

The Business Case for Virtual I/O

- Immediate capex savings up to 70%
- 100X faster moves, adds, and changes
- 30% less power & cooling

Server connectivity costs are a large and growing issue in many enterprise data centers. Virtualized servers require more bandwidth and more connections to external network and storage resources. Traditional servers also require more connectivity as IT managers seek to increase the flexibility and utilization of these assets. The result is increased connectivity costs, an expense that can run tens of thousands of dollars per server over the life of the device.

I/O virtualization cuts costs

I/O virtualization consolidates the infrastructure to deliver an immediate 40% to 70% cap ex reduction. And it simplifies configuration tasks to reduce operational expense. Virtual I/O delivers more bandwidth to each server and offers flexibility and management features that directly benefit resource utilization and application performance. The result is lower costs and higher operating efficiency.

Quick Tips

- Over \$30K per server potential savings (cap ex and op ex)
- Saves \$5K-\$10K per server I/O cap ex
- Delivers 3X the bandwidth of traditional I/O
- May enable a transition from 4U to 2U servers, saving \$5-10K per server
- Delivers 10GE at 1/3 the cost
- Accelerates resource re-purposing for higher utilization

HARD COST SAVINGS		
Where you save	How it helps	Savings*
Simpler infrastructure	70% fewer cards, cables, switch ports.	\$ 515,100
Smaller servers	Less costly 2U servers, vs large 4U needed to accommodate I/O.	\$ 444,540
Deferred core SAN / LAN expenditure	Fewer ports required at core.	\$ 23,520
Power	30% less power.	\$ 23,442
Less floorspace	Fewer racks enabled by smaller servers, less infrastructure.	\$ 72,000
TOTAL SAVINGS		\$ 1,078,602

SOFT COST SAVINGS		
Where you save	How it helps	Savings*
Accelerated moves, adds, changes	Changes completed in minutes, not days or weeks. Less downtime.	\$ 194,400
Less cabling maintenance	Less risk of downtime due to cabling issues. Assume \$100 maintenance & downtime exposure per cable.	\$ 62,000
More performance	No need for costly 10G migration.	\$ 350,000
Virtualize more applications	QoS helps guarantee performance and lets you virtualize more applications. Assumes elimination of 5 addl servers (& I/O) due to increased virtualization usage.	\$ 173,000
Faster upgrades	Add networks to support new requirements (such as iSCSI) without re-wiring. Assume cost of adding one update to servers during 3 years.	\$ 67,800
TOTAL SAVINGS		\$ 847,200

HARD + SOFT SAVINGS TOTAL	\$ 1,925,802
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I/O Costs

Server I/O costs arise from a variety of factors that collectively drive large expenditures. Cards, cables, and switch ports are the obvious costs. A complete accounting of I/O expense must include all costs that are driven by connectivity requirements, including server selection, rack space needs, and ongoing operational expenses.

Servers: I/O impacts the cost of the server itself. To enable flexible deployment, servers are often connected to multiple networks and SANs, which drives the need for more physical I/O connections to the device. If a larger server – such as a 4U high device -- is required to meet these demands, cost rises dramatically. Virtual I/O permits demands to be met with a smaller device, potentially saving \$7000 or more per server.

Power / Cooling: In a 60 server installation, I/O power and cooling may consume 20KW. Virtual I/O eliminates most of the infrastructure to reduce this power/cooling requirement by 70%.

FTEs: A complex infrastructure incurs operational expense, both for installation and for ongoing maintenance. Labor costs for cable runs range from \$100 to \$300 per cable. A 60 server installation may require anywhere from a few hundred to nearly a thousand cables, 70% of which can be eliminated with virtual I/O.

Rack space: Larger servers and growing I/O resources drive up space requirements. Virtual I/O can help reduce space requirements by 50% if smaller servers can be deployed.

Operational costs: Traditional I/O mapping creates inflexible relationships between servers and networks. This impacts costs and flexibility. Changing these mappings usually requires days or weeks, involving multiple teams of personnel. Xsigo virtual I/O allows changes to be made in software, not hardware, and to be executed by a single team. The result is 100X faster execution speed, far less disruption, and a fraction of the operating expense.

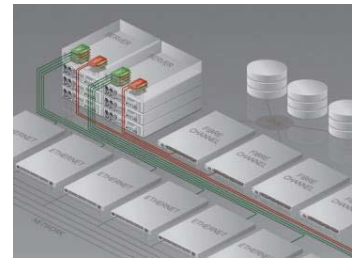
Virtual I/O enables 10G for a fraction of the cost

If a 10G Ethernet deployment is in your future, consider that Xsigo virtual I/O delivers 10GE at 70% less cost. With Xsigo, each server has a 20Gb connection that can be used for 10GE, 1GE, FC, and iSCSI. With 10GE connection costs today sometimes exceeding \$5,000 per port, Xsigo delivers more performance for a fraction of the cost.

Summary

I/O virtualization delivers immediate savings that can reduce server & server I/O capex by as much as \$20,000 per server. These savings may ultimately exceed \$30,000 per server as IT managers benefit from the longer term operational enhancements.

Traditional I/O

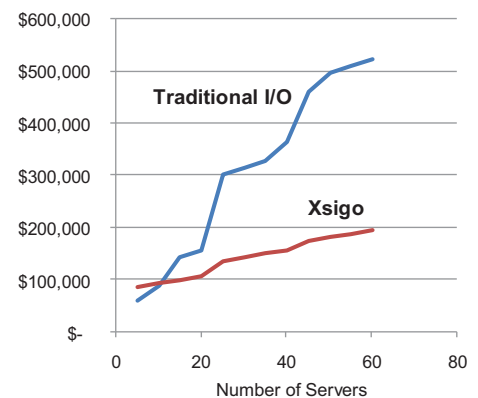


Virtual I/O



Virtual I/O eliminates 70% of hardware (switch ports, cards, cables) to deliver immediate savings of 40% to 70% on capital costs. Reduced infrastructure complexity improves operational efficiency to further drive savings.

I/O Capex vs. Number of Servers



Virtual I/O delivers savings that expand as the deployment grows. Incremental servers cost >60% less than with traditional I/O. A single I/O Director easily scales beyond 100 servers.