

Cloud Native Apps Projects: Photon and Lightwave

Making the Developer a First-Class User of the Data Center

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About Me

- Lead Architect in China R&D for Cloud Native App Solutions
- One of the first China evangelists of Cloud Foundry
- Full stack engineer
- 10 years experience on container

The New Software Imperative

Create amazing experiences for customers

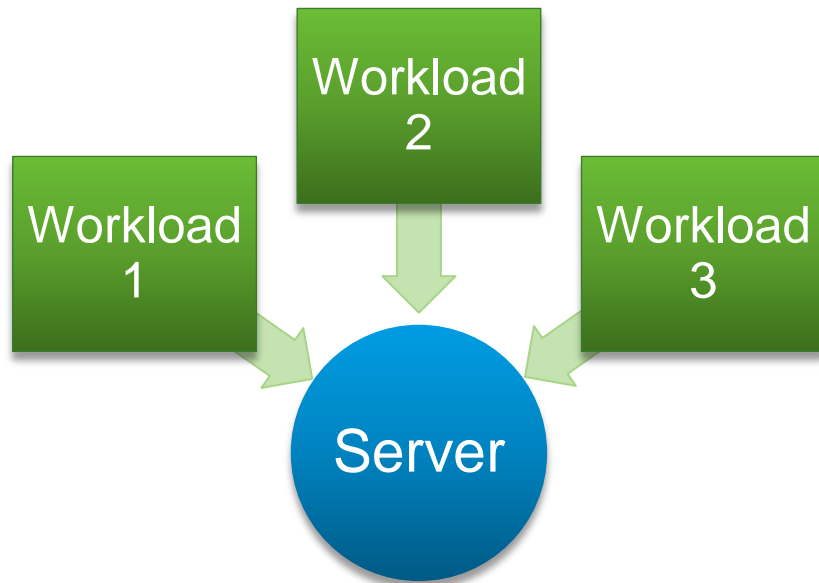
- **Big data** to improve customer experience
- **Systems of engagement** to delight users
- **Mobile applications** to interact with customers wherever they are

Deliver and update products continuously

- **Everything as a service** to simplify customer adoption and upgrades
- **Agile development** to evolve applications quickly
- **Open systems** to embrace new technology

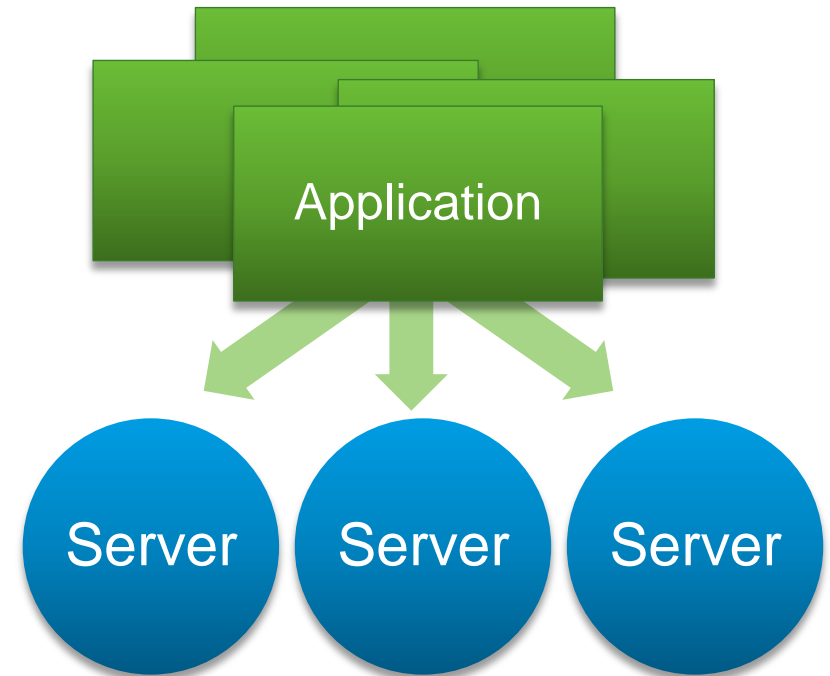
Changing Infrastructure Needs From...

Workload Consolidation

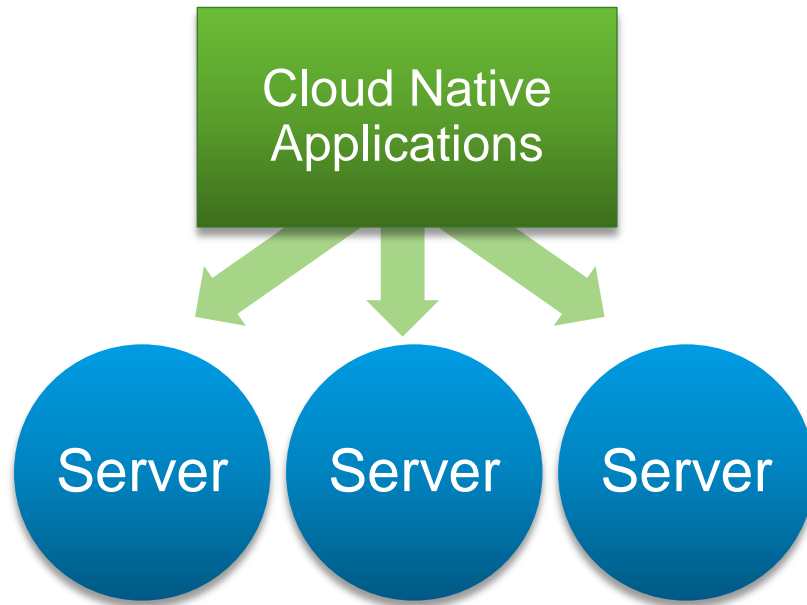


to

Application Distribution



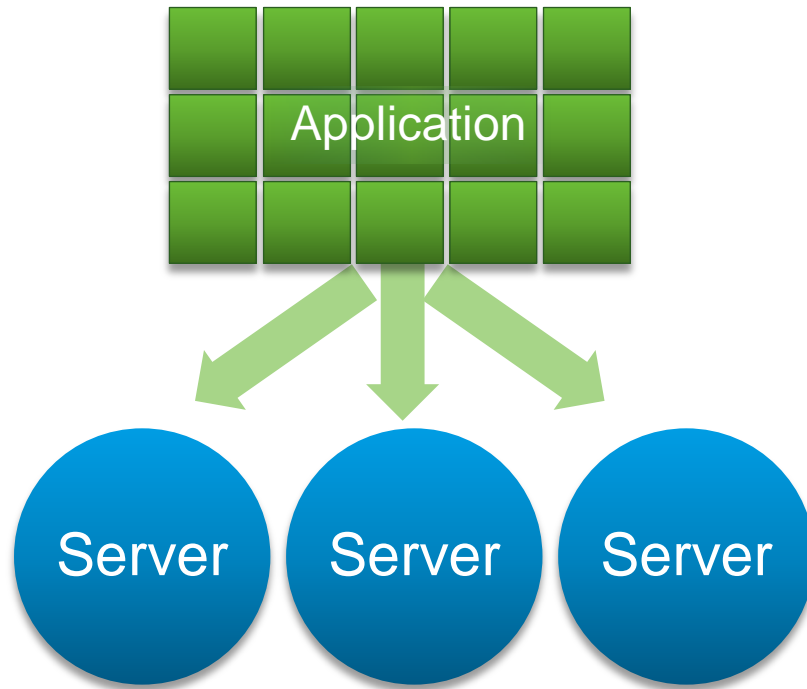
The Cloud Native Application



Leverage elastic infrastructure to

- Provision instances of itself
- Scale up and down
- Detect and work around failures

Cloud Native Application Architecture



Distributed and Scale-out

- Microservices
- Linux Containers
- Open-source components

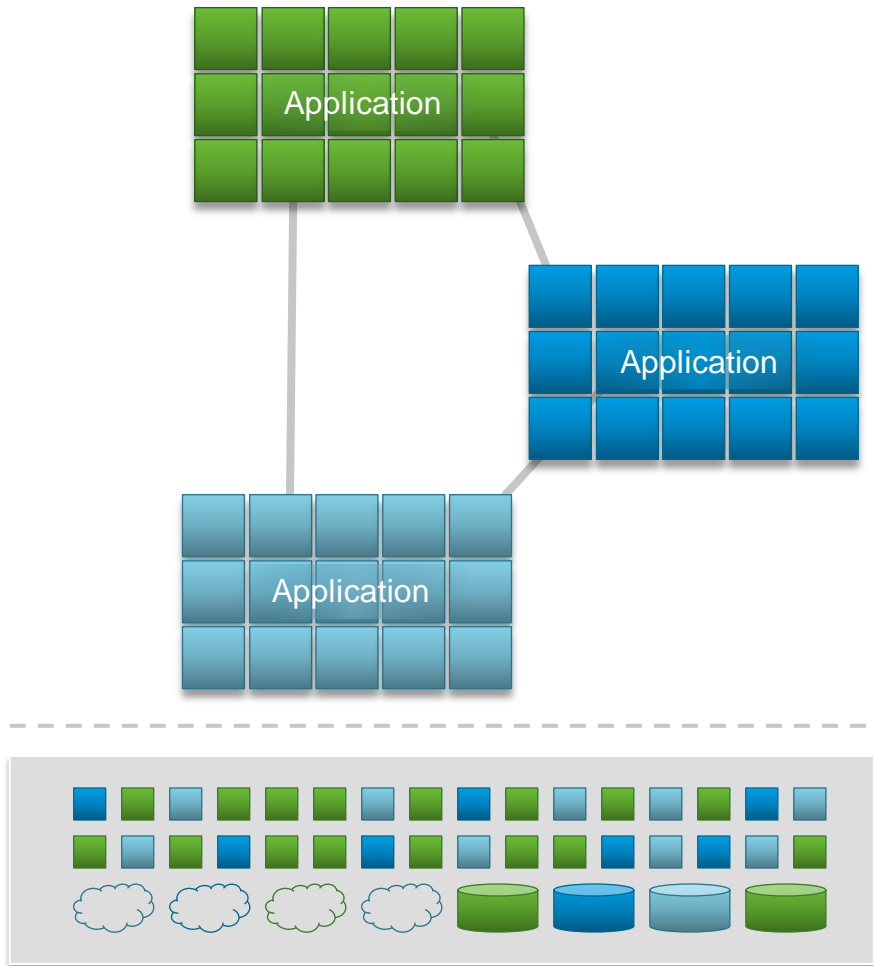
Our Mission



Make the Developer a First-Class User of the Data Center

- Build technologies that **span the app lifecycle**
- **Empower operations teams** to manage Cloud-Native applications
- Build to and support **open systems and standards**

How Will We Secure Cloud-Native Applications?



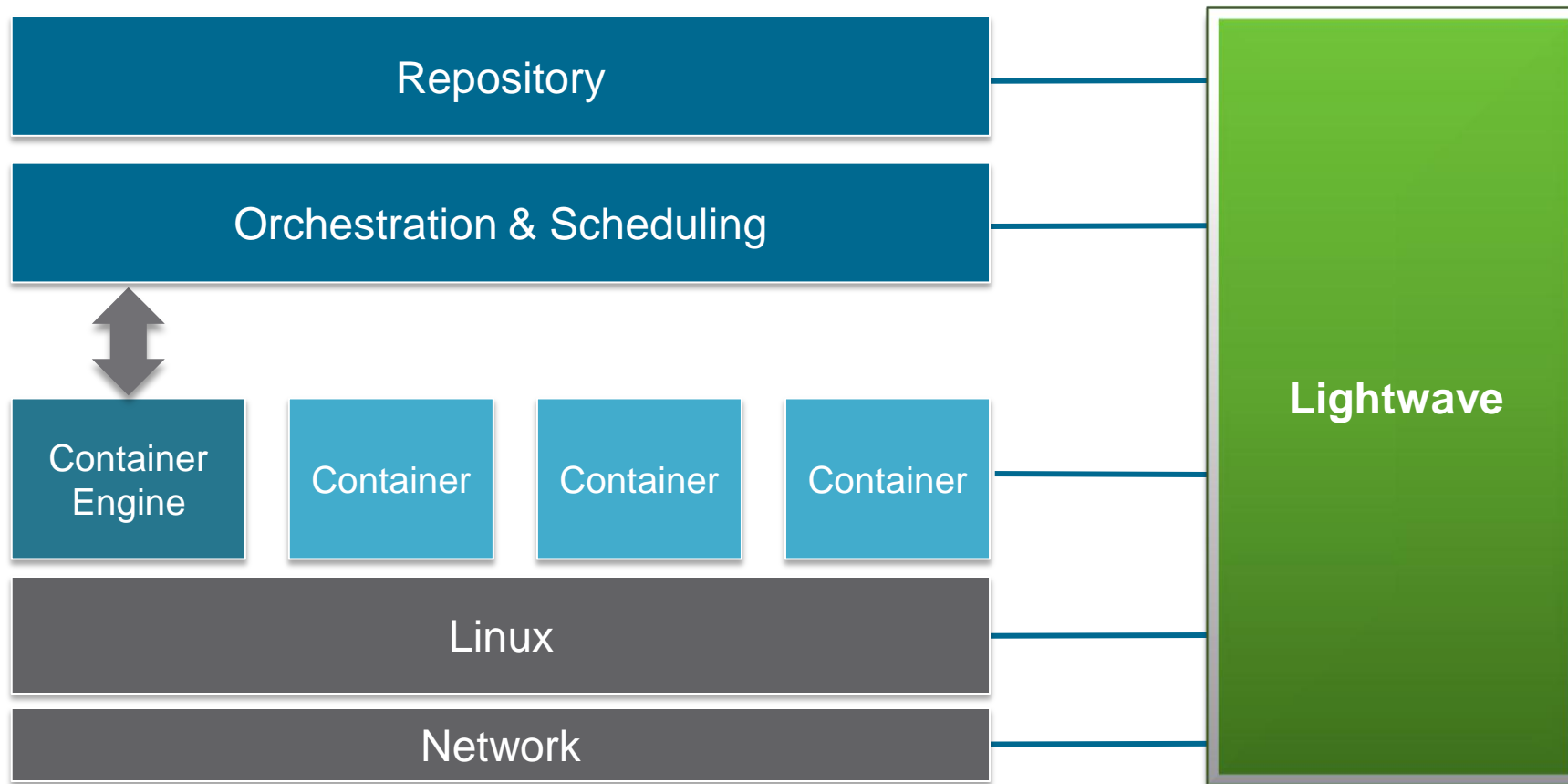
Challenges

- Complex networks of microservices
- Services themselves are complex distributed systems
- Many points of attack

Needs

- Scalable identity infrastructure
- Network isolation
- Trusted compute runtime

Cloud-Native Security Solution



Cloud-Native Identity & Access Management



Identity, Authentication and Authorization Server

LDAP, Kerberos, SAML, OAuth2.0, x.509

Scalable Architecture

Multi-master state-based replication

Multi-data center replication

Multi-Tenant

Multiple independent forests

Open Source

Apache 2.0

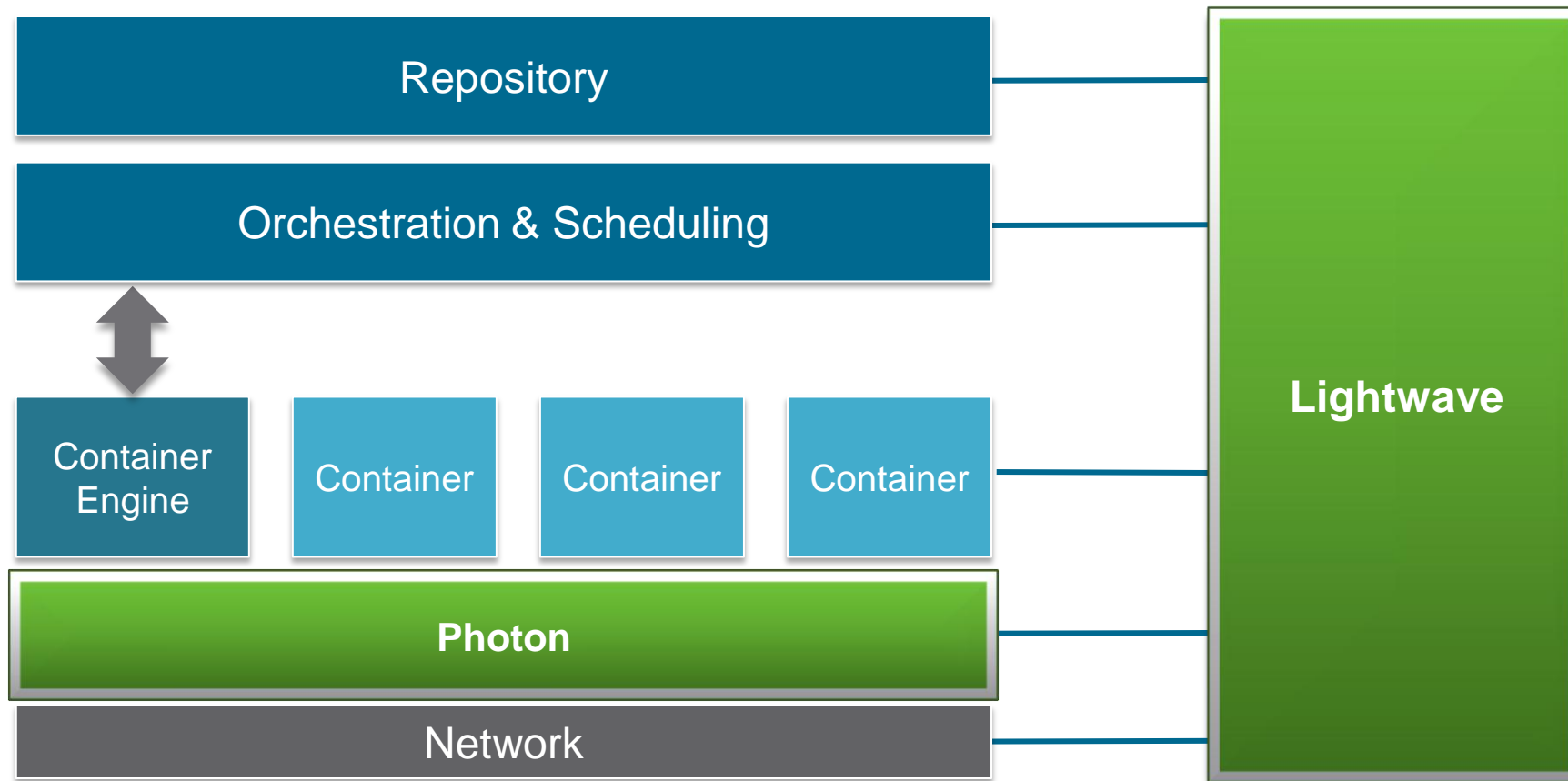
Cloud-Native Identity & Access Management



Primary Components:

- VMware Directory Service (vmdir)
- VMware Certificate Authority (vmca)
- VMware Authentication Framework Daemon/Service (vmafd)
- VMware Secure Token Service (vmware-sts)

Cloud-Native Security Solution



Secure Container Runtime



Container Optimized Linux OS

Docker, rkt and Garden (Pivotal) support

Minimal footprint to run containers

vSphere Integration

Part of your vSphere install

Hypervisor-optimized container runtime

Updates from VMware

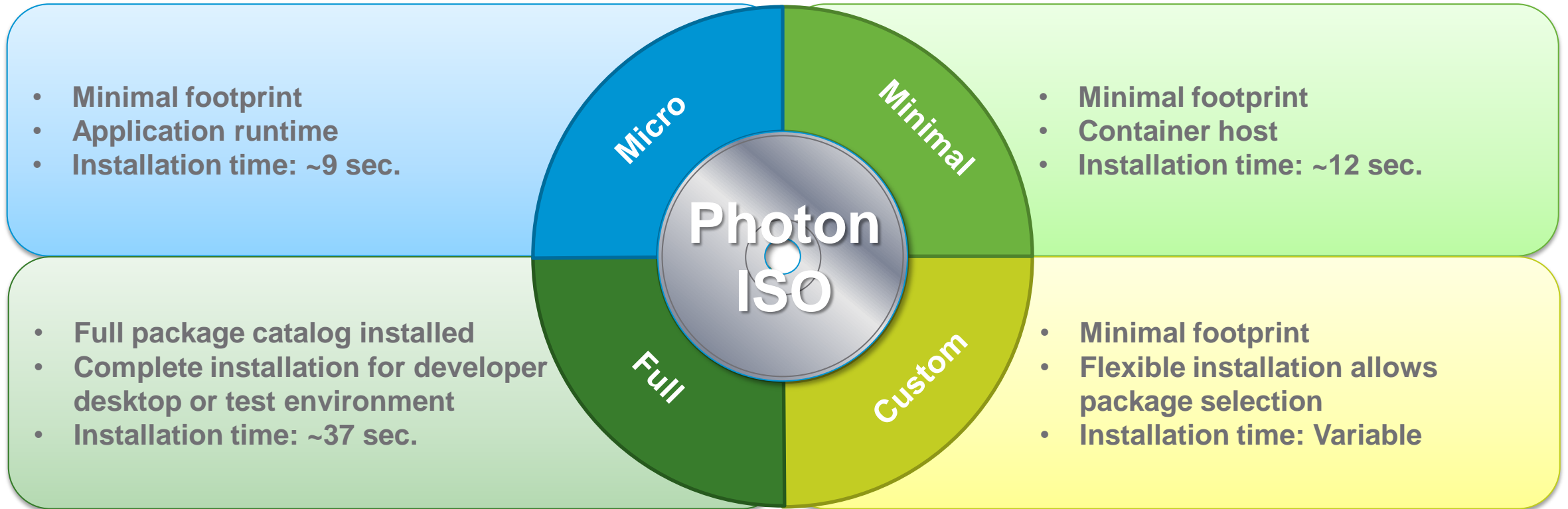
Enterprise support

Security and update patches from VMware

Open Source

GPL v2 License

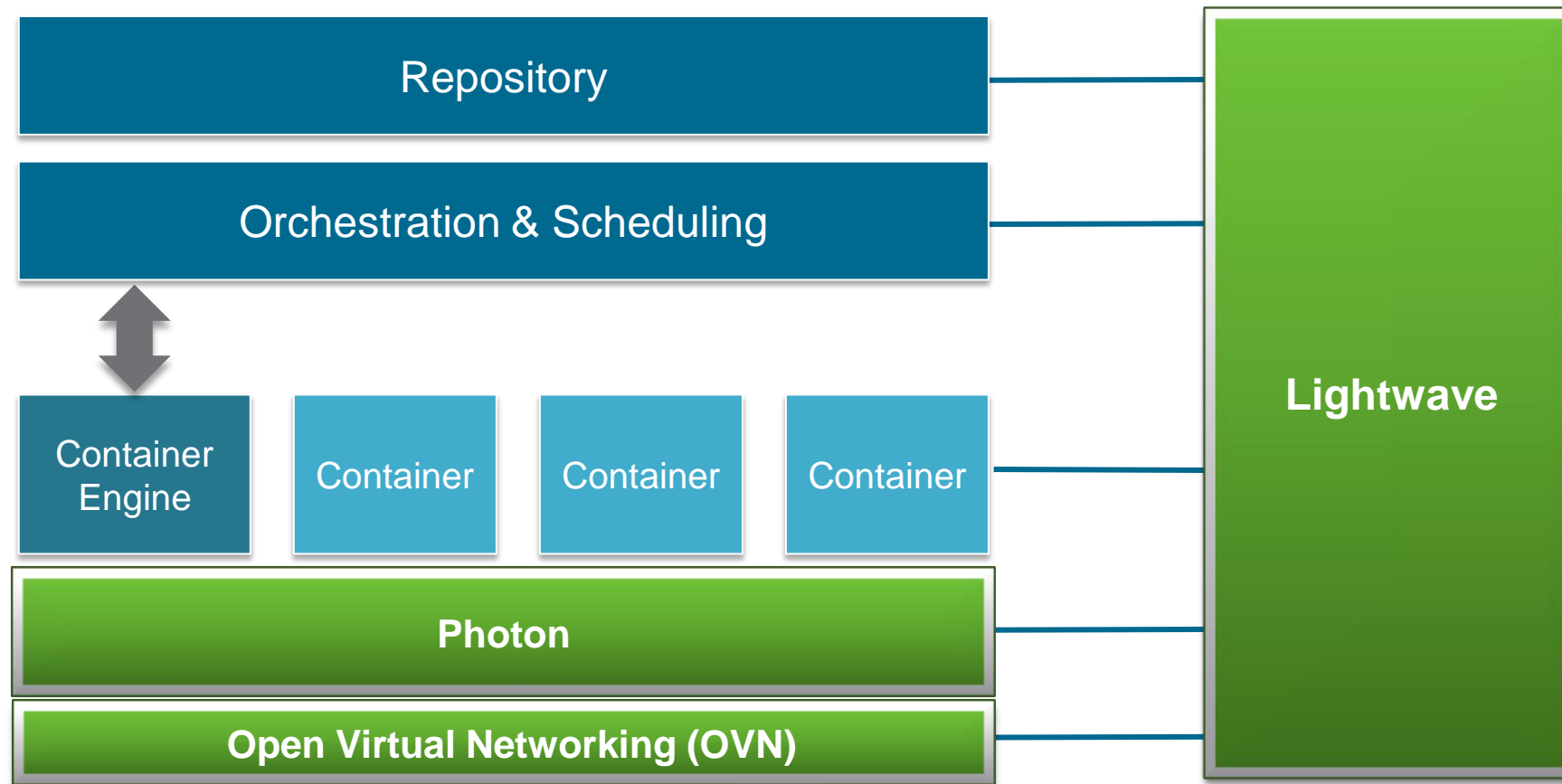
Installation Profiles



Photon Directions

- VMware-optimized container host
 - Guest customization support – improved vSphere and vCloud Air compatibility
 - Shared folders for Workstation & Fusion – streamline developer to production pipeline
 - Lightwave integration – single identity across all infrastructure
 - Software Defined Datacenter for Containers – single operational model for all workloads
 - Performance and packaging optimizations – faster boot, smaller footprint
- Secure container stack
 - Signed packages – ensures trust of VMware packages
 - Lightwave integration – extends trust to containers and container authors
 - Secure boot and attestation – creates a chain of trust from the hardware, through the hypervisor, to the container

Cloud-Native Security Solution



Make Developers First-Class Users of the Data Center



Provide tools for devs and ops to securely accelerate builds to production



Support open standards across the community



Secure, open-sourced container runtime

This is Just the Beginning...

vmware®



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#vmwcna

vmware.github.io