IT Infrastructure Tools' Disruption in the Wake of Digital Transformation and Application Modernization

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BY DAN TWING
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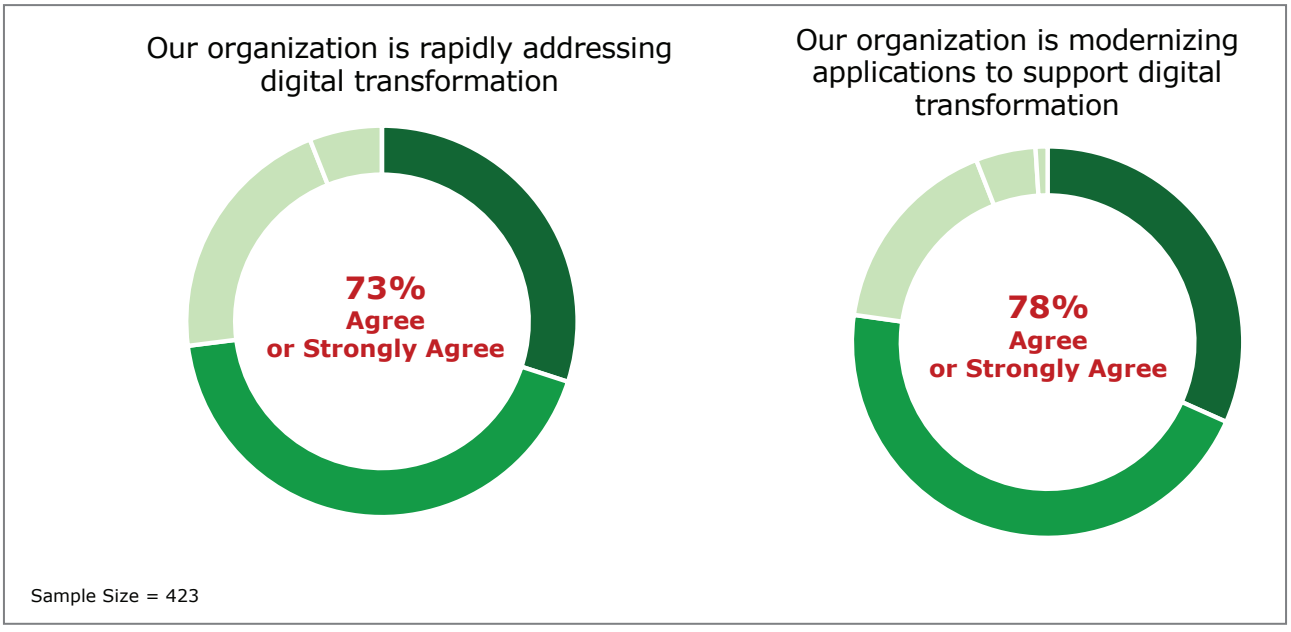
EXECUTIVE SUMMARY

As enterprise IT works to deliver digital transformation initiatives, it is consuming more cloud services. This can result in a proliferation of point solutions that lack integration and DevOps support, and do not provide a holistic view of automation including processing dependencies and outcomes. This paper explores the challenges to automation created by cloud computing and digital transformation projects.

CHANGE IS A CONSTANT FOR ENTERPRISE IT

Heraclitus, the Greek philosopher, said, "Change is the only constant in life." The only constant in enterprise IT these days also seems to be change. While this may have always been the case, the pace of change is certainly faster than ever before. Two big trends currently driving change are the push of major legacy production systems to the cloud and digital transformation. While many new applications were "born" in the cloud, core production workloads have only recently been moving to the cloud in mass. Bolting on a web user interface to an existing business process provides some benefits, but true digital transformation requires deep review of end-to-end processes, and reevaluating the best way to do the work with all the modern capabilities. Digital transformation is a combination of automation, AI-enabled self-service, and integration across disparate systems, often combining data not just from multiple systems within a company, but across many entities within the value chain of any given service or product delivery. Often, it is faster and easier to develop and deliver digital transformation projects when the core systems are running in the cloud. Therefore, these two trends are invariably linked.

Digital transformation is sweeping the business world. It has become integral to achieving business growth as customers expect an on-demand, technology-driven experience. Businesses also want to increase workforce engagement using digital transformation to make employees more efficient and effective. Digital transformation can bring great improvements in the way customers, trading partners, and employees interact. In a mid-2019 global research study, EMA found that 73% Agree or Strongly Agree that their organization is rapidly addressing digital transformation. Further, 78% Agree or Strongly Agree that their organization is modernizing applications to support digital transformation.



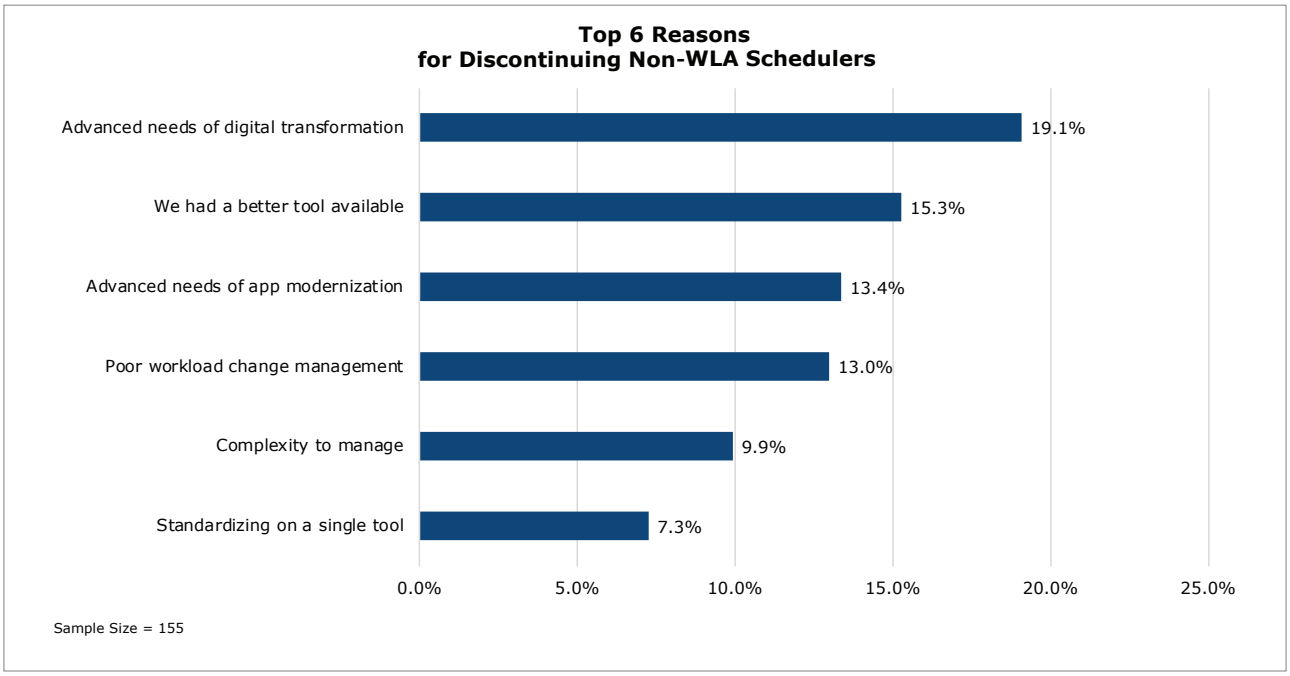
The Importance of Digital Transformation

AUTOMATION IN THE CLOUD

Moving major legacy systems to the cloud and digitally transforming key processes imposes radical change to both legacy systems and the underlying infrastructure management tools used by developers and IT operations. Automation tools are particularly important to success. Two important automation tools used to manage IT are release automation tools to manage software changes and workload automation tools to schedule, monitor, and manage the IT workloads supporting digital processes. Cloud environments, like most operating systems before them, include a scheduler function. These include Microsoft Azure Scheduler, AWS Batch, and Google Cloud Scheduler, which are similar to Windows Task Scheduler and Cron in Windows and Linux environments. While these environment-specific schedulers handle many of the basic functions required, they are not as full-featured as enterprise-class workload automation solutions.

Environment-specific schedulers can be sufficient for some users, but this level of job scheduler comes with some disadvantages. Platform-specific schedulers are just that: specific to one platform. There is no coordination between jobs or schedulers on other platforms. Modern IT can have data originate on systems in a variety of environments, including Linux and Windows on-premises, cloud environments, and mainframes. Job scheduling often requires manual intervention and change management, which means new coding for new or modified jobs. With different schedulers in different environments, staff need to be trained on different user interfaces and different means of defining job flows. To rationalize the scheduling function across multiple platforms within an enterprise, the class of software known as workload automation (WLA) was created. WLA offers improvements to the scheduling tasks across an enterprise with multiple environments by bringing consistency in job definitions, broader visibility, and control to the entire enterprise. Processes that begin in one environment and end in another can be executed in an orderly fashion and monitored through completion of the whole process.

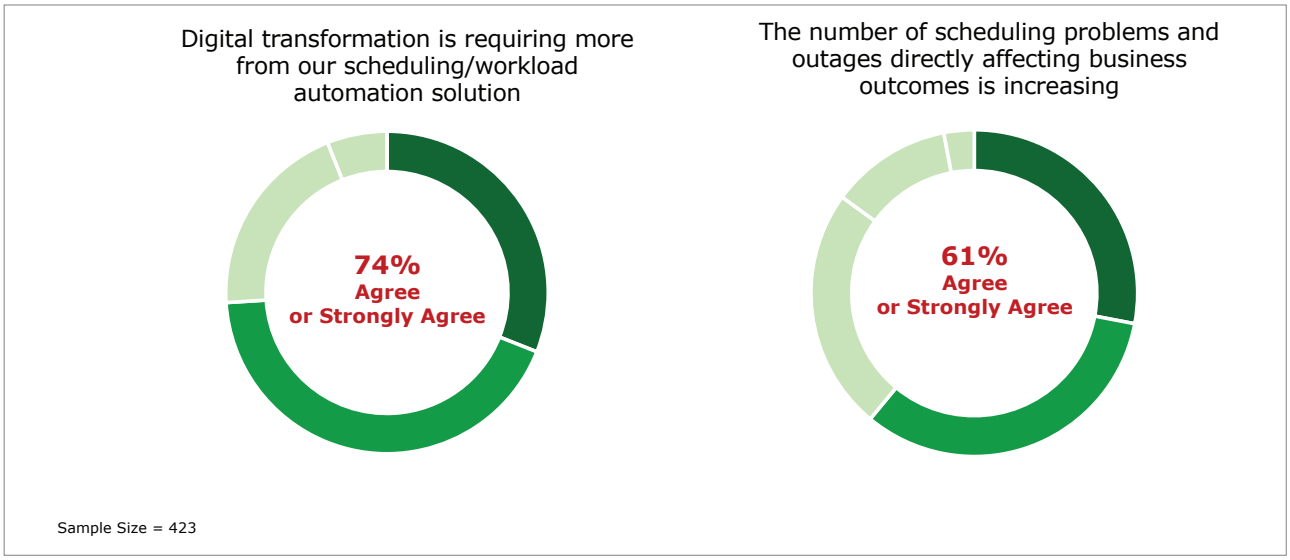
EMA research shows that 36% of those using non-WLA schedulers have discontinued them in favor of full WLA tools. The top six reasons for making this change are shown in the chart. The top reason for discontinuing a non-WLA scheduler is the advanced needs of digital transformation (19.1%). The second-most mentioned reason is having deployed a superior scheduling tool (15.3%). The third-most mentioned reason is the advanced needs of application modernization (13.4%). Other reasons include poor workload change management (13%), complexity to manage the non-WLA scheduler (9.9%), and standardizing on a single scheduling tool (7.3%). Clearly, the act of pursuing digital transformation projects has caused many to reevaluate their underlying tools.



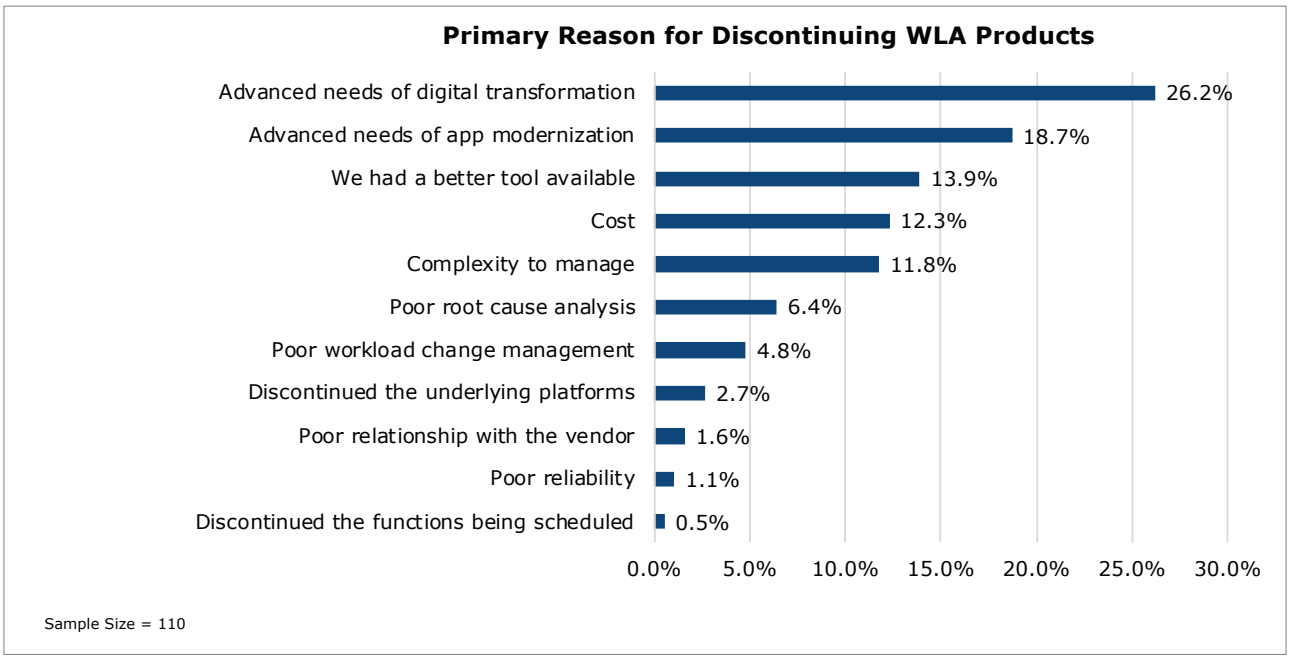
Another benefit of modern WLA tools is support for DevOps. Many organizations have employed DevOps to improve and speed up their development lifecycles. WLA tools increase development team productivity with self-service features that allow developers to easily define scheduling parameters and deploy the scheduling parameters with the code from development, to test, to production. Having automation tools that support DevOps increases the success rate for quickly deploying digital transformation projects.

DIGITAL TRANSFORMATION STRESSES LEGACY INFRASTRUCTURE

While digital transformation creates many positive outcomes, such significant change also creates new challenges. One such outcome from digital transformation is that customers and trading partners have greater transparency into back office operations problems. Every bump in the road is exposed. For example, problems such as inventory systems not updating or shipping information not processing are immediately exposed to users. Digital transformation expects near-real time data. Collecting, processing, and sharing all this data stresses legacy infrastructure and IT management tools and exposes processing delays. EMA research shows 74% of respondents Agree or Strongly Agree that digital transformation requires more from scheduling and automation solutions. Because of the transparency provided by digitally transformed processes, 61% Agree or Strongly Agree that the number of scheduling problems and outages directly affecting business outcomes is increasing.



Not all WLA products are created equal. Many organizations that already deployed an enterprise-class WLA have migrated to more modern products to gain better support for DevOps, digital transformation, and cloud. For those who discontinued a WLA product, the number one reason for changing was advanced needs of digital transformation (26.2%). The number two reason for changing was advanced needs of application modernization (18.7%). Like those switching from non-WLA tools, those using older or less featured WLA tools are exposing the weaknesses in these legacy tools as they approach digital transformation. Those without sufficient tools quickly learn they need to improve their management tools as they digitally transform.



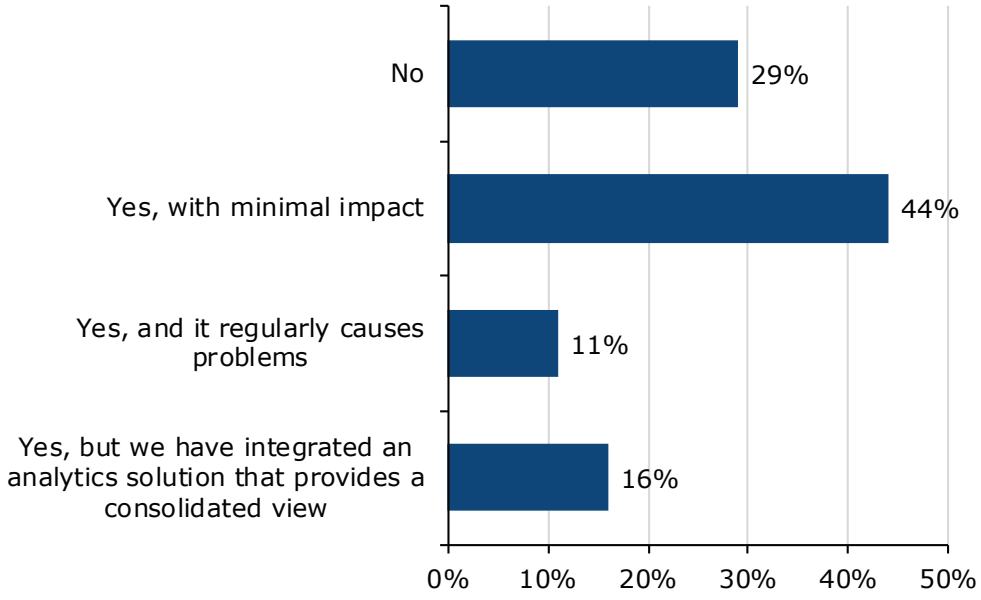
MULTIPLE WLA TOOLS ADD EXTRA CHALLENGES

Many large organizations find themselves with multiple WLA products. This often occurs through mergers and acquisitions because different tools are used in different environments, or when a new tool is added but the old tools are left in place. It really doesn't matter how it came to be; having multiple WLA products can create challenges to maximizing the business value from automation.

When multiple WLA tools are in use, it becomes difficult to train development and operation staff because some have to learn multiple automation environments. It becomes hard to establish best practices since the features and capabilities of each tool will differ. Further, when job streams span across multiple WLA tools, it is much harder to manage dependencies and to ensure the success of the business outcomes is tied to the processing in the various systems managed by two or more tools. With several independent solutions each storing information about what is automated and how it is performing, operations and business stakeholders cannot easily get a complete picture of status and outcomes. This incomplete view can increase the frequency of problems, frustrate those trying to perform root cause analysis, and can increase the time required to resolve problems.

For businesses with multiple schedulers, EMA research shows that 71% have cross-platform dependencies between different schedulers. For 44% the impact is minimal; however, for 11% cross-platform dependencies regularly cause problems. The remaining 16% also experienced problems, but they solved these issues by integrating an analytics solution with the capability to combine data from the multiple WLA tools into a single, cohesive view. These tools can do more than combine the data outputs from several sources. The analytics capabilities of these solutions can improve processing performance, predict problems, and suggest resolutions before it's too late for corrective action, and they can assist with root cause analysis when problems do occur. This combined WLA data is a rich source of valuable information that should be used to advise a broad array of decisions.

Do you have cross-platform dependencies between different schedulers?



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BROADCOM AUTOMATION SOLUTIONS

Broadcom has assembled a significant portfolio of enterprise software, including automation solutions that address the concerns raised in this paper. Broadcom's Automic Automation solution manages complex workloads across platforms, ERP systems, and business apps from mainframe to microservices and in the cloud. Automic Automation is an enterprise-class automation solution that provides significant advantages over environment-specific point solutions. For those with multiple WLA tools, Broadcom's Automic Automation Intelligence delivers visualization and intelligence to successfully manage complex workloads and provides a single-pain-of-glass view across multiple WLA products and vendors.

EMA PERSPECTIVE

As companies consume more cloud services (SaaS, PaaS, and IaaS) the proliferation of point tools for each provider is hindering their digital transformation. They need a comprehensive strategy that allows for the adoption of new technologies while maintaining the integrated nature of enterprise-grade automation. Workload automation tools are superior to environment-specific schedulers and are a necessity to cohesively manage workloads across on-premises and cloud environments. As organizations are working to rapidly deliver digital transformation projects to modernize business processes for employees, customers, and trading partners, it is important to ensure that the new applications and infrastructure can be managed effectively. Digital transformation puts added pressure on systems and processes because these modern applications rely on near-real time data from a variety of systems. Digital transformation brings greater integration across systems and amasses huge amounts of data to provide the new user experiences and streamline processes. The opportunity for breakage is increased over legacy processing and the complexity involved increases the time to resolve issues. Organizations that pay attention to the management tools used to support modern applications and operations will be more successful in their efforts to digitally transform their business.

ABOUT BROADCOM

Broadcom, Inc. is a global infrastructure technology leader built on 50 years of innovation, collaboration, and engineering excellence. With roots based in the rich technical heritage of AT&T/Bell Labs, Lucent, and Hewlett-Packard/Agilent, Broadcom focuses on technologies that connect our world. Through the combination of industry leaders Broadcom, LSI, Broadcom Corporation, Brocade, CA Technologies, and Symantec, the company has the size, scope, and engineering talent to lead the industry into the future.

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 or blog.enterprisemanagement.com. You can also follow EMA on Twitter, Facebook, or LinkedIn.

Corporate Headquarters: 1995 North 57th Court, Suite 120, Boulder, CO 80301 **Phone:** +1 303.543.9500.
Please visit EMA at www.enterprisemanagement.com.