Planning Guide

Good Secure Enterprise Suite

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Good Secure Enterprise Suite

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The Good Secure Enterprise Suite from BlackBerry enables you to empower employees with day-one business productivity, with all-in-one secure email, contacts, calendar, work intranet access and web browsing, advanced business-class productivity, and industry-leading containerization to separate work and personal information.

With the Good Secure Enterprise Suite, you can manage a growing number of mobile devices, provide an enterprise app store, and securely access corporate intranet and docs behind a firewall. Cross-platform support for iOS, Android, OS X, Windows 10, and BlackBerry devices includes mobile device management (MDM), mobile application management (MAM), secure intranet access, and web browsing.

The Good Secure Enterprise Suite consists of:

- Good Control
- Good Proxy
- Good Enterprise Mobility Server (GEMS) with Good Mail and Good Presence
- BES12 version 12.4 or 12.5 (optional for MDM)
- Databases

Good Control and BES12

You can use the Good Control server and an optional BES12 server to manage and configure Good Secure Enterprise Suite users, devices, apps, and containers. You can install multiple Good Control and BES12 servers for high availability and disaster recovery. In future releases, MDM, App Store, and Samsung KNOX functionality will move entirely from Good Control to BlackBerry UEM, but these features remain supported in Good Control, allowing for an upgrade path without losing this functionality. For information about end-of-life support for MDM, App Store, and Samsung KNOX features in Good Control, see the Software Lifecycle web page.

Good Proxy

The Good Proxy server is the component that maintains the secure connection between an enterprise and the Good network operations center (NOC). You install the Good Proxy server behind the enterprise firewall to establish a secure outbound connection to the NOC. This means there is no need to open an inbound port on the firewall and no need to use a VPN. You can install multiple Good Proxy servers for high availability and disaster recovery.

Good Enterprise Mobility Server (GEMS)

The GEMS component provides value-added services for Good Dynamics apps. This document focuses on a GEMS deployment that enables the Good Mail, Good Presence, and Good Launcher features of Good Work.

Database

Good Control and GEMS use a Microsoft SQL Server database to store data such as user, application, and policy information. Good Control and GEMS can have separate databases, but they may use the same database server if GEMS and Good Control are colocated and overall latency requirements are met. GEMS may require its own database server depending on where it is deployed relative to the mail server. If you plan to use BES12 for MDM, the BES12 database can reside on the same database server as the Good Control database.

Good Secure Enterprise Suite scalability

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The scalability of the Good Secure Enterprise Suite components depends on the hardware and the configuration of the network. To determine the specific requirements for your environment, download the Good Secure Enterprise Suite Performance Calculator. If you want to use BES12 in an advanced configuration (for more than managing Good enabled devices), download the BES12 Performance Calculator to determine specific requirements for BES12.

Good Control server scalability is driven by the number of users and the number of concurrently connected containers. For the purposes of this document we are sizing for up to 100,000 users in the database, and 25,000 devices per Good Control server, with an average of five containers per device and a concurrency factor of 1.7.

Good Proxy server scalability is determined by the number of concurrent connections (maximum of 15,000) and aggregate data throughput (maximum 4 MBps).

GEMS server scalability is driven by the number of users and their individual usage requirements.

BES12 server scalability is determined by the number of users and the size of the largest group for app management. BES12 can support 25,000 devices for MDM-only functionality. For full BES12 functionality, including secure connectivity, BES12 can support 6000 devices. This document takes only MDM-only functionality into consideration. This document assumes that each instance of BES12 can handle a maximum app group size of 5000.

Workloads

Workloads in this document assume the following parameters:

- Five containers per device
- 1.7 concurrently active containers per device
- Three concurrent connections per device (iOS)
- Five concurrent connections per device (Android)
- Email rates of 20 emails per hour per device

If your organization's usage differs significantly from these parameters, download the Good Secure Enterprise Suite Performance Calculator to estimate requirements.

Secure container scalability and application policy updates

A container is one Good Dynamics SDK-based application on one device. For example, five Good Dynamics applications on one device are five containers. Five Good Dynamics applications installed on each of six devices are 30 containers. Scalability is driven by concurrency.

Clustered server scalability

Good Secure Enterprise Suite supports the clustering of server components for high availability and to create highly scalable systems. Good Secure Enterprise Suite clustering requires no Microsoft clustering or third-party components. Good Secure Enterprise Suite clustering follows an active-active model: all servers actively participate all the time. If a particular server goes down, its workload is redistributed automatically to the other servers in the cluster. The benefits of clustering in Good Secure Enterprise Suite provides highly scalable enterprise deployments and a dependably fault-tolerant operational environment.

Good Secure Enterprise Suite hardware requirements

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Good Secure Enterprise Suite requirements for hardware depend on the size of your environment. Good Secure Enterprise Suite also has requirements for third-party software compatibility. For more information about requirements, download the Good Secure Enterprise Suite Performance Calculator). This section briefly describes some typical deployment configurations and some minimal sizing of the components. For more information on the setup and operation of Good Secure Enterprise Suite components, see the *Good Dynamics Server Installation Guide*.

Large deployments

For deployments of 5000 or more devices, it is highly recommended that you engage BlackBerry's Professional Services team to assist with your deployment and capacity planning and associated server hardware sizing and deployment design. In larger deployments, the following factors can significantly influence hardware sizing and deployment requirements:

- Geographical distribution of end users
- Internal network topology and latencies
- Locations of Microsoft Exchange servers
- Overall approach to high availability and disaster recovery

Accordingly, the guidance in this document should be considered a high-level starting point and not a substitute for planning, design, and monitoring that is more specific to your deployment.

BES12

For this release, if you decide to use BES12 for management, you require a separate BES12 server. However, in future releases, you will be able to use this server for an integrated BES12 and Good Control solution. The same is true for the Good Control and Good Proxy configuration for new installations.

Server-to-database latency

The Good Control, GEMS, and BES12 servers should be located in the same data center as the databases to minimize latency (less than 5 ms). Separate Good Proxy servers can be located in regional data centers.

JRE heap size for the Good Control server

The JRE heap size must be adjusted based on the number of devices supported by your Good Control server.

To increase the JRE heap size of the Good Control server, use the Windows Registry Editor (regedit command). The HKEY entry in the registry for Good Control is:

HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Apache Software Foundation\Procrun 2.0\GoodControl\Parameters\Java

Number of devices	Max heap memory (-Xmx setting) for each Good Control instance
Up to 200	640m
Up to 1000	1024m, default
Up to 2000	2048m
Up to 5000	2048m
Up to 25,000	4096m

After you change the setting, restart the Good Control service.

Sizing for new installations and upgrades

The hardware sizing indicated for a *new* installation anticipates BlackBerry's plan to fully integrate and combine Good Control with BES12 and Good Proxy with the BlackBerry Connectivity Node. After this integration is complete, each Good Control and Good Proxy server instance can be updated with the integrated software and will fully support the combined functions and workloads based on the specifications provided. If you choose to deploy BES12 separately in the interim, this sizing allows you to consolidate your server footprint and decommission any separate BES12 server instances, provided that your overall deployment is still within the specified device range.

The hardware sizing indicated for the *upgrade* from Good Dynamics version 2.2 to Good Dynamics version 2.3 does not anticipate the integrated product described above. It indicates only what is minimally required to support new capabilities in Good Dynamics version 2.3. If you want to subsequently deploy the integrated BlackBerry UEM software, you must increase the Good Control and Good Proxy servers to the hardware sizing for a new installation.

Hardware requirements for up to 500 devices

For up 500 devices, install Good Control, Good Proxy, GEMS (with Good Mail and Good Presence), and Microsoft SQL Server or Microsoft SQL Server Express on one server. For MDM, add BES12 and Microsoft SQL Server Express on a separate server. A domain of this configuration can have a maximum of 500 devices.

The following requirements apply for a *new* installation of Good Secure Enterprise Suite.

Server	Requirement
Good Control, Good Proxy, GEMS Mail and Presence, and Microsoft SQL Server or Microsoft SQL Server Express	• 6 processor cores, 2.4 GHz • 20 GB of available memory • 64 GB of disk space
For MDM: BES12 and Microsoft SQL Server Express	• 4 processor cores, 2.4 GHz • 8 GB of available memory • 64 GB of disk space

The following requirements apply if you are *upgrading* from Good Dynamics version 2.2 to Good Dynamics version 2.3.

Server	Requirement
Good Control, Good Proxy, GEMS Mail and Presence, and Microsoft SQL Server or Microsoft SQL Server Express	• 4 processor cores, 2.4 GHz • 12 GB of available memory • 64 GB of disk space

Hardware requirements for up to 2000 devices

A domain with up to 2000 devices typically requires one Good Control server, one Good Proxy server, one GEMS server (with Good Mail and Good Presence), and one Microsoft SQL Server database server.

Optionally, you can deploy BES12 on a separate server to support MDM. The BES12 instance can use the same database server as the Good Control server and the GEMS server.

The servers that Good Control and GEMS are on must be physically located near the servers with the Microsoft SQL Server databases (less than 5 ms latency).

The following requirements apply for a *new* installation of Good Secure Enterprise Suite.

Server	Requirement
Good Control	• 4 processor cores, 2.4 GHz • 16 GB of available memory • 64 GB of disk space
Good Proxy	• 4 processor cores, 2.4 GHz • 12 GB of available memory • 64 GB of disk space

Server	Requirement
GEMS Mail and Presence	• 2 processor cores, 2.4 GHz • 6 GB of available memory • 64 GB of disk space
BES12 (optional for MDM)	• 4 processor cores, 2.4 GHz • 12 GB of available memory • 64 GB of disk space
Microsoft SQL Server	• 2 processor cores, 2.4 GHz • 4 GB of available memory • 64 GB of disk space

The following requirements apply if you are *upgrading* from Good Dynamics version 2.2 to Good Dynamics version 2.3.

Server	Requirement
Good Control	• 2 processor cores, 2.4 GHz • 6 GB of available memory • 64 GB of disk space
Good Proxy	• 4 processor cores, 2.4 GHz • 8 GB of available memory • 64 GB of disk space
GEMS Mail and Presence	• 2 processor cores, 2.4 GHz • 6 GB of available memory • 64 GB of disk space
Microsoft SQL Server	• 2 processor cores, 2.4 GHz • 2 GB of available memory • 64 GB of disk space

Hardware requirements for up to 5000 devices

For up to 5000 devices, install Good Control, Good Proxy, GEMS server (with Good Mail and Good Presence), and Microsoft SQL Server on separate servers.

For MDM, add BES12 on a separate server.

The servers that Good Control and GEMS are on must be physically located near the server with the Microsoft SQL Server database (less than 5 ms latency).

You can download the Good Secure Enterprise Suite Performance Calculator and use it to determine the minimum number of Good Control, GEMS, and Good Proxy instances for your device configuration and workload.

The following requirements apply for a *new* installation of Good Secure Enterprise Suite.

Server	Requirement
Good Control	• 4 processor cores, 2.4 GHz • 16 GB of available memory • 64 GB of disk space
Good Proxy (one for every 3000 to 5000 devices)	• 6 processor cores, 2.4 GHz • 12 GB of available memory • 64 GB of disk space
GEMS Mail and Presence	• 2 processor cores, 2.4 GHz • 8 GB of available memory • 64 GB of disk space
BES12 (optional for MDM)	• 4 processor cores, 2.4 GHz • 12 GB of available memory • 64 GB of disk space
Microsoft SQL Server	• 2 processor cores, 2.4 GHz • 8 GB of available memory • 64 GB of disk space

The following requirements apply if you are *upgrading* from Good Dynamics version 2.2 to Good Dynamics version 2.3.

Server	Requirement
Good Control	• 4 processor cores, 2.4 GHz • 6 GB of available memory • 64 GB of disk space
Good Proxy (one for every 3000 to 5000 devices)	• 6 processor cores, 2.4 GHz • 8 GB of available memory • 64 GB of disk space
GEMS Mail and Presence	• 2 processor cores, 2.4 GHz • 8 GB of available memory • 64 GB of disk space
Microsoft SQL Server	• 2 processor cores, 2.4 GHz • 4 GB of available memory • 64 GB of disk space

Hardware requirements for up to 25,000 devices

For up to 25,000 devices, install Good Control, Good Proxy, GEMS server (with Good Mail and Good Presence), and Microsoft SQL Server on separate servers. This configuration requires multiple Good Proxy servers and multiple GEMS servers (not including high availability or disaster recovery scenarios).

- One instance of Good Control can support up to 25,000 devices. One instance of Good Proxy can support approximately 3000 to 5000 devices.
- One dedicated instance of GEMS server (with Good Mail and Good Presence) can support approximately 10,000 devices.

For MDM, add BES12 on a separate server.

Additional features and configurations create more connections and sessions between devices and the Good Control instances, which limits the number of devices that one instance can support. To support more devices, add more instances of Good Control, Good Proxy, and GEMS.

You can download the Good Secure Enterprise Suite Performance Calculator and use it to determine the minimum number of Good Control, GEMS, and Good Proxy instances for your device configuration and workload.

The servers that Good Control and GEMS are installed on must be physically located near the server with the Microsoft SQL Server database (less than 5 ms latency). The Good Control servers do not need to be near the mail and messaging servers.

The following requirements apply for a *new* installation of Good Secure Enterprise Suite.

Server	Requirement
Good Control	• 8 processor cores, 2.4 GHz • 16 GB of available memory • 64 GB of disk space
Good Proxy (one for every 3000 to 5000 devices)	• 6 processor cores, 2.4 GHz • 12 GB of available memory • 64 GB of disk space
GEMS Mail and Presence	• 4 processor cores, 2.4 GHz • 8 GB of available memory • 64 GB of disk space
BES12 (optional for MDM)	• 8 processor cores, 2.4 GHz • 12 GB of available memory • 64 GB of disk space
Microsoft SQL Server	• 4 processor cores, 2.4 GHz • 16 GB of available memory • 64 GB of disk space

The following requirements apply if you are *upgrading* from Good Dynamics version 2.2 to Good Dynamics version 2.3.

Server	Requirement
Good Control	• 8 processor cores, 2.4 GHz • 8 GB of available memory • 64 GB of disk space
Good Proxy (one for every 3000 to 5000 devices)	• 6 processor cores, 2.4 GHz • 8 GB of available memory • 64 GB of disk space
GEMS Mail and Presence	• 4 processor cores, 2.4 GHz • 8 GB of available memory • 64 GB of disk space

Server	Requirement
Microsoft SQL Server	• 4 processor cores, 2.4 GHz • 8 GB of available memory • 64 GB of disk space

Hardware requirements for up to 150,000 devices

For up to 150,000 devices, install multiple instances of Good Control, GEMS server (with Good Mail and Good Presence), and Good Proxy:

- One instance of Good Control can support up to 25,000 devices
- One instance of Good Proxy can support approximately 3000 to 5000 devices
- One dedicated instance of GEMS server (with Good Mail and Good Presence) can support approximately 10,000 devices

Note: These numbers do not include requirements for high availability or disaster recovery scenarios.

Additional features and configurations create more connections and sessions between devices and the Good Control instances, which limits the number of devices that one instance can support. To support more devices, add more instances of Good Control.

For MDM, add BES12 on a separate server.

You can download the Good Secure Enterprise Suite Performance Calculator and use it to determine the minimum number of Good Control, GEMS, and Good Proxy instances for your device configuration and workload.

The servers that Good Control and GEMS are installed on must be physically located near the servers with the Microsoft SQL Server databases (less than 5 ms latency).

The following requirements apply for a *new* installation of Good Secure Enterprise Suite.

Server	Requirement
Good Control (one for every 25,000 devices)	• 8 processor cores, 2.4 GHz • 16 GB of available memory • 64 GB of disk space
Good Proxy (one for every 3000 to 5000 devices)	• 6 processor cores, 2.4 GHz • 12 GB of available memory • 64 GB of disk space

Server	Requirement
GEMS Mail and Presence (one for every 10,000 devices)	• 4 processor cores, 2.4 GHz • 8 GB of available memory • 64 GB of disk space
BES12 (optional for MDM) (one for every 25,000 devices)	• 8 processor cores, 2.4 GHz • 12 GB of available memory • 64 GB of disk space
Microsoft SQL Server for Good Control	• 12 processor cores, 2.4 GHz • 32 GB of available memory • 256 GB of disk space
Microsoft SQL Server for GEMS	• 4 processor cores, 2.4 GHz • 4 to 16 GB of available memory, depending on the size of EWS SyncState • 64 GB of disk space

The following requirements apply if you are *upgrading* from Good Dynamics version 2.2 to Good Dynamics version 2.3.

Server	Requirement
Good Control (one for every 25,000 devices)	• 8 processor cores, 2.4 GHz • 8 GB of available memory • 64 GB of disk space
Good Proxy (one for every 3000 to 5000 devices)	• 6 processor cores, 2.4 GHz • 8 GB of available memory • 64 GB of disk space
GEMS Mail and Presence (one for every 10,000 devices)	• 4 processor cores, 2.4 GHz • 8 GB of available memory • 64 GB of disk space
Microsoft SQL Server for Good Control	• 8 processor cores, 2.4 GHz • 12 GB of available memory • 128 GB of disk space

Server	Requirement
Microsoft SQL Server for GEMS	• 4 processor cores, 2.4 GHz • 4 to 16 GB of available memory, depending on the size of EWS SyncState • 64 GB of disk space

Good Secure Enterprise Suite deployment configurations

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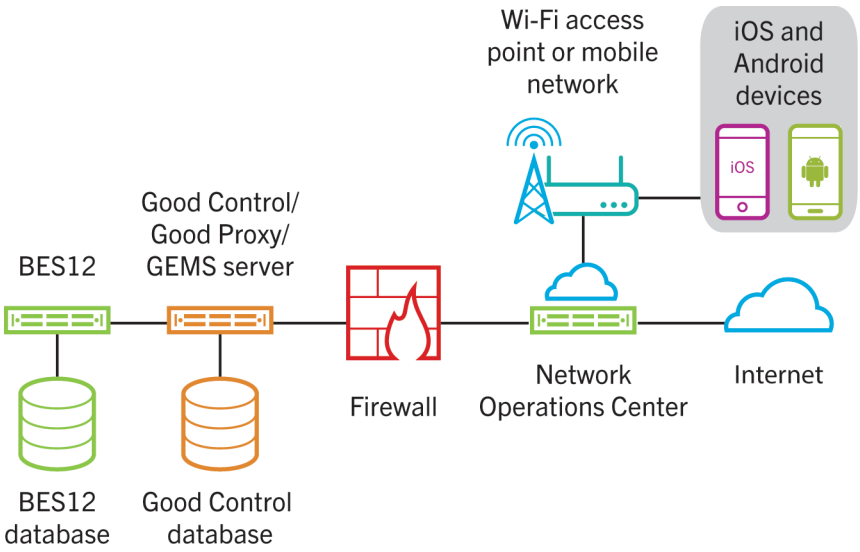
Good Secure Enterprise Suite and its components can be configured to adapt to a wide variety of networking and security needs. You can deploy Good Secure Enterprise Suite in your organization's environment in many ways. The six most common deployment configurations are:

- Small deployment
- Basic distributed servers
- Distributed servers and web proxy
- Distributed servers, web proxy, and BlackBerry Dynamics Direct Connect
- Clustering, affinities, and database mirroring

Note: The diagrams in this section are for planning purposes only and do not represent all specific data flows.

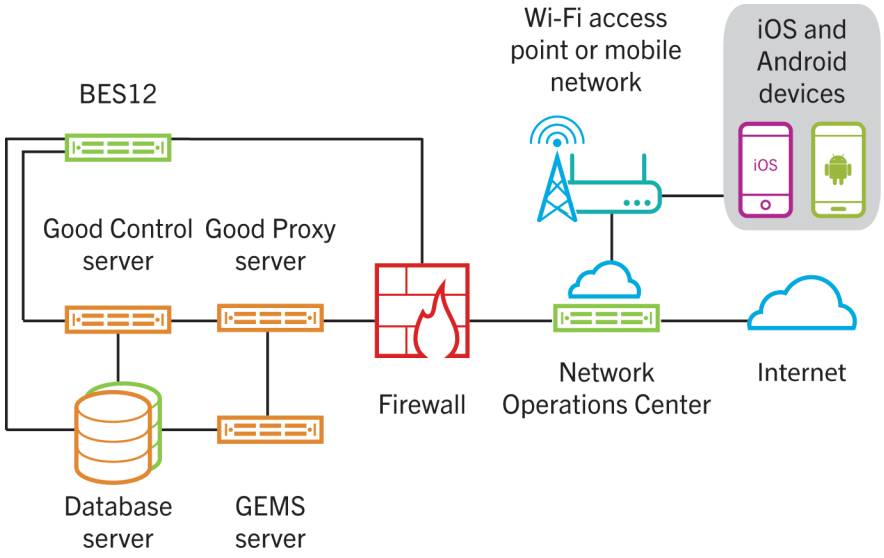
Small deployment

For a small deployment of up to 500 devices, you can install Good Control, Good Proxy, GEMS, and the database on one server. For MDM, add BES12 on a separate server.



Basic distributed servers

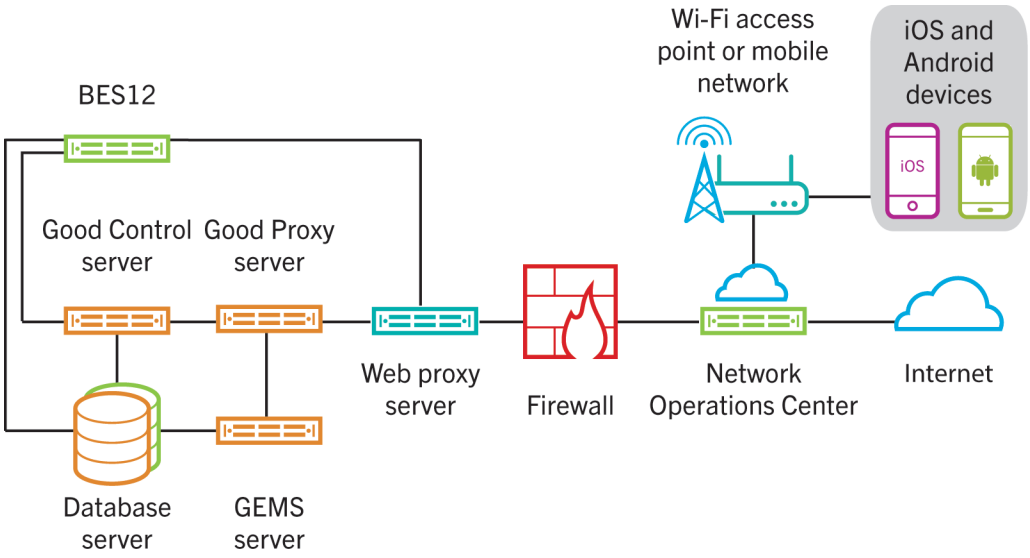
The simplest configuration of distributed servers is a dedicated server (physical or virtual) for each Good Secure Enterprise Suite component. For MDM, add BES12 on a separate server. Note that the diagram below does not include clustering.



Distributed servers with a web proxy

Another common deployment configuration of distributed servers includes a web proxy server for devices to access resources on the internet that are external to the Good Secure Enterprise Suite deployment. Note that the diagram below does not include clustering.

Information about Good Control settings for web proxies is in the Good Control Administrator Help.

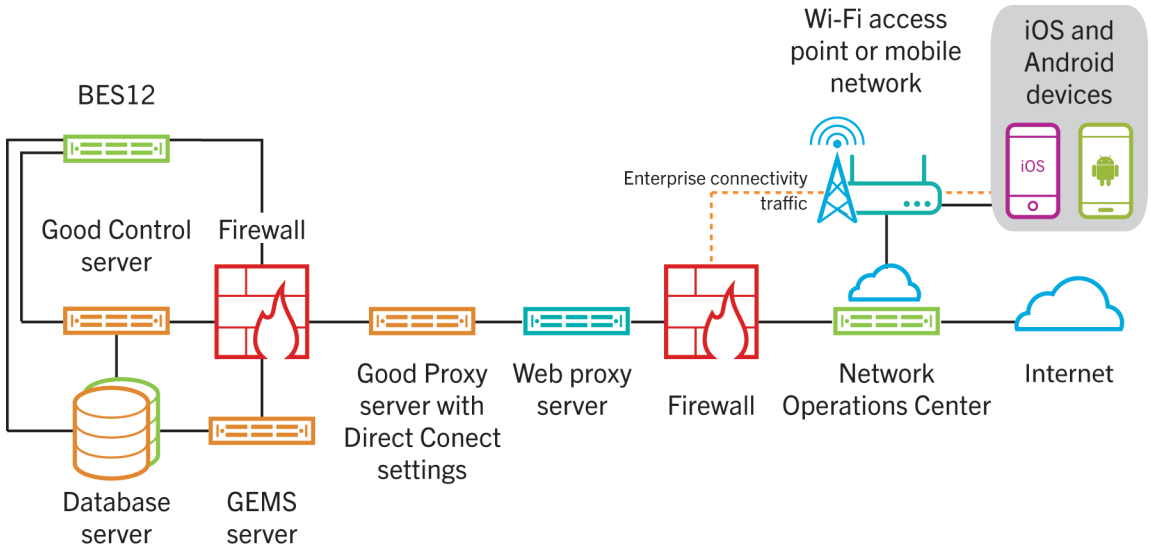


Distributed servers with a web proxy and Direct Connect

Users of devices in the field often need to access internal resources directly through the Good Proxy server, bypassing the Good NOC. This configuration is called BlackBerry Dynamics Direct Connect. Note that the diagram below does not include clustering.

Reasons for enabling Direct Connect include increased performance for enterprise connectivity traffic (due to decreased network latency) and location sensitivity (such as avoiding sending traffic through U.S. or other data centers).

Detailed information about deploying Direct Connect is in the *BlackBerry Dynamics Direct Connect Guide*.



Clustering, affinities, and database mirroring

The Good Control, GEMS, and Good Proxy servers can be clustered for performance, server affinities (associations between servers) can be established, and the database can be mirrored. Clustering servers, establishing server affinities, and database mirroring are often implemented after the initial deployment of Good Secure Enterprise Suite.

Database mirroring and high availability

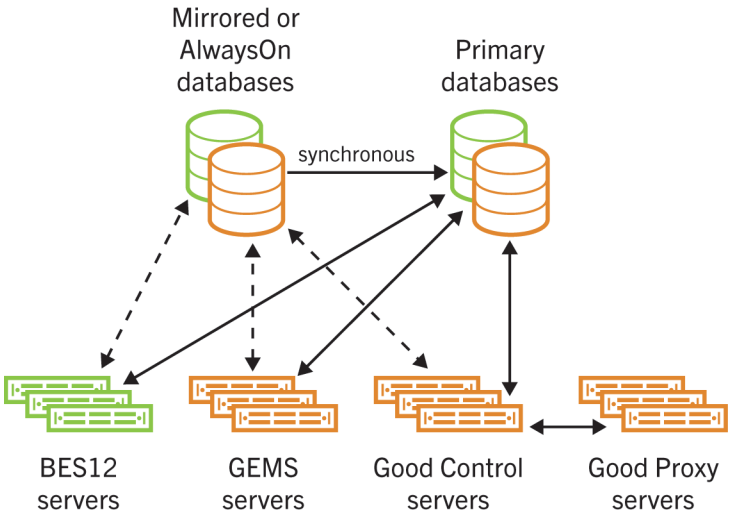
Good Control and GEMS servers that are set up for mirroring automatically switch to the mirrored database when a failure occurs in the primary database. The primary and mirrored databases (synchronous) must reside in the same data center. For AlwaysOn synchronous mode, the two databases must also reside in the same data center.

For high availability, you can add additional Good Control, GEMS, and Good Proxy servers. The additional Good Control and GEMS servers must be located in the same data center as the database. Good Proxy servers can be located in regional data centers.

For information about configuring mirroring for Good Control servers, see the *Good Dynamics Server Installation Guide* and the *GEMS Installation and Configuration Guide*.

Microsoft SQL Server database mirroring

The Good Control and GEMS servers can be configured for Microsoft SQL Server database mirroring. Below is a logical view of clustered Good Control and GEMS servers and the Good Control/GEMS-to-database connections with Microsoft SQL Server mirroring.

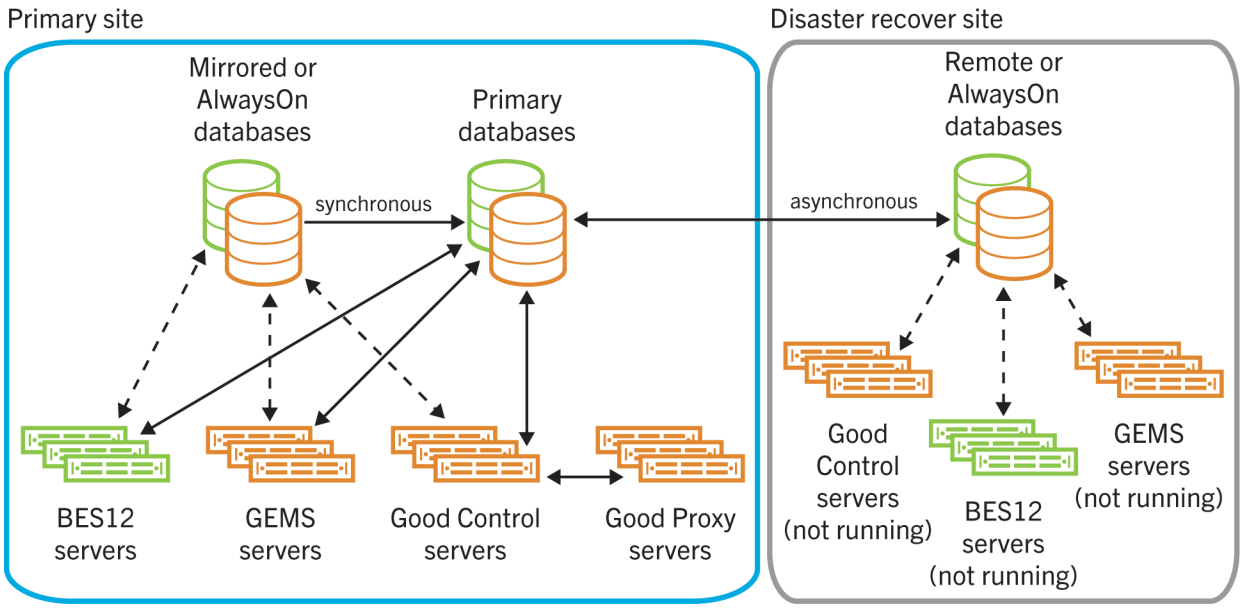


Disaster recovery

A disaster recovery site requires another Microsoft SQL Server database and a set of Good Control and/or GEMS servers that are configured the same as the Good Control and/or GEMS servers in your primary site. However, the corresponding Good Control and/or GEMS servers in the disaster recovery site should be turned off.

To failover to the disaster recovery site, you must turn off the primary Good Control and/or GEMS servers and turn on the Good Control and/or GEMS servers at the disaster recovery site, after the corresponding database failover has taken place. You must make sure that the primary servers do not come back up before the disaster recovery servers come on.

Note: You can deploy Good Proxy and/or GEMS servers in the disaster recovery environment and at other regional sites as desired.


Primary site
Disaster recover site
Mirrored or AlwaysOn databases
Primary databases
synchronous
asynchronous
Remote or AlwaysOn databases
BES12 servers
GEMS servers
Good Control servers
Good Proxy servers
Good Control servers (not running)
BES12 servers (not running)
GEMS servers (not running)

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