FUJITSU - PRIMEFLEX for Openstack

Fast track to OpenStack on-premise private cloud

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Why OpenStack for cloud infrastructures?

- **Cost-effective**
  - Commodity hardware
- **No vendor lock-in**
  - Flexibility to customize and interoperate based on common APIs
- **Speedy innovation**
  - Community development with 6 month release cycles
- **Massively scalable**
  - Best supports the growing number of scale-out applications

Fastest growing open source cloud management platform with broadest industry support
Challenges in OpenStack Deployment

How to build internal skills without trial and error?

A do-it-yourself approach to OpenStack

- requires significant expertise and effort to install, maintain and upgrade
- can be error-prone, time-consuming and expensive
- makes it hard to oversee overall complexity and calculate TCO

Is there a better alternative to get in touch with OpenStack?

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Introducing PRIMEFLEX for OpenStack

Integrated System for OpenStack cloud infrastructures validated by Fujitsu

- Minimizes deployment risk
- Reduces infrastructure-related design and implementation efforts and costs by up to 40%¹
- Increases operational efficiency, agility and availability for evaluation and production
- Allows to start small and grow on demand with a secured and proven growth plan

¹ based on Fujitsu internal calculation

Fastest way to deploy a highly flexible, cost-effective and scalable OpenStack cloud platform
PRIMEFLEX for OpenStack Red Hat Edition

- Pre-tested technical reference architecture according to Fujitsu & Red Hat best practices
- Design requirements
  - Initially designed for private cloud, but prepared for hybrid cloud
  - Modular and extensible concept - implemented in 1 rack, but scale up is possible
  - Basic hypervisor support (KVM, ESXi)
  - High-available management stack
  - Provide optional value add with Fujitsu products (ETERNUS CD10000 CEPH Architecture, Enterprise Service Catalog Manager, Fujitsu Cloud Monitoring Manager)
Technical Reference Architecture

API Clients
- Director Services
  - Puppet, Undercloud, DHCP, PXE, ...
- Required Services
  - Maria DB
  - RabbitMQ

OpenStack Cloud APIs
- Compute (Nova)
- Hypervisor
- Hypervisor KVM
- Hypervisor ESXi
- Hypervisor Hyper-V

ETERNUS DX
- Block (iSCSI, FC)
- File (NFS)
- Volume Driver (Cinder)
- Monitoring
  - CMM
- Portal
  - CTMG

ETERNUS CD
- Block (RBD)
- S3 (RGW)
- Object (RADOS)

Physical Infrastructure (PRIMERGY, ETERNUS, Network)
- Hypervisor KVM
- Operating System: Red Hat Enterprise Linux
- Not exist in Standard Model
- Possible extensions
- Red Hat Product
- Red Hat OSP Enhancement
- Partner Product
- OpenStack Component
- Fujitsu Product

Red Hat Product
- RH OSP
- Dashboard (Horizon)
- Monitoring (CMM)
- Portal (CTMG)

Possible extensions

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# How to get started with OpenStack?

## Evaluation Packages

### Remote Evaluation

- Access to a fully fletched evaluation environment in the Fujitsu data center

### Single Box

- 1 x physical node
- 2 x compute node VM
- 1 x control node VM
- 1 x admin node VM
- Internal storage

**Fully virtualized**

**ready-to-run OpenStack environment**

### Basic System

- 2 x compute nodes
- 1 x control node
- 1 x admin node
- 1 x 10G switch
- 1 x 1G switch
- opt. external storage

**Smallest hardware footprint including dedicated nodes**

### Jump Start Package

- 3 x compute nodes
- 3 x control node
- 1 x admin node
- 2 x 10G switch
- 1 x 1G switch
- opt. external storage

**Smallest footprint that allows for a technical migration path to a customized production environment**

### Customized Package

- 3+ compute nodes
- 3 x control node
- 1 x admin node
- 2 x 10G switch
- 1 x 1G switch
- opt. external storage

**Individually sized to serve specific production requirements**

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# Evaluation Scenarios

What scenarios can be evaluated with which package?

<table>
<thead>
<tr>
<th>Name</th>
<th>API</th>
<th>Application Deployment</th>
<th>External Storage</th>
<th>Networking</th>
<th>High-Availability</th>
<th>3rd-party SDN</th>
<th>Backup</th>
<th>Performance</th>
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<tbody>
<tr>
<td>Single Box</td>
<td>✓</td>
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<td>Basic System</td>
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<td>Jump Start</td>
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<tr>
<td>Customized Package</td>
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We provide you with an OpenStack environment that fits to your needs

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PRIMEFLEX for OpenStack Red Hat Edition v12

- Based on OpenStack “Pike”
- Integrated with Red Hat Enterprise Linux 7
- Director with CLI / GUI installation
  - Installation based on TripleO and Ironic
  - Deployment via Heat and Puppet
  - Preselection of best practice configuration
  - Quality assured and supported by Red Hat
- Normal release (1 year lifecycle)
  - No backporting of new features
PRIMEFLEX for OpenStack Red Hat Edition Reference Architecture: Hardware and OpenStack Configuration

- Hardware specification and OpenStack configuration is a starting point
  - Allows the initial setup of an OpenStack cloud in a short time
  - Best practice configuration (Fujitsu & Red Hat)
  - Pre-tested
  - Step-by-Step setup description

- On customer site highly specific requirements for cloud infrastructure are to be expected!
Validated Value-Add Extensions

Deliver improved operational efficiency on top of the core OpenStack platform

- Application Delivery/Migration
- Monitoring
- Software-defined Storage
- Enterprise Portal
- Cost Management
- Software-defined Networking

Red Hat OpenStack Platform

Fujitsu PRIMERGY Server, Fujitsu ETERNUS Storage, Brocade Switches

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Validated Value-Add Extensions

Deliver improved operational efficiency on top of the core OpenStack platform
Enterprise Service Catalog Manager (ESCM)

Benefits
- Simplify service consumption
- Reduce admin efforts and cost
- Fast usage of new cloud services
- Keep transparency and control
- Identify unnecessary consumption
- New revenue streams with own marketplace

Enhancing PRIMEFLEX to cloud infrastructures.
Your Cloud – Your layout!

Enterprise Service Catalog Manager adapts to your Corporate Design.
ESCM: Features in detail

**User Portals**
Customer & admin portals

**Brand management**
Layout customization for own customer portal

**Subscription management**
Manage service subscriptions

**Tenant provisioning**
Provision service instances

**Process control**
Integrate organization-specific processes

**Service provisioning**
Provision user access to services

**Reporting**
Offer comprehensive reports for providers & service users

**Identity management**
User management, SSO & access control

**Payment**
Invoice creation & reporting for service users

**Billing**
Collect billing data for creating customer invoices (flexible pricing models)

**Event management**
Record events to support metering and auditing

**Account management**
Handling individual users, accounts, roles, logins

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*Fujitsu*  
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Interested in more?

Welcome to Enterprise Service Catalog Manager!

Here you have access to all information and learning resources we offer for Enterprise Service Catalog Manager, Fujitsu's cloud management platform. We help you to get your offerings into the cloud step by step. Additionally, you get access to the community and support.

- **Demos & Webinars**: Demo videos showing the features and use cases of Service Catalog Manager.
- **Basic Information**: Basic information about Service Catalog Manager describing its concepts, business models and use cases.
- **Case Studies**: Selected case studies of Service Catalog Manager for ESS use cases.
- **Documentation**: Manuals introducing the concepts and features of Service Catalog Manager.
- **Learning Center**: Learn how to integrate software and infrastructure services with Service Catalog Manager, and how to publish them.
- **FAQ**: Find answers to the most frequently asked questions regarding Service Catalog Manager.
- **Community**: Exchange information with other users and product experts. Find solutions for your problems.
- **Contact us**: Contact us to clarify specific questions, give feedback, or access our customer help desk.

https://openservicecatalogmanager.org/rapid/
and….what about Container?

- **Virtual Machine**
  - Application
  - OS dependencies
  - Operating System

- **Container**
  - Application
  - OS dependencies
  - Container Host

- **VM Isolation**
- Complete OS
- Static Compute
- Static Memory
- High Resource Usage

- **Container Isolation**
- Shared Kernel
- Burstable Compute
- Burstable Memory
- Low Resource Usage
OpenStack and OpenShift

**OpenStack**
- Exposition of resources
- Provides the infrastructure layer

**OpenShift**
- Consumption of resources
- Provides the container application platform layer
OpenShift on OpenStack
Containers, virtual machines and bare-metal
Putting it all together

Architectural tenets:
- Technical independence
- Contextual awareness
- Avoiding redundancy
- Simplified management

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Managed Container Services Reference Architecture
Customer Benefits

- Rapidly exploit OpenShift Container Platform without having to install or support it
- One-stop shop for OpenShift Container Platform and ecosystem support
- Predictable charges
- Proactive and reactive support

Supporting Customer Initiatives

- Cloud Agnostic Strategy
- Rapid Container Adoption
- Microservice Architecture & Cloud Native

Agility
- Application infrastructure services
- Leverage OpenShift Container Platform and ecosystem

Efficiency
- Developers focus only on source code development
- Fujitsu manages the container platform

Control
- Robust ITSM processes
- Cloud agnostic deployment and support
- SLA Framework and Reporting

Cost
- On-demand pricing - Only pay for what you use
- Granular control

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Why Fujitsu?

<table>
<thead>
<tr>
<th>Why Fujitsu?</th>
<th>PRIMEFLEX for OpenStack makes your engagement in OpenStack as easy as possible</th>
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<tbody>
<tr>
<td><strong>Start small and grow as you go</strong></td>
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<tr>
<td>based on validated reference architectures providing a proven foundation for OpenStack</td>
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<tr>
<td><strong>Select the OpenStack platform that best fits your needs</strong></td>
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<td>leveraging OpenStack platforms from RedHat</td>
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<td><strong>Gain improved operational efficiency</strong></td>
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<td>with a broad range of value-add extensions on top of the core OpenStack platform</td>
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<td><strong>Profit from seamless integration into the overall OpenStack ecosystem</strong></td>
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<td>with our multi-cloud management support</td>
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<td><strong>Reduce deployment risk and gain fast time to production</strong></td>
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<tr>
<td>with our on-site deployment service</td>
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<td><strong>Reduce your maintenance efforts</strong></td>
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<td>with our single point of contact for support approach</td>
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GRAZIE PER L’ATTENZIONE

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