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The Power of Simple

Taking Workload Automation to the Next Level

Welcome

The way IT supports technology, and the way users interact with that technology, has changed dramatically over the past few years. People expect the technology they use for work to function as seamlessly and transparently as the devices they own for personal use. They expect applications to be user friendly, and they want to collaborate on developing workloads with local and remote teams.

The IT workforce also is changing rapidly. Many activities are outsourced. New workers are expected to learn applications and become productive very quickly. Large IT teams continue to become more specialized in their roles, requiring more collaboration among team members. Midsized and small teams continue to have generalists that manage production control along with several other responsibilities. All of these workers expect their experience with technology to be as easy as checking in for a flight online or completing an online purchase. As a result, IT software is evolving to make the IT staff dramatically more productive than ever

before. This level of productivity is critical in workload automation.

The articles in this publication discuss how workload automation solutions are evolving to meet these needs. The "Magic Quadrant for Workload Automation" report looks at how workload automation has rapidly advanced beyond traditional job scheduling. Areas of vendor differentiation now include self-service capabilities, policy-driven workload management, predictive functionality, business impact analysis, and support for mobile devices and automation platforms. The report positions vendors in one of four quadrants — *Leaders, Challengers, Visionaries,* and *Niche Players* — based on each company's vision and ability to execute on that vision.

We believe BMC's position in the Leaders Quadrant is a testament to our success in evolving our solutions to support our customers' business needs across the enterprise. We attribute the recognition to our leadership in areas such as self-service, integration of automation tools, and wide support for applications across virtual, cloud, mainframe, and distributed environments. BMC Control-M is the enterprise workload automation solution for IT teams looking to

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Gartner.

better manage scheduled workloads, reduce costs, and plan for future growth.

The article, "Why Ease of Use Is Essential for Workload Automation Software," explains what's driving the need for ease of use and discusses three components necessary for realizing it: *self-service, intelligent automation,* and *collaboration.* It also explores the business benefits that can be achieved when the workload automation solution provides ease-of-use capabilities.

That's where intuitive solutions make a difference. In the article entitled, "How to Make Workload Automation More Intuitive," we look at how workload automation solutions must adapt to an increasingly complex IT environment. Simpler, more intuitive solutions can help busy IT staff and business users handle workloads more efficiently and effectively. Some features of an intuitive workload automation solution include an interface with a simple look and feel, and built-in processes that reduce the number of steps required. These capabilities help to increase productivity, reduce training requirements, and avoid errors.

Workload automation is critical for meeting the scheduling and management demands of workloads across the data center and for delivering business services on time. It should also provide the ease of use required to drive productivity and meet the needs of the business now and into the future. I hope these articles provide you with insight into how your organization can take workload automation to the next level.

Bill Miller
President, Mainframe Service Management
BMC Software

Why Ease of Use Is Essential for Workload Automation Software

Today, it is crucial for workload automation solutions to be easier to use. They should be easier to learn and more intuitive, efficient, and error-free. Of course, people have always wanted these tools to be easy to use. But the demand for ease of use is now more intense than ever.

Major Causes of the Intense Demand for Ease of Use

There are three major causes of the intense demand for ease of use: business process owners, insufficient staff, and tight IT budgets.

Trend 1 – Business Process Owners: Business and IT are converging. IT is becoming more business-critical. IT used to be viewed as a cost center; today, most companies recognize IT as a key to their success. And so, we have seen a rapid influx of business process owners into IT. They want more insight into the way business applications run. And IT recognizes that, while IT owns the infrastructure, business owns the processes.

Trend 2 – Insufficient Staff: Another important trend, certainly in mainframe-legacy technology, is the retirement of the IT staff. The more a company relies on mainframes, the more acutely it suffers as senior IT people retire. The skills of the departing experts are difficult to replace by today's incoming staff who may not have the skills and may also be spread very thin. Therefore, IT's pool of skills steadily shrinks.

Trend 3 – Tight IT Budgets: Most companies have to do more with less. IT must automate or it will fail to keep up with constantly rising volume. Meanwhile, scheduling specialists are disappearing. IT used to dedicate entire teams to scheduling. Today, scheduling is typically done by one person, who also has several jobs other than scheduling. As a result, the owners of business processes are involving themselves in workload management.

Workload Automation: The Production Line for Your Business Processes

Seventy percent of all business processing is done in *batch*, which is managed by workload automation. Workload automation is fundamentally different from most other IT disciplines. It is more than just monitoring. For example, Phase I of payroll begins only when a human verifies that all requirements have been met (such as, all the time cards are in). Phase II begins only when Phase I finishes and a human sees that additional requirements have been met.

Workloads *are* the business; they must continue unimpeded. Workload automation is like a production line for business processes.

IT is more broadly visible to business users now. And business users know that the person who knows the most about a process is probably the best person to manage it. So, more business users get involved.

IT welcomes them; they lighten the burden on IT, which has other work to do that *nobody else can do*. Business users appreciate getting their jobs done more quickly and receiving more accurate information. Job satisfaction is increased all around.

The Three Key Components of Ease of Use

There are three key components of ease of use in workload automation: self-service, intelligent automation, and collaboration. If you are considering a workload automation solution, check carefully to see if it includes these components.

Self-Service: An interface built for *nontechnical* users. The interface must let them see what they need to see, and in familiar language. It must not require them to call IT or read through a manual. It must allow them to intuitively understand what to do and do this quickly and easily.

Intelligent Automation: Doing things more quickly, with fewer steps. Both business users and IT users need a *consistent* user interface. IT people appreciate it because the IT person who's administering workload automation is doing dozens of other things. If he or she has to stop and recall how the administration software behaves, that person is not going to be efficient. But if it's consistent, he or she can be very efficient.

Both IT and the business also need wizards to let them do things

much more quickly — for example, by reducing ten steps to six steps. If you're doing things many times a day, those eliminated steps add up to a lot of time saved — and errors avoided.

Collaboration: To make workload automation successful, it's very important that business and IT people work closely together on common goals. There are several roles involved. The ultimate authority to make sure that something is correct is a workload automation administrator, but a variety of business users and constituents may have some of the information and want to be able to look at or contribute to the process of building or modifying a workflow.

Here's a typical example of collaboration: A business person makes a request. The request goes to an application developer. The developer builds some control language. The language eventually goes to the workload automation administrator. The administrator edits the language to make sure it conforms to administrative standards (such as making a backup whenever a database is updated).

The value of a good collaborative environment is that everyone in a process can see the same information. They can check in and validate the work before it is injected into a live environment.

Business Benefits

If a workload automation solution includes those components, it will deliver substantial business benefits:

- **Availability is improved**. There are fewer errors and outages caused by the complexity of applications.

- **Business is more flexible**. For example, it's easier to cope with turnover (both IT and business staff) and provide training.

- **IT moves faster**. Administrators don't have to stop and study a manual when switching from one task to another.

- **The company is more competitive**. For example, it can outsource a business process almost effortlessly, even offshore.

- **Overall costs are reduced**. People are productive — able to do more with less. Turnover is reduced. Training is affordable. Generalists learn quickly.

- **The cost of spiraling errors is reduced**. When your primary administrator is not around, you don't need a specialist with 20 years of experience to back him or her up. A general IT person does well in the pinch.

Reducing Complexity, Improving Competitiveness

Workload automation is complicated; ease of use helps your workload automation solution make it simpler. The three key components of ease of use are (1) self-service, (2) intelligent automation, and (3) collaboration. They compensate for low IT headcounts and the absence of specialists dedicated to workload automation. Ease of use should be a criterion in the selection of any workload automation solution. A properly selected and carefully applied solution will dramatically reduce your overall costs and the cost of spiraling errors.

How to Make Workload Automation More Intuitive

Workload automation solutions are working harder and harder. They are managing *more* applications, more-*complex* applications, and more *kinds* of applications. Each application has its unique way of scheduling or managing its workload. Each one behaves in a unique way.

Part of the job of workload automation solutions is to manage the complexity and present a consistent, simple way for IT to perform a wide variety of tasks while getting through the day.

The Problem: Coping with Increasing Complexity

But that's not happening; workload automation solutions have not been consistent or simple. The complexity is more obvious than ever. It's hurting IT, where workload automation specialists have been replaced by harried generalists with a dozen responsibilities. It's hurting business users who are getting involved in scheduling and are struggling with overly technical interfaces.

The IT generalists, switching from one specialty to another all day long, don't have much time to look at workload automation manuals to refresh their memories. The business users don't have much time or inclination to take training or read manuals. When they do, they may not be able to absorb all the technical detail anyway.

Meanwhile, the widespread use of mobile devices — iPads, iPods, iPhones, and more — by technical and nontechnical people is raising everyone's expectations of more simplicity and convenience, even from enterprise systems. A new level of simplicity is becoming the norm.

The Solution: Focus on Being Intuitive

A major part of the solution to those kinds of problems is to create software tools that are more intuitive. In IT, the adjective *intuitive* is generally used to describe a tool that nontechnical people can easily use without being formally trained in the use of that tool, without having to refer to a manual while using the tool, and even without doing much conscious thinking about the tool as they use it. They can concentrate their thinking on the task, not on the tool. In other words, if people want to do something with the tool, their first instinct will probably be correct.

For example, if the user expects to see pop-up notifications in the lower-right-hand corner of the screen, that's where they should appear. Why place them anywhere else?

So the idea of focusing on what's intuitive is this: Don't just give the users any old way to do something. Don't automatically give them the way that is easiest to design. Give them the way they expect. Make the function look, feel, and behave the way they expect.

For the purposes of describing workload automation software, being intuitive takes three major forms:

1. *The user interface is familiar.*
   It looks, feels, and behaves in expected ways.

2. *Terminology is conventional.*
   Terms mean what users expect them to mean.

3. *Processes are simplified.*
   The software accomplishes tasks in fewer steps.

The User Interface Is Familiar

Today, it doesn't take a lot of research to discover how to make a user interface familiar to most users. Most of the office workers in North America (and in the rest of the world) are using Microsoft Office. An interface that generally looks and feels like Office will be highly natural for them. A workload automation solution that includes such an interface will provide a lot of value.

The solution would meet users' expectations:

- The interface would *look and feel* as they would expect.

- The solution would *behave* as they would expect. So would all its parts.

- Navigation would work as they would expect.

- Getting help would be as easy as they would expect.

In Microsoft Office, an action is usually the same or at least similar in Word, Excel, and PowerPoint. This is the norm; business users now expect all significant applications to look, feel, and behave alike.

Terminology Is Conventional

People in IT have many conventions — expectations of what things mean.

For example, if we see a collection of objects, we expect them to be in a folder. Also, we know what a tree view looks like and how to navigate it. We understand hierarchy. We know how to arrange data, how to give people access to it, and how to visualize it.

Likewise, the business user has certain expectations. For example, if a payroll clerk is going to use self-service workload automation to run payroll, the language should be something like, "Log in here" and "Click this button." If a list is shown, it should make sense to a payroll clerk, not an application developer — for example, "Run a payroll exception report" or "Run a summary of the commission statement for the Eastern Region."

And when the workload automation solution asks the clerk some questions or gives him instructions, they should be in language familiar to him, not "Specify table name 'pyr3x25'" or "Select the job and make sure the JCL is correct and that the script is running."

Processes Are Simplified

Workload automation is not inherently simple; it is complex and getting more so every year. Using workload automation solutions requires a level of sophistication beyond novice. It requires at least knowledge of how to build, run, and check a job.

One of the ways to make a solution easier to use is to study the processes that are being performed with that solution. Developers of workload automation solutions need to analyze how people do things and try to provide capabilities that let them do them more quickly and with fewer steps. Process simplification can and should be modeled on historically successful precedents — for example, the check-in, validation, and check-out functions that keep the process of document management orderly.

Much of the simplification can make use of wizards that can reduce many steps to few. If a business user or IT generalist is doing something every day, those eliminated steps add up to a lot of time saved — and errors avoided.

Fortunately, the industry is moving in the direction described above. In the coming years, expect to see much more instinctual capabilities in workload automation solutions.

Benefits

When a workload automation solution is made more intuitive, it delivers many substantial benefits: People are more productive. Business users are less frustrated and more satisfied. They can manage many of their own jobs successfully. The help desk gets fewer calls. Busy IT administrators don't have to stop and study a manual when switching from one task to another.

Training is less time-consuming. Generalists learn quickly; the company can stop looking on LinkedIn for specialists in workload automation. The company can outsource a business process almost effortlessly — even offshore, where technicians may have never previously seen a given workload automation solution.

The cost of spiraling errors is reduced. Generalist administrators make fewer errors, and a higher level of service is maintained. There are fewer outages.

Being More Intuitive Is the New Normal

Intuitive technology is no longer a "nice to have" — it's now a "must have" that will increase productivity, lower training costs, and increase employee satisfaction.

Magic Quadrant for Workload Automation

The workload automation market has rapidly evolved from the job-scheduling arena. Self-service capabilities, policy-driven workload management, predictive functionality, business impact analysis, and support for mobile devices and automation platforms are some areas of vendor differentiation.

Market Definition/Description

Workload automation tools are based on IT workload automation broker (ITWAB) technology that overcomes the static and manual nature of scheduling jobs. The tools manage mixed workloads based on business policies in which resources are assigned and deassigned in an automated fashion to meet service-level objectives. These tools provide automated-processing requirements, based on events, workloads, resources and schedules. They manage dependencies across applications and infrastructure platforms, both on-premises and off-premises. Workload automation tools use standards-based integration – for example, using Web services to integrate with various platforms and services.

Workload automation tools (see Figure 1) go beyond the traditional enterprise job-scheduling (EJS) tools. Although EJS products have advanced in terms of dealing with multiple platforms, applications and events, enterprises often end up tying jobs, workloads or processes to platforms or applications without the ability to meet availability or performance targets or even optimize the underlying infrastructure. So, if a server fails during the processing of a job, then the operators must perform a great deal of manual activity to determine how much of the job or workload has been processed, which server to move the job to and whether the server has the capacity to process the remaining workload. Furthermore, there is no automated way to set business policies or service levels to manage the policy-driven automated resource optimization of jobs, workloads or processes.

Magic Quadrant

Vendor Strengths and Cautions

Advanced Systems Concepts

Advanced Systems Concepts (ASCI) is a privately held company that has been in business since 1981. Its products include XLNT, a Windows command and scripting language, and many system management solutions, such as RemoteSHADOW for data mirroring; VIRTUOSO, a virtual disk capability for OpenVMS environments; and WATCH, a terminal monitoring software.

| Figure 1 | Magic Quadrant for Workload Automation |
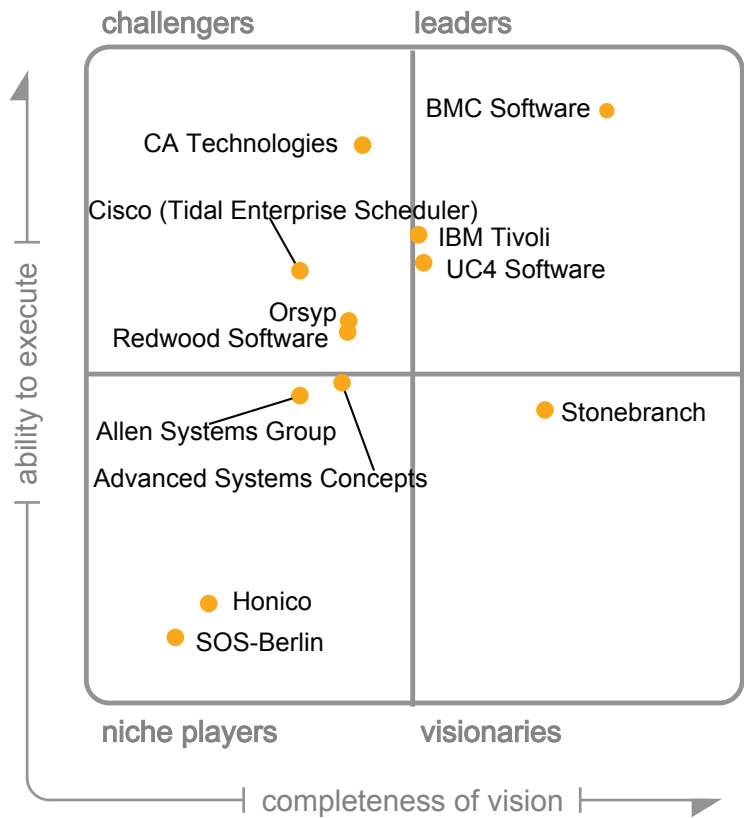
As of February 2012

Source: Gartner (February 2012)

These products are actively sold and supported by ASCI.

ASCI's workload automation tool, ActiveBatch, is its flagship product. This distributed-systems-based product has continued to build a broad and deep library of job types that supports a wide range of on-premises and software as a service (SaaS)-based applications. ActiveBatch also supports a wide range of server platforms and is easy to use, deploy and manage. ActiveBatch's job library enables organizations to avoid writing custom scripts to support these environments. ActiveBatch is also an object-oriented tool that provides good change management and auditing, revision control. It uses real-time and historical data to make workload placement decisions, and its social networking capabilities, such as Twitter and Growl, send notifications at the job step, event and trigger levels.

Strengths

- ActiveBatch is easy to use and implement. Most of ActiveBatch's customers download the product from ASC's website with remote support.

- ActiveBatch provides a great deal of functionality at a competitive price.

- Customers like its presales and service support.

Cautions

- ActiveBatch's version upgrades are priced separately; however, ASCI's new pricing and packaging strategy will address this in the latter part of 2012.

- Although ActiveBatch supports a diverse range of platforms, including

Unix and Linux, for scheduling workloads, it does not support hosting a workload automation server on a Unix or Linux server, a choice preferred by some customers.

- ASCI's visibility in the enterprise segment is increasing, but it is not always present on enterprise clients' shortlists. ASCI has started investing in marketing activities to improve its visibility in the enterprise segment.

Allen Systems Group

Allen Systems Group (ASG) has a broad suite of IT operations management (ITOM) tools and multiple workload automation products. ASG-Zena is its enterprisewide, distributed-systems workload automation solution for multiplatform operational environments that supports event-based scheduling. It also has traditional date- and time-based scheduling methodologies. ASG-Zeke is an IBM z/OS and VSE-based automated job scheduler that dynamically schedules and dispatches events, and monitors jobs on the mainframe and in distributed systems environment by adding agents for those platforms. The ASG-OpsCentral user interface (UI) centrally manages both ASG-Zena and ASG-Zeke workloads and schedules.

ASG's EAMS enables users to identify any potential scheduling and performance issues due to changes to the workload. Furthermore, ASG's Zebb and Zack are automated restart, system event and console activity monitoring tools for the mainframe environment. ASG has improved the range of platforms and applications supported by ASG-Zena

during the past couple years and has also made improvements in its ease of use (through improvements to the OpsCentral console) and its architecture to support other forms of automation, such as IT process automation (ITPA).

Strengths

- ASG has a broad range of products for the mainframe and distributed systems environment.

- ASG has an aggressive and competitive pricing strategy.

- ASG has improved integration between its mainframe and distributed-system products.

Cautions

- The perception of ASG's workload automation products' functionality is that it is not always on par with some of its competitors' products; however, their price-to-functionality ratio is attractive.

- Although ASG's products support a wide range of platforms and applications, its technology partnership strategy is opportunistic.

- ASG's visibility in the enterprise workload automation market has diminished; however, ASG has recently increased its focus on the workload automation area.

BMC Software

BMC, a broad ITOM tools vendor, continues to provide innovation and leadership in this market in product functionality, pricing, go-to-market strategies and licensing. It has continued to improve its products with self-service functionality, policy-

driven workload management, support for various mobile devices, support for virtual and cloud environments, workload life cycle management, integration with its other automation tools (ITPA, server configuration management, cloud life cycle management, etc.) to unify its automation capabilities, among other functionalities. It has also developed automated conversion toolsets to enable customers to migrate away from other workload automation tools, and has expanded its support for infrastructure platforms and applications. BMC has improved its ability to execute by increasing its revenue, its investment in R&D and its pricing models, along with providing more-competitive replacements.

Strengths

- The company has shown product innovation in areas such as self-service, integration of automation tools, breadth and depth of the Control M product support for applications and infrastructure, and enterprise-class scalability. BMC has simplified its licensing and pricing, making it easier for customers to buy bundles that include additional functionality.

- BMC's products are able to visually link workload automation to business impact, SLA forecasting capability and provide data for cost allocation among other functionality.

- Control M is considered an enterprise-grade solution that provides good policy-based capabilities. BMC has continued

to execute well in terms of making customer shortlists, and displacing workload automation and job-scheduling tools.

Cautions

- BMC needs to position Control M's total cost of ownership (TCO) effectively for small or midsize businesses (SMBs), because SMBs perceive Control M to be a tool that takes a high level of effort to maintain and manage.

- Documentation is sparse and not intuitive enough to support a tool such as Control M.

- Although Control M integrates with other BMC automation tools, such as BMC BladeLogic automation suite, it needs a unified automation strategy.

CA Technologies

CA Technologies has a large suite of ITOM products for the enterprise market. It also has one of the largest installed bases of workload automation products, and, in particular, it has the largest market share in the mainframe workload automation area. CA Technologies addresses the workload automation requirements of the entire enterprise, with multiple, interoperable workload automation products. It has also begun consolidating and integrating these products, with agent-level and UI-level consolidation. CA Technologies has three strategic workload automation products: CA Workload Automation CA 7 Edition and CA Workload Automation ESP Edition for the mainframe, and CA

Workload Automation AE for the distributed-systems environment. CA Technologies continues to deliver on its common agent technology, support for a larger range of applications, role-based security enhancements and support for a wide range of object types, such as databases.

CA Technologies' Workload Automation AE product integrates with Terma Labs' JAWS product, for critical path analysis and workload analytics capabilities for SLA-driven management of workloads. This functionality is also being planned for CA-7 Edition. CA Technologies also has plans to extend the automation capabilities of its Workload Automation AE product in the ITPA area and is working with management service providers to deliver workload automation as a service. It is also planning additional functionality upgrades to its workload automation products, such as extending its Chorus role implementation to the mainframe workload automation products to simplify and make mainframe management and usage easier for the next-generation workforce.

Strengths

- CA Workload Automation ESP edition is architecturally and functionally an enterprise-class mainframe product, with a wide range of adapters and agents for heterogeneous platforms and applications.

- CA Workload Automation AE is considered a stable and robust product for the distributed-systems environment and includes cross-

platform workload automation capabilities.

- CA Technologies has a large installed base and, in particular, has the largest market share in the mainframe workload automation segment.

Cautions

- CA Technologies needs to communicate its workload automation strategy and evolution more effectively to its customers and to the workload automation market.

- Some CA Technologies workload automation customers, particularly long time clients, find it relatively easier to sign new contracts with CA Technologies sales, as opposed to renewing legacy contracts.

- Upgrades from older releases of some of their products, in particular, CA Workload Automation AE, to the latest Release 11.3 is complex and time-consuming. This is particularly where customers have a larger installed footprint of the product. However, CA Technologies provides good support during this process for the upgrade.

Cisco (Tidal Enterprise Scheduler)

Cisco, which is primarily a networking vendor, has recently moved its Tidal products under the Cloud & Systems management technology group from its Advanced Services organization. Cisco has placed its workload automation and job-scheduling tools into two groups: Cisco Tidal Enterprise Scheduler (TES) and Cisco Process Orchestrator (PO).

Cisco provides TES for workload automation and PO to automate IT operational tasks that would typically be defined in IT run books (i.e., run book automation [RBA] or ITPA).

Cisco TES has enhanced its capabilities in the areas of product scalability, range of supported applications and platforms, integration with virtual server environments (e.g., integration with VMware Virtual Center) and Web-browser-based UIs. It also has access to large numbers of Cisco resellers. Cisco TES enhanced its marketing messaging around Intelligent Automation and is working with Cisco partners to deliver TES as a managed service. Recently, Cisco TES announced TES Version 6.0 integration with Terma Labs' JAWS product for critical-path analysis and workload analytics capabilities for the SLA-driven management of workloads.

Strengths

- Cisco's TES product continues to be one of the most easy-to-use products on the market.

- TES is easy to deploy and implement, with good integration with other ITPA solutions, such as Cisco PO.

- Cisco's indirect sales channel will provide TES with broad access to potential customers.

Cautions

- Cisco TES has continued to develop a wide range of adapters for applications, but the Oracle E-Business Suite adapter needs

deeper integration. Its Informatica customers report good integration and seem happy with the integration. However, its strategy for consistent and deep integration across applications needs improved focus.

- Some customers have recently reported that support issues take longer to resolve. However, during the past year, Cisco has addressed this issue through measures such as active support issue tracking and additional investment in people.

- Despite customers deploying TES in mission-critical environments, some customers perceive TES implementations as more tactical.

Honico

Honico is a German software company with a broad range of products. It is well-known for developing applications and add-ons for SAP, as well as non-SAP environments. Its main products are BatchMan (workload automation product), IntegrationMan, Dynamic Security Recording, AccountMan and CaptureMan, as well as iMan File and Data Manager. Its workload automation product, BatchMan, is developed in Advanced Business Application Programming (ABAP), which enables tight integration with SAP. It has developed specific templates for business processes within SAP for specific functions, such as HR, finance and logistics. Thus, BatchMan runs directly (due to ABAP code) in SAP environments and uses Java clients for non-SAP environments. BatchMan manages a

central library of jobs and objects and is managed by the BatchMan master. BatchMan integrates with the Control M workload automation tool from BMC and is also packaged and priced separately for the SMB market.

Strengths

- Having been uniquely developed in ABAP, BatchMan is tightly integrated with SAP.

- BatchMan integrates with open-source ITOM tools, such as Nagios, for monitoring infrastructure and managing workload placement.

- Customers are happy with Honico's support services and pricing.

Cautions

- BatchMan is considered a SAP-specific solution.

- Honico needs to increase its investment in professional services, particularly in the area of replacing competitors' products.

- Outside the SAP environment, BatchMan is not considered an enterprisewide solution and is a tactical choice.

IBM Tivoli

IBM provides a broad range of IT capabilities – services, software and hardware. IBM's Workload Automation suite consists of Tivoli Workload Scheduler (TWS) for z/OS, TWS for Distributed Systems, and TWS for Applications. IBM has continued to make improvements in many areas: better integration between the two products, improved common UI, SLA-driven workload prioritization and placement, common agent technology, ability to manage the mainframe from the distributed scheduler, reporting, use of service-oriented architecture (SOA) for exposing and consuming workload automation services, improved integration with other IBM automation tools, such as Tivoli Service Automation Manager (TSAM, the Tivoli Cloud Manager), resource and critical-path analysis for workload provisioning and placement. IBM has combined the Tivoli Dynamic Broker functionality with the TWS Distributed Systems product, and has improved its marketing execution capabilities, incorporating its "Smarter Planet" messaging.

Strengths

- IBM offers a robust, well-integrated suite of tools that helps integrate business processes, prioritize SLA-driven workloads and move workloads for cloud services.

- IBM's marketing positions the workload automation tool as part of the Smarter Planet initiative for energy management, compute grid, cloud environments, appliance strategy, and as a platform-as-a-service workload deployer.

- IBM has strong brand name awareness, with associated customer confidence.

Cautions

- In many instances, the workload automation products are sold as part of a larger bundle of IBM products, resulting in a lack of clarity in pricing and licensing.

- Product maintenance, implementation, upgrades and migration are not straightforward, and are often time- and resource-consuming.

- Although IBM has improved the range of applications supported, it needs to diversify this further, and improvements need to be made in the reporting tool to improve robustness and functionality.

Orsyp

Orsyp is an ITOM specialist offering services and software products for workload automation, server performance and capacity planning. Orsyp has been promoting its IT Workload Automation solution based on two products – Dollar Universe and UniJob – which are targeted at two different environments. The Workload Automation engines are managed with a common graphical UI (GUI), the UniViewer. Dollar Universe, the enterprise product, has a peer-to-peer architecture that lends itself to high availability; thus, an instance of Dollar Universe is installed on each server that has applications and processes that need to be automated. On the other hand UniJob is targeted at a broad range of server environments to gain better visibility and control, mainly of jobs defined in OS-specific schedulers, such as "cron" for Unix or Linux.

Orsyp has extended its worldwide relationship with HP to resell its software, to include the HP Professional Services Organization and by building integration with HP's automation products, such as Operations Orchestration and

Server Automation. Orsyp has widened its support for platforms and applications, and is positioned to take advantage of its Sysload Software acquisition by using its resource analytics capabilities for workload optimization and placement.

Strengths

- Orsyp is perceived to offer reliable and easy-to-use products at a competitive price.

- Orsyp has a worldwide sales partnership with HP.

- The company has a strong implementation and professional services team. It also conducts courses jointly with education institutions on ITOM best practices.

Cautions

- Dollar Universe's ability to consume jobs exposed as Web services needs improving; however, its functionality of publishing jobs as Web services works well.

- Orsyp needs to actively communicate integration of Sysload's resource analytics capabilities with Dollar Universe to implement policy based resource optimization needed for workload prioritization and placement.

- Although Orsyp offers consistent licensing and pricing policies, it needs to improve the implementation of its policies with its customers.

Redwood Software

Redwood Software is a minisuite vendor in the ITOM area, with workload automation (its flagship product) and reporting tools. Cronacle, its enterprise automation tool is the key product in Redwood's automation strategy. Cronacle is a distributed-system-based product that manages workload automation across a heterogeneous environment, including mainframe, distributed, virtual and cloud applications. Cronacle is packaged and branded under the name SAP Central Process Scheduling (CPS) by Redwood for the SAP market. The SAP CPS product enables centralized workload automation for SAP and non-SAP environments.

Redwood has invested in improving and extending Cronacle's business process automation – for example, its SAP Financial closing cockpit capabilities within SAP – capabilities. In addition, it is improving its event-driven and SLA-driven workload automation capabilities. Redwood has added products, such as Redwood Reconciler, that can automate the general ledger reconciliation process, and Redwood Insight, which provides a real-time and filtered view of business processes and can add manual IT or business tasks to an automated process. It has also invested in widening its support for platforms and applications, as well as its integration with other ITOM tools.

It has also extended its automation capabilities by integrating with its Report2Web product for document-oriented automation, including the storage, approval, analysis, manipulation, distribution and archiving of reports. Redwood has benefited from the global SAP relationship and SAP reseller network. Redwood is part of SAP's Application Lifecycle Management (ALM) product and provides process automation to integrate SAP and non-SAP processes.

Strengths

- The SAP relationship includes SAP workload automation codevelopment, OEM and reseller agreement.

- Redwood focuses on automating business processes by line of business beyond traditional job scheduling and workload automation.

- Redwood offers hybrid cloud-subscription-based job scheduling service and relationships with hosting providers that offer hosted workload automation services.

Cautions

- Redwood's Cronacle product needs technical expertise, and the GUI needs to be more user-friendly. However, Redwood has invested in making improvements to the UI, as reflected in Cronacle's Version 8 release.

- Upgrade and migration to the product is time-consuming and sometimes disruptive, particularly when upgrading from older versions. The disruption is more apparent in custom scripting environments. Redwood has invested in improving this process by developing automated migration tools.

- Worldwide support, particularly for non-SAP environments, although improving, is considered

inconsistent. Redwood is investing in additional staff, and, in the realignment of its support organization, based on best practices, to address this.

SOS-Berlin

SOS-Berlin's Job Scheduler product is an open-source workload automation/job-scheduling tool licensed under the GNU Public License (GPL; original version). The commercial Job Scheduler license enables technology providers to bundle and ship the Job Scheduler with their application without the restrictions of the GPL. For customers with commercial licenses, SOS-Berlin also offers different support levels and services. It lacks the sophistication and breadth of functionality of commercial tools, but is capable of basic automation by launching executable files, shell scripts and database procedures. It has a basic, built-in GUI, but is mainly configured and managed using XML files for automation.

It supports commercial platforms, such as Solaris, HP-UX and Windows, and commercial databases, such as Oracle, SQL Server and DB2, in addition to open-source OSs and databases. It also includes basic file transfer capability. Job Scheduler provides interfaces such as XML-based, Web services APIs and command-line interface, in addition to the GUI. It also provides high availability and improved performance by implementing a job scheduler cluster. It is capable of providing notifications via email and does not need to have a back-end database, because the configurations can be stored as flat files.

Strengths

- SOS-Berlin's Job Scheduler product has open-source credentials that make it attractive for organizations with an open-source tool adoption policy.

- SOS-Berlin has lower capital expenditure costs, because it offers an open-source product.

- Job Scheduler can be embedded by third-party technology providers that need scheduling and automation capabilities.

Cautions

- It lacks the advanced features and functionality of a full-fledged commercial offering.

- Although the capital expenditure may be lower, or upfront costs may be lower, the operating expenses may be high, because much of the functionality needs to be maintained through customized development.

- New feature development and, in some instances, code defects take longer to be addressed, making it less attractive to enterprises.

Stonebranch

Stonebranch offers vendor-focused workload automation solutions. Stonebranch's acquisition of Opwise in early 2011 enabled it to extend its solutions from purely workload automation middleware and managed file transfer tools to become an innovative workload automation vendor for the mainframe and distributed-systems environment. Its integrated product suite, Opswise Automation Center, is a portable

Web application deployed within an Apache Tomcat container, in which the server and UI are written in a single-code environment. Its fully SOA-enabled architecture facilitates easy integration with custom and packaged applications and services, using a representational state transfer (REST)-based interface.

Stonebranch has built-in business impact management capability, the ability to auto-discover and register agents, customizable UI, workload versioning capabilities and so forth. It uniquely has a scheduler-agnostic agent technology that enables it to discover and share workloads with other workload automation tools. Opswise Automation center is designed to be an automation platform that enables other forms of automation, such as application release automation (ARA) and ITPA. It also integrates with Terma Labs' JAWS product for critical-path analysis and workload analytics capabilities for SLA-driven management of workloads.

Strengths

- Opswise Automation Center is an innovative workload automation product with unique built-in capabilities for business impact management, and scheduler-agnostic capabilities that are completely based on a Web architecture.

- Its collaborative scheduling and management approach includes centralized monitoring for all workload automation tools.

- Its product flexibility and architecture enables easy integration with applications; extraction,

transformation and loading tools; cloud automation tools; and Hadoop distributed file systems, as well as the ability to provide workload automation as a service.

Cautions

- Although Opswise Automation Center is an innovative product, it needs to improve its capabilities in the high availability area and widen the number of applications it supports.

- Stonebranch's visibility in the enterprise segment of the market is still relatively low, due to its lack of investment in marketing and sales channels.

- Stonebranch lacks a formal partnership framework to improve technical, sales and marketing partnerships with other technology and service providers.

UC4 Software

UC4 is an ITOM vendor focused on automation, with depth in workload automation. UC4 has successfully positioned itself as a pure-play automation vendor, under its "One Automation" branding, with a large installed base in the workload automation area. It has successfully integrated technologies from its acquisitions to enhance the scalability, adapters/agents for integrating with applications and its event-processing capabilities. It has also developed functionality to support mobile devices, improve application automation, and support virtual and cloud environments. It has improved its execution worldwide by simplifying pricing, targeting competitive

replacements, and investing in sales and marketing. Furthermore, it has begun to extend its capabilities in other automation areas, such as ITPA and ARA. Organizationally, it has a stable and experienced senior management team.

Strengths

- UC4 has an enterprise-class workload automation product, with a heterogeneous platform and application support.

- Customers like scripting capabilities in the product for advanced customization, its process analytics capabilities to determine overuse or underutilization of resources, 3D pattern mapping and event correlation from various data sources, and its forays into other areas of automation, such as ITPA and ARA.

- The one-product, one-message marketing simplifies understanding.

Cautions

- Although "One Automation" is a good marketing message, the automation functionality of the product outside the core workload automation area is largely untested and untried.

- Although UC4 has a reasonably good marketing and sales channel vision, it needs a more differentiated strategy and improved execution.

- Many customers are on older versions of their products; thus, they cannot take advantage of UI performance and functionality improvements. This opens doors to competitors during upgrades,

particularly those of older versions of the Appworx product that was acquired by UC4.

Vendors Added or Dropped

We review and adjust our inclusion criteria for Magic Quadrants and MarketScopes as markets change. As a result of these adjustments, the mix of vendors in any Magic Quadrant or MarketScope may change over time. A vendor appearing in a Magic Quadrant or MarketScope one year and not the next does not necessarily indicate that we have changed our opinion of that vendor. This may be a reflection of a change in the market and, therefore, changed evaluation criteria, or a change of focus by a vendor.

Added

Stonebranch, Honico and SOS-Berlin

Inclusion and Exclusion Criteria

The vendors in this Magic Quadrant were included based on the following criteria:

- Gartner client inquiry data confirms that the product is of interest to Gartner clients in enterprise environments because it has made their product selection shortlists, in some cases for specific environments, such as SAP, or enterprises having shown specific interest in open-source tools.

- The functional and technical capabilities of the tool – the tool should cover some of the key features that customers are looking at, especially in cross-platform and heterogeneous environments.

- The vendor should have at least 100 active customers.

Evaluation Criteria

Ability to Execute

Gartner analysts evaluate technology providers on the quality and efficacy of the processes, systems, methods or procedures that enable IT provider performance to be competitive, efficient and effective, and to positively affect revenue, retention and reputation (see Table 1). Ultimately, technology providers are judged on their ability and success in capitalizing on their vision.

Product/Service

Core goods and services offered by the technology provider that compete in/serve the defined market include product/service capabilities, quality, feature sets and skills, whether offered natively or through OEM agreements/partnerships.

Overall Viability (Business Unit, Financial, Strategy, Organization)

Viability includes an assessment of the overall organization's financial health, the financial and practical success of the business unit, and the likelihood that the individual business unit will continue investing in the product, offering the product and advancing the state of the art within the organization's portfolio of products.

Sales Execution/Pricing

The technology providers' capabilities in all presales activities and the structure that supports them include deal management, pricing and negotiation, presales support and the overall effectiveness of the sales channel.

Market Responsiveness and Track Record

This category involves the ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve and market dynamics change. This criterion also considers the provider's history of responsiveness.

Marketing Execution

This criterion includes the clarity, quality, creativity and efficacy of programs designed to deliver the organization's message to influence the market, promote the brand and business, increase awareness of the products and establish a positive identification with the product/brand and organization in the minds of buyers. This "mind share" can be driven by a combination of publicity, promotions, thought leadership, word-of-mouth and sales activities.

Customer Experience

This involves relationships, products and services/programs that enable clients to be successful with the products evaluated. Specifically, it includes the ways customers receive technical support or account support. This can also include ancillary tools, customer support programs (and the quality thereof), availability of user groups and SLAs.

Operations

The ability of the organization to meet its goals and commitments includes the quality of the organizational structure. This involves skills, experiences, programs, systems and other vehicles that enable the organization to operate effectively and efficiently on an ongoing basis.

Table 1. | Ability to Execute Evaluation Criteria

Evaluation Criteria	Weighting
Product/Service	High
Overall Viability (Business Unit, Financial, Strategy, Organization)	High
Sales Execution/Pricing	High
Market Responsiveness and Track Record	Standard
Marketing Execution	High
Customer Experience	High
Operations	High
Source: Gartner (February 2012)	

Table 2. | Completeness of Vision Evaluation Criteria

Evaluation Criteria	Weighting
Market Understanding	High
Marketing Strategy	High
Sales Strategy	High
Offering (Product) Strategy	High
Business Model	High
Vertical/Industry Strategy	Standard
Innovation	High
Geographic Strategy	Standard
Source: Gartner (February 2012)	

Completeness of Vision

See Table 2.

Market Understanding

This criterion involves the ability of the technology provider to understand buyers' needs and translate these needs into products and services. Vendors that show the highest degree of vision listen to and understand buyers' wants and needs, and can shape or enhance them with their added vision.

Marketing Strategy

This criterion involves a clear, differentiated set of messages consistently communicated throughout the organization and externalized through the website, advertising, customer programs and positioning statements.

Sales Strategy

This is the strategy for selling products that uses an appropriate network of direct and indirect sales, marketing, service and communication affiliates that extend the scope and depth of market reach, skills, expertise, technologies, services and the customer base.

Offering (Product) Strategy

This involves a technology provider's approach to product development and delivery that emphasizes differentiation, functionality, methodology and feature set as they map to current and future requirements.

Business Model

This criterion includes the soundness and logic of a technology provider's underlying business proposition.

Vertical/Industry Strategy

This involves the technology provider's strategy to direct resources, skills and offerings to meet the specific needs of individual market segments, including verticals.

Innovation

This criterion comprises the direct, related, complementary and synergistic layouts of resources, expertise or capital for investment, consolidation, defensive or preemptive purposes.

Geographic Strategy

This category involves the technology provider's strategy to direct resources, skills and offerings to meet the specific needs of locations outside the "home" or native geography, either directly or through partners, channels and subsidiaries, as appropriate for that region and market.

Quadrant Descriptions

Leaders

Leaders in the workload automation market combine insightful understanding of the realities of the market, the ability to influence the market's direction, the ability to attract an industry following and the capacity to lead the market. Leaders have the proven ability to deliver on their vision and to support their customers through periods of stability, as well as periods of change or economic hardship. The leaders control most of the market's business activities and are the primary influencers of market evolution.

A leader is not always the best choice for a particular user's project. Some are spread too thinly in their offerings, channels or geographies, which can cause them to fall behind more narrowly focused, smaller vendors in the support of and

commitment to individual mainstream customers. With the exception of UC4, leaders in this Magic Quadrant are powerful generalist vendors. Leaders have large installed bases, a long-term presence in this market and established industry records. They represent safe choices, but are not necessarily best-of-breed vendors in all circumstances.

Leveraging the widespread adoption of workload automation technology by risk-averse, mainstream enterprises that favor adoption of technology from well-established vendors, the leaders in this market have been able to continue to grow their business and attract industry support through strong execution. However, the fast pace of technology evolution driven by Web, self-service capability, mobile and cloud computing, and other factors have pushed leaders to also strongly invest in innovation and to continue to develop their vision.

The Leaders in the workload automation market are:

• BMC

• IBM

• UC4

Challengers

Challengers excel in their ability to attract a large user following, but owe that ability to a relatively narrow focus on a particular use pattern, vertical industry, geographic location or other specialization for workload automation technology. These vendors often trail leading-edge industry innovations and lack a broad industry appeal; however,

they excel in dependable execution. The conservative Challengers are the best choices for similarly conservative users: Their time-proven technologies and support networks may carry certain guarantees that are not available elsewhere. The focused Challengers excel in their chosen patterns and are the best choices for a subset of workload automation users, while lacking or trailing in the delivery of some of the most advanced capabilities for others.

The Challengers in the workload automation market are:

• CA Technologies

• Cisco TES

• Orsyp

• Redwood Software

Visionaries

Most vendors in the Visionaries quadrant are relatively small innovators that invested in excelling with highly differentiated variations of workload automation offerings, usually at the expense of a lesser breadth of the total offering, compared with established, comprehensive products. Some vendors are attempting to introduce a radically new approach to the market, while others are addressing some limitations of the mainstream options.

Some Visionaries will eventually be acquired by the Leaders, or will merge with their peers; a few will grow to become market leaders. Others will limit their target markets to focus on their core vertical industries or geographic competencies and will become Niche Players, or they

will grow to be Challengers. Some will exit the market or will refocus their strategies on other industry segments. Compared with the Leaders' number of customers and production deployments, visionary vendors usually have relatively small installed bases and real-life deployments. However, by addressing advanced requirements that Leaders don't support, they offer the greatest opportunity for differentiation for users looking for a competitive use of IT.

Visionaries represent the minority of vendors in this Magic Quadrant. The only Visionary in the workload automation market is Stonebranch.

Niche Players

Niche Players operate well in a specific environment, vertical industry or geographic segment of the workload automation market. They are often specialists in their areas, and may represent the optimum choice for some projects and some IT organizations by offering the specialized expertise, more-relevant support practices, flexible terms and conditions, and greater dedication to their customers.

Some Niche Players look to grow their businesses to challenge the leaders. Others discover innovative solutions that attract interest beyond their target market segments and emerge as Visionaries. However, most Niche Players are focused on serving their market segments, geographies and customer bases, and they generally limit their ambitions to maintaining excellence in their market segments, industries or geographies.

The Niche Players in the workload automation market are:

- Advanced Systems Concepts
- Allen Systems Group
- Honico
- SOS-Berlin

Context

The Magic Quadrant for Workload Automation tracks the market evolution from job scheduling to workload automation and evaluates vendors and their technologies in the workload automation market. The industry and technologies are now well on their way toward implementing workload automation (dynamic policy-driven automation of workloads), as opposed to purely job scheduling (i.e., the static calendar-driven automation of jobs).

This Magic Quadrant represents Gartner's judgment of the vendors' Ability to Execute and their Completeness of Vision in the workload automation market. The Ability to Execute criteria reflect the staying power and record of execution of vendors in the market. The Completeness of Vision criteria reflect the vendor's ability to understand market trends, lead and influence them, and follow these trends with agility and consistency.

Vendors that are strong in their execution and ability to lead and influence the market are labeled as Leaders. Players in the market that have a limited record of execution, and well-executing vendors that are overly cautious on innovation and risk are less likely to be Leaders.

By its nature, a vendor rating process favors comprehensive offerings and powerful sales and marketing strategies. A tightly focused product, even if exceptional, will typically not score as well as a comprehensive offering supported by strong sales and marketing strategies in this analysis. This, in turn, favors the larger vendors, because their extended resources enable them to allocate substantial sales and marketing investments to support their workload automation products and offer the more comprehensive collections of functionality, even if not all of it is best-of-breed.

If your project requires a functionally complete workload automation product, then you will find the Magic Quadrant to be the most helpful. However, if your search is for some specific subset of capabilities, then the best-fit offering for your project might be underrated in the Magic Quadrant. Users should apply considered judgment and understand Gartner's evaluation criteria and weights, listed below, to take the best advantage of this research.

Infrastructure and operations leaders should not automatically choose vendors from the Leaders quadrant, because any of the vendors in this Magic Quadrant can provide perfectly suitable solutions. However, organizations need to ensure that choosing a single workload automation tool to automate across a heterogeneous IT application and platform environment will provide benefits in terms of lowering TCO and eliminating islands of automation to provide increased agility. The Magic Quadrant can be seen as an arranged "long list" of vendors for a given market. Devise your own shortlist, based on your organization's specific circumstances and requirements. Use this Magic Quadrant as one point of input, not the sole deciding criterion.

Market Overview

In 2010, the combined workload automation and ITPA, which is also known as the run book automation market, was approximately $1.15 billion. The distributed-systems segment of the market grew by 7.8%, while the mainframe segment grew by 4.7% in 2010. The ITPA segment of the market is less than 10% of the total market.

Gartner inquiries have continued to reflect that 70% of the business processes within organizations are near real time or batch. Workload automation tools have continued to evolve to support this environment, as the IT application and platform landscape evolves toward providing a foundation for accelerating business change in on-premises and cloud environments.

Since 2008, job-scheduling tools have increasingly moved toward workload automation, reflecting the changing demands of moving from a largely static batch-processing environment to a more-dynamic, policy-driven automation platform. This platform provides policy-driven automation services to multiple applications (e.g., SAP, .NET and Ruby); application infrastructures (e.g., WebSphereMQ and Java Message Service types and architectures); and infrastructure

platforms, such as servers (physical and virtual) and databases, on-premises or in the cloud.

Introduced by Gartner in 2005, ITWAB has become the foundational technology for workload automation tools. These tools have evolved from the static nature of managing and scheduling jobs to manage mixed workloads based on business policies in which on-premises or cloud-based resources are assigned and deassigned in an automated fashion to meet service-level objectives.

These tools automate processing requirements based on events, workload, resources and schedules. They manage dependencies across applications and infrastructure platforms, within applications integrating across on-premises and off-premises environments. These tools manage workloads using technical policies (e.g., meet SLA objectives for performance and availability), are able to optimize resources (e.g., they are able to work with physical and virtual resource pools) and are built on architectural patterns that facilitate easy, standards-based integration (e.g., using SOA principles) across a wide range of platforms and applications.

Furthermore, workload automation tools have continued to evolve to provide innovative functionality in areas such as:

- Self-service – where end users can view and choose services that automate workloads

- Support for mobile environments, including smartphones and tablets

- Workload life cycle management to manage automated progression of workloads from development into production

- Batch application integration and IT process automation functionality

- Batch application integration and ARA

- Using analytics and forecasting to deliver service levels and the movement of workloads and resources for optimization

- Integration with cloud management platforms for automation and using and/or integrating with cloud infrastructure and cloud-based applications

These tools now support a wide range of packaged, custom-built, composite applications along with a wide range of platforms and infrastructure. Some also have the capability to identify and import jobs defined in traditional job-scheduling environments, such as cron. Thus, these tools are on the way toward providing an automation platform that supplies services to heterogeneous environments and unifies islands of automation across the IT environment.

Evaluation Criteria Definitions

Ability to Execute

Product/Service: Core goods and services offered by the vendor that compete in/serve the defined market. This includes current product/service capabilities, quality, feature sets, skills and so on, whether offered natively or through OEM agreements/ partnerships as defined in the market definition and detailed in the subcriteria.

Overall Viability (Business Unit, Financial, Strategy, Organization): Viability includes an assessment of the overall organization's financial health, the financial and practical success of the business unit, and the likelihood that the individual business unit will continue investing in the product, will continue offering the product and will advance the state of the art within the organization's portfolio of products.

Sales Execution/Pricing: The vendor's capabilities in all presales activities and the structure that supports them. This includes deal management, pricing and negotiation, presales support, and the overall effectiveness of the sales channel.

Market Responsiveness and Track Record: Ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve and market dynamics change. This criterion also considers the vendor's history of responsiveness.

Marketing Execution: The clarity, quality, creativity and efficacy of programs designed to deliver the organization's message to influence the market, promote the brand and business, increase awareness of the products, and establish a positive identification with the product/ brand and organization in the minds of buyers. This mind share can be driven by a combination of publicity, promotional initiatives, thought leadership, word-of-mouth and sales activities.

Customer Experience: Relationships, products and services/ programs that enable clients to be successful with the products evaluated. Specifically, this includes the ways customers receive technical support or account support. This can also include ancillary tools, customer support programs (and the quality thereof), availability of user groups, SLAs and so on.

Operations: The ability of the organization to meet its goals and commitments. Factors include the quality of the organizational structure, including skills, experiences, programs, systems and other vehicles that enable the organization to operate effectively and efficiently on an ongoing basis.

Completeness of Vision

Market Understanding: Ability of the vendor to understand buyers' wants and needs and to translate those into products and services. Vendors that show the highest degree of vision listen and understand buyers' wants and needs, and can shape or enhance those with their added vision.

Marketing Strategy: A clear, differentiated set of messages consistently communicated throughout the organization and externalized through the website, advertising, customer programs and positioning statements.

Sales Strategy: The strategy for selling products that uses the appropriate network of direct and indirect sales, marketing, service, and communication affiliates that extend the scope and depth of market reach, skills, expertise, technologies, services and the customer base.

Offering (Product) Strategy: The vendor's approach to product development and delivery that emphasizes differentiation, functionality, methodology and feature sets as they map to current and future requirements.

Business Model: The soundness and logic of the vendor's underlying business proposition.

Vertical/Industry Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of individual market segments, including vertical markets.

Innovation: Direct, related, complementary and synergistic layouts of resources, expertise or capital for investment, consolidation, defensive or pre-emptive purposes.

Geographic Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of geographies outside the home or native geography, either directly or through partners, channels and subsidiaries as appropriate for that geography and market.

Learn More

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