Kick CaaS with HPE Express Containers

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HPE Solutions Product Management
Market trends are driving our strategy

The "lift and shift" containerization of existing traditional applications represents 80% of enterprise use cases.¹

VM hosting from 2016 to 2020: 80%+ of new enterprise containers will be hosted on VMs.¹

Top 4 challenges in running containers:

- Persistent storage, data management, security, and multi-cloud or cross-datacenter support

67% of respondents cited lack of experience as the biggest challenge using containers²

¹ Source: IDC Predictions
² Source: RightScale, 2016
HPE offers Docker CaaS production ready solutions

HPE Reference Architectures & Config papers

HPE Docker Solutions
(Services component, ecosystem, deployment guide & automation, continual engineering, GTM)

* Enterprise CaaS with Docker (HPE Synergy & 3PAR)

Express Containers with Docker (HPE SimpliVity)
Kick CaaS with Express Containers!
What is Container-as-a-Service (CaaS)?

– Framework for developing, deploying and managing containers, applications and clusters
– CaaS platforms deliver container engines, orchestration and compute resources to companies as a service over hybrid cloud
– For developers: streamlines building scaled-out container and applications
– For IT: provides a container deployment service with security and governance control

HPE CaaS solutions provide to
Four options for container adoption

1. **Deploy containerized commercial apps**
   Up in days, not months; verified and secure

2. **Containerize monoliths**
   Migrate to hybrid cloud or bare metal; get better CAPEX/OPEX versus VM

3. **Containerize monolith; transform to microservices**
   Look for shared services to transform agility, DevOps, distributed architecture

4. **Enable new microservices and apps**
   Greenfield cloud native or containers as a service (CaaS)
Express Containers with Docker Solution
CaaS platform from Dev to Ops on a single architecture

Agile container dev environment

Rapid provisioning, build-in HA & data protection

Accelerate developer productivity

Consistent platform from dev to ops

Simplify the IT experience

NOW SHIPPING

Development

Production
Why Docker on SimpliVity?

• Many containers are still deployed on top of VMs

• Many containers are running side by side with non container apps (on VMs)

• Customers want simple to deploy and manage container solutions

• Existing SimpliVity value prop can easily map to containers
Kubernetes is not easy to operate

<table>
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<tr>
<th>INSTALL</th>
<th>DEPLOY</th>
<th>HARDEN</th>
<th>OPERATE</th>
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<tr>
<td>• Templating</td>
<td>• Identity &amp; Security Access</td>
<td>• Platform Monitoring &amp; Alerts</td>
<td>• OS Upgrade &amp; Patch</td>
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<tr>
<td>• Validation</td>
<td>• App Monitoring &amp; Alerts</td>
<td>• Metering &amp; Chargeback</td>
<td>• Platform Upgrade &amp; Patch</td>
</tr>
<tr>
<td>• OS Setup</td>
<td>• Storage &amp; Persistence</td>
<td>• Platform Security Hardening</td>
<td>• Image Upgrade &amp; Patch</td>
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<td></td>
<td>• Egress, Ingress &amp; Integration</td>
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<td>• App Upgrade &amp; Patch</td>
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<tr>
<td></td>
<td>• Host Container Images</td>
<td>• Security Certifications</td>
<td>• Security Patches</td>
</tr>
<tr>
<td></td>
<td>• Build/Deploy Methodology</td>
<td>• Network Policy</td>
<td>• Continuous Security Scanning</td>
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<td></td>
<td>• Disaster Recovery</td>
<td>• Multi-environment Rollout</td>
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<td></td>
<td>• Resource Segmentation</td>
<td>• Enterprise Container Registry</td>
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<td></td>
<td>• Cluster &amp; App Elasticity</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Monitor, Alert, Remediate</td>
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<tr>
<td></td>
<td></td>
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<td>• Log Aggregation</td>
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</table>

75% of enterprise users identify complexity of implementation and operations as the top blocker to adoption

Source: The New Stack, The State of the Kubernetes Ecosystem, August 2017
Solution concept
Container dev and ops ready in minutes

PointNext Docker app migration & assessment services

Express Containers with Docker

HPE SimpliVity 380
Data Virtualization Platform
Virtualization Management
Private Containers as a Service Platform

Open source and 3rd party monitoring & DevOps tools: Jenkins, ELK, Prometheus, Grafana, Sysdig, Splunk, Play-with-Docker
SimpliVity with Docker

Operational Docker cluster less than 30 minutes

Consolidate container functions (compute, storage, backups, etc.) onto commodity virtualized x86 hardware

Linear non disruptive scale out of Docker container cluster nodes
SimpliVity with Docker

In-line deduplication and compression optimize container storage utilization

Spin up new container VMs in seconds or fast clone test data sets

Built-in data protection enables local and remote backup of container images and app data
Docker dev & ops ready in 30 minutes via Ansible playbooks

- Deploy Docker HA cluster
- Deploy Docker load balancers
- Config persistent storage
- Setup backup policies
- Setup Docker monitoring
- Setup centralize logging

Ansible Playbook

(HPE open source asset on GitHub community support model)

https://github.com/HewlettPackard/Docker-SimpliVity
Docker HA implementation on SimpliVity

- Container resiliency
- VM resiliency (non container VMs)
  - Protected by VSphere HA
- Hardware resiliency
  - Any 3 simultaneous drive failures without data loss
  - Disk failure transparent to container workloads
Express Containers with Docker - Ops Edition

- Container “in-a-box” validated and tested from HPE
- 30 minutes rapid provisioning
- Built-in HA and data protection
- Storage efficiency
- Persistent storage
- Container monitoring and logging
- Container security
- HPE deployment services and 7x24 support

Docker Enterprise Edition
- Docker Universal Control Plane
- Docker Trusted Registry
- Docker Engine

Red Hat Linux
Windows Server
VMware ESXi hypervisor

PointNext & HPE Financial Services
- Consulting/Support/Education
- Flexible Capacity/Technology Refresh
Monitoring with Prometheus and Grafana

- **Open source container monitoring tools**
- Collects, aggregate, process, exports, and visualize critical metrics on containers and underlying system
- Prometheus – microservices that provides and manages alerts
- Grafana - metric GUI dashboard for Prometheus data
- Tracks 20+ metrics including: cluster-wide metrics, node-specific metrics, and container-specific metrics.
- Part of Express Container deployment
Container monitoring and security with Sysdig

Infrastructure

<table>
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<tr>
<th>APP</th>
<th>CONTAINER</th>
<th>HPE Platforms</th>
<th>NETWORK</th>
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</table>

CONTAINER VISION

Deep visibility inside containers - no invasive instrumentation

Cloud Providers

| AWS | AZURE | GKE |

Orchestrators

| DOCKER | OPEN SHIFT | KUBERNETES | DC/OS |

Service VISION

Service – oriented data enrichment

Products

SECURE

MONITOR

INSPECT

HPE SimpliVity 380

90 days trial of Sysdig SaaS deployed with HPE playbooks
Splunk integration

- Captures data from all Linux and Windows container and non-container VMs
- Uses Splunk Universal Forwarder to capture and forward data
  - Docker node ls, Docker service ls, Docker stats, Docker events, Container logs
## Customer Value Propositions & Quants

### Improves container development & operation agility

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
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<td><strong>Full service</strong></td>
<td>Single source for buying, servicing, and supporting Docker, VMware, Red Hat Linux, and SimpliVity*</td>
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<td>40:1 space reduction for container images</td>
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* Note – does not include open source modules  
** Note – assumes SimpliVity, VMware, and Red Hat Linux already deployed
Express Containers: simple buying experience

**Service led engagement**

1. Engage with PointNext or Partner on migration, design, and architecture services
2. PointNext/Partner deploys Express Containers as part of deployment service

**Do it yourself**

1. Download deployment guide and Ansible playbooks from GitHub
2. Use HW & SW BOM recommendations in deployment guide
3. Procure SimpliVity hardware, Docker, VMware, and Red Hat licenses
4. Deploy using Ansible playbooks

https://github.com/HewlettPackard/Docker-SimpliVity
Recommended SimpliVity hardware configuration

![SimpliVity hardware diagram](image)

### Dual Socket - 14c per Socket, 5x1.92TB value flash

<table>
<thead>
<tr>
<th>Product #</th>
<th>Product Description</th>
<th>Qty</th>
</tr>
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<tbody>
<tr>
<td>QBD81A</td>
<td>HPE SimpliVity 380 Gen10 Node</td>
<td>1</td>
</tr>
<tr>
<td>826856-B21</td>
<td>2.2GHz Xeon Gold 5120 processor (1 chip, 14 cores)</td>
<td>1</td>
</tr>
<tr>
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<td>2.2GHz Xeon Gold 5120 processor (1 chip, 14 cores)</td>
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<tr>
<td>QBD85A</td>
<td>HPE SimpliVity 240G 12 DIMM FIO Kit</td>
<td>2</td>
</tr>
<tr>
<td>QBD91A</td>
<td>HPE SimpliVity 380 SM Val Kit</td>
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<tr>
<td>804331-B21</td>
<td>Smart Array P408i-a SR Gen10 (8 Internal Lanes/2GB Cache)</td>
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<tr>
<td></td>
<td>12G SAS Modular Controller</td>
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<tr>
<td>826703-B21</td>
<td>HPE DL380 Gen10 Sys Insght Dsply Kit</td>
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<tr>
<td></td>
<td>HPE Ethernet 10Gb 2P 560FLR-SFP+ Adptr (SFP+ connector)</td>
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<td>665243-B21</td>
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<td>864279-B21</td>
<td>HPE TPM 2.0 Gen10 Kit</td>
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<td>865414-B21</td>
<td>800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit</td>
<td>2</td>
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<tr>
<td>733664-B21</td>
<td>HP 2U Cable Management Arm for Easy Install Rail Kit</td>
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<tr>
<td>867809-B21</td>
<td>HPE Gen10 2U Bezel Kit</td>
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<tr>
<td>758959-B22</td>
<td>HP Legacy FIO Mode Setting</td>
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<tr>
<td>874543-B21</td>
<td>HPE 1U Gen10 SFF Easy Install Rail Kit</td>
<td>1</td>
</tr>
<tr>
<td>BD505A</td>
<td>BD505A - HPE iLO Adv incl 3yr TSU 1-Svr Lic (HPE)</td>
<td>1</td>
</tr>
<tr>
<td>Q8A60A</td>
<td>HPE OmniStack 8-14c 2P Small SW</td>
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PointNext Container Services
HPE Container Platform Service for Docker Enterprise Edition

Validate
- Move initial workloads to Containers
- Build environment and validation testing of proof points
- Planning minimal viable integration for Production

MV Integrations & Deploy
- Containerize Windows & Linux workloads
- Automated & certified deployment
- Operational automation
- Integrate software development processes

Operate & Scale
- Deployment of multiple workloads
- Prepare for migrations to production
- Automated/Docker-HPE certified
- Enable operations teams
- Integrate the required operational processes

Path to Production

✓ Platform
✓ Containerization
✓ Security/compliance
✓ Governance
✓ Operations
✓ Support/certification
HPE Docker Modernize Traditional Application (MTA) Service

**What is it?**
- 30-day service provided by HPE Pointnext
- 1 week onsite support/3 weeks remote advice
- Deploy Docker EE Advanced to HPE infrastructure
- Containerize 1–3 apps
- End-to-end app deploy using Docker EE

**In the first week**
- Containerize App Components
- Compose App Components
- Deploy App Stack to Docker EE
- Docker EE platform and tools showcase
- Performance testing and tuning

**Reduce costs by 40–60%**
- Select existing .NET, Linux/Java Application
- Convert to a container Deploy with Docker EE with no change to code
- Modern Infrastructure Like HPE Synergy or HPE SimpliVity
Enterprise support quality from HPE
180 countries · 24 time zones · 30+ languages

HPE Pointnext provides full support for Docker EE and retains ownership of the problem until resolution.
Thank You