MVS solutions inc.

An essential component of your datacenter automation platform

THRUPUT MANAGER® AND DATACENTER AUTOMATION

ThruPut Manager, a software product of MVS Solutions Inc., is a multi-faceted system which addresses many aspects of z/OS datacenter automation issues. The focus of ThruPut Manager is the automation of batch workload management. But its benefits go beyond the batch arena as online service and performance is enhanced by well-managed batch. This article introduces ThruPut Manager's approach to automation and provides an overview of ThruPut Manager's batch management facilities under the following traditional automation topics:

- Performance Management
- Storage Management
- Output Management, and
- Job Scheduling

Automation Approach

The heart of ThruPut Manager's approach to batch automation is its analysis of the incoming workload and its rules language for batch.

Automated Job Analysis

ThruPut Manager enhances traditional JES2 and WLM (Workload Manager) functions of z/OS with its automated job analysis. ThruPut Manager's superior knowledge of incoming workload characteristics and resource requirements gives it the power to automate the managing of batch workloads in a JES2 system.

ThruPut Manager analyses incoming JCL and determines a vast array of job characteristics such as the job name, submission class, WLM service class, user, account, and so on. All required datasets are identified, and associated properties are determined like the unit and volume, and whether the dataset is "robotics" resident or in a "migrated" status. All the programs executed by the job are identified. And much more.

The Batch "Rules" Language

ThruPut Manager's Job Action Language (JAL) is used to specify the installation's automated batch management standards. JAL "rules" test the characteristics of the job (passed from analysis) using if-then-else logic, and specify certain actions to occur such as changing JCL characteristics of the job, and establishing conditions for the job to be eligible to run.

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ON TIME Automation Designed for Batch

Scope

ThruPut Manager applies to the total batch workload – both scheduler-submitted and ad-hoc/test batch. The automation power of ThruPut Manager comes from its comprehensive analysis function, its powerful rules language, and the breadth of automated actions it can perform. For automated batch workload management in a JES2 and WLM system, there is no comparable automation approach, and no comparable product available.

Performance Management

The majority of ThruPut Manager functionality is oriented to improving performance and throughput for batch. The most prominent of its automated performance management features include:

Automated Standards Management

Standards management is the key to batch workload control and performance management. With ThruPut Manager, datacenters can enforce many installation standards in a proactive manner, by creating JAL rules which assign correct job characteristics. The Job Class, and the WLM Service Class are the foundation to JES2 and WLM workload management. With ThruPut Manager, the datacenter is not dependent on users to class jobs correctly. Rather, ThruPut Manager automatically assigns all jobs the correct class, based on the actual job characteristics and resource requirements. Other job characteristics which can be assigned in a pro-active manner include most JOB statement parameters, virtually all SYSOUT parameters, and many DD statement parameters.

Automated Resource/Dependency Management

ThruPut Manager's "job binding" facility ensures that jobs only run when and where required resources are available. This is an essential requirement in a Parallel Sysplex or a multi-system JESplex. Controlling the affinity of jobs which are dependent on a particular database region or require software licensed on a specific system is a common use of this facility. Unlike WLM's Resource Affinity Scheduling, ThruPut Manager's Job Binding Services provides batch resource/dependency management in a completely automated, user-independent and JCL-transparent manner.

Automated Job Limiting

ThruPut Manager can ensure that only a certain number of jobs meeting a particular criteria execute concurrently. A common use is to prevent too many batch jobs from concurrently accessing a database region. This is an example of how effective batch management improves online performance.

Automated Tape Drive Management

ThruPut Manager can ensure that a tape job only executes if there are sufficient drives available. Incidents of drive allocation recovery are minimized, and utilization of tape drives and throughput of setup jobs is improved.

Automated Dataset Contention Management

ThruPut Manager ensures that a job does not execute if it will conflict with another job over exclusive use of a dataset. This prevents initiators from sitting idle due to dataset contention and results in improved batch performance.

Batch Window Management

ThruPut Manager can ensure that critical jobs get the highest priority, that resources like tape drives are not consumed by lower priority (eg., non-production) work, and that initiators don't sit idle waiting for tape mounts or HSM recalls. These and other performance management features of ThruPut Manager such as those described above provide relief for installations with a "batch window" problem.

Storage Management

Tape storage and the resulting operational and hardware issues are almost exclusively a batch phenomenon. It follows then, that improved tape handling and hardware performance is an area addressed extensively by ThruPut Manager.

Device/Unit Standards Management

ThruPut Manager analysis determines device information for all datasets needed in a job. Setup and non-setup jobs can accurately be separated into different Job and Service Classes. And many DD statement parameters, including unit, expiry date, retention period and RETAIN and DEFER can be validated or assigned though JAL rules. JCL modification "on the fly", workload consolidation, and changes to device and unit standards can be implemented automatically.

Simplified Setup Handling and HSM Optimization

ThruPut Manager analysis determines all the mountable volumes required by a job and cartridges can be retrieved before the job executes. Further, migrated datasets are identified and can be recalled before the job executes. Operational procedures are simplified, initiator wait time is reduced, and throughput of setup jobs and jobs requiring recalls is improved.

Enhancement of Virtual Tape Systems

ThruPut Manager's analysis can identify the number of VTS scratch tapes used, the maximum number of VTS units used by any one job step, and the total number of VTS volumes requested by the job. This resource information about the job can be used in conjunction with ThruPut Manager's "Job Limiting Services" (which addresses consumable resource management) to improve VTS throughput.

Support is now provided for the IBM VTS system, the StorageTek Virtual Tape Storage System, Sutmyn's Virtual Tape Server, IBM robots in BTLS mode, the COPYCROSS facility of EMC and Sterling Software's SAMS:Vtape product.

Improved Robotics Utilization

Several features of ThruPut Manager enhance the automation solutions of robotics cartridge systems. The result is improved throughput and utilization of robotics hardware.

Output Management

Virtually every SYSOUT parameter can be assigned automatically under control of JAL rules. SYSOUT standards management can be automated, exits can be eliminated, changes can be implemented without JCL conversion and workload from different sources can be merged without user impact. Since conventional Report Distribution and Output Management software is dependent on SYSOUT parameters, implementation and maintenance of these packages is simplified.

Job Scheduling

ThruPut Manager is not intended to provide scheduling services for production in the sense that traditional scheduling packages do. However, its batch automation services will improve the operation of your scheduling software, simplify the task of your production control department and ensure that production batch gets the priority and resources it needs. As well, simple scheduling services are available for non-scheduler-submitted jobs, using JCL extensions provided by ThruPut Manager.

This document assumes the reader is familiar with ThruPut Manager. Only certain highlights of the product have been discussed here. For further information, please contact us as noted on the first page.

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