Digital transformation and the move toward cloud computing are requiring IT organizations to find effective ways to modernize existing legacy applications. However, legacy code is difficult to modernize. Manual approaches today are slow and inefficient and often result in costly overruns or project failures. These monolithic applications are based on outdated frameworks and older release platforms that stagnate progress while leaving security holes and vulnerabilities in critical application code.

Some of the key challenges enterprises face to meet the mission to modernize and reap the benefits of cloud-native architectures are:

- Having slow, costly application modernization and migration projects
- Lacking automation tools that decompose monolithic applications into microservices
- Decreasing footprints of large applications
- Growing security holes from supporting legacy code and outdated licenses

**HPE Ezmeral Runtime Enterprise** is an enterprise-grade container orchestration platform that is designed for the containerization of both cloud-native and non-cloud-native monolithic applications with persistent data. It deploys 100% open-source Kubernetes for orchestration, provides a state-of-the-art file system and data fabric for persistent container storage, and offers enterprises the ability to deploy non-cloud-native artificial intelligence (AI) and analytics workloads in containers.

**vFunction** enables application teams to clearly identify dependencies, split up services by functional domains, and accelerate the adoption of new frameworks, platforms, and licensing models.

The combination of vFunction and HPE Ezmeral Runtime Enterprise enables enterprises to intelligently and quickly transform their complex monolithic Java applications into microservices, restoring engineering velocity and helping optimize the benefits of cloud-native technology on HPE Ezmeral. vFunction helps transform legacy Java applications into cloud-native architecture, enabling organizations to fully take advantage of the benefits that HPE Ezmeral Runtime Enterprise brings to the business, development teams, and IT operations.

**vFUNCTION FEATURES**

- **Learn:** Observes actual business flows and tracks application behavior
- **Assess:** Analyzes complexity of your apps, so you can prioritize and plan modernization
- **Refactor:** Has interactive UI that enables design, refinement, and extraction of new services UI
- **Automate:** Automate the extraction of mini/microservices code and creation of restful APIs based on the vFunction studio
- **Optimize:** Eliminate dead code and deploy efficient, compact microservices
- **Scale:** Provides dashboards and controls that allow users to build and manage a repeatable modernization factory
- **Improve:** Removes dead code and deploy efficient, compact microservices

MODERNIZE LEGACY APPLICATIONS WITH AI USING HPE EZMERAL RUNTIME ENTERPRISE AND VFUNCTION

Modernize Java applications and accelerate cloud migration
KEY CAPABILITIES OF VFUNCTION

- Application modernization factory: vFunction provides a single pane of glass that manages and tracks full app modernization projects across an entire application portfolio. Program managers with a large backlog of legacy applications, a major cloud, or a digital transformation mandate can migrate tens, hundreds, or thousands of applications with an efficient, repeatable factory model that is fast, reliable, and consistent.

- Monolithic application transformations: vFunction is a modernization refactoring solution utilizing deep domain-driven observability for application transformations. vFunction’s passive discovery accurately measures architectural flows, classes, usage, database, memory, and resources to detect and unearth critical domain functions buried within a monolith.

- Cloud migration and modernization: The modernization dashboard coordinates the complete migration and modernization process, helping prioritize across applications based on the projected ease of refactoring, work required, speed, and architecture. vFunction automatically creates complexity assessment reports for each application to determine ease and readiness for modernization.

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FIGURE 1. The vFunction platform (monoliths in, microservices out) and HPE Ezmeral Runtime Enterprise

KEY CAPABILITIES OF HPE EZMERAL RUNTIME ENTERPRISE

- On-premises and/or on the public cloud: Can be deployed on-premises, in the public cloud, or in a hybrid environment that includes both public cloud and on-premises resources.

- Multicluster Kubernetes management: Fast, easy deployment, management, and monitoring of Kubernetes clusters (including AKS, EKS, and GKE™ clusters) for single-pane-of-glass management and visibility across environments.

- Enterprise-grade security: Built-in security controls to integrate with identity providers such as Active Directory / Lightweight Directory Access Protocol (LDAP), single sign-on, Security Assertion Markup Language (SAML) integration; role-based access controls for secure access to the platform; container runtime security for proactive threat detection and alerting.

- Turnkey solution: Easily containerize cloud-native and non-cloud-native apps; KubeDirector—an open-source custom Kubernetes controller—allows you to deploy non-cloud-native apps without rearchitecting or refactoring.

- 1-click provisioning: App store of curated, prebuilt, ready-to-run solutions for a wide range of applications including Big Data, AI / machine learning (AI/ML), DataOps, analytics, continuous integration / continuous deployment (CI/CD), DevOps apps, and services, with the ability to BYO application via KubeDirector and App Workbench. App Workbench offers an intuitive interactive GUI experience versus a command-line heavy method of application image creation for use with the HPE Ezmeral Runtime Enterprise.

WHY VFUNCTION ON HPE EZMERAL RUNTIME ENTERPRISE?

vFunction on HPE Ezmeral Runtime Enterprise enables application modernization to address the digital transformation of on-premises microservices provisioning. The combined solution allows developers to migrate projects with simplicity, scale, and security. vFunction on HPE Ezmeral Runtime Enterprise offers tools and features that reduce the cost associated with application modernization while increasing the security and utilization of infrastructure resources. It provides the flexibility to deploy and manage the compute and storage resources in any location—on-premises, in hybrid- / multi-cloud environments, or at the edge.

Additionally, the HPE GreenLake platform brings the cloud experience (self-serve, pay per use, scale up and down, and managed for you by HPE and our partners) to apps and data everywhere, in edges, colocations, and data centers. Therefore, it enables you to free up capital, boost operational and financial flexibility, and free up talent to accelerate what’s next for you.

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