Technical Whitepaper

Hosted, Installed, or Hybrid:
Emergency Notification Deployment - Cost Benefit Analysis
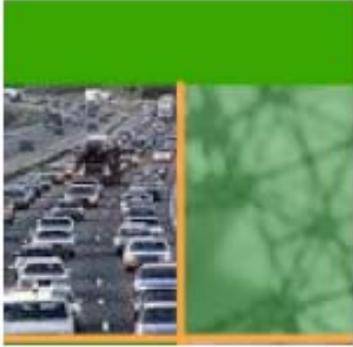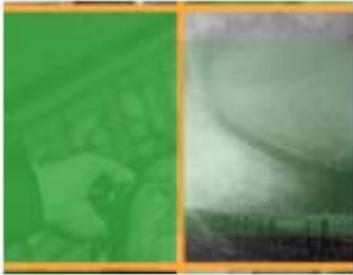
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Intelligent Notification in the Enterprise

The post-9/11 and hurricane Katrina world centers on the ability to respond to unforeseen events quickly and effectively. Our security-conscious world requires technology that enables rapid, interactive communication that can be sent and received on any device including desktop email, SMS, satellite and landline phones, TDD/TYY devices (for hearing impaired), as well as wireless phones, pagers and PDAs in a crisis. It must be able to reach thousands of people, located anywhere in the world as quickly as possible.

Selection of the right technology for your specific needs, requires careful examination of a large number of vendors and their various notification/communication offerings. Most notification vendors, in general, provide similar, competitive, features and functions that in most cases can meet your need for an effective one-to-many, multi-modal notification system.

What complicates the selection process are the various delivery models and their appropriateness for your organization. Most emergency notification vendors only offer a hosted service while others offer only a deliverable (installed by you in your own IT environment) solution. Very few present both hosted and deliverable models. Fewer provide a third "hybrid" option.

Many individuals tasked with selecting a high-speed notification technology solution can use some guidelines in deciding the right model for their organization's needs.

The Purpose of this Paper

This paper provides you with an overview of the costs and benefits of a hosted (ASP-style) notification service model versus that of an on-premise, deliverable software solution, and a hybrid of the two models. The information and guidelines will assist in deciding which model is best for your organization.

Hosted Service vs. Deliverable and Hybrid Notification Solution Models: Decision Factors

The most important variables in selecting a hosted or a deliverable[1] enterprise notification solution are your intended use of the system, budget, as well as the size of your organization. Traditionally vendors only offer either a hosted or deliverable notification system, however, your choice need not be limited to either. A "hybrid" solution consists of a deliverable element that processes notifications, and stores your contact information within your IT environment. Telephony, SMS, and high speed fax elements are hosted to eliminate the need to invest in costly hardware/software and telecommunications infrastructure. Figure 1 on page 4 illustrates the differences between these three models.

The intended use, combined with the ability of your organization to install, implement, and maintain an in-house solution will determine whether a hosted, installed, or hybrid notification solution is best for you. Cost/budget must also be considered in choosing the right model.

For example, if you intend to use the notification system strictly for emergency/disaster management, then it may make more sense for your organization to opt for a hosted solution to avoid the possible loss of this critical notification system during a disaster. On the other hand, if you intend to use a notification system as an enterprise communications tool areas such as IT alerting, human resources, supply chain management, and customer call center operations, then it may be more cost effective to install a deliverable or a hybrid system. In this case, the startup and on-going cost of operating the system can be shared across different departments, divisions and budgets within your organization.

There are different aspects to the budget issue. Have you included a budget for the cost of notification transactions[2]? If so, how much uncertainty in the transactions cost estimate can you tolerate? How often will you use the system? These questions are important because they will help decide the right model for your notification needs. For example, transaction costs for hosted solutions are generally markedly higher than those associated with a

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[1] System is installed behind firewall within your IT infrastructure.
[2] Cost of telephone calls, SMS messages and/or faxes, etc.

deliverable solution. The uncertainty in estimating the number of notification transactions will have much less impact on your budget than those of a hosted environment.

The cost of any notification solution is dependent on a number of factors which may include the number of individuals (communication devices) that must be contacted when using the system, the speed with which they must be contacted, and the length of your commitment to the hosting system vendor. The number of devices to be contacted in combination with the required speed to reach them, will determine the number of telephony ports (telephone lines) needed. More ports add to the cost of the system. Many notification service vendors discount their hosted system's annual subscription fee if you sign a multi-year subscription contract.

Additionally, the scalability, proven reliability and security of the notification solution must also be considered.

Scalability requires a vendor to build agile processes to monitor, and provision additional hardware and software, as the use of its' infrastructure approaches physical limits in a timely manner to provide the level of service you demand. Again, this adds to the cost of the notification service.

Providing a reliable hosted or hybrid solution requires the vendor to spend time and money in creating a hosting environment with redundant server hardware, enterprise grade relational databases, telephony hardware/software and telecommunication carriers. All of these add to the price of the hosted or hybrid service.

Proven reliability means that the notification solution is battle tested with ample evidence of consistent performance in real-life situations. This is particularly important if you intend to use the system for emergency management. Nothing is more frustrating than trying to use an emergency notification system that you have worked hard to identify, acquire, implement, and maintain, then finding out it does not work as promised in a time of crisis. Aside from the embarrassment that follows such a failure, the associated monetary and possibly human costs, are truly unacceptable. Opting for a deliverable system, allows you more control to ensure system reliability within its designed capacity.

Data security requires robust processes, hardware and software to provide you the peace of mind that your information is secure. Selecting the right vendor with the right security measures requires much due diligence on your part when deciding on hosted and hybrid services. Total and complete data security naturally adds to the cost of the hosted notification service.

If you select your notification system vendor carefully, you need not be locked into any of these three models. The right vendor will provide you with the flexibility of selecting a hosted service, installed, or hybrid solution tailored to your organization's requirements. Choosing the right vendor will remove the risk of being locked into a particular solution and will allow you to switch to a different model as your needs and use patterns change over time.

A potential migration path, from a hosted to a deliverable system, must also be carefully examined. Does the vendor provide you an automated way to package, export and import your valuable data from the hosted environment to a deliverable one? How does the vendor handle the disposition of your data from their hosted environment in a secure manner?

Your vendor of choice must provide you with reasonable answers to these questions to ensure that your efforts in creating and maintaining your contact information and notification scenarios are not wasted during a migration, and your data, no longer needed on the hosted environment, is not compromised to unauthorized personnel.
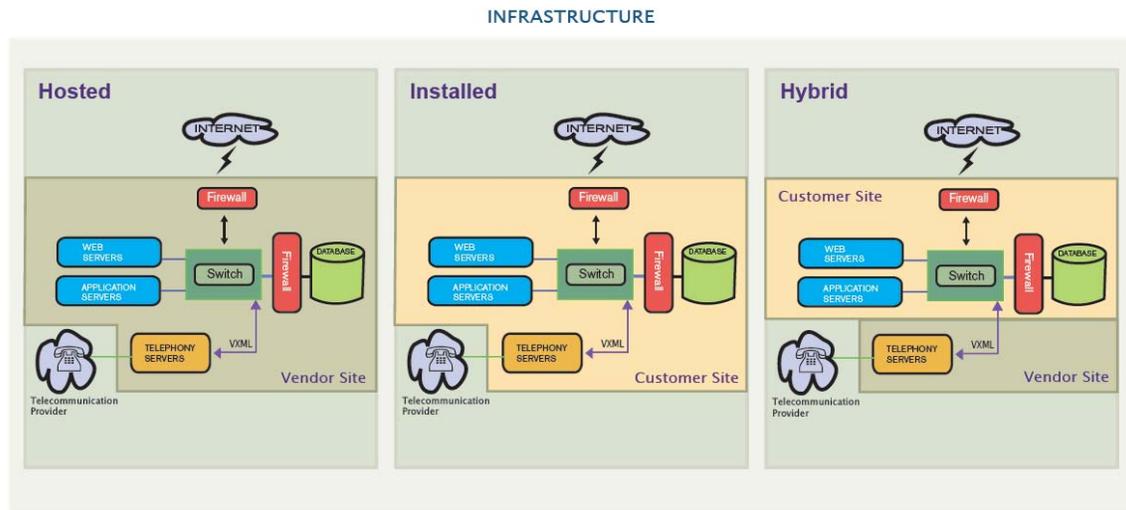

Figure 1 – Hosted vs. Installed (Deliverable) vs. Hybrid Model

Hosted Notification Service

Vendor hosts and sends all notifications for you.

The following guidelines will help determine if a hosted notification solution is the right choice for you. There are other determining factors that are not covered in this section, such as company specific policies or culture. Therefore, you may need to consider other factors as you evaluate various notification options.

Choose a hosted notification solution if:

- Your organization's IT infrastructure is not geographically dispersed, and would not provide adequate, redundant, notification infrastructure in-house.

- You need a 24x7x365 reliable notification system, and your IT organization is unable to provide this level of availability and service.

- Your budget, or usage pattern, does not justify the high startup cost of an installed deliverable solution.

- You are assured of an annual budget adequate to continue your subscription to a notification service.

- You need a notification system to be provisioned quickly in days not weeks.

- Your projected usage does not result in high recurring communication transaction costs, associated with a hosted system.

- You are comfortable with shared telephony infrastructure (although some vendors, such as MIR3, provide you an option for dedicated telephony ports) and understand the risks and benefits associated with such a shared arrangement.

- You do not have the required in-house workforce to provide adequate training and customer support to your end users.

- You need an interim notification service until your budget and timing allows for a migration/upgrade to a deliverable or hybrid model.

Pros:

- Low initial start-up cost.

- Quick provisioning of the notification system within days not weeks.

- The notification system is not susceptible to disasters affecting your IT infrastructure.

- Highly available with on-demand customer support 24x7x365.

- Reliable and scalable.

- Initial expert training is included.

- No need for on-going application or infrastructure maintenance. All application updates and new features are automatically and immediately available to you.

- Migration path to a deliverable or hybrid solution.

Cons:

- Little control and visibility over security, system availability, timeliness of additional communication resources provisioning.

- Higher cost of notification transactions.

- Less flexibility of integration with legacy databases or systems (e.g. LDAP authentication, single sign-on, etc.).

- Most vendors only offer a shared communication infrastructure which, by it's very nature, may delay delivery of your notifications.

Vendor Requirements:

- Vendor provides solid evidence of reliability and scalability.

- Vendor provides high-availability service level agreement.

- Vendor has an up-to-date Business Continuity/Disaster Recovery (BC/DR) plan.

- Vendor's security policies and Safe Harbor provision, provide adequate protection against loss of data, and allows you to meet your regulatory obligations (American and European privacy laws, etc.)

Benefits: Vendor helps you populate the contact database and the ability to use the service is immediate. Vendor hosts, manages and provides software updates automatically. Cost is based on usage and maximum bandwidth. Some vendors have advanced state of the art failover and network security safeguards in place.

Best for: Applications, such as, emergency and business continuity communications. The system is not being used on a daily basis.

On-Premise, Deliverable, Notification Solution

ON-PREMISE INSTALLED MODEL:

The notification application is installed at your site and all notifications are sent via your telephony server and communications infrastructure. You are responsible for providing failover safeguards and managing the application and infrastructure.

The following guidelines will help determine if an on-premise deliverable notification solution is the right choice for you.

Choose a deliverable notification solution if:

- Your organization's security policies require full control over processing, storage and disposition of information, and do not allow hosting of your data in a third party environment, (as is the case with some government agencies).

- Your IT organization is equipped, knowledgeable and willing to install and maintain communication hardware, enterprise level databases, and applications in a secure, redundant, and high availability environment.

- Your projected usage of telephony, SMS and fax transactions, will justify procurement and maintenance of expensive telephony hardware and telecommunications lines.

- Use of a third party, hosted telephony, SMS, and fax infrastructure will result in high recurring communication transaction charges[3].

- Your usage across functional departments, or divisions, justifies an in-house enterprise notification system.

- You have only capital budget to procure a notification system.

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[3] Hosting vendors charge higher rates for transactions to off-set the cost of procurement and maintenance of telephony infrastructure while managing a reasonable profit margin.

- You need dedicated telephony ports to guarantee timely delivery of telephony notifications (if your vendor does not offer dedicated ports in their hosting environment).

- You have the required in-house workforce to provide adequate customer support to your end users.

Pros:

- The notification system is installed behind your network firewall, and, usage and associated costs are managed and controlled by your organization.

- Security of your data is fully under your control (storage, migration, and disposal).

- If the vendor offers an API interface, the notification server can be integrated with your existing enterprise business applications, such as helpdesk (e.g. Peregrine, Remedy), customer relations management (e.g. Seibel Systems), enterprise resource management (e.g. SAP), IT network monitoring and management systems (e.g. Tivoli), and more.

- You do not share the telephony infrastructure with others which may delay the timely delivery of telephony notifications.

- Lower on-going notification transaction costs.

- If usage is high, you will recognize higher savings over time due to lower transaction costs.

Cons:

- Higher initial/startup cost due to the procurement of the notification application, servers hardware, operating systems, relational databases, telephony communications hardware and networks (T1 PRI, telephone lines, SMS gateway, etc.).

- Requires trained in-house personnel to install and maintain the system and provide on-going training and end user support.

- Generally takes several weeks to install, configure and integrate with existing business systems and databases.

Vendor Requirements:

- Vendor provides experienced, skilled professional services to help you install and configure the system.

- Vendor provides on going support to help you maintain and upgrade the system.

- Vendor provides on-site and/or off-site certification training services to train your in-house support personnel.

- Vendor's solution has indigenous (does not depend on database expertise of in-house workforce, etc.), robust, hot back-up fail-over, with real-time data replication capabilities. These capabilities must allow for on-the-fly continuation of outgoing notification campaigns in progress, without any loss of data or the need to restart the campaigns.

Benefits: The notification system is installed behind your network firewall, and, usage and associated costs are managed and controlled by your organization. If the system usage is high, you will reap financial savings after a determined period of time due to lower on-going transactions costs.

Best for: Applications that require daily usage or organizations with stringent data security polices.

Hybrid Notification Deliverable/Service

The notification system is installed behind your firewall and managed by you and the actual notification calls are sent via the Vendor's Communications infrastructure.

The following guidelines will help determine if a hybrid notification solution is the right choice for you.

Choose a hybrid notification solution if:

- Your organization's security policies require full control over processing, storage and disposition of information, and, do not allow hosting of your data on a secure third party hosting environment, as in the case of some government agencies.

- Your organization's security policies allow secure transmission of XML files containing the content of your telephony, and optionally, SMS, TDD/TYY and fax notification to a third party for delivery to your recipients.

- Your IT organization is equipped, has knowledge, and is willing to install and maintain simple server hardware, enterprise level databases and applications in a secure, redundant and high availability environment.

- You are not interested in or have the budget or skilled staff, to procure communication hardware/software, and provision the telecommunication networks necessary to deliver telephony, and optionally, SMS, TDD/TYY and fax notifications.

- Your usage across functional departments or divisions justifies an in-house enterprise notification system.

- You require integration of the notification system with several of your existing enterprise applications.

- Your projected usage does not result in high transaction costs associated with a hosted system.

- You are comfortable with shared telephony infrastructure and understand the risks and benefits associated with such shared arrangement.

- You have the required in-house workforce to provide adequate customer support to your end users.

Pros:

- The notification system is installed behind your network firewall, and, non-telephony usage and associated costs are managed and controlled by your organization.

- Security of your data is fully under your own control (storage, migration and disposal).

- If the vendor offers an API interface, the notification can be integrated with your existing enterprise business applications, such as helpdesk (e.g. Peregrine, Remedy), customer relations management (e.g. Seibel Systems), enterprise resource management (e.g. SAP), IT network monitoring and management systems (e.g. Tivoli) and more.

- Minimized up front or recurring costs associated with procurement and maintenance of telecommunications network and hardware.

- Access to vendor's redundant telephony/communications infrastructure.

Cons:

- Higher initial startup cost of procuring notification application, servers, operating systems and relational databases.

- Requires trained personnel to install and maintain the system and provide on-going training and end-user support.

- Generally takes several weeks to install configure and integrate with existing systems and databases.

- Same cost of notification transaction as those of the hosted service.

Vendor Requirements:

- Vendor's security policies and Safe Harbor provision, provide adequate protection against loss of data and allows you to meet your regulatory obligations (i.e. American and European privacy laws, etc.).

- Vendor provides solid evidence of reliability and scalability.

- Vendor provides high-availability service levels.

- Vendor has an up-to-date Business Continuity/Disaster Recovery (BC/DR) plan.

Benefits: The notification system and its database are self-contained behind your network firewall and controlled by you. There is no expense of purchasing a telephony server, installing dedicated digital T1 lines and the required software and hardware. All communications and message deliveries are handled by the vendor's communication infrastructure.

Best for: Organizations with strict security policies, in which the applications and data must reside behind the corporate firewall but which do not have expertise and financing to maintain a telephony communications infrastructure.

Sample Cross-Over Point Financial Analysis

Depending on your organization's notification requirements, there may a point in which it is cost effective to opt for, or upgrade to, a deliverable system. In order to illustrate this point, a sample financial analysis was performed.

Typically, annual subscription fees for a hosted notification solution are one-third of the cost of a license fee for a comparable installed deliverable system. The installed system would require you to procure the appropriate hardware platform, operating system, and a relational database. If you opt for an in-house telephony infrastructure, then you must also include the costs associated with additional platform and telephony hardware.

For the telephony infrastructure to function, you also need to select one or more telecommunications vendors to provide telephone lines (in many cases T1 PRI lines), with their associated monthly fees. In return, your telephony transaction fees are markedly reduced.

Taking all of this into account, Figure 2 on page 15 provides you with the results of a discounted cash flow analysis that helps determine whether a hosted service or an installed deliverable system is the best choice for you.

The assumptions and parameters used for this analysis are presented in the table on page 15.

As illustrated by Figure 2, if you issue more that 170 telephony notifications a day (assume one minute per notification), or 62,050 minutes annually, then it is more economical to opt for a deliverable system. As your daily usage increases, you realize additional savings by using a deliverable notification system.

On the other hand, if your forecasted usage will not reach 62,050 annual minutes (the cross-over point), then you are financially better off with a hosted system.
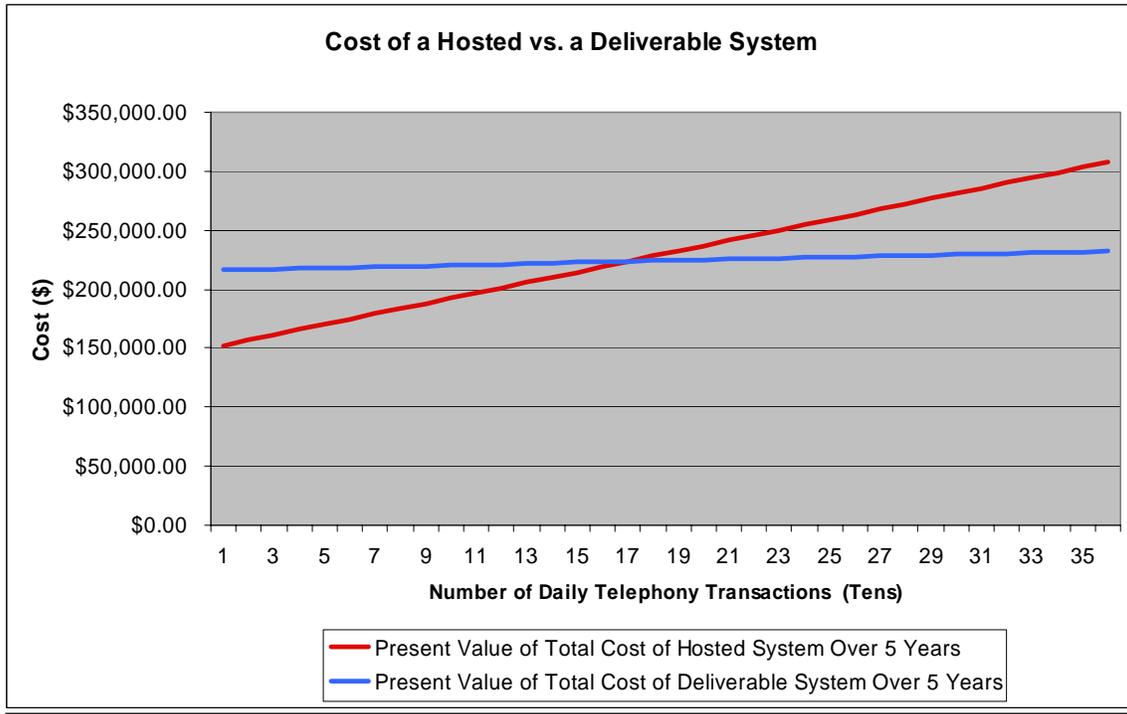
Figure 2 – Sample Present Value Comparison of a Hosted vs. a Deliverable System as a Function of Daily Telephony Transactions Over 5 Years

ASSUMPTIONS	
Annual Subscription Fee of a Hosted Service	$30,000
One-time Price of an Installed Deliverable System	$90,000
Annual Maintenance Fee for the Deliverable System	15%
Per Minute Hosted Telephony Transaction Cost	$0.30
Per Minute Deliverable Telephony Transaction Cost	$0.03
One-time Cost of Hardware & Database - Deliverable System	$40,000
Monthly Cost of One T1 (23 Telephony Ports) - Deliverable System	$400
Subscription Fees Are Paid at the Beginning of Each Year	5 Installments
Hosted Transaction Fees Are Paid At the End of Each Month	60 Installments
Number of Monthly Transactions Do Not Change Over 5 Years	
Annual Interest Rate	8%
Note: These assumptions are based on typical notification vendor pricing and hardware costs. Exact pricing will need to be negotiated between your notification vendor and you.	

Conclusion

Selecting a vendor and a notification system requires significant due diligence and consideration of a variety of factors. In selecting the right solution you should consider your company's primary use of the system, budget, and required system capacity to deliver notifications to recipients in a timely fashion. Your vendor's ability to meet your data security needs, and respond to your changing requirements, is also important.

Select a vendor that provides you several flexible models for notification solutions. Depending on the organization's budget, usage and application of notification, your vendor can help determine which model would be best.