The Myth of Unlimited Usage of Telephony Ports In Notification Communications

Introduction

The success or failure of a notification is based on the ability to deliver the notification to the recipient in the required period of time. Notifications can be delivered via email, SMS, pager, landline, cellular, or facsimile. The purpose of this white paper is to discuss the delivery of notification via telephony and the challenges of understanding the required infrastructure to support the notifications.

Background

In the post 9/11 era, the notification communications market has boomed. Companies are offering customers usage of "all their ports" for their notification telephony transmission at no charge. Customers, faced with pressing fiscal concerns, are quick to take this option, but what is happening is their disaster communication system is a disaster in itself waiting to happen.

How Telephony Ports are Configured

There are four basic configurations of telephone ports: 1) dedicated, 2) reserved, 3) shared, 4) unlimited usage. Each is defined and discussed below.

1. Dedicated

A dedicated port is used only by the customer who procured it. When customer requirements are absolutes, the only way to guarantee delivery in a specified time is for the customer to have telephony ports dedicated to their needs. This is the most expensive way to implement the telephony service.

2. Shared

A shared port is used by a limited number of customers on an "as needed basis". A customer will license a specific number of ports that they feel sufficient to cover their requirement and "share" them with other customers as a cost saving measure while ensuring telephony capability when they have a requirement. There is risk with the shared port being used by one of the others using the shared port but the cost savings out weights the risk.

As a simple example, customers A, B, and C share a single port. Each time they try to send a notification they have equal access to the port. If neither customer B or C is using the port, Customer A will have access for the full time of his requirement. If Customers B and C are trying to send a notification at the same time, the system will alternate sending notifications from one to the other. If all three customers were sending a notification, the system would poll across all three before going back to the first. In the previous examples, if the notifications were the same length, the time required to complete a notification would double in the first example and triple in the second example.

If the length of the notifications were to differ, the equation changes quickly. As an example, if Customers B and C are sharing a port and both are accessing the same port and notification length of Customer B is double to Customer C, then the Customer B ends up requiring three times as long to send his transmission. Figure 1. shows the company with the smaller notification in red and the other in blue. The top line shows what the transmission looks like with the company with the small notification having the port access to themselves and the bottom is with the other notification inter

Figure 1.

3. Reserved

A reserved port is a shared port reserved for usage by a customer who has reserved it. The shared port is used by all shared port customers until a reserved port customer has a notification and then the use of the port is given exclusively to the reserved port user's notification is completed. The disadvantage to the reserved port customer is the system completes the current notification being sent before relinquishing control to the reserved user. The advantage to the reserve user is they do not bare the fiscal burden of the port by themselves but share with other reserved and shared users.

Figure 2. shows two customers using the port when a requirement for the shared ports is made from a reserve port user makes a request, takes control, transmits his notification and then relinquishes it back to the other shared users

Figure 2.

4. Unlimited

An unlimited port is shared across the entire user population. Every customer has equal access to every port in the system. Similar to a shared port in that each custom has equal chance of getting control, different in there is no limit to the number of people that can access it.

Figure 3. shows what happens to an unlimited port that has 6 users. The notification time for the red user has gone up by a factor of ten. It is easy to see that if one user (or any number of users) has a longer notification compared to the other users, the time required for other users to complete their notification goes up drastically.

Figure 3.

A relevant example of this methodology was demonstrated during hurricane Katrina. Numerous assisted care facilities had contracted with bus companies for evacuation services. They had gone to the provider's site prior to contracting, saw hundreds of buses, and concluded they had sufficient coverage since they knew they would only need a few buses. But when Katrina was approaching and the evacuation began, it turned out that the majority of the assisted care facilities had contracted with the same company and there were not enough buses to cover the number of patients that had to be transported. As a result, hundreds were not evacuated and patients drowned because of this inability to provide the necessary transportation.

Summary

Today there are vendors proclaiming they have "thousands of customers with millions of users" offering usage of unlimited ports to all of their users. Vendors offering shared, reserved, or dedicated ports can stress test their system for potential customers and demonstrate a worst case performance. Companies selling unlimited port usage cannot stress test their system – since the stress test will only result in an actual crisis. Only then will you realize the infrastructure is insufficient, notifications will fail and your critical communication will not be sent.