



## **Enhanced Firebar – An Emergency Conferencing system**

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## **Introduction**

The current focus on improving homeland security provides an opportunity to further enhance the nation's emergency communications systems. The need for emergency communications exists both in urban as well as in rural communities.

In urban areas, many of the enterprises (airports, electric utilities, hospitals, schools, prisons, manufacturing plants etc.) find themselves facing emergency situations every now and then. After an emergency occurs, the authorities try to manage the situation by making frantic phone calls to 911 operators and/or paging their own security personnel. Most often, the response to the emergency situation is 'after the fact' instead of executing a proactively well thought out plan.

In rural communities, emergency services are sometimes provided by voluntary firemen. The incumbent phone company provides a 'Firebar' service to the voluntary firemen to facilitate communications between multiple individuals responding to an emergency situation. This service notifies the firemen about the emergency situation at hand and also places them in a conference so that they can co-ordinate their efforts. Some of the 'Firebar' systems deployed in the rural areas are limited in various ways. These systems have limited number of audio conferencing ports (usually 8 or less) and are limited in terms of provisioning multiple phone numbers that may belong to an individual fireman. Most of these systems are built using twenty-year old analog technology.

XOP Networks, Inc., a company with expertise in audio conferencing technology has pioneered next generation of emergency response systems. This paper describes the benefits of the **Enhanced Firebar** application now available on XOP's xw Digital Conferencing Bridge (DCB) products.

## **The XOP Networks' Pro-active Approach**

We now live in the post 9/11 era. Manmade and natural disasters are a fact of life and will continue to happen. We have to equip our cities and communities with capabilities that help them proactively plan for and cope with these emergency situations swiftly. The first few minutes are crucial during an emergency situation and if communications between the first responders in those crucial minutes can be speeded up, then the loss of life and property can be minimized. The XOP Networks' Enhanced Firebar application is designed with that objective in mind.

## How does it work?

When configuring the Enhanced Firebar application, the system administrator can set up multiple emergency specific call-out lists or '**emergency groups**'. Each emergency group contains the contact information of first responders who will respond to a particular type of emergency. Figure 1 shows a pictorial of the emergency specific groups on a given system. A first responder may be part of multiple emergency groups.

| S.No. | Group ID | Group Name     | Participants  | Edit | Delete                   |
|-------|----------|----------------|---------------|------|--------------------------|
| 1.    | 77840    | 5 Alarm Fire   | Preston Baker | Edit | <input type="checkbox"/> |
| 2.    | 29545    | Bomb Explosion | Jeff Box      | Edit | <input type="checkbox"/> |
| 3.    | 81881    | Chemical Spill | Eric Johnson  | Edit | <input type="checkbox"/> |
| 4.    | 84407    | Gas leak       | Mike Burbatt  | Edit | <input type="checkbox"/> |
| 5.    | 65907    | Prison escape  | Don Murray    | Edit | <input type="checkbox"/> |
| 6.    | 35117    | rich's grp     | Jeff Box      | Edit | <input type="checkbox"/> |

**Figure 1 – Group Set Up Page**

For each individual first responder, the system can store up to four telephone numbers, email address, SMS<sup>1</sup> and Pager address. The system assigns a unique 5-digit group ID to each emergency group. See Figure 1. This group ID 'remembers' all the contact related details of individual members of the group e.g., their multiple phone numbers (cell, office, home etc.), their e-mail, SMS or pager addresses etc.

In the event of an emergency, the person responsible for initiating the conference between the group members, calls into the conference bridge and enters the group-ID in response to an IVR session. The system then blast-dials all the 'available' group members simultaneously. As part of

<sup>1</sup> Short Message Service

the dialing out process, It tries to 'find' the group members at one of the four given phone numbers. If a group member is not available at his/her first number, it will try to find him/her at the 2<sup>nd</sup> number, then the 3<sup>rd</sup> number, and then the 4<sup>th</sup> number respectively. While the system is trying to dial out and locate the group members, it will, in parallel also send out emergency related alert messages to the member's e-mail, SMS and pager addresses. The alert message contains information that a member can use to dial back into the ongoing audio conference. The intent here is to bring together as many emergency related group members together on the conference call as possible and as quickly as possible.

### **The Benefits of the XOP Networks' Proactive Approach**

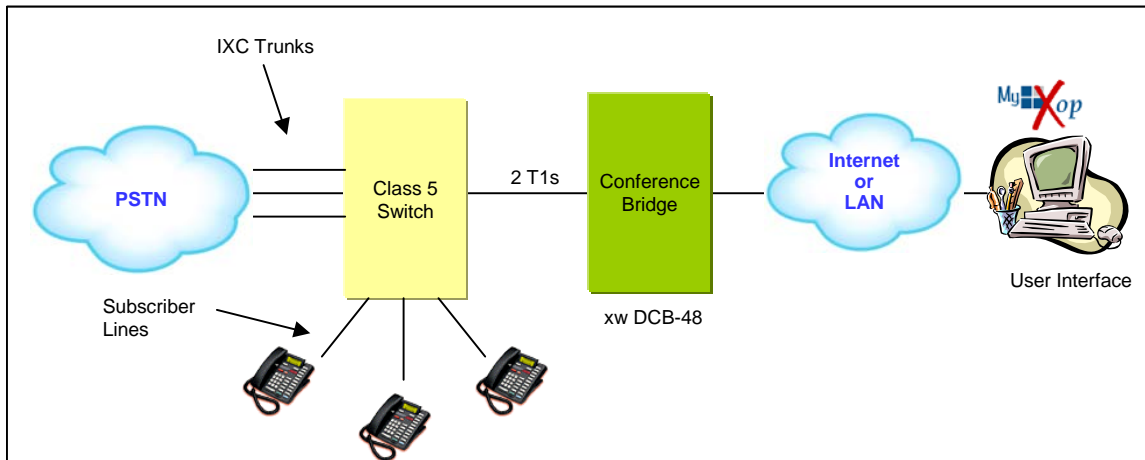
There are several benefits of the proactive approach described above:

- 1) By having to pro-actively create 'emergency specific' groups, the agencies involved in handling emergencies are forced to pre-planning as the group members may belong to different organizations (Fire, Police, EMS etc.). This approach leads to better inter-agency co-operation before the emergency and better co-ordination when responding to one.
- 2) By 'blast dialing' multiple first responders in parallel reduces the overall time required to reach all of the first responders.
- 3) Use of 'find-me' capability further improves the probability of reaching an individual first responder.
- 4) By simultaneously sending email, SMS and Pager based messages to first responders further helps in disseminating emergency related information quickly.
- 5) Use of audio-conferencing allows responsible parties to start communicating with each other usually in less than a minute.
- 6) By keeping a record of the audio and the accompanying event log with time stamps, post-event analysis is simplified.

All of the capabilities described above contribute towards making XOP Networks' Enhanced Firebar application an excellent tool for improving communications between the first responders when faced with an emergency situation.

## Deploying Enhanced Firebar on an IOC<sup>2</sup> Central Office switch

An xw DCB product is typically deployed behind a phone company's central office switch. Figure 2 shows an xw DCB-48 that is connected to a class 5 switch using two T1 trunks.



**Figure 2 – Typical IOC deployment**

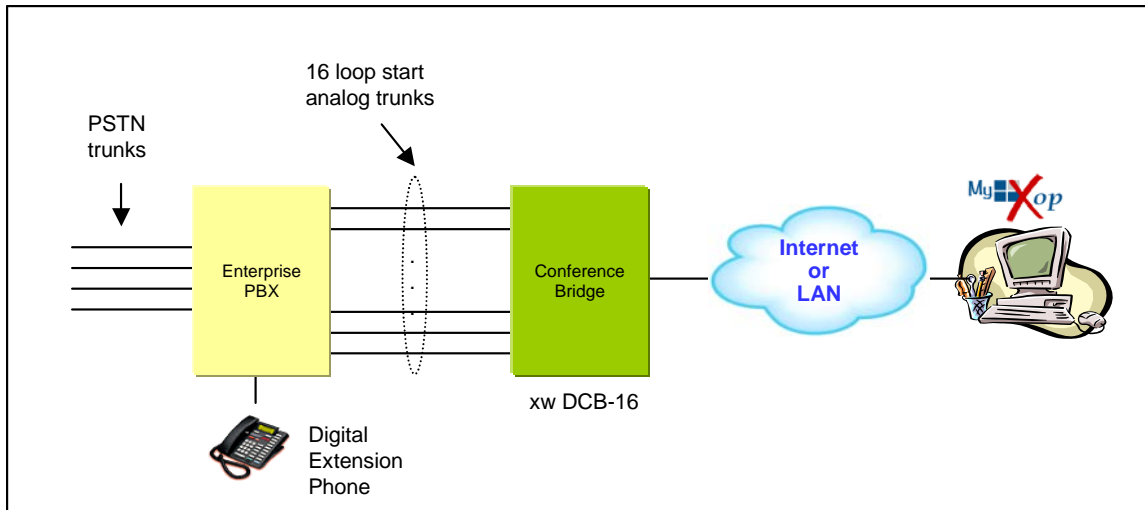
Typically, the Class 5 switch assigns a lead number to the trunk group set up on the T1s. It then routes all calls destined to the lead number on to the T1 trunks. In a typical case, the local fire department is the customer for the IOC. The 911-dispatch person, after receiving a 911 call, decides if the situation warrants the emergency group to get together. If yes, then he/she can dial in to the bridge and initiate the Enhanced Firebar application for the appropriate group as described above and thus enable a quick conference among the group members.

## Deploying Enhanced Firebar on an Enterprise's PBX

Most of the medium to large size enterprises deploy their own PBXs. Figure 3 shows an xw DCB-16 deployed behind an enterprise's PBX. Besides saving Dollars spent on outsourced audio conferencing service, these enterprises can also use the xw DCBs to bring their executives or other management personnel together very quickly in case of an emergency situation.

The xw DCB support CAS and ISDN PRI for interfacing with external switches or PBXs.

<sup>2</sup> IOC – Independent Operating Company – generally refers to a rural telephone company



**Figure 3 – Typical Enterprise Deployment**

## Conclusion

This paper described a proactive approach to handle communications during emergency situations. Using the proactive approach, all the appropriate first responders required to handle a given emergency can be brought together on a conference call, literally at a moment's notice, thereby allowing them to respond swiftly to the emergency situation at hand. With this approach, crucial minutes and seconds can be saved that may make a substantial difference in the outcome for victims involved. This functionality, built into XOP Networks' xw DCB products can be used by IOCs and other CLECs to provide 'enhanced Firebar' service to the voluntary firemen. Enterprises can use the xw DCBs to reduce their audio conferencing costs and also be able to quickly bring appropriate personnel together on a conference call in case of an emergency.

For more details on XOP Networks' products – please visit [www.xopNetworks.com](http://www.xopNetworks.com)

## References

[1] Homeland Security white paper by APCO International, August 2002. [www.apco911.org](http://www.apco911.org)

## **Author**

Mr. Sudhir Gupta is the founder and Chief Executive Officer of XOP Networks, Inc, a company that builds value added services platforms for the circuit and packet switched Networks. He is also a co-founder of Spatial Wireless, now an Alcatel sub-division that manufactures soft-switch based distributed Mobile Switching Centers for wireless telephony. He also served as Director of strategic marketing for Accelerated Networks; a Voice over ATM based product's company. Earlier in his career, he worked for Alcatel (formerly DSC Communications), Rockwell International and United Technologies and has been instrumental in introduction of several new telecommunications products into the market place.

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