

Microsoft Dynamics CRM solutions brief

Frontline innovation

HP and Microsoft® have a strong history of sharing technology and engineering resources to bring to market innovative products, services, and solutions that drive customer success. With this solutions brief, you can learn about the Frontline collaboration between HP and Microsoft and our shared ISV partner community to get a jump start on designing the perfect Microsoft Dynamics CRM solution for you or your customers.

We provide you with detailed guidance on the most common Microsoft Dynamics CRM deployment scenarios, all built on the foundation of HP ProLiant servers and storage solutions that you can trust to deliver an exceptional ownership experience. HP ProLiant servers provide simplified management for greater efficiency and optimum use of resources, a proven level of reliability, and availability along with built in security.

Dynamics CRM application architecture

Microsoft Dynamics CRM has a multi-tier architecture consisting of a thin web-based client, a highly configurable business logic layer, and a back-end database. To access the application, users simply use a web browser and connect to the CRM web application. This allows CRM to work well for office workers, remote VPN clients, and even mobile workers.

This highly scalable design allows Dynamics CRM to work with businesses of any size. For the smallest businesses, the Microsoft Dynamics CRM Small Business Edition can be installed in a single server environment running Microsoft Small Business Server (SBS) 2003. In this case, all the tiers of the solution can run along side core infrastructure services, providing a low-cost solution.

As the number of CRM users increase, the business logic layer (IIS web server) and database layer can be separated onto dedicated servers providing increased performance and throughput. For the largest deployments, this can be further extended by scaling out the business logic layer to balance the user load across multiple servers. Not only does this allow a greater user count but it also provides built-in redundancy, because the remaining servers can take up the slack in the event of a server failure. For the highest availability solution, the backend database layer (MS SQL Server 2005) can be clustered when using a shared storage solution.

Microsoft®



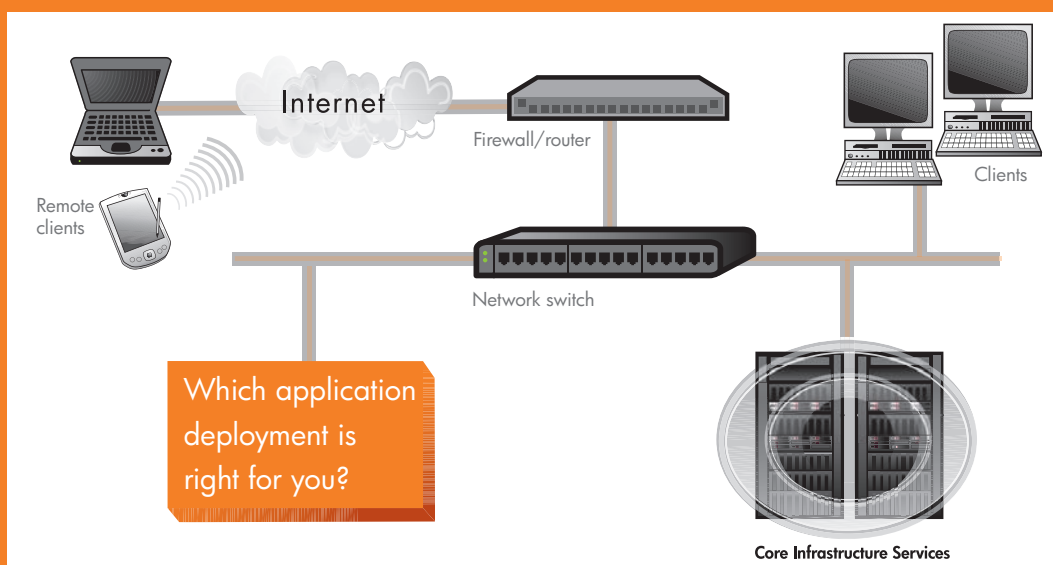
Solution context

To design a Microsoft Dynamics CRM solution, it is important first to understand the context in which the application will be deployed. This illustration depicts a simplified network infrastructure which provides this context.

Nearly all deployments for small or mid-sized companies will have these basic components:

- Core infrastructure services
- Network switches and firewall
- Local LAN-based clients
- Remote access or mobile clients

Based on your particular scenario, which deployment model is right? The answer lies primarily in the number of Microsoft Dynamics CRM users and your storage requirements.

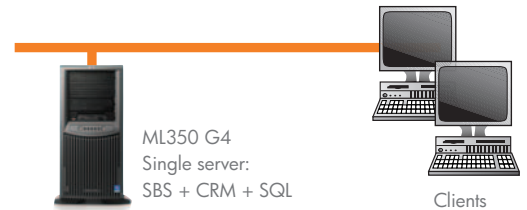


SBS Premium (w/SQL) + CRM

- HP ProLiant ML350 G4 (Tower)
- 2 Intel® Xeon™ Processors
- 4GB RAM
- HP Smart Array 641 controller
- 6 x 72GB SCSI RAID5 (2 partitions: OS, Data)

Small Business Server deployment

Many small businesses choose Microsoft Small Business Server 2003 as the foundation for their IT infrastructure. The Premium edition of SBS 2003 includes Microsoft SQL Server, and is an ideal platform for smaller deployments of Microsoft Dynamics CRM.



Bill of materials

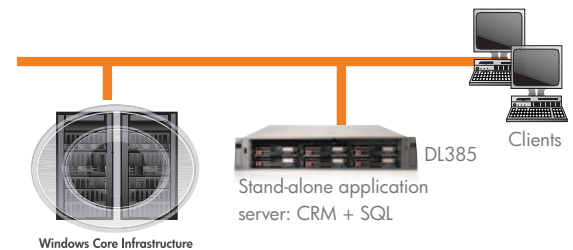
Item description	Qty.	Part number
ProLiant ML350T04p SCSI x3.2-2MB/800MHz FSB, 1GB Array	1	380196-001
Intel® Xeon™ Processor 3.2GHz	1	382182-B21
1GB Advanced ECC PC2-3200 DDR2 SDRAM kit	1	343055-B21
2GB Advanced ECC PC2-3200 DDR2 SDRAM kit	1	343056-B21
HP 72GB Ultra 320 10K Universal HDD	6	286714-B22

CRM/SQL Server

- HP ProLiant DL385 SAS (2U rack server)
- 2 AMD Opteron™ Dual-Core Processors
- 4GB RAM
- HP Smart Array P600 controller
- 2 x 72GB SFF SAS RAID1 (OS)
- 6 x 72GB SFF SAS RAID5 (Data)

Stand-alone deployment

For mid-sized deployments, a single application server can be dedicated to Dynamics CRM for both the web front-end and the SQL Server database. The application server should not run any infrastructure services but leverage those services from a new or existing Windows® domain infrastructure implemented on separate physical servers.



Bill of materials

Item description	Qty.	Part number
DL385 R01 O2.2 GHz/1MB, 1GB (Dual-Core/SAS)	1	391109-001
Dual-Core AMD Opteron™ 275 Series 2.2GHz Processor	1	393831-B21
1GB PC3200 DDR SDRAM DIMM Memory kit	1	376638-B21
2GB PC3200 DDR SDRAM DIMM Memory kit	1	376639-B21
HP 72GB 3G SAS 10K SFF HDD	8	375861-B21

CRM Server

- ProLiant DL385 (Rack 2U)
- 2 AMD Opteron Dual-Core Processors
- 4GB RAM
- HP Smart Array 6i controller
- 2 x 72GB SCSI RAID1 (OS)

SQL Server

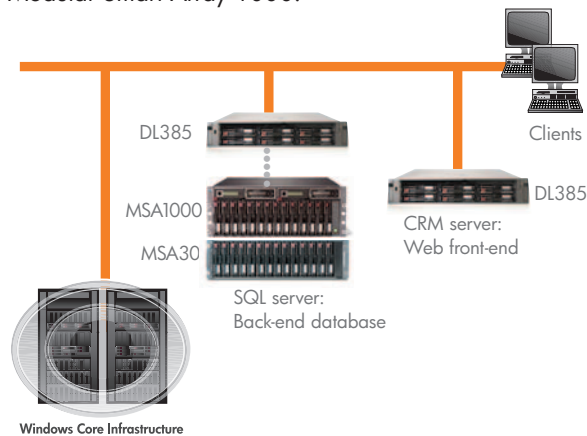
- ProLiant DL385 (Rack 2U)
- 2 AMD Opteron Dual-Core Processors
- 6GB RAM
- Smart Array 6i controller
- 2 x 72GB SCSI RAID1 (OS)

External Storage

- MSA1000 (SAN enclosure)
- MSA30 (extra disk enclosure)
- 16 x 72GB SCSI RAID5 (Data)
- 2 x 72GB SCSI RAID1 (Log)
- 2 x 72GB SCSI RAID1 (TempDB)

Split deployment

As the user count or workload increases, the web front-end is separated from the SQL Server, creating a two server, or split deployment model. This allows the hardware choices to be tailored to the demands of each application tier. Because of the number of disk spindles required for optimal SQL Server performance, an entry-level SAN solution is included based on the HP StorageWorks Modular Smart Array 1000.



Bill of materials

CRM server

Item description	Qty.	Part number
DL385 R01 O2.4GHz/1MB, 1GB (Dual-Core/SCSI)	1	399684-001
Dual-Core AMD Opteron 280 Series 2.4GHz/1MB Processor	1	399692-B21
1GB PC3200 DDR SDRAM Memory kit	1	376638-B21
2GB PC3200 DDR SDRAM Memory kit	1	376639-B21
HP 72GB Ultra320 15K Universal HDD	2	286778-B22

SQL server

Item description	Qty.	Part number
DL385R01 O2.4GHz-1MB, 1GB (Dual-core/SCSI)	1	399684-001
Dual-Core AMD Opteron 280 Series 2.4GHz Processor	1	399692-B21
1GB PC3200 DDR SDRAM Memory kit	1	376638-B21
2GB PC3200 DDR SDRAM Memory kit	2	376639-B21
HP 72GB Ultra320 15K Universal HDD	2	286778-B22

External storage

Item description	Qty.	Part number
HP StorageWorks MSA1000 SAN Starter Kit	1	353803-B22
HP StorageWorks MSA30 SB	1	302969-B21
HP 72GB Ultra320 15K Universal HDD	20	286778-B22

CRM Servers (x4)

- ProLiant BL25p (Blade server)
- 2 AMD Opteron Processors (single core)
- 4GB RAM
- HP Smart Array 6i
- 2 x 72GB SCSI RAID1 (OS)

SQL Server (x2)

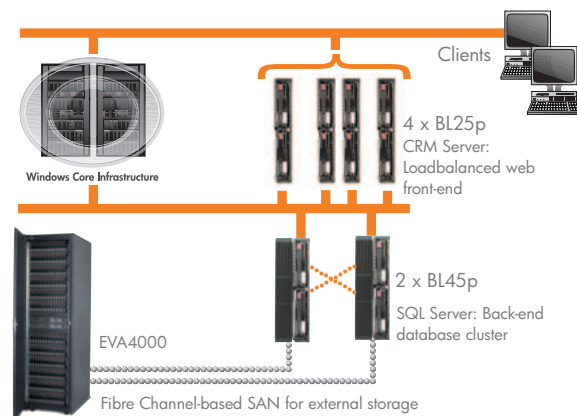
- ProLiant BL45p (Blade server)
- 4 AMD Opteron Processors
- 10GB RAM
- HP Smart Array 6i
- 2 x 72GB SCSI RAID1 (OS)
- Dual FC Adapter Option

External Storage

- EVA4000 (Customized SAN Solution)

High availability scale-out deployment

For the largest Dynamics CRM user counts or transaction volumes a scaled application deployment model is recommended. Multiple BL25p blade servers are loadbalanced and serve as the web front end of the CRM application. This allows for distribution of the workload and provides fault-tolerance against a single server failure. The SQL Server database is deployed on a clustered pair of BL45p blade servers, which are upgradeable to 4 dual-core AMD Opteron processors, creating one of the highest performing industry standard database platforms available. A storage area network based on the HP EVA4000 is used to maximize the data throughput and disk spindle count required for the highest database performance levels.



Bill of materials

BladeSystem infrastructure*

Item description	Qty.	Part number
HP BladeSystem p-Class Starter kit	1	390738-B21
HP ProLiant BL p-Class C-GbE2 Interconnect kit	1	283192-B21
HP ProLiant BL p-Class Storage Connectivity kit	1	321745-B21
HP Modular Distribution Unit 24 Amp	2	252663-D74
Single 1U Power Supply for 1U enclosure	2	380312-B21
HP Installation & Startup Service for HP BladeSystem	1	UC905E

CRM servers (x4)

Item description	Qty.	Part number
HP ProLiant BL25p 2.6GHz/1MB, SC 2GB (2P)	1	374799-B21
2GB PC3200 DDR SDRAM Memory kit	1	376639-B21
HP 72GB Ultra320 15K Universal HDD	2	286778-B22

SQL servers (x2)

Item description	Qty.	Part number
HP ProLiant BL45p 2.6GHz/1MB SC 1GB	1	374966-B21
Single-Core AMD Opteron™ 852 Series 2.6GHz Processor	3	390603-B21
1GB PC3200 DDR SDRAM Memory kit	1	376638-B21
4GB PC3200 DDR SDRAM Memory kit	2	379300-B21
HP 72GB Ultra320 15K Universal HDD	2	286778-B22
QLogic-based Dual-port Fibre Channel Adapter (2Gb)	1	381881-B21

External storage

Consult an HP authorized reseller to configure an EVA4000 SAN solution.

* This is a sample configuration based on 220VAC, 60Hz, a single BladeSystem enclosure, and a specific choice for interconnects. Other options available.

External storage options

Microsoft Dynamics CRM is a highly configurable application platform, allowing a solution provider to create a customized application tailored for the needs of a specific client. Only you can know your exact data capacity requirements. However, these configurations include guidance on the recommended HP storage solutions and disk configurations for a typical deployment. Below is an overview of the external storage options used in these recommended configurations.

Direct attached storage

The HP StorageWorks MSA30 is a 3U rack mount enclosure that can hold up to 14 u320 SCSI disks. Each disk can be 36GB, 72GB, 146GB, or 300GB. The MSA30 is used with HP Smart Array SCSI controllers and MSA1000.

The HP StorageWorks MSA50 is a 1U rack mount enclosure that can hold up to 10 small form factor serial-attached SCSI (SAS) disks of either 36GB or 72GB. The enclosure also supports 60GB small form factor SATA drives. The MSA50 is used with HP Smart Array SAS controllers.

Storage area networks

The MSA1000 is an entry-level SAN product. With FC connection, it enables storage consolidation, LAN-free backup/restore, and multiple node clustering including remote clusters. This affordable, scalable, high-performance storage solution reduces the complexity and expense of SAN deployments. Scales up to 12TB with 42 Universal disk drives by adding up to two MSA30 enclosures.

The HP StorageWorks EVA4000, which is designed specifically for customers in the mid-range marketplace, offers a high performance, high availability "virtual" array storage solution that removes the time, space, and cost boundaries of traditionally architected storage. Scales up

to 16.8TB with 56 Fibre Channel drives, no single point of failure, high performance, industry-leading automation, and simplified storage management.

HP ProLiant Essentials Foundation Pack

Featuring all the software needed to install, configure and manage HP ProLiant servers, the HP ProLiant Essentials Foundation Pack brings together trusted software tools that continue to lead the industry. Included with most ProLiant servers, this suite of deployment and manageability basics includes HP SmartStart, HP Systems Insight Manager, HP Management Agents, support tools, and integration modules for enterprise management tools. From maximizing efficiency while integrating operating system software to network systems manageability, HP ProLiant Essentials Foundation Pack offers a single source to ensure that ProLiant servers get off to the right start.

Disclaimer

The configurations presented here are examples only and may not reflect true production configurations or match a specific customer's situation due to the flexibility in the Microsoft Dynamics product. HP and Microsoft recommend performing a business system architecture assessment to obtain a proper configuration for your specific business requirements. To request an assessment please contact your Microsoft Dynamics partner.



FRONTLINE PARTNERSHIP

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The HP and Microsoft partnership is one of the oldest of its kind in the industry with 20 years of combined marketplace leadership. The HP and Microsoft Frontline Partnership provides the adaptability, credibility, and stability today's computing environments demand. Our focus on innovation and synchronization, our technical expertise and track record, and stability-driven approach enable us to offer proven Frontline innovation for the way you run your business, for the way you work, and for the way you experience and enjoy technology.

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