WBS WORK BREAKDOWN STRUCTURE.

PHASE 2 -- IMPLEMENTATION

Much of this phase is equipment mass production, installation and configuration.

CO AND PBX INSTALLATION; Based on the SS7 standard previously developed, CO software (and perhaps hardware) would need upgrading to widecast EAS data and voice from the EAS receiver to all PBXs that are connected via a T1 or E1 (or larger) line. The PBX software (hopefully not the hardware) would have to be upgraded to take this input and announce the audio over the speakerphones and PA system. The message text can also be displayed on telephones that have a suitable display. This is different from the reverse 911 sometimes used. Reverse 911 may also be used, but it is limited by telephone equipment design and traffic considerations. As nobody was prepared to offer an estimate, I have noted 70 months as a considered reasonable time to accomplish these things. The 70 months is lengthy and rather a reflection that new equipment could implement this capability, rather than that existing equipment would have it installed.

Older and most existing PBX equipment is likely to be unable to be upgraded to perform in this manner. Much CO equipment is likely to be unable to be upgraded to perform in this manner. In such a situation, it would be advisable to inform businesses with larger systems that their PA system could have an EAS receiver added. The PBX may have an input for external audio to be fed to the phone speakers, but that is unusual. Another option to consider is for building fire alarm PA systems to have EAS receivers added. However this would likely require an amendment to the fire codes of numerous states and large municipalities first.

ISP AND LARGE LAN IMPLEMENTATION; This depends on both the OS manufacturers having implemented the standard and the implementation of the National Plans in each country. This will feed EAS data and voice from the EAS receiver to a router. The routers shall be configured so that this data and voice will be broadcast to the local subscribers, not the general internet. Dedicated port numbers yet to be determined shall be used. No other traffic shall use these ports. Then users receiving this data shall broadcast it to all computers connected to the internet. With computers using the operating system updated to include this standard, users will receive the EAS messages. As nobody was prepared to offer an estimate, I have noted 24 months as a considered reasonable time to accomplish these things. I have had no input from others on this estimate.

CELLPHONE AND PAGER MANUFACTURERS; If there is some amendment to SMS, e.g. Do-Not-Disturb-Override, then the cellphone software needs updating. As nobody was prepared to offer an estimate, I have noted 12 months as a considered reasonable time to accomplish these things. I have had no input from others on this estimate.

TIME SYSTEM; The recommended time messages should be at UTC midnight, with an added offset value for local time. This offset will change and correct the clocks at the standard and daylight savings time change. The implementation of this shall be at local midnight plus two hours. As half the world has their local midnight before UTC, those countries shall broadcast a

positive value offset the UTC midnight before. As there is a propagation delay through the system, the transmission time shall be prior to the real time by the average propagation time. This propagation time should be within seconds. This will serve as a satisfactory system for clock radios, VCRs, TVs, computers (locally and via NTP) and other devices where the extra expense of a GPS precision time reference is not justifiable. Any EAS messages transmitted within this time change or propagation time need to be done so allowing for these clock complications. There are some manufacturers of watches which receive WWV and WWVH for a reference. Likewise someone may make a watch which can use the WEAS time system for a reference. That would have the advantage that the offset is included, and even special transmitters can be installed at terminals like train stations and airports so travelers' watches can be corrected by continuously transmitting UTC time and the offset, plus or minus. Such watches may also display EAS messages, and if so, have a beep when a Do-Not-Disturb-Override message is received. Other beeps are optional for the user to select. O.K. so this may have some problems at the time change, but it is a whole lot better than the present system.

CELLPHONE AND PAGER IMPLEMENTATION; This depends on both the updated cellphones and message pagers being available, and the implementation of the National Plan in each country. As nobody was prepared to offer an estimate, I have noted 24 months as a considered reasonable time to accomplish these things. I have had no input from others on this estimate. The location message method used by CATS can be implemented somewhat independently. This is a service that is complementary to EAS as many people will desire to receive EAS messages which relate to their home or workplace when they are at some other distant location in the same country. It might be extendable internationally also. The CATS system, in my opinion, should be included in the standardization process as the recommended means of providing this additional functionality.

The widecasting technology used by BT referred to previously may be appropriate to incorporate. At this time this is not adequately researched or discussed with U.S. telephone engineers. The adaption of having EAS messages overriding the dial (and possibly ringing) tones is relatively easy to implement, but the effectiveness needs research before being used widely.

SATELLITE IMPLEMENTATION; For radio, this depends on the implementation of satellite radio service providers such as Sirius and XM radio. Whether this requires upgraded receiver software for Do-Not-Disturb-Override has yet to be determined.

Terrestrial digital radio in the U.S. has barely started at this time and is called HD radio here. I did not include it as a separate item as the audio will already have EAS inserted. Newer radios should display the message on the display and shall have upgraded receiver software for Do-Not-Disturb-Override.

Satellite TV from DBS vendors such as DirecTV and Echostar are primarily using MPEG-2 set top boxes. These are not designed to accept EAS messages appropriate to their location. As MPEG-4+H.264 (also known as MPEG-4 AVC) can and VC1 promises to provide much more efficient compression, this is an incentive for such vendors to phase in these new set top boxes. This is the best time to also include the WEAS capabilities. However this is not yet standardized.

As nobody was prepared to offer an estimate, I have noted 12 months as a considered reasonable time to accomplish these things. I have had no input from others on this estimate. However this means that all satellite receivers shipped will function, not that they are all replaced.

STB (CABLE SET TOP BOX) MANUFACTURERS; The upgrades of DOCSIS will need some incorporation into the design and production of set top boxes. As nobody was prepared to offer an estimate, I have noted 12 months as a considered reasonable time to accomplish these things. I have had no input from others on this estimate.

HOME THEATER; This requires interaction between different components of a home theater system to convey EAS data and audio from devices receiving them to devices reproducing audio and video. The latter devices may be reproducing a videotape or DVD. I have noted 18 months as a considered reasonable time to accomplish these things. I have had no input from others on this estimate.

CABLE IMPLEMENTATION; This is dependant on the availability of suitable STBs and on the implementation of each countries national plan. While cable systems in the U.S. use a channel switching scheme for EAS messages, this is an excessive distraction from normal programming, and the approach of video crawl with audio override as implemented by broadcasters is preferable. However as cable headends serve large areas, it would be more appropriate to have the program modification done at the set top box rather than the headend. This will be possible with smarter digital set top boxes and I am not advocating that countries who have not yet implemented EAS do so in a less advanced technical manner. Perhaps the channel switching scheme could be reserved for older analog STBs that may remain. As nobody was prepared to offer an estimate, I have noted 24 months as a considered reasonable time to accomplish these things. I have had no input from others on this estimate.

GOVERNMENTS' IMPLEMENTATION; This applies to countries other than the U.S., as there already is an EAS system here. This is dependent on the availability of suitable EAS equipment from the manufacturers and on the completion of the national plan. While neither ISP, large LAN, cellphone/pager, cable, satellite, or broadcast implementations will actually function until this is implemented, I have not indicated this dependency as there can be test messages transmitted during this phase, and equipment testing can be done in countries where EAS is already implemented. So the approach taken here is somewhat that of fast tracking these implementations. As nobody was prepared to offer an estimate, I have noted 24 months as a considered reasonable time to accomplish these things. I have had no input from others on this estimate. While originally broadcasters were an essential part of the implementation, satellite is an alternative. So dependency on broadcasters is a decision in the national plan. If Ku band satellites are used, these are subject to rain and snow (and sandstorm?) signal loss.

BROADCASTERS' IMPLEMENTATION; This is dependant on the availability of suitable EAS equipment from the manufacturers and on the completion of the national plan. As nobody was prepared to offer an estimate, I have noted 12 months as a considered reasonable time to accomplish these things. I have had no input from others on this estimate.

PROJECT COMMUNICATIONS PLAN ----------

EXTERNAL COMMUNICATIONS

While this is a program that would affect most of the people on earth, it is impracticable to make communications regarding this project to all of them. There are a number of channels that can be managed however.

1) National Governments designated authorities. These may be the Civil Defense or Emergency Management Ministers. A number of countries have expressed some interest in this proposal already and that is a start of this process.
2) Interested parties such as religious and non-religious relief organizations. These may be part of the national or international headquarters. A number of religious and sectarian organizations have expressed some interest or support for this proposal already and that is a start of this process. This is currently described in the spreadsheet foreign-relations.XLS. Islamic religious authorities have not been communicated with at present.
3) One or more public relations companies and the communications that derives from this channel. This can include the media.
4) The media may directly seek information and disseminate it. This should be referred to the appropriate authorities in each country as much as possible
5) At the present time, major groups of people have not been communicated with. They include, but are not limited to, communist and former communist countries, African countries, Islamic countries except for Indonesia and Malaysia who were severely impacted by the tsunami, other countries not on particularly friendly terms with the U.S.

INTERNAL COMMUNICATIONS

During the development of the standards, there are a number of groups of people to co-ordinate. They include;

A) Civil Defense/Emergency Management and other technical experts. Some of these have already been reached at this initial stage.
B) Standards organizations and members. A number of these have already been reached at this initial stage. As subsequent standards development and implementation may bring to light some desirable amendments of earlier standards, this shall be implemented by using integrated change management. That is discussed in more detail elsewhere.
C) Equipment manufacturers are standards organization members, but have a crucial implementation role also. Appropriate co-ordination with them is necessary.
D) I am a member of both SMPTE and SBE (Society of Broadcast Engineering). However these both are media related societies so I have not sought any official response from them. I have had some helpful discussions however. I am also a member of the Project Management Institute, where I have been in the working group on disaster relief project management. The consideration of disaster mitigation is not proposed to begin until 2006. So to fast track this important subject I have already started with the anticipation that support, authorization and funding will eventually come about.
E) The authorization and funding organization within the U.S. government will need appropriate financial and progress reporting.

F) As the ITU is part of the U.N., this can be a communications link to the U.N. As in my previous experience I have not noted the U.N to be an effective organization in dealing with such innovative technical matters, I do not consider it important to depend on them at the present time. At some point in the future the U.N. may wish to support this program. A practical way to do so would be for staff operating internationally to do so with U.N. authorization, passports and payment of international expenses.

G) Critical information regarding the EAS system should be disclosed upon agreement to a non-disclosure agreement, and some means of tracking documents should be employed to ascertain the path of unauthorized disclosures.

PROGRAM RISK MANAGEMENT ----------

There are a number of major risks that can be mentioned at present;

1) There may be another major disaster approaching the scale of the Indian Ocean tsunami before this program is completed, and there will be serious dissatisfaction with the rate of progress being made. This possibility should be mentioned to the public early on and transparency should help the public trust.
2) That this program may be inadequately funded. While much of the engineering standards development needs appropriate funding, it is comparable to developing legislation and is a process that is difficult to hasten without introducing inadequacies that can be serious problems later. It should be realized that this is a really complex project that crosses a large number of organizations' responsibilities. This combined with international politics makes it in a number of ways more difficult than putting a man on the moon. At this time this program has only been personally funded. I decided against copyrighting these plans and proposal as the risk of loss of funds had to be weighed against the risk of the failure to implement this proposal.
3) That this program will be excessively funded. This may be interpreted as a signal to find new and creative ways to utilize the budget. However there is no shame in not doing that and in focussing on an effective yet economical approach. Extra funds may be utilized by some states for some political purpose, but the method of doing that need not be via the program management office. Also extra funds can be considered as foreign aid to help poor countries implement their Emergency Alert System or relevant sensor systems. Another aspect of pursuing an efficient approach is that less expensive equipment will be used, which will be more economical to maintain and eventually replace. That makes maintenance funding easier. Also that applies to poorer countries especially, so an expensive solution that is affordable for the U.S. is much less likely to be affordable to the majority of the world. At the present time, the Senate is authorizing $200M. I would advance the argument that this amount of money for this purpose has not been available in the past and therefore should not be expected again in the foreseeable future, and therefore should be utilized wisely.
4) I have incorporated some aspects of fast tracking by in some cases bypassing the ITU. There is a risk to this in that there is no guarantee that the ITU will standardize the WEAS proposal without making changes that are assumed not to be made. The most significant of these is likely to be the acceptance of the national and area coding scheme developed at the beginning. This is further discussed under Execution.
5) That relevant risks may not be identified, or if identified, may not be adequately considered and discussed.
6) That this program will not be successfully implemented. To avoid this, project risk management shall be applied. The cost to the world of this program not being successful can be more great losses of lives. So the best management methods should be applied with all stakeholders appropriately involved.

This program may be defined and executed to the satisfaction of the Federal Government and its departments and agencies, the State Governments and their departments and agencies, the Regional and Local Governments and their departments and agencies, the broadcasters, ISPs, cellphone and pager vendors and other private companies and organizations. However it may

not still be to the satisfaction of the publics. I use the plural because society is not monolithic. There are different cultural groups and others like people with disabilities. A market research and public information/education component is relevant and should be appropriate to the needs. As an example of a failure, let us consider caller ID.

Caller ID actually works technically, except that mine does not work to identify a second caller. However when I complain to the phone company that I am getting unidentified calls that I cannot tell whether they are coming from Texas, Ontario or Puerto Rico, let alone which city, they say that they can only give me the information they receive. Sometimes the state is identified, so it is possible to implement this. Also when I receive calls from outside of country code 1, they show up as New Jersey numbers sometimes. They should identify the country of origin. So from the public perspective, it is seriously deficient, but the phone companies have no incentive to improve it as they are collecting their payments for it. This sort of deficiency should not be acceptable for the EAS system because lives are at stake, not just an inconvenience.

To address problems, communication of the problem needs to take place. An example of a communication failure is that when I was sending this proposal to the relevant Emergency Management persons, in one state they refused to accept this on the grounds that such correspondence should come from the FCC. This is not unreasonable as there is also the aspect of authorization in this subject. Those who did receive this are responsible for their response, or lack of it. Of course I cannot take the "fire and forget" approach either.

PROGRAM MANAGEMENT; Because this includes multiple engineering standards to be developed, and has multiple rather independent deliverables, I am calling this a program. The Project Management Institute is currently defining the standard definition of what a program is. Many of the tasks in this program can be considered projects. An activity on node network diagram (sometimes incorrectly called a PERT chart) has been developed, but in the draft version only the minority of the durations (as months) have been entered with relevant expert advice. Also for the standards development, an OSI 7 layer protocol diagram breakdown has been developed to explain the functional relationships of the standards to be developed. In reality some desirable changes can be realized later for otherwise previously completed tasks. Integrated change management shall handle these.

IMPLEMENTATION; It would be helpful if the project manager for this had experience in the Emergency Alert System, analog and digital PAL & NTSC television, video compression, internet, analog & digital telephony with ITU-T standard systems, product design, systems integration, fiber & satellite & microwave & copper transmission, disaster recovery, quality management, and have documentation and communications skills. This document is an introductory one, and is basically a scope statement and draft document for a full project plan. With authorization, there will be the incentive for others to respond to these planning questions and so make a more accurate and complete plan. The best project management methodologies such as OPM3 (Organization Project Management Maturity Model) shall be used.

PROJECT FINANCE ----------

In the Senate passed recently was the Digital Television Transition and Public Safety Act. In this there are three items of interest.

1) A fund to improve the interoperability of radio and other communications systems of the official organizations responding to disasters. This amount is $1,000 M. While this is valuable, it is not expected to be applicable to this program.
2) An amount of $50 M for improved tsunami detection and alarms. As I understand it, this is an amount requested by NOAA and as the oceans of the world are vast, this may not be an adequate amount of money to provide satisfactory coverage. However it is a major improvement over the present state of affairs and more can be sought by them as it can be justified.
3) An amount of $200 M to improve the Emergency Alert System. As I hope the readers of this document are aware by now, there is a very considerable amount of work to be done to develop standards for all these systems to interoperate. Also equipment prototypes need conformance and interoperability testing. This requires testing by an independent organization and testing capability by the project management. The standards development phase and testing capability should cost less than 1% of the 200 M. If the U.S. is delivered a quite satisfactory solution as a result of the planning and standardization for an amount considerably less than $200 M, then the balance could be earmarked as applicable to foreign aid for EAS for poor countries. The application of this to all countries should be monitored for progress and effectiveness. The application of this system worldwide should result in significantly less money and aid being needed for disasters from the U.S. Countries that are not making satisfactory progress in the implementation of this system may be informed that a consequence of this may there be a reduction of foreign aid being provided by the U.S., especially for disaster relief. So the governments of these countries are ultimately accountable to their citizens for their actions. Because this will take years to implement, it would be most appropriate if the unspent portion of this funding were held in trust rather than requiring renewed funding each financial year.

   Whether the cost of the equipment is to be paid for by the owner of the facility where it is installed, or some subsidy, is not determined. With the extensions proposed, the number of ISP local offices, telco CO (central office or exchanges), cellphone message routing offices are currently unknown. This is a significant number and cost. The Federal finance should be applied to improvements in the Federal and State Emergency Management Office facilities. With the extensions proposed, there would be a significant increase in the monitoring capabilities to ensure satisfactory operation.

SYSTEM DESIGN ----------

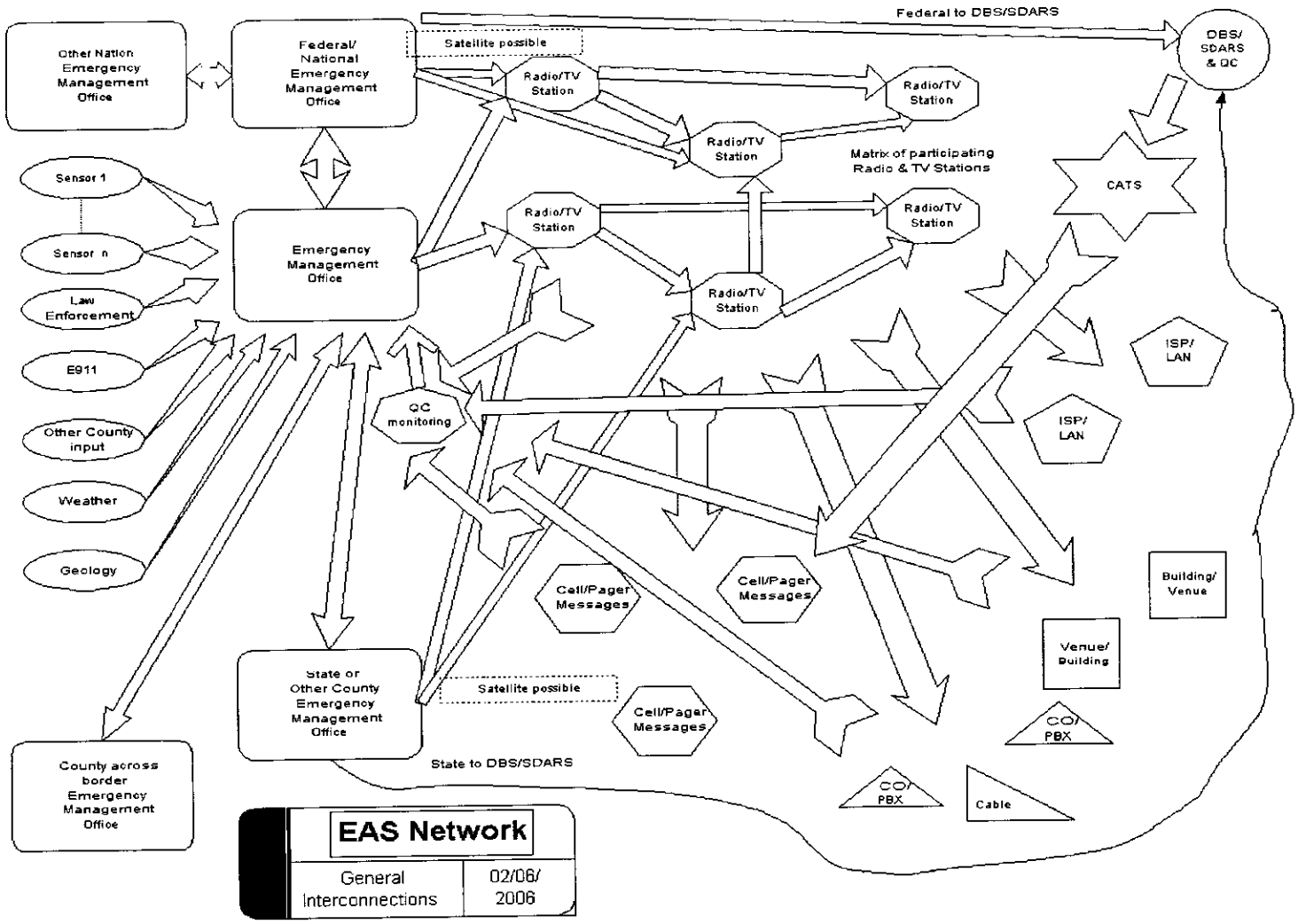
To describe the design of the system is simplest when considered as a protocol stack. The internet operates based on the TCP/IP protocol stack. A protocol stack diagram is at WEAS-OSI.XLS, on the next page. Also a general diagram of forms of interconnection follows.

The Society of Broadcast Engineers has made an important submission to the FCC. A major point that they make is that the present broadcaster daisy chain distribution system should be replaced by a dedicated EAS distribution system for each state. Some states have made progress in this

direction already. For example a Ku band satellite may be used. However as single points of failure should be avoided, the existing daisy chain system should be maintained as a backup. For example, the Ku satellite dishes provided do not have a dish and LNB heater. So they can become covered with snow and fail to receive the signal. This failure may not be noticed for a significant amount of time as the receiver has no beeper. Also the dish may be on a roof, and at night there may be no engineer available to remove the snow until next day. Also Ku satellites can have their signal lost because of a significant amount of rain. So the reliability in reality is a problem. On the other hand, a more direct system can have a more rapid response time in case of earthquakes or tsunamis.

Gateway to >	Broadcast TV	Internet	Cable TV	Cellphone/Pager	Broadcast Radio	Broadcast radio digital	DBS TV	DBS radio	Telephones
Protocol layer					analog			or SDARS	
Application	Crawl & audio Override	Crawl & audio override by OS	Crawl & audio override by STB	Text display optional audio override	Audio override	Text display audio override	Crawl & audio override by STB	Text display audio override	Dial tone override
Presentation (decryption?)	ASCII or Unicode to CG	2 IP ports	IP or PIDS	SMS gateway CATS example	Audio override	ETSI	PIDS	IP or PIDS	and ringing override. CO/CX
Session	PPW/CAP	PPW/CAP	PPW/CAP	PPW/CAP	PPW/CAP	PPW/CAP	PPW/CAP	PPW/CAP	PPW/CAP
Transport (FEC?)	SMPTE	IETF	DOCSIS	ITU/ETSI & others	ITU/EBU	DAB (DRM, HD radio)	SMPTE, other	Sirius, XM, ITU	ITU/Bellcore
Network	PPW	IETF	DOCSIS	ITU/ETSI & others	ITU/EBU	DAB (DRM, HD radio)	SMPTE, other	Sirius, XM, ITU	ITU/Bellcore
Data Link	PPW	IETF	DOCSIS	ITU/ETSI & others	ITU/EBU	DAB (DRM, HD radio)	SMPTE, other	Sirius, XM, ITU	ITU/Bellcore
Physical	PPW	IETF	DOCSIS	ITU/ETSI & others	ITU/EBU	DAB (DRM, HD radio)	SMPTE, other	Sirius, XM, ITU	ITU/Bellcore
Fire Alarm dry contact input to WEAS		Building fire alarm output NC (or NO)	Building fire alarm output NC (or NO)				Building output NC (or NO) where appropriate (hotel)		Building output NC (or NO) where appropriate. PBX

WEAS-OSI.XLS


Federal to DBS/SDARS
DBS/ SDARS & QC
Other Nation Emergency Management Office
Federal/ National Emergency Management Office
Satellite possible
Radio/TV Station
Radio/TV Station
Radio/TV Station
Matrix of participating Radio & TV Stations
CATS
Sensor 1
Sensor n
Law Enforcement
E911
Other County input
Weather
Geology
Emergency Management Office
Radio/TV Station
Radio/TV Station
Radio/TV Station
ISP/ LAN
ISP/ LAN
QC monitoring
Cell/Pager Messages
Cell/Pager Messages
Building/ Venue
Venue/ Building
State or Other County Emergency Management Office
Satellite possible
Cell/Pager Messages
CO/ PBX
State to DBS/SDARS
CO/ PBX
Cable
County across border Emergency Management Office
EAS Network
General Interconnections
02/06/ 2006

EXECUTION ----------

As disasters are costing many lives and a lot of money, it is certainly desirable to reduce this as much as practicable. In this proposal I have incorporated some aspects of fast tracking by in some cases bypassing the ITU. There is a risk to this in that there is no guarantee that the ITU will standardize the WEAS proposal without making changes that are assumed not to be made. The most significant of these is likely to be the acceptance of the national and area coding scheme developed at the beginning. Canada and Thailand have expressed interest in implementing EAS in their countries. This means implementing country coding and then asking the ITU to accept these as part of the standard. In practice, this has probably been done before, but I cannot convey a decision of the ITU before the fact. At the most, I can ask the ITU to accept decisions made by countries already. If the ITU requests a different implementation by defining the standard differently, then that would mean implementing a software upgrade in all affected equipment at the same time.

This type of fast tracking I am calling US-EAS implementation in other countries, with adaption. If this is proceeded with by other countries, all I can do is to explain the situation as above. The benefit of this is that EAS will not only be planned for but also implemented sooner in those countries than I have noted on the activity diagram. It will be limited to being a terrestrial broadcast only solution as the U.S. presently has. However that is much better than what is presently in place. The extensions can be implemented when they are available. Such fast tracked implementations may provide disaster mitigation results to encourage other countries.

The path of Leadership Development and National Plans Development is a considerable administrative, educational, and sometimes legislative, effort. This can proceed rather independently of the standards development and should be pursued as quickly as reasonable. Then people will be better educated and Emergency Management Offices more prepared for equipment delivery. Once standards are defined and software written accordingly, electronics production lines can manufacture the world supply of equipment in a short time frame. It will take longer for suitably equipped engineers and technicians to install it. Education and legislation is important for the management of the various private businesses and corporations. If anyone questions the need for this, I suggest they read my essay "My Difficulties Implementing EAS", available on request.

CONCLUSION ----------

One hypothetical question I was asked was "Could this have helped during 9-11?". My answer was that EAS was not activated during 9-11. This may have been because New York City had to evacuate their Emergency Management Office. I was there on the ground that day and I observed many people saying that their cellphones did not work. I expect that this was primarily due to network congestion which is like a traffic jam, rather than actual damage to the cellphone network. However my proposal is that EAS messages would be delivered in a broadcast mode to everyone, rather than as point to point phone calls. So the EAS messages would still be delivered and help the emergency. One message to deliver is to request people to avoid using their phones, cellphones, and the internet unless they are making essential calls. This is to reduce network congestion.

As I do not have an analysis of the situation regarding EAS in the New Orleans flood, I cannot comment much other than to say that if there were EAS messages delivered by other means as well as terrestrial broadcasters, there may have been more people evacuated sooner. Broadcasters there were having problems also. A Spanish language broadcaster was off the air before Katrina struck, and this deprived a significant population of Spanish-only speakers from EAS messages.

This document is primarily written by Frank W. Bell and is done so without authorization or funding. So it is less than a skunk works project at present. I have however received considerable encouragement and statements of support as noted in the document WEAS responses.doc. While I have not received any funds for this, a representative of one country asked if it would be helpful if there were some funding. I said that I am not seeking any funding from another country as I am expecting that this would be resolved here. Also to do so would have made me an agent on behalf of another country, which is probably not appropriate in the future.

As this program is not even initiated yet at an official level, this document is definitely a work in progress. The planning and standards development phase are expected to result in a number of revisions, so this can be considered a work in progress. Also technology is advancing, so in a sense we have a moving target.

Acronyms are in a file ACRO, available on request. It is not small and the FIND or grep commands can be used.

So far my greatest critics were Baps, the Hindu Association who refuse to discuss this subject, and a TV news network anchor who said that "That would be too logical" as a response to the Asian tsunami.

I wish to acknowledge the support of the N.Y. State Labor Department, the Passaic Workforce Development Center, Rev. Cory Hartman, a Baptist minister who was encouraging and wrote a better cover letter, Dr. Frank Kaufman, a religious consultant who sent some emails recently, and my wife Essie L. Bell and my two children.

App A. COMMENT TO FCC ON EAS NOTICE OF PROPOSED RULEMAKING

FCC EB DOCKET 04-296

The major improvements proposed in this rulemaking is that DBS TV and Satellite Radio (SDARS) systems are expected to carry national level EAS messages, and that multilingual capabilities are recognized as desirable. There is mention of extensions in the direction that I have indicated in my proposal, but nothing concrete at this time. As channel switching is not expected of set top boxes, it appears that DirecTV and Echostar are to be keying the crawl and overriding the audio as is done by terrestrial broadcasters.

As the FCC is basically a technical regulatory government agency, this is an important legislative component to ensure that legal steps are taken. This legislation backed rulemaking can be a model for legislation to be implemented in other countries. However to pioneer the forward movement of the technology, this is rather the realm of engineering and project management.

The crucial role of the technology is not directly addressed in this document. For example video compression is mentioned once, and MPEG not at all. However to recognize that MPEG-2 does not provide any means to superimpose video such as EAS crawls and is almost the sole means of delivering DBS, is to understand the basic limitation currently to providing state and local EAS messages such as snow school closings for example. MPEG-4AVC and VC1 both promise to remove a major hurdle to this implementation. As they are also more efficient in their compression, this is an economic incentive to migrate to them for example for HDTV services. SDARS is also a compression technology for audio. The other large hurdle would be for set top boxes to monitor the EAS data and audio and key the text and override the audio when the messages are for that particular location. Mobile applications such as car radios with SDARS have an additional problem of the equipment being aware of its' location. If GPS is included in the package, that will then leave the problem of location translation as EAS does not normally include latitude, longitude and radius or rectangle or polygon data. This inclusion of coordinates is a question to consider however.

At the core of the technical documentation for these new technologies are engineering standards as developed by ISO (International Standards Organization) or ANSI (American National Standards Institute) approved standards organizations. This includes the IESG (Internet Engineering Standards Group, within IETF), SMPTE (Society of Motion Picture & Television Engineers), Cablelabs, CEA (Consumer Electronics Association) and many others. However this does not include the FCC or SBE (Society of Broadcast Engineers), which together have developed EAS. So EAS is in the realm of U.S. Government specifications along with others like MIL-SPEC, except that CAP is now an OASIS standard. However is the conceptual understanding of EAS based on making a digital equivalent of the analog system? That approach is rather dated since there are now being deployed MPEG splicers, and DirecTV has just announced that in a few years they will convert their STBs to MPEG-4AVC, which can also decode MPEG-2. So now there needs to be a standard developed that is relevant in that time frame.

So the problem is that in order to accomplish the results beyond this rulemaking as is possible with standards development activity, the crucial importance of this process and the role of project/program management in the PMI (Project Management Institute, another standards organization) sense needs to be understood. This may well be understood in the FCC, but it is not obvious in the EAS NPRM.

My proposal is that the results desired by the FCC and many others for EAS can be accomplished by program managed standards development activity. In project management terms, the FCC and SBE are major stakeholders. The U.S. Government is anticipated to provide finance and political clout. In a corporate program environment, the program manager is ineffective if the management is not behind the program. The same applies here. However, as I have found, there is serious interest and support for this beyond the U.S. Government. This is noted on the page on WEAS responses. Has the FCC considered the CATS (City Alert Texting System) now being deployed in the U.K.? Are there lessons to be learned from the Japanese experience with their emergency warning system? Emergency managers in Alaska are interested in linkage with the Japanese system, but is this recognized by the FCC?

As long as there are lawyers arguing in courts there will need to be detailed legislation such as the FCC rules. However in part what is being attempted is to accomplish project management by lawyers, or at least has the appearance of this. If this is going to succeed in reaching its full potential, it can only do so by being done properly in all respects, not just some of them. The role of FCC rules is more readily accepted by others if it is perceived as that of motivating the stragglers to keep up with the herd, and reason to adequately document that the correct actions have been taken. This includes documentation of the signal path in which EAS equipment is installed, and that records are made of FCC compliance by appropriate test equipment. While chief engineers may like to have their facility drawings up to date, and appropriate test equipment available for this digital technology, the combination of frugal company ownership and power grabbing by IT management can deny them the appropriate tools. IT managers can even remove EAS from service and be unaware of the consequences of their actions.

Already there are efforts by Canada and Thailand to implement EAS. This is not mentioned. Also there are many disasters in other countries that have relief provided by the U.S. These two aspects point toward the desirability of a world system from a political perspective as well as the standards development aspect I have already pointed out. Together this goes beyond the FCC and even the U.S. Government. However there are crucial roles for both if it can be accepted that EAS can be an important contribution to world peace and security as well as that of the U.S. World peace and security centered on the U.S. will be to the advantage of U.S. security. I have seriously supported U.S. security in relation to SDI, and I have no intention of changing that with EAS.

The foreign affairs concerning the FCC are normally related to the ITU, Canada and Mexico. However there is no mention of EAS in relation to them. Major foreign disasters are of concern not only to the general public, but more specifically to the International and Foreign Relations Committees, the State Department, and on occasion the President. Whether this is a consideration within the FCC is unknown, but it is not apparent in the document. The international prestige of

the U.S. is probably not a concern of the FCC. However, if this program of EAS improvements is well implemented, there is the potential for this to have very positive foreign diplomatic benefits for the U.S. These can be of benefit in many ways, including leverage to make improvements in relation to the U.N. for example. The stakes of this are higher than most people realize.

App. B World Emergency Alert System proposed plan outline responses.

	Oppose	Disagree	Refuse to say	Appreciate or Interested	Support	Endorse
ACLC (Archbishop Stallings verbal) USA	----	----	----	----	----	---- Y
American Radio Relay League USA						Y
Assembly of God USA	----	----	----	---- Y		
Australia					Y	
Baha'i of USA	----	----	----	----	----	---- Y
Benny Hinn Ministries USA				Y		
Bill & Melinda Gates Foundation USA (statement)	----	----	----	----	Y	
Canada						Y
Catholic, Paterson Diocese NJ	----	----	----	----	----	---- Y
City Alert Texting System UK						Y
Congressman Joe Wilson SC	----	----	----	----	----	---- Y
Demoss Associates (USA PR company)					Y	
Hindu Association Baps NJ	----	----	----	---- N		
International Association of Emergency Managers (verbal) USA				Y		
International Society of Krishna Consciousness USA	----	----	----	----	Y	
New Zealand				Y		
Orthodox Judaism USA	---	----	----	----	----	---- Y
Papua New Guinea				Y		
Presbyterian Church USA (verbal)	---	----	----	----	Y	
Qualcomm				Y		
Red Cross USA	----	----	----	----	----	---- Y
Senator John McCain AZ				Y		
Southern Baptist/North American Mission Board USA			----	Y		
Sweden				Y		
Thailand (vendor & ADPC information)	---	----	----	---- Y		
Tibetan Buddhism, His Holiness the Dalai Lama					Y	

Support means supporting the proposal goals. Endorse means endorsing the proposal technical plan. Those who have yet to respond are not listed.

Summary of responses;

Oppose	0
Disagree	0
Refuse to say	1 (counted as a no)
Appreciate or Interested	13
Support	8
Endorse technical plan	4
From;	
Countries	7
Religious groups	11
Community/National/other groups	6
Congressmen or Senators	2

App: C A Coding Method for Language Selection

An implication of the New Orleans experience of EAS performance is the desirability to be able to carry different languages. Also an implication of specific message coding is to be able to select appropriate language messages by different users. This means that language identification should be in the EAS header. While the header has everything assigned, a redefinition is proposed for the first J of JJJ, the Julian calendar day of the year. This J at present can only have the ASCII values of 0, 1, 2 or 3. So the proposal is to keep this the same for English. The date only requires the last two bits. So use the first six bits as follows

Binary 000000	Use for National or local language, ASCII 7 bit.
Binary 000001	Use for National or local language, unicode extended data.
Binary 000010 To Binary 001011	To be assigned to multi-country or major languages, 10 codes
Binary 001100	English
Binary 001101	Spanish
Binary 001110	French
Binary 001111 To Binary 011111	To be assigned to multi-country or major languages, 17 codes
Hexadecimal 0x80 To Hexadecimal 0xFF	Reserved to keep 7 bit ASCII format

These characters will read as ASCII "0", "1", "2", "3" for English, "4", "5", "6", "7" for Spanish (i.e. subtract 4 for the date value). "8", "9", ":", ";" for French as the date hundreds change. The rest are more difficult and not a current concern for the U.S. EAS system. However a few examples of multi-country languages are:
German is the language of Germany, Austria and Switzerland, so it needs a code.
Korean is the language of the Republic of Korea and the Democratic Peoples' Republic of Korea, so it needs a code as it is multi-country.
Chinese has many languages/dialects with one writing system. It is used widely in Singapore for example. So to provide the local language option for another spoken language, Chinese needs a code.
Latin is the international language of botany and zoology, so it needs a code.
Esperanto is neither a national or local language, but it is an official language of the U.N. so it needs a code.

As unicode has been proposed, perhaps the languages can be grouped into those that would use extended ASCII and those that would use unicode for the extended data. However U.S. ASCII shall be the basis for the header code e.g. event codes, originators, etc. unless otherwise specified.

Frank W. BELL

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WRNN rnntv.com. **Regional News Network** 8/2004 – 4/2005

- Installed mountaintop microwave digital studio-transmitter links and analog returns
- Acting Chief Engineer, maintained ATSC transmitter, planned 2G transition, tested multipath receivers.

AT&T Transmission of Olympics TV 2004, 2004

- Reception of 4 channels from Greece and transmitting back two at AT&T New York for NBC

TCI/AT&T/Comcast Digital Media Centers (212) 824-4400 9/1998 – 8/2003

- Lead tech at digital multichannel origination and transmission facility with encoders for sat. & fiber Classic Sports and Odyssey master control, Bloomberg feed by Compression Labs on OC3 and Digicipher 1 on satellite to Denver. All now replaced with digital facility & Tandberg TV.
- Documented facility physical drawing & signal flow documentation in VidCAD. Improved reliability of satellite uplink system to minimize rain fades and unreliable tracking, Satcom K2, an end of life satellite on an inclined orbit was used.
- Worked with contractors and inspectors to upgrade diesel generator to meet building code.
- Replaced Digicipher 1 with DC 2 to feed ABC, NBC, CBS & Fox from NYC to DirecTV
- Diagnosed problems with antenna system. .

Promoted to- Lead Technician/Broadcast Engineer

- Installed Oxygen and helped develop DCC, digital content control. With the Systems Group.
- Installed TV Asia master control.
- Certified TV Japan feed with VM700T.
- Pointed uplink to Anik E1, a satellite with no users on.
- Shut down two TV channels (Oxygen & TV Asia) on 9-11 as facility was five blocks south of ground zero. Restarted facility without power and fuel; cleaned and debugged.
- Checked data transmission on DC2 with WINK reported improved methodology including detection of group delay caused BER problems.
- Redrew Systems Group documentation in VidCAD incorporating numerous changes.
- Installed NTV feed through, Moscow to Denver. Installed a multichannel facility alarm system. Replaced DC2 and CLI with Tandberg TV MPEG transmission. Transmission on Accuring (SONET) replacing DS3. Completed Sony BVW-75 course.
- Attended NAB 2002. Developed I2 (internet 2) solution for sports network TV acquisition.

Manhattan Center Studios/Hammerstein Hall 9/94 - 6/98

- Video engineer in production/post
- Installed Manhattan Center Graphics, fiber with ATM and ISDN to ISP.
- Installed offline edit suite (ImMIX Turbocube) and upgraded online DVS8000 edit video suite and animatics cameras, adding DVE and CG.
- Clearcom matrix and BTS router configuration. Repaired PCs incl. motherboard upgrades to Pentium, Windows 95 install, virus removal. Dealt with power quality and grounding issues relating to this two building facility including design of MOVM (Metal Oxide Varistor with Monitoring) modules, paper available.
- Upgraded Novell network from Arcnet to 10BaseT. Studied digital TV at Tektronix seminars and Charles Poynton (part of SMPTE annual conference). Also Tektronix ISDN faultfinding, Agilent SONET/ATM, Dranetz/BMI power quality analysis and Network Associates computer security. Certified digital VTR maintenance on DVCPRO.

New York 1 News – an AOL Time Warner company News Facility 6/94 – 9/94

- Maintained HVAC, robotic cameras (Radamec-EPO & BTS), facility router (BTS), Hi8 & Betacam-SP ENG and editing equipment and Beta LMS (Library Management System) (Sony).

References available on request

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PTO please.