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Construction Site Communications Management System

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Table of Contents

LIST OF FIGURES	3
GLOSSARY	3
1.0 EXECUTIVE SUMMARY	4
2.0 INTRODUCTION	5
2.1 PROJECT STAKEHOLDERS:.....	6
2.2 COMMUNICATIONS.....	7
2.3 CURRENT SYSTEMS	9
2.4 REQUIREMENTS.....	10
3.0 MARKET PLACE SOLUTIONS	11
3.1 SOFTWARE AS A SERVICE (SAAS)	11
3.2 PLATFORM AS A SERVICE (PAAS)	12
3.3 INFRASTRUCTURE AS A SERVICE (IAAS).....	12
3.4 CLOUDS.....	13
3.5 EXISTING PACKAGES.....	14
4.0 DEVELOPMENT OF SOLUTION	15
5.0 CONCLUSION	20
6.0 BIBLIOGRAPHY	21

List of Figures

Figure 2.1	The Four Phases of a Project Life Cycle	5
Figure 2.2	Project Organisational Structure	6
Figure 2.3	Site Information Types	7 / 8
Figure 2.4	Use Case Diagram – Verbal Instruction	8
Figure 2.5	MS Sharepoint System Architecture	9
Figure 3.1	Cloud Computing Service Model	11
Figure 3.2	Platform as a Service	12
Figure 3.3	Open Stack System Configuration	12
Figure 3.4	Cloud Computing Types	13
Figure 3.5	Summary of Popular Services	14
Figure 4.1	Ticketing Data	16
Figure 4.2	Ticket Queues	16
Figure 4.3	Ticket Filtering	17
Figure 4.4	Ticket History	18
Figure 4.5	VoIP Details	19

Glossary

CRM – Customer Relationship Management

R.E. - Resident Engineer

E.R – Employers Representative

PSDP – Project Supervisor Design Phase

PSCS – Project Supervisor Construction Stage

SaaS – Software as a Service

PaaS – Platform as a Service

IaaS – Infrastructure as a Service

VoIP – Voice over Internet Protocol

1.0 Executive Summary

This paper investigates the requirement of an onsite communications management system for small road construction projects. I research possible popular applications and investigate if these solutions solve the problems with tracking communications or if they just add extra complexity to the process.

I establish that file sharing applications such as Dropbox and Google Documents are only an effective method for sharing files. They are not easily used for achieving emails and linking different communications together.

In conclusion I propose the use of a CRM system which utilises open source material for the development of a communications management system.

2.0 Introduction

The construction industry is one of the largest wealth creation contributors in Europe, accounting for 10% of gross domestic product (European Commission, 2012). In a knowledge based industry such as construction it is vital to have early access to knowledge based tools, together with an information and communication technology infrastructure (Alshawi et Al, 2010). The construction industry now considers that IT expenditure is an investment at organization levels rather than a cost at a project level.

I am currently working for Cork County Council, a Local Authority in the Republic of Ireland. I have spent a number of years as a Resident Engineer (R.E.) on different road construction projects. These projects vary in scale and complexity. Each project is subject to a review at its close out to assess its performance. These reviews help to establish trends in projects and allows for contingency plans to be put in place for future projects – or simply to allow for continuous improvement within the organization. In my experience there is always issues in regards to communications between project stakeholders.

Projects can fail due to their complexity, however it is now accepted by Project Management professionals that soft paradigms have more and more of an influence in regards to the successful delivery of a project. The soft paradigms relate more to communication between team members and their relationships (Pollack, 2007) rather than implementation and management of the project management framework.

A project is defined in the Project Management Body of Knowledge as ‘a temporary endeavor undertaken to create a unique product or service’. The different phases of a project are outlined in figure 2.1, below.

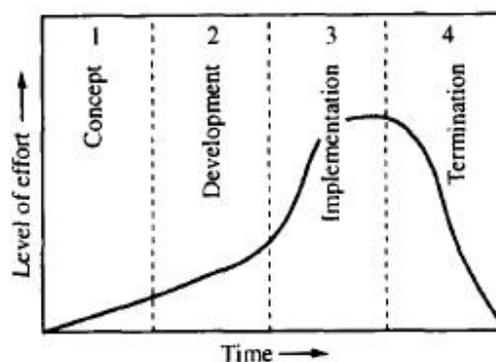


Figure 2.1 The four phases of a project's life cycle

It is the transition from the development (design) phase to the implementation (construction) phase that I become involved in a project - when construction activity begins onsite. The role of R.E. is essentially record keeping and ensuring that the different features of the road are constructed as per the works requirements and in compliance with the works specifications.

A contractor is appointed by the local authority to build the road after completing a public tendering competition. The contractor's principle concern is to construct the road at the lowest possible cost. This results in the contractor proposing a variety of different materials and processes than those outlined in the contract documents in order to maximize their profits. The result of which generates large volumes of paperwork between the main project stakeholders.

2.1 Project Stakeholders:

Road construction projects by their nature are geographically dispersed from central offices and are made up of a collection of different parties. This adds extra complexity as the company's information systems do not easily support each others. Each company depending on their primary reporting structure houses information in silos. This complexity was highlighted by (Sidawi, 2012) stating that effective communications could not be met by traditional information management systems.

Figure 2.2 illustrates the key project stakeholders in a road construction project. The local authority 'the client' has a number of personnel involved in the construction of a road scheme; these include a Director, Senior Engineer, Project Engineer, Resident Engineer and an accounting representative - only two of which have a day to day role in the project.

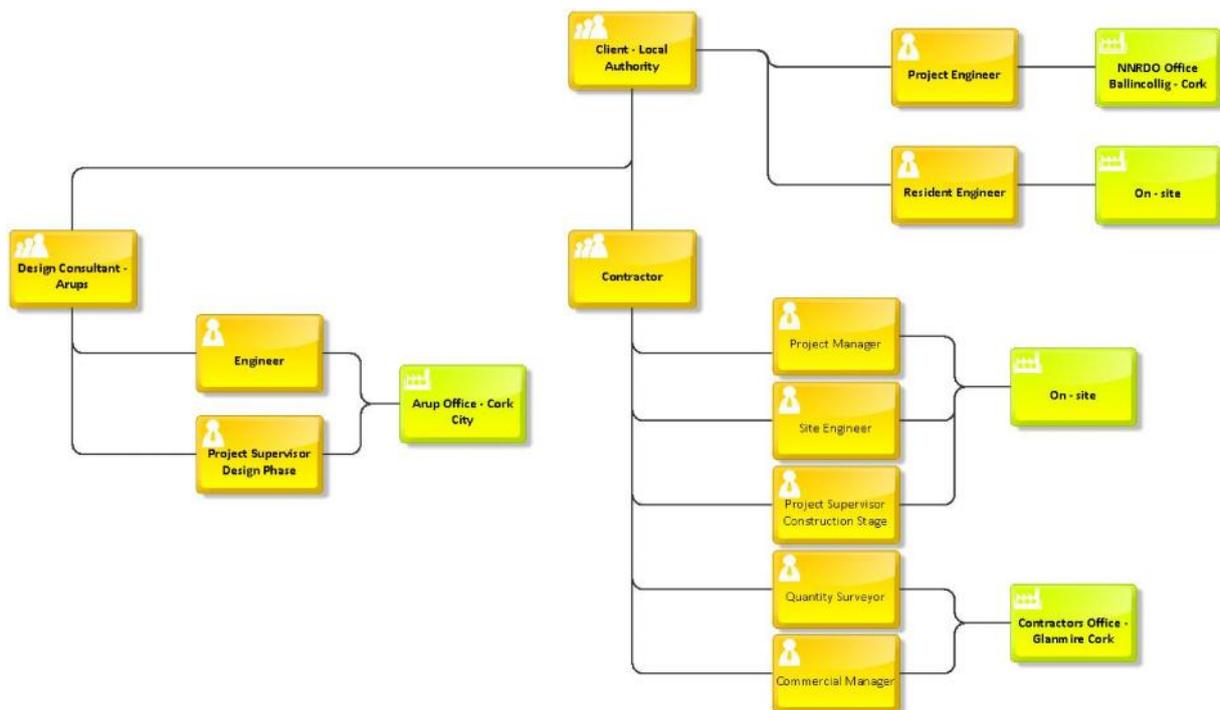


Figure 2.2 Project Organizational Structure

The client appoints an Employers Representative E.R., this appointment is required under Irish Law for all public works contracts. The E.R. is an independent engineer who has the power to issue determinations in the event of conflicts between the client and the contractor on a variety of issues related to the contract. With recent evolutions in the priority of Health and Safety a project supervisor design stage (PSDP) is also appointed by the client. The role of PSDP is to coordinate the design of a project in order to reduce the risks involved in the construction and operation of the infrastructure. In most cases the PSDP and the E.R. are from the same company.

The appointed contractor also has a number of key personnel involved in a project. These include the commercial manager, project engineer, site engineer and quantity survivors.

There are a number of external stakeholders in a road construction project. These include landowners, dwelling house owners adjacent to the site and the general public. The landowners are generally subject to accommodation works and would be directly affected by the construction works. These are contacted for scheduling works and progress reporting. House owners and the general public would be mostly affected by road closures.

2.2 Communications

The onsite communications management system should be designed around the requirements of the Resident Engineer. Figure 2.3 details the different types of information to be incorporated into the management system.

Site Information to be Tracked / Recorded	
Communications	Telephone calls
	Verbal communications - face to face
	Emails
	Meetings
Documentation	Working Drawings
	Works Specifications
	Change Control
Daily Progress	Crews onsite & Activities
	Plant (used / standing)
	Photographic Evidence
	Video clips
	Surveying Details
Instructions	Issued by Client / ER / RE to Contractor

Contractor	Submitting Claims
	Substantiation of Claims
	Request for Information
	Conformation of Verbal Instruction

Table 2.3 Site Information Types

The table highlights only the different types of communications between the principle stakeholders. In a large construction project running over a number of months or years, a significant volume of information is generated. It is a requirement for this information to be available to users instantaneity.

A sample of the overall process involved for a verbal instruction from the Resident Engineer to the contractors Site Engineer is seen in Figure 2.4. In order to close out this action over nine different communications and six different personnel are involved.

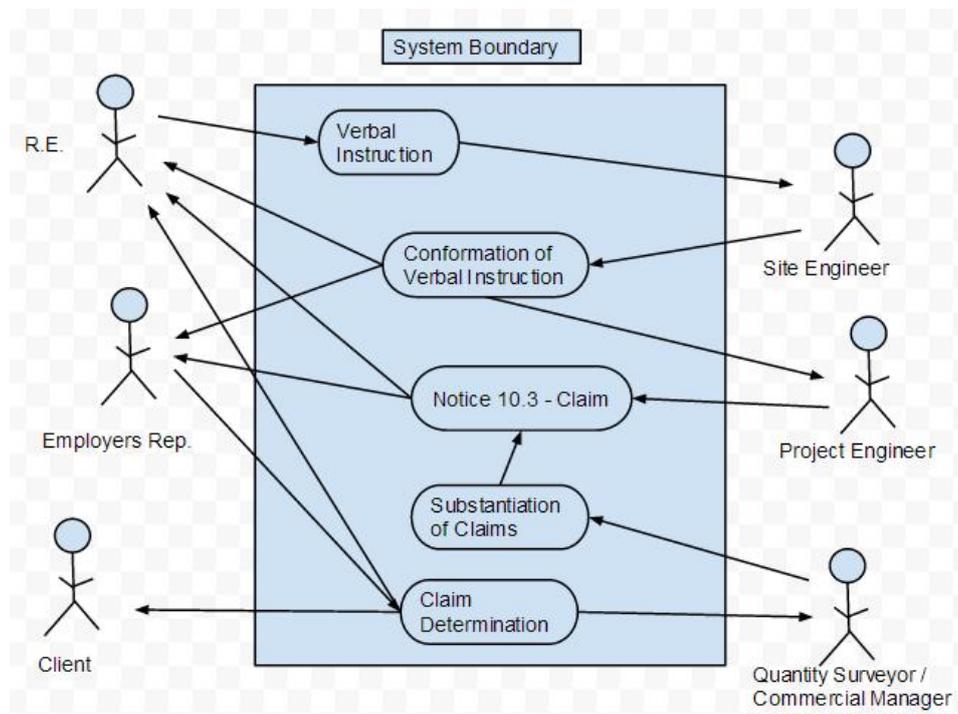


Figure 2.4 Use Case Diagram – Verbal Instruction

Example:

A verbal instruction is given to the contractors site engineer onsite in real time by the R.E., this instruction is then recorded and sent back to the R.E./E.R. on a record sheet detailing the instruction 'Confirmation of Verbal Instruction Form'. The contractor now assesses the contract to determine if they can claim for the instruction. A notice 10.3 under the contract is issued and is subsequently followed up within 30 days. This response substantiates the claim in monetary terms.

The E.R. can either make a determination on the claim or request further information on the claim within 10 days of receiving the substantiation. The result of which is distributed to the client and the contractor.

In larger projects the client can de-scope the works requirements in order to deliver the project within budget, it is common for budget overruns in the order of 10%. It must be noted that much of these overruns may have resulted from request on behalf of the client to complete extra work.

Under Irish public works contracts there are statutory deadlines for the contracted parties to respond to requests. It therefore becomes important for a Resident Engineer to be able to set deadlines and reminders for different communications within the site communications management system.

2.3 Current Systems

Cork County Council has approximately 3,800 employees whose duties vary widely. However, at least 2,500 employees are office based and have access to an Intranet dashboard. The intranet is based on MS Sharepoint. Some of the intranet users have been granted limited external internet access rights. The system has a firewall that allows access to sites such as google-mail but not access to Google Documents or Dropbox.

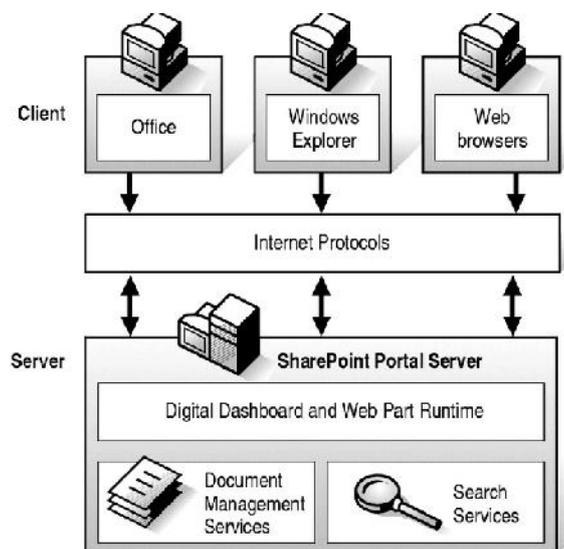


Figure 2.5 MS Sharepoint System Architecture

The internal email system is only accessible from within the intranet and can't be access from an external location. The emails can be diverted using the standard settings in Microsoft Outlook, however these can't be easily manipulated in a google-mail application.

Cork County Council as a local authority doesn't allow external connection to its intranet and restricts access from its intranet to the internet. This is due to its firewall settings to ensure the integrity and

security of its network. Also with budgetary pressures the company has very small storage allowances on internal email system.

Currently there is no Information Technology system in place for onsite activities within the Local Authority. In most contracts provision is made for a computer and internet access for the R.E., there is no further systems for the effective sharing of information between team members. Daily activity records are hand written and pictures are saved on a computer hard drive. Email communications are made through the local authority email system and forwarded on to a gmail account. The only manner for maintaining records is to print off all information and to hold a hard file in the site office. Information must be requested by other team members directly from the R.E. resulting in a cumbersome and time consuming flow of information.

2.4 Requirements

The on-site communication management system must be a standalone solution that can be accessed from within the local authorities firewalls as well as other users at different locations. It should be easy and intuitive for users to operate and would be required to include the following items:

- Multi Platform Accessibility
Any potential solution should be accessible from MAC, Linux and windows
- Inbuilt Security for Access
Two step authentication
- Multi Tiered Access Levels
Based on 'project roles'
- Audit Trail
Full audit trail of activities and undelete tools
- Email / Telephone and Instant Messenger Communication Management Tool
- Document Storage / Retrieval and Management Tool

(Kumar, 2010) stated that the key issues with getting companies to use cloud computing solutions within the construction industry is based principally on three items:

Trust, Security and Interoperability

These are the cornerstone for the requirements of the communication management system.

3.0 Market Place Solutions

Cloud Computing is defined as a model for enabling ubiquitous, convenient, on-demand network access to shared pool of configurable resources that can be rapidly provisioned and released with the minimal management effort or service provider interaction. The National Security Agency in the United States of America refers to cloud computing as big data (Nathanael Burton – Open Stack Summit, 2012). Cork County Council interests lie in the real time availability of data to multiple devices at different locations. Cloud computing offers a R.E. the ability to access information to aid in the timely well supported decision making and reporting while on-site.

Cloud computing can be divided into three service categories, the architecture of which is highlighted in Figure 3.1 below:

- Software as a Service
- Platform as a Service
- Infrastructure as a Service

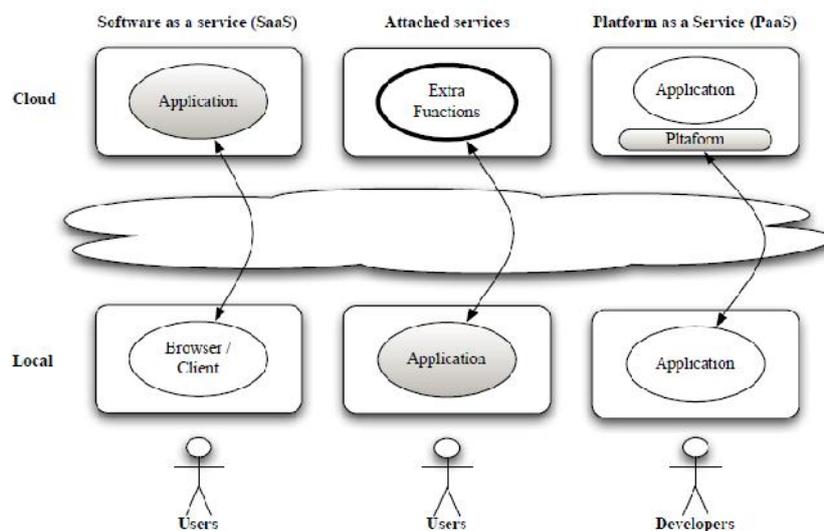


Figure 3.1 Cloud Computing Service Model

3.1 Software as a Service (SaaS)

This is a software delivery model in which software and other data are centrally hosted in the cloud. Software is accessed remotely via the web. It has become a common delivery model for many business applications including Computer Aided Design applications and Customer Relationship Management. Its benefits include the reduced level of investment by the user in product licensing and in additional hardware. The draw backs are security concerns and a resilient internet connection. SaaS vendors usually operate a freemium charging model. The architecture for SaaS can be seen in figure 3.1 above. Typical examples are Google Apps, Microsoft Office 365 and Facebook.

3.2 Platform as a Service (PaaS)

The basic concept of platform as a service is outlined in Figure 3.2. It provides the users a computing platform including an operating systems, applications, database and web servers. The service delivery model allows the customers to rent virtualized servers and associated services for running existing applications or developing new ones.

Typical examples of PaaS are Amazon AWS, Google App Engine and Force.com.

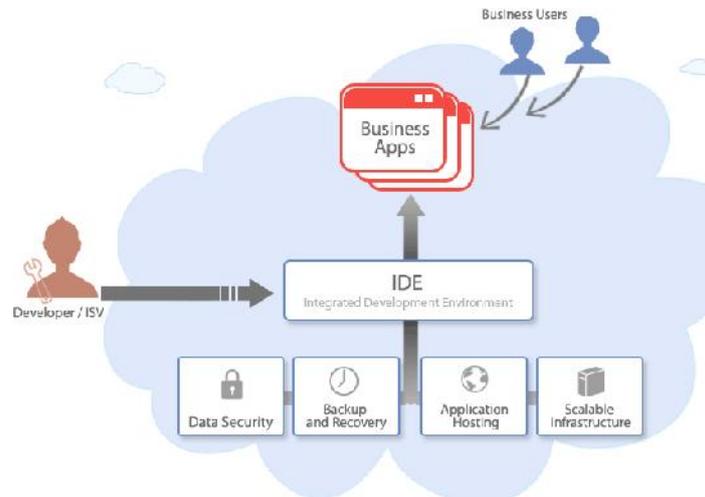


Figure 3.2 Platform as a Service

3.3 Infrastructure as a Service (IaaS)

This is the provision of storage and processing resources where the customer is able to develop and run independent software. Open Stack is a popular IaaS and is more of a management console. Its standard system architecture can be seen in Figure 3.3

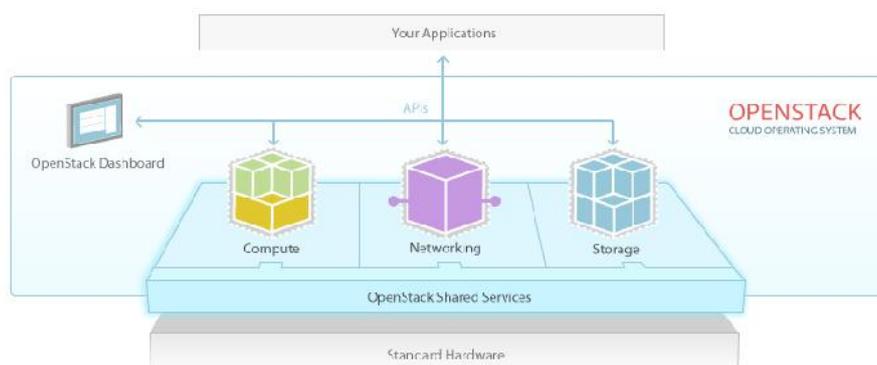


Figure 3.3 Open Stack System Configuration

It has least privileged access design capabilities, allowing root access separation for management and different services. Typical examples are Amazon EC2, Windows Azure and Rackspace.

3.4 Clouds

Clouds are essentially virtualized computer infrastructure. There are a number of different cloud types – these are public, private, community and hybrid. These are summarised below and are also illustrated in figure 3.4.

Public Cloud

This consists of services that are delivered over the internet by a service provider. It utilizes storage capacity and processor power supplied by the vendor and not owned by the customer.

Private Cloud

This is a cloud service which has a non-shared resource. The infrastructure is operated solely for a single customer. A large capital investment is required by the customer using this private cloud.

A public cloud offers a distinct advantage as it offers a more on-demand capacity and is generally related to a fee for service charge.

Community Cloud

A community cloud is a hybrid private cloud. It is operated specifically for a targeted group, whose customers have similar cloud requirements. The costs are shared between the users.

Hybrid Cloud

This cloud is a mixture of one or more of the above clouds. Customer/users can use the scalability of public clouds for archived data and maintain in-house storage for operational data in a private cloud.

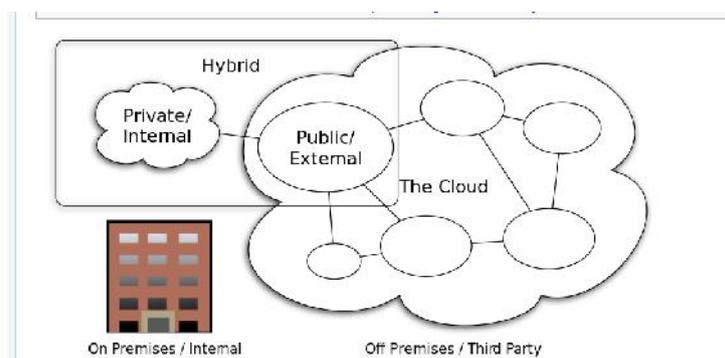


Figure 3.4 Cloud Computing Types (Dolenc, 2013)

3.5 Existing Packages

A number of existing popular packages are summarised in figure 3.5 below, these are mostly used for document sharing and control.

Application	Syncing	Tracking	File Sharing	Revision History	Free Size	OS	OS - Mobile	Security	CCC Firewall
Dropbox	Yes	Yes	Download link only	yes - 30 days	2 GB	Windows / Mac / Linux	iOS / Android / Blackberry	2 step verification	No
Google Drive	Yes	Yes	Yes (simultaneously editing)	y - 100 doc revisions	5 GB	Windows / Mac	iOS / Android	2 step verification	No
SkyDrive	No	No	Yes (simultaneously editing)	y - 25 doc revisions	7 GB	Windows / Mac	Windows / iOS / Android	Verification Codes	No
Amazon Cloud	Yes	No	Yes	No	5 GB	Mac / iOS / Android / Windows		2 step verification	No

Figure 3.5 Summary of Popular Services

Both google drive and sky drive are easily used for web editing, google has its own version of Microsoft Office called Google Documents and this allows documents to be edited online in the same fashion as MS Sky Drive. These providers also allow users to simultaneously edit the same documents.

Amazon Cloud is a popular application for pictures storage as it is often referred to as a digital locker, it has recently added a syncing capability but its functionality remains behind that of the other providers.

Dropbox is often referred to a digital USB stick with availability worldwide with a web connection.

However, these popular solutions such as drop box and google documents are not feasible as a communication management system platform. These have issues surrounding the sensitivity of the information, security concerns and the need for complex data access permissions.

These applications also fail to address other requirements such as tracking deadlines for replying to queries and the close out of issues.

4.0 Development of Solution

Proposed System

A 3-tiered architecture with the RDBMS (data persistence layer), the business logic (2nd tier application layer) and the web service (1st tier presentation layer) separated from one another. Additionally internal/external 3rd party databases and systems can be integrated using web services, if agreed with consultants and contractors.

Open standards and interoperability would be utilised by fully utilising SOAP and RESTful web services. Data is exported in a standard format and placed on a mutually accessible shared drive/location, eg: SFTP. The other parties systems can poll this location to collect the feed and import.

4.1 Web based Software

The solution is loosely based on a CRM structured application. It is however more focused on tracking tasks than the traditional sales, leads and accounts. This structure allows the R.E. to manage complete workflows using a rule based ticketing and queuing system. Tickets are created either by inbound/outbound emails, phone calls and meeting action points. Similarly they can be created by the R.E. as required. This would be a flexible, scalable and intuitive tool for a variety of users, with different levels of user access.

Each ticket gets a unique reference number that can be fed back to relevant users. Multiple instances of communication regarding this particular enquiry will therefore remain associated with this original ticket. Incoming emails referring to this ticket will automatically get added to the ticket. Staff can also send emails from this ticket and record outbound/inbound phone calls. This will allow a cohesive process to be followed from the start to the end of an enquiry. A ticket may be made up of multiple emails and telephone calls (both inbound and outbound).

Ticketing:

These have a number of metadata fields that are used to record important information (user who has sent an enquiry, Status (open, closed), Date received, Response due date, category, comments etc). The image below shows an example of metadata stored with each ticket.

Expand description panel						
Priority	Normal	Contact	Applicant: Joe Bloggs		Poor review	No: required
Status	Open	Category	Technical		Reviewed by	
Business eqc	73:58	Assigned to			Referred by	
Response due in	- 34:20	Escalated	Yes		Proposed to close	No
Response due	07/00/2012 14:00	Escalate level			SLA Root Cause	
SLA date		Escalate reason showing that his application was submitted on the 14th May 2012 when he actually submitted it in march			SLA comment	
Project		QA				

More					
Make priority sticky	No	Created date	01/06/2012 12:22	QA comment	
Type	Request Fulfillment	Updated by		Time spent (minutes)	50
Response due sticky	No	Updated date	12/06/2012 14:05	Campaign	None
Previously Assigned		First response time	25:09		
Created by		QA action			

Figure 4.1 Ticketing Data

In normal operation, once a ticket is created due to an incoming email/phone call, the R.E. will review the enquiry and respond with resolution if available or ask for more information prior to resolving. Once an enquiry is resolved or a question answered, the R.E. will close this ticket and move on to the next in the queue. Tickets are therefore able to capture complete interactions with enquirers.

Queues:

The queuing system ensures that the R.E. focuses on resolving tickets in the right order as specified in the rules. The basic and default rules check the response due times of each ticket. This ensures queries with upcoming deadlines are addressed first. The image below shows a typical queue of tickets.

SDO L1		SDO L3		Tasks	
Show filters		Open selected		Reject selected	
		Export to CSV		Sorting	
<input type="checkbox"/>	<input type="checkbox"/>	Number	Subject	Response d...	
<input type="checkbox"/>		#252280	Re: FW: SD allocations and DMS systems	- 84:14	
<input type="checkbox"/>		#252281	Fwd: SD allocations system	- 84:11	
<input type="checkbox"/>		#252313	Re: ECHO Case 2012/0030234	- 81:46	
<input type="checkbox"/>		#252290	RE: FW: SD allocations and DMS systems	- 81:45	
<input type="checkbox"/>		#252308	RE: ECHO Case 2012/0030234	- 80:03	
<input type="checkbox"/>		#252335	Re: FW: SD allocations and DMS systems	- 79:36	
<input type="checkbox"/>		#252343	RE: ECHO Case 2012/0030234	- 76:52	
<input type="checkbox"/>		#252541	Re: ECHO Case 2012/0030234	- 69:18	
<input type="checkbox"/>		#252546	GTP - Confirm email address request	- 69:15	
<input type="checkbox"/>		#252545	Re: GTP helpdesk email and allocations info update	- 69:15	
<input type="checkbox"/>		#252543	New GTP helpde sk email now active	- 69:15	
<input type="checkbox"/>		#252694	Re: ECHO Case 2012/0030234	- 62:08	
<input type="checkbox"/>		#252692	RE: ECHO Case 2012/0030234	- 60:18	
<input type="checkbox"/>		#252921	RE: GTP helpdesk email and allocations info update	- 49:09	

Figure 4.2 Ticket Queues

In the image above, the taskbar at the top shows other functionality available. Site support staff with the appropriate permissions can access other levels of escalation to see relevant queues. Tickets can also be exported into csv, excel for off-line manipulation and reporting.

Filters:

Filters available to allow users to search and drill down to a relevant set of tickets. Users may want to review tickets of a certain category, assigned to a given staff member or all tickets referred by a given user. The image below shows the filters section expanded for a queue. Note the status filter is set to open by default in the below example.

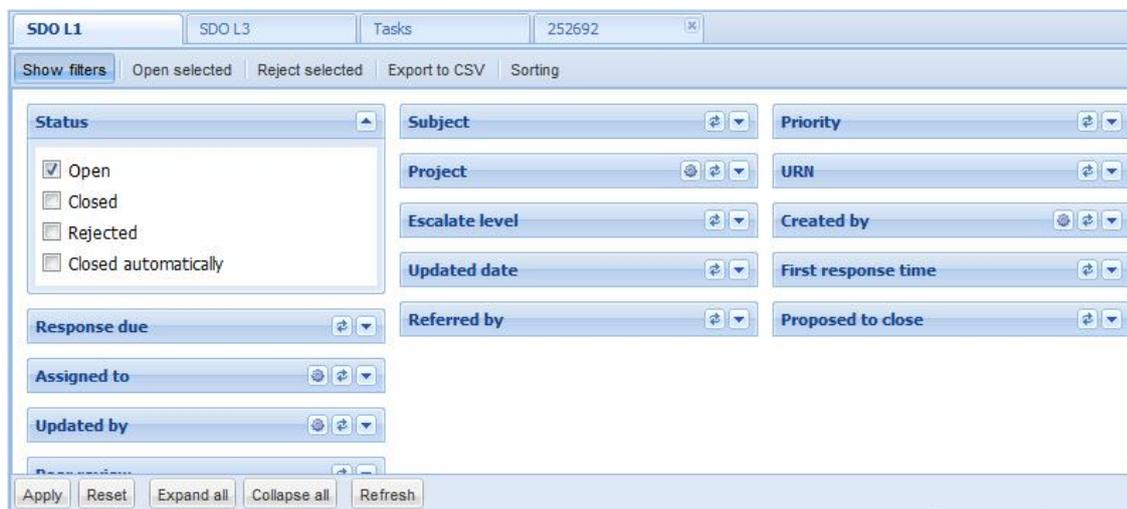


Figure 4.3 Ticket Filtering

History and audit

The CRM has an audit feature built in. A ticket history is accessible from the ticket page itself that details each action (automatic or manual) carried out on a ticket. This includes escalation, de-escalation, communications received or sent out, updates to summary and description. The image below shows the history drop down within a ticket.

Date	User	Contact/From	Subject	Business Rule
01/06/2012 12:22	Support staff 1	Joe Bloggs	Application Joe Bloggs	
01/06/2012 12:22	Support staff 1	Support staff 1	updated	
01/06/2012 12:22	Support staff 1	Support staff 1	Category (Technical), Assigned to (staff 1), Time spent (minutes) (16)	
03/06/2012 09:00	Support staff 1	Joe Bloggs	Application - Joe Bloggs (ticket #252860)	
03/06/2012 09:00	Support staff 1	Support staff 1	03/06/12:00 - sent chaser email	
03/06/2012 09:00	Support staff 1	Support staff 1	Description, Time spent (minutes) (23)	
03/06/2012 21:33	Support staff 1	Joe Bloggs	RE: Application Joe Bloggs (ticket #252860)	
03/06/2012 21:33	Support staff 1	Joe Bloggs	Hi: Application - Joe Bloggs (ticket #252860)	
07/06/2012 09:48	Support staff 1	Support staff 1	escalated to L3	
07/06/2012 08:48	Support staff 1	Support staff 1	Description, Escalate level (Analysis: SDO L3), Escalate reason, Time spent (minutes) (43)	
12/06/2012 14:05	Support staff 1	Support staff 1	updated	
12/06/2012 14:05	Support staff 1	Support staff 1	Description, Time spent (minutes) (53)	

Figure 4.4 Ticket History

This functionality allows storing and reviewing all interactions between the Project stakeholders

Task Management

The task management module allows for tasks to be created in a ticket, and assigned to a particular user. The task can have a start and end date (they do not need to match — could be an ongoing task or one that has a flexible due date). A task does not need to be created by the user it is assigned to. In normal business operation, if an enquiry comes in that requires advice from a different staff member, the R.E. can create a task for them. Managers can also create tasks for team members as an effective work distribution mechanism.

Dashboard / Reporting:

The dashboard is a quick reporting and visualization module that provides essential management information at the click of a button. Authorised users can access the dashboard from the menu and review current status of queues, response times and ticket states. This is updated in real-time and therefore extracts current information from the database. A number of widget types are available like:

- Column
- Bar
- Pie
- Line
- Area
- Radar

Users can select/change widgets they want displayed and key metrics are extracted from the tickets database.

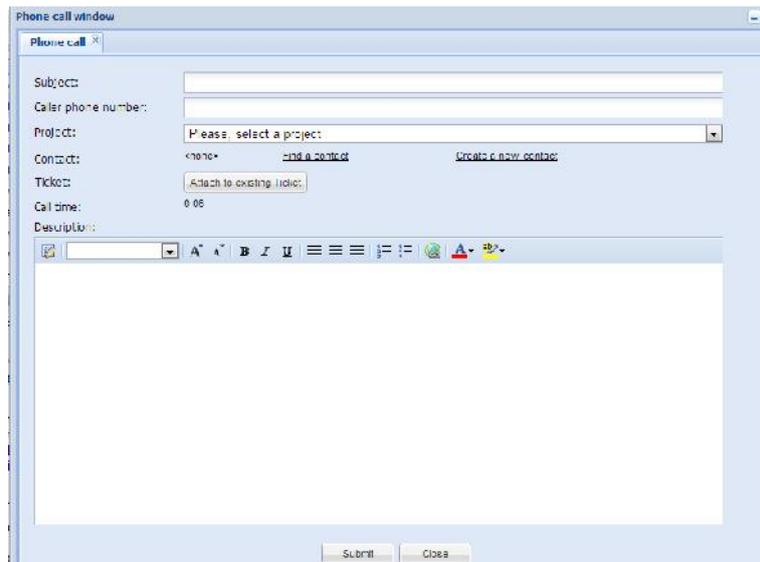
Document Management System:

The contractor is issued with a full set of contract drawings and works specification at the tender stage. Any changes in these documents could be tracked and recorded through the CRM ticketing infrastructure.

Other requirements such as daily activity records can be managed in a similar manner with a ticket generated for each day's records (Pictures / Site Records / Surveys etc.). These would be added to this ticket as reference data. These records can then be viewed immediately by users at different locations.

Phone Calls:

The online system also has a VoIP add-in, this allows the R.E. to make phone calls to stakeholders from within a ticket / task. The call is automatically logged and added to the ticket – details of the conversation are required to be summarised in the popup window illustrated in Figure 4.5, below.



The screenshot shows a web-based form titled "Phone call window". The form contains the following fields and controls:

- Subject:** A text input field.
- Caller phone number:** A text input field.
- Project:** A dropdown menu with the text "Please select a project".
- Contact:** A dropdown menu with "<none>" selected, and two buttons: "Add a contact" and "Create a new contact".
- Ticket:** A dropdown menu with "Attach to existing ticket" selected.
- Call time:** A text input field containing "0:08".
- Description:** A large text area with a rich text editor toolbar above it, including icons for bold, italic, underline, list, link, and other formatting options.
- Buttons:** "Submit" and "Close" buttons at the bottom of the window.

Figure 4.5 VoIP Details

A more detailed examples of this system is available in Appendix A to this report.

5.0 Conclusion

This report has shown that software systems are complex in nature. Cloud computing has developed to be exploited by large data users to reduce the requirements for capital investment in equipment. However, it is also useful to small data users to provide real time access to information at a variety of different locations to different users.

I introduced the three different cloud computing service categories – SaaS, IaaS and PaaS. I reviewed the four main types of clouds – Public, Private, Community and Hybrid clouds. I also reviewed the basic offerings of the four main type of user applications available and concluded that none was exactly suited to our needs.

It is evident from my research that public and private clouds don't offer the security required by a Local Authority to ensure the integrity of its information. I suggest that a hybrid model is the best structure for a proposed system.

I proposed the use of a CRM based system that is designed to record and track communications between project stakeholders using ticket system to track the different correspondents and provide an audit trail of decisions through-out the life cycle of each query. The package is capable of having different levels of access rights for users and can automatically escalate queries that have not been dealt with before contractually imposed deadlines lapse.

The success of the communications management system lies with the methodical inputting of data to the system. Items such as face to face conversations, phone calls need to be logged and matched to the relevant ticket to ensure coherent records are maintained. However the emails would automatically be managed by the management system.

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Appendix A

Sample Screen Shots from CRM Solution

Online Sign-in

Login Form

Login:

Password:

Email Inbox

Inbox mail list		Phone calls	
Sender	Project		Subject
aidan.lync@coirico.ie	Abanimus		Fwd: FW: 634 R56: Donorale to Newtownpothouse Road Realignment
aidan.lync@coirico.ie	Abanimus		Fwd: FW: 634 R56: Donorale to Newtownpothouse Road Realignment
aidan.lync@coirico.ie	Abanimus		Fwd: FW: 634 R56: Donorale to Newtownpothouse Road Realignment
aidan.lync@coirico.ie	Abanimus		Fwd: FW: 634 R56: Donorale to Newtownpothouse Road Realignment
renewable-energy-focus@renewables@na...	Abanimus		Working With Water - Head 2 Working World WS
renewable-energy-focus@renewables@na...	Abanimus		Weather - Korum Project Financing in South Africa
renewable-energy-focus@renewables@na...	Abanimus		Renewable Energy Focus News, November 27, 2013
renewable-energy-focus@renewables@na...	Abanimus		AcademiaX - Expanding all the boundaries
renewable-energy-focus@renewables@na...	Abanimus		Wind Technology News Update: radar, gearboxes, sensors, lubricants and more...
renewable-energy-focus@renewables@na...	Abanimus		Working With Water Weekly 21 November 2013
renewable-energy-focus@renewables@na...	Abanimus		5 Steps to Closed Loop Waste to Energy
renewable-energy-focus@renewables@na...	Abanimus		Renewable Power Generation 2012, PV in perspective, NREL News and more
renewable-energy-focus@renewables@na...	Abanimus		Estcom South African Wind Integration
renewable-energy-focus@renewables@na...	Abanimus		Renewable Energy Focus E news, November 11, 2013
renewable-energy-focus@renewables@na...	Abanimus		Working With Water Weekly 14 November 2013

Page 1 of 16 | Display 150 of 785

Fwd: FW: 634 R561 Donorale to Newtownpothouse Road Realignment

From: Aidan Lynch

Contact: aidan.lync@coirico.ie

Link: [#002961 - Fwd: FW: 634 R561 Donorale to Newtownpothouse Road Realignment](#)

From: Deane O'Leary (mailto:deane@pajointvnshea.ie)

Sent: 12 November 2013 16:30

To: David Twomey

Co-Info: Peter McCann; Liam Callahan; Tomar Ginty; aidan.lync@coirico.ie

Subject: Re: 634 R561 Donorale to Newtownpothouse Road Realignment

David,

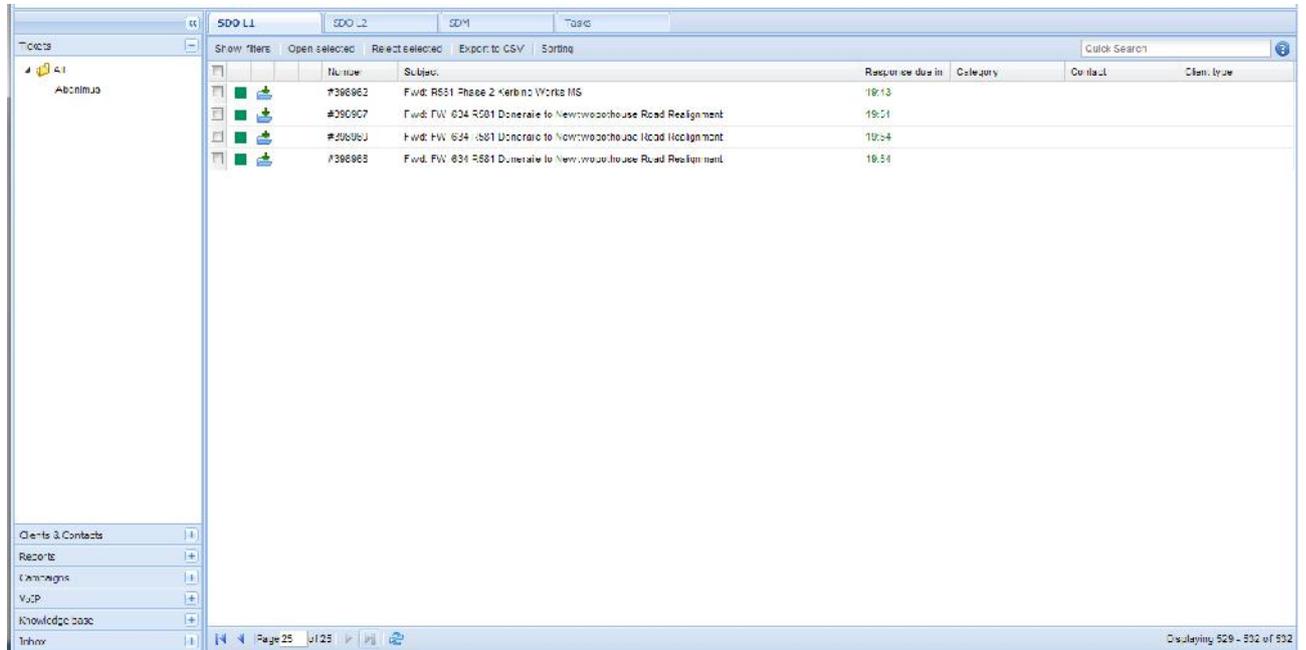
As per your request under Clause 10.5.1 in relation to our substantiation to Clause 10.3 Notice 1 please find additional information below

It would not be reasonable to use the general substantiation of €3/m3 contained in the pricing document as the work is not similar for the below listed reasons:

Contractor is not a local contractor and is not a local contractor. The contractor is not a local contractor and is not a local contractor.

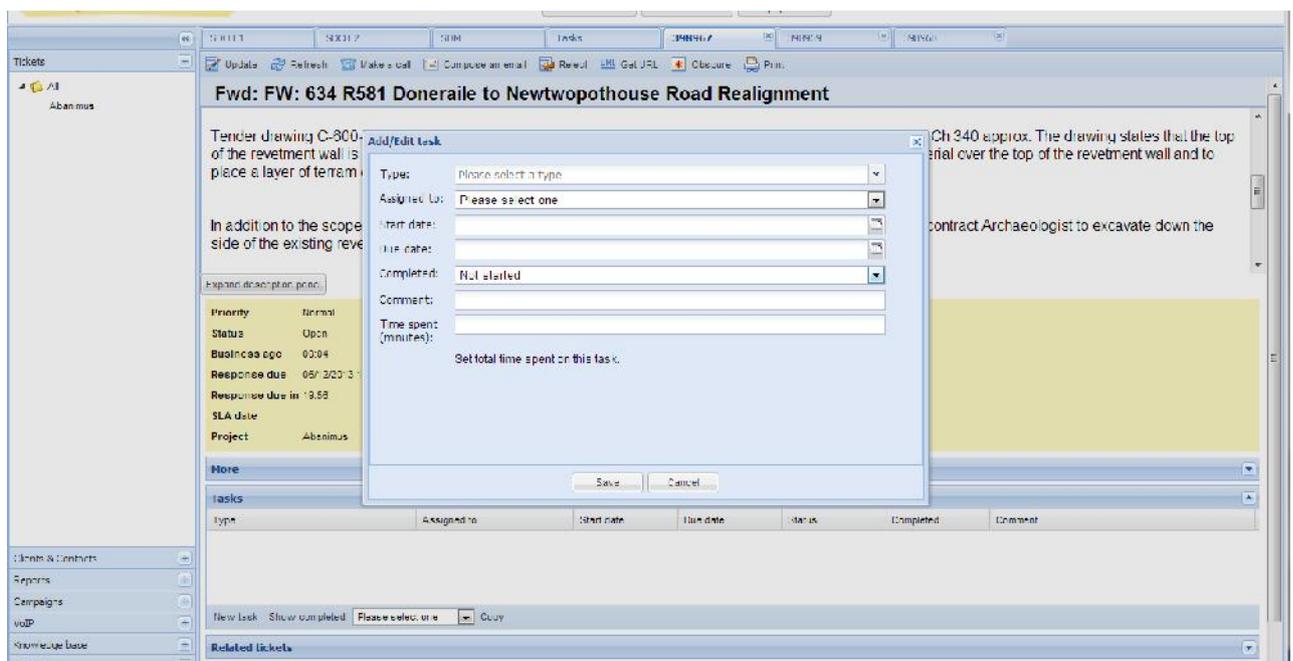
Tickets:

Each new email / phone call sent or received is automatically generated a sequential ticket number



Task:

The tickets can be converted into a task. This task can have a number of fields – type, assigned to, start/end date, comment and time spent.



Multiple tickets can be added to the same task. This is the key strategy for tracking details of communications sent on a single topic.

Fwd: FW: 634 R581 Doneraile to Newtownpothouse Road Realignment

From: Peadar O'Leary [mailto:peadar@mcgintycsnea.ie]
Sent: 12 November 2013 16:37
To: David Twomey
Cc: info; Peter McCarthy; Liam Callanan; Fionan Ginty; aidan.lynch@ccorkcoco.ie
Subject: Re: 634 R581 Doneraile to Newtownpothouse Road Realignment

David,

Expand description panel

Priority	Normal	Contact		Reviewed by	
Status	Open	Category		Proposed to close	No
Business age	00:06	Assigned to		SLA Root Cause	
Response due	06/12/2013 12:28	Escalated	No	SLA comment	
Response due in	19:54	Escalate level Operator (SDO L1)		Total time spent (minutes)	
SLA date		QA			
Project	Abaninus	Peer review	Not required		

More

Type	Assigned to	Start date	Due date	Status	Completed	Comment
Check data	Aidan Lynch	04/12/2013	06/12/2013	Not started	Not started	Potential for claim - item to be reviewed

New task Show completed Please select one Copy

Related tickets

Priority Normal Contact Reviewed by
 Status Open Category Proposed to close No
 Business age 00:06 Assigned to SLA Root Cause
 Response due 06/12/2013 12:28 Escalated No SLA comment
 Response due in 19:54 Escalate level Operator (SDO L1) Total time spent (minutes)
 SLA date QA
 Project Abaninus Peer review Not required

More

Type	Assigned to	Start date	Due date	Status	Completed	Comment
Check data	Aidan Lynch	04/12/2013	06/12/2013	Not started	Not started	Potential for claim - item to be reviewed

New task Show completed Please select one Copy

Related tickets (2)

- #388968 Fwd: FW: 634 R581 Doneraile to Newtownpothouse Road Realignment [Remove](#)
- #388969 Fwd: FW: 634 R581 Doneraile to Newtownpothouse Road Realignment [Remove](#)

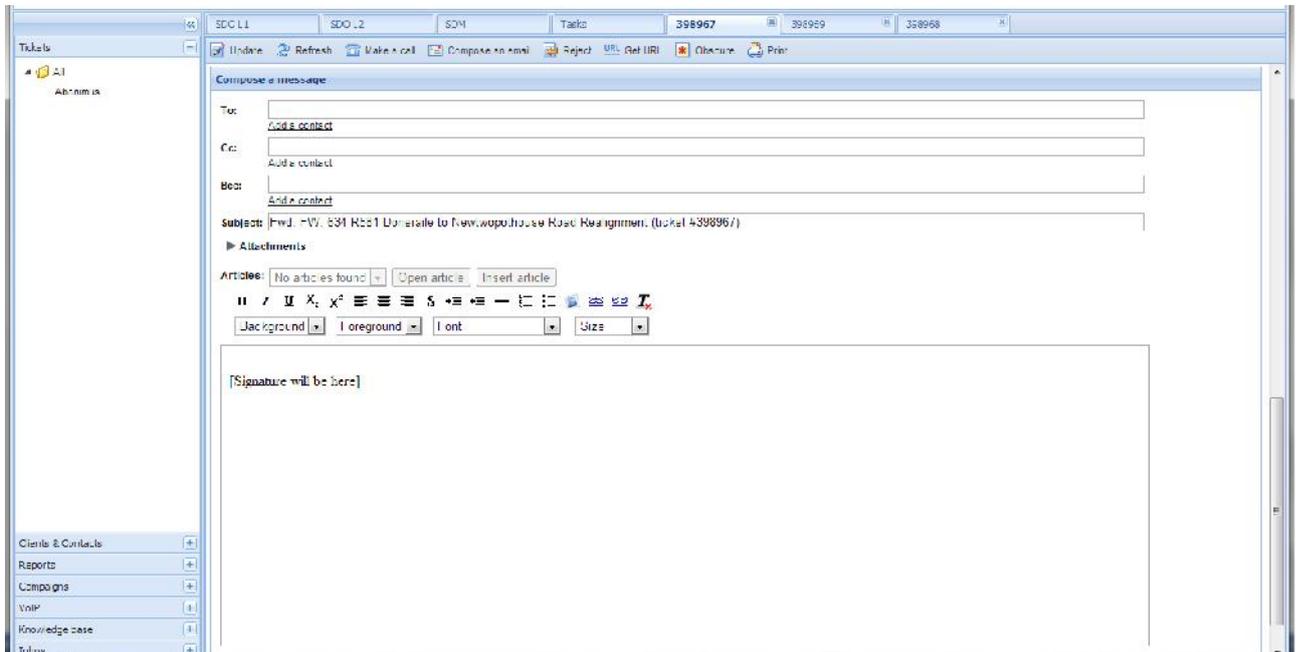
Add

Knowledge base

History

Date	User	Contact/From	Subject	Business Rule
04/12/2013 11:28		aidan.lynch	Fwd: FW: 634 R581 Doneraile to Newtownpothouse Road Realignment	
04/12/2013 11:34		Aidan Lynch	Task "Check data" created: Type (Check data), Assigned to (Aidan Lynch), Start date (04/12/2013), Due date (06/12/2013), C...	

Emails / Phone can be directly send from within a ticket.



Independent New Task

