

SOLUTIONS BRIEF:

The Benefits of Video Servers vs Transactional Servers

Discover the benefits of video servers over transactional servers in terms of performance, scalability, cost of acquisition (COA) and total cost of ownership (TCO). While generic transactional servers and video servers operate with a very similar core, they have fundamentally different architectures.



Transactional servers are designed to process large numbers of small randomised data blocks very quickly, meaning they require more computer power with expensive processors to operate. They also utilise expensive SSDs for storage.

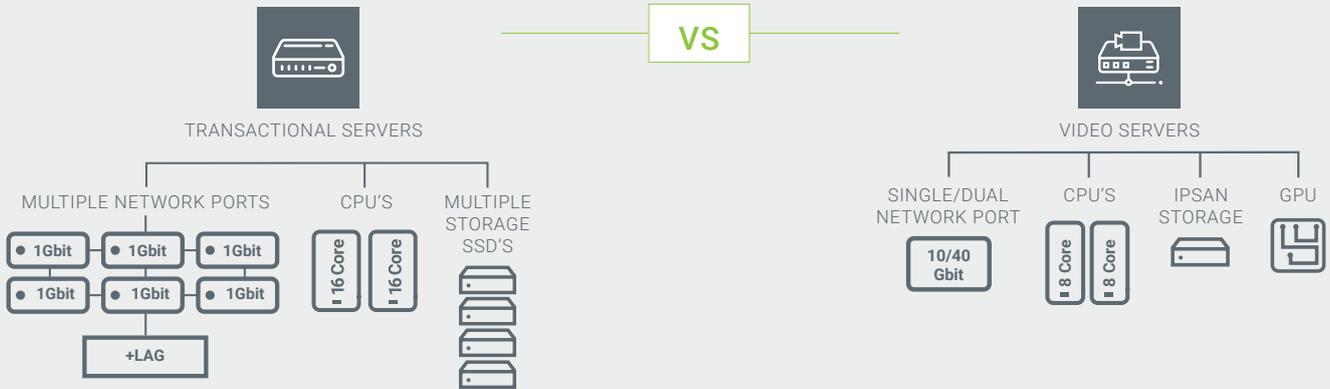


Video servers are designed and optimised to push large blocks of data at high speeds, as data to them is far more structured. Because the transaction count is small, equal to a few I/Os, and data blocks are mostly in sequential order, the level of computing power required is considerably less than in a transactional server.

How do transactional servers and video servers differ?

Infrastructure

Video servers leverage a different infrastructure to transactional servers in order to accommodate the data type. Their ability to process large blocks of data in a single transaction vastly improves operational performance whilst reducing the processing power and number of CPU cores needed.

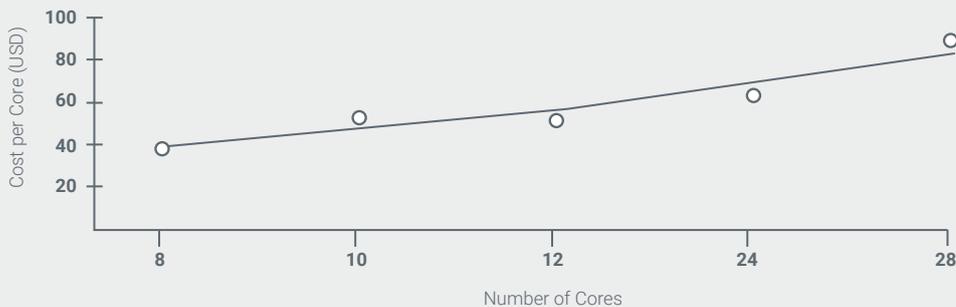


Dataflow

Transactional servers process large quantities of small I/Os at high-speed. Although they can be adapted to cater for video workloads, the cost of more expensive processors and greater power consumption make it less cost effective. Video servers are specifically designed to analyse and utilise visual data far more efficiently, saving time, energy and money.



Cost vs number of Cores

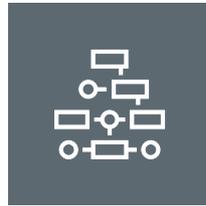




Storage

Video servers do not need seek-sensitive storage, only high-capacity storage that can easily handle large data blocks. Because the volume of video data is huge, the capacity and reliability of the hard drives is crucial.

As well as high-capacity hard drives, a high-performance video optimised I/O controller is a key component in any video server. All data passes through the controller and onto the disks. component in any video server. Due to the requirement for large storage capacity RAID-5, or preferably RAID-6 is a must. When there are 100+ hard drives in a server, the risk of HDD failure is statistically higher, so you need to ensure the data is safe and secure. In addition, HDD rebuild time needs to be kept to a minimum to ensure the integrity of the solution.

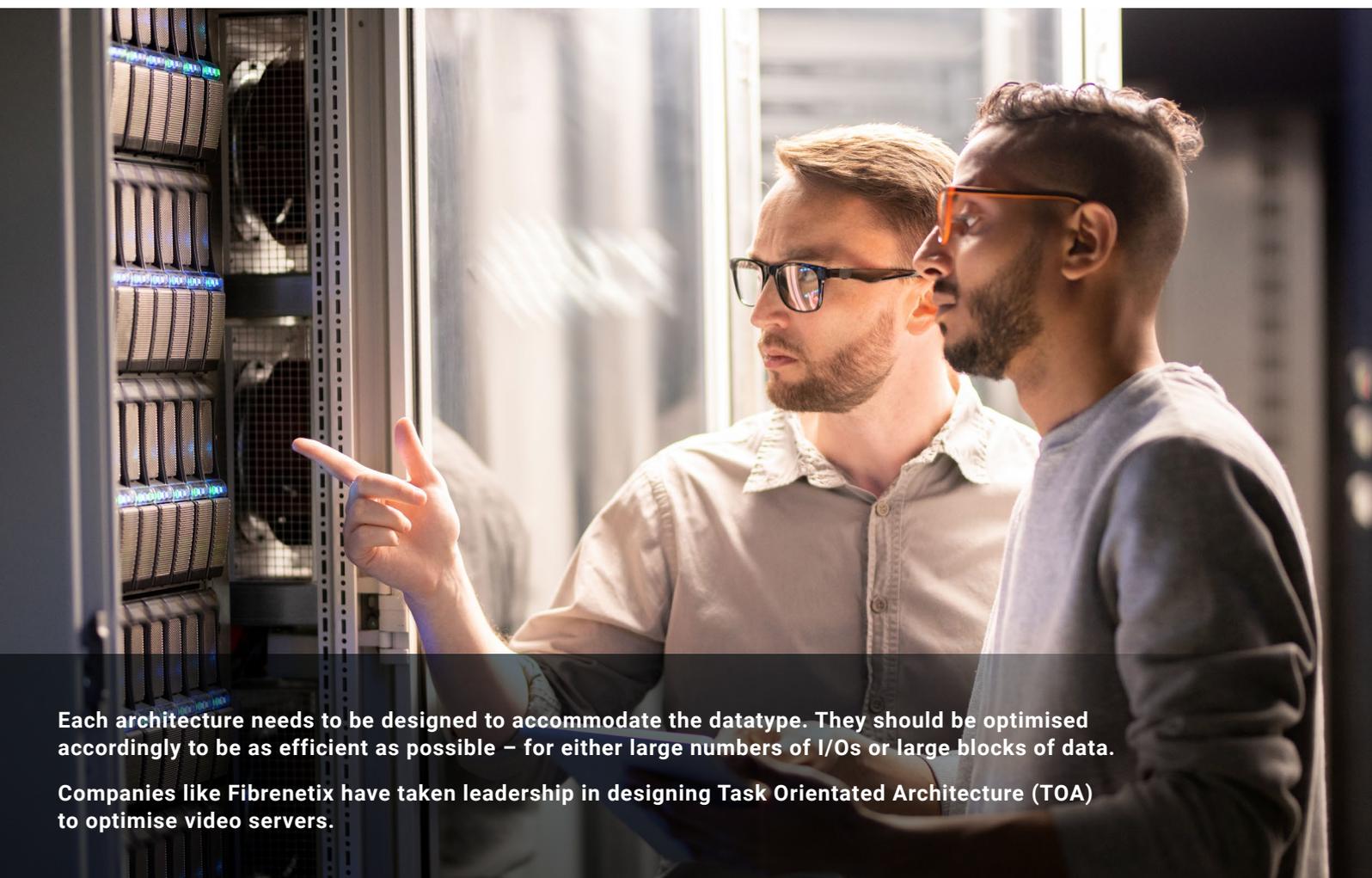


Networks

Network ports are all about bandwidth – how much data can be pushed through the ports. Video data requires a minimum of 10Gbit, but preferably 40Gbit LAN connection to handle large volumes of data. However, as the data is being sent and received in blocks, not as many ports are needed, just a bigger pipeline.

Transactional servers process large quantities of small randomised I/Os very fast and utilise multiple network ports bundled together to maintain efficiency, technically called a Link Aggregation Group (LAG). Depending on how efficient the design is, bottlenecks can easily build-up when the server is busy.

Video servers also have the option to add Graphic Processor Units (GPUs) for motion control, License Plate Recognition (LPR) or playback video streams to your video wall.



Each architecture needs to be designed to accommodate the datatype. They should be optimised accordingly to be as efficient as possible – for either large numbers of I/Os or large blocks of data.

Companies like Fibrenetix have taken leadership in designing Task Orientated Architecture (TOA) to optimise video servers.

Video surveillance usage benefits

Video surveillance data needs to be consistently processed efficiently, reliably and quickly, without any frame loss. The design and architecture of a video server makes this much simpler:

- Single 10Gbit/40Gbit network connection to handle large volumes of data blocks – no need for Link Aggregation Group (LAG).
- Reduced chance of data bottlenecks to ensure reliable operation
- Video optimised I/O controller addition for rapid, simultaneous processing of parallel channels of data

The overall structure and capabilities of video servers mean that more cameras and surveillance sensors can be connected to the server at a lower acquisition price, and with greater efficiency, than a transactional server that has been converted to handle video data.

Greentech

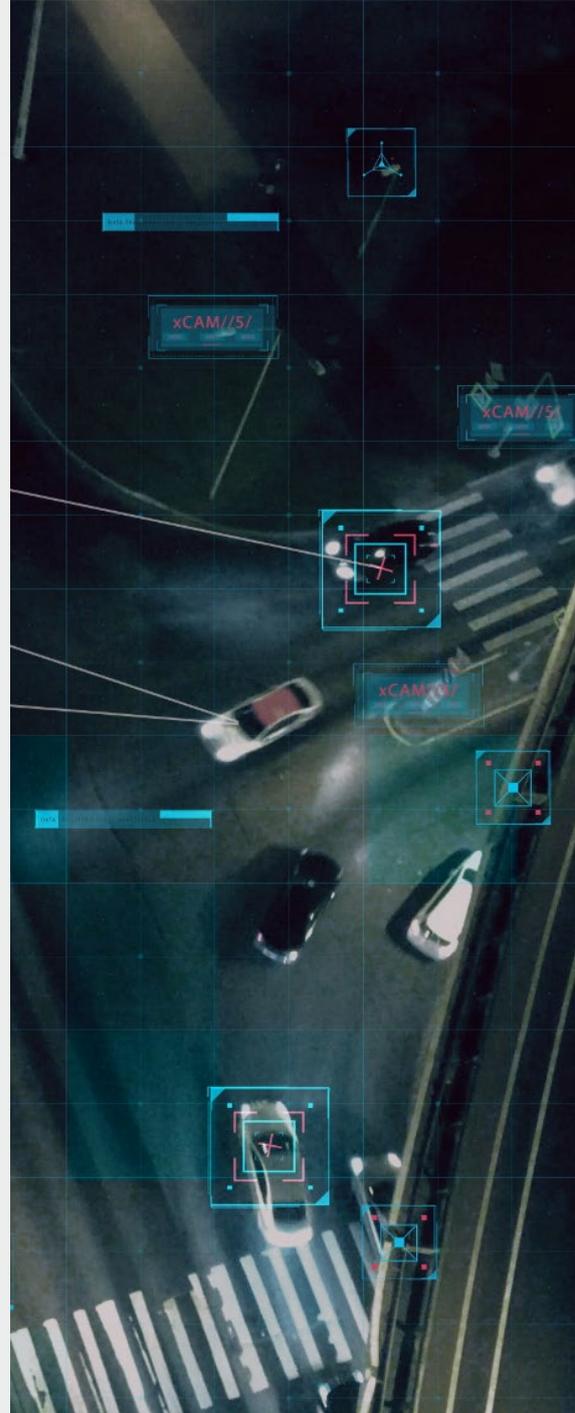
It's increasingly high on the agenda for many businesses to deploy technologies that are eco-friendly and demonstrate their commitment to tackling the causes of climate change.

When implementing Greentech in video servers and storage, the goal goes beyond being environmentally friendly.

Additional benefits include:

- Lower power consumption
- Lower cooling requirements
- Increased life-span
- Significantly lower TCO

Video servers don't need randomised seek-sensitive storage, only high-capacity storage that can easily handle large sequential data blocks. The capacity, reliability and power consumption of the hard drives is crucial so our Exothermic calculation is manageable.



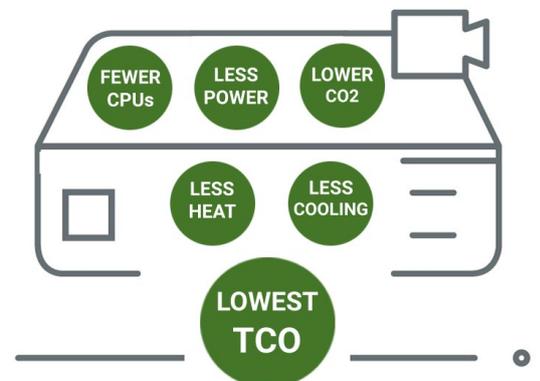
Example

If we compare a standard 6TB hard drive to a Seagate 18TB Exos hard drive, in a 600TB installation, over an 8-year period there would be:

- 6x higher costs (using 6TB HDD's)
- 75,000kW more power consumed

A single installation can require hundreds or even thousands of terabytes using multiple high-capacity hard drives. Utilising Greentech for the hard drives and the enclosure design is a crucial factor in minimising TCO.

Seagate - A New Way to Data



Always a frame ahead

Deploying a video server delivers a multitude of benefits over converting a transactional server for video data processing:

- Lower COA
- Optimal data flow and performance
- Optimised scalability:



Optimal Scalability:
Easy to add more hard drives & storage expansion JBODs

+



Add 30-40% more cameras or devices, compared to a transactional server

+



Future-Proofed:
More cameras can be added later, without adding more servers

=



Hugely reduced TCO



Find out more about the advanced capabilities of video optimised servers and video surveillance solutions... and ensure you're always a frame ahead.