Background
Extending Corporate Systems to Cloud

Is it safe to deploy everything to cloud, though cloud is becoming hot?

On-Premise? Cloud?

IaaS

PaaS

SaaS

SaaS: Software as a Service
PaaS: Platform as a Service
IaaS: Infrastructure as a Service

Are there any clouds that just fit to our corporate systems?

Is there really no harm if we put the systems outside of our company?
Notes on Public Cloud Usage

Decide the environment according to the items for each system. Provide controlling mechanism for information system department.

Five items to be considered when using public cloud.

<table>
<thead>
<tr>
<th>Items</th>
<th>Examples of consideration point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extendability</td>
<td>Flexible adaptation to peak load is required?</td>
</tr>
<tr>
<td>Data location</td>
<td>Putting data outside of company is safe?</td>
</tr>
<tr>
<td>Security</td>
<td>Security level is agreeable?</td>
</tr>
<tr>
<td>Cost performance</td>
<td>Long term cost merit exists?</td>
</tr>
<tr>
<td>Reliability</td>
<td>Cloud service’s SLA is permissible?</td>
</tr>
</tbody>
</table>

YES

Public Cloud Recommended

NO

Consider on-premise
Challenges: Importance of Cloud Governance

Direct contract / use of user department cause scattered cloud services.

Make contract with different services (DR, backup) for each system.

Public cloud used at development time still remains.

Unable to manage how much cloud used in user department.

Information system department centrally procures and provides to user department.

Integrated management
- Operations
- Security
- Billing
- Contract...

Platform providers

Forbidden to grasp what and where public cloud is used because group companies make contract independently.

Unable to achieve total optimization because cloud services in use are non-uniform in the company.

Customer’s voice

Platform providers

Procure

Information System department

Provide

Integrated management

Private cloud infrastructure
VM
Hypervisor

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Product Summary
Support ICT infrastructure governance in multi-cloud environment.

- Centrally procure infrastructure by automatic deployment at the occasion of user’s request.
- Save management work by integrated management of cloud usage / billing.

Provision as standardized platforms, based on private and public cloud security and reliability information.
Select desired platforms → Deploy automatically, commence use.

User Department

Information Systems Department
Feature (1) Enhance Governance

Information system department control cloud usage of platform providers (user department) by centrally contracting cloud and providing it as menus.

Before

Platform providers on various section / location

K5

AWS

Private Cloud

Contract

Contract

Contract

After

Platform providers on various section / location

Usage Control Infra.

Request

Use

Request

Supervise/Approve

Request

Deploy

Information system department

Private Cloud

AWS

K5
Realizing flexible menus by the menu structure composed of:
- **Basic menu**, determining the framework
- **Configuration option**, describing sizing information of the system configuration
- **Operation option**, specifying operation service

### Menu Structures and Selectable items

<table>
<thead>
<tr>
<th>Location</th>
<th>Basic menu</th>
<th>Configuration option</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Super Premium</strong></td>
<td>- Availability</td>
<td>- CPU / Memory</td>
</tr>
<tr>
<td>Corporate DC (physical)</td>
<td>- Security</td>
<td>- Storage</td>
</tr>
<tr>
<td></td>
<td>- Infrastructure operations</td>
<td>- SLB</td>
</tr>
<tr>
<td></td>
<td>- Customized spec</td>
<td>- Price</td>
</tr>
<tr>
<td><strong>Premium</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corporate DC (virtual)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Standard</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corporate DC (virtual)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Basic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corporate DC (virtual)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>K5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AWS</td>
<td></td>
</tr>
</tbody>
</table>

**Operation option**

- Platform
- Operation (VM layer)
- Backup & Recovery
- DR
- Price
### Sample Menus (referential)

Register business assortment result as menus

<table>
<thead>
<tr>
<th>Menu Configuration</th>
<th>Service Offering Time</th>
<th>Allowed Time for Service Stop</th>
<th>Security Level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SA</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical System Unstoppable</td>
<td>24 hour 365 days</td>
<td>Within 10 minutes</td>
<td>AAA - AA</td>
</tr>
<tr>
<td><strong>A</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical System Nonstop</td>
<td>24 hour 365 days</td>
<td>Within 1 hour</td>
<td>AA - A</td>
</tr>
<tr>
<td><strong>B</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical/Dept. System</td>
<td>24 hour 365 days</td>
<td>Within 4 hour</td>
<td>A - BBB</td>
</tr>
<tr>
<td>Department system, high security</td>
<td>Best Effort</td>
<td>Within 8 hour</td>
<td>A - BBB</td>
</tr>
<tr>
<td><strong>C</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department system, Windows</td>
<td>Best Effort</td>
<td>Within 8 hour</td>
<td>BBB</td>
</tr>
<tr>
<td>Department system, Linux</td>
<td>Best Effort</td>
<td>Within 8 hour</td>
<td>BBB</td>
</tr>
</tbody>
</table>

### Menu Configuration
- **SA**: Critical System Unstoppable
- **A**: Critical System Nonstop
- **B**: Critical/Dept. System
- **C**: Department system, high security
  - Windows
  - Linux

### Service Offering Time
- 24 hour 365 days
- Best Effort

### Allowed Time for Service Stop
- Within 10 minutes
- Within 4 hour
- Within 8 hour

### Security Level
- AAA - AA
- AA - A
- A - BBB
- BBB

### Cloud selecting
- Private Cloud
  - CPU/Memory: L
    - Disk: 200GB+
  - CPU/Memory: M or L
    - Disk: 50GB+
  - CPU/Memory: S or M
    - Disk: 120GB+
  - CPU/Memory: S or M
    - Disk: 100GB+

- Public Cloud
  - CPU/Memory: S or M
    - Disk: 80GB+
  - CPU/Memory: S or M
    - Disk: 50GB+
Feature (2) Supervising by Information System Department

Support optimum ICT cost planning

- Can start interview triggered by change of usage of platform providers.
- Check usage for each cloud and improve if cost is unnecessarily high.
- **Clarify charges** per platform provider as well as per menu.

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**Platform Provider View**

**Per Cloud Menu View**

Can start inquiry about the usage triggered by change

Any problem with the cost? Consider relocation to private cloud.
Operation Model
Roles Offered by Product

Role sharing in multi-cloud operations

- **Planners**
  - Materialize IaaS menus and decide the optimal measures (external vendor / on-premise) to realize the requested service level. Evaluate services of external vendors.
  - Responsible for contracts with cloud providers.
  - Define menus, set prices, and publish them for the Platform Providers.

- **Operators**
  - Accept requests, approve them and operate the system according to the menus.
  - Build and operate on-premise and cloud infrastructure.

- **Platform Providers**
  - Develop external SaaS, PKG and platforms in response to the corporate user’s request.
  - Select a platform from menus suitable for the development and request it.
  - Manages the platform and virtual machines in it.
# Flows for Multi-Cloud Operations

Support operations from installation to maintenance

<table>
<thead>
<tr>
<th>User Role</th>
<th>Installation</th>
<th>Configuration</th>
<th>Operation</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Planners</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Approver</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Representative</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Design vendor contract</td>
<td>Create menus</td>
<td></td>
<td>Update menus</td>
</tr>
<tr>
<td></td>
<td>Menus, and billing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operators</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Approver</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Representative</td>
<td>Install</td>
<td>Register contract information</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Create users</td>
<td>Auto-deploy</td>
<td>Increase options, Maintain hardware</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Create Organization</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Create Users</td>
<td>Approve</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Request</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Start to use</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[During Operation] Start / Stop, collect snapshots, etc.</td>
<td></td>
</tr>
<tr>
<td><strong>System Provider</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Approver</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Multiple Layers)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Outside system</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>System Provider</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Representative</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Functions
## Function List

<table>
<thead>
<tr>
<th>Function</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloud Management Portal</td>
<td>- Portal for cloud management. Control the display view according to the role, and enable uniform operation without regard to different operations of each cloud.</td>
</tr>
<tr>
<td>Contract Management</td>
<td>- Centrally manage contact information of public and private cloud. - Visualize usage status platforms connected with contract information.</td>
</tr>
<tr>
<td>Organization / User Management</td>
<td>- Manage organization with multiple layers. - Manage user roles (approver, representative) belonging to each organization. - Manage project organization structure.</td>
</tr>
<tr>
<td>Menu Management</td>
<td>- Standardize various cloud information and publish it to users by sorting out cloud-dependent security levels, support and service levels based on the menus.</td>
</tr>
<tr>
<td>Platform Management</td>
<td>- Enable user department to create platform from the menu. - Bundle virtual machines belonging to a business and visualize the constituent element of the business. - Provide easy-to-use subscription and return of virtual machines.</td>
</tr>
<tr>
<td>Request Management</td>
<td>- Offer series of approval workflow such as request, approval, completion notification. - Enable information system department to manage requests to cloud using workflow.</td>
</tr>
<tr>
<td>Billing Management</td>
<td>- Calculate monthly charges based on the cloud service usage and present billing information for each user department. - Graphically visualize the usage per user department or per menu basis, which is useful for analyzing usage trends and for planning next year budget.</td>
</tr>
</tbody>
</table>
SPOC (Single Point of Contact) for multi-cloud operation

- Provides common interface for operations on various clouds.
- Control allowable operations according to the user role.
Contract Management

Manage contract information and usage of cloud

- Centrally manage contract information of multiple cloud.
- Visualize the contract and actual usage to evaluate ROI.

Easy entry of cloud contract information with display navigation.

Centrally manage contract information of both of internal and external cloud.

### Add Contract

#### Select Cloud Provider

#### Basic Information

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract Name</td>
<td>Enter a string. Entry is mandatory.</td>
</tr>
<tr>
<td>Contract ID</td>
<td>Enter the ID using lower-case alphanumeric characters, underscores ('_'), hyphens ('-'), and periods ('.'), and periods ('.') The first character must be a letter.</td>
</tr>
<tr>
<td>Contract Number</td>
<td>Enter a string.</td>
</tr>
<tr>
<td>Description</td>
<td>Enter a string.</td>
</tr>
</tbody>
</table>
Clarify subscribed system and simplify optimal system selection.

- Standardize cloud environment based on security level, support information, etc.
- Present available cloud environment information to users.

Standardize systems comprehensively (e.g., Premium, Standard, Basic)

- **Premium**
  - Non-stop enterprise systems
  - On-premises
  - 24/7/365 support
  - Downtime: < 10 min.
  - Security Level: A+

- **Gold**
  - Non-stop enterprise systems
  - On-premises
  - 24/7/365 support
  - Downtime: < 60 min.
  - Security Level: A

- **Silver**
  - Enterprise and local systems
  - On-premises
  - 24/7/365 support
  - Downtime: < 4 hours
  - Security Level: A

Clearly show services level (SLA) information to users.
Platform Management

Bundle virtual machines and manage them as platform

- Display listings of virtual machines that constitute platforms.
- Can control start/stop of individual virtual machines separately.

Visualize component of the platform comprehensively.

Status check and control of each virtual machine is also possible.
Control corporate cloud usage using request / approval

- Eliminate inappropriate ICT use by making approval of information system department mandatory.

Visualize requests by listings
Cost Management per Department

Realize system optimization by clarifying applicability criteria for cloud

- Support total system optimization by graphically showing the usage of each organization.
- Allocate cost calculation result to organization and collect charges.
V1.1 Enhancement
Overview of Added Functions in V1.1

- **K5 and VMware coordination**
  - Operation in coordination with K5 and VMware coordination is now possible.

- **Authentication coordination with Active Directory**
  - Active Directory can be specified as the directory service in SVOM, which is used as the authentication server for Cloud Services Management.

- **Project Management**
  - The management of platforms at the level of the individual project enables the sharing of platforms among users who belong to different organizations.

- **Limit management**
  - The threshold of usage charges for each project can be set and managed.

- **Customization of requests**
  - Request and approval flows can be customized.
Product Information
## Supported Clouds (current / planned)

<table>
<thead>
<tr>
<th>Supported clouds</th>
<th>Available services</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amazon Web Services</td>
<td>EC2 deployment</td>
<td>Done</td>
</tr>
<tr>
<td>FUJITSU Cloud Service A5 for Microsoft Azure</td>
<td>Virtual machine deployment</td>
<td>Done</td>
</tr>
<tr>
<td>FUJITSU Software ServerView Resource Orchestrator</td>
<td>Virtual machine deployment</td>
<td>Done</td>
</tr>
<tr>
<td>FUJITSU Cloud Service K5</td>
<td>Virtual machine deployment</td>
<td>Done</td>
</tr>
<tr>
<td>vSphere</td>
<td>Virtual machine deployment</td>
<td>Done</td>
</tr>
<tr>
<td>OpenStack</td>
<td>Virtual machine deployment</td>
<td>Planned</td>
</tr>
<tr>
<td>Hyper-V</td>
<td>Virtual machine deployment</td>
<td>Planned</td>
</tr>
</tbody>
</table>
System Configuration

- **Management server**
  The server that runs FUJITSU Software Cloud Services Management.

- **Web client**
  To be used to access to Cloud Management Portal provided by FUJITSU Software Cloud Services Management. Allows management of contracts, menus, requests and billing.

- **ServerView Resource Orchestrator management server**
  Management server of ServerView Resource Orchestrator that cooperates with Management server when deploying virtual machines.

- **VMware vSphere**
  Management server of VMware vSphere that cooperates with Management server when deploying virtual machines.
### Operating Environment

#### Operating environment

<table>
<thead>
<tr>
<th>Type</th>
<th>Supported OS / environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management server</td>
<td>Microsoft Windows Server 2008 R2</td>
</tr>
<tr>
<td></td>
<td>Microsoft Windows Server 2012</td>
</tr>
<tr>
<td></td>
<td>Microsoft Windows Server 2012 R2</td>
</tr>
<tr>
<td>Web client</td>
<td>Windows Internet Explorer 10 – 11</td>
</tr>
<tr>
<td></td>
<td>Microsoft Edge</td>
</tr>
<tr>
<td></td>
<td>Mozilla(R) Firefox(R) ESR 38, ESR 45</td>
</tr>
</tbody>
</table>

#### Related software

- **ServerView Resource Orchestrator V3**
  - Required if deploying virtual machines in cooperated with ServerView Resource Orchestrator.

- **VMware vSphere 6.0**
  - Required if deploying virtual machines in cooperated with VMware vSphere.

#### Required software

- **ServerView Operations Manager V6.30 - V7.11**
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