

Application components, technologies and architecture

Technologies and architecture

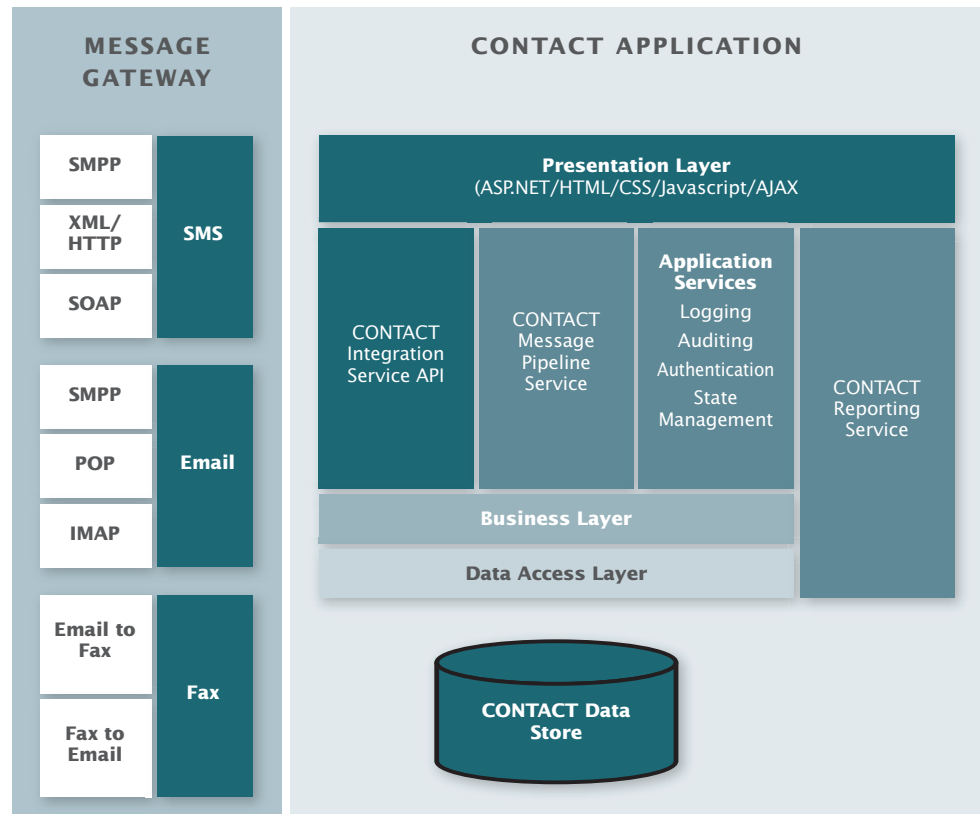


Figure 1: CONTACT application architecture

CONTACT™ is a multi-layered application developed using the Microsoft® technology stack, specifically C#/ASP.NET and Microsoft SQL Server.

CONTACT was designed using service-oriented architecture (SOA) with much of the functionality delivered through server-side application services such as the message pipeline service, messaging gateway and integration services.

Unlike alternative offerings, the only client-side deployment requirement is either Internet Explorer 6.0 or 7.0 on the agent desktop. Upgrades are completely managed server-side and there is no need to deploy or install components on individual client machines.

Underlying the application is a SQL Server database where all data is stored.

Open standard communication protocols are used wherever possible to ensure maximum compatibility with existing enterprise infrastructure, security and firewalling requirements – client to server communication is via HTTP or HTTPS.

All server-side connectivity uses relevant standards such as SMTP and POP for email and fax, SMPP or XML/HTTP for SMS.

Application modules and services

The application suite is composed of a number of logical modules and services:

Module/Service	Overview
CONTACT data store	Data storage layer – this stores all application and customer specific data, including configuration details, message data, history etc.
Data access layer	Abstracts data access for all other application layers.
Business layer	Implements business rules specific to the application and ensures all data passed to the data access layer conforms and validates.
CONTACT message pipeline service	Processes all messages through a series of handlers and queues them for presentation to agents.
CONTACT integration service API	Exposes functionality to enable integration with third party applications such as CRM and ACD systems.
Message gateway	Provides integration with SMS, Email and Fax services for message delivery inbound and outbound.
Presentation layer	Optimised web interface providing the user interface to call centre agents, team leaders and administrators.
CONTACT reporting service	Reporting engine to deliver real-time reporting to call centre team leaders and managers.

Figure 2: Application modules and services

Technical architecture

The application is deployed onto Windows 2003 servers. The modules and services are implemented as follows:

Module/Service	Technology
CONTACT data store	SQL Server 2005 database
Data access layer, Business layer	.NET 2.0 framework assemblies, shared by all applications
CONTACT message pipeline service	ASP.NET 2.0 web service
CONTACT integration service API	ASP.NET 2.0 web service
Message gateway	ASP.NET 2.0 web service (SMS inbound) .NET 2.0 Windows service (All other channels)
Presentation layer	ASP.NET 2.0 web application HTML, CSS, Javascript, AJAX
CONTACT reporting service	SQL Server 2005 reporting services

Figure 3: Application modules and services – technical details

CONTACT data store

Each instance of the CONTACT application connects to its own database, where all customer, message and other data is stored.

Message pipeline service

The message pipeline service is a configurable workflow engine that provides the middleware component of the application and is responsible for the management of all messages flowing through the system.

Each CONTACT deployment has its own pipeline configuration. Each configuration consists of a set of handlers, where each handler is responsible for performing a single task. Once that task is complete the message is passed on to the next configured handler in the pipeline.

Configuring the workflow definition within CONTACT is handled through the 'States' option from within the admin menu of CONTACT. This is only accessible to the Super-user level login.

The workflow definition is effectively a state machine – each handler represents a state, and the result of the handler determines the transition to a subsequent state and hence the flow of the message through the pipeline.

Reporting service

CONTACT ships with 20 standard reports. More details on each of these reports can be found in the CONTACT 3 reporting guide. Reports are provided using Microsoft® SQL Server reporting services and can be exported in the following formats:

- Adobe® Acrobat – PDF
- Comma separated variable – CSV
- Tagged Image File Format – TIFF
- Microsoft® Excel – XLS
- HTML
- XML.

Dependent upon message volumes and user numbers, CONTACT can be configured to run reports against the live database or against a replicated 'offline' version of the database.

As a general rule of thumb, smaller volume sites (less than 200 messages per day) will support running of reports against live data. Sites with greater message volumes should run reports against an offline copy of the database, which can be configured to synchronise on a periodic (daily or twice daily) basis.

Additional custom reports are available using two methods:

1. Custom SQL Server reporting services reports.
2. Custom views.

In each case, the reports will be developed as bespoke projects by Datasquirt. This is to ensure that reports incur minimal performance impact on the database servers.

Presentation layer

CONTACT's presentation layer provides the User Interface component to end users. It is an ASP.NET 2.0 application that runs server side and delivers a combination of HTML, Javascript and CSS functionality to the web browser running on the agent desktop.

CONTACT leverages AJAX technology to improve interactivity and to help minimise bandwidth requirements accordingly.



Browser support is as follows:

- Internet Explorer 6.0
- Internet Explorer 7.0.

Upcoming versions of CONTACT will support alternate browsers to Microsoft®.

Messaging services and gateway

The messaging service and gateway components provide interconnectivity to SMS networks and email functionality.

