



# Tee se itse: pilvi

Do it yourself: cloud

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KORKEAKOULUJEN VALTAKUNNALLISET IT-PÄIVÄT 2014  
HELSINKI 2014-11-04

@ToniWillberg @RedHatFinland #ITpaivat

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# WHAT IS OPENSTACK?



# What is OpenStack?

- Fully open source cloud “operating system”
- Provides all of the tools/building blocks required to build a cloud environment from scratch - mimics public clouds
- Designed for:
  - “unlimited” scalability
  - Multi tenancy
  - Automation
  - Innovation and feature velocity
  - Openness
  - A platform for cloud applications
- **NOT a replacement for traditional enterprise virtualization!**

# Typical OpenStack Use Cases

- Service provider offering
  - Re-sell compute, networking and storage resources as a new cloud provider to other organizations
- Internal cloud offering
  - “Infrastructure-on-demand” service for internal customers
  - Test & Development Environments
- Large-scale web applications or content farms
  - Dynamically scale based on load
  - e.g. Netflix, PayPal, eBay

# Typical OpenStack Use Cases

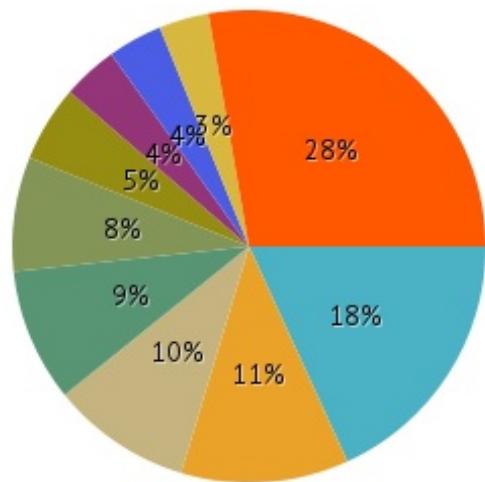
- Grid computing
  - HW intensive Vms: CPU, RAM and/or IO
  - Big Data & Analytics
  - Host your private PaaS (ex. Openshift)
  - M2M, Sensors
  - NFV
  - Mobile Backends
  - NoSQL
- Workloads running on public clouds (ex. Amazon) to be moved to private/hybrid

# Why is OpenStack needed?

- Cloud is widely seen as the next-generation IT delivery model
  - Agile & flexible
  - Utility-based on-demand consumption
  - Self-service drives down overhead and maintenance
- Public clouds setting the benchmark, organizations want the same level of functionality but behind the firewall
  - **Not all organizations are ready for public cloud**
- Applications are being built differently today:
  - More tolerant of failure
  - Make use of scale-out elastic architectures

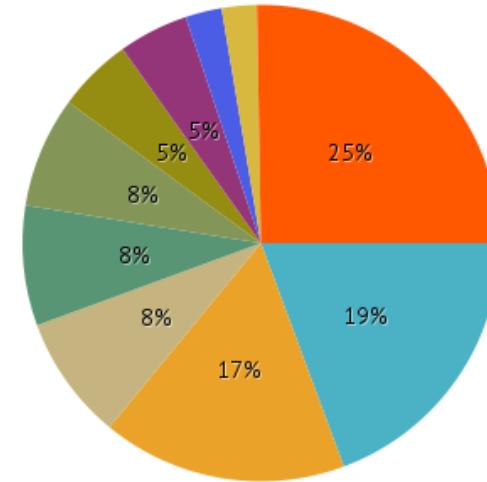
# Openstack developers?

ICEHOUSE



1	Red Hat	3464
2	HP	2184
3	IBM	1824
4	Rackspace	1736
5	Mirantis	1489
6	SUSE	995
7	OpenStack Foundation	720
8	eNovance	712
	*independent	649
9	VMware	555

JUNO



1	HP	3549
2	Red Hat	3046
3	IBM	1549
4	Mirantis	1495
5	Rackspace	1381
	*independent	932
6	SUSE	870
7	<u>eNovance</u>	451
8	B1 Systems	437
9	VMware	431

Source: <http://stackalytics.com>

# Red Hat OpenStack®



Bleeding edge upstream  
OpenStack source code

Bleeding edge upstream  
OpenStack packaged as  
RPMs

Unstable community Linux

Enterprise Linux distros  
(CentOS, RHEL, Fedora)

No certifications  
Community support  
Six month lifecycle

No certifications  
Community support  
Six month lifecycle

Enterprise hardened  
Red Hat OpenStack  
technology  
optimized for  
and integrated with  
Red Hat Enterprise Linux

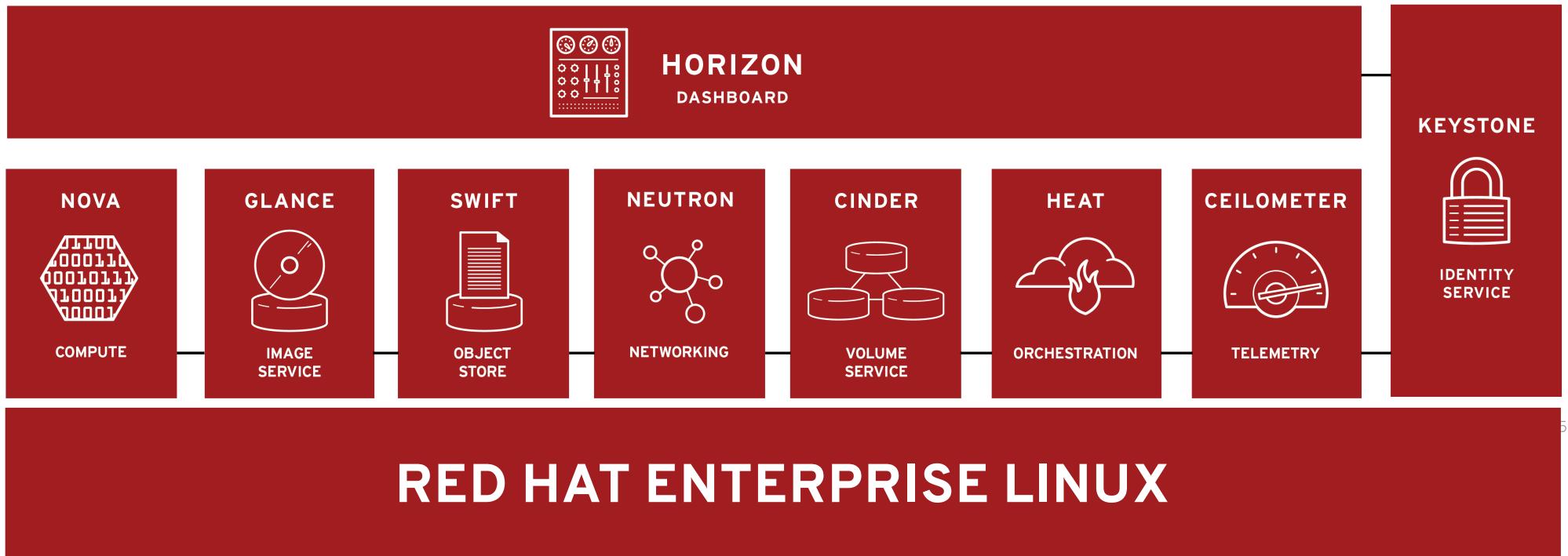
Red Hat Support  
Red Hat ecosystem  
certifications  
1+ year lifecycle



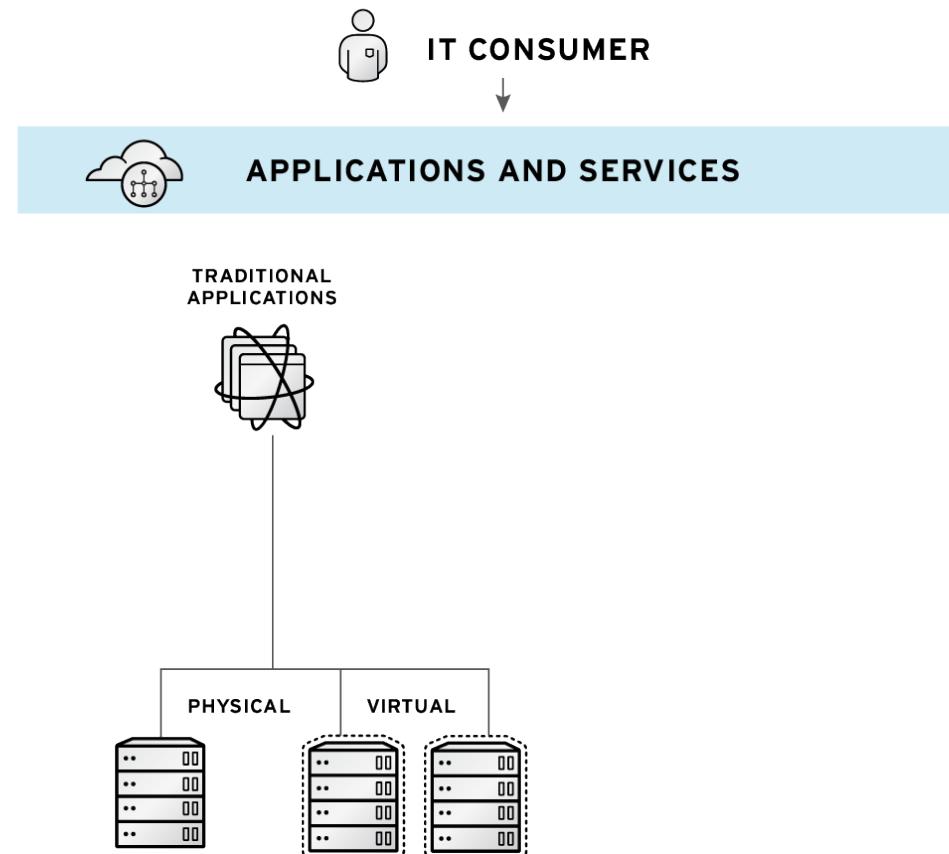
# Red Hat Enterprise Linux

# OpenStack Platform

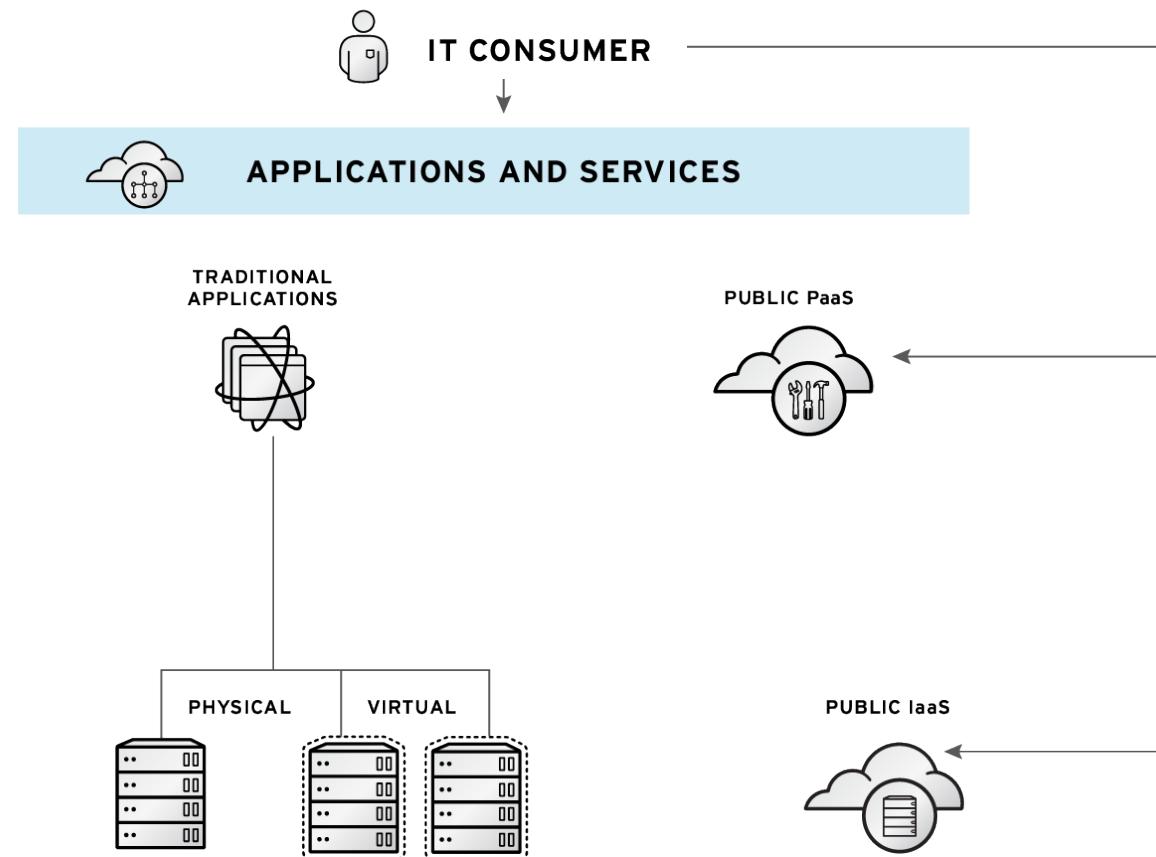
OPTIMIZED FOR AND INTEGRATED WITH RED HAT ENTERPRISE LINUX



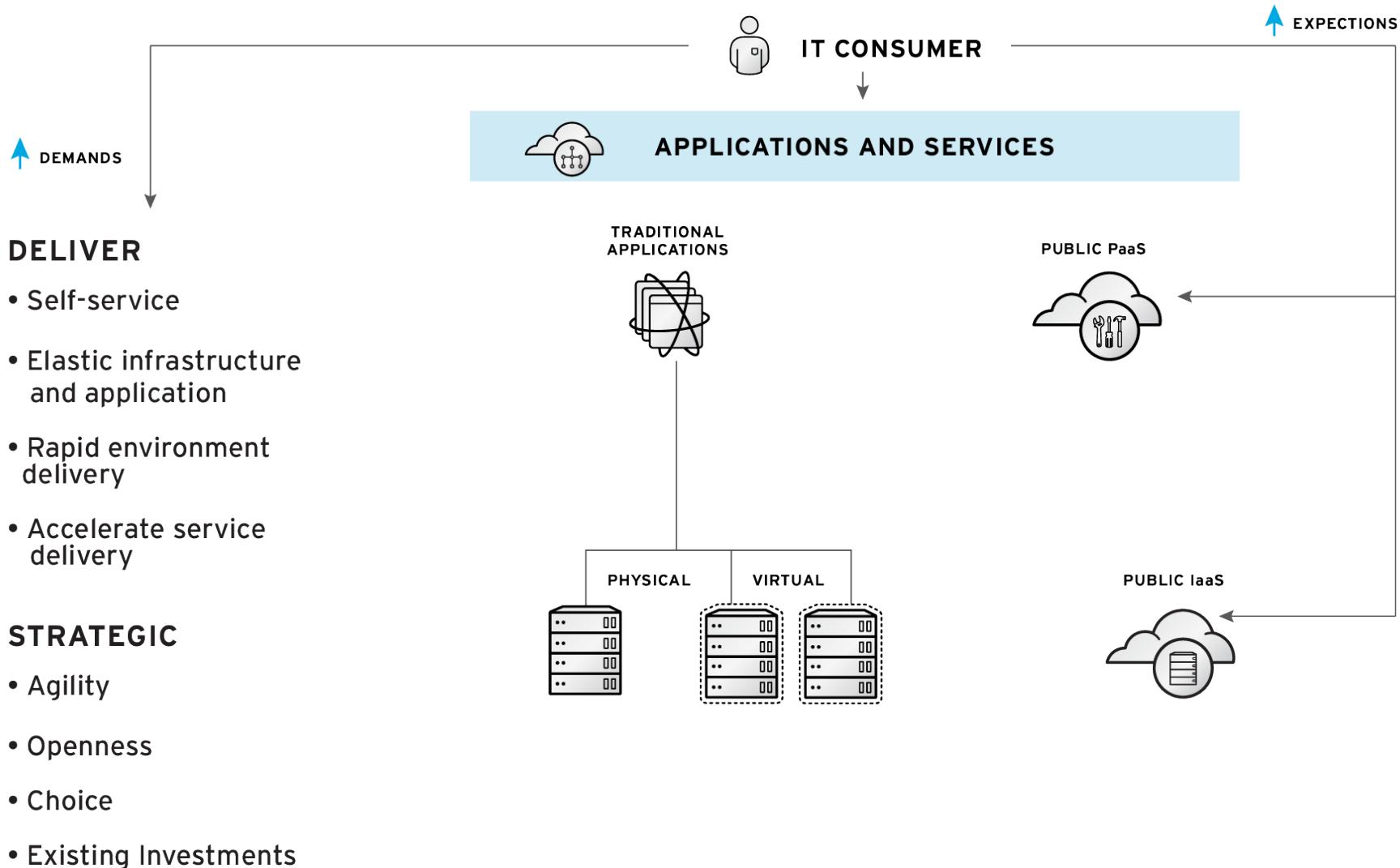
# THE NEED FOR AN OPEN HYBRID CLOUD



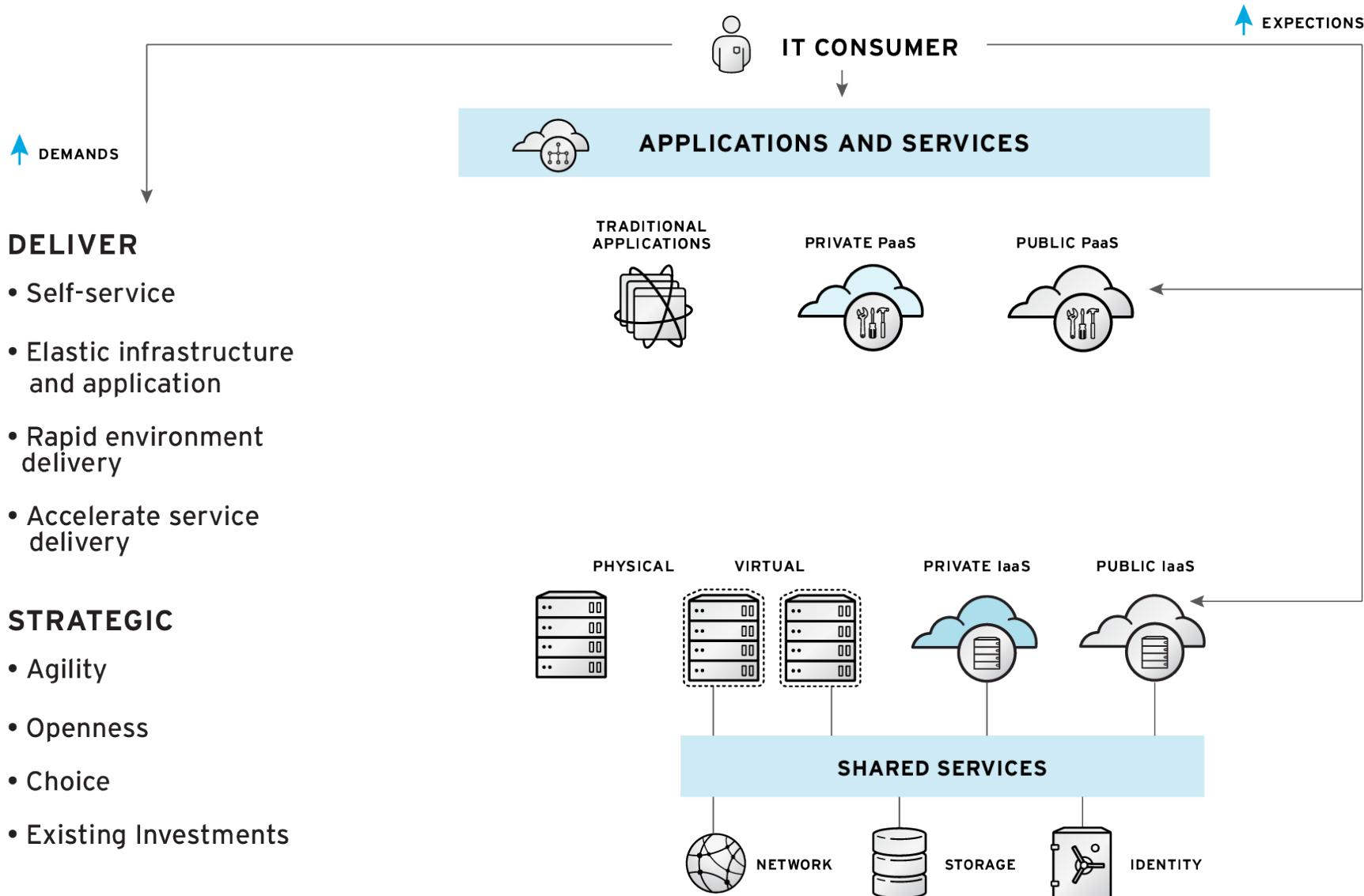
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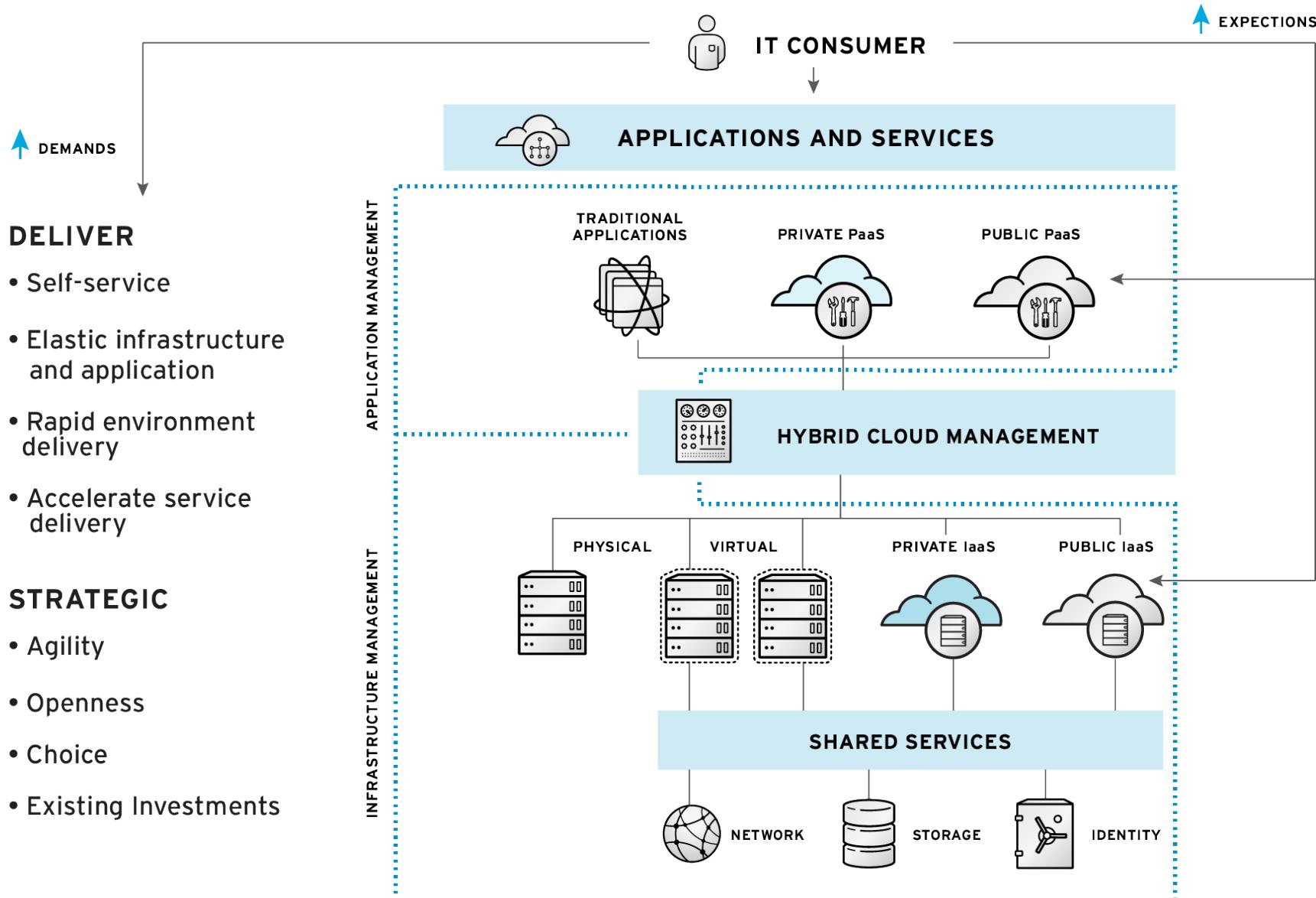
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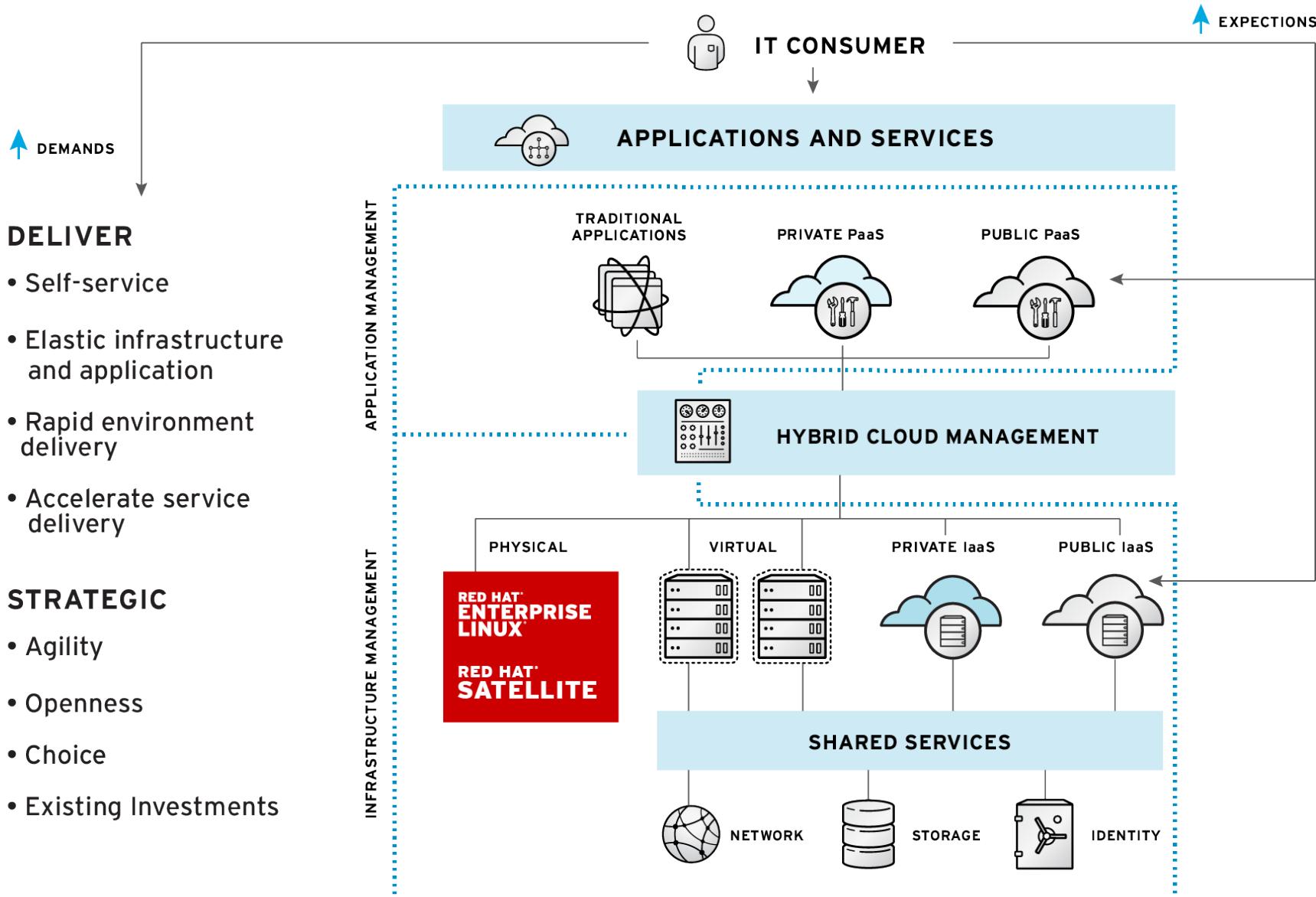


# THE NEED FOR AN OPEN HYBRID CLOUD



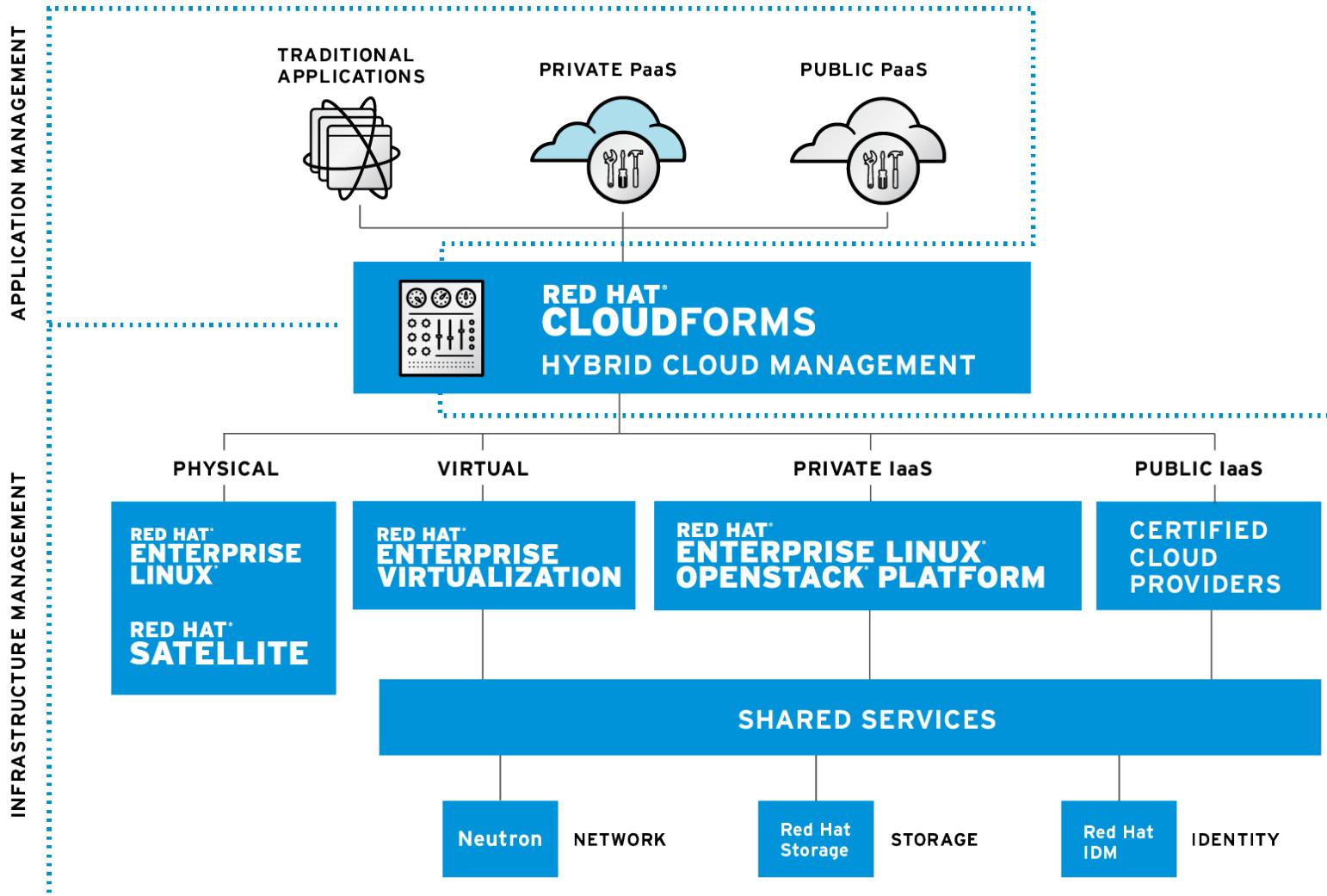
# THE OPEN HYBRID CLOUD ARCHITECTURE

## Built on an open heritage



# INFRASTRUCTURE-AS-A-SERVICE

## Foundation for the open hybrid cloud



# RED HAT CLOUD INFRASTRUCTURE

Virtualization to private cloud

## RED HAT® CLOUDFORMS



### RED HAT® ENTERPRISE VIRTUALIZATION

#### TRADITIONAL WORKLOADS

- Vertically Scale
- Static
- Recover on Error

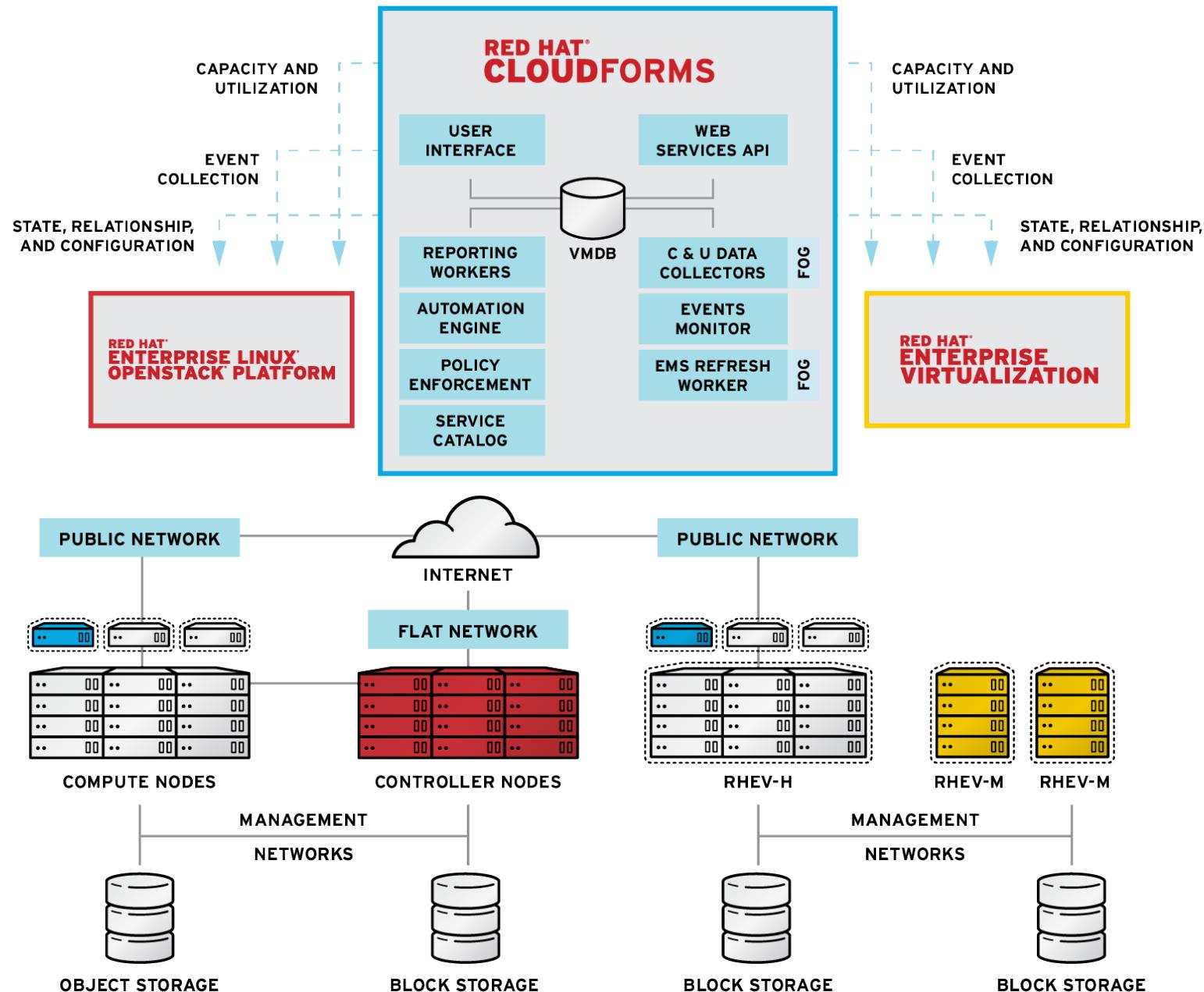
### RED HAT® ENTERPRISE LINUX® OPENSTACK™ PLATFORM



#### NEXT GENERATION WORKLOADS

- Horizontally Scale
- Dynamic
- Replace on Error

# RED HAT CLOUD INFRASTRUCTURE



# THE OPEN HYBRID CLOUD ARCHITECTURE

New possibilities for IT organizations

## IaaS

- Self-Service from virtual machines to services
- Quotas, governance, and metering
- Lifecycle management

## PaaS

- Developer self-service of languages and frameworks
- Increased efficiency through secure containers
- Component reuse through standardization

## CLOUD APPS AND WORKLOADS

- Application and data portability
- Cloud application development tools
- Environment deployment

# OPENSHIFT BY RED HAT

## Accelerating service delivery



**OPENSIFT**  
by Red Hat®



### DEV TOOLS

Red Hat  
JBoss Dev  
Studio

Titanium  
Studio

Jenkins

Maven

Git

### NO LOCK-IN LANGUAGES AND FRAMEWORKS

Java

Node.js

Ruby

Python

PHP

Perl

JavaEE

Rails

django

Spring

+

### OPEN SOURCE ECOSYSTEM

Community

Partners

Red Hat

Frameworks

SQL

NoSQL

Messaging

Languages

+

### ENTERPRISE-CLASS MIDDLEWARE

Red Hat  
JBoss Middleware

EE6

Txns

CDI

MSG

+

### SECURE MULTITENANT OS

RED HAT ENTERPRISE LINUX

RED HAT STORAGE

Runtimes

Libraries

Security

Multitenancy

Cartridge-Based  
Extensibility

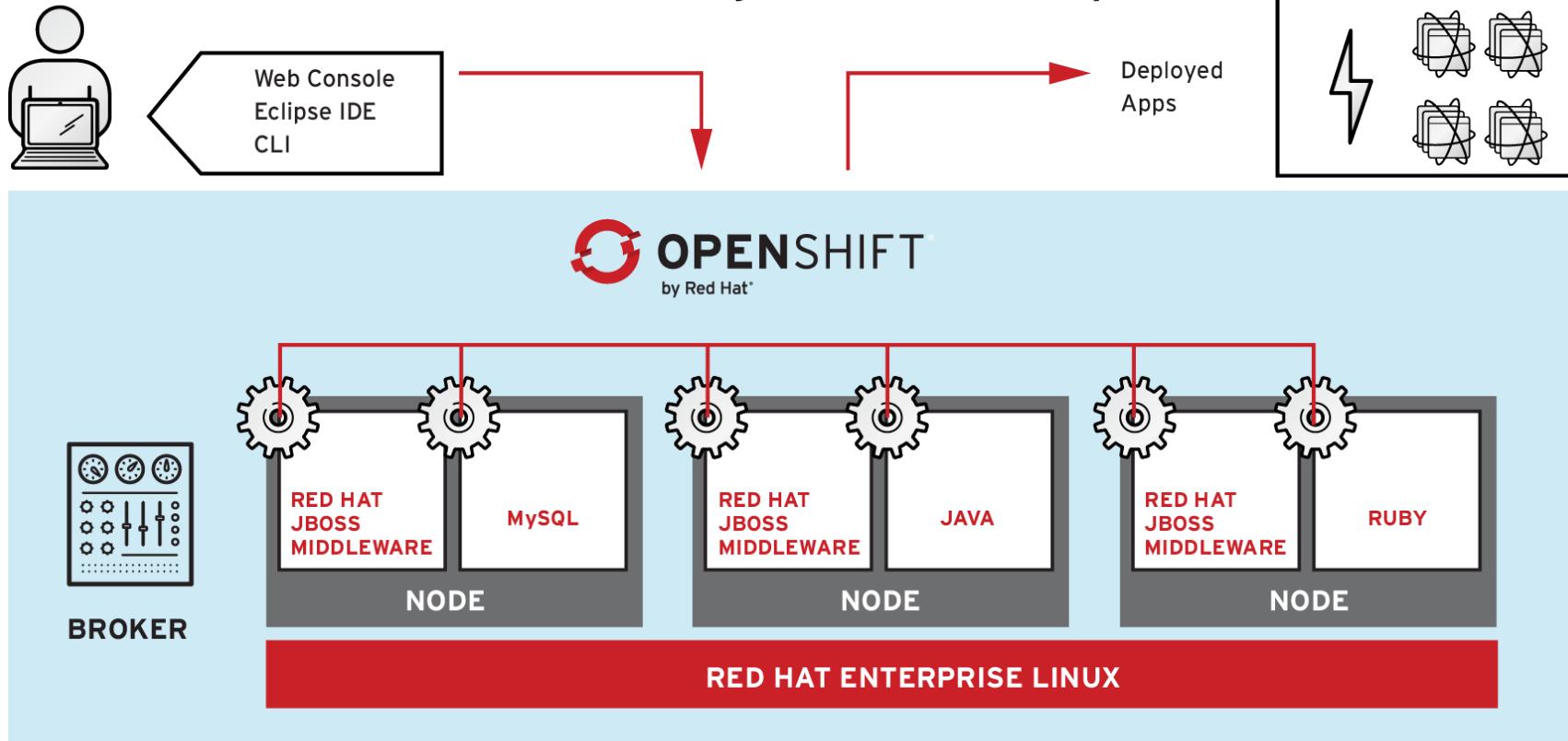
### POWERING YOUR APPS



- Web
- Mobile
- Big Data
- Enterprise

# OPENSHIFT BY RED HAT

## Accelerating service delivery



- Increase resource utilization beyond virtualization
- Automated provisioning of applications

- Standardize containers
- Automatic scaling

# OpenShift demo

owncloud1 | OpenShift Online by Red Hat - Google Chrome

Images - OpenS x OpenStack Ide x Chapter 2. Get x IT-Päivät 2014 x owncloud1 x Get Started | O x owncloud1 | O x

https://openshift.redhat.com/app/console/application/545672b55973ca737900...owncloud1

OPENSHIFT ONLINE

Applications Settings Support Add-ons

Created 7 minutes ago in d... and the aws-us-east-1 region

Started 1 gear

Cartridges

Cartridge	Status	Gears	Storage
PHP 5.4	Started	1 small	1 GB
MySQL 5.5			
Cron 1.4			

Source Code  
ssh://545672b55973ca737900...  
Pass this URL to 'git clone' to copy the repository locally.

Remote Access  
Want to log in to your application?

Delete this application...

Continuous Integration  
Enable Jenkins

Tools and Support  
Add phpMyAdmin 4.0

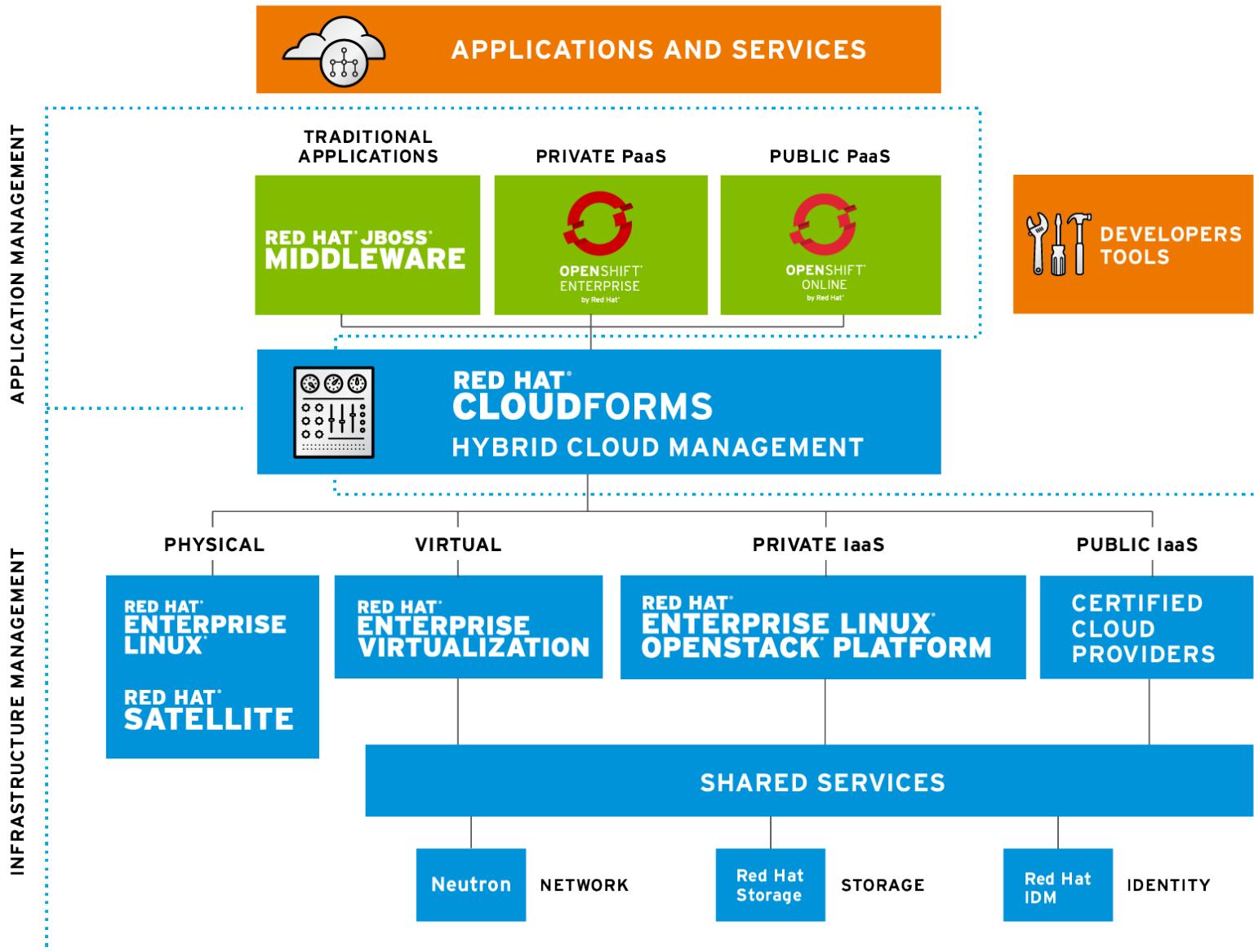
Browse the Marketplace, or see the list of cartridges you can add

redhat

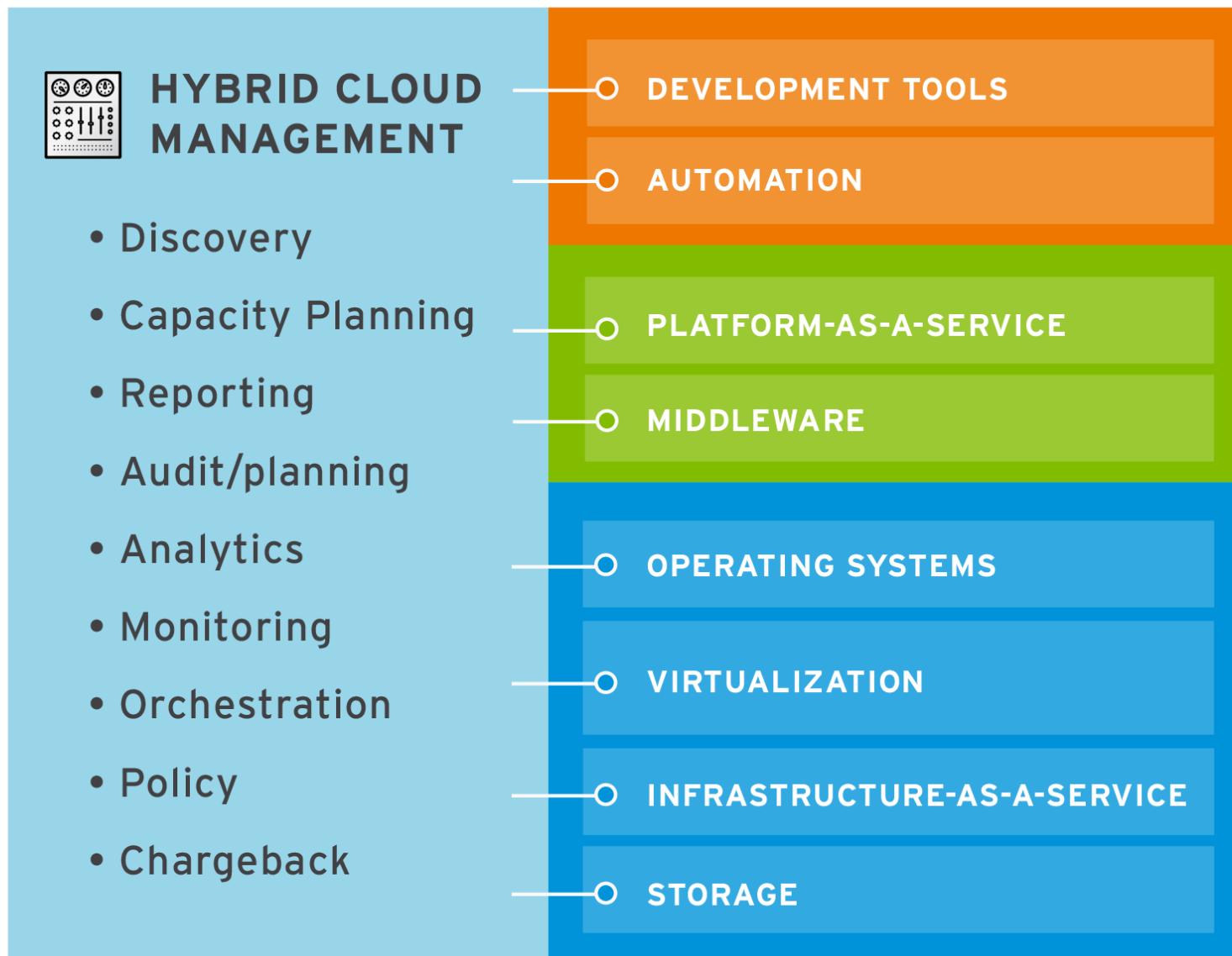
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# CLOUD APPLICATIONS AND WORKLOADS

## Build and manage applications in the open hybrid cloud



# STRATEGIC DIRECTION



We offer three kinds of service:  
**GOOD - CHEAP - FAST**

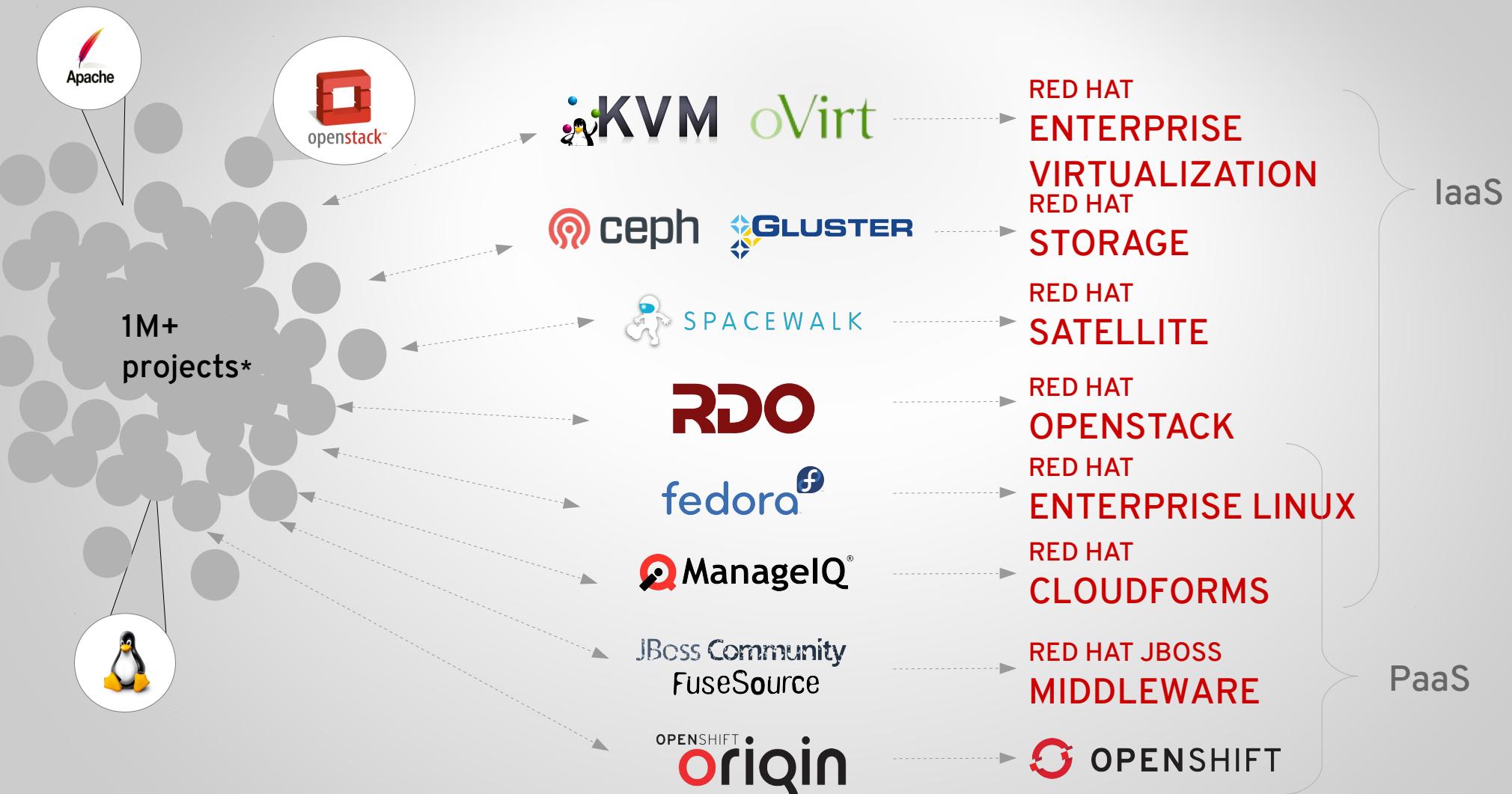
You can pick any two

GOOD service CHEAP won't be FAST

GOOD service FAST won't be CHEAP

FAST service CHEAP won't be GOOD

# OPEN SOURCE TO THE ENTERPRISE



\* [www.blackducksoftware.com/oss-logistics/choose](http://www.blackducksoftware.com/oss-logistics/choose)



Bayer Business Services

“ Red Hat Enterprise Linux offers the stability, flexibility, and performance necessary to power the next generation of computing applications.  
—SVEN MEISSNER, Linux operation manager at Bayer Business Services in Leverkusen



## RED HAT CONSULTING

Solves strategic technology challenges, maximizing performance and infrastructure efficiency – optimizing your IT.

- Unparalleled expertise in open source
- Accelerated time-to-value
- Facilitated interoperability
- Consultants directly tied to community and product development teams

### INFRASTRUCTURE SERVICES

- Increase IT infrastructure value with Red Hat Pathways.
- Gain expertise for complex, mission-critical projects.
- Free your resources for greater ROI.

### MIDDLEWARE & APPLICATION SERVICES

- Full life-cycle development
- Strengths in application development and re-platforming services
- Agile development process

## RED HAT TRAINING

Arms your IT organization with knowledge and hands-on skills to optimize your Red Hat deployments – enhancing productivity and mitigating risk.

- ✓ Employees gain skills, promoting IT success
- ✓ Large portfolio of courses
- ✓ More than 100,000 Red Hat Certified professionals
- ✓ More than 60% of Fortune 2000 companies use Red Hat Training
- ✓ More than 1 million Red Hat Training customers

“ [The knowledge transfer] component added value to our consulting purchase and lasted long after the consultant had left. —FRANCOIS MOUNIER, integration & development manager

# KIITOS! THANK YOU!



redhat.<sup>®</sup>

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