Digital Business Strategies Benefit from API-Enabled Workload Management Automation

November 2016

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As business applications and services become more digitized, mobile, and interactive, the complexity of everyday transactions, workflows, and application architectures continues to escalate. A single online purchase may invoke queries, transactions, and data exchanges across a dozen or more legacy and modern systems. Workloads become distributed across mainframes, legacy platforms, modern virtual and containerized infrastructure, on-premises datacenters, and public clouds. This Vendor Spotlight examines the critical role of modern, API-enabled workload management automation solutions in enabling today's digital business strategies. It also considers how Hitachi's JP1 Automation solutions are helping customers address these requirements.

Workload Management Automation Innovation Targets the Needs of Enterprise Multicloud Digital Business Strategies

Enterprises around the world increasingly recognize the value of digital business innovation and are racing to integrate existing transaction processing systems and databases with emerging mobile and online systems of engagement. In fact, IDC's research shows that over the next five years, at least 80% of enterprises will implement multicloud, hybrid solutions that mix private and/or public cloud services with traditional physical and virtual IT resources.

Applications that have a high degree of elasticity, as well as requirements for variable scalability and global reach, will frequently be deployed onto shared public cloud services. Workloads with stringent security, data protection, and compliance requirements, as well as those that are resource intensive, latency sensitive, or dependent on legacy platforms, are most frequently run on dedicated physical and/or virtual computing resources including, in some cases, private clouds.

In many cases, mission-critical digital business applications will marry modern, scalable mobile and web tier systems of engagement running on public cloud services with more traditional back-end databases and systems of records hosted on traditional computing platforms. As more and more of these hybrid, multicloud solutions are implemented, workload management automation is playing an important role in enabling seamless, real-time business processes that support integrations across traditional systems and modern cloud systems.

IDC's research shows that leading workload management software vendors are making public cloud support and big data and mobile applications top priorities for their solutions. Graphical, web-based, and self-service GUIs that can be easily used by business analysts as well as API-based integration options for developers are being introduced. Market leaders are also listening to their customers and responding to requests to reduce downtime and to simplify and streamline the process of buying and upgrading workload management software implementations.

Benefits of Modernizing Workload Management Automation Investments

For most enterprises that currently rely on workload management automation to enable critical process flows, file transfers, and data migrations, it is critical that they extend and modernize these capabilities to support multicloud environments. Existing mission-critical applications are likely to continue to play vital roles in the end-to-end delivery of many existing and emerging 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 automation serves 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.

Organizations that invest in modern workload automation technologies typically expect that:

- The volume of transaction and data transfers that need to be supported will continue to increase as new applications are introduced using DevOps, Big Data, and modern development platforms.

- Operators will become more efficient and reduce errors with deeper, real-time visibility into the status of process flows, compliance, and workload performance.

- Support for cloud and emerging infrastructure platforms will allow organizations to scale faster and use computing and storage resources more effectively while optimizing the cost of infrastructure and computing across on-premises and public cloud platforms.

- Simplified administrative tools and dashboards will be needed to enable more seamless integration of workload management automation across complex process flows and support developer and LOB analyst self-service.
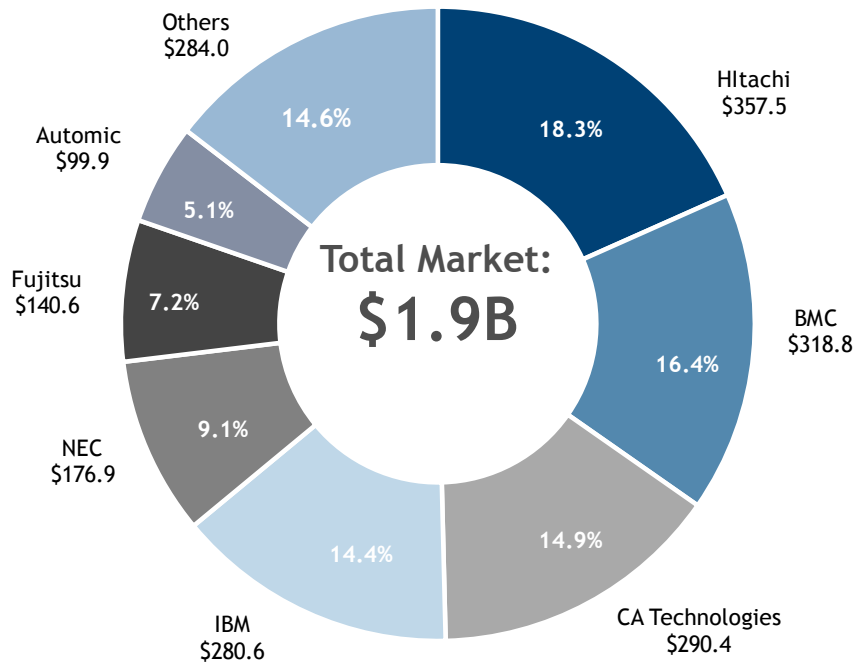
As IT systems become more business centric and more reliant on hybrid IT and multicloud architectures, digital business objectives will demand much faster deployment and processing with little to no downtime or delay. Workload management automation will provide critical support for modern, agile applications and services that need to handle the management, transfer, and transformation of large data sets and files.

Considering Hitachi JP1

Hitachi's flagship workload management solution is JP1. The 11th version of JP1, which was released in January 2016, includes a number of important updates and new capabilities designed specifically to support digital business programs and multicloud architectures. Hitachi was the top-ranked vendor by revenue in IDC's *Worldwide Workload Management Software Market Shares, 2015: Year of Simplification and Self-Service*, published in June 2016 (see Figure 1).

FIGURE 1

Worldwide Workload Management Software 2015 Share Snapshot
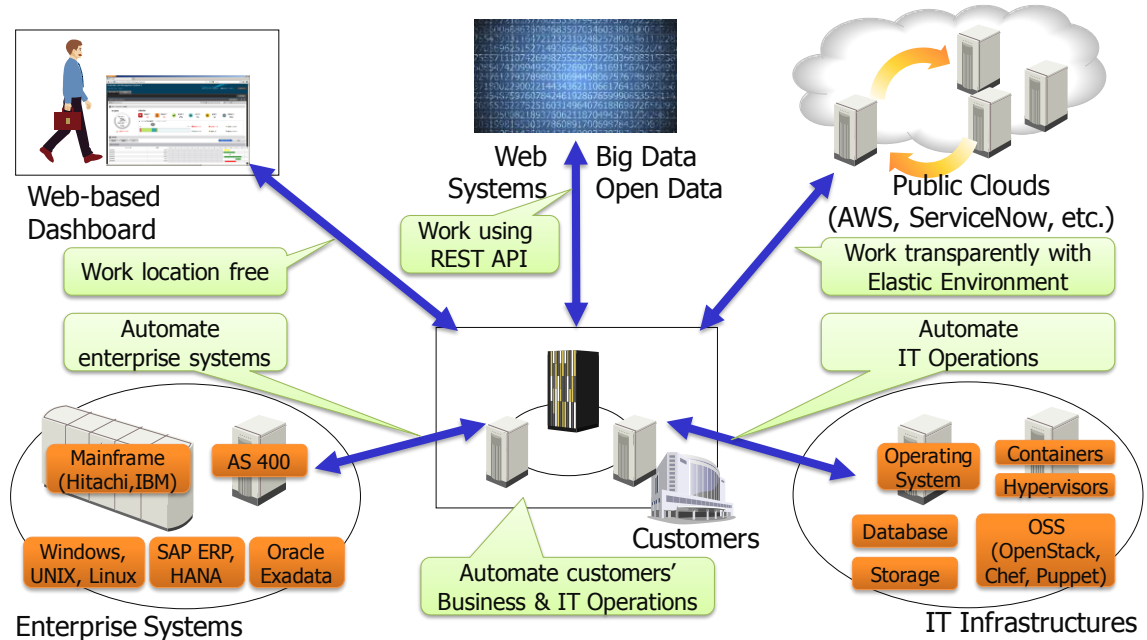

Note: 2015 share (%) and revenue ($M)

Source: IDC, 2016

As shown in Figure 2, JP1 offers customers a comprehensive approach to workload and IT operations automation. The JP1/Automatic Job Management System 3 (JP1/AJS3) product provides on-premises, hybrid, and public cloud–enabled Workload Automation while the JP1/Automatic Operation product (JP1/AO) enables IT operations automation using template-based service models to define system-level configurations and streamline integrations with IT operations workflows. From integrations with compute and storage IT infrastructure to modern and legacy enterprise applications to big data platforms and public cloud services, JP1 allows customers to define, orchestrate, and monitor complex business process workflows and data transfers.

Together with the core JP1 product, JP1/AJS3 and JP1/AO enable integrated, 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 also able to use JP1 to deploy and automate workload performance on a number of public clouds (Hitachi Cloud, Amazon Web Services [AWS], Microsoft Azure, etc.) and now have the option to use JP1 in a "pay per use" SaaS model available on Hitachi Cloud and AWS, as well as the clouds of Hitachi's partners.

FIGURE 2

Hitachi JP1 Automation Vision

Source: Hitachi, 2016

JP1 V11 features a number of updates designed to enable more efficient management of mission-critical workloads in today's hybrid, multicloud environments. Hitachi has strengthened integrations between JP1/AJS3 and JP1/AO to support on-premises, hybrid cloud, and public cloud-enabled environments across business systems and infrastructure and introduced new API capabilities and pricing models.

One of the most important new capabilities introduced in V11 is a REST API for the core JP1 platform. It provides extended visibility and integration beyond the SOAP-based interface that was previously available. The new REST API enables JP1 to better integrate with cloud and allows JP1/AJS3 to call public clouds and other third-party web services.

The REST API supports routine functions such as the execution of jobnets, execution status monitoring, and execution schedule retrieval. It also enables support for public cloud autoscale functions such as AWS Elastic Load Balancing and support for multiregion public cloud architectures. The API supports Python, Ruby, and other modern scripting languages to enable developers to more easily embed workload automation into code during development.

Also introduced in V11 was a web-based GUI dashboard including encrypted SSL connections between the View, Manager, and Agent components to improve security and remove the need for a VPN. New web dashboards can be customized for different roles, including developers and business analytics, and enable users to work from anywhere.

Other V11 updates include:

- Tools that enable customers to more easily develop and deploy customized content packs across multiple platforms

- Introduction of a cloud computing licensing model that enables more flexible support for workloads

- Simplified total system analysis with easy automation and expanded scope

- Enhanced security for hybrid cloud environments using SSL; no need for a VPN

V11 also includes improved JP1/AO scalability and new content packs for configuration automation solutions such as Puppet and Chef. JP1/AO customers can use the provided content or create their own content to easily automate IT operations and to connect to servers or network devices without using agents. Hitachi also improved JP1/AO scalability and updated the GUI to make it easier to create, test, and debug service templates. New abilities to more quickly, detect, visualize, and remediate the root cause of infrastructure configuration problems were also announced.

Hitachi continues to work with an extensive and growing set of partners to increase JP1 integrations and coverage. An important example of the success of these efforts is the July 2016 announcement of JP1/AO integrations with ServiceNow. The newly released joint solutions, which are the initial outcome of this collaboration, are integration of ServiceNow's service support capability and JP1's event management capability and integration of ServiceNow's service request management capability and JP1/AO. These solutions are particularly helpful for customers running mission-critical systems that want to use the ServiceNow cloud-based system to manage day-to-day support services. Specifically, the ServiceNow Service Catalog is able to fully integrate with a customer's on-premises JP1/AO implementation to automate end-to-end service delivery.

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 in and extend JP1, it will be well positioned to succeed as this market continues to evolve.

Conclusion

The workload management industry has moved well beyond the limits of traditional calendar-based scheduling systems. Today, leading solutions feature support for event- and policy-driven workload automation, resource scaling, autorecovery, and enterprisewide federation of data and process flows — across public and private clouds as well as traditional physical and virtual systems.

As applications and services become more digitized, mobile, and interactive, the complexity of everyday transactions, workflows, and application architectures continues to escalate. A single online purchase may invoke queries, transactions, and data exchanges across a dozen or more legacy and modern systems. Scalable and flexible workload automation solutions are critical to the success of these emerging applications.

IDC expects workload management solutions will continue to play an important role in supporting large-scale, data-intensive workload automation requirements across organizations that need to manage the import, normalization, and merger of data sets from a wide variety of sources and formats as well as among customers that need to automate complex business processes across established applications and databases. Workload management software vendors that continue to invest in improving data collection, sequencing, analysis, cloud support, API integrations, and real-time reporting will continue to find customer interest.