

# SnapComms Technical Overview

## CONTENTS

<b>Introduction</b>	
Channels	1
<b>Architecture</b>	
Deployment Options	1
Server Infrastructure	1
Systems Requirements	2
Architecture Diagram	2
Server Functionality	3
<b>Snap Client</b>	
Function	3
Installation	3
Snap Icon	3
Connectivity	3
Content Data Management	4
Response Data Management	4
Software Updates Management	4
<b>User Targeting</b>	
Targeting Groups	4
User Identity and User Roaming	4
<b>Behavior of the SnapComms Channels</b>	
Interactive Screensaver Messaging	5
Ticker / RSS Feeds	5
Pop-Up Window	5
Online / Opt-In	6

## [ADDITIONAL DATA SHEETS](#)

<b>System Requirements – Locally Hosted Solution</b>	<b>A</b>
<b>Snap Client Deployment Overview</b>	<b>B</b>
<b>Thin Client Implementation</b>	<b>C</b>
<b>Integration with Active Directory</b>	<b>D</b>
<b>Assessment &amp; Implementation of the Snap Hosted Solution</b>	<b>E</b>
<b>Assessment &amp; Implementation of the Locally Hosted Solution</b>	<b>F</b>
<b>Security Overview</b>	<b>G</b>

### Introduction

The SnapComms solution provides a range of messaging channels which deliver targeted information directly onto the screens of users' computers. Message recurrence options can be specified based on user response and a range of reporting tools and administrative controls are available.

#### Channels

- |  |  |  |   |
|--|--|--|---|
|  | <b>Interactive Screensaver Messaging</b> , typically used to keep employees informed   |  | <b>Desktop scrolling feeds</b> – scrolling ticker bar / RSS feeds, typically used to highlight information updates and breaking news  |
|  | <b>Desktop Alerts</b> – direct on-screen pop-up alerts, ensuring message cut-through for important updates. Can also deliver video and RSVP invites. |  | <b>Snap Mag</b> – User generated staff magazine tool. Typically used to reduce mass emails and reduce resource required to produce an emag.                                     |
|  | <b>Pop-up Quiz</b> – Delivered to the desktop. Typically used for reinforcing messages and assessing capability and training of staff                |  | <b>Snap Interactive</b> – Plug and play interactive discussion tool typically run and managed by non technical business units. Variants include ; Blog, Forum, Helpdesk and Q&A |
|  | <b>Pop-up Survey</b> – Delivered to the desktop typically used for benchmarking, temperature checks and measuring communications effectiveness       |  |   |

### Architecture

Content is delivered to local software clients from central servers which can either be Snap hosted (fully managed in the SnapComms data center) or locally hosted (in-house within the organization's environment).

- **Snap Servers** – responsible for the creation, targeting and distribution of content out to the Snap Client.
- **Snap Client** – software that is installed locally on users' PCs, initiates regular communications with the Snap Servers and downloads and manages the display of content onto the users' computer screen.

Within an organization, authorized people, known as **Administrators**, have access to the Snap Servers via the Content Manager interface in order to create, target and publish content out to the Snap Clients.

#### Deployment Options

The Snap solution is available as a **Managed Service (Snap Hosted)** or as an **In-House Deployment (Locally Hosted)**. Details relating to the systems requirements of in-house deployment of the Snap solution and the associated deployment of the Snap Client are available via datasheet A.

With the **Snap Hosted (Managed Service)** option, all Snap Client communications with the Snap Servers and all Administrators' access of the Content Manager interface occurs over the Internet.

#### Server Infrastructure

The Snap Server infrastructure for the Snap hosted solution is fully redundant and is housed in secure data centers with on site technicians available on a 24 x 7 basis. The Snap Servers within the data centers are fully firewalled with only the necessary ports for HTTP and HTTPS access to the Snap Solution web interfaces opened on the firewall. The Snap technology team actively manages the Snap Server environment and monitors performance of the Snap hosted solution. The Snap technology team also responds to all service impacting alarms and customer reported faults as defined in the Snap Service Level Agreement.

### System Requirements

#### Internet connectivity requirements (Snap hosted solution):

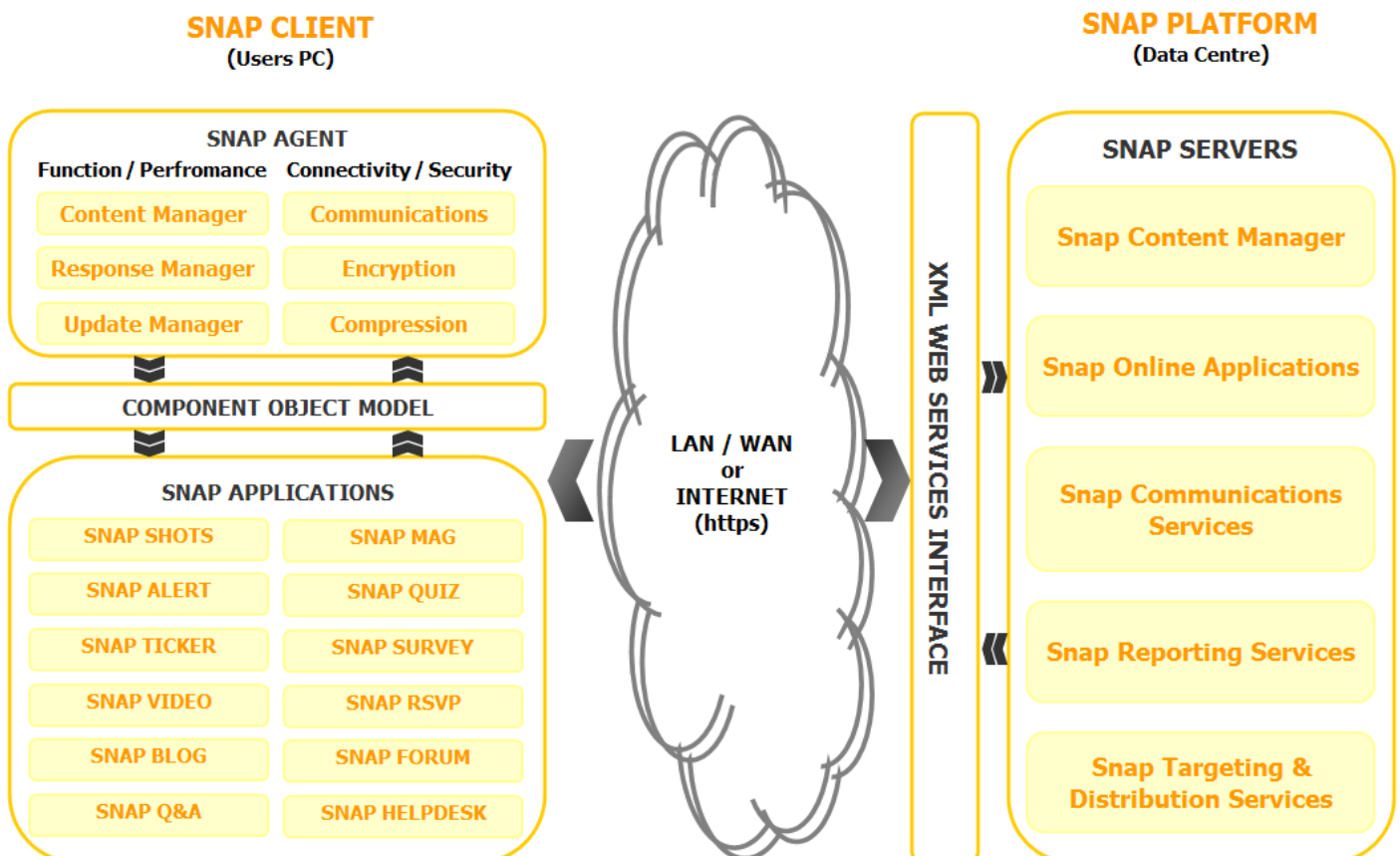
- **Internet Connectivity** – the Snap Client communicates with the Snap Servers periodically (typically every 180 seconds) to check for new content to download. Users will need to have connectivity to the internet at least periodically for these communications to be delivered to them.
- **Ports 80 (HTTP) and 443 (HTTPS)** – it is only necessary that ports 80 (HTTP) and 443 (HTTPS) be open for outgoing traffic.
- **Proxy Servers** – the Snap Client supports HTTP proxy servers for accessing the internet and will default to the proxy server settings that have been set in Internet Explorer. If proxy server authentication is required, the Snap Client will display a proxy server credential prompt dialog box every time the proxy server credentials are required by the proxy server. Proxy server credentials are cached in an encrypted data file and will be re-used for subsequent authentication requests.

#### Snap Client requirements (Snap hosted and locally hosted solutions):

- **Windows 2000 SP3 and above** –The Snap Client is compatible with Windows 2000 SP3, XP, Vista, Windows 7 and Windows Server 2003 and 2008 operating systems as well as Thin Client environments such as Citrix and Terminal Services (refer to data sheet C).
- **Internet Explorer 6.0 and above**
- **Active Directory** – the Snap Solution integrates with Active Directory to replicate the organization’s user group structures into the Snap Content Manager where they can be used for communications targeting. The Snap Client queries the organization’s Active Directory servers to retrieve the list of groups that the user belongs to.

**Snap Server requirements (Locally hosted solutions):** refer to datasheet A.

### Architecture Diagram



### Server Functionality

- **Snap Content Manager** – Web interface accessed by Administrators for the creation and publication of content, the scheduling and targeting of communications, the establishment and management of user targeting groups and the compilation and display of results and viewer statistics.
- **Snap Online Applications** – relates specifically to interactive channels (such as SnapMag and Snap Interactive) where users can submit their own content including articles, images and links, all of which are hosted on the Snap Servers before being reviewed by content moderators (administrators) and subsequently published.
- **Snap Communications Services** – a set of server side functions with which the Snap Client communicates in order to obtain new content to download as well as passing back of response data and data pertaining to content status to ensure Snap Clients and Snap Servers are fully synchronized.
- **Snap Reporting Services** – aggregates raw results data and statistics into reports that serve to detail the impact and effectiveness of communications as well as providing administrators with immediate outcomes of surveys and quizzes.
- **Snap Targeting and Distribution Services** – manages the download rates and delivery of content to designated targeted users once content has been scheduled and published.

## Snap Client

### Snap Client - Function

The Snap Client software program needs to be installed on users' PCs. For Snap Hosted solutions, it is the only element of the Snap solution that resides within the organization's environment.

The Snap Client is a software program responsible for regular communications with the Snap Servers, management of local data files, communicating any response data back to the Snap Servers, synchronizing content status (i.e. downloading new content when it is available), gathering user identity and group information and auto updating / patching the current instance of the Snap Client in order to apply new functionality.

The Snap Client executes at login time and stays running throughout the duration of a user logon session. Data files which are stored on users PCs include the delivered content data, local configuration settings, log files, users responses to quizzes and surveys, statistics on content display as well as user identity and group information.

When the Snap Client downloads new content, it will display it on users PC screens at the prescribed time.

### Snap Client - Installation

The Snap Client is delivered as a pre-packaged .MSI file. The .MSI file can be installed onto users' PCs using any centrally managed application deployment tool such as Active Directory Group Policy, SMS, Radia etc. Refer to datasheet B

The Snap Client is installed for all users who use a particular PC. It is installed to the Programs Files directory and data files are stored within the non-roaming section of the user profile directory. The content delivered by Snap is therefore specific to each user even when multiple users share the same PC.

During the initial installation and every time the Snap Client executes, the active screensaver on the PC is reset to the 'Snap Screensaver' thus ensuring only Snap originated screensavers are displayed.

### Snap Client - Icon

When the Snap Client program is running, the Snap icon is displayed in the taskbar notification area, or Systray. Clicking the Snap icon allows users to access their Message History to view active content that has been delivered to them.

### Snap Client - Connectivity

The Snap Client regularly initiates a connection with the Snap Server (typically every 180 seconds) to synchronize data such as downloading of new content, synchronizing changes in status (i.e. whether a Desktop Alert has already been viewed by a particular user on another PC), synchronizing user identity and group information, sending back responses to quizzes and surveys, sending back statistics on content that gets viewed and includes the application of updates to the current instance of the Snap Client.

All communications are transmitted using HTTP / HTTPS and apply encryption and compression. The Snap Client also supports the use of proxy servers for communications. Refer to the security datasheet for more information.

### Snap Client - Content Data Management

Content downloaded to the Snap Client is stored on data files inside the user profile directory. Only new content that has been targeted to a particular user profile is downloaded onto the PC. Data files are encrypted and compressed on disk and are deleted from the PC once the content expires or is disabled by the administrator.

### Snap Client - Response Data Management

The Snap Client stores data relating to statistics on content views (display times and status changes), user initiated interactions (clicks on buttons and links), and responses to quizzes and surveys (scores and results). Response data is temporarily stored on data files inside the user profile directory but is deleted from the PC once they have been uploaded to the Snap Server, which occurs every time the Snap Client initiates a connection with the Snap Server (typically every 180 seconds).

### Snap Client - Software Update Management

One of the functions of the Snap Client is to automatically apply software updates when they are available by downloading and installing them on to the PC. Software updates are applied so that new functionality can be added to the Snap Client in order to enhance performance or content display characteristics. It is the organization's choice whether Snap will push out software updates or whether the organization control's deployment of Snap Client updates using their own centrally managed application deployment tool such as Active Directory Group Policy, SMS, Radia etc.

## User Targeting

A 'User Targeting' interface is available within the Snap Content Manager. Administrators select which specific users or groups of users will receive content whenever they schedule a new communication. The establishment of targeting groups is automated requiring little or no input from administrators and more often than not will mirror the organization's existing email distribution lists held within Active Directory Distribution Groups.

### Targeting Groups

The Snap Client queries the organization's Active Directory servers on behalf of the user to retrieve user-specific information such as which organizational-unit the user belongs to and the list of groups that the user belongs to. The Snap Client periodically refreshes this information and transmits any changes (such as addition or removal to or from a group) to the Snap Servers.

Targeting groups within the Snap Platform are self-maintaining by virtue of their integration with the organization's Active Directory. As changes to user groups are made in Active Directory, the Snap Client will transmit the changes in relation to each user's group membership to the Snap Servers. Refer to Active Directory Integration data sheet.

Administrators, via the Content Manager, can also create and maintain their own 'manual' targeting groups by assigning automatically generated user groups and/or users (as described above) into group structures of their own making.

### User Identity and User Roaming

Each user, who has the Snap Client on their PC, is assigned a unique user ID that is randomly generated by the Snap Servers. There is a one-to-one mapping between Snap user IDs and the user's LDAP distinguished name in Active Directory. This allows users to logon to any PC within their organization and receive only communications specifically intended for them. Similarly when users roam between different PCs, communications received and acknowledged on one PC are not presented for a second time to the same users when they logon to another PC.

### Behavior of the SnapComms Channels

There are six channels available to administrators which can be used to meet distinctly different communication needs and purposes. The six channels can be grouped into three general application types. Each application type has specific properties that define a) the level of impact communications have on users, b) on screen display characteristics and c) the level of user interactivity.

#### Interactive Screensaver Messaging

Content is displayed on screen as a screensaver and multiple screensavers can be scheduled to be displayed, by rotation, at any one time. Users are able to add a personal screensavers to the sequence if this option is permitted by the Snap administrator.

User screensaver settings are changed to 'Snap Screensaver' upon installation of the Snap Client. Launch of the Snap screensaver is however still reliant upon the standard windows screensaver activation behavior. All existing display settings and monitor power settings will remain unchanged. Hibernation and power saving measures for example will not be affected in any way. It is also important to note that Group Policy changes can override user screensaver settings which in turn can impact the 'Snap Screensaver' setting thereby inhibiting the display of screensavers provisioned via the Snap Content Manager.

With the Snap screensavers it is possible to embed links to pages on intranets and external websites as well as to files on a shared network. Because such interactivity is possible, users are required to either press the 'esc' key or click the 'close' button to exit the screensaver. On a similar vein, if an organization has a policy that password protects screensavers, users will be required to enter their username and password if they wish to continue to the linked page or file. Failure to require password protection before activation of a link would be a security vulnerability.

#### Ticker / RSS Feeds

Channels: SnapTicker, Snap RSS, SnapMag

New content displayed on screen is contained within a 'Ticker Bar' that cycles for a set number of times before collapsing. The ticker bar and content are displayed when new items are published. Users are able to add their own personal RSS feeds if this option is permitted by the Snap Administrator.

As the ticker bar is scrolling across the bottom of the screen, users can click headlines to follow hyperlinks or open message windows.

Links that relate to RSS feeds can also be provisioned via the Content Manager. When an RSS headline is clicked RSS related content is pulled down directly from the intranet or external website and is not retrieved via the Snap Servers.

SnapMag significantly extends the formatting capability of the ticker browser allowing Snap administrators to customize the browser layout to suit specific purposes through the use of titles, section breaks and alignment, text formatting, application of banners, borders and backgrounds, inserting and sizing of images etc. Users, if permitted by the administrator, are able to submit their own content / articles for inclusion in subsequent publications.

Upon publication only the 'magazine name' is displayed in the ticker bar, not each item that has been contributed to the magazine.

#### Pop-Up Window

Channels: Desktop Alert, Quiz, Survey, RSVP Invite, Video

This on screen content delivery format alerts users to communications that are not intended to be ignored and generally require some direct form of action on the part of the user. Content is typically displayed on screen via a 'Pop-Up Window' which, when clicked on, opens up the larger 'Main-Message Window'. There is also the facility to push the main-message window directly onto users screens thereby by-passing the pop-up window.

The appearance of the pop-up window does not take keyboard focus away from the active application and therefore does not interfere with whatever tasks the user is performing at the time of the pop-up window. The default placement of the pop-up

window is the bottom right of the screen, but the placement will be elsewhere if the task bar is docked to a different edge of the screen.

The pop-up window will stay on screen for a preset period of time (default 15 seconds) and then disappear. If the pop-up window is ignored or the 'close' button is clicked, it will reappear after a specified period of time (default 45 minutes). The pop-up will continue to reappear on screen until either the user clicks the title on the pop-up window to display the main-message window or the specified number of times the pop-up window is to appear (default infinite) has been reached. Once either of these events has occurred, the pop-up window relating to that particular communication will never appear again.

The main-message window contains the body text of the communications being delivered. Content contained within this window is able to be formatted by the administrator and can include links to intranet pages, websites and files on a shared network. Depending on the template selected, images can also be uploaded. All main-message windows are user resizable and can be customized to meet specified look-and-feel / branding requirements or an organization.

### Online / Opt-In

Channels: Blog, Forum, Q&A, Helpdesk

These social media (web 2.0) channels are provisioned and managed by administrators or by users who have been given the appropriate permissions. In terms of general user access across the organization, permissions can be applied when each instance of the tool is being provisioned, to govern who has posting rights, moderation / editing rights, commenting rights and finally who is permitted to read the communication.

Once an instance of any one of the Snap Interactive tools has been created, there are various options as to how other users will initially be notified of its existence including; Desktop Alerts, Scrolling Tickers, Screensavers or links contained in other media such as SnapMag, the intranet or even email. Once the tools are in general use they can be readily accessed by users via the Message History window where new posts or comments can be viewed. Options for signaling a new post and/or comment also exist and take the form of a scrolling update.

All of the Snap Interactive tools are searchable, either via key words or via tags. Searching using these options can be applied to specific instances (such as a specific blog or forum) or across all of the interactive channels. Tags are intended to be the primary searchable medium and a list of relevant tags are created by administrators for each interactive tool instance to form a 'tag pool' which can then be applied by those posting and commenting as they see fit.

A range of moderation and reporting functions are available which provide organizations with visibility, and if necessary control, over how their staff use the tools. While the use of these functions are optional, the ability to assign moderators to manage sensitive 'discussions' is often viewed as a mandatory requirement.