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IT & DATA MANAGEMENT RESEARCH,
INDUSTRY ANALYSIS & CONSULTING

EMA Radar Report for Workload Automation Q4 2021

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By Dan Twing, President and COO

Table of Contents

Introduction

Workload automation in 2021 reflects an even greater push to expand the category beyond traditional scheduling, toward full automation orchestration. The consolidation that occurred over the past four years slowed a bit, but is warming up again because Turn River Capital has invested in both Advanced Systems Concepts, Inc. and Redwood Software, with possibly more to come. This class of software is becoming more important to the future of digital transformation and automation. These trends have been developing over the last five or six years, but are now becoming more broadly accepted as a key part of the future of IT management. While most of the products reviewed for this report have seen many feature enhancements over the past two years, the category as a whole saw fewer new features across the category than the period from 2017 to 2019. Rather, the bulk of the changes from 2019 to 2021 were more about strengthening the features required to address the four biggest trends affecting this segment than net new capabilities. The four biggest trends affecting WLA are reviewed below.

All in on cloud for traditional production work – After conducting over 30 user interviews for this report, one thing became clear: sometime during 2020 (maybe pushed over the top by the pandemic), many large European financial organizations in banking and insurance decided to go all in on cloud. Many "born in the cloud" products have amazed us and provided new ways to engage IT systems, but much of the traditional IT work has remained on traditional on-premises systems. Over the past five years, there has been a slowly increasing drive to move traditional production work to the cloud, not so much en masse, but strategically, as redesign or other major physical or technical moves warranted moving certain compute work to the cloud. Now, several large European financial institutions that were interviewed for the 2019 report, then again for this report in 2021, have reflected a major shift in their IT infrastructure plans. In 2019, the story was one of not much cloud in use, a few things here and there, mostly bolt-on digitalization-type products. The core production work was still on-premises, with a fair amount on mainframes. In 2021, the same four European financial institutions were months into executing 5-7-year plans to move everything to the cloud. Some went so far as to say SaaS is the default when available, PaaS is the default, and IaaS is the last resort. The goal is to have an empty data center when finished. Most realize some things might remain, but the shift is significant from the thinking just two years ago. While not as pronounced, other regions and other industries are following a similar path to the cloud. For many organizations, the need for more cloud capabilities drives the spark to switch to a new WLA software, and many of the products have stepped up cloud support in response. EMA expects this trend to continue.

Containers go mainstream – Hand in hand with going to the cloud is going to the cloud in the form of containerized applications. While virtualization improved the utilization of on-premises hardware and unlocked cloud computing, virtualization did not foster a massive or urgent move to the cloud. Containerization, along with the maturing of surrounding management tools like Kubernetes, has contributed to a major re-architecting of many traditional production systems. The result is a new production environment that naturally fits well in the cloud. EMA believes that the popularity and benefits of containerization are key to the recent rise in moving legacy production work to the cloud. WLA software has a big role to play in managing those workloads in their new cloud environments. WLA software has matured its cloud capabilities right along with the maturing of the cloud. Many WLA software vendors have created a containerized version of their core software and agent software, and integrated the management tools for container management so they are fully capable of scheduling, monitoring, and managing containerized workloads. Like the need for better cloud capabilities and container capabilities, including deploying the WLA software itself in a container, is also driving some to consider a different WLA solution.

Integration with anything and everything – One of the biggest areas of new capabilities across many of the products is integration with other applications and systems. This includes many new connectors officially created and supported by the vendors, enhanced API capabilities for full console features, self-service forms of defining connectors, and communities for users to share their creations with others. This is not a new trend, but one that has seen a significant increase in importance and activity in the past two years. Once an organization comes to the vision of a broader use for WLA capabilities, they want to connect to everything. The product teams have anticipated this and have been laying the groundwork for years.

SaaS WLA options abound – With enterprise organizations moving more traditional IT work to the cloud, it should be no surprise that WLA tools are moving to the cloud as well. Twelve of the eighteen vendors in this report have SaaS options, are close to announcing SaaS, or have done much of the work to web-enable the entire application, but are waiting for more client demand before launching SaaS. There are some interesting SaaS models emerging. Some follow a more traditional SaaS offering, while several others have decided to offer SaaS with the choice of cloud provider. Those offering SaaS with a choice of cloud provider are able to stand up and support each client as multi-instance in the public cloud they choose. Those following this model tend to support AWS, Azure, and Google Cloud. This model means most everything is multi-instance, but it is priced and supported as SaaS. Regardless of the form, there are now many options to have the benefit of a world-class workload automation suite without running it on-premises.

Given the trends observed, EMA made changes to the WLA Radar evaluation model and weighting of capabilities to effectively measure vendors that support the important legacy capabilities of WLA, as well as moving their products and this market toward the future of broader automation. These changes are highlighted in Appendix A, which includes details behind all the metrics used in this analysis.

Research Methodology

The major challenge of this type of market evaluation is to avoid creating a simple feature comparison. EMA is aware that in order to be valuable for the end customer, any analyst report must thoroughly research and consider the client's perspective. Since enterprise IT is generally focused on solving actual customer challenges, each software feature is only relevant to this report if it solves a specific and important business problem.

To remain entirely objective, EMA based this Radar Report on a comprehensive survey with over 600 data points that can, for the most part, be measured unambiguously. All vendor survey questions were founded on customer feedback and vendor responses; they were thoroughly verified by a sequence of product demonstrations and end-customer interviews.

EMA acknowledges that in WLA, as well as in most other arenas of enterprise IT, there is no one best solution for every customer. Therefore, EMA evaluated each product along five dimensions:

- Functionality
- Architecture & Integration
- Deployment & Administration
- Cost
- Vendor Strength

Based on these five dimensions, a potential client might select a solution that is only rated as "average" in terms of functionality, but is easily deployed, requires minimal maintenance, and costs significantly less than some of the functionality leaders. Others may focus on key features and look for a product that balances advanced capabilities with cost and administrative effort.

EMA's guidance along these five dimensions will enable potential clients to determine which solutions warrant a closer look. This determination can mean narrowing down the field to only three vendors, or it may cause an organization to include lower cost alternatives into its RFP process. This report will have achieved its purpose if EMA has provided potential WLA customers with the background knowledge and guidance necessary to confidently make this preselection decision.

Research for the Q4 2021 WLA Radar Report took place starting in Q2 2021. For details on the requirements used to evaluate the participating vendors, and details on the changes to the measurement criteria from the 2019 report, please refer to Appendix A.

Vendors Included in This Report

Evaluation Criteria

Each product feature was required to fulfill the following three criteria in order to be credited with a specific element or capability.

- **General availability:** The features needed to be generally available in the solution set at the time of the evaluation. Features that were in beta testing or were scheduled to be included in later releases of the management suite were not eligible for consideration. The cutoff date was July 31, 2021.
- **Included in cost:** All features in the evaluation also had to be priced into the total product cost. In order to evaluate the total cost for each product, EMA provided each vendor with four hypothetical customer scenarios to evaluate comparable list pricing.
- **Documentation:** All reported features had to be clearly documented for verification in publicly-available resources, such as user manuals or technical papers.

EMA Workload Automation Radar Results

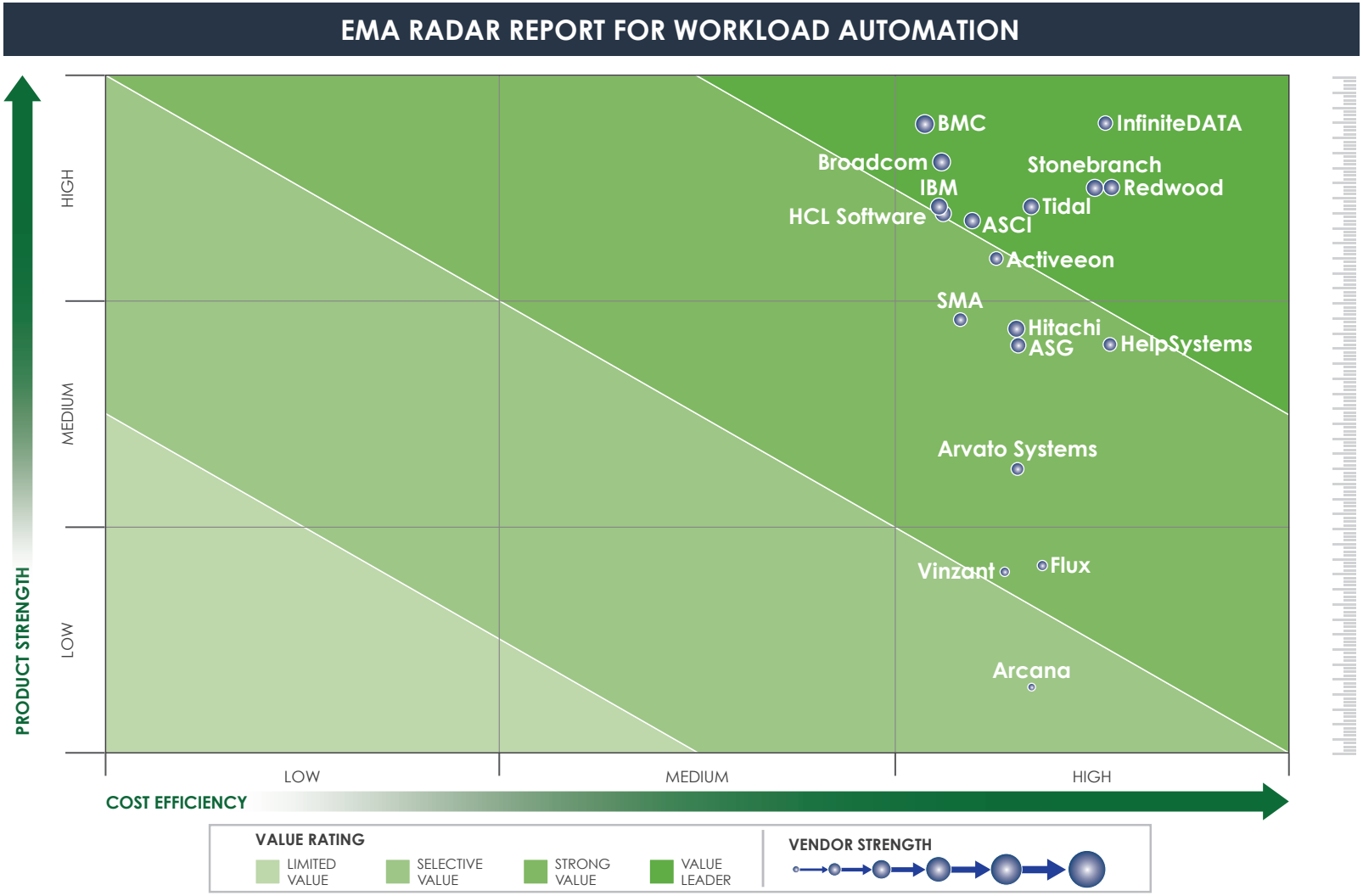
The total product value is defined by comparing the overall product strength of each WLA solution (y-axis) with its cost efficiency (x-axis). Product Strength combines evaluation scores for Functionality and Architecture & Integration. Cost Efficiency is calculated from the scores achieved from the Cost Advantage and Deployment & Administration categories. The size of each vendor's bubble indicates the vendor's strength as identified in its individual review.

Key Changes Compared to the 2019 WLA Radar Report

Comparing the 2021 chart with the chart compiled in 2019, EMA makes the following observations:

- EMA included an additional vendor, Activeeon, with their ProActive Workflows & Scheduling and Machine Learning products.
- Tidal Software was the biggest mover and is now a value leader.
- Flux, HelpSystems, and Vinzant did not actively participate in the 2021 analysis. Scoring was done by adjusting the information provided in 2019 with publicly available information, such as documentation, release notes, and blogs.

WLA Radar 2021



ASCI: ASCI ActiveBatch is once again a Value Leader. The product's Integrated Jobs Library offers hundreds of prebuilt job steps, and the Service Library extends this power with strong API accessibility. ActiveBatch recently introduced a new REST API, added performance improvements for Microsoft SQL Server and Service Broker, and enhanced the FTP Event Trigger. New security features include multifactor authentication for the ActiveBatch Console, Web Console, Self-Service Portal and Mobile Operations (mobile application), and an out-of-the-box integration with CyberArk that allows workflows to dynamically retrieve credentials at runtime, simplifying credential management for workflows. To EMA, the standout feature is still the automated provisioning and deprovisioning of virtual and cloud-based resources, based on historical and predictive analytics. This includes Heuristic Queue Allocation to add machine learning to enhance the performance of machine resources. ActiveBatch V12 also includes dynamic, user-defined queue characteristics, which can allow developers to configure workflows to monitor Queue Characteristics at runtime and select the Execution Queue best suited for the job. ASCI has also stepped up their services with ActiveBatch Academy, an online training portal, and a user certification program. ActiveBatch is a great choice to manage a diverse IT landscape across workload automation, business process automation, IT process automation, file movements, and big data.

BMC: Control-M from BMC is once again a Value Leader and the overall highest-scoring product in this year's WLA Radar Report. Control-M and BMC Helix Control-M simplify application and data workflow orchestration, making it easier to define, schedule, manage, and monitor application workflows, ensuring visibility and reliability, and improving SLAs. Since the 2019 EMA Radar Report, BMC continues to improve an already strong product. The most significant change is the addition of Helix Control-M, a SaaS version operated by BMC on AWS (Amazon Web Services). BMC added support for several new operating systems and databases, improved the managed file transfer (MFT) capabilities, added role-based administration and centralized connection profiles, and significantly enhanced Control-M's web client. BMC also enhanced their automation API to include SLA management as code, calendar management as code, and other enhancements. Control-M is an outstanding choice for organizations that intend to give WLA its rightful place as a data center and development discipline with significant business impact.

Broadcom: Broadcom Software's Automic Automation is once again a Value Leader. Automic Automation remains the strategic WLA product for Broadcom. While Broadcom Software continues to enhance and support their entire portfolio of automation products, Automic Automation v12.3 is the only Broadcom Software WLA product reviewed in this report. Automic Automation provides automation for complex workloads across platforms, ERP systems, and business apps from mainframe to microservices and serverless in both cloud and on-premises. Automic Automation provides self-service automation with service catalog integrations (e.g., ServiceNow) and automation as code facilities for automation and orchestration. The product also simplifies automation for big data and offers self-services for data scientists to scale, with strong governance on data flows.

HCL: HCL Automation Power Suite makes its debut in the EMA WLA Radar Report as a Value Leader. The Workload Automation part of this suite came to HCL when they partnered with IBM to take over the development of the IBM Workload Scheduler in 2016, so there is significant history and maturity with the core scheduling software. Automation Power Suite is the bundle offering comprising of HCL Workload Automation, HCL Clara, and HCL HERO. HCL Workload Automation is an automation platform that integrates IT, operational, and business workflows to orchestrate the execution of processes built to operate in hybrid environments. It allows organizations to plan, synchronize, execute, optimize, and control workloads of any type across multiple platforms from a single point of access. With Automation Power Suite, customers can automate anything, run anywhere, and build an enterprise automation platform.

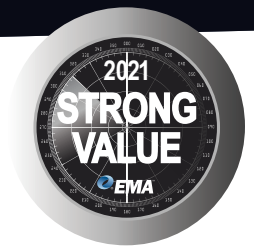
IBM: IBM Workload Automation (IWA) is once again a Value Leader. IWA is one of the most sophisticated WLA products for both deploying in containers and orchestrating containerized workloads. IBM has integrated IWA into the IBM ecosystem, and IWA logs, metrics, and traces are easily analyzed with Instana. Workload organization has also been further enhanced to allow user groups to manage only their relevant workloads. Observability also increased based on the OpenMetrics standard and is monitored by Prometheus, and made available in preconfigured Grafana dashboards. Mainframe capabilities were also enhanced with an improved user experience, faster problem determination, cost control features, and an improved development experience. IBM partners with HCL for the development of IWA. IBM brings their ecosystem of companion products and the IBM cloud ecosystem, which differentiates the product from the HCL offering.

InfiniteDATA: InfiniteDATA is once again a Value Leader. InfiniteDATA's AutomateNOW! workload automation suite is an enterprise workload scheduling and automation system with a focus on data processing and information delivery. This is a third-generation product from InfiniteDATA and it brings an already modern architecture to a full microservices deployment model. It includes a fully web-based interface, a simple One-Click-Away navigation concept, and a single license for all features, including managed file transfer, SLA monitoring, and 300 out-of-the-box integrations. Advanced features include contextual intelligence, reusable components, and dynamic workflows to create fewer, more powerful job definitions. InfiniteDATA continues to impress with their clean architectural design and development speed. InfiniteDATA has a big and broad vision for enterprise automation and is driving hard to deliver that vision to enterprises.

Redwood: Redwood Software is once again a Value Leader. Redwood's RunMyJobs (RMJ) solution was built to be offered as software as a service (SaaS), and is also available for on-premises installation. EMA believes RMJ to be the best WLA SaaS offering available because it is the only one purpose-built for that delivery model. It features a simple interface and an extremely flexible operational model that enables IT and business stakeholders to share a single point of visibility and control. With SaaS delivery, updates are automatic and remote administration is secure. Minimal effort is required to expand the size and scope of process automation. The RunMyJobs solution features an extremely flexible pricing model that includes all available functionality and unlimited connectors and control, with pricing based on the volume of process executions. This approach gives administrators the freedom to add and remove connections or install platform agents on as many operating systems as they need, without worrying about licensing implications. RMJ is a highly featured workload automation solution for both traditional and containerized workloads.

Stonebranch: Stonebranch is once again a Value Leader. Stonebranch's Universal Automation Center (UAC) is comprised of the Universal Controller (UC), Universal Agent (UA), Universal Data Mover (UDM), and Universal Data Mover Gateway (UDMG). Stonebranch's software is simple, modern, and secure. Using its universal workload automation software, enterprises can seamlessly orchestrate workloads and data across technology stacks and ecosystems. Stonebranch delivers an entirely web-based application for managing and monitoring workloads and processes in real time based on events within the modern enterprise. Their workload automation engine is available either as a service (WLAaaS) or on-premises. Stonebranch's agent technology is vendor-agnostic due to its ability to work with any other scheduling engine on the market. In addition to being universal, these agents run on any platform or application, on a mainframe, or a distributed or cloud environment. The agent also includes native managed file transfer functionality. Stonebranch has enhanced the product significantly since 2019, including new self-service features, DevOps Lifecycle Management, and Red Hat OpenShift Certifications. Utilizing UAC's Universal Integration Platform strategy, over 40 new published integrations for data pipelines, cloud operations, and DevOps have been created.

Tidal: Tidal Software is a Value Leader in the 2021 EMA WLA Radar Report. After almost four years under new ownership, the Tidal product team has been very busy building out their vision for the modern automation orchestration market. The latest release of the Tidal Automation™ platform (6.5.8 reviewed for this report) delivers a modernized, and in some areas truly innovative, WLA product. Tidal has added significant improvements in dashboards and graphical views, enhancements to SLA management, and new integrations including broader cloud and container support, multi-domain authentication, and other security enhancements. Tidal Software LLC is a business of the Dillon Kane Group. Dillon Kane Group acquired Tidal Workload Automation from Cisco in November 2017. Tidal has delivered on the promise to accelerate development on an ambitious product roadmap while maintaining great customer focus.



Activeeon: Activeeon makes their debut in the EMA Radar Report as Strong Value. EMA first examined Activeeon just after the 2019 report was published, or Activeeon would have been included in the 2019 report. Activeeon's ProActive software provides innovative open-source solutions for IT automation, acceleration and scalability, big data, AI/machine learning, distributed computing, and application orchestration. Activeeon helps companies automate their business and accelerate their go-to-market activities to get competitive advantage through workload automation. Activeeon started in 2007 from the R&D department of the largest European IT research center, launching a well-rounded solution that competes well with the established incumbent market. Activeeon has a determined vision of freeing IT staff from repetitive operational tasks and simplifying their work by abstracting the complexity of automating tasks across hybrid environments.

Arvato Systems: Arvato Systems' streamworks is once again Strong Value. The streamworks platform is based on more than 30 years of data center operations experience wrapped up in a very modern architecture. streamworks stands out for being developed and operated by a data center services company. They were using it before they were selling it to others. All the support personnel actually work on the product in operations roles. streamworks bridges the gaps in new bimodal, hybrid IT environments by offering generic interfaces via REST and message queues and workload analytics, and by supporting continuous delivery processes. Arvato continues to mature streamworks with enhancements supporting cloud-based jobs, increased support for containerized workloads, and other important improvements.

ASG: ASG's Zena and the new ASG-Enterprise Orchestrator were evaluated together for this report. ASG is once again Strong Value. ASG's multi-platform workload automation and DevOps value stream management solutions enable enterprises to automate and orchestrate end-to-end development and operational processes across technology stacks—from mainframe to cloud—and achieve high success rates, reducing costs and bottlenecks that impact business and customers. The multi-platform enterprise workload automation solution, ASG-Zena, enables operations teams to design, visualize, and automate IT processes and tasks to optimize operational business flows, from mainframe to cloud. ASG's DevOps value stream management platform, ASG-Enterprise Orchestrator, is a superset of ASG-Zena and integrates with best-of-breed DevOps and CI/CD solutions. ASG-Enterprise Orchestrator enables I&O and DevOps teams to visualize, orchestrate, and automate value streams, then manage the higher volume of operational value stream instances.

Flux: Flux offers a lightweight, fully Java-based cross-platform workload automation solution that focuses on managed file transfer. Flux does not directly compete with traditional workload automation vendors, but should be seen as a unique tool for advanced managed file transfer that includes considerable workload automation capabilities. Flux provides an easy-to-deploy and easy-to-use central console with an intuitive workflow designer and script-free automation. Developers are provided with rich, customizable features and a lightweight footprint that can be embedded in business applications. Flux provides complete orchestration of managed file transfers within the solution. With visibility and tracking throughout the process, Flux reduces errors with drag-and-drop visual workflows and offers responsive, built-in automatic error handling mechanisms to orchestrate flows in a secure manner to improve compliance and security. Flux was founded in 2000 in Las Vegas, Nevada. Flux clients praise the company's customer service and the simplicity of the product.

HelpSystems: HelpSystems is Strong Value in this year's WLA Radar Report. HelpSystems offers three secure, centralized enterprise workload automation solutions to run, manage, and monitor critical batch processes. This suite of mature solutions supports jobs and workflows on all major platforms and applications, and can be integrated with or embedded on Windows, Linux, and IBM i. HelpSystems' solutions unify job scheduling and workload automation across the entire IT infrastructure. Batch processes that typically consume a costly mix of resources to run across separate environments can be managed from a single command center. Centralized job management minimizes operational costs associated with keeping critical batch processes running efficiently. The cross-platform capabilities of HelpSystems' workload automation solutions enable organizations to extract maximum value from IT investments by creating business-focused workflows that span multiple platforms and applications, both on-premises and in the cloud.

Hitachi, Ltd.: Hitachi Job Management Partner 1 (JP1) is once again Strong Value. JP1 products provide intelligent monitoring, intelligent automation, and intelligent governance to meet IT operations management needs. JP1/AJS3 is the most deployed WLA product globally. This is a trusted product for many IT organizations. Hitachi has been increasing their focus on modernization in several important areas, including an expanded REST API, increased multi-cloud support, and web-based dashboards. Public cloud support has also been expanded with the addition of Google Cloud and direct integration with cloud-native features, like AWS Step Functions and S3. Security has also been enhanced to include role-based access to support user types beyond the core scheduling team.

SMA Software: SMA Technologies' OpCon is a cross-platform, event-driven workload automation and digital automation platform. OpCon contains automation modules, including OpCon Deploy for change management and DevOps support, OpCon Vision for a high-level overview dashboard with SLA monitoring and automated corrective actions, and OpCon Self-Service so non-IT end users can see a simplified view of workloads important to them and monitor and trigger automated processes. OpCon includes lifecycle management, disaster recovery, and high-availability features. OpCon supports all major operating systems, as well as virtualized and cloud environments. Integrated file transfer support and file parsing allow files to be searched with specified information stored in variables. File information can be totaled, compared among files, and used for downstream processing. OpCon's graphical workflow designer allows all workflow properties to be set from a single point.

Vinzant Software: Vinzant's Global ECS provides graphical scheduling, automation, and control of complex job streams for multiple platforms in a heterogeneous, distributed production environment. It supports native agents for a wide range of distributed systems that can be managed from a single point, using either a Windows- or browser-based client. Global ECS includes user-definable recovery actions that enable built-in job logic to allow the production flow to self-correct. It also includes flexible exception management that allows for multiple methods of notification. Global ECS offers a simple deployment, with intuitive clients and a rich self-service capability via the web client. Users enjoy real-time interaction and management of live production queues, along with highly customizable real-time job and batch views. Vinzant Software was founded in 1987 in Hobart, Indiana, and is privately held. Vinzant did not provide updated information for this analysis. A review of publicly available information was used to update the 2019 WLA Radar Report data provided by Vinzant.

Arcana Development LLC

Arcana: Arcana adTempus is a job scheduling and process automation tool for Windows platforms, offering a wide range of features at a modest price. adTempus is easy to install, configure, and use, without the need for training classes. Jobs are constructed from various components (triggers, tasks, conditions, schedules, etc.) using property sheets and other GUI elements. adTempus can run any program, script, or batch file and has native support for tasks, such as file transfer, email processing, and database operations. Scripts can be used within adTempus to extend its capabilities, such as adding special condition checks or dynamically constructing command-line parameters for tasks. Jobs can be triggered based on schedules, file monitoring, email messages, event log events, WMI events, external process states, or through an API or command-line tools. Job or step execution can be made conditional on files, external processes, or other jobs, or scripts can be used to implement custom conditions. adTempus has a full-featured security model that integrates with Active Directory. Permissions are assigned to users and groups to determine which users have access to which jobs within adTempus, and what level of access they have (e.g., read only, modify, execute). Every job runs under a user's account, so system security is not compromised by allowing non-administrative users to schedule jobs. adTempus can be used on standalone servers or workstations and has "distributed scheduling" features that can be used to manage jobs on a central server and execute them on additional agent computers. In this configuration, it also supports job mirroring and load balancing. adTempus exposes a full API through .NET, allowing developers to automate job creation or integrate their applications with adTempus. adTempus is ideal for ISVs who need to include a robust scheduling engine as part of their solution.

Special Awards

Activeeon: Best MLOps Implementation

Activeeon's ProActive Machine Learning enables users to design machine learning workflows in an open studio. Designers can drag and drop prebuilt customizable tasks that enable automation within the machine learning lifecycle. MLOps is DevOps for machine learning, and automating the machine learning lifecycle helps data scientists and IT operations work better together. When establishing new machine learning algorithms, data must be identified and segregated into a training dataset and a testing dataset. The model is then tested and the results are visualized. When the model is ready, it is deployed in production. ML models must be monitored for data drift and improved and adjusted over time. As with any IT change management process, ML models are subject to continuous improvement efforts and new algorithms will be developed and implemented over time. WLA is key to managing data pipelines, and it is logical to incorporate MLOps into the WLA processes and automate the creation, monitoring, development, and change processes within the WLA framework. While many products in the WLA market have extensive data pipeline capabilities, many of which support MLOps activities, Activeeon is the first to create a design studio and an end-to-end MLOps lifecycle focus.

Advanced Systems Concepts, Inc.: Best Automation of Management

Advanced Systems Concepts, Inc. has the highest score in both Console Ease of Use and Automation of Management. This is a powerful combination. ActiveBatch includes a wide array of wizards on the console for creating jobs, job streams, dependencies, resource calendars, agent deployment, and more, including defining auto-remediation sequences. It is easy to define the workloads to be managed in ActiveBatch and to automate many resolution activities, including managing active jobs, schedules, server nodes, trigger events, user notifications, and more. There are also dynamic management capabilities for resources, priorities, and security. Fault-tolerant agents prevent problems from temporary loss of network connectivity or server availability. Automatic high availability of the central processing engine and administration panel are possible without third-party software. Users can also manually failover the central processing engine and administration panel. Alerts are also managed to prevent alert storms. Past history advises optimal dynamic alert thresholds, duplicate alerts are suppressed, and correlated alerts are aggregated. Alerts can be prioritized and there is a capability to predict future alerts. All of these features combine to make the job of defining and managing workloads easier, requiring fewer human resources to set up and stay on top of the problems that can arise in managing a WLA environment.

Hitachi: Most Installed WLA Product

Hitachi's JP1 is installed with over 20,000 customers, making it the most installed WLA product. Hitachi JP1 is very popular in Japan and the broader Asian market. JP1 has a long history of delivering effective operations and workload management automation, and is well-liked by customers. Its wide use is evidence of the value customers receive. EMA believes that part of the reason Hitachi has attracted and retained so many customers is their guarantee of a minimum of ten years of support for each product version, with backward compatibility for three prior generations. This purposeful stability allows organizations to rationally plan for upgrades and confidently build integrations with a known lifecycle. In combination with Certified JP1 support personnel to help build systems based on requirements, customers can make investments in a product and a company they can count on for an extended timeframe.

Redwood Software: Best SaaS WLA Solution

Redwood's RunMyJobs® workload automation (WLA) was purpose-built to be software as a service (SasS), and Redwood has the most clients running on SaaS. Redwood's SaaS delivery model takes advantage of public cloud. The consumption-based pricing allows customers to transition by following a systematic, cost-effective, planned, and phased migration process. Organizations are spared the need to add hardware to run two systems in parallel. Redwood's Migration Factory brings best practices and experienced professional services to help make the transition happen quickly and with the least disruption. Redwood has used their own automation software to automate the SaaS operations and keep costs low. RunMyJobs is also available for on-premises use. Redwood uses the same consumption-based pricing whether used on-premises or as SaaS. The SaaS deployment has an unusually low acquisition cost, with no additional infrastructure or management required. There are no costs for operating system maintenance, database maintenance, or downtime from upgrades, fixes, and patches. Since it's built from the ground up for the cloud, it's easy to use RunMyJobs to integrate applications seamlessly into next-generation operating models while covering transitional needs today. It connects directly with analytics tools and platforms, such as ServiceNow, to reduce the total cost of management.

Tidal: Most Enhanced WLA 2019-2021

When Tidal Software acquired Tidal Automation™ platform from Cisco in 2017, the product was Strong Value in this report, but lagging behind much of the market on modern features and capabilities. Tidal Software went to work with their CustomerFIRST™ program, which spans three initiatives designed to increase the strategic value and impact of the Tidal platform. The first initiative saw hands-on collaboration with customers through 1:1 sessions, user groups, surveys, and frequent webinars. The second initiative saw expansion of technical support offerings. In addition to 24x7 direct access to support specialists, there are executive consultations, strategy reviews, dedicated account teams, and priority escalation. The third initiative saw ongoing improvements to core product capabilities available to customers without a cost increase. The product capabilities were expanded aggressively in the past four years. Tidal Automation platform is now in the Value Leader category in this report. The tremendous effort to modernize this product in just four years is a significant achievement, resulting in Tidal being the product with the biggest shift since the 2019 evaluation.

Future Outlook

The workload automation market continues its rebirth from a 40-year-old batch reporting job scheduler to a broad automation orchestrator. In 2019, EMA said, "Workload automation is morphing into much broader enterprise automation orchestration, and may eventually play a large role in bringing autonomic capabilities to IT management and business process orchestration." While this transformation is far from complete, significant progress in this direction is happening and will continue. The most impactful change resulting from this trend is the broadening user groups interacting with WLA software. The traditional 5-7-person team that took scheduling information in through ticketing software and did all the schedule setup and administration of the WLA tool is giving way to the more modern 5-7-person team that sets naming standards and best practices to a broad group of users of WLA tools. For some enterprises, WLA users count in the 500+ range.

First into the fold are developers who can define scheduling parameters for their applications in code form and submit it along with their code throughout the development lifecycle. Developers are also taking advantage of dashboards and other reporting. Service desk teams are interacting through integrations in which they can get notifications of issues and invoke remediation directly from ServiceNow, Slack, or Teams. Configuration management and backups are often automated through these same tools, with broader operations roles involved beyond the core scheduling team. Line of business managers and staff are also coming to interact with WLA tools by way of dashboards that may include some actions they can take to delay, run, or rerun jobs important to their line of business. The most progressive organizations are using WLA tools like an event trigger, time trigger, or file transfer utility behind new digitalization processes. With the right WLA tool, as much as 40% of the functionality required for new digitalization processes can be invoked via API, and the WLA software can handle many functions on behalf of developers, reducing the new code, testing, and other overhead of larger applications. The WLA software can become a trusted source for a host of automation functions and can provide predictable results that are self-documenting and/or tied into SLAs, notifications, reporting, role-based security, audit requirements, etc. This is the future of WLA software.

The broadening of the users interacting with WLA software and the heavy push to containerized cloud for nearly everything are foundational blocks to WLA truly breaking out into broad enterprise automation orchestration. As more and varied users within the enterprise benefit from the capabilities of WLA software, WLA tools are morphing into a core part of the fabric of enterprise IT beyond traditional job scheduling. This expanding role for WLA means a significant increase in the importance of these tools to enterprise IT. That increase in importance will result in increased use and increased revenues for the vendors in this market. The attractiveness of the growth in this space will surely bring more investment and more consolidation in the coming years.

Customer Perspectives

"Their commitment to innovation and R&D is impressive."

Overview

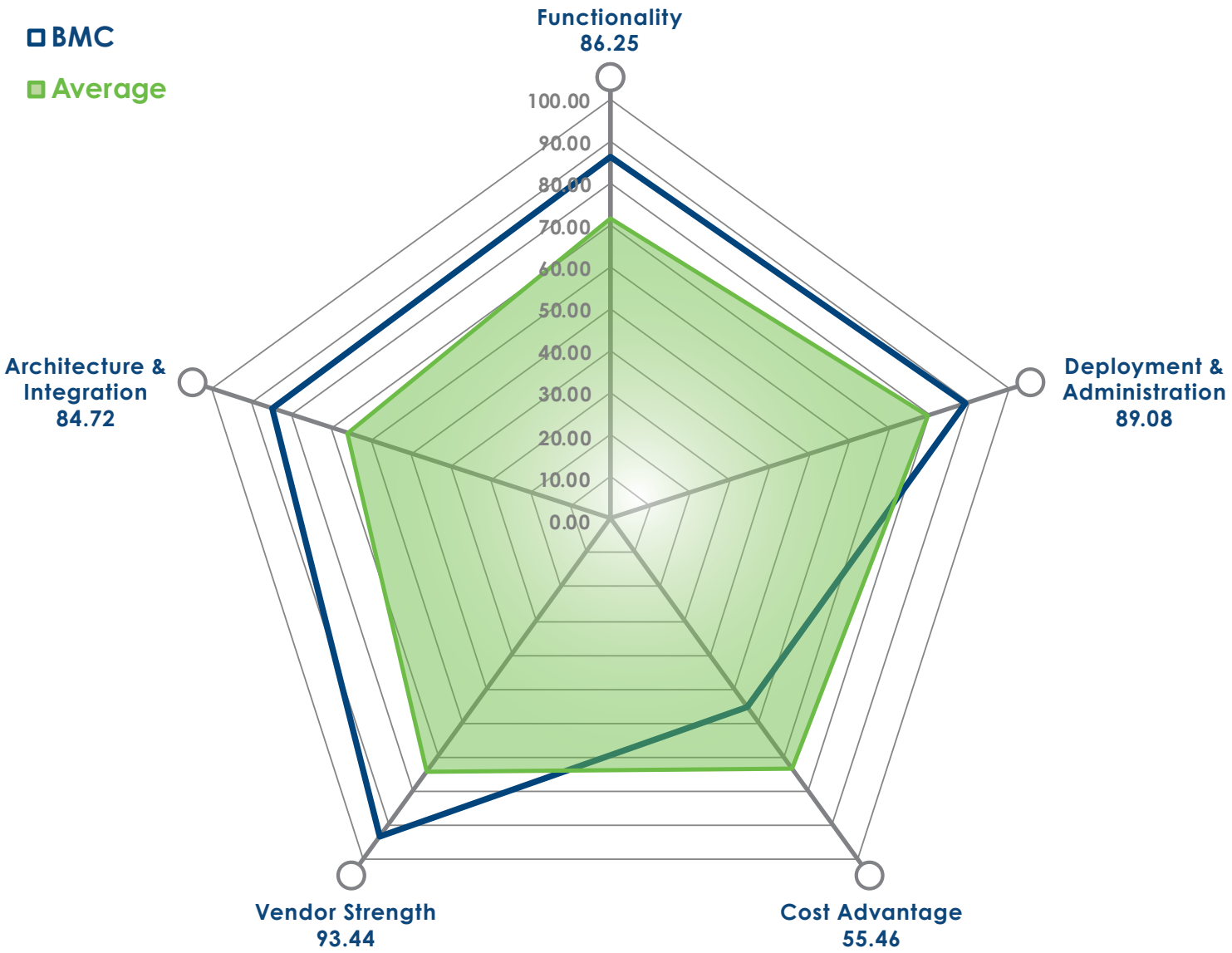
Control-M from BMC is once again a Value Leader and the overall highest-scoring product in this year's WLA Radar Report. Control-M and BMC Helix Control-M simplify application and data workflow orchestration, making it easier to define, schedule, manage, and monitor application workflows, ensuring visibility and reliability, and improving SLAs. Since the 2019 EMA Radar Report, BMC continues to improve an already strong product. The most significant change is the addition of Helix Control-M, a SaaS version operated by BMC on AWS (Amazon Web Services). BMC added support for several new operating systems and databases, improved the managed file transfer (MFT) capabilities, added role-based administration and centralized connection profiles, and significantly enhanced Control-M's web client. BMC also enhanced their automation API to include SLA management as code, calendar management as code, and other enhancements. Control-M is an outstanding choice for organizations that intend to give WLA its rightful place as a data center and development discipline with significant business impact.

Control-M and Helix Control-M integrate, automate, and orchestrate application workflows across on-premises, public, and private clouds. Users gain a single unified view to orchestrate workflows, including file transfers, applications, data sources, and infrastructure. Since

Control-M is easily provisioned in any cloud and Helix Control-M is built on AWS, both platforms leverage the ephemeral capabilities of cloud compute services.

By using a Jobs-as-Code approach with REST APIs and JSON within the CI/CD toolchain, workflows become versionable, testable, and maintainable so developers and DevOps engineers can work collaboratively. With Control-M Workbench, developers can unit-test their workflows before committing to a code repository. Users can simplify the creation, integration, and automation of data pipelines across on-premises and cloud technologies to ingest and process data from platforms including Hadoop, Spark, Amazon EMR, Snowflake, Amazon Redshift, and others. Control-M and Helix Control-M provide a single interface to create, monitor, and ensure delivery of files as part of your data pipeline. Application workflow orchestration meets operational standards and provides advanced operational capabilities easily consumed by dev, ops, and LOBs alike.

BMC is headquartered in Houston, Texas, and was founded in 1980. KKR acquired BMC from a group led by Bain Capital and Golden Gate Capital in 2018. Since going private, then changing hands to a new private equity firm, BMC enhanced its leadership ranks with many industry veterans. The current focus for Control-M and Helix Control-M centers around end-to-end orchestration across multiple clouds, simplifying and scaling data pipelines and supporting DevOps.


BMC
Average
Functionality
86.25
Deployment &
Administration
89.08
Cost Advantage
55.46
Vendor Strength
93.44
Architecture &
Integration
84.72
100.00
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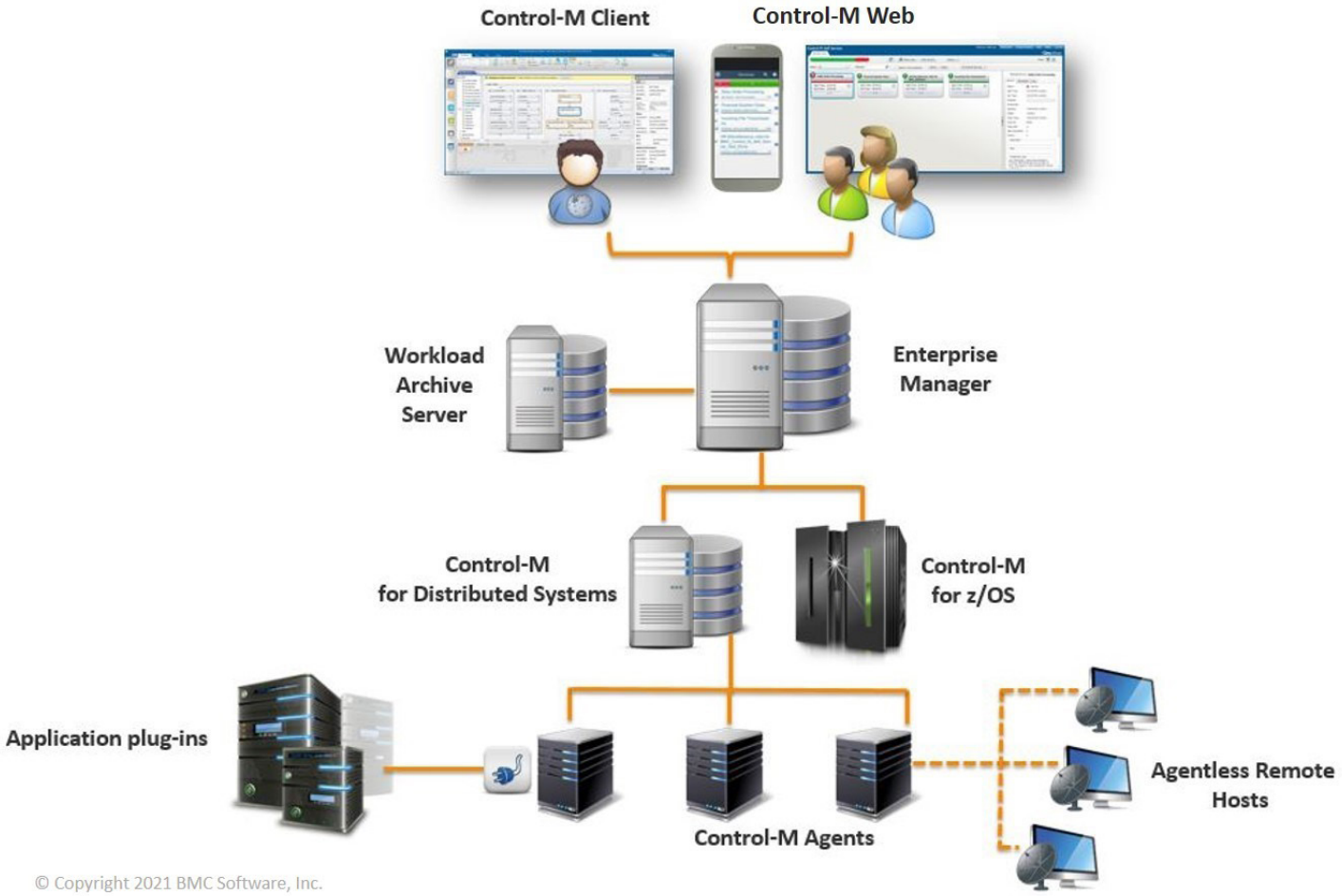
Architecture



Key Features Summary

Enterprise View

The enterprise view is an all-encompassing GUI that delivers a single, consistent method to automate scheduled workloads throughout the enterprise. This approach reduces training and provides end-to-end visibility, thus increasing the user's span of control and enabling them to manage any workload and file transfer without requiring domain-specific expertise.

Dynamic Workload Management

Organizations can process changes in the way most suitable to the business by establishing processing rules through workload policies. Policies align the execution of workloads with the company's operational cycle and manage workloads in accordance to the priority of the business functions they support. Policies also help companies make operational decisions using a rule-based approach that decreases dependency on organizational knowledge.

DevOps Collaboration and Jobs-as-Code

By adopting the Jobs-as-Code approach, solutions like Control-M Automation API and Workbench support application components in the SDLC. By allowing developers to build jobs in JSON format, Control-M and Helix Control-M provide the ability to embed job flows as a code artifact along with the rest of the application components. In addition, Control-M Workload Change Manager gives developers the ability to quickly build accurate workflows that adhere to automatically enforced enterprise-defined standards.

Managed File Transfer

Control-M and Helix Control-M provide extensive Managed File Transfer capabilities from a single user interface with application workflows. Unsuccessful file transfers can automatically be restarted from the point of failure, ensuring dependent workflows are completed on time. Managed File Transfer includes an operational dashboard with advanced search capabilities, and an automation conversion tool from competitive solutions to allow an organization to move quickly. Control-M ensures secure file transfers by leveraging multiple industry-standard encryption protocols, such as SSL and PGP.

Cloud Integration

The full stack of Control-M and Helix Control-M solutions can be provisioned in public cloud environments, such as AWS and Azure. On AWS, Control-M is available on the marketplace and on Azure, the Control-M agent is available through a VM extension. Control-M provides integration with BMC BladeLogic, VMware, and Amazon EC2. The support for all three technologies is implemented through direct embedding of native APIs that enable tight integration and bidirectional communication. Helix Control-M is operated by BMC on AWS.

Big Data

Control-M and Helix Control-M automate every aspect of the big data pipeline from a single point of control, from ingestion and data processing to presenting it to an analytics layer, removing reliance on multiple point solutions in various stages. They offer deep integration with the Hadoop ecosystem, including support for HDFS, Spark, MapReduce, DistCp, Pig, Hive, Sqoop, Tajo, Oozie, etc.

Conversion Tools

Control-M includes wizard-based tools that take users through a sequence of steps that, within minutes, results in Control-M job flows. The starting point is scheduling information exported from other scheduling tools. The conversion tools import and analyze the data, producing a report with any errors or anomalies that were discovered, along with an assessment of the anticipated conversion quality. The tools can then convert the data and produce Control-M job definition XML documents. The XML is loaded directly into Control-M, where the job streams can be viewed, forecasted, and analyzed.

Governance, Auditing, and Compliance

Comprehensive enterprise auditing and reporting can be enabled for selected categories. Every event is collected, including job definition actions, operational actions, manipulation of user definitions and privileges or permissions, and user login, logout, and password management activities. Calendar and job definition changes capture all changed data, so reports can indicate exactly what was changed and version management can be used to rollback or restore previous versions.

Annual Release Characteristics

BMC is now delivering new releases of Control-M on a regular basis, allowing customers to better prepare for future Control-M upgrades as the dates of future releases are known and predictable. Control-M can now be upgraded in place, right on top of the existing installed environment. Customers report an 80%-90% reduction in upgrade time. Upgrades can be done with very little to no downtime. There is also an easy rollback option to the prior version with a safe return path if any serious issue is encountered.

BMC Helix Control-M (SaaS)

BMC Helix Control-M is a SaaS application workflow orchestration platform. It automates, orchestrates, and integrates data and application workflows across complex, heterogeneous technology environments. Users gain the benefits of SaaS consumption and operational capabilities, speed, scale, security, and governance for orchestration application workflows in production.

Evaluation Summary

Deployment & Administration	
Ease of Deployment	
Deployment Time/Effort	Outstanding
Conversion Facilities	Strong
Job Discovery and Import	Outstanding
Staff Training	Outstanding
Support & Services	
Customer Support	Strong
Professional Services	Outstanding
Ease of Administration	
Console Ease of Use	Strong
Upgrade Process	Strong
Test Environments	Outstanding
Automation of Management	Outstanding

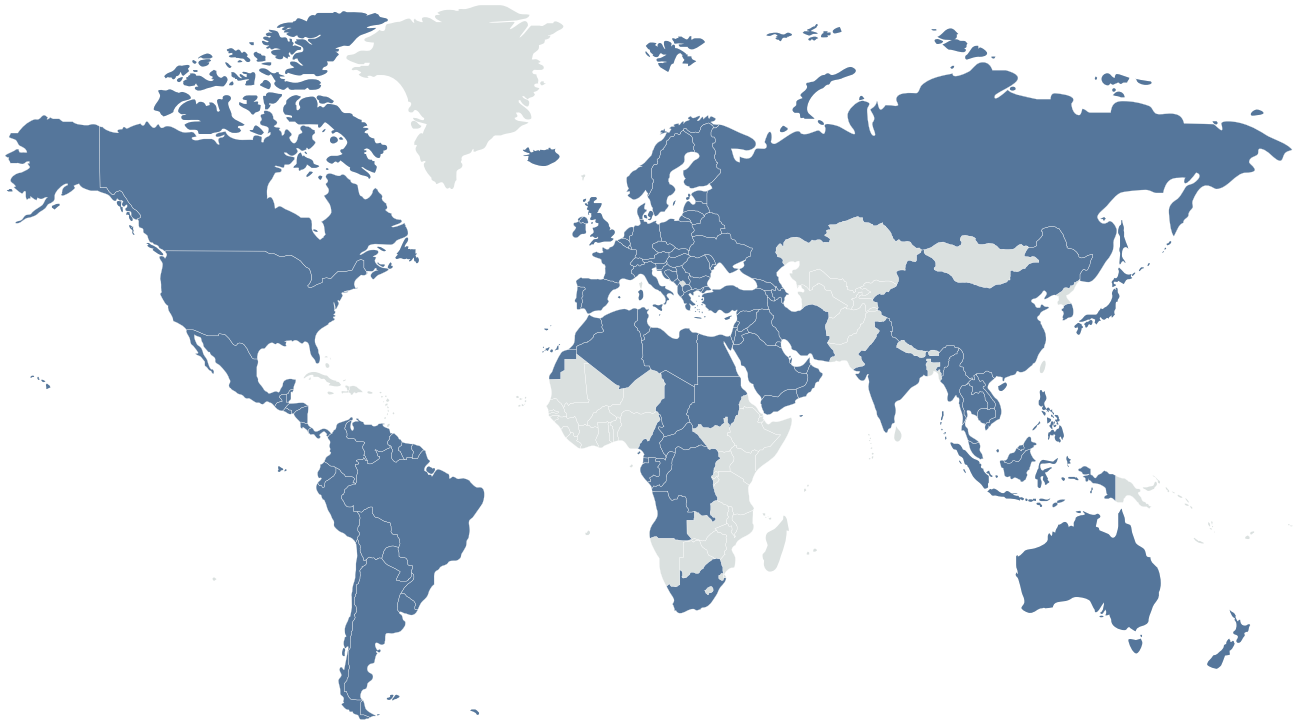
Cost Advantage	
Flexibility of Pricing Model	Outstanding
Pricing Scenarios	$$$$$
SaaS Availability	Solid

Architecture & Integration	
Architecture	
Business Focus	Outstanding
Scalability	Outstanding
Dynamic Workload Placement	Outstanding
Breadth of Platform Support (including agentless)	Outstanding
Breadth of Application & Database Support	Outstanding
Disaster Protection	Outstanding
Containerized Workloads	Outstanding
Container Deployment	Outstanding
Mainframe Support	Strong
Shared Server/Multi-Team Support	Strong
Integration & Interoperability	
Comprehensive API	Outstanding
Cloud Integration	Strong
CMDB Integration	Outstanding
ITPA Integration	Outstanding
Capacity Management Integration	Outstanding
MFT Integration	Outstanding
Big Data Integration	Strong
Social Media Integration	Limited
Heterogeneity Across Environments	Strong
DevOps	Outstanding
MLOps	Strong

Functionality	
Features	
Automation Design Flexibility	Strong
End-to-End Monitoring	Outstanding
Compliance Management	Outstanding
Triggering	Strong
Self-Service Portal	Outstanding
Forecasting, Analytics, Reporting	Strong
Alerting	Strong
Security	Strong
What-If Scenarios	Strong
Conditional Logic and Auto-Remediation	Outstanding
Logging and Auditability	Outstanding
Business User Features	Strong
Big Data Support	Outstanding
RPA Orchestration	Limited
Ease of Use	
Simplicity of GUI	Outstanding
SLA and Policy Awareness	Outstanding
Root Cause Analysis	Outstanding
Mobile Device Support	Strong
Language Support	Outstanding
Available Help Resources	Outstanding

Vendor Strength	
Vision	Outstanding
Strategy	Outstanding
Financial Strength	Outstanding
Research and Development	Strong
Partnerships and Channel	Outstanding
Market Credibility	Outstanding
Geographic Coverage	Outstanding

Active Clients



Product Available In:

English, French, German, Chinese, Japanese, Korean, Hebrew

Number of Customers:

= 100 = 1000

Favorite Features Mentioned in Customer Interviews

We really like the agentless capabilities!

My favorite feature is Dependency Management because you can just drag and drop lines between jobs.

Their commitment to innovation and R&D is impressive.

I like the mass update and mass creation capabilities within Workload Change Manager.

My team appreciates the ability to create custom integrations and plug-ins using the Application Integrator.

I enjoy the calendar flexibility—we run over 125 calendars.

BMC listens to customer feedback and takes action on negative feedback—they seem to be egoless and just want to make the product better.

They really improved the UI, and it is great from a management oversight perspective.

We like Jobs-as-Code.

Control-M is one of the most stable things I run. I don't lose sleep over Control-M, and that is my favorite thing.

The redesigned Enterprise Manager monitoring tool makes it easy to check job definitions.

We like that agents can now be updated from within the CCM tool.

We have very few issues with Control-M; it just runs, but when needed, support is very good.

Appendix A

Measurement Criteria

Research for the Q4 2021 WLA Radar Report took place starting in Q2 2021. Vendor input is included in the process of updating the measurement criteria. For the 2021 report, significant changes to the measurement criteria were made to both Architecture & Integration and Features to capture the significant changes in workload automation in support of application modernization and digital transformation trends.

EMA used the following requirements to evaluate the participating vendors. Please keep in mind that these categories were weighted differently, depending on their importance to a business-driven WLA solution. Highlights reflect new measurement criteria for 2021. In addition to new criteria, the weighting assigned to various criteria were adjusted to reflect new trends in the market-place and give less importance to criteria where there is less differentiation among vendors.

Model Weighting Changes and Additional Measures for 2021

1. Within Architecture: Added Mainframe Support as a separate line item and increased metrics surrounding Mainframe Support, and added Shared Server/Multi-Team Support with metrics to measure supporting multiple teams within one WLA instance.
2. Within Integration/Interoperability: Expanded Jobs as Code to DevOps and added metrics to measure DevOps tools integration, and added MLOps with metrics to measure machine learning data handling, monitoring for data drift, and change management for ML algorithms.

Architecture & Integration	
Architecture	
Business Focus	Includes measures about dashboards, reports, triggers, prerequisites, service catalog integration, auto-discovery, SLA awareness, role-based security, single sign-on support, business impact analysis, and others.
Scalability	Includes measures about number of endpoints, size of active deployments, hardware required for specific workloads, support for virtualized and cloud environments, maximum jobs for a single installation, load balancing, autoscaling scenarios, endpoint load balancing, and others.
Dynamic Workload Placement	Includes measures about SLA-driven thresholds, business impact analysis, workload placement factors (e.g., utilization, performance, policies, compliance issues, etc.), cloud support, cost of workload placement, multiple endpoints, resource contention, time-based factors, balanced capacity strategy, active/passive failover, and others.
Breadth of Platform Support (incl. agentless)	Operating systems supported.
Breadth of Application & Database Support	Common business applications and databases supported.
Disaster Protection	Includes measures about fault tolerance, high availability, failover, automated job rerun, manual job rerun, mid-job restart, auto-remediation, alternate schedules, agent self-healing, dynamic memory reassignment, multi-CPE with load balancing, and others.
Containerized Workloads	Measures the ability to manage container-based workloads, Docker support, and in conjunction with Kubernetes, agents in application containers and applications in agent containers.
Container Deployment	Measures the ability to deploy the WLA product within a container and in conjunction with Kubernetes, as well as a container image for agents included out of the box. Multiple container deployment options are measured, as well as ability for each option to support Kubernetes.
Mainframe Support	Mainframe support was broken out separately and multiple new mainframe support metrics were added, including native CPI on mainframe, distributed CPE on single LPAR, distributed CPE with agents across a Sysplex, etc.
Shared Server/Multi-Team Support	Team collaboration capabilities, such as domains or tenants to organize jobs by business groups involved/impacted, advanced version controls, dynamic version comparison, check-in/check-out per group, version rollback, folders, etc.

Architecture & Integration	
Integration/Interoperability	
Comprehensive API	Includes measures about exposed scheduler elements for job stream objects, performance metrics, and supported API standards, such as JAVA RMI, SOAP, REST, etc.
Cloud Integration	Includes measures about dynamic placement in the cloud and specific public clouds supported.
CMDB Integration	Includes measures about CMDBs supported and extent of support.
ITPA Integration	Includes measures about built-in, companion, and third-party process automation features and products supported.
Capacity Management Integration	Includes measures about creating, reconfiguring, or decommissioning virtual machines, shifting workloads, dynamic public cloud resource allocation, and ensuring performance based on SLAs.
MFT Integration	Includes measures about file transfer capabilities supported natively, integration with third-party file transfer products, and file transfer features supported, including triggers, protocols, data manipulation, etc. Also added message queues and public cloud protocols (AS2, Google Cloud Storage Bucket) to the list of capabilities.
Big Data Integration	Specific products and Hadoop ecosystem components integrated out of the box.
Social Media Integration	Specific social media platforms supported out of the box.
Heterogeneity Across Environments	Includes awareness of and interaction with other schedulers, integration with companion and third-party infrastructure monitoring tools, business application monitoring tools, alerting tools, and ITSM tools. Also involves discovering dependencies across different schedulers, between jobs and underlying infrastructure, and across business units.
DevOps (Formerly Jobs as Code)	Includes capabilities to define job scheduling and job definition artifacts in code-like notation, store them in software configuration management tools with the code, etc. (Jobs as Code). Also includes DevOps integration through import/export capabilities; granularity of import/export operations at job, job stream, team, domain, agent levels, etc.; and breadth of API coverage, local commits, source code control tools supported, CI/CD tools supported, etc.
MLOps	MLOps is DevOps for machine learning. It includes the act of handling data to develop, train, test, and monitor for data drift, etc., along with support for data science notebooks and the change management processes to update ML models over time.

Functionality	
Features	
Automation Design Flexibility	Includes measures about automation construct types for job/task, listeners/watchers, monitors/sensors, resources, events, folders and definition organization, logic, nesting, etc. Also added resource dependencies, logical operators to group and structure dependencies, and multi-dependency logic trees.
End-to-End Monitoring	Includes measures about dashboard views for job stream performance across all environments, real-time performance by business unit, historical performance, performance against SLAs, and overview (e.g., jobs on time, about to be late, late, and failed).
Compliance Management	Includes measures about templates for specific compliance standards (e.g., HIPAA, SOX, or PCI), custom compliance policies, real-time compliance monitoring, compliance-aware job placement, and standard compliance reporting.
Triggering	Includes measures about available triggers (e.g., calendar, events, dependencies, file actions, message queue, email events, applications, databases, SNMP traps, etc.), message queues supported, types of calendars supported, multiple conditions, conditional logic, and priorities. Added integration with Slack, Microsoft Teams, and ServiceNow.
Self-Service Portal	Includes measures about capabilities provided to business users, such as triggering; editing; defining; viewing status; restarting jobs, job streams, or automated processes; dashboard views; and mobile device support.
Forecasting, Analytics, & Reporting	Includes measures about native and third-party predictive analytics, warning thresholds, critical path views, past job performance, decision heuristics, graphical job dependency views, modeling of new jobs, historic performance reporting, GANTT and PERT charts, event capture, SLA impacts, job processing costs, and others.
Alerting	Includes measures about means of alerting (e.g., SNMP, email, text, etc.), alert priorities, customization of notifications, routing rules, and others.
Security	Includes measures about security roles, role-based access, dynamic privileges, record-level access controls, namespace controls, secure communications between CPE and agents, enforced naming standards across environments, and others.
What-If Scenarios	Includes measures about simulating the effects of new job streams on existing jobs, new job streams on SLAs, and performance of jobs under development.
Conditional Logic & Auto Remediation	Includes measures about automatic issue resolution; remediation based on events, historic data, or predictive; and others.
Logging/Auditability	Includes measures about activities logged including user interactions, job statuses, errors, result logs, schedule changes, logins and logouts, resource contentions, job stream performance, and others.
Business User Features	Capabilities for non-technical users including dashboard features, such as reporting, planned vs. actual outcomes, job lifecycle management, monitoring, etc.
Hadoop Support	Includes support for various Hadoop distributions and Hadoop Ecosystem integrations.
RPA Orchestration	Specific product integrations supported out of the box.

Functionality	
Ease of Use	
Simplicity of GUI	Includes measures about GUI elements, graphical wizards (e.g., creating jobs, dependencies, deploying agents, creating reports, defining job priorities, defining SLAs, defining auto-remediation sequences, etc.), web-based aspects of UI, dashboard customizations, and others.
SLA & Policy Awareness	Includes measures about SLA awareness, monitoring, proactive notification, automated actions triggered by SLAs at risk, reporting, etc.
Root Cause Analysis	Includes measures about diagnostic information collected including error messages, active processes, instructions at time of failure, open files, file operations at time of failure, performance metrics, resource availability, and others.
Mobile Device Support	Includes measures about mobile environments supported (e.g., iOS, Android, Windows) and the UI features supported on each environment.
Language Support	Measures the number of languages supported.
Available Help Resources	Includes measures about online knowledgebase, videos, online training, and others.

Deployment & Administration	
Ease of Deployment	
Deployment Time/Effort	Includes measures about deployment options, trials, training, proof of concept, installers, high-availability setup, install services, and automatic provisioning, including databases.
Conversion Facilities	Includes measures about conversion tools for CRON, VBScript, PowerShell, and specific vendor products, including all those in this report.
Job Discovery & Import	Includes measures about auto-discovery of jobs, job dependencies, job streams, schedule files, resources, variables, event actions, notification self-service items, etc.
Staff Training	Includes measures about available training onsite, via video, interactive tutorials, etc., as well as knowledgebase, certification programs, and technical events.
Support and Services	
Customer Support	Includes measures about support hours and means of support (e.g., phone, email, chat), forums, knowledgebase, help functions, online manuals, automation as a service (AaaS), dedicated customer success manager, etc.
Professional Services	Includes measures about direct services supported including report creation, system configuration, business planning, prototype creation, custom scripting, online training, videos, on-location training, etc.

Deployment & Administration	
Ease of Administration	
Console Ease of Use	Includes measures about console design, features, web and mobile support, multi-level decision trees, business views, functional-level security scoping, migrations, advanced import/export, and others.
Upgrade Process	Includes measures about maintenance windows, wizards, test and development environments, agent change management, rollback for agents, console, UI, upgrades with no interruption to working users/processes, length of support for previous releases, and others.
Test Environments Included	Availability within the production install.
Automation of Management	Includes measures about automated collection of diagnostic information, automated alert management, multiple means of auto-remediation and automated actions, failover, automated database backup, and other automated management features.

Cost Advantage	
Flexibility of Licensing Model	Includes measures about pricing options including by job, MIPS, sockets, cores, concurrent jobs, enterprise license, etc., as well as mixing license types.
Pricing	Several configurations were considered and pricing was compared across all vendors. Several newer configurations were added to reflect modern use cases, including more detailed SaaS configurations.
SaaS Availability	SaaS offering details like multi-tenant vs. multi-instance, VPN and port considerations, agent connection, interacting with on-premises workloads, cloud vendors and regions supported, client choice of cloud, SaaS SLAs, SaaS Service Catalog coverage, etc.

Vendor Strength	
Vision	How the vendor views the market and the direction they are taking their product.
Strategy	How the vendor approaches the market and positions their product.
Financial Strength	A light look at overall financial strength (where available).
Research & Development	Budget allocations for development teams in comparison to revenues and the number and frequency of new features.
Partnerships/Channel	Number and types of partnerships, channels, and ecosystems created.
Market Credibility	General sense of position and reputation in the marketplace.
Geographic Coverage	A review of countries with direct sales, channel sales, and deployed customers, as well as languages supported.

About Enterprise Management Associates, Inc.

Founded in 1996, Enterprise Management Associates (EMA) is a leading industry analyst firm that provides deep insight across the full spectrum of IT and data management technologies. EMA analysts leverage a unique combination of practical experience, insight into industry best practices, and in-depth knowledge of current and planned vendor solutions to help EMA's clients achieve their goals. Learn more about EMA research, analysis, and consulting services for enterprise line of business users, IT professionals, and IT vendors at **www.enterprisemanagement.com**. You can also follow EMA on **Twitter** or **LinkedIn**.

1995 North 57th Court, Suite 120, Boulder, CO 80301 +1 303.543.9500 **www.enterprisemanagement.com**

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