



PRODEVANS
www.prodevans.com

A large, semi-transparent watermark or background image is visible across the page. It features a woman's profile on the left, a smartphone in the center displaying a digital interface, and various abstract digital network visualizations with glowing nodes and lines in the background.

Cloud and DevOps Partner

DevOps | Cloud | Managed Services

Global Reach



Why Prodevans?

- 01** In-depth domain knowledge
- 02** Proven competence in Cloud Technologies
- 03** Experienced resource pool for delivery & support
- 04** Experience in Release Management process
- 05** Consistent successful track record of project delivery
- 06** 14 years of Experience on Red Hat Technology as a Certified Technology Partner

Key Value Adds

Better Uptime

Reduction in Costs

Faster Time to Market

Better Resource Utilization



VISION



MISSION

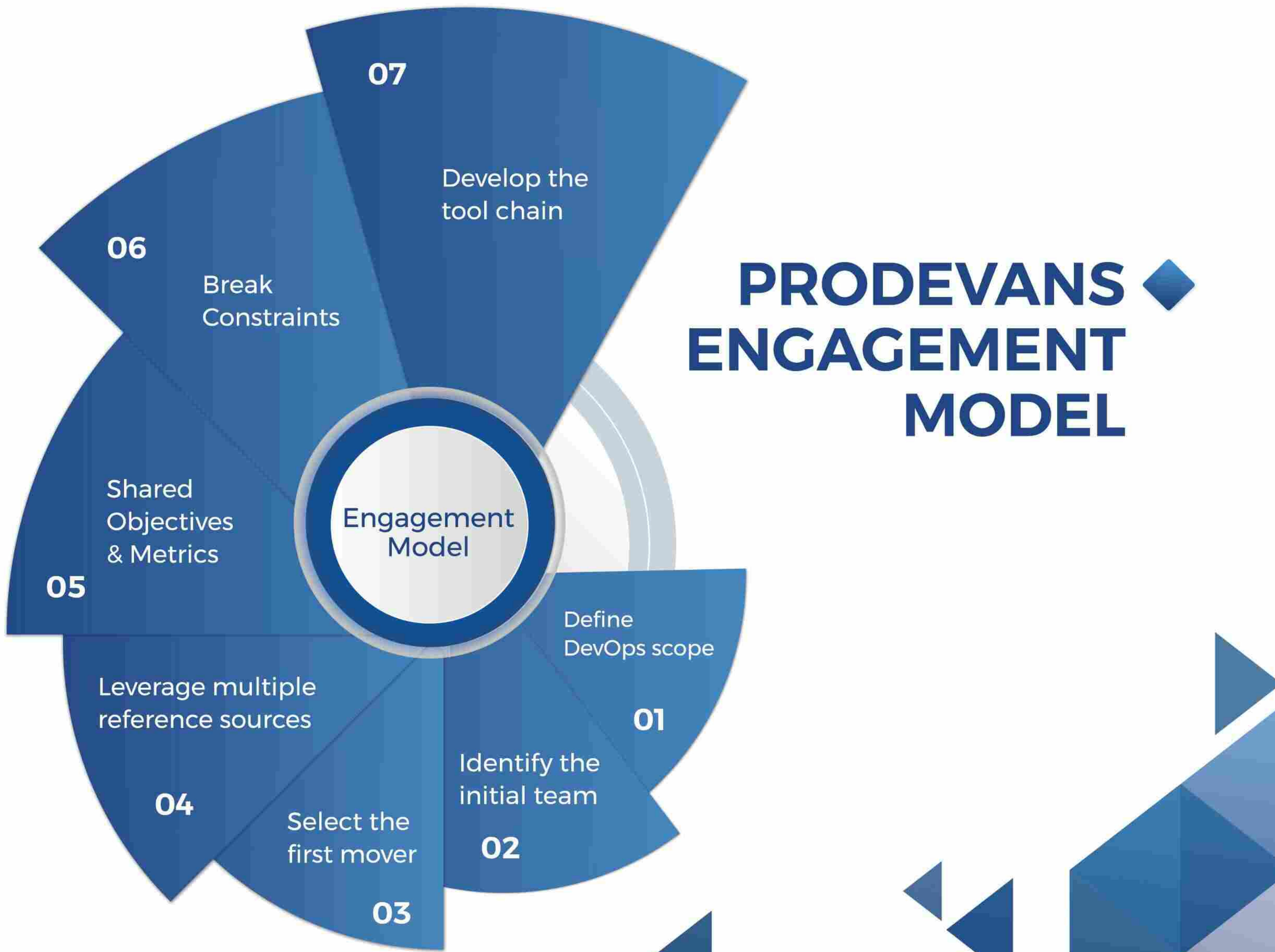


VALUES

To be the
#1 Cloud Solution
Provider in the world

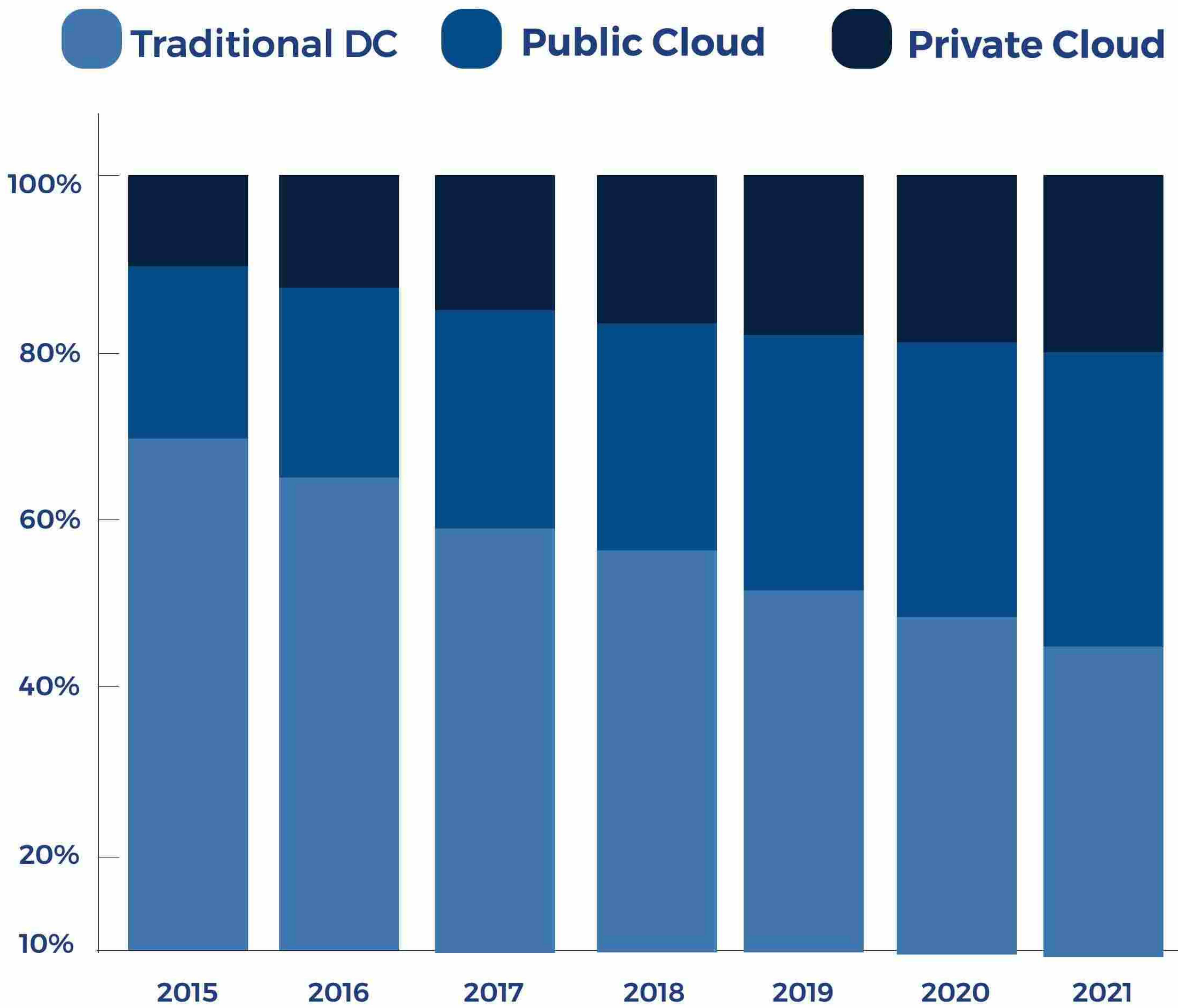
To design & implement
solutions that
are faster, easier
and more reliable
than ever before

Nourish relationships
with our employees,
partners and ISVs
to be the organization
they can trust



CLOUD ADOPTION - PUBLIC & PRIVATE CLOUDS ACCELERATING

Worldwide Cloud IT Infrastructure Market Forecast
by Deployment Type 2015 - 2021 (shares based on Value)

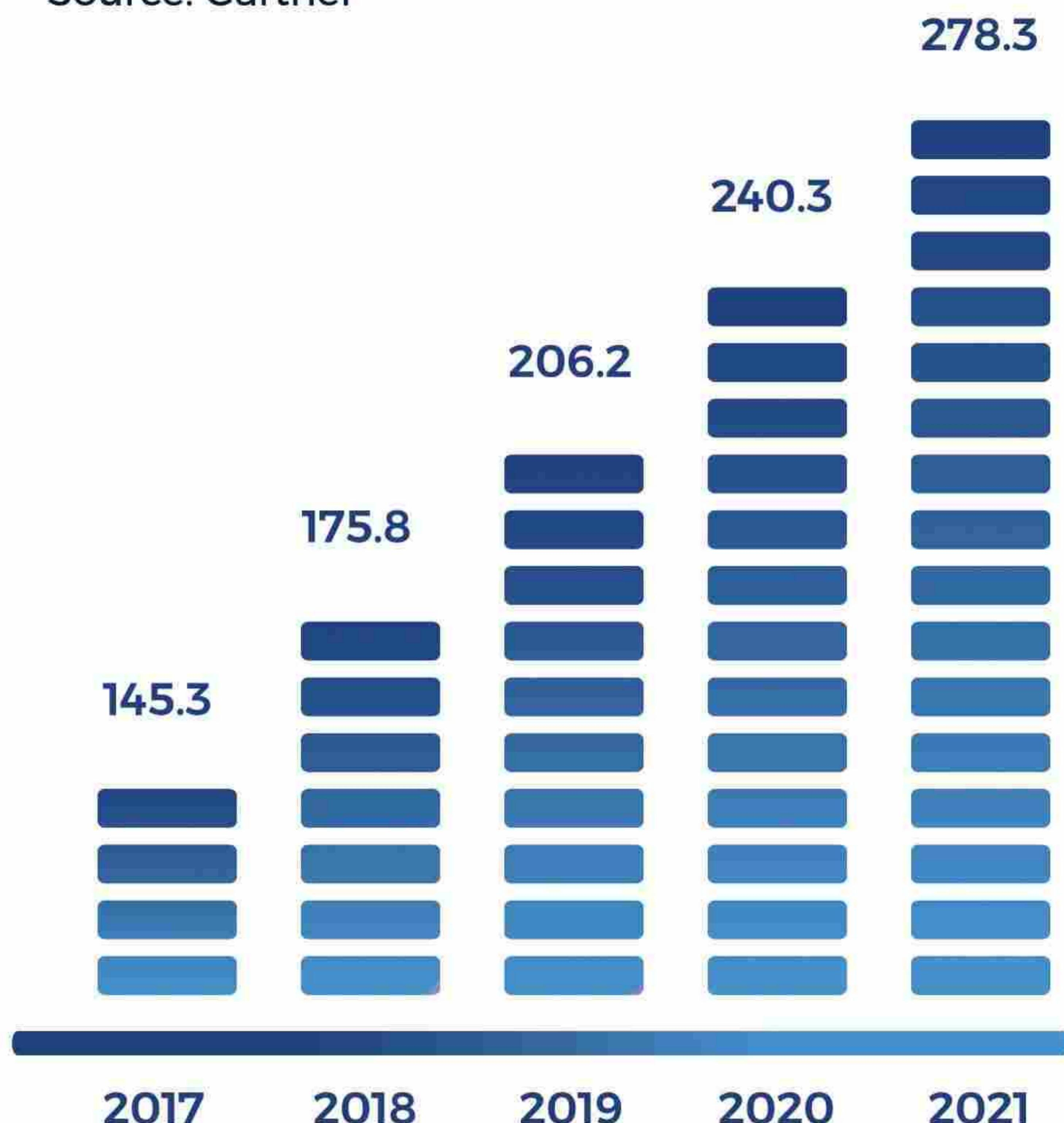


*Source: Worldwide Quarterly Cloud IT Infrastructure Tracker, Q4 2016

RAPID GROWTH OF PaaS

Worldwide Public Cloud Service Revenue Forecast Public Cloud Services Market (in \$bn)

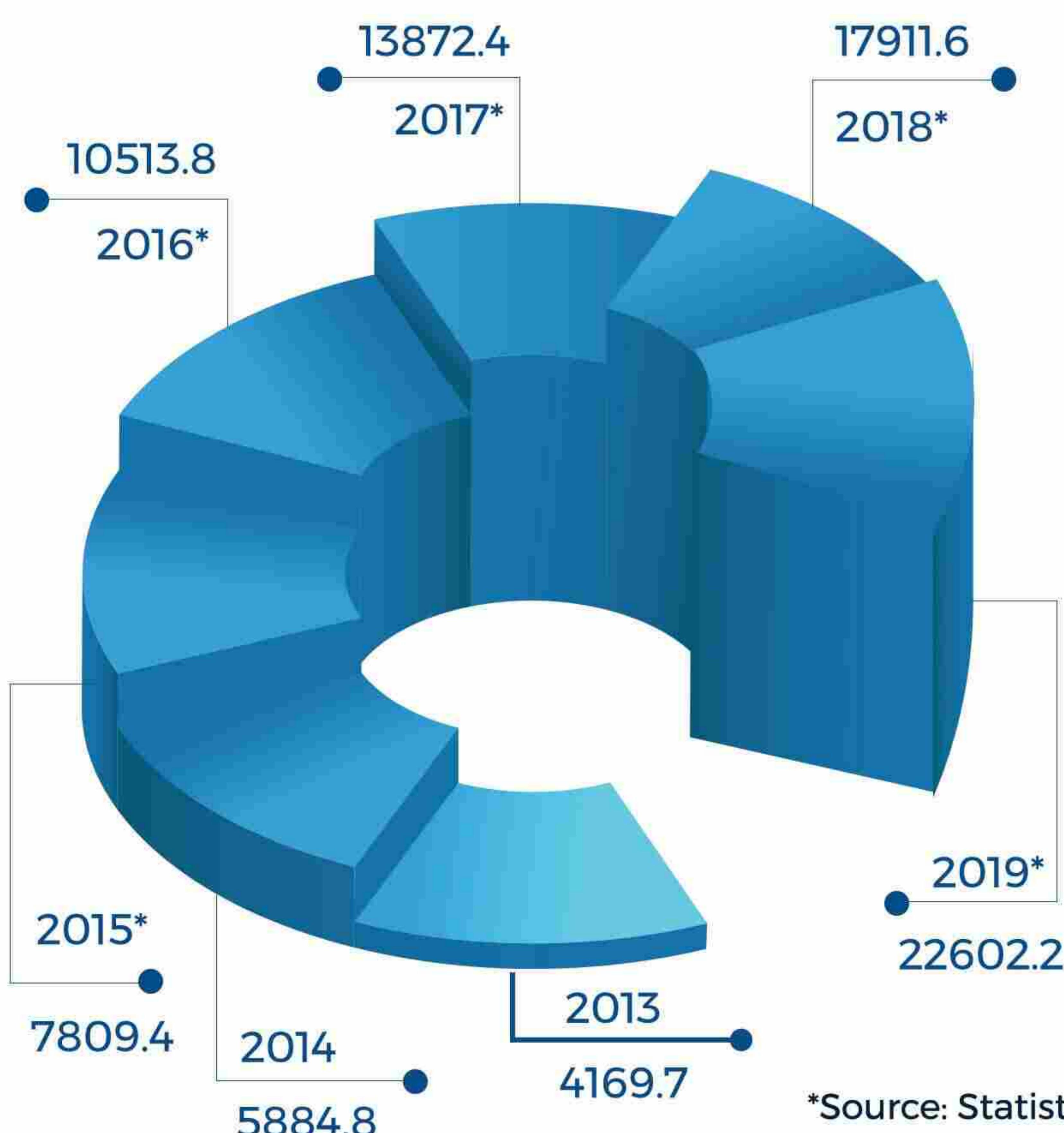
*Source: Gartner



Platform-as-a-Service (PaaS) adoption is predicted to be the fastest-growing sector of cloud platforms, growing from 32% in 2017 to 56% adoption in 2020.

--KPMG

Revenue in
Million U.S Dollars



*Source: Statista

"Demand for integrated IaaS and PaaS offerings is driving the next wave of cloud infrastructure adoption."

--Gartner

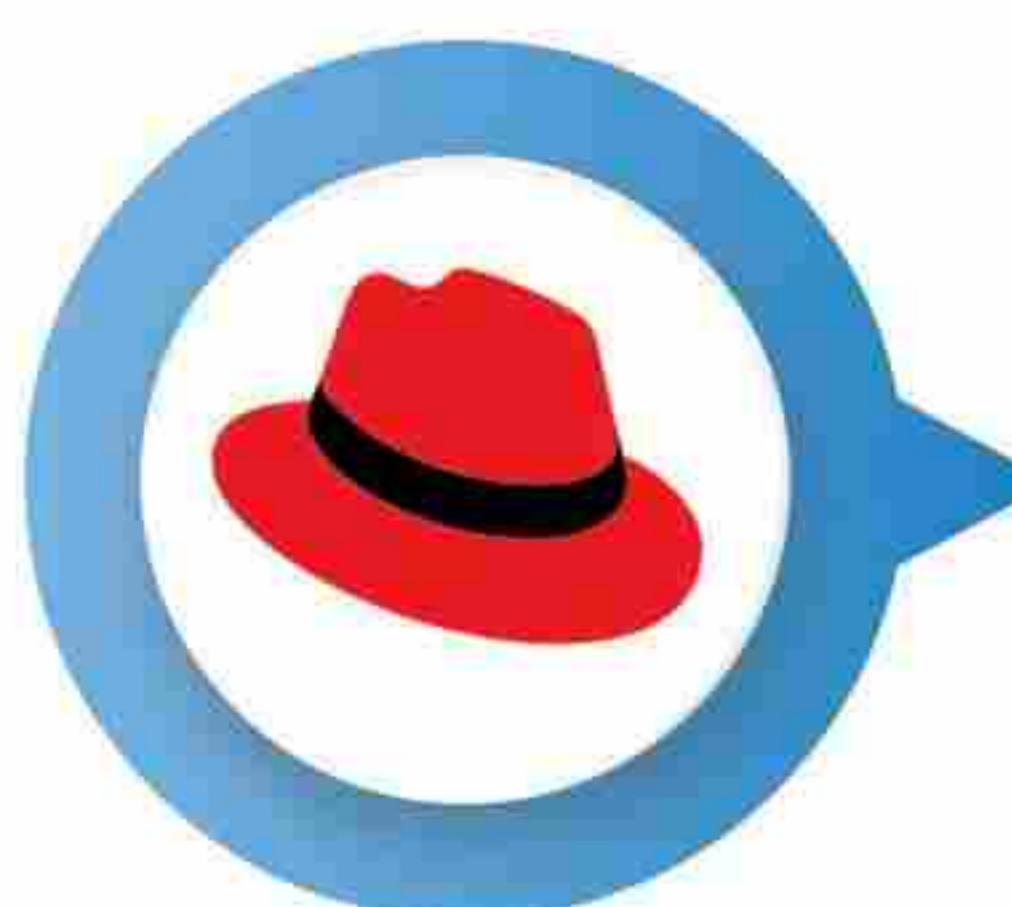
Competitive public cloud Platform as a Service (PaaS) revenue forecast worldwide, from 2013 to 2019 (in million U.S. dollars)

• CLOUD COMPUTING SOLUTIONS •

WORK SMARTER, FASTER & CHEAPER IN THE CLOUD

PRODEVANS tried and true process is built on state of the art tools and methodologies that have consistently delivered successful cloud migration and hybrid cloud integration projects at some of the largest corporations in ASEAN.

Through the use of proven, repeatable, automated, and standardized templates, processes and workflows based on industry certified best practices, our experts ensure your cloud migration or hybrid cloud integration project is a success, saving you time, money, and resources.



14 Years Red Hat
Partner Experience



25+ Red Hat
Awards



High Success rate
with Solution
Implementations
across India & ASEAN

Cloud Advisory Services

Through surveys, workshops and benchmarking, we identify which workloads are suitable for migration to the cloud. Then, we recommend the most suitable cloud model private, public or hybrid and develop a roadmap with detailed next steps.

Cloud Enablement Services

To ensure the suitability of cloud for your organization, we will implement a proof of concept (PoC) to demonstrate functionality and overall return on investment (ROI).

Prodevans Cloud Services

Cloud Implementation Services

For each workload, we will install, migrate, configure, integrate & administer the application in the Cloud.

Cloud Managed Services

We provide ongoing support, administration and optimisation of your cloud deployment to maximise application performance and minimize cost.

Cloud for Digital Enterprise



DIGITAL ENTERPRISE

PLATFORM MODERNIZATION

- ▶ DC Modernization
- ▶ Enterprise apps on cloud
- ▶ Data platform modernization
- ▶ Workspace modernization



ANALYTICS & AI

- ▶ Descriptive Analytics
- ▶ Predictive Analytics
- ▶ Prescriptive Analytics



APPLICATION MODERNIZATION

- ▶ Container / Microservices / Open Source
- ▶ Lift and Shift, Architect and Transform
- ▶ Cloud-native app re-engineering
- ▶ DevOps-CI/CD Enablement
- ▶ API Enablement

PRODEVANS – Master Competency in Container Technology



Self Service



Multi Language



Automated



Collaboration



Seamless

An ALL ROUND SOLUTION FOR ALL YOUR APPLICATION NEEDS

Containers as a service

Secure



Enterprise grade



Open Source



Web Scale



Standards based



◆ BUSINESS BENEFITS WITH CONTAINERS

35%

Lesser time in application development

\$1.3mil

Average annual benefits per 100 applications developers

38%

More cost effective in annual infrastructure & development solution costs

*Source: <https://www.openshift.com/sites/default/files/idc-business-value-of-openshift.pdf>

◆ APPLICATION MODERNIZATION : RATIONALE

Build on what exists

Use the existing assets for any new technology introduction

Reduce the cost of existing operations

Change the IT spend towards innovation and differentiation

Introduce disruptive technologies

Bring in modern technologies outlined in the typical technology levers

Reduce the cost of innovation and change

Embrace platform based development for reduced application life cycle cost

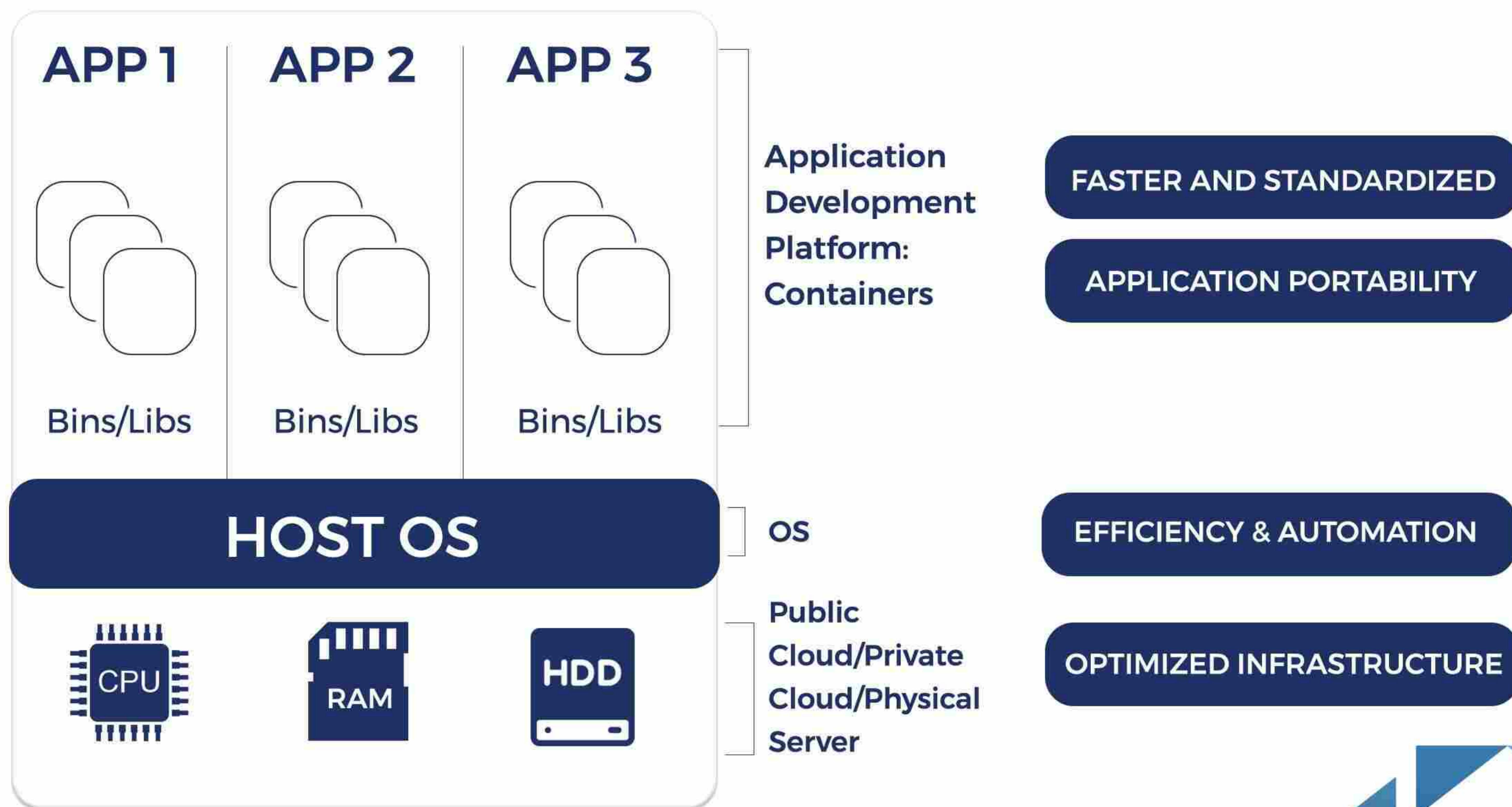
Continuously innovate

Work with the business – art of possible – to innovate and learn from the market

Container Technology is the Future

Gartner

"Containers are being adopted at a rapid pace. Infrastructure managers must embrace this change to address the demands of bimodal IT, but in a controlled and tactical manner"



HIGH GROWTH POTENTIAL

Valuation of Impact of containers on the market.

*Source: 451 Research

\$1.8bn

CAGR 2020

*Source: 451 Research

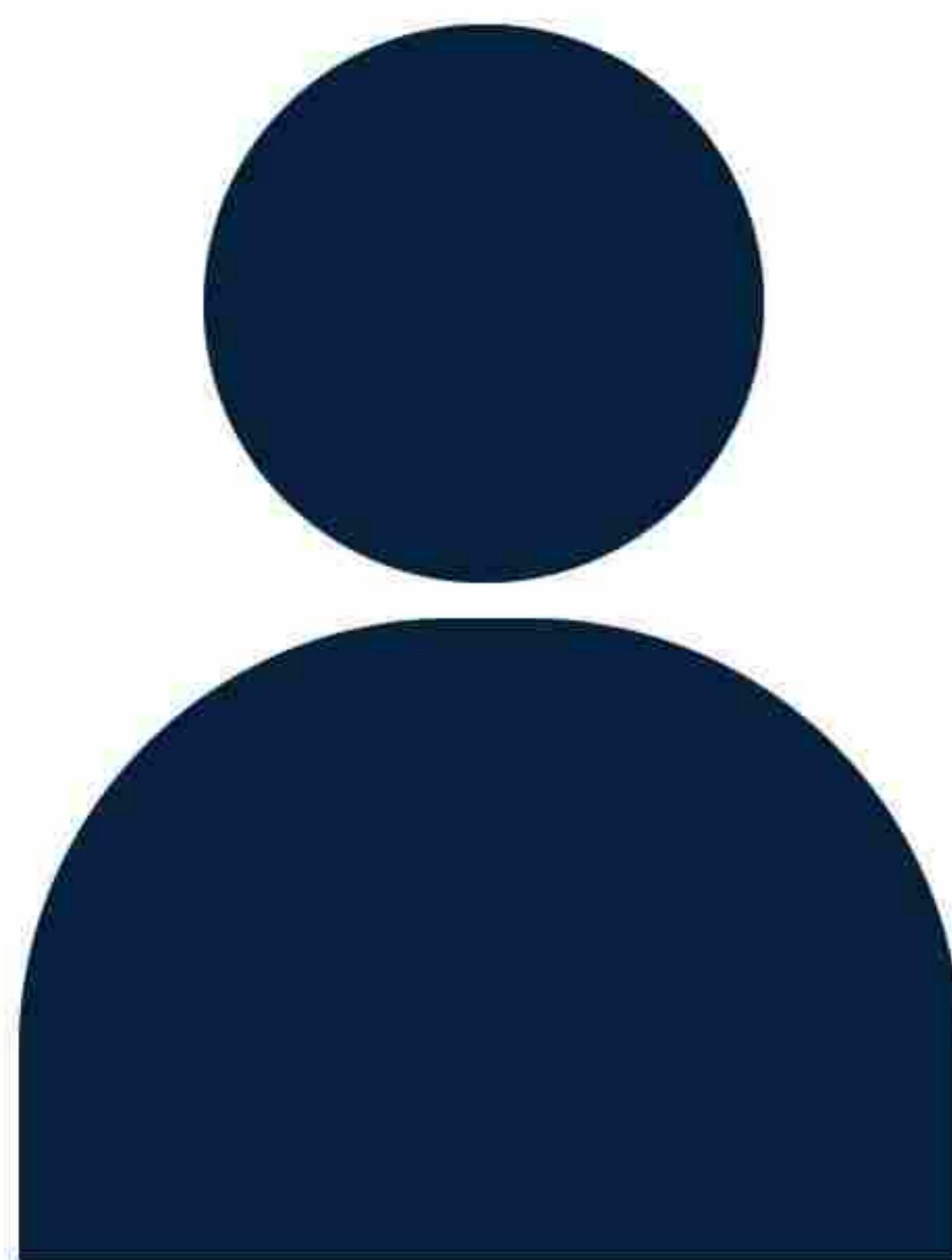
35%

Years for mainstream adoption of Containers

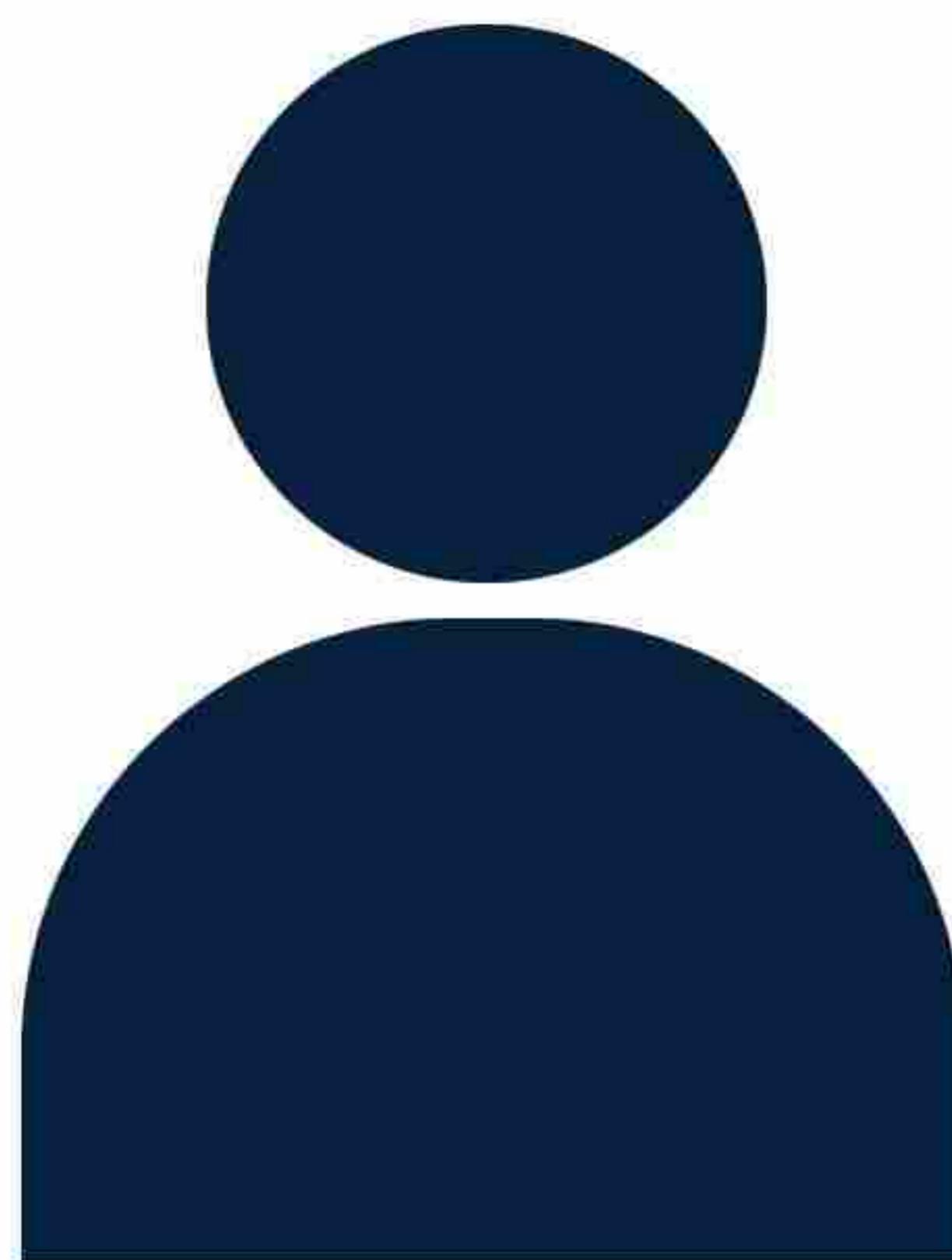
*Source: Gartner

1-4

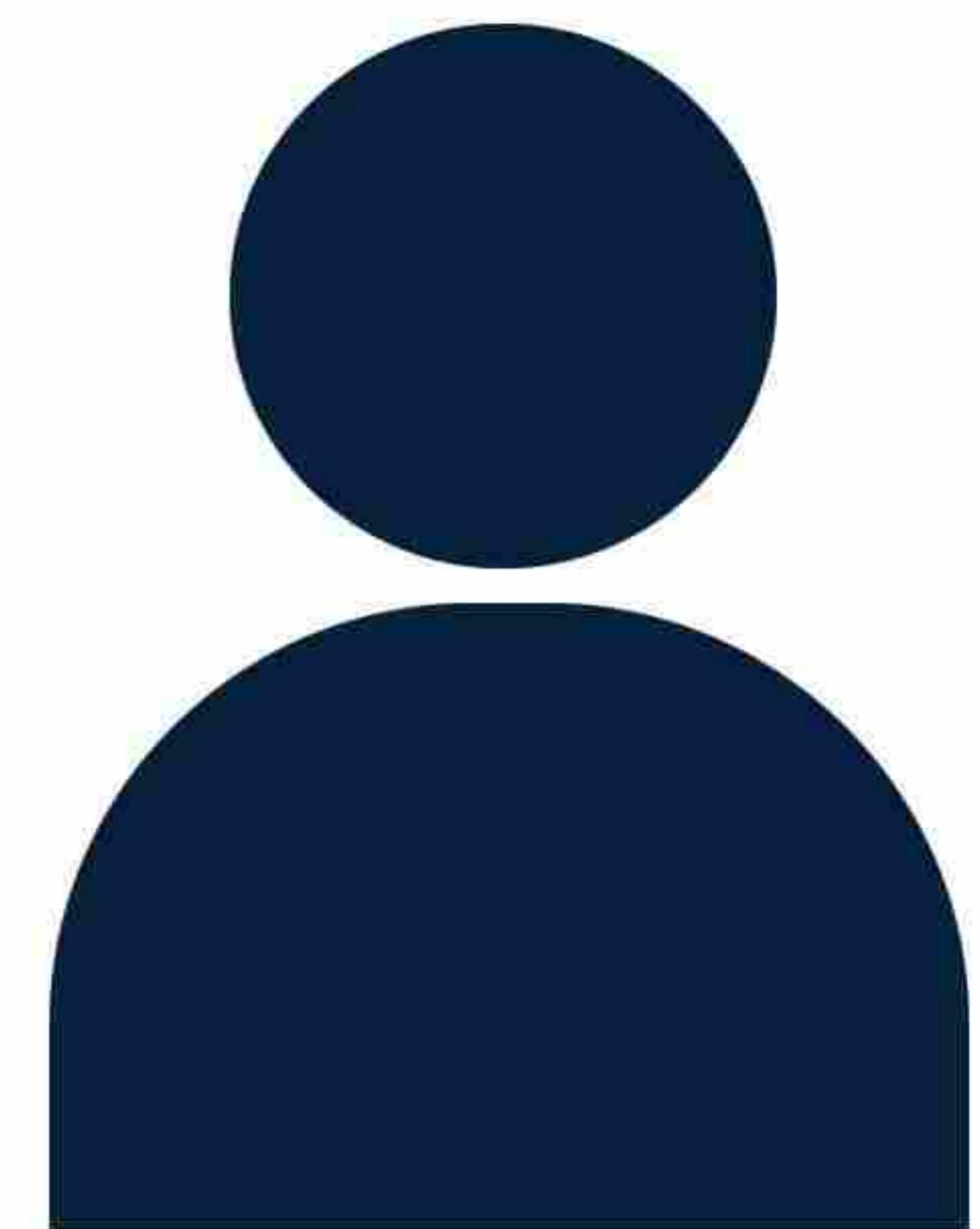
Prodevans Containerization DISCOVERY and ASSESSMENT Approach



Solution Architects



**App & Platform
Owners**



**Sys Admins,
DBAs, Developers**

PREP WORK

Analysis of required information

- Technology Stack
- System Environment

Tailor questionnaires to Customer environment

DISCOVER

Interviews with teams & stakeholders

Assessment of the below with tailored questionnaires

- Application Ecosystem
- Application Architecture
- Services dependencies

RECOMMEND

Establish success criteria & metrics

Prioritize Migration Components

High-level benefits analysis for 2 candidate modules

Present

- Findings & recommendations
- High-level plan and estimated timelines



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ANALYZE

Analyze components, dependencies and boundaries

- Can I Containerize?
- Can I Automate?
- Can I template?

Categorize components for container suitability

Validation against Customer's priorities

Prodevans -Refactor / Re-Architect Pattern Approach

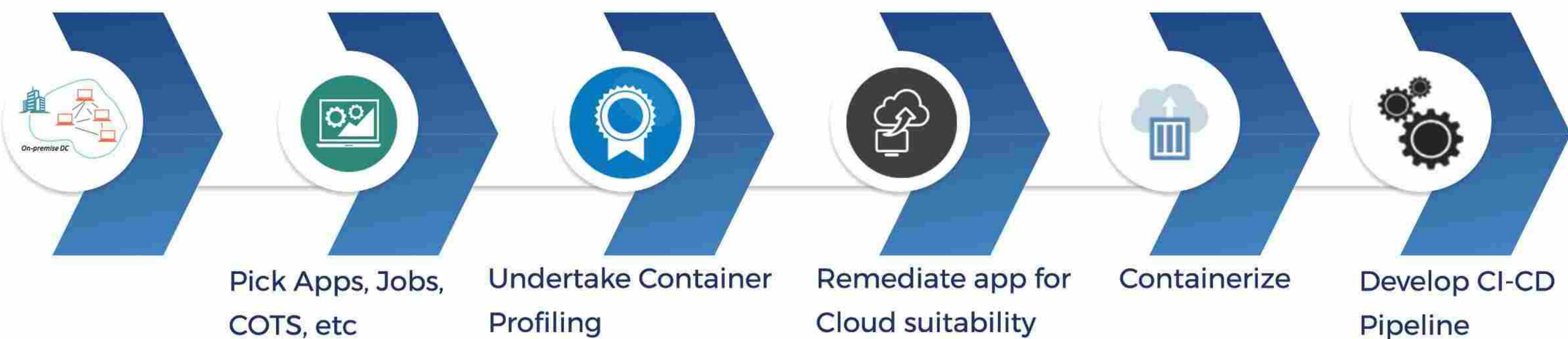
Containerized Lift & Shift - Quicker yet more structured, one-step towards ideal cloud journey

With a “Containerized lift and shift” approach, some benefits are:

- ▶ Keep the application framework version the same
- ▶ Keep the existing application architecture
- ▶ Keep the same versions of components and application dependencies
- ▶ Keep the deployment simple: static and not elastic

Once the application is successfully containerized it should then be easier and faster to change, for example:

- ▶ Upgrade to a newer version of application server, gradually refactor to microservices
- ▶ Make dynamically scalable or use elastic deployment



CMA- PD Container Management Assistant



PRODEVANS PARTNERSHIPS



◆ PRODEVANS – RED HAT CAPABILITY

OPEN STACK

- Various Open Stack deployments such as Red Hat/RDO Open Stack for Malaysia, Indonesia, Vietnam and India Telecom
- The largest and complex deployments include Overcloud with 16 computes, 10 CEPH storage with the deployments were orchestrated. Included features like SRIOV, PCI Pass-through, DPDK and NUMA
- Resolved several dependencies related to network, deployment scripts, VNF on boarding.

KUBERNETES / OPEN SHIFT

- Red Hat Open Shift and Kubernetes deployments in Thailand, Malaysia, Australia Banks, University in Singapore ,India Banks and Telecom
- The largest and complex deployment includes 100 worker nodes.
- Delivered container Storage as a Service using Gluster, Pure Storage and NetApp Trident on DC/DR Solutions
- Deployments orchestrated using Ansible so that the worker node scaling is done on Open Stack KVM/Vmware automatically
- Day2 Operations includes 5 times upgrade from Open Shift 3.5 to 3.11 seamlessly, integration with Splunk, Dynatrace, Newrelic and ServiceNow

CLOUD FORMS

- Self Service Catalogue with multi stack options, Chargeback/Showback , Compliance/ Remediation and Monitoring
- ServiceNow ITSM integration, infoblox IPAM integration

ANSIBLE, HEAT AND TERRAFORM

- OpenStack, Open Shift, Kubernetes Deployment using Ansible
- Application Stack deployment using Ansible and Terraform on Open Stack and Open Shift
- SysOps Day2 Operation and Storage, Network Automation using Ansible
- Deployment of VM infrastructure, Network, Storage and Env as a Code using Terraform automation on Oracle Open stack

◆ ACCELERATE DIGITAL TRANSFORMATION: RED HAT, AZURE & AWS

- | | | |
|---|--------------------------------|-----------------------------------|
| ➤ Red Hat Enterprise Linux Sales & Support in Azure and AWS | ➤ Hybrid Application Framework | ➤ DevOps Competency and Solutions |
| ➤ Certified Red Hat OpenShift Container Platform Support in Azure and AWS | ➤ Hybrid Cloud Storage | ➤ Data Analytics Solution |
| ➤ SQL and other Database Servers on Red Hat Enterprise Linux | ➤ Hybrid Cloud Management | ➤ AI , Machine Learning Solution |
| ➤ Red Hat Enterprise Linux for SAP Solutions in Azure | ➤ Cloud Migration Solution | ➤ Financial Service Solution |

Prodevans Automation through Ansible Cost Benefit Model

◆ Financial Summary

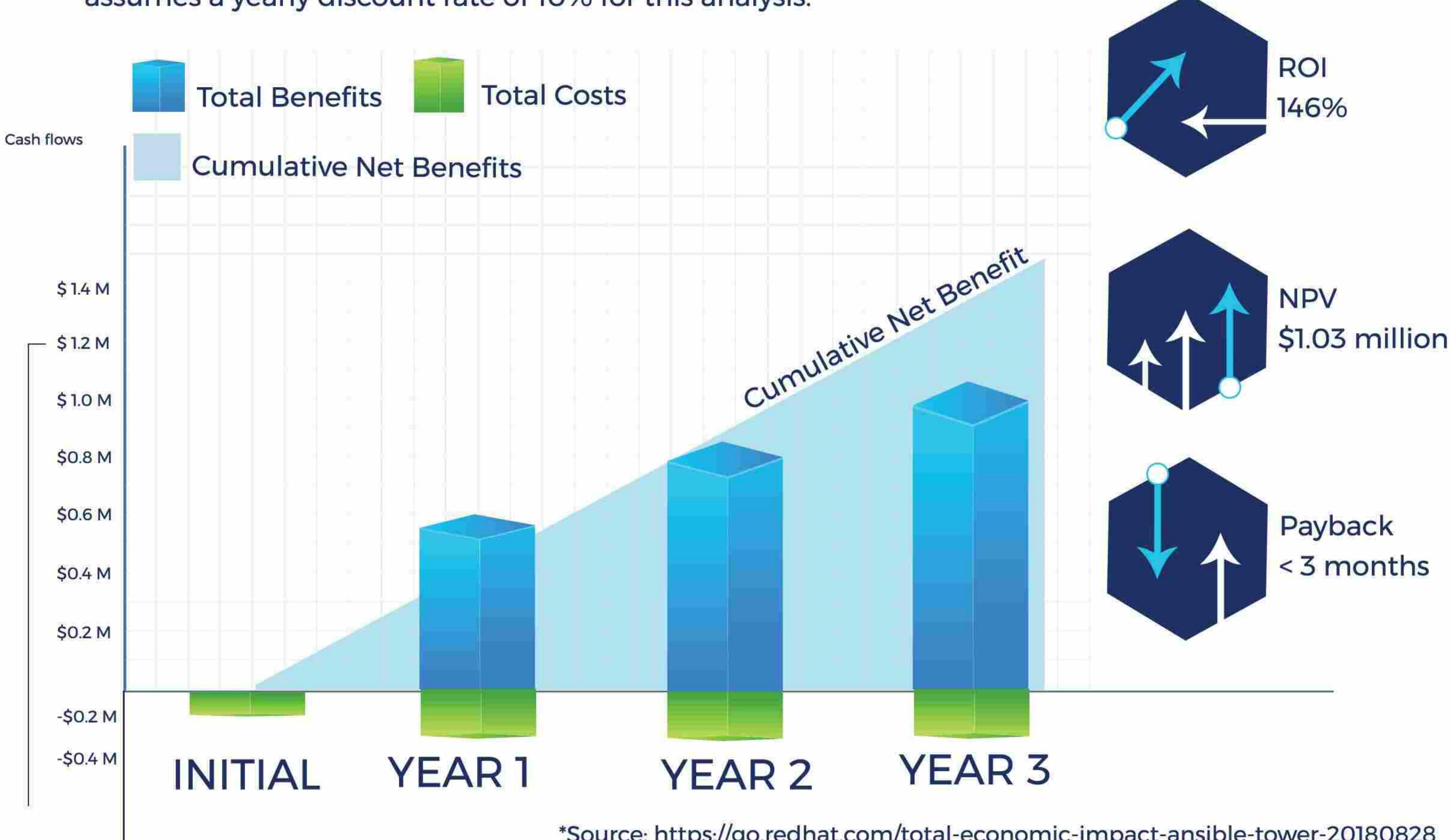
◆ Benefits (Three-Year)

COST*	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL
Annual Subscription* Premium 100 Nodes	\$0	\$14,000	\$14,000	\$14,000	\$42,000
Implementation and Deployment	\$28,000	\$0	\$0	\$0	\$28,000
Training Costs (10 team members)	\$6,000	\$0	\$0	\$0	\$6,000
Total Cost	\$34,000	\$14,000	\$14,000	\$14,000	\$76,000

*Source: <https://www.ansible.com/products/tower/pricing>

◆ Healthcare India

- The financial results calculated in the Benefits and Costs sections can be used to determine the ROI, NPV, and payback period for the organization's investment in Ansible Tower Forrester assumes a yearly discount rate of 10% for this analysis.



*Source: <https://go.redhat.com/total-economic-impact-ansible-tower-20180828>



Prodevans' Machine Learning Platform, iVentura™ - the Data Detective, when deployed a PaaS platform will facilitate a future where developers and data scientists can easily access and consume AI and ML technologies and capabilities in support of their business and organizational goals.

Business Case

AI and ML, terms once reserved for academia and research, have permeated their way into the knowledge of general public. Artificial Intelligence (AI) and Machine Learning (ML) are increasingly being used to turn data into assets, thereby laying the foundation for the next wave of Digital Transformation.

Organizations are increasingly investing in and adopting artificial intelligence (AI) and machine learning (ML) to better serve their customers, create value, grow their business, and reduce cost and complexity.

While data scientists have access to data and hardware for training and serving models today, the entire process can be complex, inflexible, incomplete and cumbersome. As a result, the impact of advances in ML has largely been limited. This is where Prodevans iVentura™ – The Data Detective can open up opportunities.

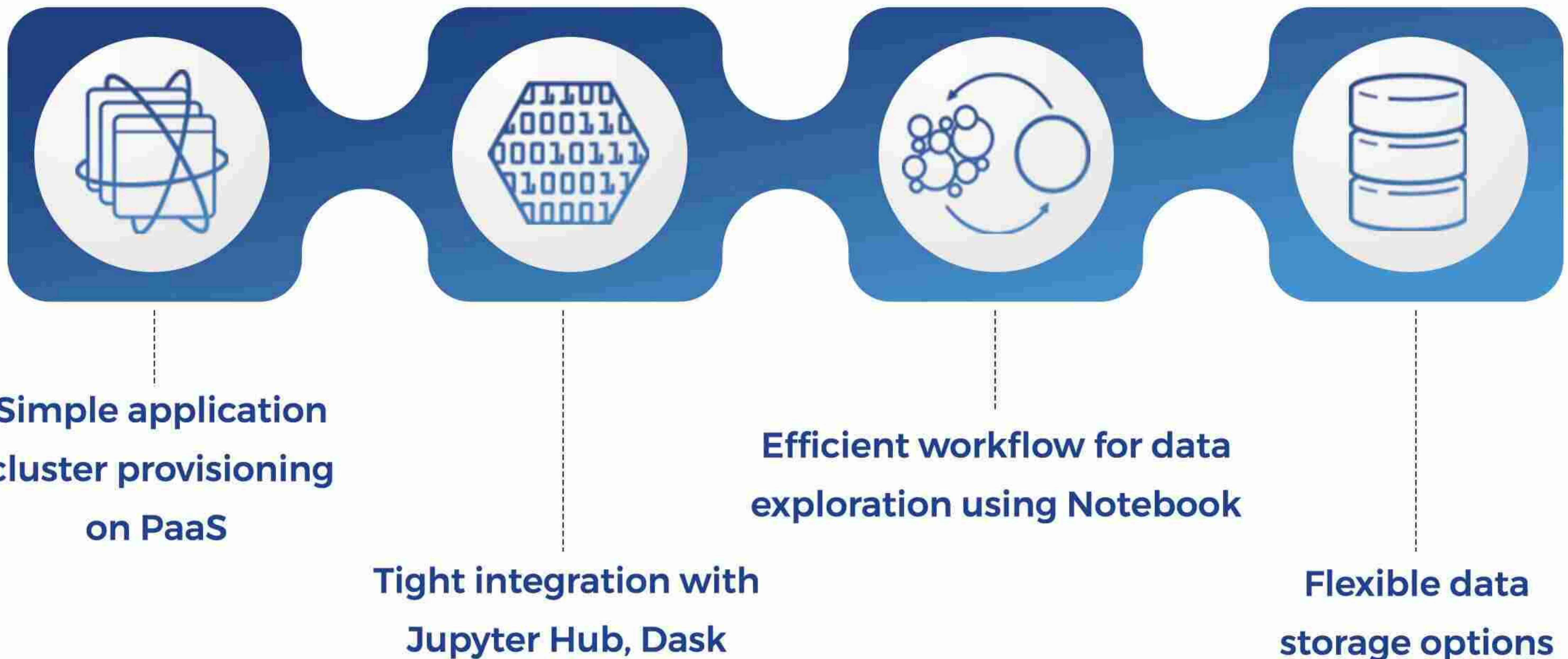
Why ML on PaaS

Developers are increasingly embracing containers and Kubernetes to help accelerate application development and deployment. Leveraging containers and Kubernetes, PaaS platform such as RedHat OpenShift can abstract and simplify access to underlying infrastructure and provide robust capabilities to manage application lifecycle and development workflows. With its additional capabilities for self-service, build and deployment and automation, the PaaS Platform further enhances this experience. Additional features in security, storage, networking, monitoring, and observability make it well suited for enterprise environments.

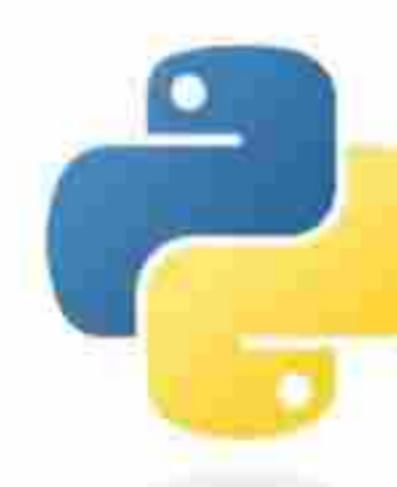
PaaS platforms therefore are well positioned to manage the complexity of ML and to democratize access to these techniques.

Why iVentura™ for ML-PASS?

Flexible, scalable, and Secure PaaS platform provides an ideal foundation for Machine Learning Applications



Notebook



KubeOps (monitoring tool)

HA (Load Balancer)

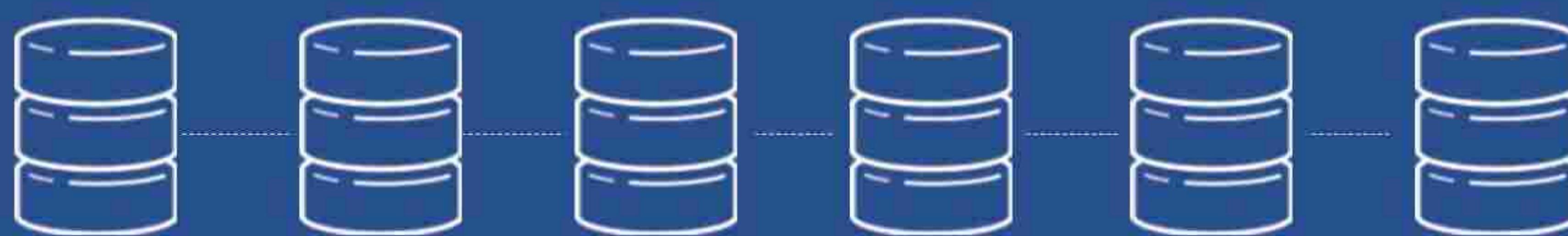


KeyClock (Security)

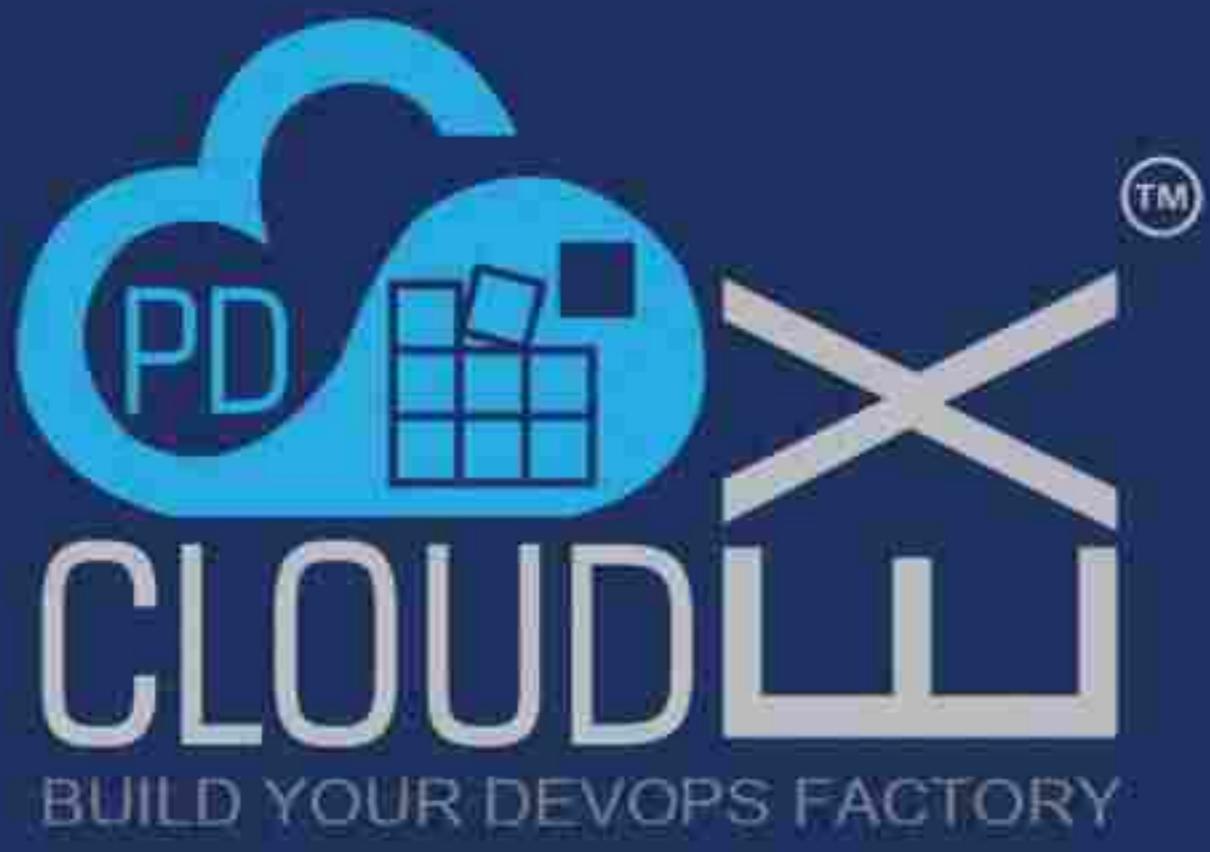
CLOUDFORMS (Chargeback)

PaaS (OPENSHIFT)

Gluster/
NFS



ANSIBLE Tower (Infra Automation)



PDCloudEx™

NextGen Cloud platform for Academia



◆ What is PDCloudEx™?

- Pre Configured private cloud platform on OpenStack for Compute, Network & Storage
- Open Source Cloud Solution especially crafted for Educational Institutions
- Initial set up with one server that can scaled up or down on demand
- Integrated with Hadoop in a Single Compute Box
- Add resources as and when needed
- No more installations on individual servers

◆ Services provided by the PDCloudEx™ :

- IAAS [Infrastructure As A Service]
- PAAS [Platform As A Service]
- StAAS [Storage As A Service]



PUBLIC CLOUD

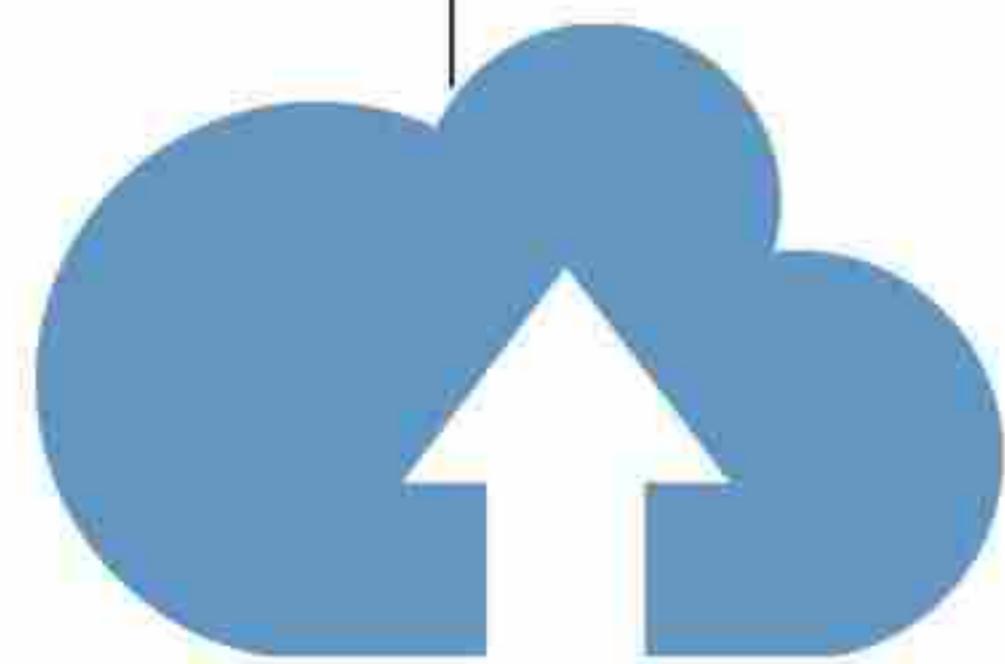
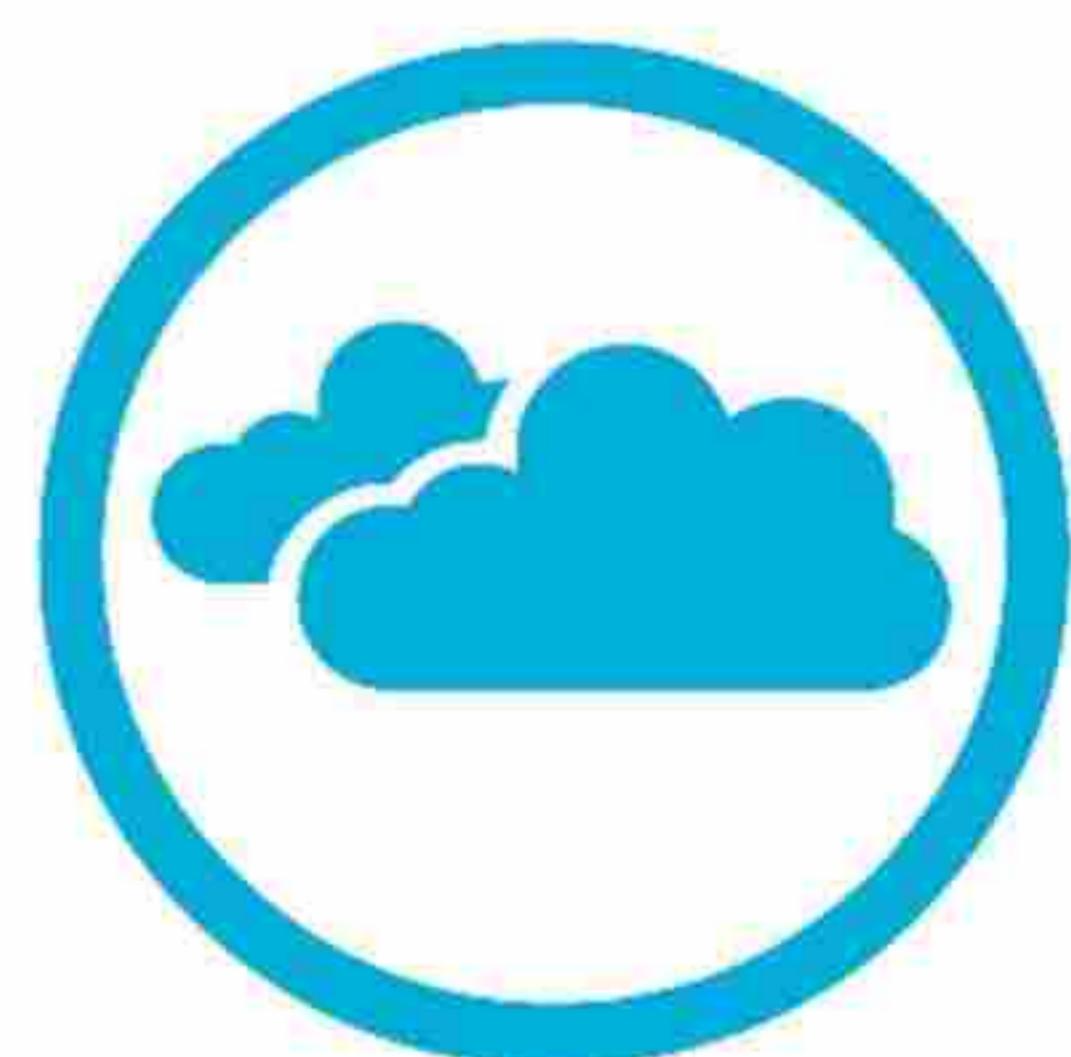
Shared resources among a community of users

PRIVATE CLOUD

Services that are controlled and exclusive to the user

HYBRID CLOUD

Ability to move workloads between private and public platforms



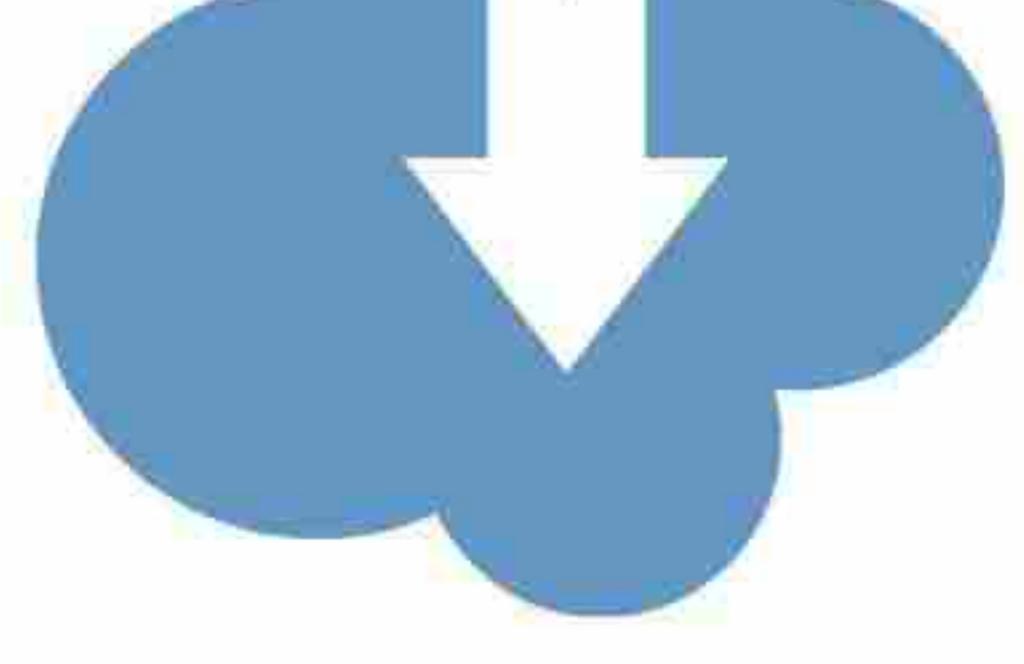
IAAS

Outsource the elements of infrastructure like Virtualization, Storage, Networking, Load Balancers



PAAS

Core hosting operating system and optional building block services that allow you to run your own applications

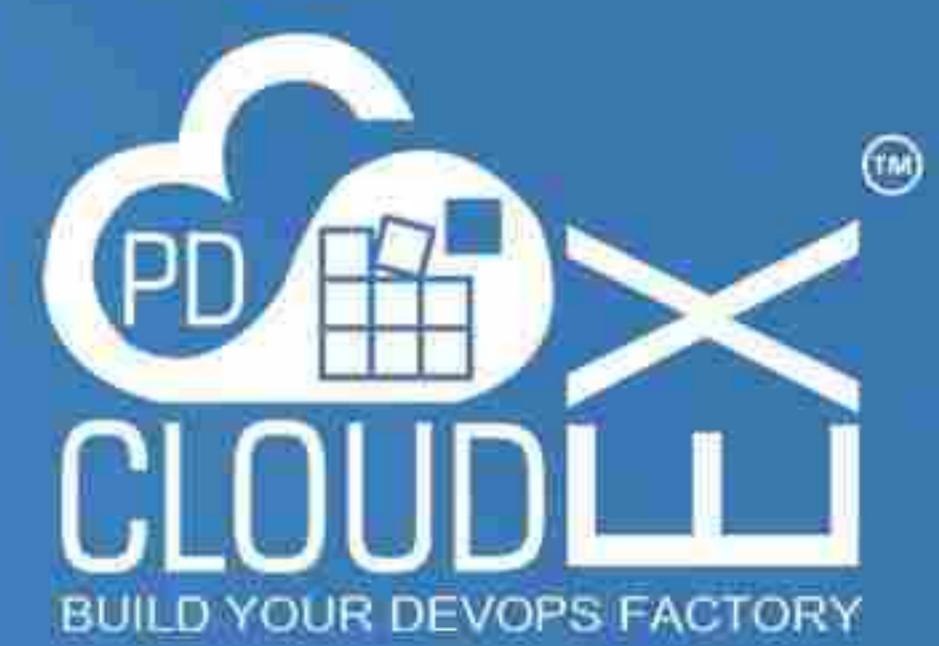


StAAS

Consumed as a service only for the applications needed.



TESTIMONIALS



◀ Dr. Rajkumar Buyya ▶

Redmond Barry Distinguished Professor and Director of Cloud Computing and Distributed Systems Laboratory at the University of Melbourne, Australia

"Cloud in a Box (PDcloudEx) offers ready to use standard infrastructure for empowering and educating next generation software engineers with skills in Cloud application programming using Aneka and conducting advance research in powering emerging BigData and Internet Of Things (IoT) applications."



◀ Mr. S.R. Poojara ▶

Professor, Computer Science and Engineering, RIT Rajaramnagar, India

Demo of PDCloudEx™, "I am confident that it provides a way out of this mess. It is our one-stop-solution to manage all our Lab sessions and projects. Kudos to Prodevans Team for their innovation!"



◀ **Abhijeet Roy** ▶
APAC Head, Star Certification

"Having been with Red Hat for over a decade and now with Star Certifications, having met numerous Academics and Enterprise users, I can say with certainty that most of them are eager to go with Red Hat or open Source technologies to minimize their investment.. We have been waiting for product just like PDCloudEx™." "PDCloudEx™ is a game changer when it comes to minimising costs. What's more, it gives the students exposure to cutting edge technologies - the need of the hour.

Amazing technology. Amazing People"



◀ **PV Aneesh** ▶
Partner Manager Red Hat India

Setting up the labs when there are frequent changes is cumbersome and time consuming. Delivering on ROI is almost impossible with the number of students fluctuating all the time. PDCloudEx™ gave us the flexibility without compromising on availability. Whether it is public or private cloud, the students now have a way of accessing the labs frequent changes is cumbersome and time consuming. anywhere, anytime.

We scale up and down as needed. Thanks to PDCloudEx™, we now manage our labs with minimal downtime, focusing our energies on course offerings rather than worrying about Infrastructure."

PRODEVANS TRUSTED CLIENTS



PRODEVANS CERTIFIED CAPABILITIES



Red Hat



ANSIBLE



vmware®



ENGAGEMENTS

Plan and Track.
Build and Deploy.
Service and Ops.
Improve and Innovate.
Team and Culture.
Extend and Scale.
Platform and APIs

VALUES

Modern Build
Pipelines
Connected Teams
Team Playbook

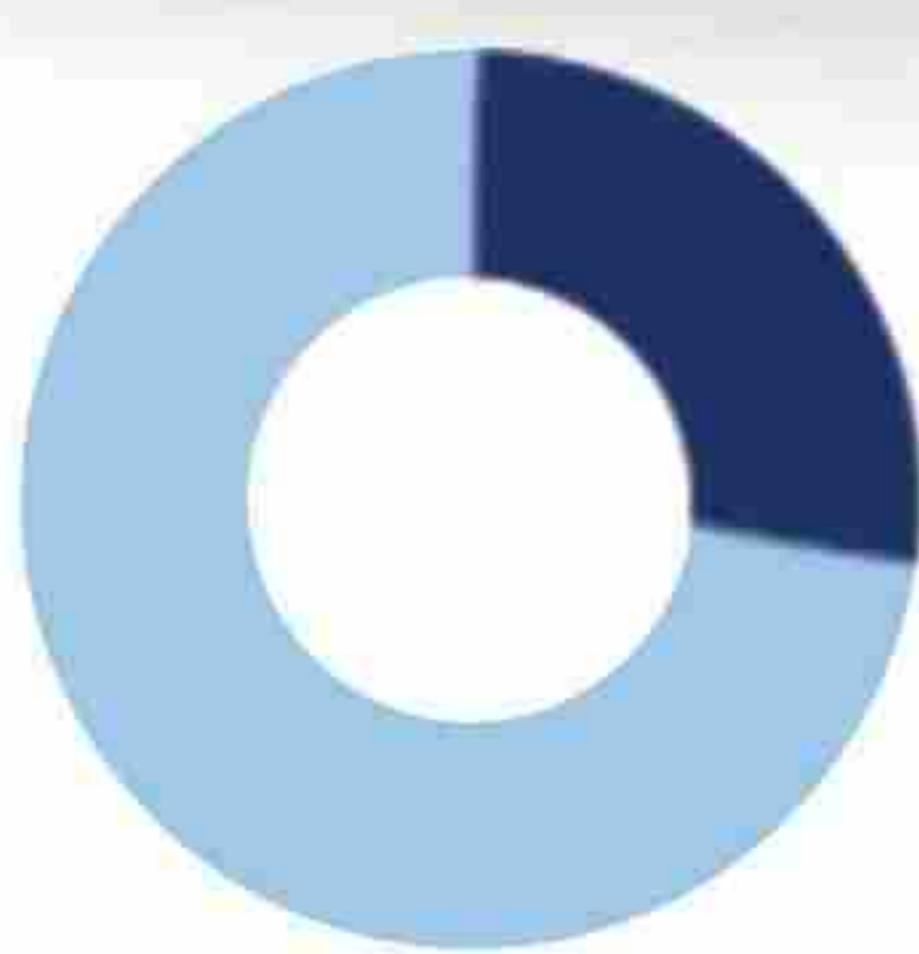
TRAINED AND CERTIFIED RESOURCES



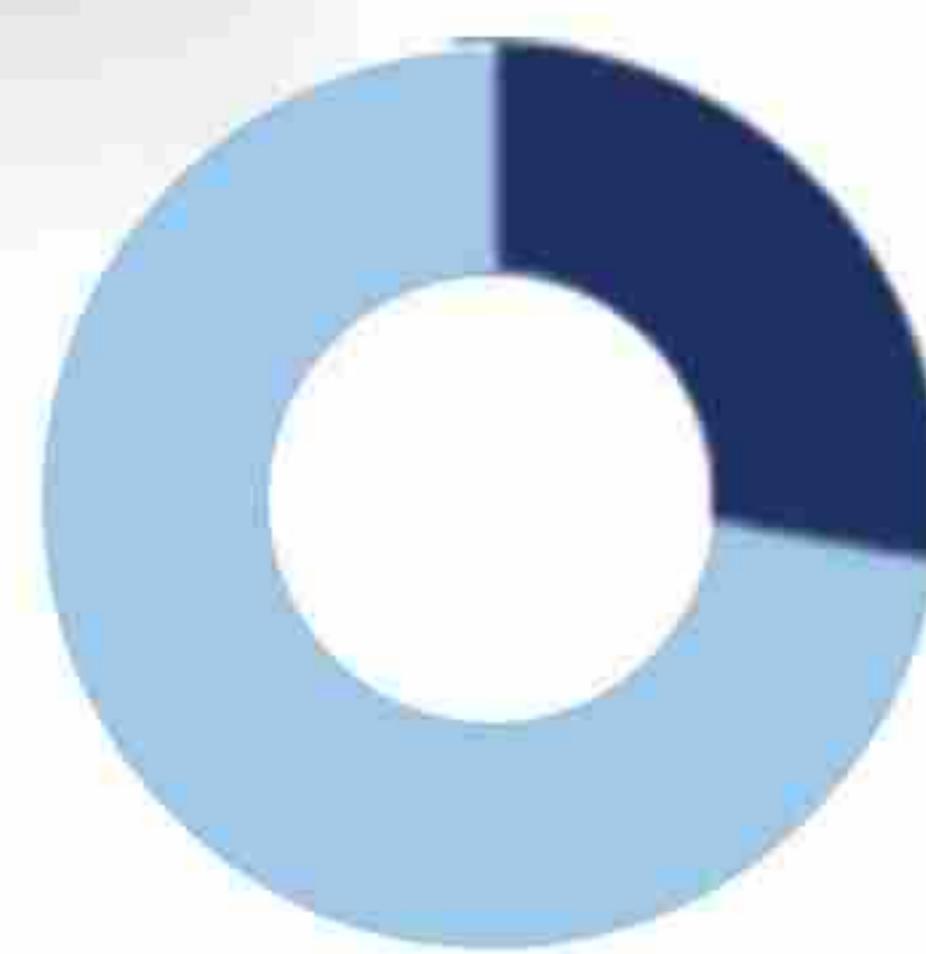
AWS/ Azure/
Openstack



Ansible/ Chef/
Puppet



Git/Jenkins/ Selenium
/ Ruby/ Python



Big Fix/ ICO/ NetCool
Tivoli / BMC



RHEL/Docker/
Ngnix



Middleware



Wintel / AD/
Exchange



CloudForms/
Vmware VRA

Percentage of resource pool who are certified

PRODEVANS PROJECT PORTFOLIO – LAST SIX MONTHS

- ▶ Singtel **OpenStack** upgrade in Singapore
- ▶ Govtech EFK **OpenStack** cluster upgrade in Singapore
- ▶ Cloud in A Box “PDCloudEx” implementation using **OpenStack** for GMRIT in India
- ▶ PTT International Trading **OpenStack** deployment in Singapore
- ▶ Telecom Research **OpenStack** and RedHat Virtualization in Malaysia
- ▶ Telecom **OpenStack** environment IT Enhancement GPS Implementation in Malaysia
- ▶ Hitachi Sunway Data Centre Services **OpenStack** deployment in Malaysia
- ▶ Telkomsel NVF with Multi Cloud **OpenStack** Implementation in Indonesia
- ▶ Avaya **OpenShift** Container Platform and SysOps automation using Ansible in India
- ▶ North America Client **OpenShift** Application on Development in USA
- ▶ SCB (Standard Chartered Banking) **OpenShift** PaaS Deployment in Malaysia
- ▶ Telecom Client deployment of **Spring Boot, EAP 7** application on **OpenShift** in India
- ▶ Telecom Client **Hadoop Dev.with Spark**, Hadoop Administration, CI/CD in India
- ▶ Telecom Client **Ansible Tower** HA deployment in India
- ▶ Tele2 Labs **RedHat Satellite** Deployment in India
- ▶ ESSILOR **Ansible** Tower Projects deployment in Singapore
- ▶ Nanyang Technological University Data Center **Cloudforms** implementation in Singapore
- ▶ Indusland Bank deployment of **Docker based, S2I** app on **Openshift** in India
- ▶ AMBank MicroService Platform with DR Solution using **Openshift, Gluster** Production Go-Live in Malaysia
- ▶ CIMB Bank MicroService Orchestration platform with Red Hat **OpenShift** Build and Support in Thailand
- ▶ **Openshift** performance tuning and KPlus App Go-Live support in Thailand
- ▶ **Ansible Tower** implementation for Wipro Technologies Global IT in India
- ▶ **RedHat Update Infrastructure** implementation for CCSP customers in India
- ▶ Telecom Client BSS (Business Support Service) Solution using JBOSS EAP and Fuse in India
- ▶ ISP implementation of Multi site Availability zone using **RDO OpenStack tripleO** project in India
- ▶ **OpenShift 3.11** UAT and Production setup with GPU for KBTG Thailand
- ▶ ANURAG analytics cloud using RDO **OpenStack** deployment in India
- ▶ **AWS Cloud** automation using **Ansible** and **Ansible Tower** for TATA groups
- ▶ Physical to **Red Hat Virtualization** migration project and application HA for Healthcare
- ▶ Renewable Energy Application and MySQL DB cluster on **RedHat Linux High Availability** in India.

Customer Success Story JupyterHub ML on OpenShift

Problem Statement

Client needed to design a machine learning platform for their students.

They partnered with RedHat to design a solution for their machine learning platform

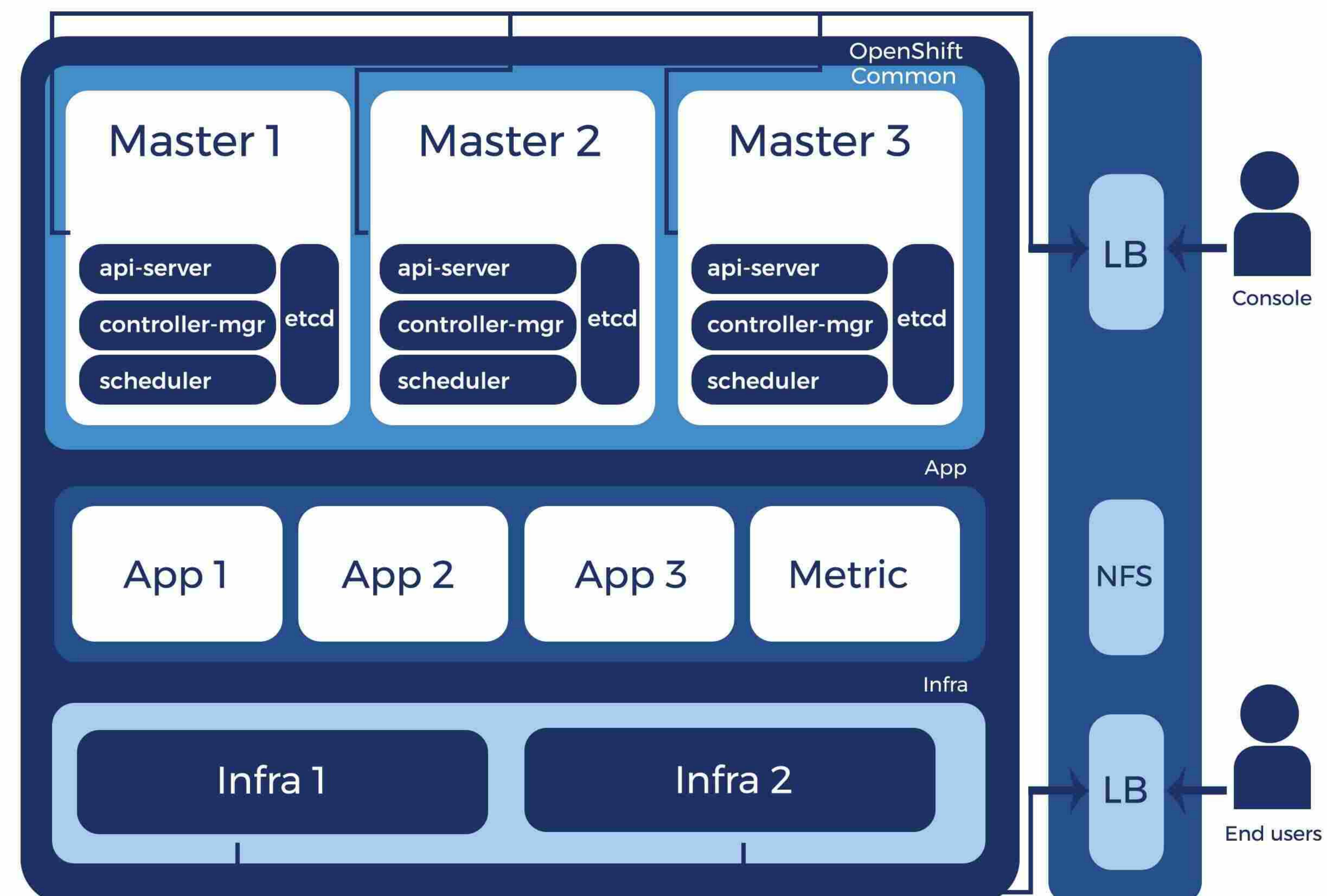
Use Cases

Setup Openshift platform to host JupyterHub Platform

Setup JupyterHub machine learning platform to meet professors requirement to deliver machine learning classes

TECHNOLOGY	TIME FRAME
➤ OpenShift ➤ JupyterHub	➤ 12 Weeks Implement ➤ 2 Weeks Design

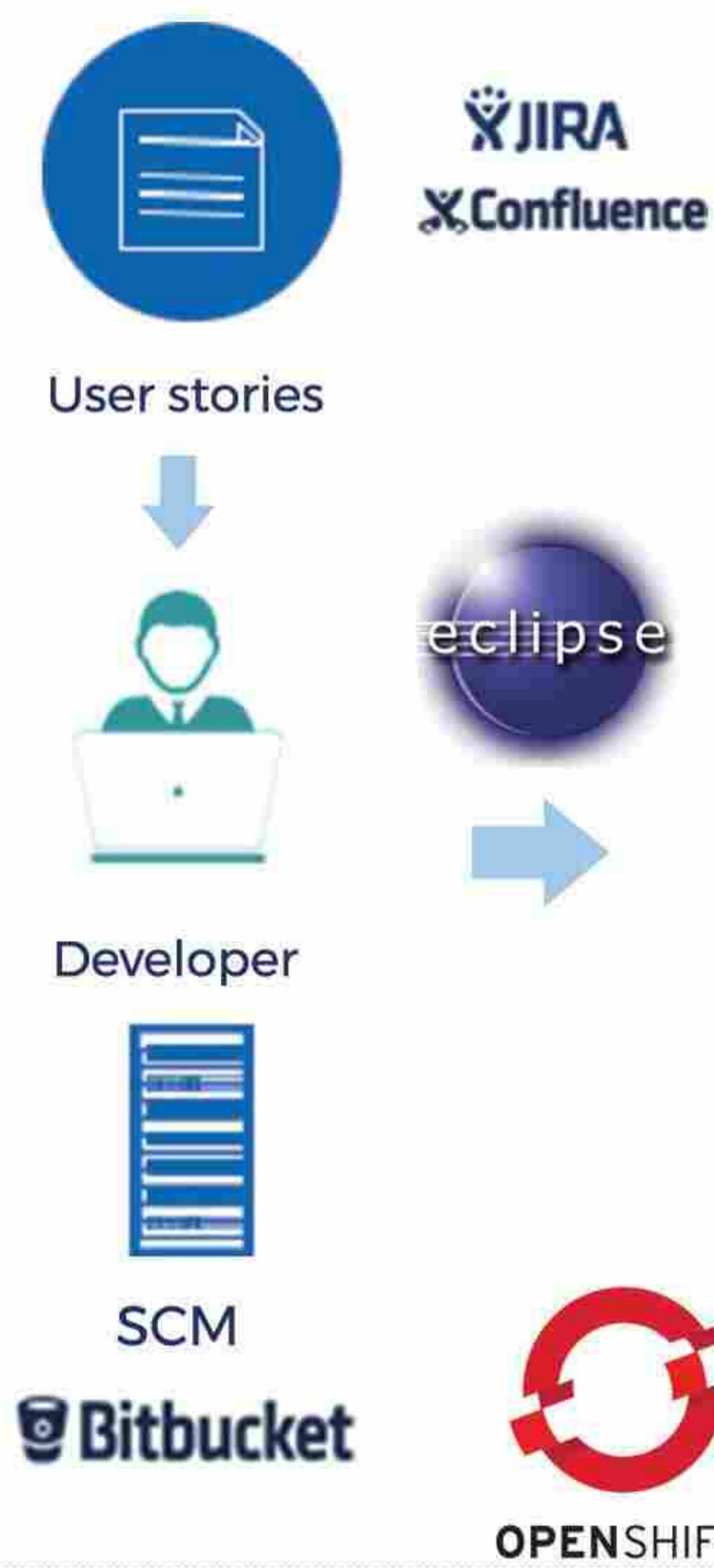
Singapore
World Renowned University
Solution HLD



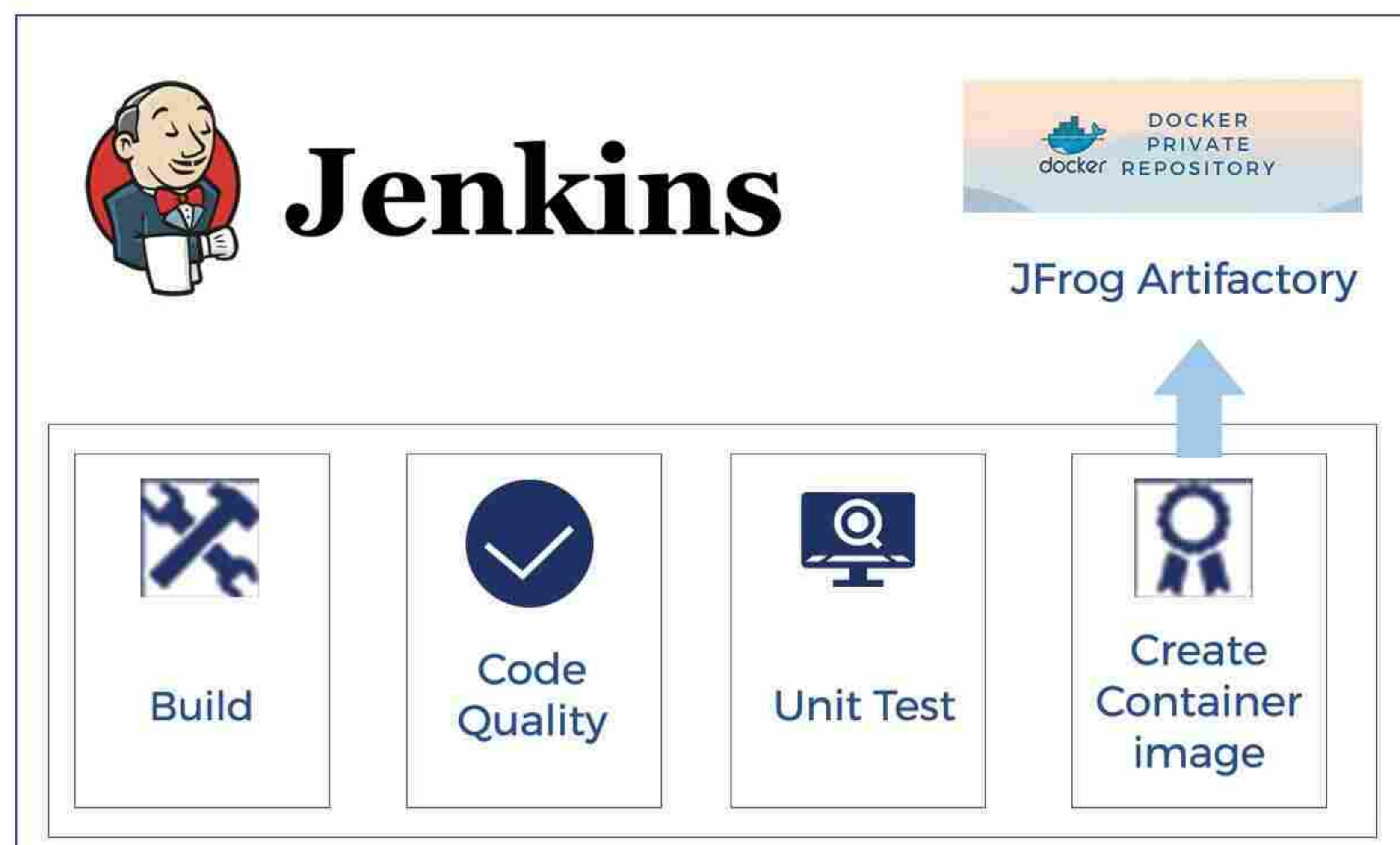
Banking Australia

Application Migration on Openshift

Development

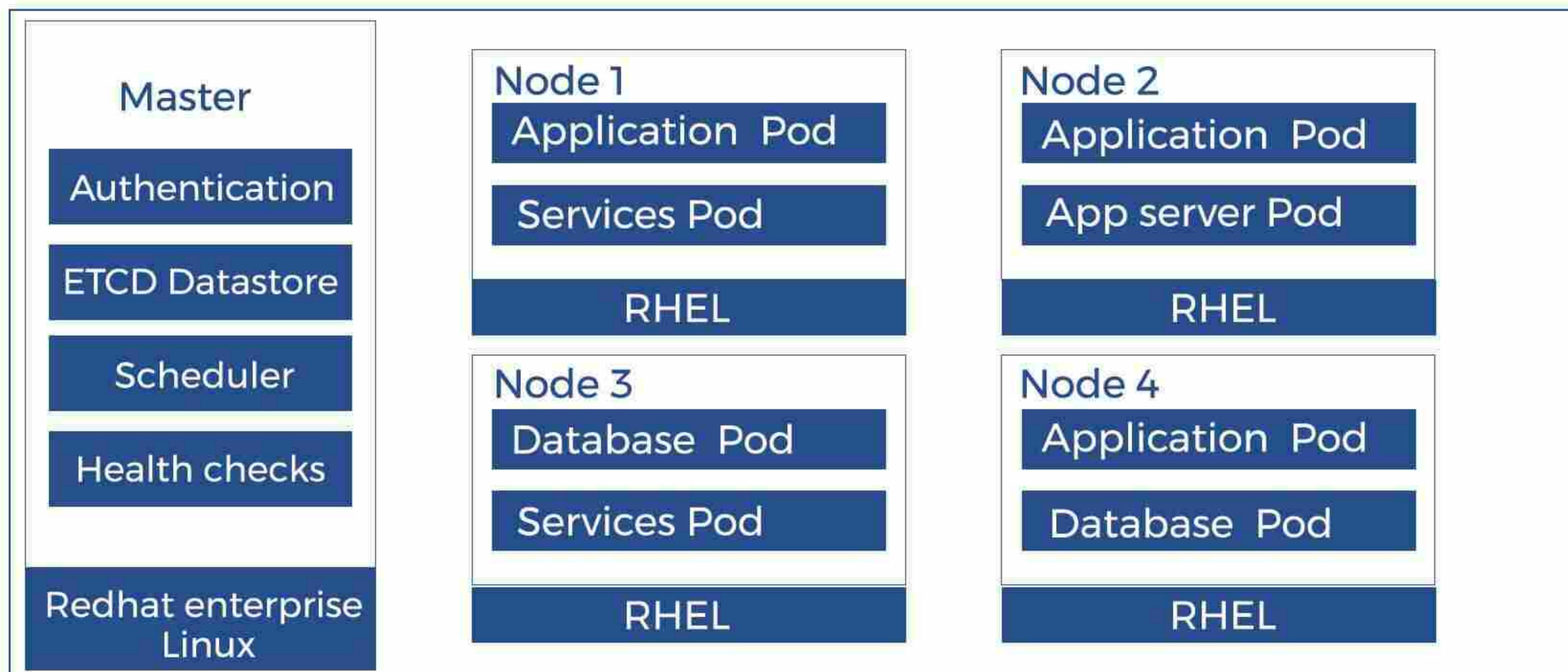


Continuous Integration

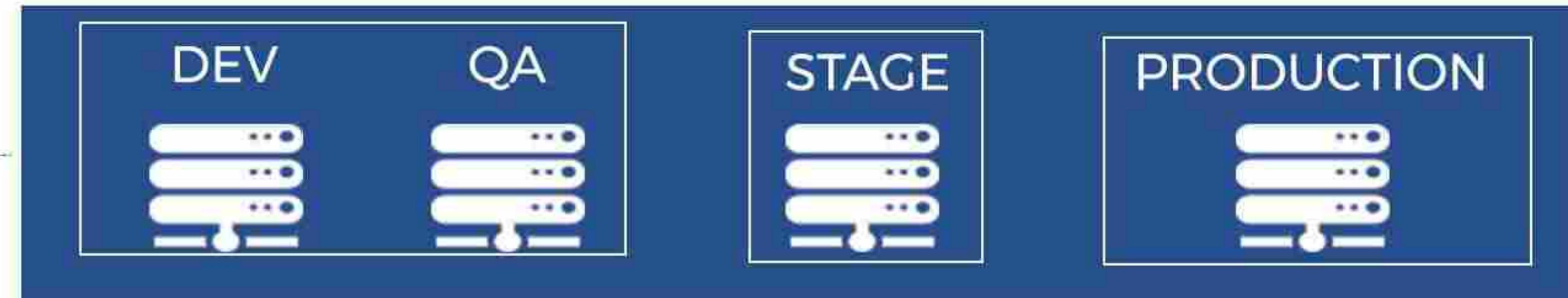
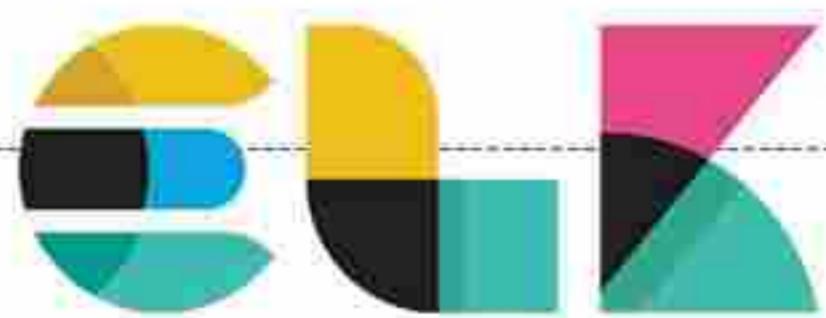


Redhat OpenShift PaaS
For Continuous Deployment

Routing layer



Service layer



Continuous Integration

- Jenkins to poll SCM repository for changes
- Pipeline as a code in Jenkins
- Build, unit test, code review and container image created in Jenkins

- CI Pipeline till container image upload to registry
- Continuous Delivery pipeline to OpenShift API/CLI for Container deployment

Continuous Deployment, Testing, Monitoring

- OpenShift PaaS platform for Container deployment
- SSO/LDAP/AD for Authentication
- Multitenancy using namespace

- Hosted Container registry.
- Scaling/auto-healing /load balancing
- Logging and monitoring using EFK & Hawkular metrics

Finance Insurance Malaysia

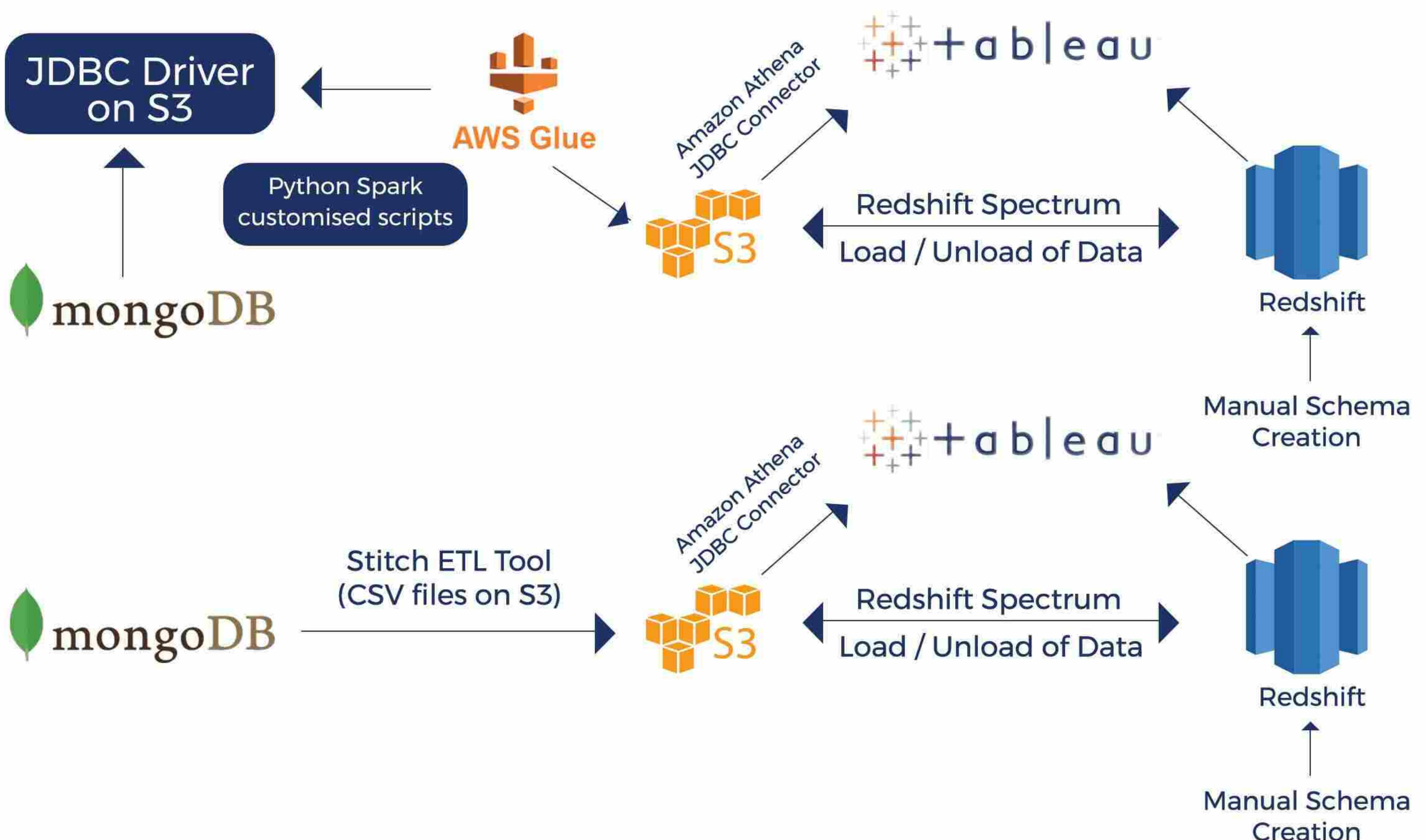
MONGODB TO AWS REDSHIFT

◆ Problem Statement

- » MongoDB unstructured data to Redshift data pipeline.
- » ETL tool for continuous data flow to Redshift.
- » Tableau integration for data visualization.

◆ Solution

- » AWS Glue ETL with Python spark scripts to connect to MongoDB replica on AWS via JDBC driver stored on S3.
- » An alternative to above approach is to use StitchData ETL, a SaaS platform.
- » Extracted DATA can be directly loaded to Redshift and S3.
- » Redshift spectrum can run queries on data stored on S3.
- » Tableau can be directly integrated with Redshift and with S3 via Athena if non-tabular data.



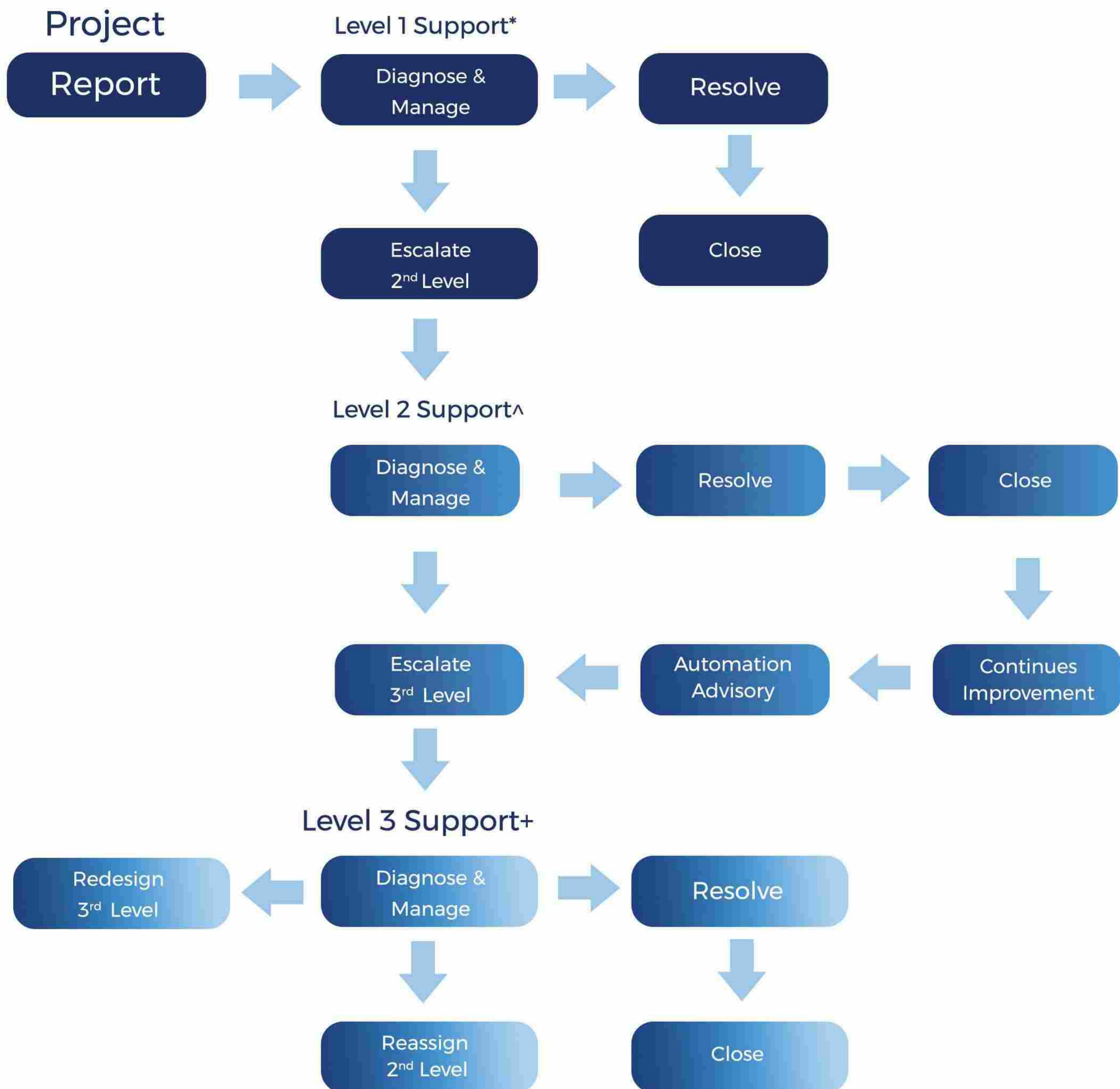
PRODEVANS Client Maturity Assessment Model



PRODEVANS Support Model

PRODEVANS Service Desk

The Service Desk will be leveraged for all environment incidents, defects and issue resolution^A. Three distinct support levels to services the entire environment stack.



DevOps Service Desk Management (JIRA and Confluence)

PRODEVANS

PRODEVANS will be involved as Level 3 Support

CLIENT

Our Client current team can be Level 1 & 2 SysOps, AppDev Support

DevOps

SysOps

AppDev

THANK YOU.

Business Center



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