

BENEFITS OF SERVERLESS COMPUTING



INTRODUCTION TO SERVERLESS COMPUTING

Serverless Computing is an integrated NVR/SAN platform that runs video management software directly on IP SAN hardware. The innovation relies on three key components:

I. The RAIGE™ Architecture

Pivot3's RAIGE (RAID Across Independent Gigabit Ethernet) technology is a clustered IP SAN solution with extremely high bandwidth. RAIGE software runs on x86-based appliances and delivers a consolidated pool of storage that is extremely reliable.

II. The Cloudbank™ Appliance

Serverless Computing relies on a high-performance clustered appliance to power both the RAIGE software and the NVR application. However, the additional x86 CPU, RAM, and network ports drive less power, cooling and cost than a standalone NVR server.

III. Integration of Server and Storage Virtualization

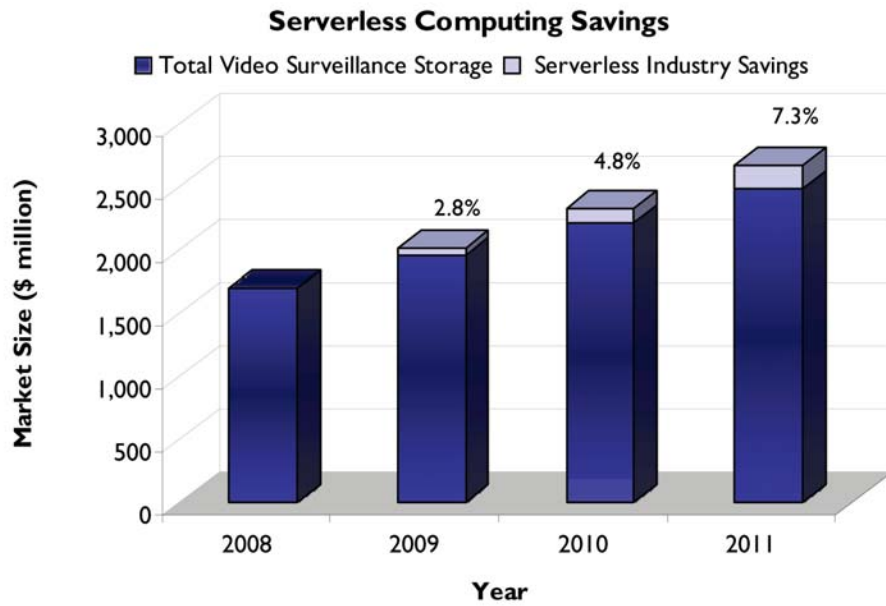
The integration of storage and server virtualization technologies is central to the Pivot3 patent-pending technology, and provides performance, automatic load balancing, and failover capabilities across a clustered solution.

Storage costs account for over 40 percent of the cost of surveillance systems and Serverless Computing can help reduce these costs significantly.

Chart I: Cost Benefits from Serverless Computing

	2008	2009	2010	2011
Surveillance Storage (\$ million)				
Total Video Surveillance Storage	1,703.9	1,956.7	2,219.1	2,490.1
NVR Savings Calculation				
External Petabytes (PB)	52	94	180	309
NVRs per PB	100	100	100	100
Primary NVRs	5,200	9,420	17,990	30,860
Secondary failover NVRs @10%	520	942	1,799	3,086
Total NVRs	5,720	10,362	19,789	33,946
Acquisition costs per NVR (\$)		3,500.0	3,500.0	3,500.0
Serverless Potential Savings (\$ million)				
NVR acquisition cost savings		36.3	69.3	118.8
Maintenance savings @15%		5.4	10.4	17.8
Power/cooling savings \$1,000/server		9.4	18.0	30.9
Rack savings @ \$10,000 per rack		4.4	8.4	14.4
Serverless Industry Savings		55.5	106.0	181.8
3-year Cost Savings				343.4

Chart 2: Serverless Computing Savings as a Component of Total Video Surveillance Storage

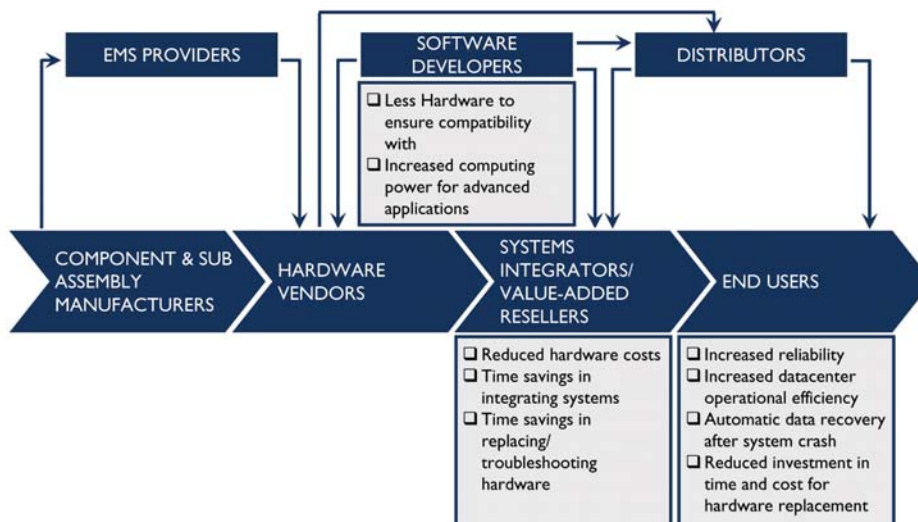


Some of the intangible benefits that service providers and end users can derive from Serverless Computing include:

- Automatic system reboot to protect data
- Reduced hardware replacement time and cost
- Increased datacenter operational efficiency

The benefits of Serverless Computing flow across the security industry value chain, from hardware vendors to systems integrators and end users.

Chart 3: Serverless Computing Benefits across the Value Chain



Source: Frost & Sullivan

CONCLUSION

Serverless Computing is especially beneficial for 1) end-users of video surveillance solutions who closely manage cost and 2) general data center operators who are looking for significant reductions in power consumption and total cost of ownership. In both markets, storage costs can dominate overall system costs, and the opportunity to apply server virtualization in a new way is extremely compelling.

Serverless Computing offers savings in up-front capital expenditure and ongoing, significant operating expenses, and these savings will merit close consideration in large-capacity deployments. On average, storage solutions account for an estimated 40 percent of all acquisition costs for video surveillance systems. With Serverless Computing, these costs can be reduced dramatically with all benefits passed along to systems integrators and end users.

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