

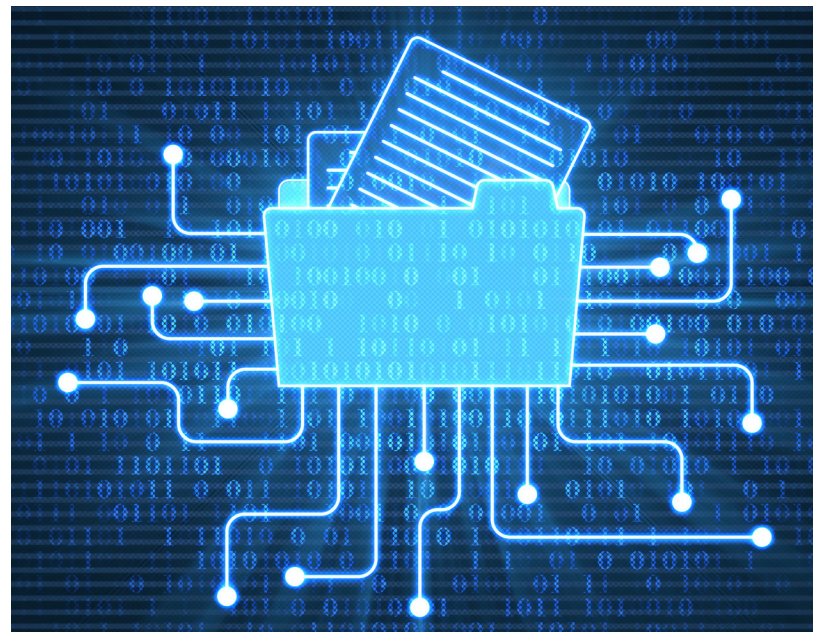
# A CHECKLIST FOR PREPARING FOR CONTAINERIZATION

DevOps driven companies are continually seeking ways to support a faster, better, more agile environment. One way these development organizations have found to increase their operational agility is by using application containers. Containers are designed to enhance development speed, simplify management and improve efficiencies in IT and development teams alike. They allow businesses to develop and deploy applications rapidly by allowing for unfettered movement of software from one environment to another.

A container consists of a complete runtime environment: an application that is bundled with its entire set of dependencies, libraries and configuration files. Thus, by “containerizing” the application, differences in operating systems, connectivity types, and underlying infrastructure are all abstracted away, creating a single package ready for deployment across environments. With the use of containers, there is no longer a barrier to moving applications from development to production, cloud to on-premises, or from a physical machine to a virtual machine as all the necessary components of an application are contained in one wrapper. Containers ensure that applications deploy quickly, reliably, and consistently across deployment environments, and enable independence between applications and infrastructure. This way, software developers and IT operations can come to work in unison, unleashing the potential for enhanced collaboration, speed and innovation.

Yet, application containerization is not for everyone. While it is true that most tech-forward businesses are willing to go

to great lengths to operate as quickly and as cost-effectively as possible, there are some considerations to make when moving to a containerized environment. We have compiled a comprehensive checklist to aid in the decision-making process and to help you to prepare for the shift to a containerized environment.



**Containers are designed to enhance development speed, simplify management and improve efficiencies in IT and development teams alike.**

## □ PREPARE FOR A NEW WAY OF DOING THINGS

Containerization, with its broad reach, brings new levels of complexity to an already complex development environment. Those who choose to pursue containerization



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must understand that it is not just a technology change, it requires a fundamental shift in the operational environment since it affects development and infrastructure alike. Utilizing containers in virtualized environments allow developers to pack even more applications onto hardware while leveraging the maturity of virtualized infrastructures. This makes implementing containers even easier as it does not require a significant IT infrastructure and operational change. Due to their very nature of being fast and lightweight, implementing containers dramatically increases the speed to market by allowing organizations to publish software and applications faster than ever before. Development and software engineering groups can better operate in tandem once they leverage containers and more efficiently streamline the entire deployment process.

### ☐ UNDERSTAND THE 'WHYS'

A successful containerization project will first offer a crystal-clear vision of why. Containerization brings with it a host of benefits but is not designed to replace a strong development process. Such benefits may include increased speed of cross-platform applications development, freedom for development teams to code in optimal languages, and an elimination of inconsistencies and configuration dependencies. Since it is not a replacement for virtualization or any single methodology, there must be full buy-in and an overall understanding of why the organization is considering adopting containerization in the first place, along with the perceived benefits they hope will follow.

### ☐ SEEK COUNSEL

Not every organization will benefit from containerization. Since containerization requires fundamental change in both application development and infrastructure, the decision to containerize must be based on a deep understanding of the current and future state of the existing environment. A comprehensive assessment will help identify potential

benefits or pitfalls resulting from a move to containers and should outline what improvements will need to be made to support it. The analysis should also be used to consider the extent of the benefits gained, or to determine if there would be any benefit at all. Look to those experienced in this type of transformation for guidance on how to best approach containerization.

### ☐ CHECK YOUR CODE AND YOUR OPERATING SYSTEMS

Containerization is built on Linux and does not fully support all programming languages and operating systems. Some organizations may learn that moving to containers is simply not a viable option. While Microsoft has introduced the means to perform containerization-like processes, containerization is still primarily based on Linux. From a code perspective, if you have applications built on non-supported platforms, moving to containerization may involve a complete redevelopment of those products in a supported coding language. The question that must then be asked, "Is it worth it?"

### ☐ PREPARE FOR SOME ELEMENT OF RISK

Containerization is an innovative technology wrapped in a novel methodology and has yet to fully mature. While the user community around containers is proliferating, there will most certainly be ongoing change as the technology evolves, which brings with it an element of risk. Enterprise environments may wish to wait until the technology stabilizes or, at the very least, carefully weigh the cost vs. benefits resulting from the early adoption of this emerging technology.

### ☐ GET READY TO SHARE

Traditionally, and unlike virtual machines, a single machine hosting containers has a single set of resources that applications use to function. With containerization, the use



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of shared resources is the new normal and extends beyond shared memory and storage. Containerized deployments may leverage shared files, executables, .dlls, and databases. Thus, to function correctly, all applications and hardware must play well together.

### □ UNDERSTAND THE BENEFITS

Containers provide speed – speed in development, speed in deployment and ultimately speed to market – and can offer a competitive edge to those who embrace its benefits. In highly competitive instances, it can be an extremely powerful strategy to have the ability to promote code, fast. However, for many environments with legacy applications, it can be a significant undertaking to move development resources toward containerization. If massive gains in development and deployment speed are not driving factors in your business model, or if your operational model is rigid and resistant to change, containers may be a more difficult strategy to implement. Application assessments can help determine not only if the application is portable to containers, but also if the development processes are ready.

### □ BE SECURE

One area that raises eyebrows when it comes to containers is security. Many believe that containers are less secure than virtual machines because if there's a vulnerability in the container host kernel, it could potentially corrupt or expose all containers that reside on the host. And while this is true to some extent, the adoption of "signed" container images mitigate this concern by ensuring that all content is explicitly approved by administrators before being deployed. Even with verified images, strong access layer protection is a must. If there are any hesitations about security, they should be addressed long before the adoption of any new technology. Risk can be alleviated by practicing good cybersecurity hygiene, implementing application security tools and processes, tightening vulnerable entry points and increasing transparency of the software development.

Finally, advanced security efforts related to containers are continuously being made as the use of container technology evolves.

### □ SELECT AN OPTIMAL PLATFORM FOR AUTOMATION

Above all, containerization provides portability – which, in turn, manifests itself into an increased speed of deployment. Thus, to fully realize the benefits of containerization, you will need a unified toolset that fully supports orchestration and automation, provides simplified management and is designed with long-term adoption in mind. Pay attention to pricing models and choose those tools that work with all forms of cloud – public, private and hybrid. Also look for an open and extensible platform that offers access to third-party tools and easily integrates into your existing environment.

### □ PREPARE YOUR TEAM

Containerization brings with it more operational change than virtualization alone. Since it functions in a shared environment, there are many dependencies and shared resources to consider, so its effects can be far reaching. Be sure that you and each of the many stakeholders involved have thought through the risk and reward scenarios carefully. Adopters will need some degree of technical expertise, whether in-house or outsourced, to properly launch a containerization effort, including engineers with advanced Linux skills, the primary building block of containers. While tools like Docker are readily available container platforms, their adoption requires change all the way down to the application development level. Only when the right resources can be allocated to deal with the ongoing effort, should companies undertake this operational improvement.



## TALK TO WEI TODAY

Let the experts at WEI further assist you in preparing for a move to containers. WEI engineers can evaluate your infrastructure, applications, and team to help ensure that your environment is ready to get this transformational technology up and running quickly, securely and successfully. Contact us today.

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## ABOUT WEI



**WEI is an innovative, full service, customer centric IT solutions provider.**

**Why WEI? Because we care. *Because we go further.***

At WEI, we're passionate about solving your technology problems and helping you drive your desired business outcomes. We believe in challenging the status quo and thinking differently. There are a lot of companies that can take today's technology and create a great IT solution for you. But we do more. We go further. And we have the customer, vendor and industry awards to prove it. WEI is a premier technology partner, who always puts our customers first while providing the most innovative solutions for over 25 years.