



I D C V E N D O R S P O T L I G H T

Workload Management Enables Big Data Business Process Optimization

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Adapted from *Worldwide Workload Management Software Market Shares, 2014: Year of Self-Service and Analytics* by Mary Johnston Turner, IDC #256839

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Enterprise workload management requirements are becoming more diverse and complex. Digital transformation initiatives and big data analytics are dramatically increasing corporate data processing and information management requirements. Workload management is becoming less predictable and more real-time event driven. Cloud-based computing and hybrid IT architectures offer on-demand infrastructure access but need to integrate with traditional corporate computing systems and databases. This Vendor Spotlight examines the critical role that modern, automated workload management solutions are playing in the transformation of enterprise business processes and workload management strategies. It also considers the impact that Hitachi's JP1 workload management and automated operations solutions have in helping customers improve operational productivity and agility.

Workload Management Provides Mission-Critical Business Process Automation

Workload management is a \$2 billion worldwide software market that provides automation technology to support a range of mission-critical business processes and file transfers across a broad mix of computing platforms and information types. Early-generation solutions provided calendar-based job scheduling technology used to coordinate and synchronize large batch file transfers and processing integrations.

In recent years, however, modern workload automation solutions have added support for event- and policy-driven workload automation, resource scaling, autorecovery, and enterprisewide federation of data and process flows. Easy-to-use and intuitive self-service interfaces and advanced workflow design tools have become top priorities for many enterprise customers that want to automate complex scheduling and event-driven workload management activities across multiple generations of computing platforms, databases, and applications.

According to IDC research, over the next few years, up to 75% of new, modern applications will be data intensive, and many will take advantage of big data technologies and analytics. IDC expects that simultaneously, over 65% of enterprises will implement hybrid cloud architectures that mix traditional systems and workloads with modern cloud-native applications deployed across physical, virtual, public, and private cloud infrastructure. IDC research also indicates that balancing business and IT priorities, taking full advantage of automation, and optimizing workload placement are some of the top challenges facing many organizations as they implement cloud strategies.

The digital transformation of many enterprise applications and business processes, combined with the adoption of highly dynamic cloud technologies, is dramatically increasing the complexity of coordinating and synchronizing the processing of large-scale data volumes, high velocity transactions, multistep workflows, and highly distributed application architectures. In today's digital environments, a single online purchase may invoke queries, transactions, and data exchanges across a dozen or more legacy and modern systems. Data transfer and job processing requests need to be executed on demand.

Scalable and flexible workload management solutions are critical to the end-to-end performance of today's applications. IDC expects that the worldwide workload management software market will continue to experience slow but steady growth as vendors continue to respond to customer demand for more streamlined, user-friendly capabilities to support mission-critical business processes, cloud architectures, and big data analytics.

Benefits of Blending Traditional Job Scheduling with Modern Workload Management

Around the world, business leadership teams are investing in the digitization of many business processes and prioritizing the development of modern applications to take full advantage of mobility, big data, social technologies, and the Internet of things. Many of these applications are being developed using cloud-native architectures that can be continuously deployed and updated across public, private, and hybrid cloud infrastructure. IDC refers to this set of technologies as the 3rd Platform of computing, which is differentiated by being more agile and flexible than traditional 2nd Platform client/server and 1st Platform mainframe computing architectures.

Even as enterprises invest in developing these 3rd Platform applications to create new sources of revenue and business value, they continue to rely heavily on mainframe- and client/server-based workloads, databases, and processing engines. Most organizations expect to continue to support, extend, and modernize existing applications for a number of years, until such time as a solid business reason is identified to justify the cost and risk of rewriting and replatforming mission-critical applications.

Workload management solutions serve as an important bridge between modern and legacy systems by providing automation, integration, and monitoring to maintain end-to-end workload and business process performance. Modern workload management solutions have moved beyond the calendar- and time-specific limitations of legacy job scheduling tools. Today, most workload management solutions support event- and policy-driven workload automation, resource scaling, autorecovery, and enterprisewide federation of data and process flows.

IDC expects increasing numbers of modern enterprise IT and business teams will turn to workload automation solutions to address a number of important operational requirements created by the business need to link big data and cloud environments with traditional systems and applications. These organizations will seek out automated workload management solutions that can help them:

- Maintain end-to-end performance of complex business process workflows spanning traditional and emerging cloud-native workloads
- Manage the import, normalization, and merger of data sets from a wide variety of sources and formats
- Sequence data collection, analysis, and reporting tasks efficiently to support business requirements
- Optimize workload deployment across on-premise, hosted, and public cloud resources
- Automatically enforce workload compliance and information management policies

The benefits of using sophisticated, modern workload management solutions to support these complex business processes include improved end-to-end workload processing reliability, more reliable end-user service levels, and more cost-effective use of both in-house and public cloud computing resources. Many organizations find they are able to use modern self-service GUIs and intuitive workflow design tools to streamline the administration of workload management processes and significantly increase the volume of workloads processed while holding head count steady.

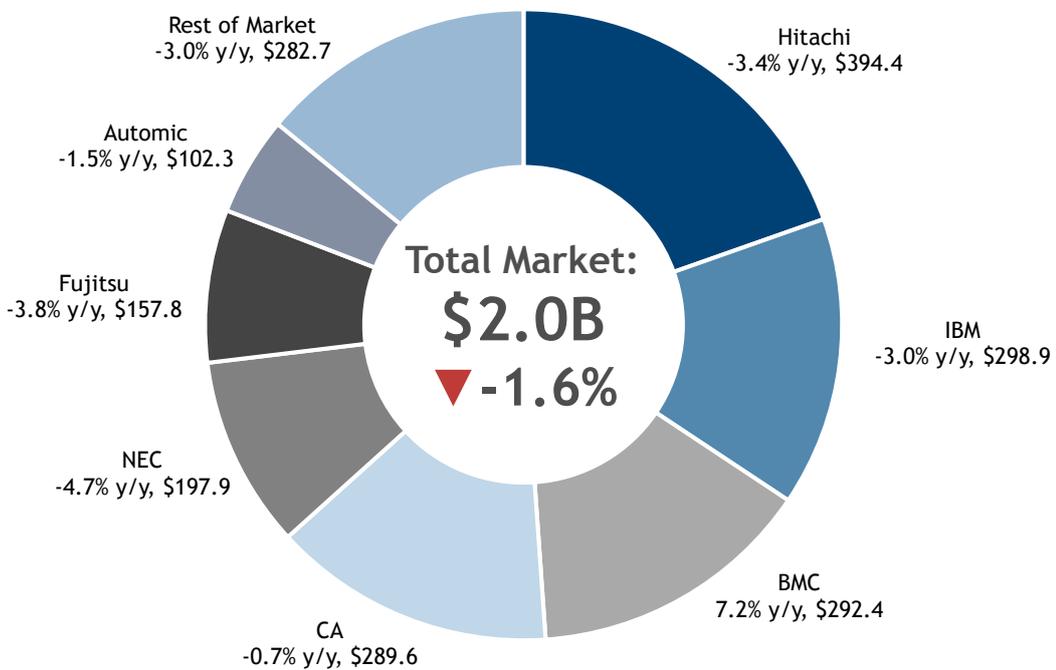
Considering Hitachi JP1

Hitachi's flagship workload management solution is Job Management Partner 1 (JP1), which recently celebrated its 20th anniversary of availability. Over the years, Hitachi has consistently and proactively extended JP1 to support modern workload management and datacenter infrastructure automation priorities. The 11th version of JP1 is planned for release in January 2016.

According to IDC's 2014 worldwide workload management market share analysis, Hitachi led the market with 19.6% market share representing revenue of US\$394.4 million (see Figure 1). Demand was fueled by the successful 2014 introduction of JP1 version 10.5, which included enhanced support for big data and increased availability of infrastructure automation capabilities. This is the seventh year in a row that Hitachi has been ranked number 1 in IDC's worldwide workload management market share analysis.

FIGURE 1

Worldwide Workload Management 2014 Share Snapshot



Note: 2014 Share (%), Growth (%), and Revenue (\$M)

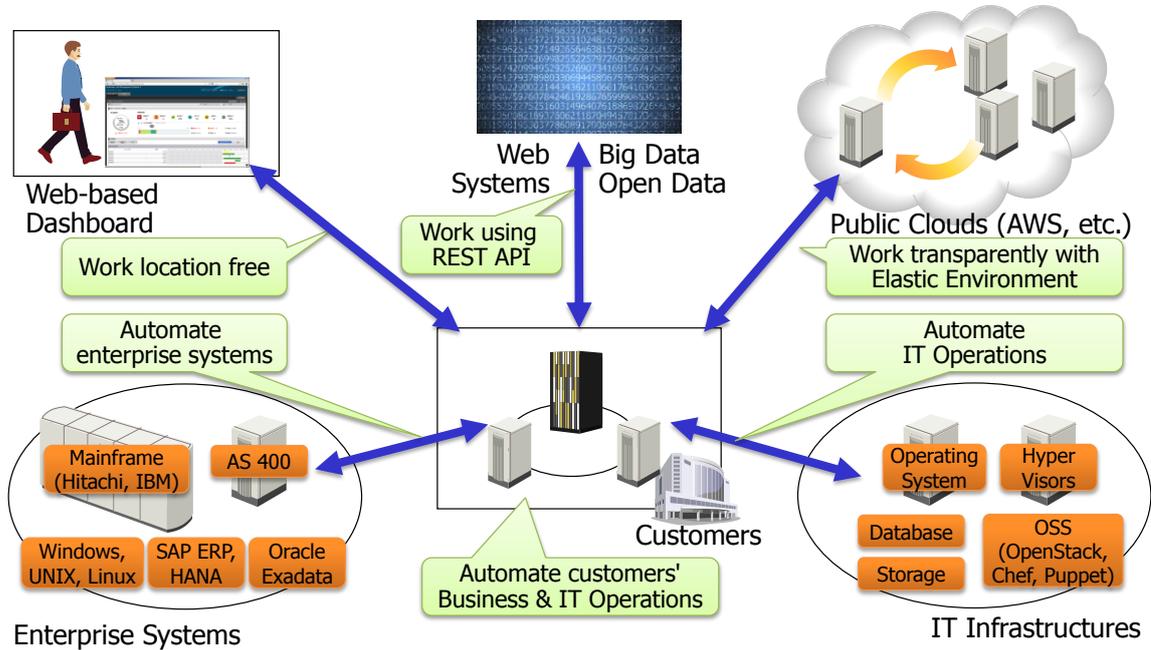
Source: IDC, 2015

The current edition, JP1 version 10.5, includes Automatic Job Management System 3 (JP1/AJS3) and Automatic Operations (JP1/AO), which enable template-based service models to define system-level configurations and streamline integrations with IT operations workflows. Together with the core JP1 product, these solutions provide automated workload management and infrastructure management across a broad range of traditional and modern platforms, including Hitachi and IBM mainframes, AS/400, Unix systems, Linux servers, SAP HANA, and Oracle Exadata.

Customers are able to use JP1 to deploy and automate workload performance on a number of public clouds (Hitachi Cloud, Amazon Web Services, Microsoft Azure, etc.) and are also able to use JP1 via a "pay per use" SaaS model in Hitachi's partner clouds. See Figure 2 for a graphical representation of the Hitachi JP1/AJS3 + JP1/AO vision.

FIGURE 2

Hitachi JP1/AJS3 + JP1/AO Vision



Source: Hitachi, 2015

JP1 version 10.5 also works with the Splunk analytic engine to enable real-time monitoring and analyze job execution performance. Reports on job execution delays or simultaneous processing are provided to help maintain and improve end-to-end work process stability. This edition also provides integration with a number of third-party and Hitachi management tools for monitoring, navigation, CMDB support, and scripting.

JP1/AO content packs have been introduced to provide content that simplifies integrations with many infrastructure and middleware components, including VMware, HyperV, OpenStack, Windows, Linux, and storage management solutions. These content packs support a REST API interface and enable agentless operations for more precise control of scheduling as well as event-driven and ad hoc execution of workloads. Development tools are available to support custom content development.

IDC expects Hitachi will continue to invest in and extend JP1 for modern datacenters, public cloud services, and big data use cases. JP1/AJS3 version 11, planned for release in January 2016, will introduce a REST API for the core JP1 platform that will provide extended visibility and integration beyond the existing SOAP-based interface. The REST API will enable JP1 to better integrate with cloud applications as well as provide other systems with REST API-based integrations. This will also allow JP1/AJS3 to call public cloud and other third-party Web services.

The REST API will initially support functions such as execution of jobnets, execution status monitoring, and execution schedule retrieval. Version 11 will add support for public cloud autoscale functions and multiregion architectures. It will also introduce a Web-based GUI dashboard along with encrypted SSL connections between View, Manager, and Agent components to improve security and remove the need for a VPN. JP1/AO content packs for configuration automation solutions such as Puppet and Chef are also expected with this release. Tools that enable customers to more easily develop and deploy customized content packs across multiple platforms will also be made available.

Challenges

Succeeding in a mature market, such as workload management software, requires software vendors to continuously invest in and evolve their offerings to address emerging customer requirements while continuing to evolve and modernize core functions and support traditional customers. Many workload automation vendors have struggled in recent years to find the right balance. Some vendors have opted to maintain existing products but limit new development, and others have invested somewhat selectively depending on customer priorities.

Hitachi has demonstrated a significant commitment to ongoing development and improvement of JP1 as shown by its support for cloud, big data, and social computing. To maintain its market leadership, Hitachi will need to continue to address emerging requirements such as self-service workflow design and support for DevOps environments. If the company continues to invest and extend JP1, it will be well positioned to succeed as this market continues to evolve.

Conclusion

As the percentage of enterprise workloads deployed into public, private, and hybrid cloud datacenters increases, IDC expects many organizations will invest in workload-aware cloud management solutions that can monitor, model, and predict performance as well as maintain SLAs using automation and orchestration to scale, migrate, patch, and update applications as needed. Workload management software will continue to play an important role in enabling big data analytics and complex business process flows across traditional and emerging hybrid cloud environments. For organizations that need to integrate and automate workflows and data transfers across diverse systems, workload management solutions provide an important option for automation and control.

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