

# Finding the Cure for Legacy Networking



By standardizing on 10 Gigabit Ethernet (10GbE), biotech firm Acorda Therapeutics reduced both up-front and ongoing costs while simplifying their environment and providing room for growth.

Acorda Therapeutics is a biotechnology company developing therapies for multiple sclerosis, spinal cord injury, and related nervous system disorders. The company's extremely rapid growth continually demands additional capabilities from its computing environment.

As traffic exceeded the capacity of Gigabit Ethernet (GbE), the network operations department was forced to add more server adapters and virtual networks to accommodate growth. The resulting environment was rapidly becoming unwieldy, until the company upgraded to 10GbE networking.

## CHALLENGE

Accommodate growth in a highly dynamic company without the limitations associated with Gigabit Ethernet (GbE) networking. Avoid the performance and management disadvantages of having to continually add more server adapters and virtual networks.

## SOLUTION

Acorda Therapeutics upgraded its VMware-based environment to Intel® Ethernet 10 Gigabit Server Adapters during a broader general technology refresh. As a result, the company was able to reduce the number of virtual networks from eight to two, with two server adapters per server instead of five.

## BUSINESS BENEFIT

By reducing the number of server adapters, Acorda was also able to use 2U form factor servers in place of its previous 4U servers, for savings of 20 percent on server purchases.<sup>1</sup> Additional savings were realized from accelerated maintenance, lower energy costs, and simplified management of the environment.

"In our world, which is based on VMware virtualization, we benefit dramatically from the deep, continuing collaborative relationship between Intel and VMware. We know we are getting optimized performance, great feature support, and validated solutions."

– Josh Bauer, Senior Manager,  
Network Operations,  
Acorda Therapeutics



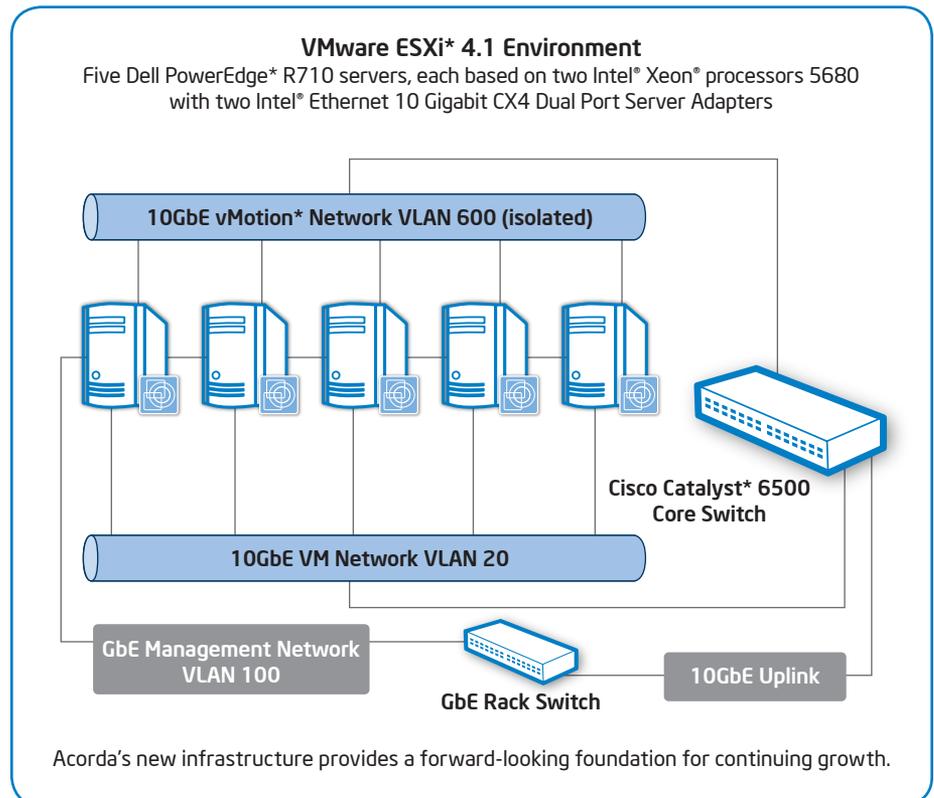
### A Forward-Looking Network Refresh

As the team at Acorda began considering a technology refresh, they took stock of their current environment as a starting point from which to consider what improvements to make. The first order of business was to specify an upgrade to their GbE core switch using a Cisco Catalyst\* 6500 that supports 10GbE.

The new switch immediately reduced the planned network's complexity, since fewer 10GbE server adapters were needed, compared to the older GbE technology. Moreover, as the company considered server upgrades, it found that the older 4U Dell PowerEdge\* R900 servers could be replaced using the 2U PowerEdge R710 model, saving on both equipment cost and rack space requirements, as well as supporting the Intel\* Xeon\* processor 5600 series.

The smaller form factor was appropriate because fewer physical server adapters were needed, due to the increased bandwidth and highly optimized performance of the dual-port Intel\* Ethernet 10 Gigabit Server Adapters. Higher processing power per server, as well as excellent networking headroom, position the company well for continued growth.

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## Supporting the Business with a Flexible Foundation

After upgrading to 10GbE, the network operations team found that they could migrate virtual machines from one physical host to another using VMware vMotion\* far more quickly than before. That performance increase owes in part not only to the increased bandwidth of 10GbE, but also to the high level of collaborative engineering that has gone into the current generation of server platforms and server adapters with virtualization software from VMware.

Intel and VMware worked closely to provide support for Virtual Machine Device Queues (VMDq),<sup>2</sup> which builds multiple network queues and a hardware-based sorter/classifier into the Intel Ethernet controller. In combination with VMware NetQueue,\* VMDq spreads the network processing over multiple queues and CPU cores for greater throughput, further increasing the speed of VM transfers made with vMotion.

*“The new environment frees us up to work on projects instead of maintaining infrastructure. It enables us to be as dynamic as the business.”*

*– Josh Bauer, Senior Manager,  
Network Operations,  
Acorda Therapeutics*

Increased live migration speed has allowed Acorda to dramatically reduce maintenance windows, as well as making tests of new features and capabilities less invasive. In fact, simplified maintenance may even allow the company to delay the need for additional headcount in its support organization.

More immediately, Acorda has already realized a number of cost savings and other benefits from its adoption of 10GbE using Intel® Ethernet server adapters, including the following:

- **Up-front costs: Savings of 20 percent on new server purchases.**<sup>1</sup> Acorda purchased less-expensive PowerEdge R710 servers as a direct result of needing fewer motherboard slots because of the reduced server adapter count, while also enhancing the ability of the environment to support growth.
- **Ongoing cost savings: Server maintenance windows cut in half.**<sup>1</sup> Because the speed of vMotion migration from one physical host to another is more than double that in the old environment, the overtime required to maintain servers has been reduced by half.<sup>1</sup>
- **Simplified environment: Dramatically reduced ongoing management.** The size of the physical infrastructure has been dramatically reduced, including fewer cables and server adapters, as well as a smaller overall server footprint. Servers are also more energy efficient, which reduces power and cooling costs.

- **Enhanced manageability: Standardization on 10GbE connectivity to core switch.** The simplified network allowed standardization of connectivity to the Cisco Catalyst 6500 switch using 10GbE, providing robust network management and enhanced efficiency for the company’s team of network administrators.

The current set of changes has also laid the groundwork for continuing upgrades. In early 2012, Acorda plans to upgrade additional servers with Intel Ethernet 10 Gigabit Server Adapters, to further build out the company’s infrastructure ahead of expected company growth.

On the whole, Acorda has become more agile and cost-effective, and the network operations organization has delivered new value to the growing company. As Josh Bauer, Acorda’s senior manager for network operations put it, “The new environment frees us up to work on projects instead of maintaining infrastructure. It enables us to be as dynamic as the business.”

## About Intel® Ethernet

Intel is the industry leader in Ethernet controllers and adapters with a broad product portfolio and over 25 years experience delivering connectivity that IT customers depend on.

[www.intel.com/go/ethernet](http://www.intel.com/go/ethernet)

Learn more about Acorda Therapeutics: [www.acorda.com](http://www.acorda.com)

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SOLUTION PROVIDED BY:



<sup>1</sup> Results reported by Acorda Therapeutics.

<sup>2</sup> Available on select Intel Ethernet controllers; see [http://www.intel.com/network/connectivity/vtc\\_vmdq.htm](http://www.intel.com/network/connectivity/vtc_vmdq.htm).

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