FUJITSU

Data Sheet
Data Center OPTIMIZATION Services Facility Readiness Assessment

Gaining valuable insight into the efficiency of power and cooling of your data center

Introduction
OPTIMIZATION Services from Fujitsu offer efficient consultation packages for existing infrastructure environments at a fixed price. This has been made possible by systematically analyzing a large number of successfully implemented consultation projects. The solution methods used have been standardized and combined with the experience of the comprehensive product and solution skills provided by the Fujitsu group. The resulting first-class consultation and analysis packages quickly provide customers with specific information and suggested improvements for the infrastructure involved
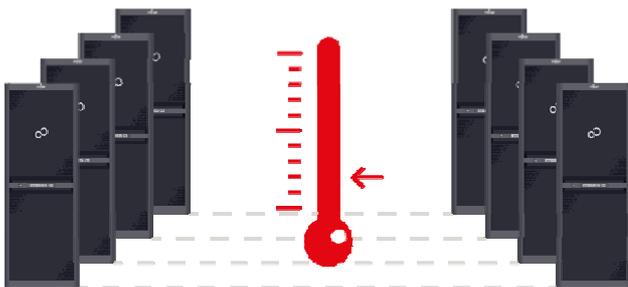
Customer's requirements
- Increase effectiveness of current data center planning and design in terms of space, power and cooling
- Assess the impact of factors which affect the efficiency of power and cooling
- Identify quick win measures to increase the effectiveness of air flow and power
- Optimize the balance between redundancy and reliability requirements in the data center with Green IT objectives
- Planning long-term energy saving strategy and measures
- Opportunities to reduce business risk through more efficient data center management
- Advice in identifying approaches to reduce CO_2

Fujitsu's solution
Obtaining the right balance between space, power and cooling in the data center is typically the largest challenge facing owner/operators of mission critical facilities. Traditionally designed facilities have been unable to cope with the rapid growth in power densities associated with newer IT equipment. This has often led to expensive upgrades of existing infrastructures, including ventilation systems, without effectively preventing the formation of localized hotspots. The risk of thermally-induced IT downtime is becoming greater than ever before

Overcoming high density challenges is a complex issue and cannot be solved by best estimate principles. From the placement of compute, network and storage hardware, to the management of return air or inlet air, and the use of supporting critical infrastructure such as air-handlers, these and many more factors can impact airflow in the data center. Simulation techniques offer the only scientific method for effectively providing answers.

Fujitsu utilizes powerful **3D Computational Fluid Dynamics (CFD) software** for the assessment of data center facility design and operations, providing an accurate baseline for the current site cooling dynamics. Further, detailed analysis of the impact of future operational and infrastructure changes are made, and proposed design changes are discussed with the customer. The CFD software enables us to perform the assessment as a simulation, without the risk of disruption to current data center operation.

Customer's benefits
This Service provides a professional analysis of the existing storage environment and quickly delivers
- Delivers a fully detailed virtual 3D model of the data center including all IT equipment as a baseline for planning
- Assesses the efficiency of current power and cooling infrastructure (floor cooling, raised floor cooling, ducting, in-row, in-cabinet)
- Enables "What-if" scenario analysis for planning changes (e.g. cabinet relocation, re-allocation of server components in racks) to optimize the data center, or assess planned future equipment changes before implementation
- Delivers fully qualified optimization recommendations for the data center, including the most recent findings in efficiently operating server facilities

Service Details

Service description

1. Current Situation Analysis & Data Collection

The current situation analysis of the covered sites and server rooms is the basis for establishing a jointly-agreed documentation structure. Fujitsu consultants survey the server rooms, analyzing the power supply, cooling systems and identified on-site data, as well as customer-supplied documents, and develop a baseline for data center facility management. The development of standard documentation covers a comparison of different locations with regard to capacities and efficiencies in the areas of space utilization, power and cooling. The efficiency analysis of electricity and cooling are based on information regarding power consumption of individual components. For the electrical distribution in addition to the schematics and technical drawings documentation of the input or output capacity of the power feeds, transformers, components for the uninterruptible power supply (UPS) and the various electric sub-systems is required.

2. Modeling & Simulation

The primary objective here is to prevent mixing of hot and cold air, and additionally to ensure that cold air is unhindered and directly guided to the heat source(s). The key prerequisites for a successful modeling are accurate inventory drawings (working drawings) of the rooms and the diagrams of the air ducting, as described in the analysis and data collection phase. To create the model, the data are used from construction drawings to rebuild the areas in the modeling system.

Simulation of the server distribution in the data center

The goal is to implement the latest knowledge in the energy-efficient operation of server space. The first measure is to simulate the hot and cold aisles. Additionally, spatial changes can be included, such as the housing of the hot aisles or the slopes of the ceiling (which could create a chimney effect). Pressure losses are detected and analyzed. The goal is to minimize the energy consumption for cooling in the server room.

Improvement of the climate by altering the infrastructure

Besides rack distribution in the data center, the simulation also includes the existing hardware configuration in the server racks (servers, storage, and network). A practical deployment of the racks with hot and cold aisles, supply routes and maintenance areas on the basis of the modeled air flow is of great importance, but of equal importance is the arrangement of components in the racks. The goal of the simulation is the optimal distribution of these components in the racks, whilst using minimal resources to achieve this. In addition, the effects of various server configurations in terms of heating and air conditioning are also investigated.

3. Presentation of Optimization Potential

The service includes the presentation of the simulation results by Fujitsu consultants to the customer personnel responsible for electricity/power, network, air conditioning and IT infrastructure..The outcome is a solution model, which provides the potential savings in electricity and cooling, while maintaining compliance with the Customer and building code regulations.

Service conditions

The Customer agrees to the following conditions as pursuant to the delivery of the service defined:

- Floor plans of the Data Center relevant areas of scope for the assessment, where they exist currently in 1:100 or 1:50 scale as a paper document and on disk as a CAD file in dxf or dwg format
- Relevant documents for current and planned IT hardware and operations, and any specific requirements for the IT location within scope for the assessment
- Technical data of supply systems such as electrical connection with the necessary electrical supply services, emergency power supply, cooling, alarm and fault structures and processes, etc.
- Current documentation and revisions of relevant technical systems
- Further appropriate, relevant project work data,, to be coordinated with the Customer
- Inventory data of the hardware components installed in the data centers, including related performance data
- A contact person(s) from the customer organization available to Fujitsu for the duration of the service, with the responsibility and expertise in providing information for the current situation analysis and defining requirements
- If requested by Fujitsu, other subject matter experts from the Customer organization be made available for consultation selectively on related subjects

Fujitsu will not be held responsible for any data loss. The Customer is responsible for ensuring that all data on measured systems is backed-up prior to service commencement.

Unless expressly agreed otherwise the Fujitsu IT Services as set out in this datasheet will be performed based on the Fujitsu *"General Terms on Consulting and Technical Assistance"* or alternatively - where the main emphasis of the services is on the performance of works - based on the Fujitsu *"General Terms for IT Integration Services, IMAC/D Services and other works and services subject to acceptance"*.

Ordering and delivery

This OPTIMIZATION Services is available from your local Fujitsu sales office. When ordering, please quote the information below:

Title	**Facility Readyness Assessment**
Order code	CPS:IT-ICN-11030F

More information

Fujitsu OPTIMIZATION Services

In addition to the Fujitsu Facility Readyness Assessment Service, Fujitsu provides a range of OPTIMIZATION services, first-class efficient consultation and analysis packages which quickly provide customers with specific information and suggested improvements for existing infrastructure environments at a fixed price.

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

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- PRIMERGY: Industry Standard Server
- SPARC Enterprise: UNIX-Server
- BS2000/OSD Mainframes
- PRIMEQUEST: Mission Critical IA Server
- ETERNUS: Storage Solutions
- ESPRIMO, LIFEBOOK: Workplaces

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- Partner Software

Services

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- Infrastructure as a Service
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- Maintenance & Support Services

More information

To learn more about the Fujitsu Facility Readyness Assessment Service and other related services please contact your Fujitsu sales representative, email us at expert@ts.fujitsu.com, or visit our website at www.fujitsu.com/de/consultingservices

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:
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