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
Faster Time to Market
Reduction in Costs
Better Resource Utilization
**VISION**

To be the #1 Cloud Solution Provider in the world

**MISSION**

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

**VALUES**

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

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**PRODEVANS ENGAGEMENT MODEL**

01. Identify the initial team
02. Define DevOps scope
03. Select the first mover
04. Leverage multiple reference sources
05. Shared Objectives & Metrics
06. Break Constraints
07. Develop the tool chain
CLOUD ADOPTION - PUBLIC & PRIVATE CLOUDS ACCELERATING

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

- Traditional DC
- Public Cloud
- Private Cloud

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

"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)
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**

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**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.

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**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).

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**Prodevans Cloud Services**

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**Cloud Implementation Services**

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

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**Cloud Managed Services**

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

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**PRODEVANS**

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Cloud for Digital Enterprise

- **PLATFORM MODERNIZATION**
  - DC Modernization
  - Enterprise apps on cloud
  - Data platform modernization
  - Workspace modernization

- **DIGITAL ENTERPRISE**

- **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

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


APPLICATION MODERNIZATION : RATIONALE

1. **Build on what exists**
   - Use the existing assets for any new technology introduction

2. **Reduce the cost of existing operations**
   - Change the IT spend towards innovation and differentiation

3. **Introduce disruptive technologies**
   - Bring in modern technologies outlined in the typical technology levers

4. **Reduce the cost of innovation and change**
   - Embrace platform based development for reduced application life cycle cost

5. **Continuously innovate**
   - Work with the business - art of possible to innovate and learn from the market
Container Technology is the Future

“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”

Gartner

APP 1 | APP 2 | APP 3
---|---|---
Bins/Libs | Bins/Libs | Bins/Libs

Application Development Platform: Containers

HOST OS

CPU | RAM | HDD

OS

Public Cloud/Private Cloud/Physical Server

FASTER AND STANDARDIZED
APPLICATION PORTABILITY
EFFICIENCY & AUTOMATION
OPTIMIZED INFRASTRUCTURE

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

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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

ANALYZE
Analyze components, dependencies and boundaries
- Can I Containerize?
- Can I Automate?
- Can I templatize?
Categorize components for container suitability
Validation against Customer’s priorities

PRODEVANS
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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

Red Hat
Microsoft
AWS
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

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<th>COST*</th>
<th>INITIAL</th>
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<th>YEAR 2</th>
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<td>$76,000</td>
</tr>
</tbody>
</table>

*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.

ROI 146%

NPV $1.03 million

Payback < 3 months

*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

1. Simple application cluster provisioning on PaaS
2. Efficient workflow for data exploration using Notebook
3. Tight integration with Jupyter Hub, Dask
4. Flexible data storage options

ML Software

- Jupyter Notebook
- OpenCV
- Node.js

HA (Load Balancer)

- TensorFlow
- DASK
- DASK
- Jupyter Hub
- Node.js

PaaS (OPENSHIFT)

- Cluster/NFS

KeyClock (Security)

KubeOps (monitoring tool)

CLOUDFORMS (Chargeback)

ANSIBLE Tower (Infra Automation)
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]

Key Benefits
- Ease Of Management: Live VM management for resizing, run, reboot and terminating instances
- Adaptability: Distributed asynchronous architecture for High Availability (HA) and system scalability
- Accelerated Provisioning: Template based faster provisioning with Glance image services include discovering, registering, and retrieving virtual machine images
- Agility: Ability to provision and deploy Virtualized resources more quickly and, once deployed adjust as needed
- Flexibility: Ability to ramp-up/ramp-down virtual Machines in minutes; thus efficiently managing peak work-loads
- Cost: Template based faster Reduced TCO and tighter IT spend control with Centralized view of billing, Metering and chargeback.
- Access to Environments: Quota based capacity, resource Utilization with predictable projections
**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.

**CloudX**
Build Your DevOps Factory
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 CERTIFIED CAPABILITIES

**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/ Nginx
- Middleware
- Wintel / AD/ Exchange
- CloudForms/ Vmware VRA

Percentage of resource pool who are certified

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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, S21 app on OpenShift in India
AMBank MicroService Platform with DR Solution using OpenShift, Cluster
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.
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
- OpenShift
- JupyterHub

TIME FRAME
- 12 Weeks Implement
- 2 Weeks Design

Solution HLD

Singapore
World Renowned University

Master 1
- api-server
- controller-mgr
- scheduler

Master 2
- api-server
- controller-mgr
- scheduler

Master 3
- api-server
- controller-mgr
- scheduler

App 1

App 2

App 3

Metric

Infra 1

Infra 2

OpenShift Common

NFS

LB

Console

End users

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sales@prodevans.com
Application Migration on OpenShift

**Development**
- User stories
- JIRA
- Confluence
- Developer
- SCM
- Bitbucket

**Continuous Integration**
- Jenkins
- JFrog Artifactory
- Build
- Code Quality
- Unit Test
- Create Container Image
- Maven
- SonarQube
- JUnit
- CheckMarx

Redhat OpenShift PaaS For Continuous Deployment

**Routing layer**
- Master
  - Authentication
  - ETCD Datastore
  - Scheduler
  - Health checks
  - Redhat enterprise Linux
- Node 1
  - Application Pod
  - Services Pod
  - RHEL
- Node 2
  - Application Pod
  - App server Pod
  - RHEL
- Node 3
  - Database Pod
  - Services Pod
  - RHEL
- Node 4
  - Application Pod
  - Database Pod
  - RHEL

**Application Logging**

**Monitoring**

**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
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 Support Model

PRODEVANS Service Desk

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

Project Report → Level 1 Support

Diagnose & Manage → Resolve

Escalate 2nd Level

Level 2 Support

Diagnose & Manage → Resolve → Close

Escalate 3rd Level

Level 3 Support

Redesign 3rd Level

Diagnose & Manage → Resolve

Reassign 2nd Level

Close

DevOps Service Desk Management (JIRA and Confluence)

PRODEVANS will be involved as Level 3 Support

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

PRODEVANS | www.prodevans.com | sales@prodevans.com

DevOps | SysOps | AppDev
THANK YOU.

Business Center
Bangalore
Building # 403, 5th Floor, Saket Callipolis Sarjapur Main Rd, Rainbow Drive, Doddakannelli, Bengaluru – 560035.
Phone: +912233192010
Email: ask@prodevans.com

Incubation Center
Bangalore
Building # 389, First Floor, 8th Main, 7th Cross, MICO Layout, BTM 2nd stage, Bengaluru – 560076,
Phone: +912233192010
Email: ask@prodevans.com

Training and Business Office
Hyderabad
Office #422, Manjeera Majestic, Near Rythu Bazar, JNTU Road, Kukatpally, Hyderabad-500072
Phone: +91 040 66773365

Sales Office
USA
5164, Madison Avenue, C02, Okemos, Michigan – 48864
Phone: +1 (513) 394-1287