VirtualWisdom
Return on Investment

Introduction

The VirtualWisdom App-centric Infrastructure Performance Management (IPM) platform provides real-time and historical insights into the performance, availability, health and utilization of your data center infrastructure—across physical, virtual, and cloud environments. It intelligently collects machine and wire data via agentless software probes and purpose-built hardware devices. Our Applied Analytics transforms the data into actionable insights that can be used to optimize your environment and proactively find and resolve issues before users are affected. VirtualWisdom is the leading real-time, application-centric, vendor-independent, cross-domain performance monitoring and analytics solution in the industry.

Given today's budget realities, all IT purchases must be clearly shown to result in a positive return on investment. The purpose of this document is to provide guidelines for estimating the Return on Investment for deploying VirtualWisdom in a typical datacenter pre-production test environment. We have tried not to suggest broad, unsubstantiated, sweeping generalizations like "you'll pay for your solution in 6 months". Instead, we've suggested specific, concrete problems and solutions that you can relate to your own experiences. Not all examples herein will apply to every IT shop as needs vary across different organizations. The reader is encouraged to select the subset of problems and benefits that most closely applies to his/her data storage environment.

The primary economic benefits of VirtualWisdom come from five areas: (1) fewer links CAPEX, (2) Optimized tiering CAPEX, (3) VM density CAPEX & OPEX, (4) FTE efficiency OPEX, (5) App service levels OPEX. We discuss the definitions and how to calculate the financial benefits of these below.

Better link utilization CAPEX

Storage infrastructure is the fastest growing capital cost component within the typical large data center. Gartner research shows that storage is increasing on average by about 30 percent per year. Research also shows that only about 20 to 30 percent of the storage infrastructure is effectively used, which means over-provisioning is extensive. Today, the average utilization of a front-end storage link in a large company is around 3%. With VirtualWisdom, administrators can easily uncover the under-utilized SAN/NAS links in their environment and reallocate those resources to other applications, thus deferring spending by eliminating unnecessary storage network link expansion.

Calculation:

Annual forecast for number of storage links added or refreshed
X Cost per link (switch port, storage port, cabling and associated maintenance)
_____

= Annual forecasted cost of new/refreshed storage links
X Percentage reduction in links
_____

= Net annual benefit of reduction in SAN / storage links
Example Calculation:
200 Annual forecast for number of storage links added or refreshed
X $1000 Cost per link (switch port, storage port, cabling and associated maintenance)
_____

= $200,000 Annual forecasted cost of new/refreshed storage links
X 30% Percentage reduction in links
_____

= $60,000 Net annual benefit of reduction in SAN / storage links.

Optimized Tiering CAPEX

For companies whose volumes of data are growing, adequate storage and retrieval of that data is becoming a serious concern. In years past, IT would simply "buy more storage", which meant adding high-end drives or SSDs to an existing storage array.

Most companies are rethinking their approach to data storage. High-end, tier I storage is very expensive, and using the highest performance storage for all data assets is no longer a cost-efficient solution. In addition, most companies are now required to meet regulatory and legal requirements, so they must account for what data they have, where it is located and who is accessing it - things that cannot be determined by just adding disks. Tiered storage is established means to address these changes.

To determine the financial benefits, you need to know the total costs of storage tiers, including the cost of providing the SLAs you sign up for. It's not just the difference between SATA and FC disks or SSDs. You'll need to factor in controllers, services to get up and running, maintenance, power, and perhaps most significantly, the very different software costs associated with various storage tiers. Software on traditional tier I arrays can easily exceed tier II software costs by 3 – 6 times.

Calculation:

Tier I storage
Hardware costs of tier I storage, per TB
+ SW costs of tier I storage, per TB (or apportioned from other types)
+ HW and SW maintenance costs of tier I storage, apportioned per TB
+ Professional services costs of tier I storage, apportioned per TB
_____

= Total tier I cost per TB

Tier II storage

Hardware costs of tier II storage, per TB
+ SW costs of tier II storage, per TB (or apportioned from other types)
+ HW and SW maintenance costs of tier II storage, apportioned per TB
+ Professional services costs of tier I storage, apportioned per TB

_____

= Total tier II cost per TB

Total Tiering Benefit

Total tier I cost per TB
Less: Total tier II costs per TB

_____

= Per TB difference in tier I and tier II storage
Expected tier I TB growth + expected tier I TB refresh in the next year
X Expected percentage of tier I that can be accommodated on tier II

_____

= TB of storage that can be on tier II, instead of tier I, over the next year
X Per TB difference in tier I and tier II storage

_____

= Potential cost savings when performance of tier II storage meets SLAs

Calculation

Tier I storage

$3,000 Hardware costs of tier I storage, per TB
+ $1,000 SW costs of tier I storage, per TB (or apportioned from other types)
+ $800 HW and SW maintenance costs of tier I storage, apportioned per TB
+ $100 Professional services costs of tier I storage, apportioned per TB

_____

= $4,900 Total tier I cost per TB

Tier II storage

$1,000 Hardware costs of tier II storage, per TB
+ $100 SW costs of tier II storage, per TB (or apportioned from other types)
+ $100 HW and SW maintenance costs of tier II storage, apportioned per TB
+ $50 Professional services costs of tier I storage, apportioned per TB

_____

= $1,250 Total tier II cost per TB

Total Tiering Benefit

$4,900 Total tier I cost per TB
Less: $1,250 Total tier II costs per TB
_____

= $3,650 Per TB difference in tier I and tier II storage

1000 Expected tier I TB growth + expected tier I TB refresh in the next year
X 30% Expected percentage of tier I that can be accommodated on tier II

_____

= 300 (TB) TB of storage that can be on tier II, instead of tier I, over the next year
X $3,650 Per TB difference in tier I and tier II storage (from above)

_____

= $1,095,000 Potential cost savings when performance of tier II storage meets SLAs

VM Density CAPEX and OPEX

You can build and operate a more cost-effective IT infrastructure that better aligns IT capacity and performance with the needs of the applications. One way to reduce server costs is to drive higher VM density. VirtualWisdom enables you to analyze performance at a very granular level; it does not hide spikes in latency that so frustrates application users. Armed with this granular monitoring, and by using the analytics built into VirtualWisdom, you can confidently move VMs to better balance utilization, without compromising performance.

Calculation

Current number of physical servers
X Est annual growth in physical servers %

_____

= Number of new physical servers per year
X (Average CAPEX of physical servers + Annual OPEX per physical server)

_____

= Yearly cost of new physical servers
X Estimated % increase in VM density with VW

_____

= Yearly cost avoidance of new physical servers

150 Current number of physical servers
X 30% Est annual growth in physical servers %
_____

= 45 Number of new physical servers per year
X ($22,000 Average CAPEX of physical servers + $2000 Annual OPEX per physical server)
_____

= $1,080,000 Yearly cost of new physical servers
X 20% Estimated % increase in VM density with VW

_____

= $216,000 Yearly cost avoidance of new physical servers

Staff Efficiency OPEX

Monitoring and troubleshooting can often account for over 20% of a typical storage admins time. And for "all-hands-on-deck" war-room exercises, it can crater personnel time for days, weeks and even months. For this calculation, you'll need to know your burdened cost per storage engineer, the number of FTEs currently engaged troubleshooting and the percentage of time spent on troubleshooting. Our current customers often suggest a productivity improvement in excess of 50%. We have examples of problem-solving exercises that might have taken hours or days, and were completed in under 5 minutes using VirtualWisdom analytics.

Calculation:

FTEs
X Hours/ FTE/ Week
_____

= Total FTE Hrs/week
X Per hour burdened personnel cost
_____

= Weekly FTE cost total
X Percentage efficiency improvement due to VirtualWisdom
_____

= Efficiency improvement/week
X 52 weeks

_____

= Yearly efficiency improvement

6 FTEs
X 40 Hours/ FTE/ Week

_____

= 240 Total FTE Hrs/week
X $150 Per hour burdened personnel cost

_____

= $36,000 Weekly FTE cost total
X 20% Percentage efficiency improvement due to Virtual Wisdom

_____

= $7,200 Efficiency improvement/week
X 52 weeks

_____

= $374,400 Yearly efficiency improvement
X 20% Percentage efficiency improvement due to Virtual Wisdom

_____

= $7,200 Efficiency improvement/week
X 52 weeks

_____

= $374,400 Yearly efficiency improvement

App Service Levels OPEX

Larger companies are constantly rolling out new products and services with the goal of using the latest technologies available. Unfortunately, deploying new technologies and products before adequate testing can be completed is a highly risky endeavor. The conflict between trying to innovate quickly and minimizing the risk of performance problems is substantially alleviated when using Virtual Instruments. With IT managers increasingly being charged with using Service Level Agreements to guarantee performance and availability levels, the impact of such problems can be dramatic. By using VirtualWisdom's physical-layer monitoring, IT can often avoid problems due to failing hardware components and mis-matched network components. And perhaps the thing VirtualWisdom is most know for is the ability to give you analysis that drastically reduces the time to find and fix problems.

To determine the financial benefits, you need to estimate the number of performance-related incidents per year related to scaling or new rollouts, and the average "cost to the business" of these incidents. There are additional costs of the time admins and engineers spend time solving problems and resolving trouble tickets, which we are not accounting for, but which may be substantial.

There are many studies concerning the cost of downtime, and they point out that most datacenter incidents are not caused by just storage performance problems, but they do exist.

Calculation:

Outage/ slowdown incidents/ year related to performance
X Average business cost of each incident

_____

= Total yearly cost of not mitigating risk

Example Calculation:

2 Outage/ slowdown incidents/ year related to performance
X $500,000 Average business cost of each incident

_____

= $1,000,000 Total yearly cost of not mitigating risk

ROI Conclusions

We've attempted to show how others have achieved an ROI for implementing VirtualWisdom solutions. It's often pretty difficult for any large agency or company to accurately account for all savings and risks, but using these templates, we can sit down with you and help estimate the cost of a solution, potential benefits for your specific environment, and an ROI and months-to-payback. There is no 'one-size-fits-all' scenario, but we have experience in helping customers modify this analysis for their situation.

Learn more about
VirtualWisdom

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