



**IBM® Balanced
Warehouse™ C-Class
for Linux® and
Windows®
Architecture Guide**

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1. Introduction

The following guide will present an architectural overview of the IBM® Balanced Warehouse™ C-Class Version 9.5.0 solutions for Linux® and Windows®.

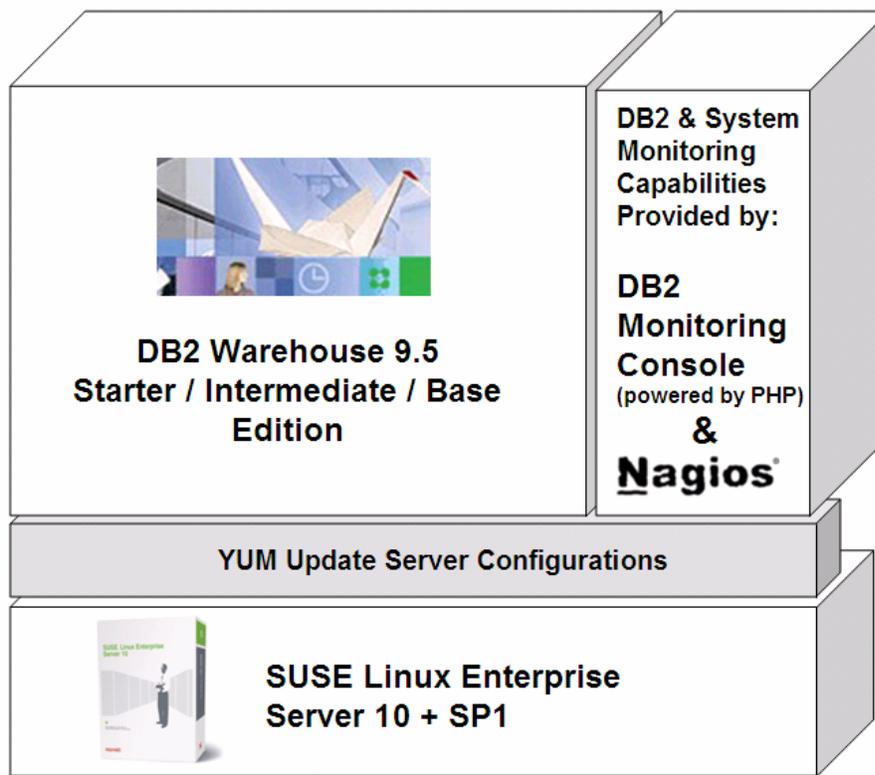
Details about the installation of the solutions can be found in the corresponding IBM Balanced Warehouse C-Class Installation Guides for Linux and Windows.

1.1 Software Architecture Overview

The IBM Balanced Warehouse C-Class Partner Toolkit enables the easy deployment of a fully pre-integrated, pre-tested Balanced Warehouse C-Class solution on IBM System x and optionally IBM System Storage products. The complete data warehouse and reporting solution includes IBM DB2® Warehouse 9.5 software.

The individual software components that will be automatically installed and configured by the deployment toolkit on the Linux and Windows platforms are illustrated in the next subsections.

1.1.1 IBM Balanced Warehouse C-Class for Linux



C1000 Components:

- DB2 Warehouse 9.5.0 Starter Edition (Authorized User / Valued User Option)

This contains:

- DB2 Enterprise Server Edition V9.5.0 for Linux[®], UNIX[®], and Windows[®]
- DB2 Warehouse Samples and Tutorial
- Cubing Services Version 9.5.0
- DWE SQL Warehousing Tool Version 9.5.0
- WebSphere[®] Application Server Version 6.1.0.9
- WebSphere Information Integration Relational Wrappers
- Integrated Solutions Console (Includes the previously named DWE Administration Console)
- Nagios[®] 2.6
- DB2 Monitoring Console V2.2.18
- YaST system configuration module

- YaST DB2 Warehouse configuration module
- YaST Storage configuration module
- Novell® SUSE® Linux Enterprise Server 10 SP1

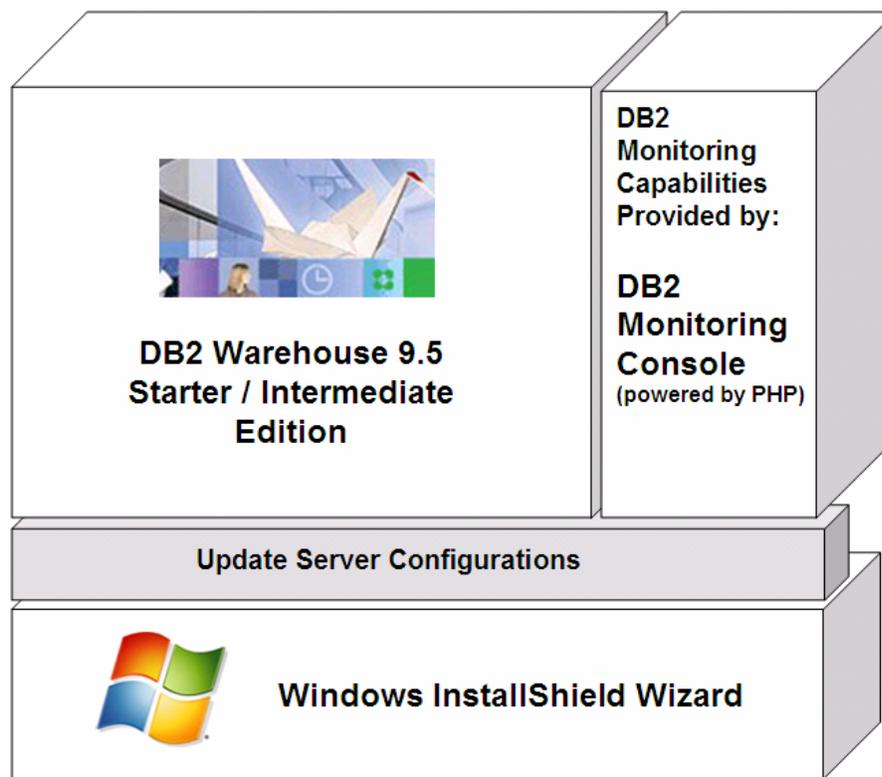
C3000 Components:

- DB2 Warehouse 9.5.0 Intermediate Edition (Authorized User / Valued User Option)

This contains:

- DB2 Enterprise Server Edition V9.5.0 for Linux®, UNIX®, and Windows® (Database Partition Feature [DPF] is included)
 - DB2 Warehouse Samples and Tutorial
 - Cubing Services Version 9.5.0
 - DWE SQL Warehousing Tool Version 9.5.0
 - WebSphere Application Server Version 6.1.0.9
 - WebSphere Information Integration Relational Wrappers
 - Integrated Solutions Console (Includes the previously named DWE Administration Console)
- Nagios® 2.6
 - DB2 Monitoring Console V2.2.18
 - YaST system configuration module
 - YaST DB2 Warehouse configuration module
 - YaST Storage configuration module
 - Novell® SUSE® Linux Enterprise Server 10 SP1

1.1.2 IBM Balanced Warehouse C-Class for Windows



C1000 Components:

- DB2 Warehouse 9.5.0 Starter Edition (Authorized User / Valued User Option)

This contains:

- DB2 Enterprise Server Edition V9.5.0 for Linux[®], UNIX[®], and Windows[®]
- DB2 Warehouse Samples and Tutorial
- Cubing Services Version 9.5.0
- DWE SQL Warehousing Tool Version 9.5.0
- WebSphere Application Server Version 6.1.0.9
- WebSphere Information Integration Relational Wrappers
- Integrated Solutions Console (Includes the previously named DWE Administration Console)
- DB2 Monitoring Console V2.2.18

C3000 Components:

- DB2 Warehouse 9.5.0 Intermediate Edition (Authorized User / Valued User Option)

This contains:

- DB2 Enterprise Server Edition V9.5.0 for Linux[®], UNIX[®], and Windows[®] (Database Partition Feature [DPF] is included)
 - DB2 Warehouse Samples and Tutorial
 - Cubing Services Version 9.5.0
 - DWE SQL Warehousing Tool Version 9.5.0
 - WebSphere Application Server Version 6.1.0.9
 - WebSphere Information Integration Relational Wrappers
 - Integrated Solutions Console (Includes the previously named DWE Administration Console)
- DB2 Monitoring Console V2.2.18

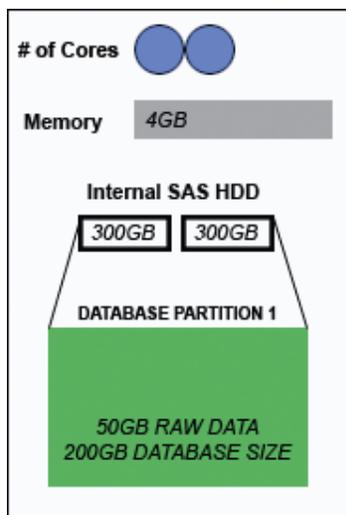
1.2 Hardware Architecture Overview

The IBM Balanced Warehouse C-Class solution contains many configuration options that aim to provide the perfect solution for your business needs.

The following subsections provide a listing of the available configurations for C1000 on IBM System x3500, C3000 on IBM System x3650, and the newest addition to the family – C1000 and C3000 on BladeCenter S systems, and C4000 on IBM System x3950 M2.

1.2.1 C1000 Configurations on System x3500

The details below give you a general overview of the available configurations. For more detailed information, such as specific hardware part numbers, please refer to the “IBM Balanced Warehouse C-Class Configurations” spreadsheet or contact your IBM representative.

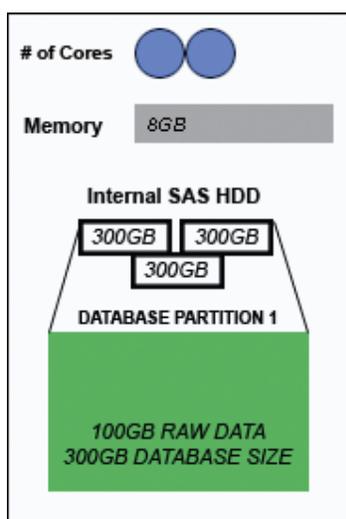


The C1000_50GB configuration (shown to the left), is the smallest Balanced Warehouse C-Class. It is built on IBM System x3500 with Dual Core CPU and 4GB of RAM.

The 2 internal SAS hard disks need to be manually created by the user in a single RAID-1 volume. The operating system and all software reside on those internal hard disks.

This is a single partition configuration with one database partition, allowing for 200GB of Database Size and 50GB of actual Raw Data.

The approximate deployment time of this configuration is ~35-40 minutes on Linux and ~60 minutes on Windows (after operating system and pre-requisites installations).

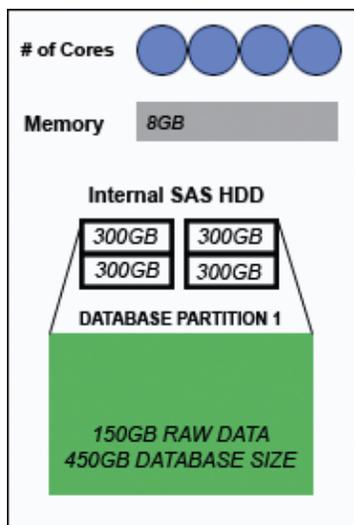


The C1000_100GB configuration depicted in the figure to the left is built on IBM System x3500 with Dual Core CPU and 8GB of RAM.

There are 3 internal SAS hard disks and they need to be manually created by the user in a single RAID-5 volume. The operating system and all software reside on those internal hard disks.

This is a single partition configuration with one database partition, allowing for 300GB of Database Size and 100GB of actual Raw Data.

The approximate deployment time of this configuration is ~35-40 minutes on Linux and ~60 minutes on Windows (after operating System and pre-requisites installations).

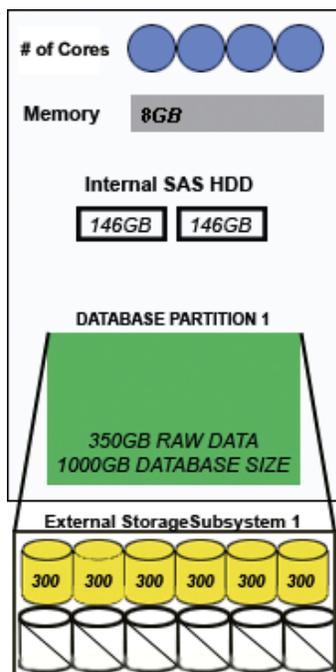


The C1000_150GB configuration, shown in the figure to the left, is built on IBM System x3500 with Dual Core CPU plus an additional Dual Core CPU for faster processing. Similar to the previously discussed C1000 configurations, it has 8GB of RAM.

A single RAID-5 volume needs to be manually created by the user on the 4 internal SAS hard disks.

This is a single partition configuration with one database partition, allowing for 450GB of Database Size and 150GB of actual Raw Data size.

The approximate deployment time of this configuration is ~35-40 minutes on Linux and ~60 minutes on Windows (after operating system and pre-requisites installations).



The C1000_350GB configuration (shown to the left) is the largest Balanced Warehouse in the C1000 class. It is built on IBM System x3500 with Dual Core CPU plus an additional Dual Core CPU for faster processing. Similar to the previously discussed C1000 configurations it has 8GB of RAM.

In contrast with the previously discussed C1000 configurations, a single RAID-1 volume needs to be manually created by the user on the 2 internal SAS hard disks, which are 146GB each in size.

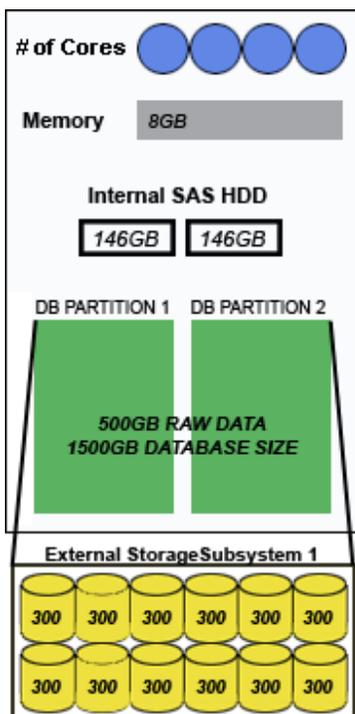
The reason behind having only 2 internal SAS hard disks is that this configuration includes an external storage subsystem – DS3200. The 2 internal SAS hard disks host the operating system and software whereas the 6 external hard disks in the DS3200 will host the database partition. The 6 external disks are configured automatically in one RAID-5 volume.

In this configuration, there is a single database partition, with data stored on the external storage subsystem, allowing for 1000GB of Database Size and 350GB of actual Raw Data.

The approximate deployment time of this configuration is ~1 hour on Linux and ~1 hour 15 minutes on Windows (after operating system and pre-requisites installations). The increase in deployment time is due to the attached external storage subsystem.

1.2.2 C3000 Configurations on System x3650

The details below give you a general overview of the available configurations. For more detailed information, such as specific hardware part numbers, please refer to the “IBM Balanced Warehouse C-Class Configurations” spreadsheet or contact your IBM representative.



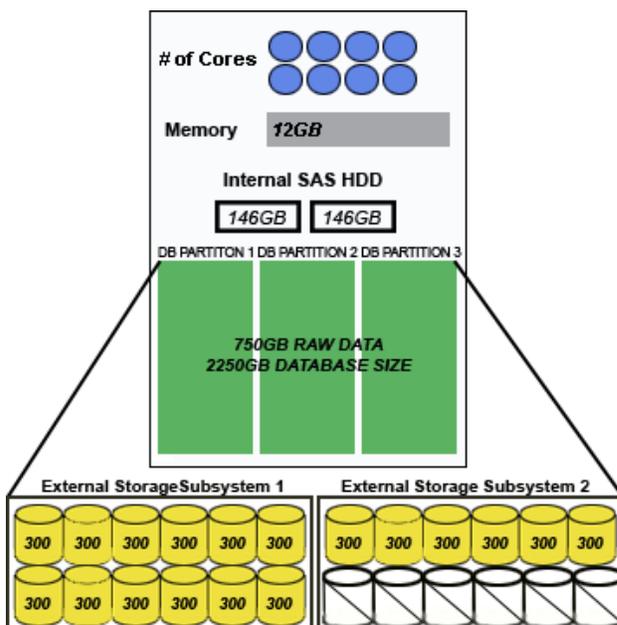
The C3000_500GB configuration depicted in the figure to the left is the smallest Balanced Warehouse in the C3000 class. It is built on IBM System x3650 system with Quad Core CPU and 8GB of RAM.

The 2 internal SAS hard disks, each 146GB in size, host the operating system and software. They need to be configured manually by the user in a single RAID-1 volume.

The external storage subsystem – DS3200 has 12 SAS hard disks, each 300GB in size, which will host the 2 database partitions. The storage subsystem is automatically configured with 2 RAID-5 volumes during the deployment with the use of the pre-load DVD.

Since DPF (Database Partitioning Feature) is included with this software option, there will be 2 database partitions created, each mounted on one of the 2 external RAID-5 volumes. This configuration allows for 1500GB of Database Size and 500GB of actual Raw Data.

The approximate deployment time of this configuration is ~1 hour on Linux and ~1 hour 15 minutes on Windows (after operating system and pre-requisites installations). The increase in deployment time is due to the attached external storage subsystem.



The C3000_750GB configuration shown to the left is built on IBM System x3650 with two Quad Core CPUs and 12GB of RAM.

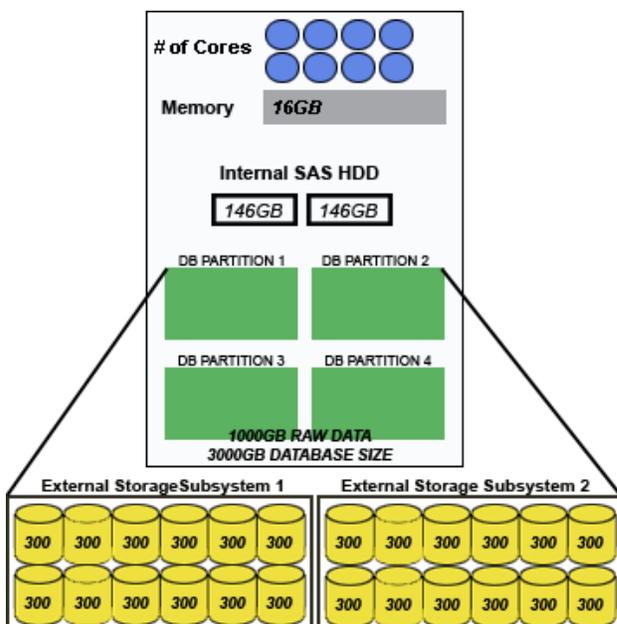
The 2 internal SAS hard disks, each 146GB in size, host the operating system and software. They need to be configured manually by the user in a single RAID-1 volume.

In this configuration, there are 2 external DS3200 storage subsystems. One contains 12 SAS hard disks and another contains 6. Each hard disk is 300GB in size. The storage subsystems are automatically configured with 3 RAID-5 volumes during the deployment with the use of the pre-load DVD.

Since DPF (Database Partitioning Feature) is included with this software option, there will be 3 database partitions created, each mounted on one of the 3 external RAID-5 volumes. This configuration allows for 2250GB of Database Size and 750GB of actual Raw Data.

The approximate deployment time of this configuration is ~1 hour 20 minutes on Linux and ~1 hour 25 minutes on Windows (after operating system and pre-requisites installations). The increase in deployment time is due to the attached external storage subsystem.

The C3000_1000GB configuration shown to the left is the largest Balanced Warehouse in the C3000 class. It is built on IBM System x3650 with two Quad Core CPUs and 16GB of RAM.



The 2 internal SAS hard disks, each 146GB in size, host the operating system and software. They need to be configured manually by the user in a single RAID-1 volume.

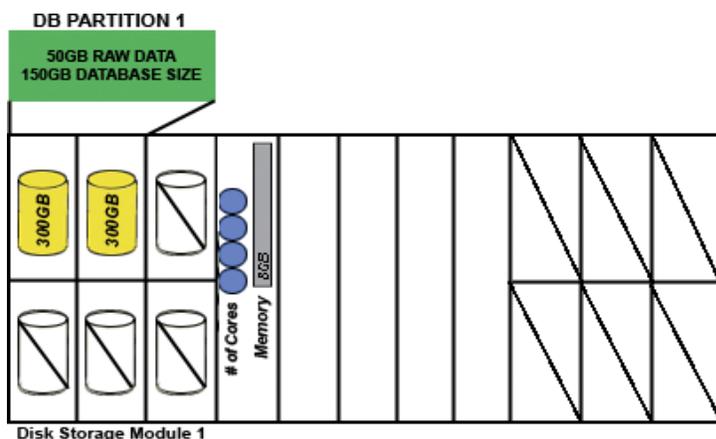
In this configuration, there are 2 external DS3200 storage subsystems with 12 SAS hard disks each. Each of these hard disks is 300GB in size. The storage subsystems are automatically configured with 4 RAID-5 volumes during the deployment with the use of the pre-load DVD.

Since DPF (Database Partitioning Feature) is included with this software option, there will be 4 database partitions created, each mounted on one of the 4 external RAID-5 volumes. This configuration allows for 3000GB of Database Size and 1TB of actual Raw Data.

The approximate deployment time of this configuration is ~1 hour 20 minutes on Linux and ~1 hour 25 minutes on Windows (after operating system and pre-requisites installations). The increase in deployment time is due to the attached external storage subsystem.

1.2.3 C1000 and C3000 Configurations on BladeCenter S

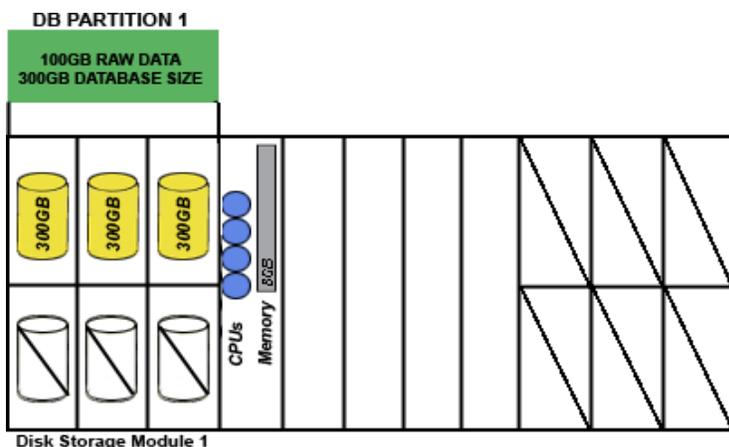
The IBM Balanced Warehouse C-Class on BladeCenter S is a brand new effort and below is a brief discussion on the available configurations in this form factor. For more detailed information, such as specific hardware part numbers, please refer to the “IBM Balanced Warehouse C-Class Configurations” spreadsheet or contact your IBM representative.



The C1000_50GB_Blade configuration depicted on the left is an alternative to the C1000_50GB on IBM System x3500. It is built on the BladeCenter S chassis with one HS21 blade containing a Quad Core CPU and 8GB of memory.

Due to system limitations, there is no internal storage in the blade and the operating system, all software, and database data are stored in hard disks in the Disk Storage Module (DSM) in the chassis. There are two 300GB SAS hard disks configured as single RAID-1 volume.

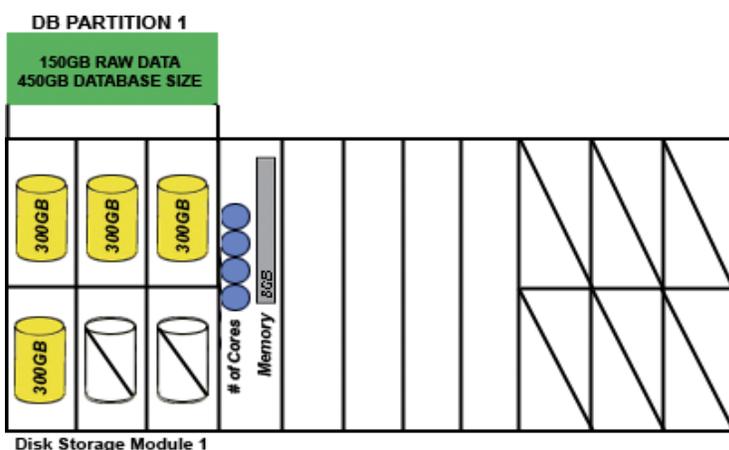
There is a single database partition in this configuration, which allows for 150GB of Database Size and 50GB of actual Raw Data. Please see the installation guide for more details on the configuration and deployment of Balanced Warehouse C-Class on BladeCenter S.



The C1000_100GB_Blade configuration depicted on the left is an alternative to the C1000_100GB on IBM System x3500. It is built on the BladeCenter S chassis with one HS21 blade containing a Quad Core CPU and 8GB of memory.

Due to system limitations, there is no internal storage in the blade and the operating system, all software, and database data are stored in hard disks in the Disk Storage Module (DSM) in the chassis. There are three 300GB SAS hard disks configured as a single RAID-1E volume.

There is a single database partition in this configuration, which allows for 300GB of Database Size and 100GB of actual Raw Data. Please see the installation guide for more details on the configuration and deployment of Balanced Warehouse C-Class on BladeCenter S.

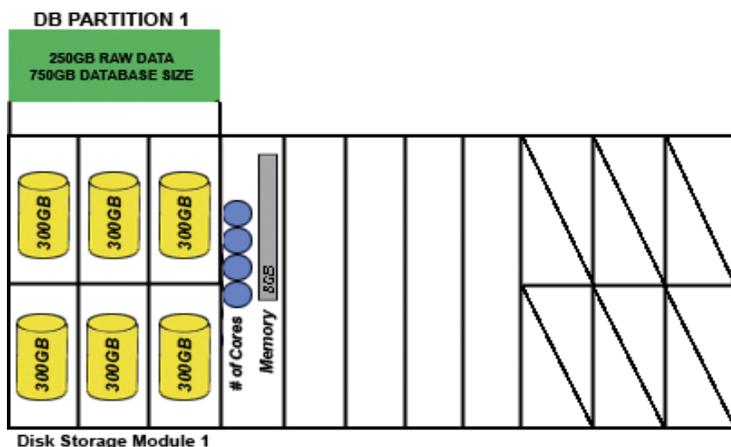


The C1000_150GB_Blade configuration depicted on the left is an alternative to the C1000_150GB on IBM System x3500. It is built on the BladeCenter S chassis with one HS21 blade containing a Quad Core CPU and 8GB of memory.

Due to system limitations, there is no internal storage in the blade and the operating system, all software, and database data are stored in hard disks in the Disk Storage Module (DSM) in the chassis. There are four 300GB SAS hard disks configured in a RAID-1E volume.

There is a single database partition in this configuration, which allows for 450GB of Database Size and 150GB of actual Raw Data. Please see the

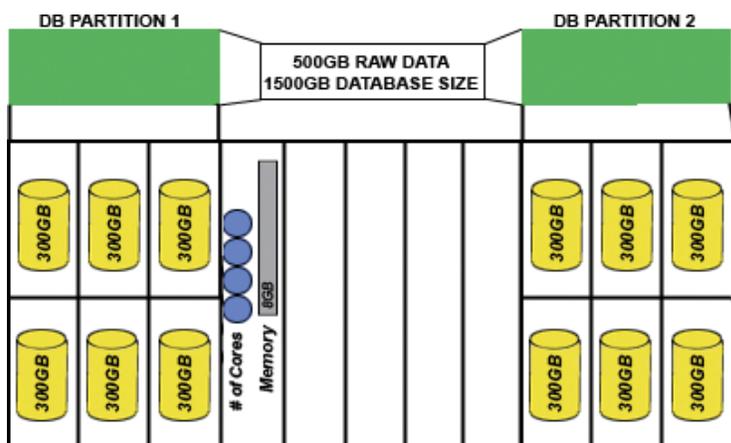
installation guide for more details on the configuration and deployment of Balanced Warehouse C-Class on BladeCenter S.



The C1000_250GB_Blade configuration depicted on the left is an alternative to the C1000_250GB on IBM System x3500. It is built on the BladeCenter S chassis with one HS21 blade containing a Quad Core CPU and 8GB of memory.

Due to system limitations, there is no internal storage in the blade and the operating system, all software, and database data are stored in hard disks in the Disk Storage Module (DSM) in the chassis. There are six 300GB SAS hard disks configured in a RAID-1E volume.

There is a single database partition in this configuration, which allows for 750GB of Database Size and 250GB of actual Raw Data. Please see the installation guide for more details on the configuration and deployment of Balanced Warehouse C-Class on BladeCenter S.

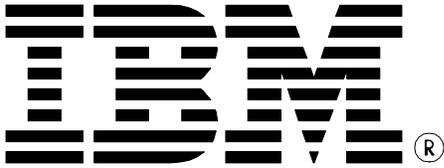


The C3000_500GB_Blade configuration shown in the graphic on the left is built on the BladeCenter S chassis with one HS21 blade containing a Quad Core CPU and 8GB of RAM.

It includes 2 Disk Storage Modules (DSM), each with six 300GB SAS hard disks. Two RAID-1E volumes must be created, where each is an array of 6 hard disks and each volume hosts a database partition.

Due to certain limitations, there are no internal hard disks, so the operating system, all software and data are to be stored in the first array create in the Disk Storage Modules.

There are two database partitions, which allow for 1500GB of Database Size and 500Gb of actual Raw Data. Please see the installation guide for more details on the configuration and deployment of Balanced Warehouse C-Class on BladeCenter S.



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