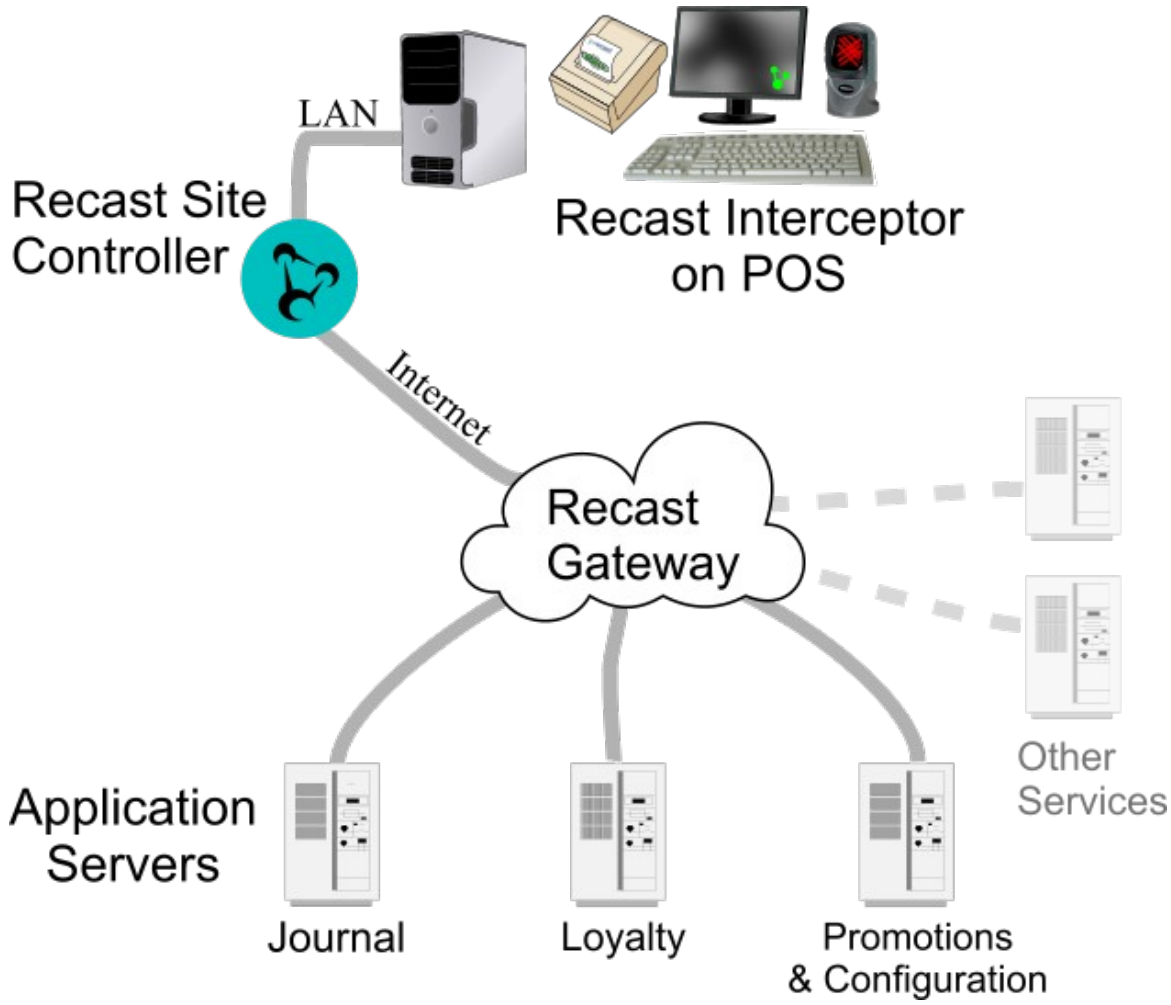
Components of the Recast Platform

The Recast Platform consists of 4 main parts.

- Interceptor Software
- Site Controller
- Gateway Server
- Application server

The Interceptor Software is installed on the stores Point of Sale and will intercept printed receipt data and scanned barcodes and can interact with the Sales person by displaying graphical dialogues. The Site Controller is installed within the store and coordinates communications between the in store Interceptors and the external Gateway servers. The Gateway servers allow the Site Controllers to communicate with the different Application Servers by acting as protocol translators. The Application Servers are the external servers which provide a growing range of services such as loyalty, data journaling, advertising, gift cards, phone top ups, spot prizes, lucky draw entries and surveys.



Interceptor Software

The Interceptor Software resides on each Point of Sale within the retail store that is to be enabled with the marketing and loyalty services the Recast Platform can deliver.

The Interceptor Software is the application that runs on the Point of Sale that is able to pick up barcode scans and printer data and interact with the operator through floating on screen messages.

The interceptor software can be configured with many different applications and can perform multiple functions concurrently. These application modules are selected on our central Configuration Server, which then downloads them via the Gateway Server and Site Controller to the Interceptor. The Configuration File contains the rules to define how the Interceptor is to process receipts, how specific bar codes are to trigger certain actions, what the on screen dialogues are to display and also what conditions are required before data is sent from the Interceptor to the external servers.

The configuration file is uniquely generated for each store to take into account the Point of Sale hardware and the application modules which have been assigned to that store. The configuration file is updated whenever program requirements demand.

The operation of the Interceptor Software does not require the Point of Sale Vendor to make any modifications to their Point of Sale software and does not require the store to change or modify their existing Point of Sale peripherals. All that is required is for the Point of Sale printer settings to be adjusted so the receipt data is sent to the interceptor software before then being forwarded to the actual receipt printer.

The Interceptor software typically uses around 30MB of memory. If the POS terminals have at least 1GB of RAM then there should be no problems with handling this overhead. Processing load is negligible.

Site Controller

Each retail store that uses the Recast platform must have installed within it a “Site Controller”. The Site Controller is essentially a mini server which connects the Interceptor software on each Point of Sale to the Third Party servers via the store's internet service. It allows the store to receive the services being provided by the Recast platform. The Site Controller communicates over the stores local network with the Interceptor. It facilitates the collection and delivery of the data, business rules and configurations being sent to and from the Interceptor by the external servers of the application/service providers and the Recast configuration server.

The Site Controller maintains the firmware for the Interceptor. If new firmware is required for the Interceptor it is downloaded to the Site Controller and the Interceptor will then download it from the Site Controller over the store network.

The “Site Controller can either be in hardware form and is therefore called a “Hardware Site Controller” or in a software form and is therefore called a “Software Site Controller”. Both the Hardware Site Controller and the Software Site Controller offer the same functional features but are just different form factors.

As the Site Controller will be receiving new configurations or data from the external servers to be delivered to the Interceptor Software it is a requirement that the Hardware Site Controller or the PC that hosts the Software Site Controller be available during working hours, have internet connectivity and be able to communicate to each Point of Sale containing Interceptor Software.

Hardware Site Controller

This device is a mini PC that is simply connected to the stores internet via an Ethernet cable that plugs from the device into an available internet port within the store. The unit is completely silent and sized approx. 11cm square it fits easily into most communications cabinets

The full specification for the Hardware Site Controller can be viewed at www.norhtec.com/products/mcjrdx/index.html.

Software Site Controller

The software that drives the Hardware Site Controller has been packaged up into a Virtual Box PC which then enables it to be installed onto a host PC within the store which has internet connection.

The Software Site Controller will require the host PC to have at least 200MB of free memory so we recommend that it is installed on a machine with at least 4GB of RAM with no more than 75% memory usage in normal operation so that a comfortable margin is available. Most PCs made in the last 5 years would easily meet this criteria.

Because the other POS machines will communicate with the Site Controller it is important that the host of the Software Site Controller is normally switched on. Frequently the 'main' POS machine is used, but sometimes a server or other back office machine may be selected instead.

Recast Gateway Server

The Recast Gateway server enables the stores to communicate with multiple Application servers by acting as a router and translation service.

This simplifies the Recast system because the store-side of the system just needs to follow one standardised communication protocol. All third party communications protocols are then only implemented in the Gateway which means that new services can be easily and economically added with minimal system impacts. The most common interfaces are JSON, SOAP, XML and ASCII but the system is in no way limited to these.

Communication between a Site Controller and the Recast Gateway is done over the internet using HTTP and HTTPS requests just like a web browser. This allows the Site Controllers to be situated behind the firewalls and proxy servers typically seen in corporate environments without the need to modify network settings.

The Recast system has multiple redundant gateways to deal with the threat of a Gateway failure impacting availability of the Recast platform. It is also possible for customers to operate their own gateways should they desire.

The Recast platform sends transaction data it has been configured to capture from the store to the external servers of the application/service providers. It may also be delivering data from the external servers to be displayed at the Point of Sale.

In order to be able to diagnose problems with the operation of the system this data is logged. If, for example, a customer at a retail store complains that the points they have been awarded for a loyalty transaction they have conducted are incorrect then the details of the transaction capture and transmission of that information to the external loyalty server (and how the external loyalty server had responded) is all information that needs to be available for audit to verify the transaction in question.

The Recast Gateway server will therefore store all data associated with each transaction. This data is archived onto a central server for access at a later date should it be required.

Application Servers

Recast Configuration Server

The Recast Configuration server is where the Configuration files for each store are created and then published to the sites. The server will hold all the necessary details for the management of the sites and their configurations.

Third Party Servers

Recast is integrated with a growing number of Third Party Servers. It is through the Recast Platform that the features of the Third Party Servers are made available to the Retail Store, such as Loyalty, Gift Cards, Phone Cards, data Journaling.

Communications

The Recast Platform processes the barcode and printer data before it is passed to the Point of Sale and Printer respectively. In most cases there is no noticeable delay and in some cases the printing speed can even be increased due to better handling of the printer data.

If the system is configured so that it must communicate with an external server at the end of the transaction and output data from that server on the receipt, then there may be some noticeable delay while the external server responds. The amount of delay is dependent on many factors, such as the local LAN, speed and reliability of the stores internet connection and in particular the speed of the third party servers. The Recast platform has no control over the speed of Third-Party Application servers nor the environment within the store but it does endeavour to keep the overheads of the Interceptor, Site Controller and Gateway to a minimum.

On a typical request the Recast Platform adds approximately 200 milliseconds to the time that the Third Party server takes to respond.