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CONTAINERIZATION:

A FRAMEWORK FOR QUICK, EASY AND CONFIDENT ADOPTION

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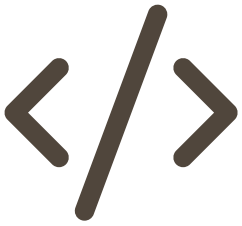
We know that Containerization, a lightweight alternative to Virtual Machines (VMs), is making headlines. The technology allows organizations to develop applications on a laptop, without having to create elaborate development environments, and then test it and run it on any environment. It gives developers a comfortable production-like feeling at minimal cost while making development, testing and deployment fast and flexible. That is why adoption of Containerization technology is witnessing runaway growing.

A 2019 survey shows that it is headed to becoming a blockbuster: Over 87% of respondents in the survey stating that they are using the technology, up from 55% in 2017[1] . But because it is an innovative and fast-evolving technology, a variety of options have begun to mushroom around it. Organizations wanting to leverage Containerization have to contend with baffling choices between Amazon Elastic Container Service (ECS), Amazon Elastic Kubernetes Service, Google Kubernetes Engine (GKE), Azure Kubernetes Service (AKS) and make their way through a near-endless maze of tools for container orchestration, security, data loss prevention, integration of storage and networking, performance management, etc. Honestly speaking, this can make the task of adopting Containerization not just a headache, but risky as well—the wrong choices could prove to be expensive.

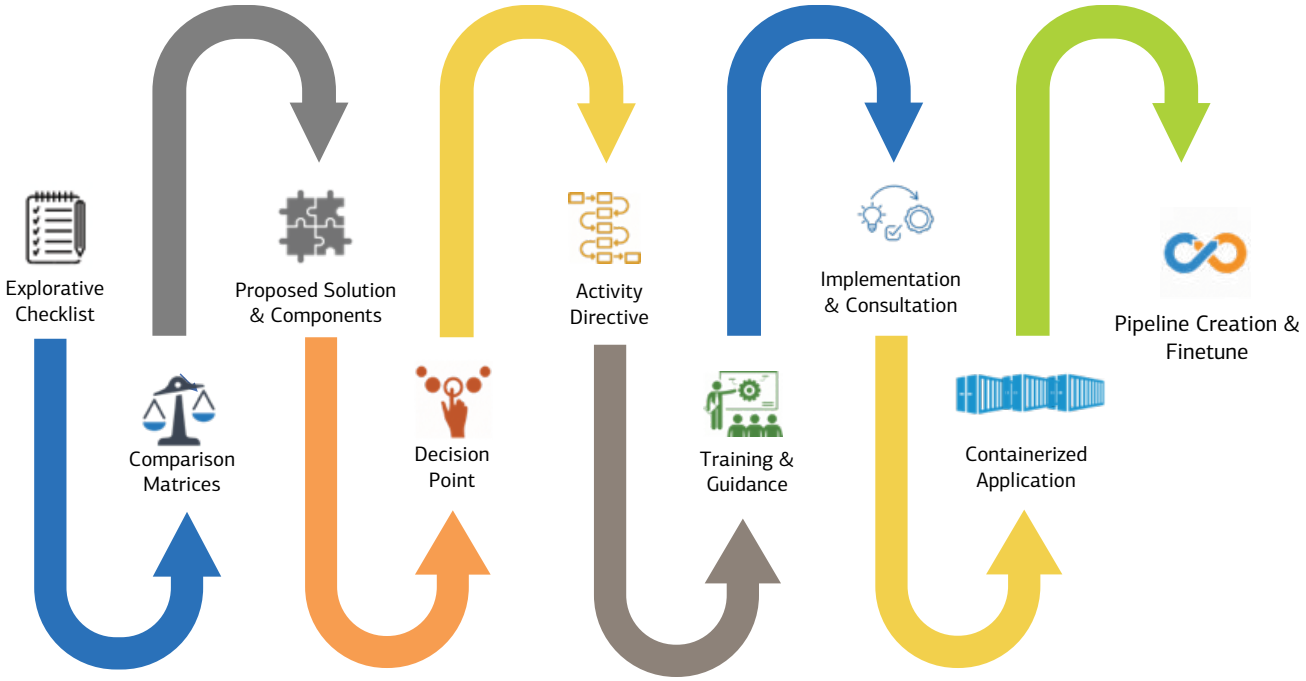


But is there a need to "wait-and-watch" for simplified adoption roadmaps? We think not. There are safe pathways as well. The safe options allow organizations to create multi-container/multi-host distributed applications without being restricted by on premise or cloud systems. Instead, they need to focus on enabling containerization and on the communication between containers. For this, they have tools like Kubernetes and Docker. Perhaps even more attractive is the fact that application development need not be limited by a programming language; services can be written freely as the technology supports a polyglot architecture.

Doing the right things, getting the job done

However, to map the choices precisely to an organization's goals requires expertise. Brillio Enterprise Containerization Framework (ECF) is meant to provide organizations with the "expertise" to quickly decide on the roadmap and tools, based on the current technology portfolio. More importantly, it also aligns itself with an organization's business plans (see Figure 1: ECF Components).

ECF Components



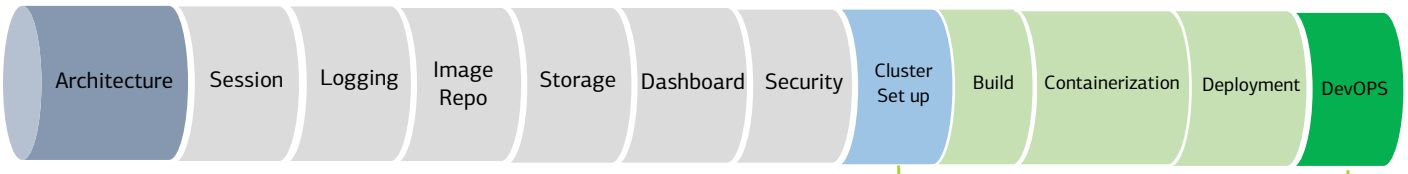
One of Brillio's American customers in the housing finance space that wanted to adopt Containerization exemplifies the challenges that most organizations face when it comes to Containerization: Should it invest in a pricy tool like OpenShift? Should it move all applications to Kubernetes? How will sessions be managed? Should Containerized workloads be run on bare metal or in cloud?

With every new innovation around the fast-moving technology, the questions that need answers grow as well. The answer is to use ECF whose components provide hand-holding in a variety of ways by:

- **Eliminating confusion in the selection of orchestration tools and deployment strategies by providing dependable insights that lead confident decision-making**
- **Flattening the steep learning curve to get to a Containerized, infra-agnostic hosting solution by providing a step-by-step process to get the building blocks in place**
- **Presenting a view on how to assess, select and implement components and configurations ideally suited for individual Container hosting needs while containing costs**
- **Offering security recommendations that are aligned with operational needs**
- **Providing integration with DevOps platform to simplify the build/ test/ deploy pipeline**

Enterprise Containerization Pipeline

ECF can prove to be critical for any organization keen on flawlessly deploying its Container strategy. The framework addresses everything, from Architecture to Sessions Management right up to Deployment and integration with DevOps (See Figure 2: Enterprise Containerization Pipeline)



Architecture

- Application Analysis
- Architecture Analysis
- Target Deployment Envt.
- Components
- Decoupling of Services
- Access control
- Availability & Usage
- Service Requirements
- Mandated toolsets
- Cluster Architecture & resource Recommendations
- Tool Recommendation

Component Selection & Assessment

- Assessment & Recommendation of Cluster components

Cluster Set up

- Cluster Set up on Target Envt
- Access control
- Service Accounts
- Cluster Monitoring
- Image Registry
- Infrastructure Automation

Containerization

- Docker File Creation
- Docker Image Build
- Docker Image Storage
- Image Versioning
- Deployment Yamls Creation
- Component Yamls
- Component Implementation & Integration

Dev OPS

- Orchestrator Configuration
- Build Process Replication
- Infra Automation
- Job Creation
- Pipeline Creation & testing
- Pipeline Fine tuning

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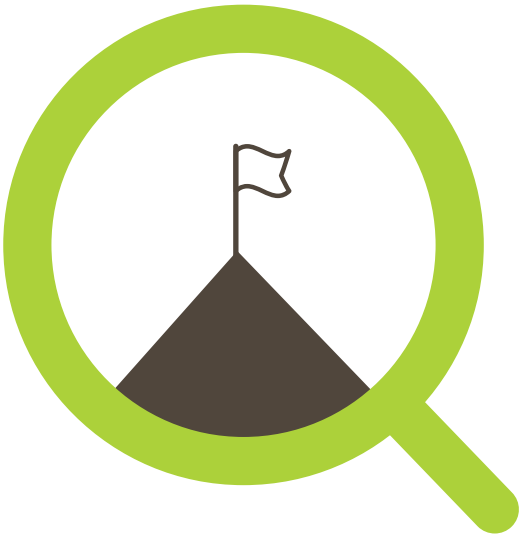
Learning from the leaders

Containerization has been at the bottom of the success of nimble and responsive organizations like Netflix and Spotify. Netflix switched to containers to become more productive, save money, offer a more reliable service and make better use of staff skills[2] . It created its own container management solution Titus, on top of Docker. By April 2018, Netflix was launching three million containers per week with Titus hosting thousands of applications over seven regional stacks and tens of thousands of EC2 VMs[3] .

Recently, one of Brillio's customers from the telecom industry in the US built its own container solution based on Docker Swarm, an open-source container orchestration platform. But the customer soon realized that Kubernetes was a better option. This is when Brillio's experts stepped in to provide a roadmap to make the change and maintain feature parity between the old and the new system. Not only did the client manage complete similarity between the two, but Brillio also improved a number of features in the process.

There are examples of organizations that don't want to continue investing in their in-house Container solutions. This could be for a variety of reasons that include rising complexity of orchestration, security management, container-related cloud waste, etc. These organizations are looking for the right solutions to mitigate their challenges. ECF is the ideal answer for such organizations that want to improve their Container strategy without going through a torturous trial-and-error process.



Simply put, the goal of Containerization is to ensure:

Faster Time to Market by enhancing application architecture that can respond rapidly to changing business needs and IT landscapes through continuous delivery, frictionless architecture, technology simplification and a layered implementation model.

Innovation through architecture that is "Built to Change" instead of "Built to last" and which enables organizations to iteratively adopt newer technology trends—thereby driving business value without significantly impacting cost or time.

Elevate Customer Experience through simplified deployments and updates, feature additions/enhancements and targeted functional validations.

A quick way to achieve these goals is to leverage a framework like ECF that has been built by experts who have considerable experience in deploying Containers for leading global businesses.

1. 2019 Container Adoption Study, Portworx and Aqua Security: https://portworx.com/wp-content/uploads/2019/05/2019-container-adoption-survey.pdf
2. https://www.techrepublic.com/article/netflix-on-containers-five-ways-theyll-boost-our-business-from-lower-costs-to-higher-productivity/
3. https://medium.com/netflix-techblog/titus-the-netflix-container-management-platform-is-now-open-source-f868c9fb5436

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