



# THE BUSINESS CASE FOR VIRTUALIZED I/O

## Xsigo virtualized I/O can help you lower costs, add flexibility and reduce power and cooling

### THE CHALLENGE

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.

### 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 also include other 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 and additional I/O cards. If a larger server – such as a 4U high device – is required to meet these demands, costs rise dramatically.
- Xsigo virtual I/O reduces **or even eliminates I/O cards**, so connectivity demands can be met with a smaller device. Potential savings are \$7000 or more per server.

### QUICK BENEFITS

- Saves \$5-10K per server on I/O capex
- Delivers up to 4x the bandwidth of traditional I/O (InfiniBand fabric)
- Delivers 10Gb converged connectivity via **standard Ethernet ports** (Ethernet fabric)
- Accelerates resource re-purposing for improved utilization
- May enable a transition from 4U to 2U or 1U servers, saving \$5-10k per server

Transform your IT infrastructure with the Xsigo I/O Director, a hardware and software solution that streamlines server I/O management. Instead of deploying multiple I/O cards and cables to every server, Xsigo lets you connect servers with a single cable and then create virtual I/O resources instantaneously. The result is 100x faster server management, 70% fewer cables and cards, and up to 50% less capital cost.

## Xsigo virtualized I/O can help you lower costs, add flexibility and reduce power and cooling requirements

<b>Xsigo Cost Savings</b> assuming a 60-server installation with four 1GbE + two FC ports per server		
<b>Where you save</b>	<b>How it helps</b>	<b>Savings</b>
<b>Hard Costs</b>		
Simpler infrastructure	70% fewer cards, cables, switch ports	\$515,100
Smaller servers	Less costly 2U servers in place of 4U	\$44,540
Deferred core SAN/LAN expenditure	Fewer ports required at core	\$23,520
Lower power	30% less power	\$23,442
Less floorspace	Fewer racks enabled by smaller servers, less infrastructure	\$72,000
<b>Total Hard Savings</b>		<b>\$678,602</b>
<b>Soft Costs</b>		
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 10GbE migration	\$350,000
Virtualize more applications	QoS helps guarantee performance and lets you virtualize more applications - assume elimination of 5 additional servers and their I/O	\$173,000
Faster upgrades	Add networks to support new requirements (such as iSCSI) without rewiring - assume cost of adding one update to servers during 3 years	\$67,800
<b>Total Soft Savings</b>		<b>\$847,200</b>
<b>Total Hard and Soft Savings</b>		<b>\$ 1,525,802</b>

- **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. Cable runs may cost from \$100 to \$300 per cable for labor alone. 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 that impact cost and flexibility. Changing these mappings usually requires days or weeks, and often involves 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 reduced operating expense.

### **XSIGO VIRTUAL I/O CAN LEVERAGE STANDARD ETHERNET**

Unlike FCoE technologies that require specialized add-on cards, Xsigo virtual I/O can employ the standard Ethernet ports found on virtually all servers. By leveraging

this built-in connectivity, Xsigo can save \$1,000 to \$4,000 per server in adapter cards alone. And, because Xsigo virtual I/O can be easily deployed on both legacy and newly installed servers, the efficiency benefits can be realized across far more devices.

### **SUMMARY**

Xsigo 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 of this next-generation approach to connectivity. ■