# Digital transformation is disrupting every industry



| Transformed | Transforming | Soon to be transformed |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Newspapers & magazines | Video | Wellness & healthcare | Government | Manufacturing | Legal |
| Books | Retail | Retail banking | Farming | Insurance | Education |
| Music | Travel | Transportation | Buildings | Utilities | Construction |
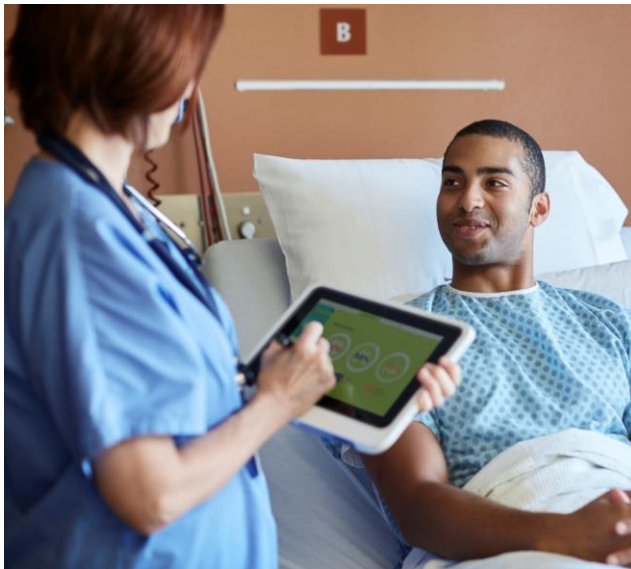
# Reign in your multiple clouds

## The right mix and control for your hybrid cloud
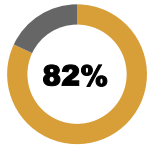
**82%** — Enterprises with hybrid cloud strategy[1]
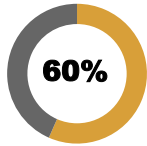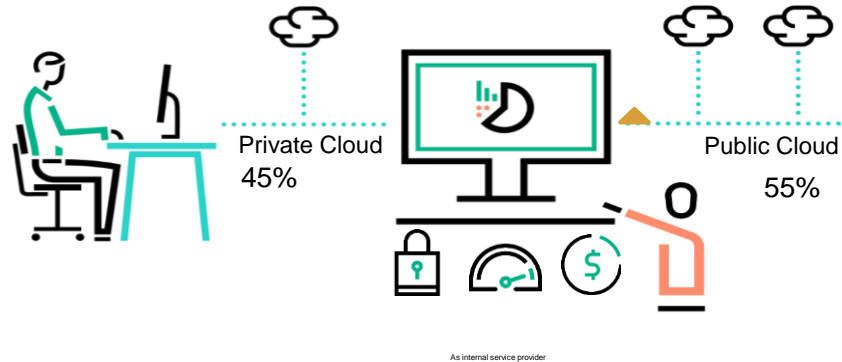
**60%** — Organizations with multiple clouds in use today[2]

**6** — Clouds leveraged by cloud users on average[1]

Enable placement and management of workloads on optimal service



Private Cloud 45%

Public Cloud 55%

As internal service provider

[1] RightScale 2016 State of the Cloud Report
[2] 451 Research Voice of the Enterprise: Cloud Budgets and Spending 2015, Q4

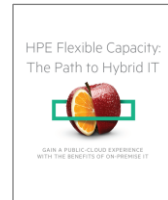# Economics of the cloud, on your premises



```
        ┌─────────────────┐
    ┌···│    BUSINESS      │···┐
    :   │  APPLICATION     │   :
    :   └─────────────────┘   :
    :                         :
    :    Increase capacity    :
    :                         :
    : Pay only for what you use[1]
    ↓                         :
┌──────────┐        ┌──────────────┐
│FORECASTED│        │ LOCAL BUFFER │
│ CAPACITY │        └──────────────┘
└──────────┘              ↑
      │                   │
      │    Decrease       │
           capacity

   single monthly invoice.
```
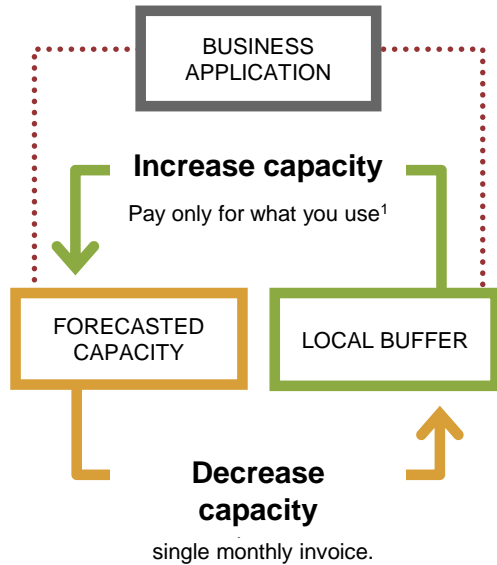
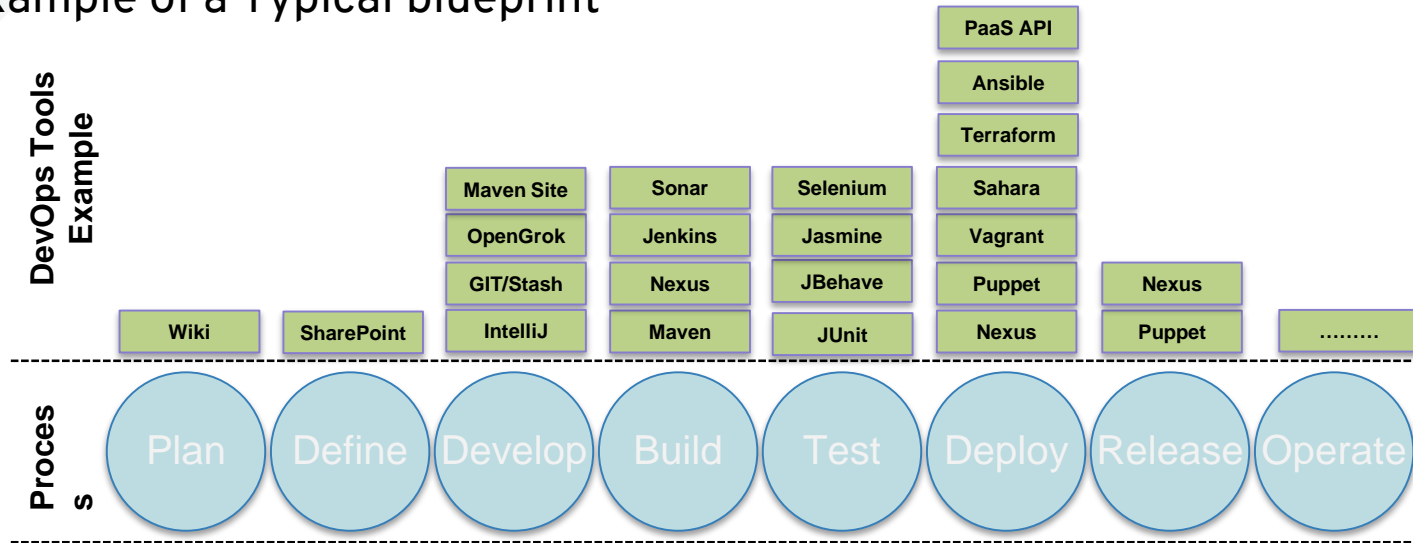| Cloud economics, on-premises | Pay only for what you use | Scale capacity quickly when needed |



**Read the eBook:**
**Why choose? With HPE Flexible Capacity you can have it all.**
How to create, incubate, and run your digital apps and services on your premises – **and** pay-as-you-go
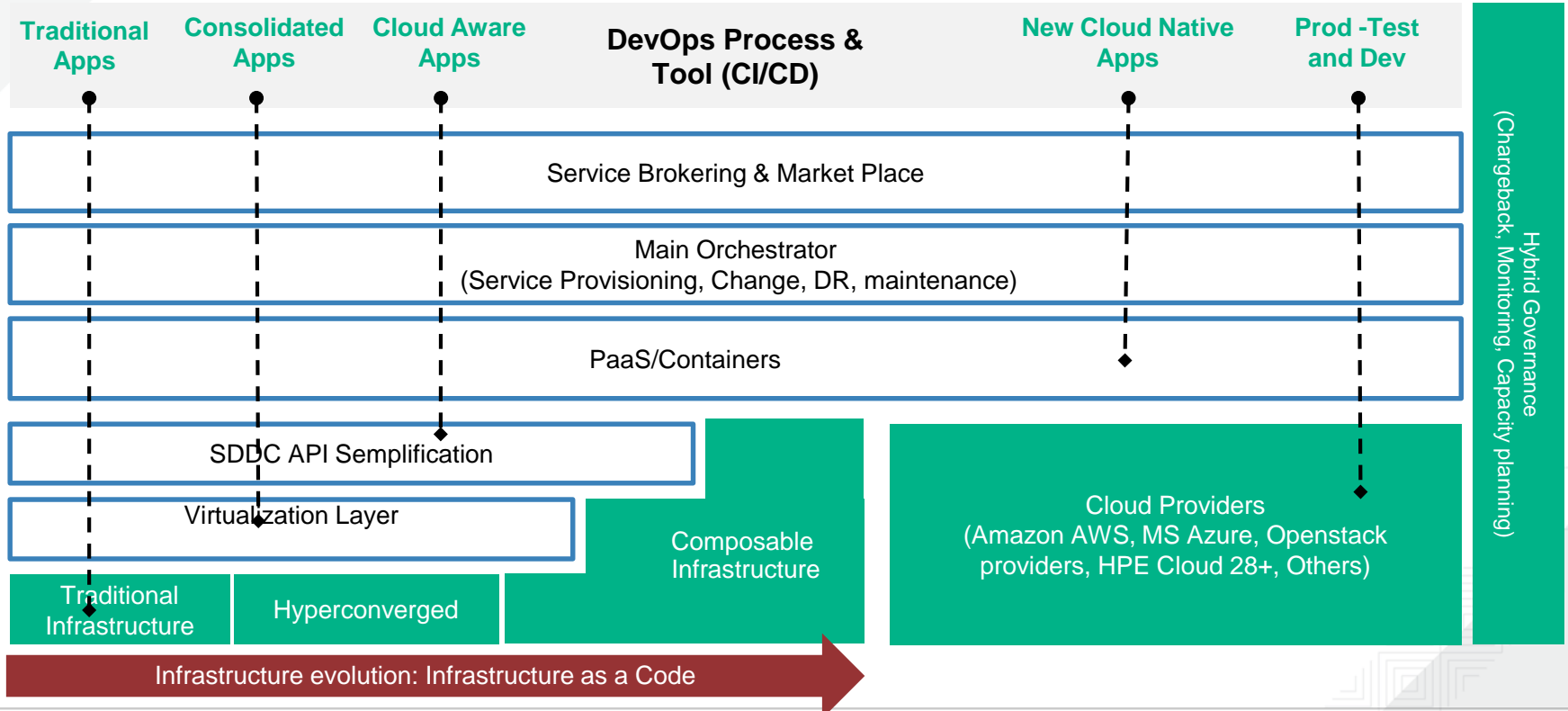
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# Streamline DevOps

## Example of a Typical blueprint



**DevOps Tools Example**

| | | | | | PaaS API | | |
| | | | | | Ansible | | |
| | | | | | Terraform | | |
| | | Maven Site | Sonar | Selenium | Sahara | | |
| | | OpenGrok | Jenkins | Jasmine | Vagrant | | |
| | | GIT/Stash | Nexus | JBehave | Puppet | Nexus | |
| Wiki | SharePoint | IntelliJ | Maven | JUnit | Nexus | Puppet | ......... |

**Process**

Plan — Define — Develop — Build — Test — Deploy — Release — Operate

Simplify and reduce Integration Points and Reuse DevOps Tools in the End To End Chain

# Within a Multi-source Delivery Model

Traditional Apps

Consolidated Apps

Cloud Aware Apps

**DevOps Process & Tool (CI/CD)**

New Cloud Native Apps

Prod -Test and Dev

Hybrid Governance
(Chargeback, Monitoring, Capacity planning)

Service Brokering & Market Place

Main Orchestrator
(Service Provisioning, Change, DR, maintenance)

PaaS/Containers

SDDC API Semplification

Virtualization Layer

Traditional Infrastructure

Hyperconverged

Composable Infrastructure

Cloud Providers
(Amazon AWS, MS Azure, Openstack providers, HPE Cloud 28+, Others)

Infrastructure evolution: Infrastructure as a Code

# Composable Infrastructure defined

## Architectural design principles

### Unified API
– Single line of code to abstract every element of infrastructure for full infrastructure programmability
– Bare-metal interface for Infrastructure as a Service

### Software-Defined Intelligence
– Template-driven workload composition
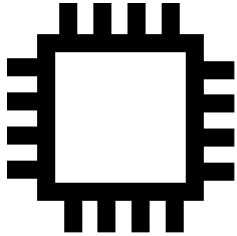– Frictionless operations

### Fluid Resource Pools
– Single infrastructure of disaggregated pools
– Physical, virtual, and containers
– Auto-integrating of resource capacity

Unified API

Software Defined Intelligence

Fluid Resource Pools
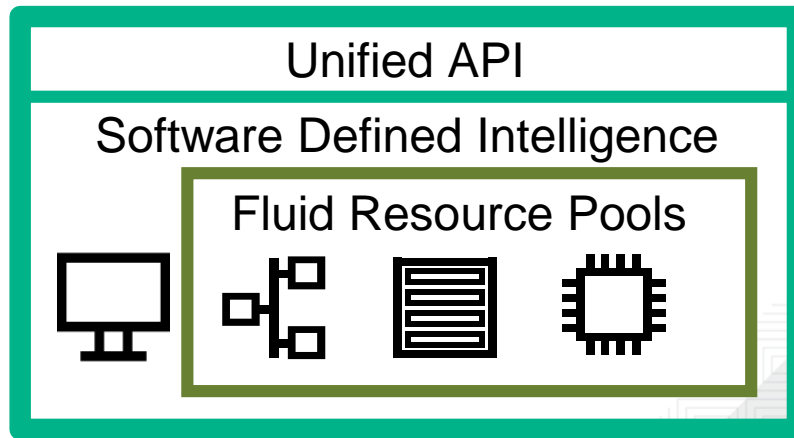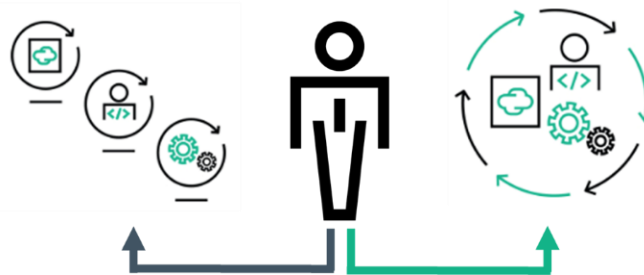
# Core innovations: Stateless infrastructure

Composer

Image Streamer

**Single Management Interface:**
One interface to discover, compose, update, and troubleshoot

**Unified API:**
Operations changes can be easily automated and Developers can program the infrastructure as code

**Frictionless Operations:**
Firmware and driver updates delivered seamlessly as one

**Template Based Composition:**
Templates composes the infrastructure to match the workload's needs

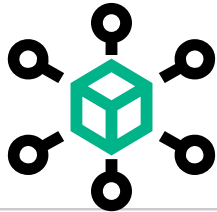**Compute, Fabric & Storage (SDS – DAS – SAN)**

**Composable Fabric:**
Eliminate the need of TOR Switch

**Image Streamer:**
Instantly provision operating environments on stateless infrastructure

Hewlett Packard
Enterprise

redhat.

# Any Integrations available

Ready for customer implementation

### Available from HPE

**vmware**

**Hewlett Packard Enterprise**

- Cloud Optimizer (aka VPV)
- Cloud Service Automation
- IMC
- Operations Analytics
- Operations Bridge
- Operations Orchestration
- UCMDB

### Available from partner

**redhat.**

**ARISTA**

**E·T·N**

**MagicFleX** For HP OneView

**nlyte.Software**

**SALTSTACK**

**Schneider Electric**

**VM TURBO**

### Open source on GitHub

**CHEF** **docker** **openstack**

**PowerShell** **ANSIBLE** **golang**

**puppet labs** **python** **Ruby**

**Java** **HashiCorp Terraform**

https://github.com/HewlettPackard
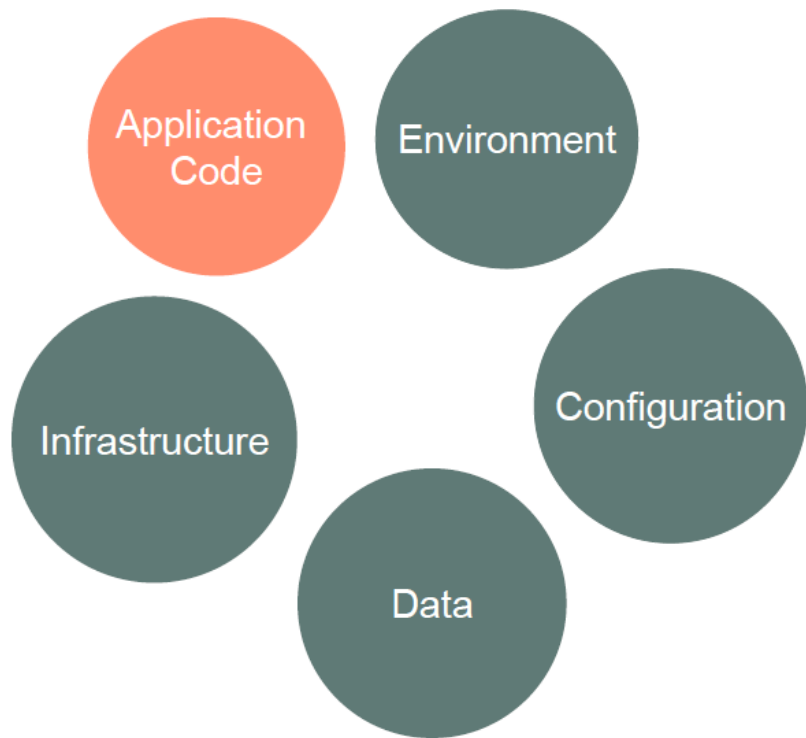
# Everything as a code

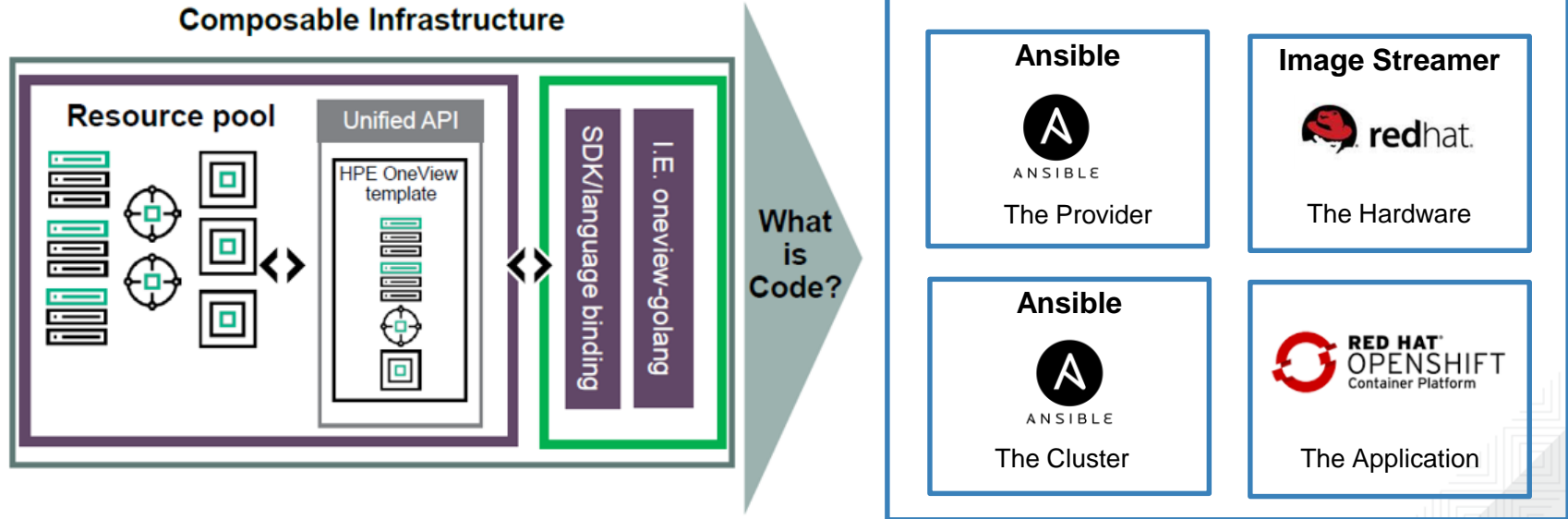There is more than just application source code



We consider the **entire system**, not just the application source code

- Configuration
- Application code
- Environment
- Data
- Infrastructure

Every change to the system goes through the
**Continuous Delivery Pipeline**

# CaaS Services with Synergy: Use Case example



**Composable Infrastructure**

Resource pool

Unified API

HPE OneView template

SDK/language binding

I.E. oneview-golang

What is Code?

**Ansible**

The Provider

**Image Streamer**

The Hardware

**Ansible**

The Cluster

**RED HAT OPENSHIFT** Container Platform

The Application

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# Integration Content example

```yaml
- name: Deploy node webservers on RHEL 7.2 servers
  hosts: all
  gather_facts: no
  vars:
    - config: "{{ playbook_dir }}/oneview_config.json"
    - deployment_network_uri: '/rest/ethernet-networks/b2b0669c-fa68-4f75-9f51-af607269b32b'
    - enclosure_group_uri: '/rest/enclosure-groups/1ae73c92-d598-4f65-ac96-f417a55039f3'
    - deployment_plan_name: 'install-nodejs4.2-stack-RHEL7.2'
    - management_ntwrk_uri: '/rest/ethernet-networks/e75ac764-6a41-47c5-8e37-53c4265d39bd'

  tasks:
    - name : "Create server profile with deployment plan {{ deployment_plan_name }}"
      delegate_to: localhost
      oneview_server_profile:
        config: "{{ config }}"
        data:
          name: "{{ inventory_hostname }}"
          server_template: "webserver-template"
          osDeploymentSettings:
            osDeploymentPlanName: "{{ deployment_plan_name }}"
            osCustomAttributes:
              - name: MgmtNIC1.connectionid
                value: 1
              - name: MgmtNIC1.dhcp
                value: false
              - name: MgmtNIC1.ipv4disable
                value: false
              - name: MgmtNIC1.networkuri
                value: "{{ management_ntwrk_uri }}"
              - name: MgmtNIC1.constraint
                value: a
```

ANSIBLE
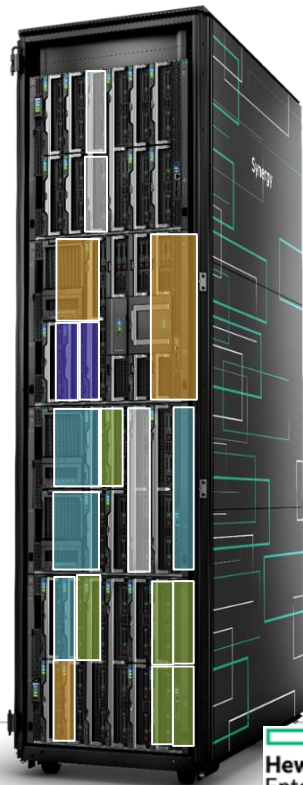
Hewlett Packard
Enterprise
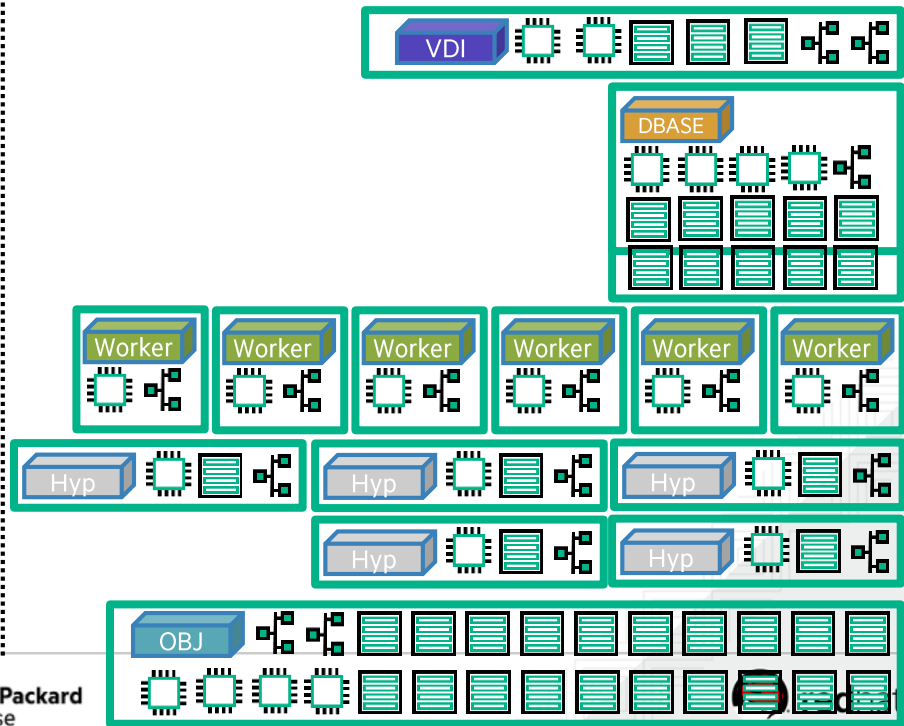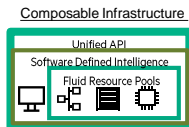
redhat.

# Resources

HPE Composable Infrastructure

https://www.hpe.com/us/en/solutions/infrastructure/composable-infrastructure.html


HPE Composable Infrastructure Developer HUB

https://www.hpe.com/uk/en/solutions/developers/composable.html