

Division of Emergency Communication Networks

Research on Logger Recorders

Thomas M. Johnson

In January 2010 I was asked to research background information on Logger/Recorders for the Minnesota State Sheriffs Association PSAP Committee. The information is needed in order to find out what alternatives are available for those PSAPS upgrading their dispatch consoles.

I started my research by finding out what vendors sold this equipment here in Minnesota. I came up with a list of four vendors:

Verint - Over-the-air ATI Stream – Northland Business Systems – Mary Ewers 952-894-4204

Cybertech – Over-the air – Loffler Companies – Jennifer Anderson – 952-285-2168

Equature911 (DSS Corporation) – Over-the air – MACTEK Systems – Stu MacGibbon

952-431-5822

NICE - Direct Interface – NICE/Motorola – Chris Lentz - 612-554-6060

I asked each of the vendors above to send me a list of frequently asked questions reference their logger/recorder product. I advised them that I was putting this information together for the Minnesota State Sheriffs Association to be presented to the PSAP Committee in order to assist them in making a business decision on which logger/recorder device will work best for them and their department.

The information collected from each vendor is attached to this cover sheet for your review. I advised the vendors that I would get back to them if it was decided by the PSAP Committee that a face to face presentation was requested.

It should be noted that a workshop on logger/recorders will take place as part of Minnesota's first Interoperability Conference to be held April 28-30, 2010 in St Cloud, Minnesota. More information on this conference will be available in the near future.

## Johnson, Tom M

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**From:** Mary Ewers [Mewers@northlandsys.com]  
**Sent:** Monday, February 22, 2010 2:46 PM  
**To:** Tom.M.Johnson@state.mn.us  
**Cc:** Scott Wosje  
**Subject:** Audiolog QA

Tom,

I have put together some questions and answers that you asked for regarding the Audiolog Voice Recorder by Verint. Is this what you are looking for? Do you have other questions that you want answered?

Mary

Mary Ewers

Northland Business Systems  
1606 E. Cliff Road  
Burnsville, MN 55337  
952-428-7211 Direct line

1. **Who is Verint?**

Verint is the largest manufacturer of Voice Recording equipment in the world. Verint has over 8,000 installations of the Audiolog in Public Safety Dispatch centers and is on the board of APCO/NENA as participant in the development of the Next Gen 911 technology.

2. **Who is Northland Business Systems**

Northland Business Systems is a full service solutions provider and has been in business since 1986. Northland is located in Burnsville, MN and has been servicing voice recording customers in both MN and WI for 10 years. [www.northlandsys.com](http://www.northlandsys.com)

3. **What features does Audiolog offer?**

Audiolog offers the following feature sets for Public Safety Dispatch Centers:

**WEB browser playback**

**Incident reconstruction including Talking Time and Date Stamp** – Call searches made easy through Application Event Triggers that tag calls with

Key information such as CAD incident ID or call taker name.

**Quality Evaluation Software** for grading call taker calls

**Screen Recording**

**ANI/ALI information** for searching calls

**Reference Field and Notes fields** for adding documentation to the call record.

**Work Force Management Software**

**Speech Analytics for Public Safety**

**Elearning and Coaching** – delivered to agents desktop

**Performance Scorecards** – Empower call takers and dispatchers to view personal performance in relation to agency goals.

**Citizen Surveys**

4. **I am going onto the ARMER 800 MHz Radio System. Will Audiolog be able to record those calls?**  
Verint and Northland Business were approved by the State Radio Board to install a Trunked Logging Recorder At both Zones 1 and 2 on the ARMER Radio System in 2008. Those systems capture all of the Radio traffic at The Zone Controller with Radio ID information.
5. **I am going to buy the Motorola MCC7500 IP Consoles and have been told that I have to buy a NICE recorder.**  
Verint is working with Motorola to develop an IP interface so the Audiolog will be able to capture the IP information directly from the MCC7500 console.
6. **Can I continue to record my calls in Analog format as I do now?**  
Yes, you can record your calls in Analog format. You will need a channel for each Talkgroup you need to record.
7. **Can I share resources with other agencies?**  
Yes, multiple agencies can share a large recorder and have permissions to only play back their own calls.
8. **What solutions are available for recording Radio traffic?**  
Radio traffic can be recorded by Channel, Talkgroup, Trunked Logging Recorder and Over the Air solutions.

Mary Ewers  
Sales Manager

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February 1, 2010

Frequently Asked Questions for  
**The State of Minnesota**

**Prepared By:**

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The contents of this document are considered private and confidential for the exclusive use of  
The State of Minnesota and their relationship with Loffler.

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**LOFFLER**

The State of  
Minnesota

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## Frequently Asked Questions

### Loffler Companies

1. Why should a Minnesota law enforcement agency chose to do business with Loffler Companies?

Since 1986, we've worked hard to become Minnesota's most capable office technology provider. Today, we have emerged into a Business Communication Company that offers a broad portfolio of technology, services and solutions. As an independent company, we have the freedom to offer the world's best technology solutions. But great products are just the start. Our sales and IT professionals are here to offer high-quality support for all our products and services.

Our breadth of services and solutions allows Loffler to meet virtually all of our clients' wide range of business needs: Voice Recording Solutions, Dictation Products, Video and Audio Recording for Interview rooms, Network Solutions (LAN/WAN), IP Telephony, IT Managed Services & Solutions, Software Solutions & Professional Services, On-site Management Services (Facilities Management) and overall office automation.

We have invested significantly in the best talent available to support your Voice Recording, IT and IP Telephony projects and the services that go with them. These resources include: Loffler's project management team to see your installation through to completion, full-time account specialists to help with your day-to-day needs, LofflerVision helpdesk offering to augment your existing staff, and our highly tenured management team to compliment the entire solution.

Loffler is committed to service excellence. We have the largest staff and best-trained technicians in the Twin Cities. Our technicians have 20 plus year's industry experience and with our client focused systems; we are guaranteed to respond to our clients' calls within hours.

From the spoken word to the printed page, all over one network, Loffler is your one source for business solutions.

2. How long has Loffler been selling call recording equipment?
- Loffler Companies has been selling call recording equipment for 23 years. I personally have been in the recording industry for 13 years. We have extensive experience calling on law enforcement, insurance and call center markets throughout the United States and Canada.
3. What brands of call recording products does Loffler Companies carry?
- Today we carry NICE, CyberTech and Wygant.
4. What brands of call recording products has Loffler Companies carried in the past?
- Raycall, TEAC and Dynamic Instrument.
5. Does Loffler have experience with other manufacturers not mentioned above?
- Yes, we have experience with reel to reel loggers, Dictaphone's Guardian recorder, Dictaphone's Freedom recorder and Envision's Click to Coach recording product. We are also familiar with Witness Call Center products, NICE call center products and Verint /Mercom Call recording products.
6. Since Loffler represents NICE call recording products, does that mean you carry the Motorola / NICE IP recorder?
- No, we don't carry that product. Today that product is only sold through Motorola here in the United States.
7. Why does Loffler carry three brands of call recording equipment?
- Loffler Companies is a best of breed dealership. We have the flexibility and breadth of service to choose the best brands of call recorders the marketplace has to offer. This gives our customers more choices to meet their business objectives. One size does not fit all in call recording.

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**LOFFLER**

State of Minnesota

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8. What is the difference between the NICE, CyberTech and Wygant recorders?
    - a. NICE is a public safety specific product set. NICE is #1 in the recording industry. Loffler carries the NICE Mirra IV recorder which is a 48 channel web based product (great in small dispatch centers), the NICE Call Focus III which is also a 48 channel recorder, this is not web based, and the NICELog recorder which is expandable to 96 channels. Both the Call Focus III and the NICELog use the new Inform software which is designed for NextGen 911 or the legacy Scenario Replay software for playback and retrieval. At this time the NICE Mirra IV is the only recorder in the line up to accept analog, digital and VoIP on a limited basis.
    - b. CyberTech is a product that can be used in public safety or call centers. CyberTech has been in the recording industry for over 20 years and is the most flexible and innovative recording platform I've ever worked with. There are purpose built applications that are layered on top of the recording platform to maximize workflow and address your business objectives. Examples include: Incident Replay, Instant Recall, Evaluations and Screen Capture. Playback and retrieval is web based and has no licensing restrictions. CyberTech can mix analog, digital and VoIP into one recorder and if the customer prefers a software only solution, CyberTech can do that too.
    - c. Wygant is a recorder designed specifically for call centers and not recommended in public safety applications.
  9. Have you heard about the state wide Motorola Radio 800 MHz project?
    - a. Yes we have.
  10. Can Loffler make recommendations for capturing and recording 800 MHz radio?
    - a. Yes we can - this will be addressed in another section.

## Call Recording Environment Questions

1. Can call recording products record both phone and radio with one recorder?
  - a. Yes, call recording products can and should be able to capture both phone and radio transmissions with one recorder.
2. Do these channels have to be all analog, all digital or all VoIP to record?
  - a. No they do not. In most cases you can mix digital phones and analog radio with one recorder. However, if you are recording VoIP, in most cases, a separate recorder needs to be purchased to capture VoIP in its native format.
3. Can recorders mix analog, digital and VoIP in one recorder?
  - a. Not all. Most recorders in today's market place have the ability to only mix analog and digital channels in one recorder. If VoIP is introduced, then a separate box for VoIP is needed. CyberTech, can mix analog, digital and VoIP in one recorder. Also the NICE Mirra IV can mix channels on a limited basis. These are both included in Loffler's offerings.
4. Do all recording platforms have the capability to let the dispatcher instantly recall a radio or phone transmission at their work station?
  - a. They should. A dispatcher will have the ability to pull a call instantly from their position for replay. The dispatch manager should also have the ability to set channel and time restrictions on what can be accessed and how far back a call can be replayed.
5. Do all recording platforms have the capability to pull radio transmissions and phone calls into one player to recreate incidents for court purposes?
  - a. They should. Being able to pull calls into one player is critical to proving what actually occurred in dispatch during an emergency. Having separate players could put an agency at risk with the right attorney asking questions.
6. What sizes do call recorders come in?
  - a. We can design a recorder with as few as 4 channels of recording and could grow it up to 4,000 channels of recording. Some systems have channel limitations based on the size of the hardware or system design. For example, the NICE Mirra IV recorder and the NICE Call Focus III have a channel capacity of 48 channels. This was designed by NICE to compete financially in smaller channel configurations. The NICELog recorder has a 96 channel capacity. If a customer needs more than 96 channels, multiple boxes can be linked together to form a larger system. However, other recorders like the CyberTech can be configured up to 480 channels in one box or by linking a series of boxes together to capture up to 4,000 channels. Number of channels and capabilities vary by manufacturer.
7. How many dispatch managers, administrators or IT staff can have access to the call recorder?
  - a. That is solely dependent on the agency. Some agencies want to keep the playback and retrieval functions within dispatch or upper management. Some agencies will give access to more people like investigations and county attorneys. Agencies can give service and administrative access to IT but restrict them from being able to playback calls. It's up to the agency who and what they want to have accessed.
  - b. Another consideration is how the manufacturer charges for playback and retrieval licenses. Most manufacturers will charge a license fee for each playback license and with today's budget restrictions that could limit the number of licenses an agency purchases. To my knowledge, all manufacturers, with the exception of CyberTech, charge additional monies for playback, retrieval and administrative licenses.
8. Are recorders proprietary and hardware dependant?
  - a. Most are. There are a few reasons for this.
    - (1) One, it's easier for a vendor to maintain the equipment if it is proprietary. We stock parts and supplies so if there is a failure we can respond accordingly.
    - (2) Two, it eliminates finger pointing if something goes wrong with a recorder. If a customer supplies their own hardware and the IT department is in charge of it, problems can occur. IT can fuss around with a product they are unfamiliar with and cause more problems than they fix. This could be a problem with a critical piece of equipment like recording.
    - (3) Three, and the least popular reason for proprietary equipment, the manufacturer can plan equipment obsolescence. Proprietary recorders will be NICE, Wygant, Verint / Mercom, Higher Ground, Eventide and Dynamic Instrument, just to name a few.
  - b. CyberTech does not fall into this category. Customers can choose to provide their own hardware if they like. However, most choose to purchase turnkey recorders for the reasons mentioned above. There are some benefits to providing your own hardware though.
    - (1) The first is to keep your maintenance costs down. By providing your own hardware we only charge support on the parts we provide.

(2) Another is to keep your hardware current. With CyberTech we can pull the recording boards out of one recorder and place them into the latest hardware. This saves money for the agency because we are not forklift upgrading equipment every 3- 5 years.

(a) Loffler is very choosy about who we recommend to provide their own hardware. Most IT departments do not want another server to take care of or who have the capability to service the hardware. But they do like the idea of having the latest greatest hardware. We will work with each agency and make the proper recommendation based on our findings.

9. How are playback / retrieval and administration functions conducted?
  - a. Most manufacturers will load client licenses on the workstations of your choosing. Some manufacturers have web based applications available in lieu of client applications. Others have a combination of both web based and client licenses to accommodate the customer site or specific needs. In either case, the dispatch manager or supervisor can pull calls from their workstations.
10. Can recordings be accessed via the network?
  - a. Yes, as long as network access is provided to the recorder and the work station has the appropriate software or access to the playback software. All manufacturers have the ability to manage calls via the network. Proper user ID and password protection is recommended.
11. Are calls encrypted?
  - a. It depends. Manufacturers will claim calls are encrypted because their file format is proprietary and you need their player to play the calls back. Some will encrypt the call on the recorder but convert it to a wave file format on an external source. CyberTech will encrypt both the call on the recorder and the archiving device.
12. Why is call encryption important?
  - a. Call encryption is important because you don't want someone who is not authorized to access and manipulate your calls.
13. How long can an agency archive their calls? Where do you recommend an agency to archive their calls?
  - a. That depends. The state only requires agencies to have 30 days of audio available for playback and retrieval. Most agencies go well beyond this. Some will keep calls indefinitely; others will keep calls as little as 90 days.
  - b. Most recorders have ample space to archive several years of calls directly on the recorder. However, it's in the agencies best interest to archive calls to some type of media, NAS, SAN or off site location, in case there is a hard drive failure.
  - c. Some manufacturers still archive only to DVD's, others have a proprietary storage center, and then there are others who have the ability to archive to a source of your choosing. Loffler Companies prefers NAS or SAN technology for long term archiving.
14. Can my dispatch manager e-mail or make copies of calls for prosecution?
  - a. Yes, they can do both. Some recorders have more steps than others to accomplish this.
15. Can calls be transcribed?
  - a. Yes, most call recorders can convert calls into a wave file format which can be imported into a dictation / transcription package.
16. Can notes be added to call records?
  - a. In most cases yes. Some manufacturers have more robust notes, tags and marks than others. Some notes, tags and marks become searchable criteria, others do not. It's manufacturer specific.

## IP Recording Questions

1. There is much confusion regarding the 800 MHz radio project and recording those transmissions. Can you help us make sense of this?
  - a. Yes.
2. The state has implemented a state wide radio project with Motorola. This new format is 800 MHz. How can our agencies capture this audio?
  - a. There are a couple different ways an agency can capture the IP radio signal from Motorola.
    - i. If your agency is already using the Motorola Gold Elite radio system and are on version 5 or 6, they can capture the 800 MHz frequency without the need to change out their radio consoles. They can continue to capture the phone and radio transmissions with the voice recorder they are using today, unless that equipment is ageing or needs to be replaced for some other reason. (It would be Motorola's preference if you did upgrade the Gold Elite's, albeit unnecessary. The Gold Elite's are not actively sold today, but they are still supported and they have not been designated "end of life". Once EOL has been announced, your agency still has a minimum of 4 years of support left.)
    - ii. If an agency has to upgrade their radio consoles to the new Motorola MC7500 IP consoles, then there are a few ways to grab that signal.
      1. The agency can purchase the Motorola / NICE IP recorder to capture the IP signals in its native format. This recorder is ONLY sold through Motorola. It is very expensive and does not take into consideration the phones in dispatch, leaving the agency to purchase a second recorder for the phones. This can cause problems in the following ways.
        - a. The agency is using two different recorders to capture phone and radio.
        - b. The agency has no way of creating a scenario with phone and radio for court purposes with two different recorders.
        - c. The agency has to learn two recording platforms to do the job that one recorder has done in the past.
        - d. The agency has to pay more in maintenance to maintain two pieces of equipment.
        - e. Two pieces of equipment takes up more space.
      2. If an agency decides to move forward with the IP recorder from Motorola, they now need to consider a recorder for their phones. They have three choices here.
        - a. They can stay with the existing recorder they have today and live with the fact that the two recorders do not interface with one another. Some people choose to do this to save money but this is the least desirable solution.
        - b. They can purchase a NICE recorder to capture the phones from either Motorola or NICE Direct. This is the direction that Motorola would like for you to take.
          - i. First, it keeps all competition out of the sales process and allows them to charge accordingly, which ends up being very expensive for the agency.
          - ii. Second, it is the path of least resistance and an easy, yet expensive, solution because the whole transaction is done through Motorola.
        - c. Lastly, the agency can purchase NICE recorders from Loffler.
          - i. Our prices are lower for the same product and we service your equipment locally, not nationally like NICE Direct or Motorola.
        - d. Whichever choice the agency makes for purchasing a NICE recorder for phones, the agency will have to pay Motorola an engineering fee to get through the IP firewall so that the two recorders can talk to each other and pull calls and radio into one common software platform. The estimates for this have been as high as \$25,000. This is in addition to the cost of the IP Motorola recorder and the second recorder for the phones.
    3. Another option to capture the Motorola MC7500 Console IP signal is to convert the IP signal to an analog signal. On the back of the Motorola console, there is a port to convert that IP signal to an analog signal. By doing this, an agency can capture the radio signal the same way they do today and they can record radio and phone using any voice recorder they like.
    4. The third way an agency that purchases the Motorola MC7500 radio consoles can capture the IP signal is an over the air set up. This is more creative but can be done.

3. If the IP signal is converted to an analog signal, what kind of information will be in the call record for search and replay?
  - a. Date, Time, Start time, End time, Duration, Call Type (fire, ambulance etc.). This is the very same information that is collected today.
4. What information will IP radio give the agencies that analog will not?
  - a. IP radio will give you Call ID, ID of call originator, Site ID and Zone ID.
5. If we are using Motorola Gold Elite radio version 5 or 6 and receive the 800 MHz signal, will we get the above mentioned information?
  - a. Yes.
6. Is there really only one manufacturer in the market who has the Motorola 800 MHz integration?
  - a. Yes and No.
    - i. Yes. Today in the Unites States, Motorola USA has only approved one manufacturer for the 800MHz radio signal. A recorder developed by Motorola and NICE. As I mentioned before, that recorder is ONLY sold by Motorola and does not handle phone traffic. A second recorder is needed for the phones.
    - ii. No. CyberTech has been approved and certified for Motorola 800 MHz radio in Europe, Asia/Pacific and the Middle East. Motorola USA has not yet approved the CyberTech solution for US distribution. The Motorola / CyberTech integration is developed, marketed and sold throughout the world today. The CyberTech / Motorola 800 MHz recording platform is different from the Motorola / NICE solution in the following ways.
      1. The CyberTech / Motorola 800 MHz Integration is a software application added to the hardware.
      2. Your agency will only need one recorder to capture phone and radio. The Motorola / NICE solution require at least two recorders.
      3. CyberTech is a pure IP Solution. NICE uses a separate recorder to capture VoIP.
      4. CyberTech encrypts the calls and radio from the beginning of the call and all the way through to the archived calls.
      5. CyberTech can mix IP, analog and digital phone signals all in one platform.
      6. CyberTech playback, retrieval and administration applications are web based and are not limited to licensing restrictions.
      7. CyberTech can archive calls and radio transmissions to an archive source or sources (up to 4 locations) of your choosing.
      8. It's a fraction of the cost of the Motorola / NICE solution.
7. So why isn't the CyberTech / Motorola 800 MHz integration sold here in the United States?
  - a. Because Motorola USA doesn't want it to be. US customers have not screamed loud enough that they want other solutions to choose from.

## Recommendations

1. If you were a law enforcement agency who was faced with upgrading their radio to 800 MHz, what recording decision would you make?
  - a. My first priority would be to make the most fiscally responsible decision for my city or county. With that said, I would do one of the following.
    - i. If I had Motorola's Gold Elite radio consoles and was on version 5 or 6, I would make no decision at all since I could receive the 800MHz signal and record it with the existing recorder in my dispatch facility. However, if the recorder did need to be upgraded, I would choose CyberTech or NICE since they are both approved by Motorola.
    - ii. If I had to upgrade to the Motorola MC7500 radio consoles, I would make one of two decisions.
      1. My first choice would be to convert the IP signal to an analog signal and record it with a CyberTech recorder. The additional "Call ID, ID of call originator, Site ID and Zone ID" information that an agency would receive to search and replay is hard for me to cost justify. The information they receive today in analog format is still very efficient.

As I mentioned above, the CyberTech recorder is a Motorola IP approved solution overseas and it will only be a matter of time before that is actively sold in the US. If an agency is using the CyberTech recorder, all Loffler would need to do is add the IP license at a later date to capture the native IP signal. This would allow the agency to have a one recorder environment, and it would be a significantly lower cost solution than the Motorola / NICE solution from Motorola.
      2. My second choice would be to purchase the IP Motorola / NICE recorder from Motorola, and purchase the second NICE phone recorder from Loffler. It would cost less money than it would with Motorola and would be serviced locally.
    - iii. If money is no object and your agency likes being tied to Motorola, then going the whole way with them is another option. But that would not be my choice.



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### HIGHERGROUND FAQ'S

- 1) I have been told I have to buy a very expensive recording system from my radio vendor in order to record calls off of the ARMER system. Is this true?
  - A) No. To date, there has not been an 800 mghtz system where we have not been able to record calls. Please contact us and we will meet with you and determine your specific needs and propose a specific solution to your application that will more than likely be tens of thousands of dollars less than what has been proposed by your radio vendor.
  
- 2) Do you have local service and support?
  - A) Yes, we are based in Minneapolis and support all of Minnesota, Wisconsin and the Dakotas. We have systems installed From Roscau, MN all the way to Martin County on the Minnesota/Iowa border. We would be happy to provide you with numerous references.
  
- 3) Is your system NG 911 Compatible/ready?
  - A) Today, our system is ready to accept text (SMS), chat, video, email, voice, radio, etc. As more types of media becomes available to record, rest assured HigherGround will be a leader and in the forefront of this technology. Also, representatives from HigherGround are highly involved with NENA regarding NG911. The current HigherGround product is designed to be I3 compatible.
  
- 4) How long has your company been in the recording business
  - A) HigherGround was founded in 1973. We began as a consulting firm offering guidance and insight to telecommunications operations. In the early 1990's, large industry leading companies including Magnasync and Racal partnered with HigherGround to assist them in starting, stopping and retrieving their voice recordings based on telecom data. In 1996, HigherGround developed its own call recording solution incorporating analytics and reporting capabilities that integrate and optimize telecom resources for call centers and emergency service organizations.
  
- 5) Does your system self monitor its self. In the past, we have had challenges where we did not know our recorder was not working.
  - A) Yes, our system has what's called "I'm Alive", where the system sends out messages on a regular basis, saying "I'm Alive", if we don't receive an I'm alive, it is designed to alert us and we will diagnose and trouble shoot the problem.
  
- 6) Can my system grow to handle our needs?

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*Reaching Beyond Today's Standards*  
**MACTEK Voice & Data Solutions**



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- A) Yes, the application runs on a Windows Server and can expansion is basically unlimited.
  
- 7) Does the HigherGround system have the option of mapping?
  - A) Yes, this is an option. The map pane displays the location of any interaction that has either an x/y location coordinate or phone number was captured with the incident.
  
- 8) Can HigherGround capture the ANI/ALI?
  - A) Yes, we can capture ANI/ALI data as long as the data is present and can be delivered to the HigherGround system in a standard format. Over 95% of our customers utilize this capability.
  
- 9) Does HigherGround have the Dispatcher Evaluation module, where we can grade/evaluate dispatchers?
  - A) Yes, with HigherGround, you can maximize service quality and help ensure compliance with the latest regulatory standards by assessing and improving the skills of call takers and dispatchers through periodic evaluations of recorded interactions through our Dispatcher Evaluation module.
  
- 10) A few of our investigators would like to record calls, but we don't want them recorded all the time. Is there a way for the investigator to manually stop and start the recording?
  - A) Yes, with HigherGround the investigator can use a feature called "record on demand". With that capability, the investigator would click on an icon in the system tray that would start the recording. When completed the investigator could click to stop it or just hang up.



HigherGround®

The Next Generation of  
Public Safety Recording  
& Dispatcher Evaluation



capture**911**<sup>™</sup>  
quality**911**<sup>™</sup>

# Digital Voice Recording, Quality Assurance & Reporting Tools

HigherGround's NextGeneration Platform is the most secure and feature-rich audio & data recording solution available in the emergency services industry.

## Data Integration

NextGen Capture911 integrates data from multiple sources into a single synchronized event with a corresponding time line. Media sources can include voice interactions, screen captures, ANI/ALI data, text messages, video, and more.

## Flexible

Record all types of audio: analog, digital, and VoIP phones, as well as analog and digital (T-1) trunks, radios, and dispatcher consoles. End-users can access data from any position on the network with unlimited instant playback licensing.

## Dashboard

Adjustable docking window framework enables authorized users and dispatchers to customize layouts containing various categories of information. The dashboard displays recordings, incident details and associated data, as well as the following key performance indicators: average 911 hold times, average length of call, number of calls per hour, number of calls based on supervisor, flagged and abnormal calls, and time to dispatch.

## Customizable Search Data

Over a dozen search options for instant retrieval of archived data and media recordings, including customized filters, media type, annotations, tagging, and time indexed tagging information. Incidents can be saved to media files, emailed, or stored on other drive locations.

## Mapping

The map pane displays the location of any interaction that has a latitude & longitude coordinate or phone number that was geotagged with the incident.

## Service Reliability

NextGen Capture911 monitors your system for any kind of failure or downtime. The system is backed with redundant servers and a 24/7/365 service team to ensure your system is always available. (C) HigherGround Systems

## I'm Alive™

I'm Alive notification service verifies the system is up and running 24/7 by utilizing a pro-active notification task that contacts our server each day. If feedback is not received, our technicians are alerted and take immediate actions to guarantee uptime.

## Robust Security

All network communication between the client and the server is encrypted with multi-layer algorithms ensuring that call recordings are contained in the absolute most secure environment possible.

## Digital Signature

Industry exclusive "Digital Signature" validates the authenticity of voice recordings and that any associated data has not been tampered with or altered.

## Stand-Alone CD

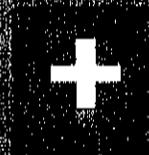
Recorded incidents and playback software can be burned onto a portable CD. This feature securely locks the recordings on the CD with pass code permissions, flags, tags, and data associated with the original recordings. The CD will play back from any PC after permissions have been accepted.

## Open Architecture

HigherGround's hardware platform is developed with non-proprietary standard PC components providing PEAPs with flexibility and significant cost savings.

## Replication Software

Several automatic remote storage options are available to keep your data safe and secure from any disaster.



[www.capture911.com](http://www.capture911.com)



# HigherGround®

HigherGround is a call recording and data integration company that has provided cost effective, easy-to-use, and scalable mission critical solutions to public safety communications centers for decades.

Founded in 1973, HigherGround, Inc. (formerly known as Communication Advice & Design) began as a consulting firm offering guidance and insight to telecommunications operations. In the early 1990s, large industry leading companies including Magnasync and Racal partnered with HigherGround to assist them in starting, stopping and retrieving their voice recordings based on telecom data. In 1996, HigherGround developed its own call recording solution incorporating new state-of-the-art analytics and reporting capabilities that integrate and optimize telecom resources for call centers and emergency service organizations.

HigherGround's award-winning solutions have earned a remarkable reputation in mission critical and emergency responder environments. Capture911 and Quality911 applications have been installed in more than 1000 PSAPs and government agencies. In addition, HigherGround's Instant Retrieval software (IRR) is a proven industry standard for call recording and is used as an OEM product in consoles produced by several industry leaders such as SolaCom and Plant/CML - an EADS North America Company, as well as in product integrations with Motorola, M/A-COM, and Harris.

Next Generation

## capture911™ Record, Retrieve, Replay & Report

HigherGround's comprehensive suite of recording, quality assurance, and reporting tools assist organizations of all sizes respond to and manage incidents. You can reliably record every call and radio interaction including associated data - time, date, ANI/ALI, radio ID, alias, talkgroup ID, etc. The NextGen Capture911 system captures 100% of audio from any combination of traditional or trunked radio and circuit-switched or VoIP telephone systems across multiple locations. It also provides the option for the capture of PC screens.

Public safety call takers, dispatchers, and supervisors can instantly play back recent or archived interactions from any desktop using an advanced search interface with more than a dozen search options and powerful filters for easy retrieval of data, regardless of the number of channels, recording servers, or sites involved. HigherGround offers an unlimited user access license so customers are not faced with hidden additional per-seat charges.

HigherGround has set the bar with a flexible, ad-hoc, user-friendly reporting module that is unparalleled in the industry. Customizable dashboards allow the end-user to monitor key performance indicators and have access to important reports instantly. Intuitive, dynamic reports and charts alleviate the need for sifting through layers of information, allowing supervisors to spend less time accessing valuable information and more time on activities that improve their mission critical operations.

Next Generation

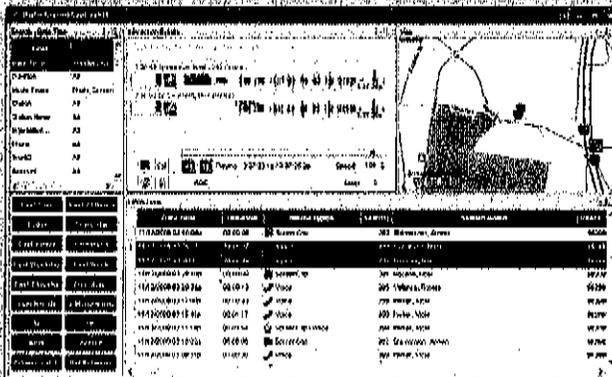
## quality911™ Dispatcher Evaluation

Maximize service quality and help ensure compliance with the latest regulatory standards by assessing and improving the skills of call takers and dispatchers through periodic evaluations of recorded interactions. Gain valuable insight into call taker performance and enhance quality assurance with HigherGround's NextGen Quality911 form-based evaluations and customized scorecards.

As a public safety organization, you have the highest standards of quality in your emergency communications services. With NextGen Quality911, you can improve this quality by providing a secure, easy-to-use, and mobile tool to evaluate and monitor call taker and dispatcher performance. This tool allows you to evaluate and report on every call, providing you with the data you need to improve your services and ensure compliance with the latest regulatory standards.



## Compatible with Many Types of Communication Devices



- Capture every interaction within your communications center
- Use over a dozen search options for instant retrieval of recordings



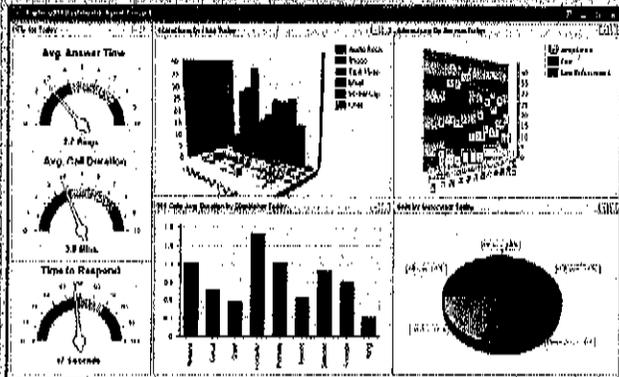
## Next Generation Technology

Capturing and logging telephone and radio interactions has always been a function of public safety operations. Today's public safety agencies are experiencing a new set of challenges. There are enhanced interoperability expectations and expanded standards and protocols on the horizon. Citizens are using a wide range of communication devices and emergency responders are being required to manage agency communications, data-sharing, and reporting tools based on open standards. These advances in mission critical technology have brought us to an era *beyond voice* that allow a myriad of structured and unstructured data associated with an incident to enter into the PSAP.

The types of interactions and emerging sources of multimedia information that can now be captured include a variety of voice interactions (telephony, radio, VoIP), ANI/ALI data, video, text and email messages, photos, GIS data, vehicle telemetry data, TTY/TTD, CAD screens, incident reports, and more.

HigherGround's NextGen Capture911 solutions range from the very basic of systems to those that have the ability to collect and consolidate diverse multimedia data from disparate sources into a single platform. The collected information is integrated and presented in a chronological manner with an easy-to-use interface. NextGen Capture911 virtually re-creates an entire incident and provides public safety and government agencies with increased efficiency in incident reconstruction and investigation analysis.

## View Key Performance Indicators with a Customizable Dashboard



- Monitor dispatcher activities in real-time
- Report on a variety of performance metrics



## Protect Your Investment

Emergency dispatch facilities, 9-1-1 centers, and other public safety organizations using HigherGround's solutions realize a significant return on their investment through improved functionality and real-time alignment of their systems with the ever-changing requirements in mission critical technology. Customers receive free software upgrades throughout the duration of their maintenance contracts.

All HigherGround systems are designed using a modular approach and as a result are fully upgradeable systems. Organizations can simply select from the innovative modules and features they desire to develop a tailored system that is easy-to-use, satisfies the strictest regulatory standards, and provides the best value for their immediate needs. HigherGround's scalable and flexible architecture allows PSAPs to upgrade basic systems as new capabilities are mandated or budgets become available. HigherGround's Next Generation solutions meet your current needs and will evolve with you and your organization's future requirements.

## Security

HigherGround understands that security concerns are paramount to your operations. We ensure that your call center has the highest level of security with multiple security protocols and processes in place to protect your data with the most advanced security available. We are committed to providing a secure and reliable environment for your data.

HigherGround's Next Generation solutions are designed to be secure and reliable. We ensure that your call center has the highest level of security with multiple security protocols and processes in place to protect your data with the most advanced security available. We are committed to providing a secure and reliable environment for your data.



Clinton Township Fire Department Ascension Parish Fire Protection District 1 Texas Poison Control Dyess Air Force Base  
 Goodhue County Sheriff Andrews County Sheriff City of Pecos Police Department City of Ventura Police & Fire City of Crane  
 Police Department City of Kermit Police Rusk County Sheriff Gregg Sheriff Office Tyler Department of Public Safety Van  
 Zandt County Sheriff Texas A&M Intl Laredo Police Department Harper Woods Police Department Beaumont Department  
 of Public Safety Childress  
 County Sheriff Patterson  
 County Central Dispatch  
 Public Safety Victoria Dr  
 Department of Public Saf  
 Concho County Sheriff  
 Police Department San  
 Safety College Station P  
 Winfree Police Department  
 Department Hope Police  
 E Bayou Police 911 Cit  
 Safety Seneca Police De  
 Austin Congress Depart  
 of Public Safety San Ben  
 Lufkin Department of P  
 Public Safety Allamore  
 of Sheriff Meridian Berk  
 Central Dispatch San An  
 Safety George Rolden  
 Weyburn Police Partsh  
 Dispatch Victoria Pol  
 County Hamilton Police  
 Central Dispatch County's  
 Police Department Lake  
 Public Safety Whitesboro  
 Central Emergency Servi  
 County 911 St Landry P  
 Ambulance Santa Ana  
 Trenton Police Departme  
 Clinton Township Fire Dep  
 Goodhue County Sheriff  
 Police Department City  
 Zandt County Sheriff Texas A&M Intl Laredo Police Department Harper Woods Police Department Beaumont Department  
 of Public Safety Childress Department of Public Safety Chipewewa Tribal Police Department Anderson County Sheriff Young  
 County Sheriff Patterson Police Department Waco Department of Public Safety Tyler Department of Public Safety Amarillo  
 Department of Public Safety Hope Police Department Rusk County Sheriff City of Ventura Police & Fire Galveston Polce



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## Recording System Q&A

1. **Motorola offers a Motorola-Certified ASTRO® 25 Recording solution. Is this the only recording system that has been certified by Motorola?**

Yes.

2. **What does it mean to be Motorola Certified?**

There are many advantages to certification. These are the five most important:

- a. The product is fully tested in the Schaumburg System and Integration Testing (SIT) labs. Motorola validates its performance and Motorola stands behind the product.
- b. The radio recording solution is part of the radio system. As Motorola develops new versions of the ASTRO® 25 radio system, corresponding versions of the radio recording solution are also developed. When the ARMER system gets upgraded, so does the Logger. Customers never have to worry about their recording solution becoming non-compatible with the radio system.
- c. Motorola supports the solution. Customers have one vendor contract to manage and one phone number to call. Also, there is no 'finger-pointing' between Motorola and the recording vendor if the radio recording solution develops a problem.
- d. The Recording Solution is integrated into Motorola's UEM package. The recording system can be monitored by Motorola's SSC, along with the rest of the radio system. UEM offers a detailed messaging service that allows the SSC to 'see' a problem and begin a response.
- e. Security. Since the solution is a part of the ARMER System, it is as secure as the ARMER system.

3. **Will other solutions be certified by Motorola?**

Currently, Motorola has no plans to certify another vendor.

4. **Does the Motorola Solution come with value-add or exclusive features?**

Yes. There is a chart attached to this document that provides a detailed list of the advantages of the Motorola solution. Here are the top five features:

- a. The Motorola Solution can offer a scalable recording solution for minimal additional costs. There are very few instances where a customer would incur additional costs if they wanted to add more Talk Groups to the solution (see exception herein). A single AIS and

## NICE Executive Summary

Recorder can record up to 256 Talk Groups with 120 simultaneous recording sessions of un-encrypted audio for a single price. So, if you buy a recording solution to record 60 Talk Groups today, and you want to expand that by 10 Talk Groups two years later, there are no additional fees. Please note that systems can be configured to record more than 256 Talk Groups, but there is an added cost for that.

In comparison, other systems may require the purchase of additional hardware and/or software to simply add more Talk Groups to the recording system. This would also likely include wait times for delivery and additional fees for installation.

- b. Record only what you want to record. The Motorola AIS can be programmed to only record the Talk Groups that you need to record. Other solutions that record by MFG or by frequency are not likely to allow customers to choose what they want to record. These solutions usually have to record everything.
- c. Enriched Call Data. The Motorola solution offers the most data associated with each radio recording. Data captured with each transmission includes:
  - i. Talk Group ID
  - ii. User ID
  - iii. Alias
  - iv. Channel
  - v. Frequency
  - vi. Zone ID
  - vii. Site ID
  - viii. And more

Any or all of this data can be used as search criteria when looking for specific recordings. This provides customers with a very fast and efficient tool for event reconstruction. This data can also be used to sort search results. Saves lots of time.

- d. Since the recording solution is a part of the radio system, when Alias is updated in the radio system, it will be updated in the recorder database too. Other solutions that may offer Alias capture with recordings will require users to manually update the Alias database. Very tedious in comparison with the Motorola solution.
- e. Record System Events. The recording solution also captures event data such as 'Call Alert', 'Busy-reject', 'Emergency Alarm', 'Emergency Acknowledgement' and others. This data can be used as search criteria or for sorting search results. Another great time saver.

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*Providing Insight from Interactions*

**5. As a 'mission-critical' system, redundancy is a highly valued feature. However, it is difficult to justify the cost of buying a fully redundant system. What resiliency features does the Motorola Solution offer?**

The IP Radio Loggers for the ARMER system have dual hot swap power supplies, hot swap fans, and RAID 5 for the hard drives. RAID 5 means that if a hard drive fails, the system continues to operate and users continue to have full access to recordings and data.

The solution also offers tape drives to back up the databases – both the audio files and the SQL database files that store the data.

Also, Motorola customers have a unique opportunity to obtain full redundancy for little or no cost. As mentioned above, the radio recording solution is also part of the ARMER radio solution. All Motorola radio recorders are on the common Motorola ARMER network. This gives Organizations on the ARMER system the ability to 'partner' with each other to obtain a redundant, geographically separate, logging solution.

For example, let's say that two Counties each have a Motorola IP Logging Solution. Each County has a recorder on the ARMER system. These Counties could make arrangements to record each others Talk Groups. In other words, each IP logger could be programmed to record the Talk Groups of both Counties. Naturally, the system would also be programmed so that each County has complete privacy and security. For example, the users at 'County A' would only have access to the recordings that belong to 'County A'. They could not access the audio files that belong to County 'B'.

As mentioned above, since there is rarely an additional cost to record more Talk Groups (up to 256), this Motorola feature offers customers the ability to have full radio recording redundancy (both physical and geographic) at no additional cost.

Naturally, it will be up to each individual organization to decide if they want to take advantage of this capability.

**6. Can Organizations share a single Motorola recording solution (creating something along the lines of a 'regional' recording solution)?**

Yes. This is the opposite approach to Question #5 above. Organizations can pool resources and share a Motorola Radio Recording solution. A single IP Radio Logger (or multiple, if needed) can service multiple Organizations. For example, 2, 3, 4, or more Counties can all share a single recording solution.

User Access can be programmed based on Talk Group so that each user at each County can only have access to its own audio. Each County would

also have its own recorder for telephone recording (because each County has its own phone system and the recorder must be local and physically connected to the phone system).

**7. Can we have telephone recording with our Motorola Recording Solution?**

Yes. Motorola can provide a complete recording solution. It is a fully integrated solution so that users can search and playback both radio and telephone recording simultaneously – as one system. Motorola can record digital trunked radio, conventional radio, select audio from the console position, 911 phones, 911 lines, emergency and ring-down lines, non-emergency and administrative phones, all as one solution.

Motorola partners with NICE Systems, the largest and most experienced recording vendor in the industry. Motorola/NICE telephone solutions can record most telephone systems. These include, but are not limited to...

Plant/CML 911 System (Including Patriot, Sentinel and Aurora )

Positron 911 System (including VIPEX)

Analog 911 lines

T1, BRI, and PRI digital trunks

A variety of traditional phone systems such as Nortel and Avaya

A variety of VoIP solutions (including Cisco, MITEL, Avaya, etc...)

**8. If we buy a Motorola Solution for radio recording, can we keep our current logger to record telephones?**

Yes. However, the two systems will not integrate. This means you would have a separate recording solution for recording radio and a separate recording solution for telephones. This also means two separate software applications, two separate vendor contracts, two separate service providers, etc... Also, when preparing recordings for court, there would be several extra steps to bring the audio recordings for phone and radio to a common place for simultaneous playback. Importantly, they would not have a common/synchronized time-stamp for court playback.

**9. Other recording vendors are now offering recording solutions that include recording our Talk Groups on the ARMER system. How is their approach different?**

Well, we can't know for sure, but based on our extensive experience in the industry, we believe that these suppliers are offering one of three approaches:

- a. Recording digital trunked Talk Group audio over-the-air (OTA). This requires a radio or base station for each Talk Group. These devices will provide an analog feed to the recorder:

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- b. Recording digital trunked Talk Group audio by Frequency (OTA). This requires a radio or base station per frequency. It also requires another device for capturing the call data for each recording (OTA). This means the solution needs an interface to the ARMER Radio System ATIA data feed).
- c. Recording digital trunked Talk Group audio by interfacing to the system MGEG. This solution also requires an interface to the ARMER Radio System ATIA data feed.

### **10. Are any of these solutions Motorola Certified?**

No. Currently, Motorola has no plans to certify any of these solutions.

### **11. How do OTA non-certified solutions measure up to the Motorola Certified solution?**

Well, that's a big subject. To help answer that question in detail, we have provided a comparison chart along with this document. At a 'high level', here is what you need to consider...

- a. An OTA solution that is recording by Talk Group is utilizing analog technology. Further, this type of recording solution is converting digital audio to analog audio twice (from transmission to analog interface card - then back to digital to store in the logger - then back to analog so the human ear can understand it). This can reduce audio quality considerably. The Motorola recording solution records in the native digital format of the radio system. The Motorola solution will provide high audio quality consistently.
- b. The Motorola Recording System is not impacted by outside interference and signal strength.
- c. An OTA solution that is recording by Talk Group requires customers to buy more radios or base stations whenever they want to record more Talk Groups. This is not only an additional expenditure, but it usually requires customers to wait weeks until the new equipment is installed for the logger. With the Motorola solution, adding Talk Groups requires no additional cost (in 256 Talk Group increments) and can be implemented almost instantly.
- d. An OTA solution that is recording by frequency requires an interface to the ARMER ATIA feed. Currently, Motorola has not certified an OTA solution, nor has it provided the ASTRO 25™ API to any recording vendor other than NICE (see below). This means that the interface to the ATIA has been engineered without the direct use of the Motorola API. This raises questions as to reliability and accuracy (matching call data with the right audio recording 100% of the time). Equally important, there are questions about what happens to these solutions as the ARMER system gets upgraded each year. Already, the ARMER

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System has been upgraded from v7.2 to v7.5 to v7.7. As the system moves to v7.8 and v7.10, etc... it is hard to know how this would impact these solutions. However, the answer has the potential to be extremely detrimental to the user's ability to find necessary audio. Worse-case scenario is that the system stops recording call data and it becomes nearly impossible to find a needed recording.

- e. The Motorola Solution can be programmed to record specific Talk Groups. OTA solutions that record by frequency usually have to record everything that occurs on the frequency. Customers have no discretion or control over this. Some OTA systems will allow users to block access to certain Talk Groups or 'delete' the audio file after it has been recorded. However, blocking access to the audio usually means that the System Administrator can still access these calls, if necessary. Also, having a recording system that can delete recordings can raise legal questions for customers that are trying to use audio as evidence in a court of law.

### **12. How do non-certified MGEg solutions compare to the Motorola Solution?**

First, not all Organizations will have the option of this solution. Most locations in Minnesota do not have access to an MGEg. It is old technology more widely associated with v6.x radio systems.

For those customers who have this option, we have provided a comparison chart attached to this document. At a 'high level', here is what you need to think about...

- a. An MGEg solution is recording via E1 feeds from the radio system. The E1's are a big pipe of Mux'ed audio. These recording solutions require an interface to the ARMER ATIA feed to collect call data for each recording. Motorola has not certified an MGEg solution (other than NICE Systems), nor has it provided the ASTRO 25™ API to any recording vendor other than NICE (see below). This means that the interface to the ATIA has been engineered without the direct support of Motorola. There are questions about what happens to these solutions as the ARMER system gets upgraded each year. Already, the ARMER System has been upgraded from v7.2 to v7.5 to v7.7. As the system moves to v7.8 and v7.10, etc... it is hard to know how this would impact these solutions. However, the answer has the potential to be extremely detrimental to the user's ability to find necessary audio. Worse-case scenario is that the system stops recording call data and it becomes nearly impossible to find a needed recording.
- b. The Motorola Solution can be programmed to record specific Talk Groups. MGEg solutions will record every transmission on the ARMER network. Customers have no discretion or control over this. Some

MGFG systems will allow users to block access to certain Talk Groups or 'delete' the audio file after it has been recorded. However, blocking access to the audio usually means that the System Administrator can still access these calls, if necessary. Also, having a recording system that can delete recordings can raise legal questions for customers that are trying to use audio as evidence in a court of law.

- 13. Some vendors are saying they have the Motorola API to ASTRO® 25 and are working to finalizing a solution that will provide a tighter integration to the ARMER radio system. Others are saying they expect to have it soon. How will a solution that utilizes the API compare to the Motorola Certified Solution?**

First, as of today, Motorola has not released the ASTRO® 25 API to any recording vendor other than NICE Systems. Also, Motorola has made no formal announcement regarding if or when they will release the ASTRO® 25 API.

Until such time as Motorola makes the API available, vendors that are offering API based solutions cannot, at this time, guarantee that they can deliver these solutions. At this time, any statement of intent is merely based on speculation or expectation. There is no way to say if and when an API - supported solution will ever be available from these vendors.

Should the situation change, and the API is made available to other vendors, it will be easier for vendors to keep their ATIA Interface (for OTA and MGEG) current with the version of the ARMER System.

However, the solutions would likely remain OTA and MGEG solutions - as only a Motorola Certified solution can reside on the ARMER network. As such, these solutions would still possess the drawbacks outlined above and in the attached comparison chart.

Perhaps more importantly, the Motorola Solution would still retain all of the exclusive benefits of being a Certified solution (as outlined above and in the comparison chart).

- 14. We are starting to identify other/new recording requirements for our PSAP. For example, can Motorola also provide recording solutions for video camera deployments?**

Yes. Motorola has partnered with NICE Systems to offer a suite of video recording products to meet the evolving needs of PSAP's and Command Centers.

Furthermore, Motorola and NICE can offer a recording solution for radio, telephone and video. The Inform™ application suite will allow users to search and playback recordings simultaneously and time synchronized as one logical system. A single user application will allow users to search, view and listen to any type of recording.

NICE Executive Summary

- 15. We record for multiple agencies and we want to give these agencies direct access to their recordings. Can the Motorola solution do this?**

Yes. The Inform™ application suite is a .NET application that works as a browser. Any PC workstation on the common network can be an access point to the system. Of course, the User will have to have proper access privileges to the system.

The recording solution also allows user access privileges to be configured on a per Talk Groups and/or per channel basis. This means every user can be confined to accessing their own audio only.

Inform™ also provides a fully featured audit trail, which will log all user activity in the system (files accessed, copies made, etc...).

- 16. We are looking for ways to obtain better/easier collaboration between our fellow Public Safety Organizations. Can Motorola help us with that?**

The Inform™ application suite has an optional application called Organizer. Organizer offers users a Incident management folder system. These incident folders can act as a central repository for electronic data gathered from multiple organizations. Access to these folders can be shared by trusted users. It is an efficient way for Organizations to share data.

Similarly, it is a highly efficient way to deliver content to trusted users. Rather than burn electronic data to CD/DVD or e-mail huge files, trusted users can access a file folder that has the data they need (and only that data - nothing more).

- 17. Is the content of the data in the Organizer Folders for recordings only, or can they store other material as well?**

The Organizer Incident Folders can hold any type of electronic data. The Folder can be the central and secure repository of audio recording, video recordings, screen recordings - and a lot more besides. Users can also insert copies of Incident reports, crime scene photos, photos and video from citizen's camera's and cell phones, e-mail and text messages, etc...

Organizer takes the Motorola Solution beyond recording to become an Incident Management Tool that will facilitate collaboration, centralized storage, and efficient/secure distribution.

- 18. Does the system have a digital authentication?**

Yes. The Organizer application has the ability to 'authenticate' a copy of a recording. Inform™ Organizer can verify whether the recording about to be heard or watched is a true copy of the original.

**19. How do we deliver time-stamped recordings to Court and others?**

Since Inform™ acts like a browser, it gives customers the ability to open access to many more users on the network. A user with the proper access privileges can access the Inform™ event reconstruction application or the Organizer folders to playback recording securely. The audio files remain compressed and encoded and the time stamp remains associated to the audio file.

For Court purposes, the latest version of Inform™ (R3.1) includes an optional application called Inform™ Media Player. Using Inform™ Media Player, when a .wav file is created for court, the playback codec is sent with the audio file. The recipient can open the file and play it just as they would with Windows Media Player, but they instead they are using the Inform™ Media player with the CODEC. In this way, a recipient that doesn't have access to Inform™ can playback a copy of audio with a timestamp.

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## MOTOROLA AIS SOLUTION COMPARISON CHART WITH OVER-THE-AIR (OTA) AND MEGEG SYSTEMS

	Yes	No	No
Recording size is based on simultaneous talk paths - no incremental cost is incurred for recording additional system frequencies and/or talk groups	Yes	No	No
Selective Recording - capability to choose the talk groups to be recorded	Yes	No	No

When a customer wants to add a new frequency or additional talk groups to the Motorola recording solution, no upgrades or expansion is normally required.

For OTA and MEGEG solutions, this may not be the case - additional hardware must be purchased and installed. This can be expensive and time consuming. For example, adding capacity to an OTA solution (radios, recording capacity, etc...) can have considerable costs and take months to implement by the time the PO is issued, product gets shipped and someone comes on-site to install it.

OTA solutions that are recording by Talk Group have an additional drawback. When a large emergency occurs, it is possible that the normal set of Talk Groups can not handle the volume of traffic. In those situations the customer usually designates additional Talk Groups to be used for the emergency. If this added Talk Group is currently not being recorded, someone must leave their position to go to the control station or radio and change the setting. It is also possible that the situation does not have an available control station or radio to spare (in which case recordings will be missed).

Most customers don't want to have recordings of every Talk Group on the system. The Motorola solution allows users to select program which Talk Groups are to be recorded. OTA and MEGEG recording solutions have to record everything.

Some OTA and MEGEG solutions can delete specific recordings shortly after they are recorded. However, that capability can call into question the validity of the recordings the customer is bringing to court (ie. what other recordings have they deleted?). It might also be possible to "recover" those recordings if the proper procedures are applied.

Similarly, other OTA and MEGEG systems can restrict access to specific recordings. However, this is unacceptable to some customers because these recordings remain in existence on the recorder hard drives and are still available to System Administrators (or could be "hacked").

<p>Records, systematically handles and displays on playback system information including:</p> <ul style="list-style-type: none"> <li>a. PTT ID and alias</li> <li>b. Talk Group/Channel/Freq/PL</li> <li>c. Emergency and Non-Emergency</li> <li>d. Zone/Site ID</li> <li>e. Encrypted/Unencrypted</li> </ul>	<ul style="list-style-type: none"> <li>a. Yes</li> <li>b. Yes</li> <li>c. Yes</li> <li>d. Yes</li> <li>e. Yes</li> </ul>	<ul style="list-style-type: none"> <li>a. PTT ID only*</li> <li>b. Talk Group ID only</li> <li>c. No</li> <li>d. No</li> <li>e. Depends</li> </ul>	<ul style="list-style-type: none"> <li>a. PTT ID only*</li> <li>b. Talk Group ID only</li> <li>c. Yes</li> <li>d. Yes</li> <li>e. Depends</li> </ul>	<p>All of this data is available to use as search criteria. It helps users piece together an incident, and/or find specific audio faster. It can also help users understand the event better, in less time.</p> <p>Most Over-the-Air solutions are probably limited in available data to the following...</p> <ul style="list-style-type: none"> <li>Time Stamp</li> <li>Event Code</li> <li>Radio Channel Number</li> <li>Source radio ID</li> <li>Target Talk Group/radio ID</li> </ul> <p>* Note: Some OTA and MEGEG systems can offer Alias, but the system does not receive it in real time. Only the Motorola solution is receiving Alias data in real time direct from the radio system database. This means that Alias information is automatically updated in the Motorola recording solution. For OTA and MEGEG recording solutions, when an Alias is changed, customers must manually update the database in the recorder.</p>
<p>Alias information provided in the data stream to the recorder is dynamic and reflects any alias changes in the system</p>	<p>Yes</p>	<p>No</p>	<p>No</p>	<p>The Motorola recording solution updates in sync with the Radio System database. When an Alias is changed in the Radio System, this change is automatically reflected in the recording system. This eliminates manual administration regarding keeping the systems Alias database current. A great time-saver.</p> <p>Non-certified OTA and MEGEG solutions likely require maintaining the Alias database manually. When the Alias is changed in the Radio System, the user must manually change the db in the recording solution.</p>
<p>Records, stores and displays system events such as busy reject, busy wait, etc.</p>	<p>Yes</p>	<p>No</p>	<p>Possible. Discuss with Vendor.</p>	<p>All of this data is available to use as search criteria. It helps users piece together an incident, and/or find specific audio faster. Also, it can help users understand how busy the radio system is and how that is impacting the performance of field personnel.</p> <p>It can also help users understand the event better, in less time.</p> <p>The Motorola solution will display these system events as icons in the graphic timeline display of recordings in the user software.</p>

<p>Records, systematically handles and displays on playback system events (non voice command) including:</p> <ul style="list-style-type: none"> <li>a. Emergency Alarm</li> <li>b. Emergency Acknowledgement/Knockdown</li> <li>c. Normal/Factual</li> <li>d. Repeat On/Off</li> <li>e. Frequency Selection</li> <li>f. PL Selection</li> <li>g. Wildcard I and II</li> <li>h. Mute Second Receiver</li> </ul>	<ul style="list-style-type: none"> <li>a. Yes</li> <li>b. Yes</li> <li>c. Yes</li> <li>d. Yes</li> <li>e. Yes</li> <li>f. Yes</li> <li>g. Yes</li> <li>h. Yes</li> </ul>	<ul style="list-style-type: none"> <li>a. No</li> <li>b. No</li> <li>c. No</li> <li>d. No</li> <li>e. No</li> <li>f. No</li> <li>g. No</li> <li>h. No</li> </ul>	<ul style="list-style-type: none"> <li>a. Yes</li> <li>b. Yes</li> <li>c. Yes</li> <li>d. Yes</li> <li>e. Yes</li> <li>f. Yes</li> <li>g. Yes</li> <li>h. Yes</li> </ul>	<p>All of this data is available to use as search criteria. It helps users piece together an incident, and/or find specific audio faster. It can also help users understand the event better, in less time.</p> <p>An Over-the-Air solution is usually limited in available data to the following...</p> <ul style="list-style-type: none"> <li>Time Stamp</li> <li>Event Code</li> <li>Radio Channel Number</li> <li>Source radio ID</li> <li>Target Talk Group/radio ID</li> </ul>
<p>Distributed architecture - multiple, autonomous recorders can exist on the same network (allowing multiple entities to keep physical control of their recordings - i.e. PDVD on two separate recording devices)</p>	<p>Yes</p>	<p>No</p>	<p>No</p>	<p>Improved Performance: A Distributed Architecture means that the system processing power and devices are dedicated to specific tasks. This results in consistent performance - especially when the radio system is very busy (which is also when customers are most likely to need recordings). Reduced strain on system resources also makes it more likely that the solution will last longer.</p> <p>Distributed Ownership: In radio systems used by multiple entities, it is allows each entity to own/control its own solution</p>
<p>Not susceptible to signal strength to radio and interference</p>	<p>Yes</p>	<p>No</p>	<p>No</p>	<p>The Motorola AIS solution cannot be impacted by issues such as signal strength and interference. This is not the case with other solutions.</p> <p>Motorola offers a proprietary Error Mitigation Technology that will automatically correct 'audio dropout' and error packets so as to ensure that playback is an exact and true presentation of what took place at the console position. This is important because network errors occur from time-to-time and this can affect the quality of audio playback.</p>
<p>Advanced Audio Quality - Solution will automatically correct 'audio dropout' and error packets so that the logger reconstructs audio for playback exactly as it was at the console when typical network errors are encountered</p>	<p>Yes</p>	<p>No</p>	<p>No</p>	<p>In its simplest terms, 'vocooded' means converting from analog to digital. Non-certified OTA and MPEG solution 'vocode/convert' audio twice. It is 'vocooded' once by the radio so that it can be passed to the recording system, which then converts it back to digital - which must then be converted back to analog again so that users of the recording system can listen to the audio. Each time audio is converted the quality of the audio is reduced.</p> <p>The Motorola system records in native format and avoids the 'vocode - decode' Audio stays encoded and compressed until it reaches the PC workstation. This minimizes network bandwidth required to deliver audio to the PC. It also enhances security because it stays encoded through-out the process. Encoded audio cannot be replayed by unauthorized users so audio is safe even if someone 'hacks' the network or steals the recorder hard drives.</p>
<p>Advanced Audio Quality - Audio is recorded and stored in Native Vocooded format (IMBE at 4.8 Kbps) maximizing audio quality (no double vocoding)</p>	<p>Yes</p>	<p>No</p>	<p>No</p>	<p>The Motorola system records in native format and avoids the 'vocode - decode' Audio stays encoded and compressed until it reaches the PC workstation. This minimizes network bandwidth required to deliver audio to the PC. It also enhances security because it stays encoded through-out the process. Encoded audio cannot be replayed by unauthorized users so audio is safe even if someone 'hacks' the network or steals the recorder hard drives.</p>

Does not rely on external single frequency audio source (control station, BIM, TBIM, etc.). Interruption of connectivity to any of these components will not result in lost recordings	Yes	No	No	For getting audio into the recorder, Motorola offers a solution with fewest single points of failure. It does not rely on any of the devices mentioned.
System configuration that minimizes hardware (eg. radios, control stations, antennas, MEG's, etc.) This minimizes possible points of failure and minimizes annual support costs.	Yes	No	No	The Motorola solution has a superior total cost of ownership. It requires less hardware and products to work properly. This reduces annual costs to maintain the solution. It also minimizes system 'down-time'.
Native Decoding of the Control Channel: Does not require third party software / hardware (Genesys, RIM device, etc.)	Yes	No, with few exceptions	No, with few exceptions	A Motorola Certified solution ensures that the recording solution will remain relevant for years to come. Solutions that utilize a third-party product raise the following questions... - What happens to the recording of control channel data when the radio system gets upgraded? - What happens if the third party product goes out of business or if the product is declared obsolete? - How reliable is the solution? Will it always successfully match the data with the audio? What statistics does the supplier have to support their claims? - How reliable is the solution? What happens if the third party product fails?
Ability to create standard .wav file of radio communications for email, CD, etc. that can be played back from MS media player without additional software / CODEC	Yes	Depends on Vendor	Depends on Vendor	Built into the software of the Motorola solution is the ability to create a copy of an audio file in standard .wav format so that an outside recipient can play back the audio using Windows Media Player or iTunes, or other. Not all systems offer this without using an extra, third party application - which creates extra steps and hassles.
Work in encrypted and un-encrypted environment.	Yes	Possible but not integrated. Discuss with Vendor	Possible but not integrated. Discuss with Vendor	Recording encrypted audio is one aspect of the system that could be impacted by not being a Motorola certified solution. If an OTA or MEG system is using the ATIA feed, the quality and accuracy of the ATIA interface could be affected when the radio system version is changed/upgraded.
Records in fail soft scenario	Partial/Depends	Yes	No	While the Motorola Trunked Radio Recorder does not record Fail Soft, this is mitigated by the fact that the solution can also record select audio from the console position. If the Radio System goes into Fail Soft mode, all select audio can still be recorded. Similarly, Motorola can look at ways the solution can be configured to protect the customer from losing recordings while the system is in Fail Soft mode.  It is a rare occurrence for a Radio System to go into Fail Soft mode. The value of being able to record in Fail Soft mode may be of limited value to most customers.

Ability to verify communication transmitted	No	Yes	No	The existence of a recording can offer (in most cases) verification that a communication was transmitted. However, for some customers, the value of this feature is lessened by the fact that the solution cannot offer verification that transmission was actually received.
Would give statistics on how often system was in failsafe over last x yrs.	Yes	No	No	The Motorola recording solution is not dependent on the health of the radios or the consoles. In-OTA solutions, the failure of a radio or console could disrupt recording, depending on the system configuration. In today's financial climate, it is more important than ever to choose your technology providers with great care. While there are no guarantees when it comes to the longevity and viability of a company, no one can provide a stronger argument to be around tomorrow than Motorola. Similarly, Motorola has chosen to partner with NICE Systems to develop and support the recording system technology. Of all the recording solution suppliers, NICE Systems can offer customers the best argument for longevity and stability.
Who owns product and solution?	Motorola	Logger Vendor	Logger Vendor	When there is a problem with the recording solution, there is no question about what to do: Call Motorola. They will take care of it. With any other solution, there is potential for disagreement on the source of the trouble. Customers can get caught between Motorola and the Recording Vendor ("finger-pointing"), who disagree as to the source of the trouble. Simplifies administration. Customers have only one contract to negotiate each year, one contract to put into budget planning and only one Vendor relationship to manage. Customers also receive invoices from one source (Motorola).
Single Source Accountability: No demark between Motorola Trunked Radio System and the logger solution	Yes	No	No	The Motorola recording solution, like the radio system itself, is monitored by Full Vision (for UEM if you are at v7.6 or higher). Motorola will immediately receive SNMP messaging if the logger needs attention. Non-certified OTA and MEGEG recording solutions cannot be included in the Full Vision/UEM package. The ATIA feed, which can be required for both OTA and MEGEG is a one-way link and there is no functionality to monitor this feed. If the ATIA feed fails, customers might not discover that the recording solution lost data until they try to search for calls. This is a significant problem as it is often critical in a trunked radio system to have the call data to be able to find the call.
Covered under Motorola maintenance agreement	Yes	No	No	
"Full Vision" and "UEM" compatibility for system 24x7 monitoring includes radio source and logger solution	Yes	No	No	

<p>Logger solution tied to Motorola product roadmap so that it will continue to provide 100% performance as the radio system is upgraded (v7.5, 7.6, 7.8 etc...)?</p>	<p>Yes</p>	<p>No</p>	<p>No</p>	<p>Motorola Certified products remain 'in-step' with Motorola upgrades. When Motorola releases a new product version (eg. ASTRO 25 Trunked Radio v7.8) the recording solution has already been re-certified on the new version. Any necessary upgrade to the recorder is ready and available prior to release of Motorola product. Non-certified MIEG and OTA solutions cannot make the same claim. These solutions are developed by third-party providers and they do not receive the same level of development support. Non-certified solution providers can lag behind the release of new radio product, possibly causing their solution to experience critical loss of functionality while the supplier struggles to develop a new interface to the radio system.</p>
<p>Certified-SIT tested in Schaumburg</p>	<p>Yes</p>	<p>No</p>	<p>No</p>	<p>Reliable: Motorola has tested the recording solution to high standards – ensuring that the recording solution will work even when the radio system is extremely busy (and that is usually when you are most likely to need recordings). Motorola stands behind this solution. Value: It also means that the solution is fully integrated. It offers features that no other solution can offer. Many of which are addressed in this document</p>

Please Note: NICE does not claim to have comprehensive knowledge of competitive recording solutions. Any information herein should be verified with alternate suppliers.

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