used by marketing, administrative and other typical office workers, as well as offshore contract employees such as developers and designers that need customization.
Blade PCs %	Each user accesses a dedicated blade PC from the data center. These powerful desktop computing sessions are typically used by engineers, graphic artists, and finance employees who occasionally conduct computationally intensive tasks.
Traditional/ Unchanged PCs %	Fixed-desktop PCs and laptops, as they are typically installed and managed. These are most often used by mobile workers.

- Level of revenue enhancement impact
  - This model provides a list of "low, medium, high or none" which equates to 20%, 50%, 80% and 0% of the potential revenue gains tallied in the calculator. Organizations where saved time for employees has a more direct effect on top line revenue growth (e.g., sales and services groups) may be more likely to choose an aggressive value. Productivity enhancements may be seen when formerly tethered employees gain the ability to become day extenders and telecommuters. Faster moves, adds, and changes allow better day-1 productivity, and more rapid upgrade to productivity enhancing applications.

All other inputs are optional, as the default values approximate the most typical levels. Perhaps the most novel technology with impact on an input is the virtual desktop provisioning capability.

- "Gigabytes of storage per VM user" (under acquisition costs) represents average SAN or NAS storage requirements per VM user. Some VDI models require 20-50 gigabytes of storage per user (including mirrored drives for high availability). XenDesktop's virtual provisioning capability allows thousands of VM's to load from one (or a small number) of OS images, plus personalization files. This greatly reduces storage requirements and administrative cycles. Organizations that maximally leverage desktop provisioning seem to be able to reduce network storage costs up to 90%. This calculator defaults to an average of 4 gigabytes of network storage per VM user.

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Key Outputs and Implications

Key Outputs

Initial capital expenditure
Savings, year 1, 2, 3
Total savings
ROI %
Payback period (in months)
Net savings per desktop type (compared to traditional PC)
ROI by desktop type
Net present value of total savings

Implications

Over a wide range of values for cost reduction and revenue enhancement assumptions, Citrix XenDesktop appears to provide substantial savings and return on investment. Using the most common assumptions suggests Citrix XenDesktop reduces average desktop operation costs 40-45%. This assumes the user selects a mix of 40% traditional PCs, 5% blades, 20% Terminal Services desktops, and 35% virtual machine desktops. Assuming even a "low" positive revenue impact (20% of potential) results in a 6-month payback period.

Conclusions

Many organizations can garner substantial savings and possibly enhance revenue by delivering virtual desktops to a portion of their users. The greater the percentage of desktops converted to virtual machines and terminal servers, then the greater the ROI and total financial benefit.

Next Steps

Contact your Citrix-authorized reseller or account representative to review your organization's specific desktop needs and create a custom ROI projection based on the Citrix XenDesktop ROI Calculator.

Visit www.citrix.com/xendesktop for more information!

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