

# HP Data Center Services - U.S.

## HP Technology Services - Per Event Services

### Technical data



Enterprise-class data center facility infrastructures need to support both current IT objectives and new equipment and technologies required for future business expansion. Additionally, the proliferation of high-density racks in very dense configurations increases the complexity of providing adequate power and cooling. HP Data Center Services can help to assess your readiness to meet these challenges and provide recommendations to assist you in improving the function and efficiency of your data center facilities.

HP Data Center Services are based on industry and HP best practices, such as IEEE Standard 1100-1999, ASHRAE Thermal Guidelines for Data Processing Environments, knowledge and standards from HP Labs, and practical HP field experience. HP's knowledge provides you with the opportunity to leverage industry-wide current and future criteria in the operation of your data center physical infrastructure.

### **Service benefits**

HP Data Center Services are designed to:

- Help you determine the adequacy of your data center environment
- Help you understand how to utilize your data center resources more efficiently
- Help you gain a better understanding of your space, power, and cooling resource requirements
- Recommend effective equipment racking orientation and placement for improved data center cooling
- Leverage thermal modeling tools and techniques to help you develop effective and efficient cooling strategies for high-density server and storage equipment
- Help you plan for adding new equipment to your data center

## Service features highlights

- HP Data Center Assessment Service
- HP Thermal Quick Assessment Service
- HP Thermal Intermediate Assessment Service
- HP Thermal Comprehensive Assessment Service
- HP Data Center Site Planning Service

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### Specifications

**Table 1. Service features**

<b>Feature</b>	<b>Delivery specifications</b>
<b>HP Data Center Assessment Service</b>	<p>HP Data Center Assessment Service is a flexible assessment that can be tailored to address specific Customer concerns. This service is subject to a Statement of Work and may include the following standard and optional assessment areas.</p> <p>Standard assessment areas:</p> <ul style="list-style-type: none"><li>• Visual inspection of data center</li><li>• Space utilization</li><li>• Raised floor system</li><li>• Power distribution system</li><li>• Heating, ventilation, and air conditioning (HVAC) systems</li><li>• Airflow management</li><li>• Cable management</li><li>• Environmental contamination</li><li>• Signage</li></ul> <p>Optional assessment areas:</p> <ul style="list-style-type: none"><li>• Radio frequency interference (RFI) and electromagnetic interference (EMI)</li><li>• Earthquake threat and preparedness</li><li>• Sound levels</li><li>• Fire protection</li><li>• Engine generator</li><li>• Shutdown controls</li><li>• Environmental monitoring systems</li><li>• Power quality</li><li>• High-frequency noise</li><li>• Maintenance levels of data center support equipment</li><li>• Physical security systems</li></ul> <p>The Data Center Assessment Service includes a final report of the findings. If risks or deficiencies are found, qualitative and quantitative explanations are provided with prioritized recommendations for improvement. Recommended changes are based on industry and HP best practices and practical HP field experience.</p>
<b>HP Thermal Quick Assessment Service</b>	<p>The HP Thermal Quick Assessment Service provides an entry-level assessment of the Customer's data center cooling. It is based on interviews with Customer staff and HP observations of the Customer's data center cooling environment. The service examines the following areas:</p> <ul style="list-style-type: none"><li>• The relationship between space, power, and cooling, to determine the cooling capacity of the data center</li><li>• Cooling load versus cooling capacity</li><li>• Airflow management</li><li>• Heat recirculation</li><li>• Under-floor and overhead airflow obstructions</li><li>• Equipment row orientation and placement</li></ul>

- Gap analysis comparing the existing environment to recommended cooling practices for high-density equipment
- Infrastructure management procedures

The service includes a written report of findings, including technical observations and short- and long-term recommendations, designed to help the Customer improve cooling efficiency.

This service is recommended for Customers seeking a basic understanding of the thermal capability of their data center to support high-density equipment.

**HP Thermal Intermediate Assessment Service**

The HP Thermal Intermediate Assessment Service includes the features included in the Thermal Quick Assessment Service. In addition, this service includes thermal modeling of below-floor thermal conditions. This service is only applicable to raised-floor environments where the floor is used for cooling distribution.

This service is subject to a Statement of Work. Based on data gathered by an HP consultant, modeling may examine the following areas:

- Effective placement of air conditioners
- Impact of under-floor obstructions to airflow
- Placement and cooling potential of perforated airflow panels or grilles

Thermal modeling will examine supply airflows only. HP will model "what if" scenarios to determine alternative solutions to cooling issues that HP observes as part of the assessment. Upon request, HP can also perform air-conditioner failure analysis.

HP will provide a written report that will include observations, thermal modeling results, and recommendations for improvement.

This service is recommended for existing or proposed data centers where some portion will be populated with high-density racks with power consumption approaching 3 kW per rack.

**HP Thermal Comprehensive Assessment Service**

The HP Thermal Comprehensive Assessment Service includes the features of the Thermal Quick Assessment Service. In addition, HP will perform 3D modeling of the entire data center supply and return air flows.

This service is subject to a Statement of Work. Based on data gathered by an HP consultant, modeling may examine:

- The thermodynamics beneath a raised floor (if applicable), above the floor, and above the ceiling (if applicable)
- Static pressures, airflow distribution, and temperature gradients
- Effective placement of air conditioners
- Monitoring of air conditioning performance
- Multiple cooling systems (if applicable); e.g., redundant systems
- Impact of obstructions to both under-floor and above-floor airflows
- Placement and cooling potential of perforated airflow panels or grilles
- Power consumption and thermal load of individual equipment racks
- Dimensional characteristics of the entire data center

HP will record temperature and airflow measurements, as appropriate. This data will be used to validate the accuracy of the thermal model against the as-is conditions in the data center. Additionally, HP will model "what if" scenarios to test the effectiveness of alternative solutions to cooling issues either observed by HP or anticipated due to planned equipment additions in the data center.

HP will provide a written report that includes observations, thermal modeling results, and recommendations for improvement.

This service is recommended for existing or proposed data centers where some portion is populated with high-density racks with power consumption exceeding 3.5 kW per rack.

**HP Data Center Site Planning Service**

- The HP Data Center Site Planning Service provides a site-preparation audit prior to adding equipment to a data center. The service is subject to a Statement of Work and typically includes:
  - Installation and service space verification
  - Power distribution analysis (branch circuit capacity and availability)
  - Cooling system analysis (capacity and airflow distribution)

- Review of installation readiness requirements to successfully integrate the proposed equipment into the site

HP will provide a written report that includes:

- Summary of the power and cooling systems
  - Identification of any deficiencies found (if applicable), with recommended solutions
  - Product specifications (dimensions, weight, power, cooling, receptacle, etc.)
  - Recommended equipment operating specifications
  - 2D drawings (floor plans) locating equipment, receptacles, airflow panels, and cable cutouts
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## Service eligibility

HP Data Center Services are applicable to all data centers, IT rooms, server rooms, and server closets with raised or non-raised floor environments. The only exception is the HP Thermal Intermediate Assessment Service, which is limited to raised-floor environments where the floor is used for cooling distribution.

## Service limitations

For all HP Data Center Services:

- This service is limited to the identification of data center environmental issues and does not include any remedial activity. Any corrective measures to mitigate the risks or implement the recommendations identified by this service are the responsibility of the Customer.
- Any services not clearly specified in this document or in an associated Statement of Work are excluded from this service.
- Services are conducted during HP standard business hours, Monday through Friday excluding HP holidays.

For the HP Thermal Quick Assessment Service only:

- The HP Thermal Quick Assessment Service is limited to a single computer room smaller than 15,000 square feet of total floor space. Assessments of computer rooms larger than 15,000 square feet may result in additional service fees.

## Customer responsibilities

The Customer must assume the following responsibilities in order for HP to deliver any of the HP Data Center Services. The Customer will:

- Contact an HP service specialist within 90 days of date of purchase to schedule the delivery of the service
- Allow HP full and unrestricted access to all locations where the service is to be performed
- Provide a suitable work area for delivery of the service, including access to an outside telephone line, power, and any network connections required
- Assign a designated person from the Customer's staff who, on behalf of the Customer, will grant all approvals, provide information, and otherwise be available to assist HP in facilitating the delivery of this service
- Provide an electrician and/or an HVAC mechanic to create access to electrical or mechanical equipment, as may be required by HP

- Provide a ladder and a raised floor tile puller

## Ordering information

Before ordering, the Customer should discuss any specific requirements with HP to identify the service that will address the Customer's needs. To order any of the HP Data Center Services, contact a local HP representative. For the HP Thermal Quick Assessment Service, reference HB691A1 and HB691AE. For all other HP Data Center Services, please reference HA536A1 or HA536AE.

## For more information

For more information on HP Services, contact any of our worldwide sales offices or visit our Web site at:

**[www.hp.com/hps/carepack](http://www.hp.com/hps/carepack)**

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