Vantage Advanced Task Scheduling

Product Sheet

More throughput, fewer servers

Maximize your workflow throughput with complete control over load balancing options

Telestream Vantage® Advanced Task Scheduling provides powerful load balancing options for optimizing hardware and software utilization and system throughput.

As media companies generate increasing revenue through file-based workflows, they cannot afford interruptions or inefficiencies in their media processing. This is especially true in mission-critical commercial workflows, time-critical news workflows, and high-volume content repurposing environments. So much content is moving through these facilities that any workflow interruptions or inefficiencies would cause serious delays.

Optimize Server Utilization

All media processing tasks are not equal, and more than 60% of server CPU time can be wasted by traditional queue-based load balancing. Workflows with mixed video processing requirements and fluctuating media loads require task allocation that is not only aware of which servers are available, but also the nature of the tasks being assigned. Otherwise, servers may be over-allocated with too many heavy tasks, or under-allocated with insufficient work to keep them busy.

Load Balancing

Within the Advanced Task Scheduling option there are two types of *additional* load balancing capabilities, in addition to the standard Vantage *Session Based load balancing*. *Cost Based load balancing* provides greater control for Action execution within a session and *Task Based load balancing* maximizes server efficiency across all services, on all servers, and helps avoid the situation where some Vantage servers are over-utilized and others are under-utilized.

Task Based load balancing provides a generational improvement over Cost Based load balancing by balancing load across services of all types (e.g. Transcode, Analysis, Conform, etc.)–not just services of like types (e.g. only Transcode). It is therefore recommended that Task Based load balancing be utilized over Cost Based load balancing.

Session Based Load Balancing

Session Based load balancing is a default Vantage Array feature that distributes service action processing across multiple servers supporting the same service, up to the configured session limit for each server on a Lightspeed server. Vantage takes CPU utilization of each machine into account, and also ensures that any *Run On* rules (routing tasks to specific servers) are observed. If all servers reach the configured limit, Vantage queues actions until the workload drops below the limit.

Session Based load balancing offers good, basic load balancing as a starting point for Vantage Array systems, and it comes built-in and operating with the Array license. However, if your Vantage system utilizes a combination of multiple transcoding services, then using Task Based load balancing will allow you to balance between these services providing optimal machine saturation.

Cost Based Load Balancing

Cost Based load balancing allows you to assign a default cost for each Action type. You have the option to override the default Action cost in workflows as needed. You can also define a target resource usage level for each service on a server.

To determine its available resources, each service monitors the total cost of all Actions it is processing and compares that cost to the configured target resource usage level for that service. A service can accept an Action for processing if the available resource usage is at least half the cost of the Action.

Actions are assigned to services in the order they are processed, which prevents low-cost Actions from consuming all service resources and starving higher-cost actions. Each Action is forwarded to the service with the most available resources. If the Action is forwarded to a service that does not have resources to immediately process the Action, the Action is then queued for later processing.

Cost Based load balancing offers considerable control and flexibility in balancing a Vantage Array for optimum, efficient operation. Dynamic task scheduling helps ensure very large jobs or many small jobs do not overwhelm the service. You can also assign processing "costs" independently to services and Actions, allowing you to finely tune processing resource usage. There are many benefits to this option, and it is easy to set up, but it requires some time to monitor and adjust.

Task Based Load Balancing

Task Based load balancing is the most efficient form of Vantage system load balancing. It not only provides the ability to balance workload across servers in a Vantage Array, but also across services (as opposed to Session Based and Cost Based load balancing which only balance workload within a single service).

For example, Task Based load balancing allows you to balance the workload between CPU intensive Actions such as a Flip Action, a Multiscreen Action, an IPTV Action and an Analyze Action. Each of these Actions is managed by a separate Vantage service yet Task Based load balancing allows for tuning of the execution to maximize server utilization and minimize processing time. Task Based load balancing uses the concept of *Capacity* for the servers (or entire Vantage Array) and *Cost* for the Actions that need to be processed. *Rules* are created to define Capacity or Cost and are assigned at a default level for all servers and services respectively. Additionally, the default Cost assigned to an Action can be overridden within the Workflow that utilizes the Action.

Not only can Rules be created to control the balancing of Actions across services, but also Rules can be created that control access to physical characteristics of a Vantage Array.

Access to a storage sub-system can be controlled through Task Based load balancing to ensure that the storage sub-system is not oversaturated with too many processes. Likewise, if you need to send files via FTP to a remote server, and the remote server only allows a single FTP connection, then Rules defined in Task Based load balancing allow this to be accomplished.

Best in Class Customer Support

You can rest assured that our highly-skilled technical team will be available to provide the quick and comprehensive support and guidance you need to fully leverage the power of your Telestream product.

Technical Specifications

What's Included in Vantage Advanced Task Scheduling

System Optimization

- The Vantage Advanced Task Scheduling license is required to take advantage of Cost Based or Task Based load balancing. The one license enables both capabilities. (Session Based load balancing comes standard with any Vantage system.)
- Ability to specify capacity for each server

System Requirements

Vantage:
Operating System: Windows Server 2016 (Standard or Data Center Edition)
Minimum Server: Dual, Six Core Processors - or better (a total of 12 cores or more is recommended), with 16 GB DDR Memory
Recommended Server: Telestream Lightspeed Server with GPU acceleration; High-Speed NAS or SAN storage recommended; GigE Ethernet adapter

SQL Database Dedicated Server:
Operating System: Windows Server 2016 (Standard or Data Center Edition)
Minimum Server: Four Core Processor - or better with 16 GB DDR required memory. 32 GB DDR is recommended for Domains with high job volume.
Database: SQL 2014 Standard or Enterprise, SQL 2016 Standard or Enterprise, SQL Express 2016
Client OSs: WIndows 10 or Server 2016 (Standard or Data Center Edition)

[1]*SQL enterprise installation may require Professional Services, contact Telestream for details.*