Operations Planning and Control

The Tivoli® Operations Planning and Control (Tivoli OPC) licensed program is part of Tivoli OPC Operations and Administration discipline. Tivoli OPC supports operations management, providing the foundation for enterprise-wide production workload management.

Whether you control a single-image OS/390® system or complex, multi-vendor networks and systems from a single point of control, Tivoli OPC helps you plan, manage, and automate the production workload.

Using the controller feature, the base OS/390 tracker, the OPC Tracker Agents for other operating platforms, and Tivoli OPC’s open interfaces, you can control the workload in virtually any operating environment.

Tivoli OPC is more than just a batch scheduling tool—it is a production management system able to manage all the work running on any system.

OPC was voted best scheduling package by the IBM Mainframe User Information Exchange (IBEX) group, an independent organization.

The State-of-the-Art Solution

Tivoli OPC provides leading-edge solutions to problems in production workload management. It maximizes the throughput of work, optimizes your resources, but lets you intervene manually when required.

Comprehensive Workload Planning

Tivoli OPC constructs operating plans based on user-supplied descriptions of the DP department and its production workload. These plans provide the basis for your service level agreements and give you a picture of the production workload at any point in time. You can simulate the effects of changes in your production workload and in resource availability by generating trial plans.

Good planning is the cornerstone of any successful management technique. Effective planning also helps you maximize return on your investments in information technology.

Centralized Systems Management

From a single point of control, Tivoli OPC analyzes the status of the production work and drives the processing of the workload according to business policies. It supports a multiple-end-user environment, enabling distributed processing and control across sites and departments within your enterprise.

Systems Management Integration

Solutions to today’s systems management problems require integration of application programs and processes. Tivoli OPC offers you integration with:

- Agents for controlling the workload on non-MVS platforms
- Other systems management application programs
- Application programs running in Systems Application Architecture® (SAA®) environments.

Tivoli OPC – Working with Other IBM Products

Tivoli OPC interfaces directly with a number of other IBM products providing an integrated approach to the control of complex production workloads.

NetView®. Tivoli OPC lets you schedule WTO operations in conjunction with the production workload processing. Alerts are passed to the NetView program in response to situations that occur while processing the production workload. The NetView program can then trigger Tivoli OPC to perform actions in response to these situations.

Resource Object Data Manager (RODM). It provides a central location for storing, retrieving, and managing the operational resource information needed for network and systems management. You can map a Tivoli OPC special resource to a RODM object. This lets you schedule the production workload considering actual resource availability, dynamically updated.

System Automation for OS/390 (SA/390). SA/390 initiates automation procedures that perform operator functions to manage MVS components, datasets, and subsystems.
SA/390 includes an automation feature for Tivoli OPC.

Tivoli Performance Reporter for OS/390 (Performance Reporter)
Performance Reporter helps you effectively manage the performance of your system by collecting performance data in a DATABASE 2 (DB2) database and presenting the data in a variety of formats for use in systems management. Performance Reporter uses data from Tivoli OPC to produce summary and management reports about the production workload, both planned and actual results.

Report Management and Distribution System (RMDS).
RMDS helps customers increase productivity and reduce the costs of printing by providing a means for storing and handling reports in an MVS environment. When a dialog user requests to view a job log or to automatically rebuild the JCL for a step-level restart, Tivoli OPC interfaces with RMDS.

Tivoli Service Desk for OS/390 (TSD/390). TSD/390 supports the administration of the systems management process of an enterprise’s hardware and software resources. An interface with TSD/390 is provided for reporting problems detected while processing the production workload.

Resource Access Control Facility (RACF*). RACF is the IBM product for data security. You can use RACF to protect your Tivoli OPC services and data at the level required by the enterprise. With RACF 2.1, you can use an Tivoli OPC reserved resource class to protect your Tivoli OPC resources.

Data Facility Hierarchical Storage Manager (DFHSM). The Tivoli OPC dataset cleanup functions start DFHSM, or the DFSMSHsm* component of DFSMS/MVS*, to recall migrated datasets.

MVS and JES. Tivoli OPC uses standard MVS and JES interface points to obtain information about the OS/390 workload.

CICS* and IMS*. Tivoli OPC lets you schedule the starting and stopping of started tasks. Because Tivoli OPC tracks the status of started tasks, you can serialize work, such as backups of transaction databases, according to the status of your CICS or IMS subsystems.

LoadLeveler*. LoadLeveler balances the workload for clusters of UNIX** systems. The OPC Tracker Agents for AIX and the other UNIX implementations can integrate with LoadLeveler 1.2.

Tivoli Global Enterprise Manager (GEM). Tivoli GEM is the industry’s first solution for unifying the management of cross-platform business applications that run businesses and make them competitive. Tivoli GEM helps you to manage strategic applications from a unique business systems perspective, focusing your IT resources on keeping these systems healthy and productive. Tivoli OPC has been instrumented to support the Job Scheduling Business System of the Tivoli GEM Systems Management Business System.

In addition to these IBM products, there are also products from other software vendors that work with or process data from Tivoli OPC.

Automation
By automating management of your production workload with Tivoli OPC, you can minimize human errors in workload processing and free your staff for more productive work. Whether you are running one or more systems at a single site—or at several distributed sites—Tivoli OPC helps you automate your production workload by:

- Dynamically modifying your workload schedule in response to changes in the production environment, such as urgent jobs or hardware failures
- Resolving workload dependencies
- Managing the use of shared resources, for example tape and cartridge drives
- Tracking each unit of work
- Detecting unsuccessful processing
- Displaying status information and instructions to guide staff in their work
- Interfacing with other key IBM products to provide an integrated automation platform

Integration
Tivoli OPC not only enables integration with other host-system management application programs, but also with application programs running in other operating environments. Through its application programming interface (API), Tivoli OPC can communicate with, and provide data to, application programs running on various platforms, providing an enterprise-wide interface with workload management data.

The Tivoli OPC Workload Monitor/2 is an interface that lets you view and update the Tivoli OPC current plan from a personal workstation. Users can perform tasks using a mouse instead of keystrokes and commands.

Workload Monitoring
In addition to providing a single point of control for the production workload across your systems, Tivoli OPC:

- Monitors the production workload in real time, providing staff with the latest information on the status of the workload so that they can react quickly when problems occur.
- Provides security interfaces that ensure the protection of your services and data.
- Enables manual intervention in the processing of work.
- Reports the current status of your production workload processing.
• Provides reports that can serve as the basis for documenting your service level agreements with users. Your customers can see when and how their work is to be processed.

**Automatic Workload Recovery**

Tivoli OPC enables processing of the production workload to continue even when system or connection failures occur. If one system fails, Tivoli OPC can restart the processing on another system. When the Tivoli OPC controlling system is running in an OS/390 system complex (sysplex), a hot standby function can automatically transfer control of the production workload to another system in the sysplex. Because Tivoli OPC continues to manage the production workload, should a failure occur you can maintain the integrity of your processing schedules and continue to service your customers.

Tivoli OPC provides automatic recovery facilities for both job and started-task failures. Disaster recoverability of your Tivoli OPC environment is adaptable to a variety of recovery situations.

**Productivity**

Tivoli OPC represents real productivity gains by ensuring fast and accurate performance through automation. The tasks Tivoli OPC performs not only have to be performed, but they must be done correctly, every time, and as quickly as possible. Many of these tasks, traditionally performed by DP professionals, are tedious and as a result prone to error.

Your DP staff and end users can realize significant productivity gains through Tivoli OPC's:

• Fast-path implementation.
• Immediate response to dialog requests for workload status inquiries. Users are provided with detailed real-time information about production workload processing so that they can detect and promptly correct errors.

• Automation of operator tasks such as error recovery and dataset cleanup.
• Graphical display of production workload dependencies. Users can easily trace the relationships within the flow of the production workload.
• Job Scheduling Console, with its easy-to-use graphical user interface and sophisticated online help facilities.

**Investment Protection**

Compatibility with earlier products protects your investment in workload management and lets you control the existing workload without disruption. If you are currently using OPC/A Release 2 or OPC/ESA Release 3, you can:

• Easily migrate to Tivoli OPC Version 2 without initial program loading (IPL)
• Use existing JCL and applications without changes
• Use Tivoli OPC Version 2 to continue controlling the production workload on systems that run OPC/A Event Manager Subsystem (EMS) or an OPC/ESA Release 3 tracker.

• Tivoli OPC Version 2 Release 3 Highlights

This is a summary of the functions added in Tivoli OPC Version 2 Release 3.

**Job Scheduling Console**

JSC is a Java-based, client/server application. It allows OPC users to perform administration and operation tasks in a graphical manner, and to access multiple OPC Controllers from a single console. These advantages greatly enhance user productivity.

The OPC security model is preserved by the JSC; each data access request is validated by the Controller, in the same fashion as it is done today for ISPF users.

The JSC is fully interactive: it is a real-time interface with OPC, and can be used concurrently with the ISPF interface. The JSC graphical client is available for various UNIX platforms, Windows NT, and Windows 98. The OPC Connector, which is a backend component supporting the JSC, is available for various UNIX platforms and Windows NT.

**Catalog Management — Data Availability**

The new “Catalog Management - Data Availability” feature greatly improves OPC performance for job re-start and job log retrieval functions. Job runtime information, like the sysout datasets, are now maintained locally on the tracked system. The controller retrieves this information only when needed for Catalog Management actions, eliminating the network and processing overhead associated with the transmission of superfluous data.

**Policy Based Management for Critical Jobs**

Tivoli OPC Version 2 Release 3 offers a new, policy based management of deadlines for critical jobs by exploiting the features of OS/390 Workload Manager when used in goal mode. When a critical operation is late, OPC will interface to Workload Manager to
move the associated job to a higher performance service class. In this way the job receives appropriate additional system resource to reduce or eliminate the delay.

OS/390 Automatic Restart Manager support

The availability of OPC components has been increased by exploiting the OS/390 Automatic Restart Manager. OPC components such as the Controller, the OS/390 Tracker and the Server can now be restarted automatically by the Automatic Restart Manager in the event of program failure.

Program Interface (PIF) Enhancements

The Programming Interface (PIF) has been further extended to increase the flexibility of OPC, allowing users to have extended access to OPC data from other application programs. More specifically, Tivoli OPC Version 2 Release 3 significantly enhance the ability to access current plan data from PIF by providing:

- Full support for special resources data
- Read access to special resource usage information for operations
- The ability to modify the workstation open intervals
- The ability to modify the successor information for an operation

Non-OS/390 Tracker Agent Enhancements

The OPC Tracker Agents for non-OS/390 platforms have been enhanced:

- The OPC Tracker Agent for OpenVMS now runs in the native OpenVMS environment, removing the requirement to install the POSIX shell.
- The security features for the UNIX OPC Tracker Agents have been enhanced.
- The installation process of the OPC Tracker Agent for OS/390 UNIX System Services has been made easier.

Usability Enhancements

- Variable substitution can now be performed within inline procedures, increasing the flexibility of the job setup feature. It is now possible to customize OPC so that jobs are submitted also when variables are not defined in the OPC variable tables.
- Data sets with expiration date can now be deleted by OPC during catalog management actions.
- The Job Submission Exit (installation exit 1) now allows changes to the size of JCL being processed.
- The Operation Status Change Exit (installation exit 7) has been enhanced to receive also extended status information. In this way the full status information is available within this user exit.
- A new Modify command has been provided to start and stop the job submission in OPC. This feature enables automation products like Tivoli NetView for automatic control over the OPC job submission activity.
- A new sample job has been provided to download all the applications belonging to a group in a sequential file that can be used as input to the BatchLoader utility.
- DSECT sections for the Program Interface (PIF) data areas are delivered in the sample library.

Tracker Agents

The OPC Tracker Agent features let you plan, control, and manage the workload on non-MVS platforms from the controlling system. OPC Tracker Agents are now available for OS/390 Open Edition and Digital UNIX, in addition to the previous ones for OS/390, AIX/6000*, OS/400*, OS/2, Windows NT, HP–UX, SunOS, Solaris, Digital OpenVMS, and Silicon Graphics IRIX.

Machine Requirements

Tivoli OPC operates on any IBM hardware configuration supported by one of the following:

- OS/390 Version 2
- OS/390 Version 1
- MVS/ESA SP Version 5

The Job Scheduling Console requires one of the following:

- A Pentium 233 computer with 64 MB of RAM and 30 MB of disk space plus 2MB for each installed language capable of running one of the following operating systems:
  - Windows 95
  - Windows 98
  - Windows NT 4.0 (Service Pack 4 or 5)
- 128 MB of RAM is recommended for performance reasons.
- An RS/6000 computer with a minimum of 128 MB of RAM capable of running AIX/6000 Version 4.2.1
- A SPARC** computer with a minimum of 64 MB of RAM capable of running Solaris Version 2 Release 6.

The OPC Connector requires one of the following:

- A Pentium 233 computer capable of running Windows NT 4.0 (Service Pack 4 or 5).
- 128 MB of RAM is recommended for performance reasons.
- An RS/6000 computer capable of running AIX/6000 Version 4.2.1
- An 700-series or 800-series computer capable of running HP–UX Version 10 or Version 11.

One Job Scheduling Console OPC Connector can be used to communicate with multiple OPC controllers, and can serve multiple machines running Job Scheduling Console. The Job Scheduling Console and the Job Scheduling Console OPC Connector can be installed on the same machine.
Program Requirements

Tivoli OPC requires the functions provided by an MVS control program that is run in MVS/ESA mode. The Job Entry Subsystem may be either JES2 or JES3. Tivoli OPC requires one of the following environments:

- OS/390 Version 2 (program number 5647-A01)
- OS/390 Version 1 (program number 5645-001)
- MVS/ESA SP Version 5 (program numbers 5655-068, 5655-069)

Installing and maintaining Tivoli OPC requires one of the following:

- System Modification Program Extended (SMP/E) Release 8.1 (program number 5668-949) with PTF UR51070 installed or later, or
- OS/390 Version 1 or OS/390 Version 2 (refer to the Licensed Program Specifications for details.)

These IBM licensed programs, or any functionally equivalent programs, are required on the Tivoli OPC controlling system:

- Tivoli OPC Version 2 Release 3 (program number 5697-OPC). Both the base product (the tracker) and the controller feature are required. The Tracker Agent enabler feature is required if any Tracker Agents are used.
- Data Facility Sort (DFSORT*) Release 9 (program number 5740-SM1) or later, or equivalent product.
- Interactive System Productivity Facility (ISPF) for MVS, Version 4.2 (program number 5655-042) or OS/390 Version 1 (5645-001) or OS/390 Version 2 (5647-A01).
- ACF/VTAM* Version 3 Release 4.2 for MVS/ESA (program number 5685-085) or later, or Version 4 Release 3 for MVS/ESA (program number 5695-117) or later, or Communication Server for OS/390 Release 1 (program number 5645-001) or later is required if Workload Monitor/2, the Tracker Agent for OS/400, remote dialogs, or remote PIF applications are used.
- TCP/IP for MVS Version 3 Release 2 (program number 5655-HAL) with C socket API support, OS/390 Version 1 (5645-001), or OS/390 Version 2 (5647-A01) is required if the Job Scheduling Console or any Tracker Agent for systems other than OS/400 is used.
Plan Your Day with Tivoli OPC

Find Out More
If you would like more information about the Tivoli Operations Planning and Control program product, contact your local IBM marketing representative, or drop us a line at:
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