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Dynamic
IT automation

Enabling Digital Transformation through dynamic IT automation

Global business in recent years seems to be captivated by artificial intelligence, machine learning and automation. Despite this widespread exploration, however, the complexities of practically incorporating dynamic automation into businesses with existing and often long-standing processes result in a much more cautious execution pattern. Countless companies have some form of automation on their digital roadmap, but initiating attempts to bring those plans to fruition often results in insecurity, raising concerns about slowed output or disrupted processes.

One could argue that a certain measure of scepticism is merely a sound business practice.

After all, it does not always make sense to be the earliest adopter of a new technology. Indeed, before acting or making irrevocable policy changes, many strategic considerations need to be made. This is true for businesses of any size. But by using a carefully developed, incremental approach, every business in any industry stands to benefit dramatically from adopting dynamic automation as part of their Digital Transformation. Automation has always enabled the simplification and execution of essential business processes, but dynamic IT automation takes this to a new level, offering digital possibilities that can completely transform businesses.

Dynamic versus static automation

The origin of workload automation is batch processing, a procedure by which computers automatically complete batches of jobs in sequential order with minimal human interaction. Routine business processes involving large volumes of data, such as monthly billing and fortnightly payrolls, are examples of batch processing jobs. Traditionally, batch processing was performed at night to ensure that the mainframes and computing power were optimised for performance during the day. After batch processing came classic job scheduling, created in conjunction with IBM mainframes to automatically process huge amounts of data in sequence. Job schedulers essentially manage business processes by referencing certain data, such as calendar entries and certain times and dates, to run background processes with the help of an IT administrator.

With the introduction of decentralised IT systems such as Unix and Windows, requirements for automation changed substantially. Job scheduling thus evolved into workload automation (WLA). Workload automation performs an essential role for coping with these new environmental and system requirements, orchestrating

absolute automation of business-critical processes, systems and applications. Just like job scheduling, WLA is a solution for automating background processes; in contrast to job scheduling, however, WLA automates entire business systems, including heterogeneous server environments, while also considering planned activities and information.

One third of today's workloads still run on mainframes, owing to their unfailing reliability – they are incredibly robust, solid and dependable. Two thirds of IT workloads, however, do have the potential to be dynamised. The starting point is not a greenfield environment; indeed, it has already been widely explored for enterprise business processes. Nevertheless, even the organisations most passionately evangelising the concept of enterprise-wide agility also exhibit some form of siloed static IT automation. As regulations continue to tighten and complex interdependent business processes become the norm, astute and enterprising companies will increasingly look to adopt an automation strategy that will rapidly accelerate digital information optimisation. In transforming, these companies will thus free

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themselves of the limitations of static IT automation in favour of flexible, intelligent and orchestrated dynamic IT automation with real-time data orchestration.

When examining dynamic IT automation as the new frontier of digital business, it is important to distinguish it from its predecessors in terms of most common applications. Static automation very often takes place on mainframes, which still boast both robustness and dependability, making them a good choice for sensitive data management operations. Static automation is more often used in large, stable teams that typically prefer to remain reactionary. This style of automation is based on plan-driven workloads that generally require cycle times of several weeks.

This format offers stability, maintaining the current system and ensuring optimal data and file security. Most enterprises have isolated automated processes and technologies such as this in place, if any. They are configured to fulfil specific tasks, lacking the capacity to become an integrated system. Static IT automation is certainly already driving companies' productivity. But the definition of successful automation for business requires constant acceleration and evolution, a task that mainframe-based static automation can only achieve to a point.

As more business units benefit from the adoption of new technologies, companies are increasingly turning to a more integrated approach. This new methodology integrates the existing set of automated areas into

the enterprises' various environments. This shift essentially represents the transition from static to dynamic automation. Dynamic IT automation uses a combination of distributed and cloud technology to realise real-time, eventdriven automation with hour-long cycle times, as opposed to weeks. This enables small and agile teams to work more proactively and at a faster pace. The purpose of dynamic automation is the holistic planning, realisation, control and continuous improvement of all essential processes and resources in connection with IT services.

There are many use cases for dynamic automation. Its prevalence illustrates the positive impacts an integrated approach can have on individual IT and business operations. In terms of comparison between dynamic and static automation, the best example is the most traditional use case for automation: job scheduling. Given that the technology hit the industry many years ago, even the most traditional companies have now automated their job scheduling. All the essential tasks of job scheduling can now be made dynamic by being automated across different platforms and applications, which finally evolved in WLA. But there are also many other dynamic IT automation disciplines such as data supply chain automation, cloud orchestration, big data automation, et cetera.
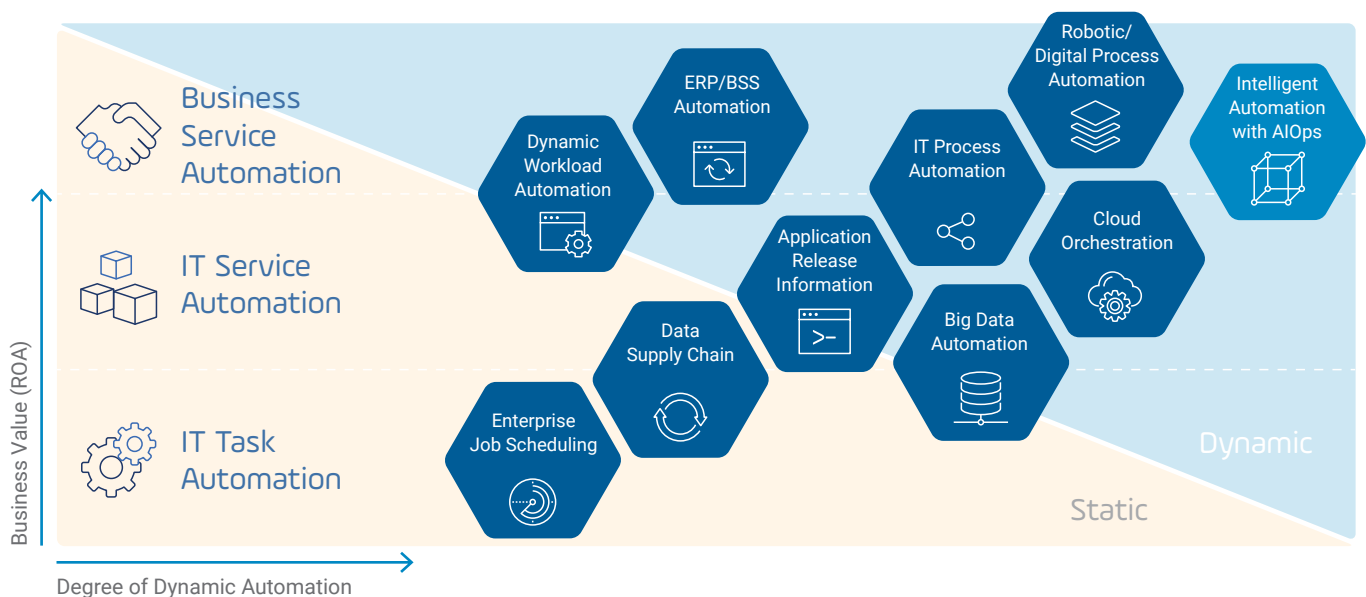
Workload Automation

Dynamic workload automation is a study in how the Digital Transformation is disrupting business processes. Dynamic WLA effectively integrates available solutions to orchestrate an intelligent decision-making process for IT automation. The benefits are inarguable: it helps enterprises to simultaneously shrink their costs and increase productivity and service quality. Dynamic WLA also allows companies to react quickly to changing market conditi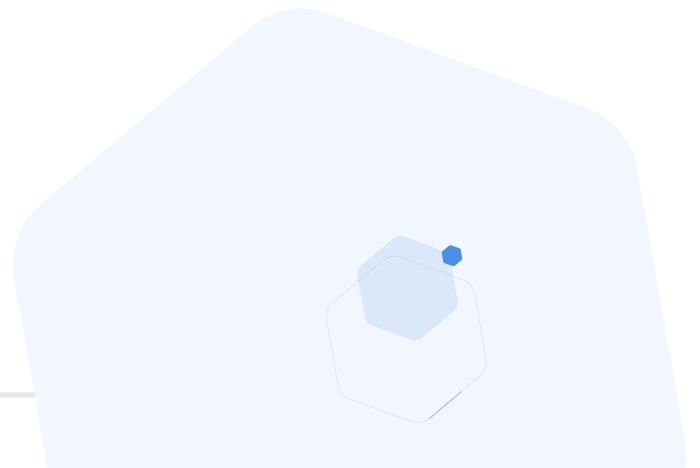ons and internal company requirements. This is made possible by the absence of dependencies on fixed dates and events – instead, workflows are scheduled based on real-time activities. An added plus is that collaboration between IT development and IT operations can be improved sustainably, enabling enterprises to benefit from a faster time-to-market. In summary, all processes and operations improve with the help of workload automation.
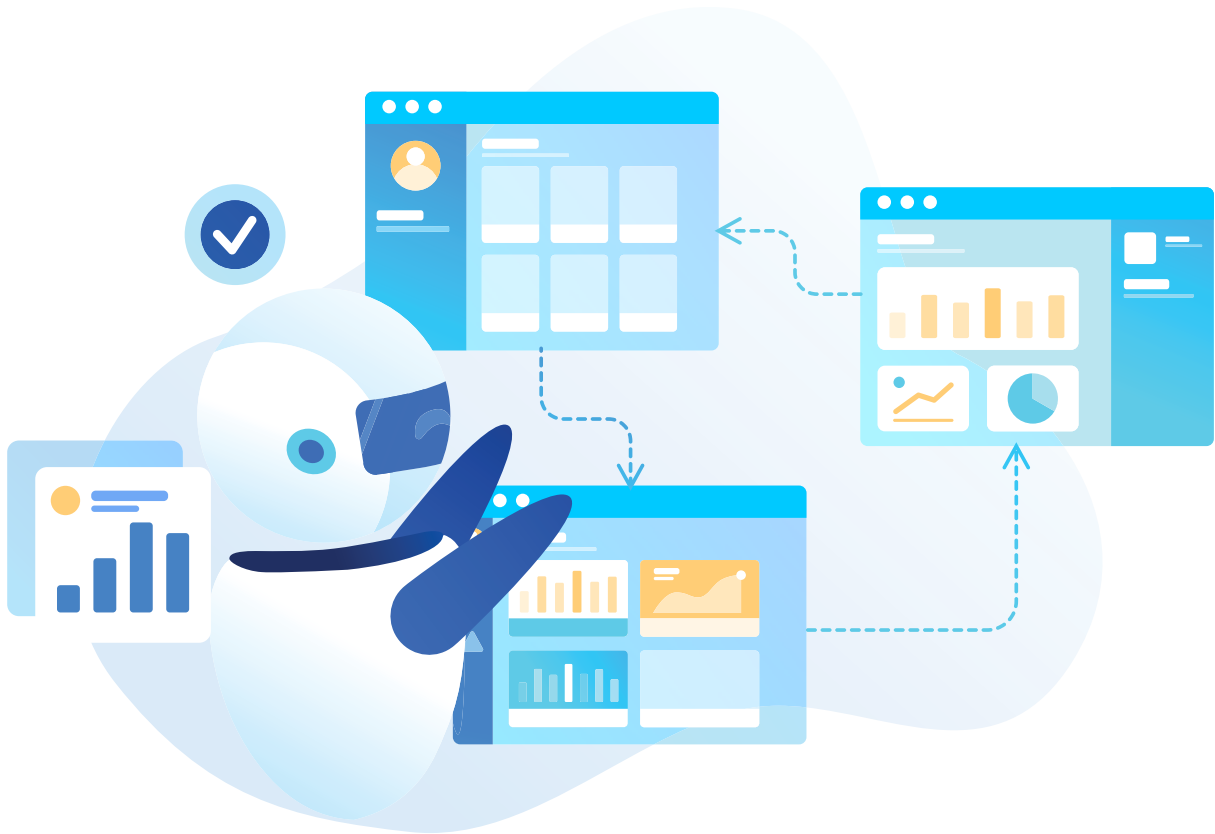
Data Supply Chain

An essential part of dynamic IT automation is file transfer processing and management. There are many important requirements for data processing, all of which a system must meet to ensure business operability. Data movement must be particularly secure and reliable, as it is a key factor for business operations. Therefore, truly best-of-breed WLA tools should always include a unified strategy for moving large files between legacy and distributed applications. But simply excellent file transfer capability is not the end of the story – due to dependencies among extract programmes, external transfers, scripts, and application processes, there is a great need for efficient coordination between file transfer functions and other business process activities.

Security is of monumental concern when it comes to enterprise data. Hence, strong security and encryption standards are an absolute must for file transfer processes to ensure that files are delivered uncorrupted and complete. Additionally, there must be a protocol in place that enables network sessions automatically and seamlessly, should an interruption occur during file transfers or other long-running transactions. In addition to providing an efficient and secure file transfer process, a strong platform must make detailed information available on all activities for the purposes of auditing and reporting.

Finally, file transfers must be able to seamlessly integrate with existing workload automation tools. A data supply chain can only function optimally when deployed in conjunction with IT strategies that add dynamic triggering and application event integration for certain events. This synchronicity ensures that the systems provide the necessary flexibility to automate complex business processes. This also maximises the capabilities of a single integrated platform, on which automating file transfers then become only part of a fully managed solution. File transfer activities for business-related events can thus be both automated and coordinated effectively and in a way that maximises return on investment.

Cloud orchestration

Cloud technology is an important piece of the automation equation for companies on their way to digitalisation. In a typical business environment, services and processes are often spread out across both private and public clouds, in addition to traditional on-premise environments. This complex web of interconnected environments with disparate capacities and functions raises the demand for centrally managed, automated workloads that navigate easily across all boundaries, guaranteeing secure file transfers along the way.

In addition to cross-environment automation capabilities, a truly future-proof solution will also be flexible enough to offer the gradual migration of workloads into the cloud. The distribution of automation instances should be designed similarly; that is, able to increase and decrease as the IT demand grows or decreases. The same must also then apply to microservices, which fulfil very particular – often temporary – functions. When all these individual elements become flexible and scalable, automated workloads can be optimally applied and utilised across an entire diverse enterprise.

Having established a good basis by implementing static automation processes for specific tasks such as job scheduling, companies will soon feel (if they do not already) mounting pressure to expand automation to additional areas within their IT infrastructure. Today's business environment demands more agile systems that require progressively less human interaction, placing priority on the conservation of valuable intellectual resources. The future of business therefore depends on integrated platforms that use a web of interconnected and automated processes and systems to free companies' hidden potential, or DNA. In search of a more flexible expansion of the siloed IT automation we know today, companies facing these challenges are migrating in the direction of dynamic IT automation. Consequently, the evolution of IT automation will continue speeding forward.
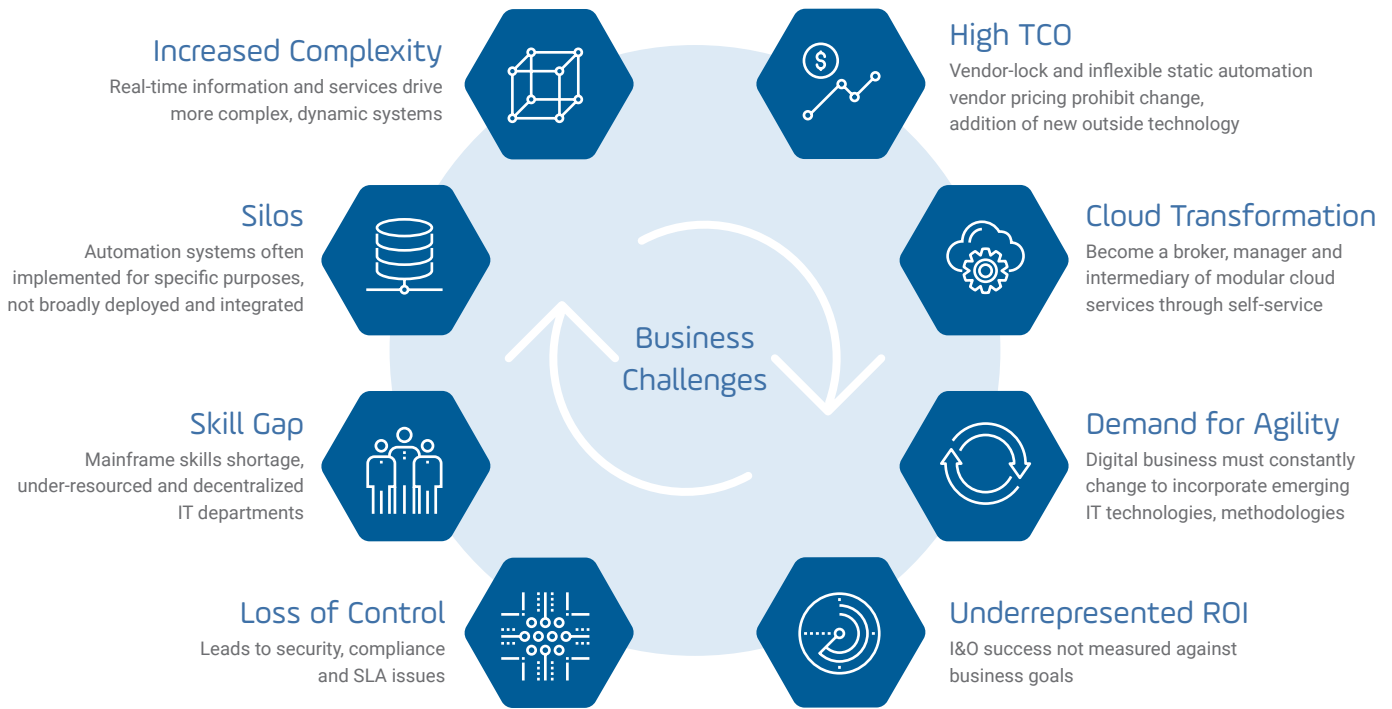
Challenges I&O leaders face

Many business leaders wonder where exactly they should begin when it comes to the adoption of dynamic IT automation. Essentially every conversation about dynamic IT automation should begin with agility. Above all else, dynamic automation requires agile, dynamic systems. In order to incorporate a culture of agility, it is important to transform one step at a time, to ensure a clear focus on dynamic IT. For some companies, it should be noted, dynamic IT automation will not necessarily be a foregone conclusion. First and foremost, IT automation should be treated as a strategic decision dependent upon the status of the enterprise and the individual strategic short- and long-term goals of each business.

The need for agility appears very strong in current market conditions, but agility may not be the ultimate goal for some businesses. There are companies for which data runs in cycle times of months, and where the focus lies mainly on production. For this type of organisation, the technology is generally based on mainframes, and teams are large and stable. For these businesses, static automation will ultimately be the preferred strategy. Automation would serve this type of company best when triggered by planned actions in a reactive mode. Companies with data cycle times of days and hours, and a focus that is user or customer-centric, however, might better be advised to consider dynamic automation.

Dynamic automation can be better realised with small, agile teams because it is event-driven and proactive. The automation technology of choice should ultimately be able to integrate smoothly with the company's future enterprise architecture, including transferring at low risk from current legacy scheduling solutions. It must be secure, scalable and flexible, and reflect business contexts, including data analytics and different types of cloud technologies. Most importantly, the technology must be easy to use, secure, compliant and future-proof: able to grow as its environment grows. When it comes to enterprise automation, decision-makers face several difficult choices that, in the worst case, may have a negative impact on the organisation's prog-

ress towards Digital Transformation. Some companies that have already invested in automation technology are now confronted with an outdated and rigid structure as the result of either inflexible pricing models or vendor-lock with one static automation vendor. This makes it difficult for them to justify changing or adding technologies from new vendors, even if they ultimately offer a higher value at a lower price point. Despite this resistance, constantly changing business unit requirements, software developers and technology all continue to substantially raise the demand for businesses to become more agile. The demand for agility is so high that the ability to adapt flexibly to new business environments is now an essential factor for long-term sustainability. Thus, agility is something future-focused decision-makers should inevitably strive for.

Another challenge many I&O leaders are confronted with today is the heterogeneous cloud landscape. Currently, enterprises often experience their business processes and services being spread across a combination of private and public clouds and traditional on-premise environments. The result is the establishment of cumbersome boundaries, both within their own IT environment and between clouds. This operational challenge must be addressed using clever cloud solutions that enable organisations to regain full management control of their cloud services. One such a solution would be a modular cloud service approach, corroborated by an abundance of use cases offering a variety of ways to significantly improve productivity and efficiency. Fragmented IT structures and data silos like the environment described above cause a critical decrease of control and, thus, increase the likelihood of security, compliance, and SLA issues. In addition, many organisations are unable to accurately measure I&O success against business goals. This absence of illustrative data makes it difficult for leaders to make sound or informed decisions. Decentralised or under-resourced IT departments further complicate things, particularly as areas of focus such as real-time information and services grow progressively more complex. Automation is the optimal solution for organisations that wish to overcome any or all of these challenges.

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Increased Complexity
Real-time information and services drive more complex, dynamic systems

Silos
Automation systems often implemented for specific purposes, not broadly deployed and integrated

Skill Gap
Mainframe skills shortage, under-resourced and decentralized IT departments

Loss of Control
Leads to security, compliance and SLA issues

Business Challenges

High TCO
Vendor-lock and inflexible static automation vendor pricing prohibit change, addition of new outside technology

Cloud Transformation
Become a broker, manager and intermediary of modular cloud services through self-service

Demand for Agility
Digital business must constantly change to incorporate emerging IT technologies, methodologies

Underrepresented ROI
I&O success not measured against business goals

This includes not only the automation of low-level individual IT tasks such as job scheduling, server life cycle management and network configuration, but also the automation of overarching IT services. At this level, it is possible with automation to provide added and unique value by coordinating workflows within and across domains. Business services are still a higher-level series of business processes that can be automated. In this instance, automation helps to coordinate the workflows required to automate the provisioning of key services by business and IT customers. Tools supporting business services must manage processes across multiple silos to enable business users to coordinate and orchestrate subordinate workflows that benefit their business environment.

Reaching the level of automation where your business processes, as well as everything that falls under their umbrella of control, is automated, signals that a business is truly future-focused. As the degree of dynamic automation increases, the possibilities for its uses and benefits increase substantially. The possibilities for additional benefits from an entirely automated system are thus truly endless. The ultimate pinnacle of dynamic

business automation is AIOps, or Artificial Intelligence for IT Operations. This genre of automation not only allows full orchestration and coordination of current business processes across environments and platforms, but can suggest and make further optimisations and improvements to the system based on machine learning and artificial intelligence gathered as part of the business service automation process.

One automation platform for all

Companies that want to stay several steps ahead of the competition should strive for an "IT automation cockpit". A central automation command station enables the orchestration of different types of automation from end-to-end. By automating end-to-end, companies can simultaneously test, deploy, run and monitor applications on and across different runtime environments, both in the cloud and on-premises, including legacy platforms. Users can control and monitor newly integrated external apps and services through this unified cockpit panel, reducing the complexity of their processes and ensuring synchrony.

Such a platform can additionally run operations automatically according to specific SLAs and policies, and more quickly recover from failures with patterns and resolution strategies known to the system. Over time, the end-to-end system will 'learn' patterns and trends, and subsequently decrease the amount of failures that are escalated to human operators. Essentially, this kind of platform can act as an all-encompassing automation control station. It can achieve seamless orchestration, automating IT workloads and closely controlling the interplay between different automation solutions. It can be assigned responsibilities such as encapsulating complex functions and automation into well-defined services, thus providing standardisation, masking complexity and monitoring all activity with high-level metrics. For businesses with access to such a powerful platform, the focus shifts from task-specific tools towards actual IT capabilities. Automation can then be gradually decentralised from the operations group, thus empowering internal customers such as developers, application owners, and business users. If IT automation continues moving in this direction, it should be noted that end-to-end automation itself will become a total IT capability, accessible as part of a standard service catalogue.
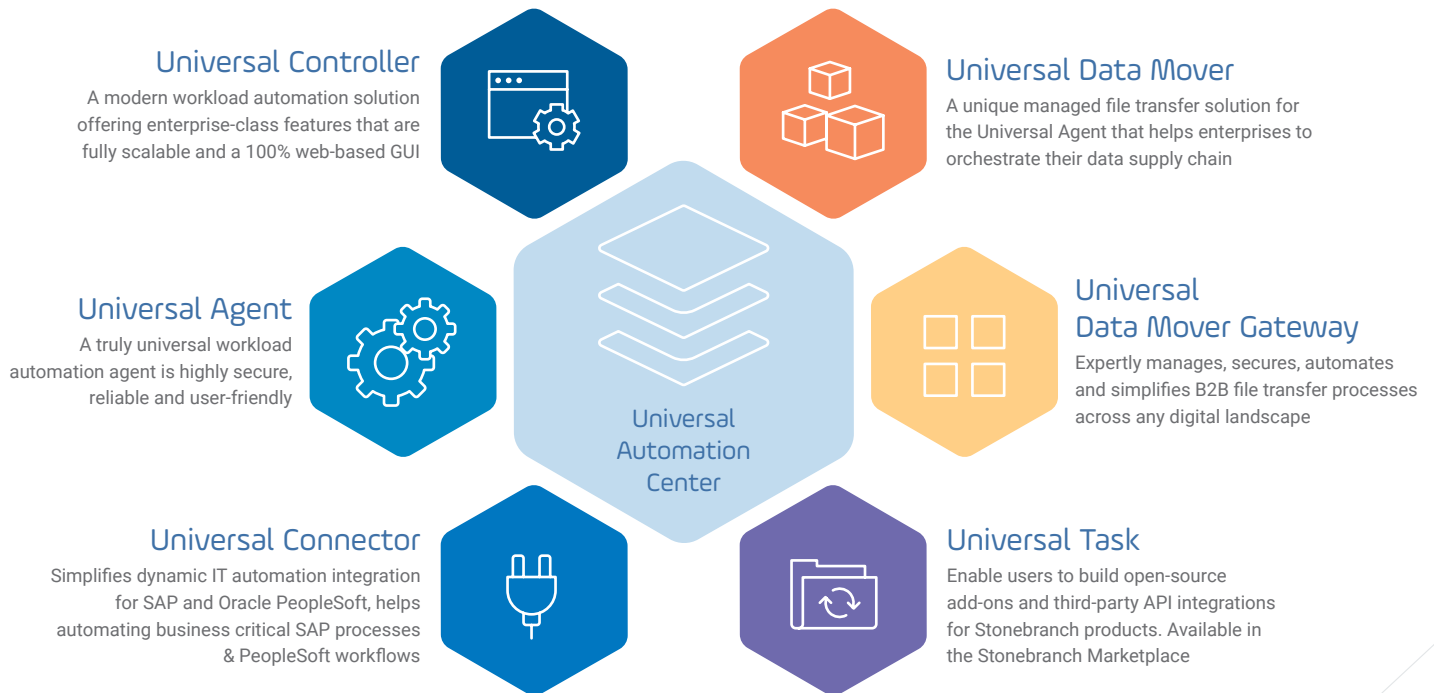
Because of the potential for user empowerment, a functional automation platform must demonstrate a high level of flexibility for the target user, integrating effortlessly with any scheduler or other automation tool on the market. Essentially, the platform needs to be capable of working agnostically, but also maintain client controllability, ensuring both security and robustness. The platform must also flex in different directions, offering custom functionality. This must include the potential to integrate specific backend functionality, like access and authorisation management, or custom web service interfaces with added logic and controlled access to the data backend.

Data integration is always a bidirectional concern. Thus, a best-of-breed automation platform must also offer highly automated migrations from other schedulers or automation platforms for the integration and processing of data. This way, it can be proactive regarding complex events and system states.

Sustainable success through digitalisation can only be ensured through the constant exchange of insights, best practices, and thought leadership. Therefore, the Digital Transformation can never be fully realised without continuous collaboration. Tracking the cost and benefit of implementation plays an equally key role in selecting the optimal digital tools.

The return on automation (RoA) is thus an essential KPI for decision-makers in monitoring effective Digital Transformation. In essence, RoA estimates the expected value contribution of automation, which is manifested in measurable benefits such as more economical TCO and higher levels of agility, IT simplicity, and scalability as well as resource utilisation, resilience, and auditability. RoA is hence determined by benchmarking successes and measuring potential increased transparency and visibility, then measuring that data against automation's estimated risks and their mitigation. Charting existing solutions in the involved areas based on this aggregate data provides a realistic picture of just how transformative an automation platform can be for business.

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Universal Controller

A modern workload automation solution offering enterprise-class features that are fully scalable and a 100% web-based GUI

Universal Data Mover

A unique managed file transfer solution for the Universal Agent that helps enterprises to orchestrate their data supply chain

Universal Agent

A truly universal workload automation agent is highly secure, reliable and user-friendly

Universal Data Mover Gateway

Expertly manages, secures, automates and simplifies B2B file transfer processes across any digital landscape

Universal Automation Center

Universal Connector

Simplifies dynamic IT automation integration for SAP and Oracle PeopleSoft, helps automating business critical SAP processes & PeopleSoft workflows

Universal Task

Enable users to build open-source add-ons and third-party API integrations for Stonebranch products. Available in the Stonebranch Marketplace

Practical Application of Dynamic IT Automation

The road towards Digital Transformation begins with flexible, robust and safe data collection and control, and continues with intelligent data exchange, even across company boundaries. At the next step in the journey, considerations are made regarding the current technology on which the predominant workload is running – whether this be mainframe, cloud, or both. In this phase, a key decision must be made between static-monolithic IT automation, dynamic IT automation or a hybrid that best fits enterprise needs. The team's available skills, data cycles, and centricity or triggers of the respective workload are just some of the factors that should be considered in making this decision.

Next, the chosen system needs to be integrated into the existing application landscape. At this stage, dynamic IT automation focuses on the end user, providing him with a toolbox with which to automate his own workflows, independent from the platform. This is also the point at which dynamic automation distin-

guishes itself by delivering the most value. The results are undeniable: processes become better, faster, more economical, and most notably, more secure.

The final step in the application of dynamic IT automation is for the company to reshape itself into a learning organisation by adopting a sustainable change management approach. At the core of this new format of ever-evolving organisation is a business automation roadmap, which will define how business processes run currently, as well as how they will be changed, integrated and structured well into the future. The successful implementation of this shift absolutely depends on step-by-step realisation in clearly structured work packages, dictated by both the principles of agile project management and transparent value management of the resulting benefits. The establishment of a learning organisation will thus become a solid foundation for "automating the automation".

Better Digital Business

Regardless of where they are on their Digital Transformation journey, companies need an enterprise-wide automation strategy that clearly defines what areas can (and should) be automated. They must also determine the desired level of automated interaction across these respective areas. Although every company uses automation to achieve different ends, automation often helps enterprises, regardless of their sector, increase their availability, consistency, and security, among other benefits. Automation should, thus, be an essential factor behind every Digital Transformation initiative.

This is not to say that there will not be challenges along the way. Factors such as unconnected management tools, complicated scaling procedures, and inconsistent policy and process requirements add to the inefficiency hindering many companies from taking full advantage of their IT operations. Automating these crucial IT operations can help organisations to immensely improve their overall infrastructure performance and compliance by maintaining consistent configurations and constantly scanning for security and compliance requirements.

Automation is also infinitely scalable and need not be seen as simply an overarching configuration of IT systems; on a more granular level, processes can be made substantially more efficient and consistent through automating mundane or repetitive manual tasks such as configuration, deployment, integration, and migration. Automation also enables self-service capabilities and minimises human errors. But perhaps the most invaluable benefit of automation is knowledge: in deploying automation tools, key decision-makers and users gain deep insights into the operations and the respective dependencies of their workloads.

Ultimately, when carefully considering the pros and cons of dynamic IT automation, the current state of digitalisation should take a back seat to actual organisational impact. The impact of even the simplest change to a process will always be palpable, and not only within the IT department. Automation should therefore be tackled incrementally, ideally through the utilisation of a knowledgeable business partner with experiences under their belt. This partnership will help organisations adapt their IT at a pace that works for them. Dynamic IT automation is most functional when introduced gradually throughout an organisation in a way that makes it feel like part of the previous set of processes and programmes. Ideally, it should eventually become so essential that it becomes synonymous with the organisation itself.

There are truly endless applications for dynamic automation. This paper covers only a small range of the infinite possibilities. Company architectures today may tend to be largely heterogenous, spanning a wide range of automation utilisation, but the trend will continue towards all-encompassing dynamism. As decision-makers continue to recognise the huge potential of automated services and processes, automation will continue to become the core of enterprise IT landscapes, the true heart and soul of every digitalised, future-focused business.

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About Stonebranch

Stonebranch builds dynamic IT automation solutions that transform business IT environments from simple IT task automation into sophisticated, real-time business service automation, helping organizations achieve the highest possible Return on Automation.

No matter the degree of automation, Stonebranch software is simple, modern and secure. Using its universal automation platform, enterprises can seamlessly orchestrate workloads and data across technology stacks and ecosystems.

Headquartered in Atlanta, Georgia with points of contact and support throughout the Americas, Europe, and Asia, Stonebranch serves some of the world's largest financial, manufacturing, healthcare, travel, transportation, energy, and technology institutions.

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