



# HPE HIGH PERFORMANCE COMPUTING CLUSTER MANAGEMENT SOLUTION

HPE Pointnext Services

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## SERVICE DESCRIPTION

HPE [High Performance Computing](#) (HPC) Cluster Management Solution provides Customers with assistance in installation, configuration, and understanding the management of the HPE cluster environment. Additionally, the HPC Cluster Management Solution provides a migration path from HPE's Cluster Management Utility (CMU) and the SGI Management Center (SMC) to HPE's next-generation cluster management utility HPE Performance Cluster Manager (HPCM). [HPE Pointnext Services](#) skilled consultants help the Customer implement the HPC Cluster Management Solution in order to fully utilize the newly purchased computing power, including solutions for high performance computation, data management, and visualization. [HPC Cluster Management Solution](#) is available for purchase at one of four levels:

- **Level 1**—Basic Cluster Implementation: Configuration of HPE Performance Cluster Manager (HPCM), or other cluster management software specifically approved by HPE, and basic operating system images
- **Level 2**—All Level 1 services plus advanced operating system configuration, network integration, and configuration verification
- **Level 3**—All Level 1 and 2 services plus configuration of job schedulers, HPC application integration, and performance benchmarking
- **Level 4**—All Level 1, 2, and 3 services plus extensive on-site configuration and/or extensive performance benchmarking

These services include Customer consultative guidance regarding the architected and factory-integrated solution; system configuration and verification testing of the HPC solution; and knowledge transfer to the Customer's staff.

## SERVICE BENEFITS

- Benefits of the HPC Cluster Management Solution include the following:
  - HPE proven expertise for deployment and integration of the [HPC solution](#)
  - On-site configuration assistance
  - Application integration and performance benchmarking assistance (Level 3 and 4 only)
  - Ability to manage the system following implementation (through knowledge transfer from HPE to Customer)

## SERVICE FEATURE HIGHLIGHTS

### All levels

- On-site cluster validation testing
- Implementation of Cluster System Management software
- Customer orientation session/knowledge transfer
- Escalation and problem resolution procedures review

**Level 1**

- A prerequisite for the Level 1 service is that the HPC cluster management and operating system environment is installed in the factory and the cluster is full tested prior to shipment to the Customer.

**Level 2**

- For bare metal installation, deploy cluster management software as well as operating system images on the head and compute nodes
- Customize base operating system and driver software installation and configuration
- Basic testing of high speed network and HPC networks

**Level 3**

- Running preconfigured performance benchmarking tests
- Supporting Customer required acceptance testing
- Basic scheduler installation and configuration
- HPE supported HPC software installation

**Level 4**

- Complete extensive on-site cluster integration and/or extensive performance benchmarking
- Review of application integration best practices and performance benchmarking during an extended knowledge transfer session

**Migration**

- Migration of HPE CMU or SGI SMC to HPE HPCM is also available in 3 levels. The prerequisites for migration from CMU or SMC to HPCM can be found in the HPCM Installation Guide: [support.hpe.com/hpsc/doc/public/display?docId=a00057824en\\_us](https://support.hpe.com/hpsc/doc/public/display?docId=a00057824en_us)

**Level 2**

- Migration from CMU or SMC to HPCM that includes the migration of the cluster management utility as well as operating system images
- Customize base operating system and driver software installation and configuration
- Basic testing of high speed network and HPC networks

**Level 3**

- Migration from CMU or SMC to HPCM that includes the migration of the cluster management utility, operating system images, and job scheduler
- Running preconfigured performance benchmarking tests
- Supporting Customer required acceptance testing
- Basic scheduler installation and configuration
- HPE supported HPC software installation

**Level 4**

- Migration from CMU or SMC to HPCM that includes the migration of the cluster management utility, operating system images, job scheduler, and extensive customization or benchmarking of the cluster environment
- Complete extensive on-site cluster integration and/or extensive performance benchmarking
- Review of application integration best practices and performance benchmarking during an extended knowledge transfer session



**TABLE 1.** HPC Cluster Management Solution Features Matrix

Deliverables	SGI/Apollo Advisory and Professional Services	Level 1 H7RF2A1#001	Level 2 H7RF2A1#002	Level 3 H7RF2A1#003	Level 4 H7RF2A1#004
	Cray HPE Advisory and Professional Services	HT3C7A1#001	HT3C7A1#002	HT3C7A1#003	HT3C7A1#004
<b>Cluster validation testing</b>					
• Enable connectivity and communication to Customer network		✓	✓	✓	✓
• Perform planned continuity and connectivity of cluster networks as designed and configured at the HPE manufacturing facility		✓	✓	✓	✓
• Validate the correct operation of the cluster via Cluster Test, Linpack, or other validation program				✓	✓
<b>Verify that Cluster System Management software is configured to Customer requirements</b>					
• Verify software and configuration as outlined in System Configuration		✓	✓	✓	✓
• Validate node provisioning		✓	✓	✓	✓
<b>Demonstrate that system management utilities and user environment structures function correctly</b>					
• System management and monitoring interfaces			✓	✓	✓
• User environment			✓	✓	✓
• Job submission				✓	✓
• User account creation			✓	✓	✓
• File system mounts			✓	✓	✓
<b>Application integration assistance</b> (best effort for up to 2 applications, with assistance from software vendor)				✓	✓
<b>Scheduler software</b> (for products such as Slurm, PBS Pro, Moab, and/or LSF)					
• Basic installation and configuration of scheduling software				✓	✓
• Validate scheduling software functionality				✓	✓
<b>Run predefined performance benchmarks</b>					
				✓	✓
<b>Support Customer required acceptance testing</b>					
				✓	✓
<b>Customer orientation session/knowledge transfer</b>					
• Overview of the HPC solution and management of the cluster		✓	✓	✓	✓
• Overview of the basic architecture components (nodes, networks, infrastructure, and software) and adding and removing nodes		✓	✓	✓	✓
• Review of application integration best practices				✓	✓
• Review of performance benchmarking and best practices				✓	✓
• Review of administrative commands		✓	✓	✓	✓
• Presentation of file systems, resource management software (security infrastructure, high availability infrastructure, and systems monitoring software), plus disaster recovery infrastructure			✓	✓	✓
• Review of escalation and problem resolution procedures		✓	✓	✓	✓
<b>Migration</b>					
			✓	✓	✓



## SERVICE ELIGIBILITY

The Customer must have already purchased an [HPC](#) factory-integrated cluster solution from HPE or an authorized HPE partner.

## SERVICE LIMITATIONS

Services such as, but not limited to, the following are excluded from this service:

- Any deliveries requiring usability and performance acceptance, unless specified in an HPE Statement of Work (SOW)
- Troubleshooting of any Customer supplied network devices or network connections
- Troubleshooting of any Customer supplied file systems or storage devices
- Configuration and/or operational testing of Customer applications
- Hardware maintenance and support services
- Any services not specified in the service description of this data sheet

This service is available on [HPE](#) standard workdays, excluding weekends and HPE holidays, and during country-specific standard HPE business hours. On-site service assistance will be provided at one physical location in the country where the service is sold. The scope of activities provided under these services does not include the provision of any deliverables, but rather specific tasks or activities to be performed. Please check with a local HPE authorized representative to find out whether a specific location is eligible for this service.

## CUSTOMER RESPONSIBILITIES

### Prerequisites

- Customer will verify that computer equipment is installed, connected, and powered before arrival of HPE Pointnext Services consultant.
- Prerequisites for the CMU or SMC to HPCM migration service can be found in the HPCM Installation Guide: [support.hpe.com/hpsc/doc/public/display?docId=a00057824en\\_us](https://support.hpe.com/hpsc/doc/public/display?docId=a00057824en_us)

The Customer will:

- Inform HPE of any restrictions regarding equipment not allowed in the Customer's data center (for example, USB drives, laptops, cell phones, configuration cables, and more)
- Inform HPE of any special instructions concerning parking and on-site physical security procedures
- Designate a single-point-of-contact (SPOC) who is responsible for Customer's team and who will work with HPE (including providing pertinent information) during the delivery of the Services
- Resolve all issues identified during the service planning stage
- Ensure all service prerequisites as identified are met
- Provide HPE with access to Customer personnel who are knowledgeable about the system and application environment
- Facilitate timely access to technical resources, licenses, and third-party software and/or peripheral suppliers, as necessary
- Allow HPE full and unrestricted access to all locations where the service is to be delivered
- Provide networking facilities to enable communication between Customer and HPE's network for HPE intranet access through Wi-Fi, direct, or VPN client



## GENERAL PROVISIONS/OTHER EXCLUSIONS

- The HPE HPC Customer Project Manager (CPM) team provides project management for the overall HPC product delivery.
- The ability of the HPE service specialist to deliver this service is dependent upon the Customer's full and timely cooperation with the HPE service specialist, as well as the accuracy and completeness of any information and data the Customer may provide to HPE.
- The service is only available during local HPE business hours. Any service delivery outside these hours will be subject to additional charges.
- Customer knowledge transfer is not a replacement for training. While it will help provide a basic understanding to Customers, formal classroom training is also recommended.
- Customer maintains overall responsibility for third-party application integrations. HPE will provide best effort support for installation of third-party application as time permits.

Services must start within 120 days from the date of invoice and will expire if not started during that period. Under no circumstances shall the Customer be entitled to a credit or refund of any unused services.

These services are available for the number of workdays purchased. For purchases of five workdays or less, the work will be completed during a single workweek on consecutive days. For purchases of more than five workdays, the work will be completed in consecutive days and weeks. Work shall be deemed completed upon the earlier of the end of the workdays purchased or completion of the identified tasks. Under no circumstances shall the Customer be entitled to a credit or refund if HPE completes the task in less than the workdays purchased.

## ORDERING INFORMATION

- Please contact your local HPE sales office to order the HPC Cluster Management Solution. The [HPC Cluster Management Solution](#) is available in four levels for:
  - SGI/Apollo HPE Advisory and Professional Services
    - H7RF2A1#001 (Level 1), H7RF2A1#002 (Level 2), H7RF2A1#003 (Level 3), H7RF2A1#004 (Level 4)
  - Cray HPE Advisory and Professional Services
    - HT3C7A1#001 (Level 1), HT3C7A1#002 (Level 2), HT3C7A1#003 (Level 3), and HT3C7A1#004 (Level 4)

## LEARN MORE AT

[hpe.com/us/en/solutions/hpc-high-performance-computing.html](https://hpe.com/us/en/solutions/hpc-high-performance-computing.html)

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