

Application Integration

Deployment

Hosted or non-hosted

CONTACT™ is licensed as either an on-demand hosted or on-premise self-hosted application. Hosted licences are delivered as a managed service from an in-country data centre. All infrastructure, gateway connectivity and service management costs are incorporated into the licence.

On-premise installations are delivered from within the customer's own data centre or server environment. Deployment requirements (server specifications, software, etc.) are detailed below.

Hosted server data centre configuration

All data centre services are outsourced to third party suppliers who specialise in providing managed services. We use a standard data centre configuration, which is used as a basic framework for data centre build-out when deploying new data centres.

Data centre capabilities

As a minimum, we specify 'Tier 3' data centre capabilities (TODO: ref required) for all managed data centre suppliers; this includes:

- Redundant power feeds (N+1 or better) including substation, transformer, separate physical entry to building, UPS, backup generators, power distribution and power supplies in individual servers.
- Redundant cooling (N+1 or better) using accepted standard temperature monitoring systems and hot/cold aisles to maximise cooling efficiency. Power feed redundancy must be such that an outage of one feed will not reduce cooling capability.
- Redundant network connectivity (N+1 or better) with minimum bandwidth and maximum capacity specifications across all feeds; diverse routing paths with multiple upstream suppliers and networks; redundant fail-over switching and firewall configurations; paired fail-over network connections in individual servers.
- Multi-layered network security with firewalling, intrusion detection systems, monitoring and virus scanning on all equipment.
- Multi-layered physical security following the 'something you have, something you know' two-factor principle for all access. 24x7 onsite security camera monitoring of all areas.

Server configuration

Within a managed data centre environment our service is delivered using a minimum N+1 level of redundancy for web/application and database servers. In some cases this is provided through virtualisation on physical hosts coupled with NAS backed storage; alternatively through paired physical hosts using windows clustering services.

Database backups

Backups are performed on a daily basis at a minimum. Backups are performed initially to an external storage device (NAS or similar) then written to tape. Tapes are then stored at a secure off-site storage facility.



Database security

Each instance of CONTACT uses its own database instance – there is no data tenanting. This ensures that there is no cross-pollution of data between instances. Each database instance is configured with a unique user which the web application and other services use to read and write data.

Monitoring

Hardware, operating system, application and network monitoring is enabled on all servers and services deployed within our data centres. Problems such as application performance issues and network connectivity outages automatically create SMS and email notifications to NOC staff and technical support staff.

On-premise recommended configuration

Hardware requirements

Following are the minimum recommended hardware requirements. This specification is suitable for hosting up to 10 sites all servicing an average of 25 concurrent users per site (250 concurrent users).

Database server

- Single processor, Dual or Quad Core Xeon
- 4 GB RAM
- SCSI drives in RAID 1 (mirrored configuration)
- Gigabit Ethernet connection.

Web/application server

- Single processor, Dual or Quad Core Xeon
- 4 GB RAM
- SCSI drives in RAID 1 (mirrored configuration)
- Gigabit Ethernet connection.

Software requirements

Database server

- Microsoft® Windows Server 2003 Standard or Enterprise
- Microsoft SQL Server 2005 Standard
- ASP.NET 2.0 framework
- IIS 6.0
- SQL Server reporting services
- Suitable anti-virus software
- Suitable backup software
- Suitable server monitoring software.

Web/application server

- Microsoft Windows Server 2003 Standard
- IIS 6.0
- ASP.NET 2.0 framework
- Suitable anti-virus software
- Suitable backup software
- Suitable server monitoring software.



All servers should have current, up-to-date service packs applied. Additionally the IIS lock-down tool must be applied as well as the Microsoft base-line security analyser (and its recommendations followed).

Deployment overview

A single-site CONTACT deployment will consist of the following components on each server:

Database server

Databases

1. CONTACT database – single instance per site
2. Reporting Services database – single instance services all sites

IIS 6.0

1. SQL Server Reporting services website – single instance services all sites

Services

1. SQL Server 2005
2. SQL Server agent (maintenance plans, logging database purge etc)
3. Remote desktop

Web/application server

IIS 6.0

1. CONTACT application website – single instance per site
2. CONTACT message pipeline web service – single instance per site
3. CONTACT API web service – single instance per site

Services

1. CONTACT message scheduler
2. IIS 6.0 – Web, SMTP enabled (SMTP not required if another SMTP server is available within the network)
3. Remote desktop

We have a documented deployment process for configuring new sites on the server. Database instances are automatically created and configured as part of the setup process.

Agent desktop deployment requirements

Internet Explorer 6.0 or 7.0 is required on the agent desktop. A single URL is provided for access to the application. This is usually set up as a desktop shortcut or added to the user's favourites.

Note that we use intense client-side caching, and pop-up windows for search dialogs and to display reporting results, so it is important that the desktop is configured in such a way as to support these features for the CONTACT URL, including disabling pop-up blockers.

Bandwidth requirements

In all instances we recommend a minimum bandwidth allocation of 512kbps plus 64kbps per concurrent user. Latency between user location and data centre should not exceed 150ms with minimal jitter.



The bandwidth table below provides a guideline for different numbers of concurrent users. This assumes each user is handling on average 60 SMS messages per hour, or 20 emails per hour.

| # Concurrent Users | Baseline allocation | User allocation | Total recommended |
|--------------------|---------------------|-----------------|-------------------|
| 5 | 512kbps | 320kbps | 832kbps |
| 10 | 512kbps | 640kbps | 1.1Mbps |
| 25 | 512kbps | 1600kbps | 2.2Mbps |
| 50 | 512kbps | 3200kbps | 3.7Mbps |
| 100 | 512kbps | 6400kbps | 6.9Mbps |

Figure 1: Bandwidth recommendations

Care should be taken in situations where connectivity is using a shared internet connection. 'Break-time activities' such as YouTube and Facebook can significantly impact available network bandwidth to end-users and this will affect CONTACT application performance.

Firewalling/network security

As CONTACT is a web application running over HTTP or HTTPS, the only access requirement from the agent desktop is port 80 or port 443.

