Increase efficiency of day-to-day server operations in consolidated physical and virtual server environments

With ServerView Resource Orchesturator Virtual Edition (ROR VE), Fujitsu offers a system management tool that delivers integrated administration of physical and virtual servers. It also optimizes server life-cycle management, and provides an innovative high-availability approach. By unifying and simplifying management across both physical and virtual environments, IT organizations can increase the efficiency of their day-to-day server operations. Moreover, the automated server failover capability enables implementation of cost-effective high-availability solutions.

Main features

<table>
<thead>
<tr>
<th>Unified management</th>
<th>Benefits</th>
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<tr>
<td>Integrated administration of virtual and physical servers</td>
<td>Increases efficiency of all server operations and reduces Total Cost of Ownership (TCO)</td>
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</table>

Simplified Life-cycle Management

- Automated server operations
- Intuitive monitoring and management GUI for basic daily operations of blade systems
- Visualization of network topology (network map)
- Uniform interface triggers VM guest live migration for different hypervisor technologies
- Built-in operating system image management

- Significantly shortens deployment time by using streamlined automated deployment
- Enables easy scaling of server farms in response to workload changes
- Adheres to SLAs by use of fast automated maintenance operations
- Easy to use - minimizes operational errors and improves administration efficiency
- Easier to check actual network configurations and analyze the impact of network errors
- Enables execution of live migrations regardless of which hypervisor technology is in use
- Simplifies the management of multiple server images

Cost efficient high availability

- Protection for heterogeneous environments (mixed physical and virtual servers, different operating systems and hypervisors)
- N+1 server failover concept
- Automated server failover

- Offers a uniform high-availability solution for all servers supporting a complete business process
- Saves cost of spare server hardware
- Significantly shortens server recovery time - storage or network administrators need not be involved
Topics

Unified Management
ROR VE provides centralized monitoring for PRIMERGY, PRIMEQUEST and SPARC Enterprise servers from Fujitsu as well as for selected x86 servers from other vendors. This eliminates the need to check different management consoles when monitor hardware states or power consumption.

ROR VE allows server administrators to easily confirm the network configuration in blade server environments. A network map provides a detailed network topology view. This shows the status of all connections starting from the external switches to the LAN switch blades, and across server blades up to the virtual switches.

For effective management of mixed virtual and physical environments, ROR VE provides a unified interface for common daily administrative tasks like, power control, start, stop, or reboot operations. Physical and virtual resources and their relationships are shown within a single console. There is no longer a need to launch specific management consoles for different virtualization products to perform basic management tasks. In addition, for more complex management tasks, ROR VE offers good integration with external management consoles.

In virtualized environments even live migration operations of virtual servers can be triggered in a uniform way, for all supported hypervisor products, directly from the ROR VE management console. When VMs are temporarily migrated away from their original physical servers, ROR VE allows administrators to quickly and safely bring them back to their original place. This is true not only in maintenance situations but also where VMs were consolidated onto fewer servers - for example over-night in order to save energy. ROR VE stores the original location of each VM and any time, at the push of a button, can migrate a VM back to its original place.

On top of the traditional server management console, ROR VE offers an innovative and simplified user interface using a clear representation of the blade servers within their enclosures. This realistic graphical representation shows their resource states and allows administrators to easily monitor their status. Startup, shutdown or reboot operations can be performed directly using this interface. It means administrator can manage blade systems remotely as if they were standing directly in front of them. It also enables less experienced staff to easily perform basic daily operations.

Use of e-mail event notifications avoids the need to continuously monitor the management console. To speed up troubleshooting procedures, ROR VE provides a one click display of technical support contact information on detection of errors. In addition, ROR VE integrates with other hardware-specific management consoles when more detailed information is required.

Simplified Lifecycle Management
ROR VE enables fully-automated server deployment for entire server farms through integrated cloning and remote system image distribution capabilities. Compared to manual deployment processes, this accelerates assignment or re-assignment of applications to one or several virtual or physical servers significantly. Administrators can now setup and scale server farms more easily and much faster in response to workload increases or business expansion.

Furthermore, ROR VE makes it possible to create system image backups, which are centrally managed on the admin server.

Leveraging the integrated fully-automated server deployment capabilities, ROR VE also simplifies and speeds up hardware maintenance by easy and automated restoration of system images, after hardware components have been replaced. Server downtime due to maintenance tasks can now be reduced to a minimum.

Cost-efficient High-Availability
ROR VE enables implementation of a cost-efficient N+1 high availability concept. It enables IT managers to protect more servers without paying a premium for dedicated HA software. By assigning one or more spare servers to multiple production servers it is possible to automatically failover those production servers, to a spare server, when hardware or operating system failure occurs. Business applications can be resumed without administrator intervention. Compared to manual recovery processes, server recovery time is greatly reduced, resulting in faster reaction to server failures. This works in both physical and virtual server environments.

BladeViewer – The intuitive management interface
### Technical details

#### Admin Client

**Hardware**
- Fujitsu PRIMERGY RX, BX and TX systems or PC

**Operating Systems**
- Microsoft Windows Server 2008 R2 SE/EE/DCE
- Microsoft Windows Server 2008 SE/EE (x86, x64)
- Microsoft Windows Server 2003 R2 SE/EE (x86, x64), SP2 or later
- Microsoft Windows XP Professional, SP2 or later
- Microsoft Windows Vista Business, Enterprise and Ultimate
- Microsoft Windows 7 Professional, Ultimate, Enterprise
- Red Hat Enterprise Linux AS/ES 4.x, 4.8 (x86, x64)
- Red Hat Enterprise Linux 5.x, 5.7 (x86, x64)
- Red Hat Enterprise Linux 6.0, 6.1, 6.2 (x86, x64)

**Other software prerequisites**
- Microsoft Internet Explorer 8, 9
- Java 2 Runtime Environment 1.5 or later

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#### Admin Server

**Hardware**
- Fujitsu PRIMERGY RX, BX and TX systems

**Notes**
- At least dual core CPU and 4 GB of memory; 500 MB free disk space or more

**Operating Systems**
- Microsoft Windows Server 2008 R2 SE/EE/DCE
- Microsoft Windows Server 2008 SE/EE (x86, x64)
- Microsoft Windows Server 2003 R2 SE/EE (x86, x64), SP2 or later
- Microsoft Windows XP Professional, SP2 or later
- Microsoft Hyper-V on Windows Server 2008 SE/EE (x64)
- Microsoft Hyper-V on Windows Server 2008 R2 SE/EE/DCE
- Red Hat Enterprise Linux 5.3, 5.7 (x86, x64)
- Red Hat Enterprise Linux 5.7 (x86, x64)
- Red Hat Enterprise Linux 6.0, 6.1, 6.2 (x86, x64)
- Red Hat Enterprise Linux 6.1, 6.2 (x86, x64)
- Red Hat Enterprise Linux 6.2 (x86, x64)
- VMware vSphere 4 ESX
- VMware vSphere 4.1, 4.1U1 ESX, ESXi
- VMware vSphere 5 ESXi

**Notes**
- When running the admin server on a hypervisor product, installation is only supported in a VM guest running one of the operating systems listed above.

**Other software prerequisites**
- Fujitsu ServerView Operations Manager (Windows) 5.50 or later
- Fujitsu ServerView Operations Manager (Linux) 4.81.05 or later

**Software options**
- Fujitsu ServerView Virtual-I/O Manager (VIOM) 2.6 or later (when using VIOM based I/O virtualization)
- Fujitsu ServerView Resource Coordinator VE I/O Virtualization Option (when using HBA Address Rename Service for I/O Virtualization)
- Fujitsu ServerView Update Manager
- Fujitsu ETERNUS SF Storage Cruiser (when using server switchover with access path reconfiguration for SPARC Enterprise Servers and ETERNUS)
- VMware vCenter Server 4.0/4.1 or 5 (when using VMware managed servers)
- Microsoft System Center Virtual Machine Manager 2008 R2 (when using Hyper-V managed servers)
## Managed Servers

### Hardware

**Fujitsu PRIMERGY BX**
- Fujitsu PRIMERGY BX900: BX920 S1/S2, BX922 S2, BX924 S2, BX960 S1
- Fujitsu PRIMERGY BX600: BX620 S4/S5/S6
- Fujitsu PRIMERGY BX400: BX920 S2, BX922 S2, BX924 S2

**Fujitsu PRIMERGY RX**
- Fujitsu PRIMERGY RX100 S5/S6/S7
- Fujitsu PRIMERGY RX200 S4/S5/S6
- Fujitsu PRIMERGY RX300 S4/S5/S6
- Fujitsu PRIMERGY RX600 S4/S5/S6

**Fujitsu PRIMERGY TX**
- Fujitsu PRIMERGY TX150 S6/S7
- Fujitsu PRIMERGY TX200 S4/S5/S6
- Fujitsu PRIMERGY TX300 S4/S5/S6

**Fujitsu PRIMERGY CX**
- Fujitsu PRIMERGY CX122 S1

**Fujitsu PRIMEQUEST**
- Fujitsu PRIMEQUEST 1800

**Fujitsu SPARC Enterprise**
- Fujitsu SPARC Enterprise Servers (SES) M3000, M4000, M5000, M8000, M9000
- Fujitsu SPARC Enterprise Servers (SES) T5120, T5220, T5140, T5240, T5440

### Operating Systems

**Microsoft**
- Microsoft Windows Server 2008 R2 SE/EE/DCE 21,28,30
- Microsoft Windows Server 2008 SE/EE (x86, x64) 21,28
- Microsoft Windows Server 2003 R2 SE/EE (x86, x64), SP2 or later 21,28
- Microsoft Hyper-V on Windows Server 2008 R2 EE/DCE 23,24,28,8

**Red Hat**
- Red Hat Enterprise Linux 5.x, 5.7 (x86, x64) 23,28
- Red Hat Enterprise Linux 6.0, 6.1, 6.2 (x86, x64) 23,28
- Red Hat Enterprise Linux KVM 6.1, 6.2 28
- Red Hat Enterprise Linux Xen 5.3, 5.4, 5.5, 5.6 (x86, x64) 23,10,11,28

**Novell SUSE**
- Novell SUSE Linux Enterprise Server 10 SP2, SP3, SP4 (x86, x64) 23,28
- Novell SUSE Linux Enterprise Server 11 or SP1 (x86, x64) 28

**Oracle**
- Oracle Enterprise Linux 5.4, 5.5, 5.6, 6.0 (x86, x64) 27,28
- Oracle VM 2.2.1 (x86, x64) 23,28
- Solaris 10 for SES (after 05/09, ESF 3.1 is required) 4,5,6,7,28,17
- Solaris 10 for x86 23,28
- Solaris 8,9,10 Containers for SES 28
- Solaris 10 Containers for x86 27

**VMware**
- VMware vSphere 4 ESX 23,24,25,28
- VMware vSphere 4.1, 4.1U1 ESX, ESXi 23,24,25,28
- VMware vSphere 5 ESXi 23,24,25,28

**Citrix**
- Citrix XenServer 5.5, 5.6 23,24,25,28
- Citrix Essentials for XenServer 5.5, 5.6, Enterprise Edition 23,10,28,15

### Notes
At least 30 MB of memory or 100 MB of free disk space

### Other software prerequisites

- Fujitsu ServerView agent (Windows) V4.50.05 or later
- Fujitsu ServerView agent (Linux) V4.90.14 or later
- Fujitsu ServerView agent (VMware) V4.30-20 or later
- Fujitsu ServerView agent (Solaris) V4.2 or later
## HBA Address Rename Server

<table>
<thead>
<tr>
<th><strong>Operating Systems</strong></th>
<th><strong>Microsoft</strong></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Microsoft Windows Server 2008 R2 SE/EE/DCE 21,26</td>
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<tr>
<td></td>
<td>Microsoft Windows Server 2008 SE/EE (x86, x64) 21,26</td>
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<tr>
<td></td>
<td>Microsoft Windows Server 2003 R2 SE/EE (x86, x64), SP2 or later 26</td>
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<tr>
<td></td>
<td>Microsoft Hyper-V on Windows Server 2008 SE/EE (x64) 26</td>
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<td>Microsoft Windows 7 Professional, Ultimate, Enterprise 26</td>
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<td><strong>Red Hat</strong></td>
<td>Red Hat Enterprise Linux 5.x, 5.7 (x86, x64) 26</td>
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<td>Red Hat Enterprise Linux 6.0, 6.1, 6.2 (x86, x64) 26</td>
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## Other Hardware Requirements

### FC Connectivity HBA

<table>
<thead>
<tr>
<th><strong>Hardware</strong></th>
<th><strong>Fujitsu PRIMERGY BX600</strong></th>
<th><strong>Fujitsu PRIMERGY BX900</strong></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>FC Module 2 port (4 Gbps): BX600-FC42E</td>
<td>FC Module 2 port (8 Gbps): Emulex MC-FC82E</td>
</tr>
</tbody>
</table>

### FC Connectivity Switch

<table>
<thead>
<tr>
<th><strong>Fujitsu PRIMERGY BX600</strong></th>
<th>18/18 FC Pass-Thru blade (8Gbps)</th>
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<tbody>
<tr>
<td>18/8 FC Switch 14/26 port (8Gbps): Brocade BR5450</td>
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### LAN Connectivity NIC

<table>
<thead>
<tr>
<th><strong>Fujitsu PRIMERGY BX400</strong></th>
<th>36/12 GbE Switch/IBP (1Gbps): SB11a 3</th>
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<tbody>
<tr>
<td>36/8+2 GbE Switch/IBP (1Gbps): SB11 1</td>
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</tr>
<tr>
<td>18/8 GbE Switch/IBP (10Gbps): SBAX2 3</td>
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</tr>
<tr>
<td>18/6 GbE Switch/IBP (1Gbps): SB6 3</td>
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### Storage

<table>
<thead>
<tr>
<th><strong>Fujitsu PRIMERGY BX600</strong></th>
<th>36/12 GbE Switch/IBP (1Gbps): SB9FV 3</th>
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<tbody>
<tr>
<td>10/6 GbE Switch blade (1Gbps): SB9V 3</td>
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<tr>
<td>30/12 GbE Switch blade (1Gbps): SB9F</td>
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<tr>
<td>10/6 GbE Switch blade (1Gbps): SB9A</td>
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<tr>
<td>10/6+2 GbE Switch blade (1Gbps): SB9</td>
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<tr>
<td>10/6 GbE Switch blade (1Gbps): Cisco Catalyst Blade Switch 3040</td>
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### Notes

- When using HBA Address Rename Service the I/O virtualization (FC) option is required for SAN boot.
- When using VIOM for I/O virtualization (BX only), then the BX FC Switch must be set to FC Access Gateway mode. The external SAN Switch must support NPIV for VIOM operation (e.g. Brocade Silkworm SW4101).
- When using VIOM for I/O virtualization IBP switch blades are recommended.

- When using VIOM for I/O virtualization IBP switch blades are recommended.
**Distribution, Implementation, Documentation & Support**

**User Interface**
English, Japanese

**User Skills**
Basic knowledge of Windows, Linux, VMware ESX, Microsoft Hyper-V and Xen administration is presumed. Installation, configuration and implementation require detailed knowledge of the ROR VE software product and the supporting software components and must be done by Fujitsu professional service or certified consultants.

**Installation**
By consultants specially instructed by Fujitsu only.

**Documentation**
User manuals are contained in machine readable form in the media pack or can be downloaded from http://manuals.ts.fujitsu.com

**Media**
The ROR VE media packs contain all ROR VE software components and the ROR VE manuals in pdf-format.

**Conditions**
This software product is supplied under conditions described in our current license agreement.

**Warranty**
Class: C

**Maintenance & Support**
Closure of a software maintenance contract is mandatory. For details about the service offering see: http://ts.fujitsu.com/services/maintenance_support/software_services.html

**Ordering and delivery**
ROR VE Right-to-Use licenses for the manager and the agents and ROR VE media pack CDs for Windows, Linux and for Solaris are available from our local sales representative/regional office.
The right-to-use and media kits of the operating environment of the manager nodes and the managed nodes as well as supporting software like ServerView VIOM have to be obtained separately since they are not included in the ROR VE package.

For additional technical details, dependencies and restrictions, please consult the ROR VE support matrix available from your sales representative.

3) Modification of port group settings by ROR VE at switchover not available for IBP switches
4) Cloning and deployment for system images currently not supported
5) Backup & Restore currently not supported
6) Server switchover (based on I/O virtualization) currently not supported
7) Server switchover (based on Backup & Restore) currently not supported
8) Sharing of a spare server as ROR VE spare servers and VM HA spare servers is not supported.
10) Network Map display currently not supported
11) Launch of VM console currently not supported
15) Requires ServerView Virtual-I/O Manager for using switchover functions
17) Active spare servers currently not supported
21) Server Core installation option not supported
22) Operating the LAN switch in IBP mode is not recommended
23) Cloning for hypervisors is not supported
24) For backup & restore, hypervisor snapshot technology is used
25) Sharing of spare servers with Windows Server or Hyper-V Server is not supported
26) English and Japanese versions only
27) Project-specific
28) English, German, Japanese and Chinese are supported
29) Only supported in virtualized environments
30) For higher versions, support status depends on compatibility to versions mentioned in this data sheet
31) iSCSI boot support only on BX900/BX400 with VIOM
32) Not supported with redundant admin server
Fujitsu platform solutions

In addition to Fujitsu ServerView Resource Orchestrator V3.0 Virtual Edition, Fujitsu provides a range of platform solutions. They combine reliable Fujitsu products with the best in services, know-how and worldwide partnerships.

Dynamic Infrastructures

With the Fujitsu Dynamic Infrastructures approach, Fujitsu offers a full portfolio of IT products, solutions and services, ranging from clients to datacenter solutions, Managed Infrastructure and Infrastructure-as-a-Service. How much you benefit from Fujitsu technologies and services depends on the level of cooperation you choose. This takes IT flexibility and efficiency to the next level.

Computing products

www.fujitsu.com/global/services/computing/
- PRIMERGY: Industrial standard server
- PRIMEQUEST: Mission-critical IA server
- SPARC Enterprise: UNIX server
- ETERNUS: Storage system

Software

www.fujitsu.com/software/

More information

To learn more about Fujitsu ServerView Resource Orchestrator V3.0 Virtual Edition, please contact your Fujitsu sales representative, Fujitsu business partner, or visit our website.
www.fujitsu.com/fts/or-ve

Fujitsu green policy innovation

Fujitsu Green Policy Innovation is our worldwide project for reducing burdens on the environment. Using our global know-how, we aim to resolve issues of environmental energy efficiency through IT. Please find further information at: www.fujitsu.com/global/about/environment/

Contact

Fujitsu Technology Solutions
Website: www.fujitsu.com/fts
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