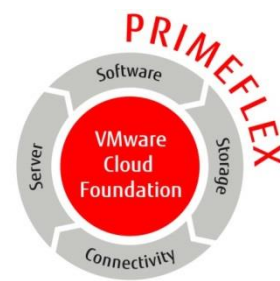




# Data sheet

## FUJITSU Integrated System PRIMEFLEX for VMware Cloud Foundation

Fast track to your VMware Software Defined Data Center



PRIMEFLEX for VMware Cloud Foundation is a turnkey integrated system that includes all the hardware and software needed to simplify deployment of a large-scale hyper-converged software-defined data center infrastructure. It combines high performance, energy efficient Fujitsu PRIMERGY standard x86 servers and VMware Cloud Foundation™, VMware's integrated platform that delivers enterprise-ready services for computing, storage, networking and security in combination with unique lifecycle management capabilities. PRIMEFLEX for VMware Cloud Foundation is ideal for businesses and service providers who demand fast time to production, reduced management complexity and lower TCO.

### High virtualization performance and energy-efficiency

The underlying computing platform comprises Fujitsu PRIMERGY rack servers, providing massive scale-out x86 server power, while still delivering ideal economic efficiency in terms of server density, energy consumption, heat optimization and lower operating costs. Fujitsu x86 servers have a long track record of continuous outstanding benchmark results, enjoying the longest leadership positions in most of the VMware VMmark benchmark categories. Thanks to the Fujitsu Cool-safe® advanced thermal design, additional cooling costs can be saved on top of comparatively low energy consumption.

### VMware Cloud Foundation™ software stack

VMware Cloud Foundation delivers an enterprise-ready cloud infrastructure by combining VMware's highly scalable, hyper-converged software, comprising vSphere® and vSAN™, with the network management efficiency of NSX®. For the logical infrastructure, the familiar VMware virtualization and management components are augmented by a new component, the VMware SDDC Manager.

### Integrated management of physical and logical resources

Combined with Hardware Management Services (HMS), the SDDC Manager provides a single centralized view of both the physical and logical infrastructure—from hardware device level details and network topology to VMs—and is fully integrated and interoperable with existing VMware software as part of the suite.

### Non-disruptive, automated lifecycle management

The SDDC Manager delivers key lifecycle management tasks, including upgrades and updates, significantly reducing maintenance efforts and achieving meaningful OPEX savings.



### Automated bring-up and configuration

PRIMEFLEX for VMware Cloud Foundation can be put into productive use within a few hours instead of days or weeks, providing IT organizations with the fastest way to deploy a complete infrastructure for a software-defined data center.



# Features and benefits

MAIN FEATURES	BENEFITS
<b>Compute and storage hardware</b> <ul style="list-style-type: none"><li>■ Pre-qualified vSAN Ready Nodes based on Fujitsu Server PRIMERGY RX2530 M2 systems providing compute and storage capacity with internal disks</li></ul>	<ul style="list-style-type: none"><li>■ High-performance, energy-efficient and space saving 1U homogeneous building block for scaling out compute and storage</li></ul>
<b>Networking hardware</b> <ul style="list-style-type: none"><li>■ Cisco Nexus® 93180YC-EX for top of rack connectivity, Cisco Nexus® 9332PQ for inter-rack connectivity and QCT QuantaMesh® BMS T1048-LB9 for out of band management</li></ul>	<ul style="list-style-type: none"><li>■ Offers a flexible switching platform in a compact form factor for a spine-leaf design required in highly scalable cloud architectures</li></ul>
<b>VMware Cloud Foundation™</b> <ul style="list-style-type: none"><li>■ Compute, storage, and network virtualization (vSphere®, vSAN™, NSX®)</li></ul>	<ul style="list-style-type: none"><li>■ Delivers enterprise-ready software-defined data center infrastructure on all levels (compute, storage, network) with unique automation and management capabilities for simplified operation</li></ul>
<b>SDDC Manager</b> <ul style="list-style-type: none"><li>■ Integrated management of physical and virtual resources</li><li>■ Automated bring-up and configuration</li><li>■ Non-disruptive life-cycle management</li><li>■ Capacity management based on workload domains</li></ul>	<ul style="list-style-type: none"><li>■ Single centralized view of the physical and logical infrastructure</li><li>■ Faster time to production for new IT capacity</li><li>■ Reduces risk and time needed for maintenance windows</li><li>■ Enables elastic capacity expansion or reduction</li></ul>
<b>Optional software components</b> <ul style="list-style-type: none"><li>■ VMware Horizon® and vRealize® Suite</li></ul>	<ul style="list-style-type: none"><li>■ Provides the management platforms to address VDI or IaaS use cases (mix of both use cases in one configuration supported)</li></ul>
<b>Deployment model</b> <ul style="list-style-type: none"><li>■ Factory-integrated delivery of all hardware and mandatory software components - complemented with deployment service</li></ul>	<ul style="list-style-type: none"><li>■ Reduces implementation risks; speeds up deployment time at the customer site to typically a few hours only</li></ul>
<b>Support</b> <ul style="list-style-type: none"><li>■ Single point of contact for support for all components of the entire solution and its lifecycle</li></ul>	<ul style="list-style-type: none"><li>■ Easier support interaction with speedier resolution times</li></ul>

# Architecture

The PRIMEFLEX for VMware Cloud Foundation architecture consists of three basic layers: hardware, virtualization, operations and management.

## Server and storage infrastructure

The foundation of PRIMEFLEX for VMware Cloud Foundation is based on a hyper-converged infrastructure (vSAN Ready Nodes), which means that compute and storage for VMs are delivered from the same x86 server platform running the hypervisor. The vSAN Ready Node that has been pre-qualified for use in VMware Cloud Foundation is based on FUJITSU Server PRIMERGY RX2530 M2 dual-socket rack servers providing high performance with the new Intel® Xeon® processor E5-2600 v4 product family and expandability with up to 10x 2.5-inch storage devices - all in a compact 1U housing. Accordingly, the PRIMERGY RX2530 M2 is the ideal system for virtualization and scale-out scenarios.

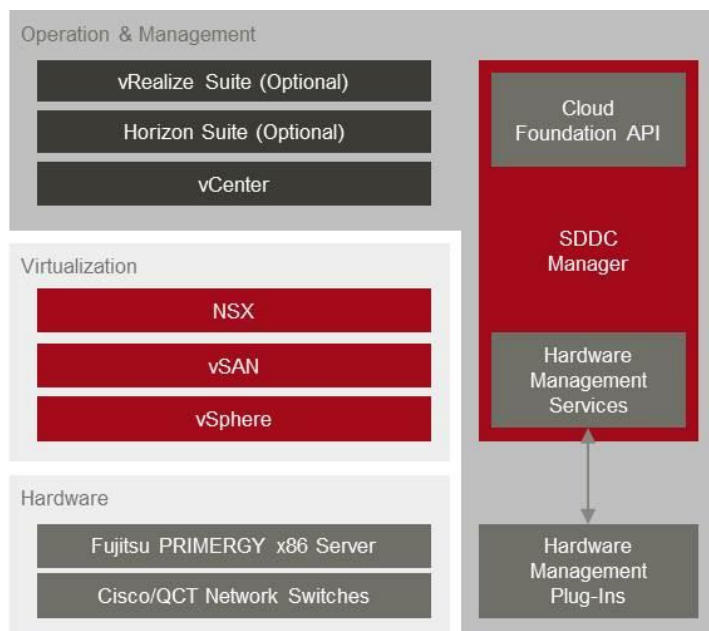
## Network design

PRIMEFLEX for VMware Cloud Foundation includes a prescriptive network design within and across racks. The design requires a leaf-spine topology involving Top of Rack (ToR) and spine switches. The SDDC Manager integrates the management of the physical network infrastructure with the management of the logical network infrastructure. Each physical rack contains two Cisco N93180YC-EX ToR switches, which control network traffic and redundancy, and a QCT QuantaMesh BMS T1048-LB9 management switch which provides the connectivity for out of band management. With scale out across multiple racks, east-west traffic is fully self-contained. Connectivity between racks is provided by means of two Cisco Nexus 9332PQ inter-rack spine switches. In addition, customers connect to the existing data center infrastructure using L2/L3 uplinks through the ToR switches.

## Software stack

PRIMEFLEX for VMware Cloud Foundation includes the VMware Cloud Foundation software stack, consisting of VMware vSphere, vSAN, NSX and the SDDC Manager.

The SDDC Manager is the operator's primary interface for day-to-day tasks and provides centralized access and an integrated view of both the physical and virtual infrastructure. On Day 0, the SDDC Manager automates bring-up of the software and configuration of physical entities, including the spine and top-of-rack switches. After Day 0, the SDDC Manager dramatically simplifies operations and management with capabilities such as non-disruptive, automated lifecycle management and integrated performance management, capacity optimization and real-time log analytics. In addition, the SDDC Manager provides REST-based APIs for integration with the existing data center management and monitoring tools.



The SDDC Manager is complemented by a Hardware Management Services (HMS) layer for physical infrastructure management. The core responsibilities of the HMS include auto-discovery of new physical capacity, configuration of servers and switches, inventory validation against the pre-qualified bill of materials, reporting and notifications.

The following optional VMware software products may be integrated on top of the VMware Cloud Foundation software stack to address VDI or IaaS use cases:

- VDI: VMware Horizon®
- IaaS: VMware vRealize Suite™

PRIMEFLEX for VMware Cloud Foundation supports mixed operation of VDI and IaaS environments in a single configuration.

# Technical details

## Hardware

<b>Rack Infrastructure</b>		1-8x FUJITSU PRIMECENTER M1 Rack 742S 42U-1050x700
<b>Compute Nodes</b>		1x PRIMERGY RX2530 M2 with Cool-safe® Advanced Thermal Design
	<b>CPU</b>	2x Intel Xeon E5-2650v4 12C/24T 2.20 GHz
	<b>Memory</b>	24x 16GB (1x16GB) 2Rx16 DDR4-2400 R ECC (24x16=384GB or 16*32GB=512)
		1x PLAN EM 4x1Gb T OC114000-LOM interface
	<b>LAN onboard</b>	2x Eth Ctrl 2x10Gbit PCIe x8 D2755 SFP+ FibreOptic or Twinax
	<b>LAN PCIe Cards</b>	1x PSAS CP400i Controller for internal SAS/SATA HDD and SSD
	<b>SAS Controller</b>	8x HDD SAS 12G 1.2TB 10K 512e HOT PL 2.5' EP
	<b>Disks</b>	2x SSD SAS 12G 800GB Main 2.5" H-P EP
		1x SATADOM - 64GB SLC
	<b>Power Supplies</b>	2x Modular power supplies, 800W, platinum, hot plug
		For further infos please see the <a href="#">data sheet</a> .
<b>Networking</b>	<b>Management Switch</b>	1x QCT QuantaMesh BMS T1048-LB9: 48x 10/100/1000 Gbps (Base-T) ports and 4x dual speed 1/10 Gbps (SFP+) ports, 1U
		For further info please see the related <a href="#">data sheet</a> .
	<b>Top of Rack Switches</b>	2x Cisco Nexus 93180YC-EX: 48x 1/10/25 Gbps (SFP+) ports and 6x 40/100 Gbps (QSFP+) uplink ports, 1U
		For further info please see the related <a href="#">data sheet</a> .
	<b>Spine Switches</b>	2x Cisco Nexus 9332PQ: 32 x 40 Gbps (QSFP+) ports, 1U
		For further info please see the related <a href="#">data sheet</a> .
		Multi-rack configurations require one pair of spine switches in the first logical rack for inter-rack traffic.
<b>Console Switch</b>		KVM S4-3242, digital, VM, 1U

## Software

<b>VMware Cloud Foundation</b>	The VMware Cloud Foundation software stack is pre-installed on the aforementioned hardware and both together make up PRIMEFLEX for VMware Cloud Foundation. The VMware Cloud Foundation software stack includes the following software products: VMware vSphere 6.5 Enterprise Plus VMware vSAN 6.5 Advanced VMware NSX Standard VMware SDDC Manager For the individual VMware software products the standard datasheets apply. For further info please see the related data sheets on <a href="http://www.vmware.com">www.vmware.com</a> In addition to the beforementioned software products, PRIMEFLEX for VMware Cloud Foundation also contains the Hardware Management Services (HMS) software for physical infrastructure management.
<b>Optional software products</b>	The following VMware software products may be integrated to address VDI or IaaS use cases: VDI: VMware Horizon 7 IaaS: VMware vRealize Suite PRIMEFLEX for VMware Cloud Foundation supports mixed operation of VDI and IaaS environments in a single configuration.

<b>Licencing</b>	The VMware Cloud Foundation software is licensed on a per processor perpetual license model and valid for the entire configuration. Customers who have previously purchased individual components of the software stack are able to purchase complementary licenses to upgrade to VMware Cloud Foundation without penalty. The appropriate VMware End User License Agreement (EULA) terms for VMware Cloud Foundation apply and have to be agreed before first usage. You will find the EULA terms at: <a href="http://www.vmware.com/download/eula/">http://www.vmware.com/download/eula/</a>
<b>License terms</b>	Fujitsu provides one Product Activation Code (PAC) for the complete PRIMEFLEX for VMware Cloud Foundation software bundle. To generate a valid license key this activation code has to be activated at <a href="http://www.vmware.com/code/fsc">http://www.vmware.com/code/fsc</a>
<b>Warranty</b>	Class A / Standard hardware warranty is 3 years
<b>Support Service</b>	
<b>Support and Service regulations</b>	The maintenance offer for PRIMEFLEX for VMware Cloud Foundation is based on Fujitsu SupportPacks with standardized product-related services and predefined SLAs for the software and hardware components. Support Services for the hardware components extend the standard warranty and provide various options for duration, response or recover times to meet individual customer needs. For the VMware Cloud Foundation software the Support Services comprise the diagnosis of software incidents and the provision of workarounds, corrections and software versions with new functions (new major releases). All according to the VMware Cloud Foundation license policy. The Support Packs for VMware Cloud Foundation have an intital term of 3,4 or 5 years, 24x7 service time and customers can choose next business day or 4 hours responsible time.
<b>Recommended Service</b>	24x7, onsite response time: 4h
<b>Service Lifecycle</b>	5 years
<b>Service Weblink</b>	<a href="http://ts.fujitsu.com/Supportservice">http://ts.fujitsu.com/Supportservice</a>
<b>Professional Services</b>	
<b>Deployment Service (mandatory)</b>	PRIMEFLEX for VMware Cloud Foundation includes a mandatory deployment service which cares for on-site bring-up of the solution.
<b>Ordering</b>	PRIMEFLEX for VMware Cloud Foundation may be obtained from local Fujitsu sales representative, or regional offices.
<b>Delivery</b>	Customers can choose three different rack delivery options for initial and subsequent deployment: 1/3 rack with 8 compute nodes, 1/2 rack with 12 compute nodes, full rack with 24 compute nodes. Within a rack single compute nodes may be added in any number until the maximum of 24 compute nodes is reached.
<b>Documentation</b>	User manuals can be downloaded from <a href="http://manuals.ts.fujitsu.com">http://manuals.ts.fujitsu.com</a>
<b>Disclaimer</b>	Any change in the configuration or settings of PRIMEFLEX for VMware Cloud Foundation, unless explicitly permitted in the respective user documentation, is regarded as a customer disassembly of PRIMEFLEX for VMware Cloud Foundation. Customer disassembly, regardless whether it is related to settings or configuration changes in hardware or software components, automatically and immediately terminates any warranties, service and support obligations of Fujitsu regarding PRIMEFLEX for VMware Cloud Foundation.

### Fujitsu platform solutions

In addition to FUJITSU Integrated System PRIMEFLEX for VMware Cloud Foundation, 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 Business-Centric Data Center approach, Fujitsu offers a full portfolio of IT products, solutions and services, ranging from clients to data center 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/](http://www.fujitsu.com/global/services/computing/)

- PRIMERGY: Industrial standard server
- SPARC Enterprise: UNIX server
- PRIMEQUEST: Mission-critical x86 server
- ETERNUS: Storage system

#### Software

[www.fujitsu.com/software/](http://www.fujitsu.com/software/)

### More information

To learn more about FUJITSU Integrated System PRIMEFLEX for VMware Cloud Foundation, please contact your Fujitsu business partner, Fujitsu sales representative, or visit our [website](#).

### 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/](http://www.fujitsu.com/global/about/environment/)



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