

Motorola Solutions, Inc.  
Bernstein/MSI Public Safety LTE Discussion  
With Bruce Brda, MSI Executive Vice President, Systems & Products  
Wednesday, June 10, 2015

## **PARTICIPANTS**

### **Motorola Solutions Management**

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Global Telecom Equipment & Data Networking; European Semiconductors

## **DISCUSSION**

### **Pierre Ferragu, Bernstein**

Thank you operator and thank you everybody for making the time to join this call. So we are very pleased to host today Bruce Brda who is the executive vice president of system and product at Motorola Solutions and today what we would like to do is to spend really enough time to understand well public safety LTE, what the technology is about and what implications are for Motorola Solutions and the wider public safety market.

We will start the call with a brief set of prepared remarks by Bruce, and then I'll handle the Q and A session with Bruce and towards the end of the call in maybe 45 minutes from now we'll open the Q and A session for participants. So with that Bruce the floor is yours and thank you very much for joining this call.

### **Bruce Brda, EVP, Systems and Products, Motorola Solutions**

Thank you, Pierre. So if I can maybe start with a couple of candid remarks as I said or as Pierre said I want to give you a little bit of background on myself and then also an introduction to why I am confident that it will be LMR and LTE for the foreseeable future rather than LTE as a threat or replacement to LMR.

As Pierre said my title as EVP of systems and products, what that really means is- I have end-to-end responsibility for the products that we build- so product management, engineering, procurement, and then the manufacturing of those products. I've been with Motorola for 26 years but over 20 of those years were in other businesses. So I spent the majority of my time dealing with carriers on the cellular infrastructure or devices front. So I bring a very nontraditional approach I guess to public safety. The last five years I've been with what is now MSI, Motorola Solutions and led our services and solutions team for a while and then most recently systems and products.

So if I could maybe just spend a moment and give a little color on each of LMR and LTE to get it started.

I believe that today and for the foreseeable future LMR is the best technology for the job that it does which is mission critical, voice centered communications. When we talk about LMR we talk about the four Cs, coverage, capacity, cost and control. These are really the attributes that make LMR the best at the job that it does. It's built for one to many communications. It's built with a highly flexible prioritization and control scheme so you can prioritize different users at different points in an incident and the control can follow the command in control hierarchy of the agencies involved. Obviously it has excellent voice quality, it's a very high power Rf solution and the products and solutions that we build are incredibly durable from a solution as well as the device perspective.

The systems in an LMR world are built highly resilient. So if you think of a hierarchical network- if you lose a core or the equivalent of a switch in an LMR world, the network will work on a site-by-site basis. If you lost all the infrastructure, devices will work peer to peer. That level of resiliency can't be found in any other technology in the world.

From a system design perspective we build the systems for a worst case scenario, so for a Katrina or for a 9/11. We build with coverage overlap so again if you had a failure or a disaster of some sort that wiped out equipment, we typically have significant overlap of coverage from the remaining sites and then again there's always the fallback of device to device.

The networks are incredibly hardened so for example each site would typically have a generator and a week's worth of fuel whereas a commercial network would have two hours of battery back-up at a site. So that's why LMR is the best at the job that it does today and if I could switch and talk about LTE for just a moment before we jump into the Q and A.

LTE was designed for one-to-one communications where all users are treated equally. Prioritization is not native to the LTE standard nor is dynamic control of prioritization. Devices are very low powered, 200 milliwatts versus 5 watts for P25 or 2 to 3 watts for TETRA for example. It is a hierarchical control network in LTE which means without the levels of resiliency that I described on LMR if you had a failure at a switch level or controller level it does take out the entire network.

LTE really is built for busy hour versus worst case which is why it doesn't work so well at a large sporting event or doesn't work so well at traffic jam or in times of emergency. LTE systems are designed with blocks – blocked calls and dropped calls as part of the metric. It has to fit an economic model that the carriers deploy- so failures in the network blocks and drops are actually an acceptable part of the network design and is designed in to a certain extent. Network resiliency is simply not there to the extent that it is for LMR. Again in my site example where LMR site would have a generator and a week's worth of fuel, typical site in an LTE world would be two hours of battery back-up.

And the last point I'll make is LTE is powerful because it is a global standard but that's also one of the weaknesses as you apply LTE towards public safety and what I mean by that is it's driven by a standards body and that standards body is driven by the economics of billions of users literally around the globe and the people who provide the equipment and services to those billions of users are the most powerful folks in the standards process. Their interests are about the commercial world and not about public safety. So for us to make improvements in LTE, to make it more ready, to provide service like LMR, you've got to go through the standards process which is slow, very slow and then once the standards are finalized the standards have to ripple through the ecosystem, so today that would mean – it needs to be designed into chipsets. The chipsets when complete need to be designed into devices and the devices when complete need to be brought to market. That in itself is a very long many, many year process but the economics of this ecosystem are what really drives what gets implemented and not at least a significant amount, possibly even the majority of the features that are specified in 3GPP don't get implemented because the economics simply don't support them.

So LTE is a very capable technology for what it was designed to do but very different from mission critical voice which is what LMR was designed to do. While the LTE technology will mature, we're really comfortable that for the foreseeable future many, many years in public safety, it will be LMR and LTE rather than LTE as a replacement for LMR. And Pierre, maybe I'll pause and let you start to guide the discussion.

**Pierre Ferragu, Bernstein**

Yes, thanks a lot Bruce for the initial remarks, very useful, it gives a very good background to the topic. One thing I'd like to start with is actually giving us a better feel for this LTE public safety coming into the game as an overlay of existing LMR technology. What are the use cases if you could give us a couple of very practical examples? What can be done with public safety LTE network which cannot be done with LMR today?

**Bruce Brda, EVP, Systems and Products, Motorola Solutions**

Sure, so LTE is designed for high bandwidth one to one data applications. Typical examples- when people talk about LTE in public safety most people believe that streaming video will be the killer app for LTE. So picture from an accident scene, and being able to instantly transmit high resolution video back to a command centre or think of an officer responding to an event and possibly a command centre pushing down high resolution video of images of people fleeing the scene of that incident. So the officer has far better awareness when he gets to the scene than you could ever communicate through just voice alone. Those would be two very practical examples. Additional examples would be giving an officer the ability to instantly query crime/criminal databases, social media activity in an area that they're responding to in an incident.

And again those are things that public safety LTE is very well-suited for and today there are examples of that on the carrier network. The problem is the carrier networks don't guarantee that data can be transmitted at the right time for the user. Public safety LTE is an attempt to ensure that those data applications will actually make it to the user when they need them.

**Pierre Ferragu, Bernstein**

OK. That's very clear and then in terms of infrastructure for public safety LTE- you just mentioned that the technology is hardened and evolved in order to ensure that services reach the user- does that mean the public safety LTE requires a separate LTE network or is that something that can happen on a public LTE network? And then maybe also if you could touch a word about- today especially in the U.S. most LMR infrastructures are local, what are the developments of public safety LTE on that front. Are we going to see a national infrastructure or local infrastructures, a mix of both? Is public safety LTE going to use public network as well as private infrastructures?

**Bruce Brda, EVP, Systems and Products, Motorola Solutions**

Sure, I think the easiest way to think about the different deployment models is two dimensions- spectrum and network, is the spectrum dedicated or shared and is the network dedicated or shared.

The three very large deployments that we have (LA RICS) and the two in the Middle East which we don't name but we'll call them Middle East One and Middle East Two are all dedicated spectrum and dedicated network. In that environment you have far greater control over prioritization of the users than you would in a shared environment.

So let me flip to the other bookend which is shared and shared, shared spectrum, shared network, that's the model that the U.K. home office is pursuing because there is not public safety LTE spectrum available in the U.K. so the only option is to use a carrier network and share that spectrum with the carrier. You can imagine in a shared shared environment your level of control diminishes as you have to

share the resources and the carriers will provide a certain guaranteed level of service to their consumers as well.

There is a model in the middle which is a hybrid model with dedicated spectrum and a shared network. The country of Mexico is contemplating exactly that model. And in that environment again if dedicated is the highest level of control and flexibility from a public safety perspective you can imagine that a dedicated spectrum shared network would diminish some of the flexibility but not all. It would be better than shared shared but not quite as good as dedicated dedicated.

Let me just switch for a second, LTE and LA RICS- the LA RICS agency has received the approval by the FCC to use the spectrum, the FirstNet spectrum and build a private network with an agreement that if and when there is a FirstNet nationwide network that will be compatible and be able to plug in and interoperate with that network. So again that's an environment where you have a high level of control.

What FirstNet has done most recently in their draft RFP is they're struggling to find a business model in which they can meet the charter of FirstNet which is to deploy nationwide public safety LTE for first responders. So the message that they signaled through the draft RFP which many, many, many people responded to including Motorola Solutions is that it would be a carrier leverage model. So my interpretation would be closer to what I described as Mexico- dedicated spectrum in a shared network. But I think there's significant amount of work before any of us really know how that will play out.

#### **Pierre Ferragu, Bernstein**

Thank you for the very detailed answer, it's very helpful. I'd like to maybe come back a bit more to the specifics of the U.S. a bit later. For now I'd like to come back to what you said about the difference between LMR and public safety LTE. So you talked about very tangible differences like emission power, 5 watts versus 2 watts. You talked about the resilience of site, having a weaker fuel versus two hours of battery etc. If I were playing the devil's advocate, I could tell you well all these things could potentially evolve over time for LTE. So my question would be first- would at least theoretically public safety voice be possible on LTE technology? And if it were you talked about multiple years- what would be the kind of minimum time that would be required for the LTE standard to evolve to basically tick all the boxes required for public safety grade voice to be operational on LTE?

#### **Bruce Brda, EVP, Systems and Products, Motorola Solutions**

Sure this is a great question and it's probably an area that's really misunderstood. Today carriers do offer consumers voice services over LTE. So you can do voice over LTE today on a consumer grade basis. But it would in no way be acceptable in a mission critical environment to a public safety user.

So how do you get from where they are today to a voice service you could count on. Let me talk about the LTE standards process for just a second or the standardization. 3GPP Release 13 is actually titled mission critical push to talk which from my perspective is a terrible name because it implies it can do mission critical push to talk but it has many, many, many gaps which I'll try to summarize quickly. But from a timing perspective Release 13 will be completed in the first half of 2016. Again these are my estimates. I think they're very valid and then you'll start to see products hit the market two years after that, the first half of 2018. Release 13 does define some basic group (one-to-many) call capability- so you can use push to talk like the way we do on LMR. So it does check that box, but it leaves many, many, many gaps in what we would consider to be necessary for a public safety user.

So for example prioritization of use and dynamic prioritization of use are not there. Isolated site operation meaning if the core network in some way failed can you still continue to operate? Isolated site operation is not there. Unit to unit communication, so if all of the infrastructure failed- direct mode communication is not there. Also some really basic things like the specifications for how you interface a counsel into LTE is not there.

So for those things to be added, my view is it would take our Release 14 and probably Release 15 if not more to play out. Each of those releases lag R13 by 18 months. So when would we expect Release 15 be finalized, the first half of 2019. When would we expect to see product, the first half of 2021.

So if the standards process went well that would be in my opinion the first time you could have a fairly robust set of standards but recall that being in the standard doesn't mean the ecosystem will build it. You still have to get the ecosystem to prioritize this among all of the other challenges they have from the carriers who buy billions of handsets and serve billions of customers. In the U.S., 2 million to 3 million public safety users have to float up to the top of that priority list for this stuff to get built in to the equipment once the standards are complete.

So again LTE is very capable. It will continue to evolve for years but it's a long way away and there are many hurdles beyond just defining how you do it, somewhat actually build it into their equipment. And one final point when it's built into the equipment the example I gave about a cell site with a generator versus two hours of battery back-up for a cell site with LTE. Because LMR is high powered and you have very few sites relative to LTE you can actually get away with a generator and not have it in a dangerous area for example. But many, many buildings on the roof have a carrier cell site, the vast majority of those buildings wouldn't want a week's worth of diesel fuel on their roof or a schoolyard that has a cell site wouldn't want a week's worth of diesel fuel. So even if all of this stuff played out somebody has to find an economic reason to build the network out in a way that it would be robust enough to take advantage of all of the standards that were built into the equipment.

So number one its standards, number two it's built into the equipment and then number three the deployment methodology has to support the robustness that was then previously built into standards and equipment, that's a long haul before that will happen in my opinion.

### **Pierre Ferragu, Bernstein**

Thank you. That's very, very helpful and actually very good transition to an additional question I had on that front. So from a technology call from a standout perspective having like LTE hardened enough to replace LMR is an extremely long shot. And then you touched on the question of densities. The fact that LTE needs a much denser network because you have devices with much lower emission power- doesn't that mean it should create like a very significant economic barrier as well? Wouldn't rolling out public safety LTE to the level of quality of rollout to actually replace LMR be prohibitively expensive if we look at like a private kind of infrastructure option?

### **Bruce Brda, EVP, Systems and Products, Motorola Solutions**

It would be expensive and I think that's the challenge that FirstNet is wrestling with right now, \$7 billion was allocated and spectrum was allocated in the U.S., both of those things are wonderful. We also have LTE which is a standard that's highly capable and will continue to evolve.

The tough part is can you deploy and operate that network on \$7 billion and quite honestly that's the greatest challenge FirstNet has. It is trying to find the model that will enable them to meet the spirit of the legislation, nationwide coverage and be able to operate it on an ongoing basis and that is the challenge.

If you look at AT&T or Verizon's nationwide network it's roughly 60,000 cell sites plus or minus but it's a massive number and they don't cover the amount of coverage that the FirstNet legislation describes. So it is a huge, huge task. Again will LTE play a role on public safety- absolutely for data service, but can it replace mission critical voice, not in the foreseeable future for all of the reasons we've talked about here.

**Pierre Ferragu, Bernstein**

OK, thank you. One last question on that front- there is something of a voice on LTE for you guys still and the reason why I am thinking that way is that you recently announced the acquisition of Wave technology. Maybe if you could explain us briefly what technology is required here and how you're going to use it in your public safety ecosystem.

**Bruce Brda, EVP, Systems and Products, Motorola Solutions**

Sure, we acquired a company about 18 months ago called Twisted Pair, a reasonably small company in Seattle. The product or service that they offer is called Wave so that's where the name Wave comes from.

What Wave does is- think of a voice bridge between LMR and any broadband device, it could be a computer on your desk or it could be an LTE device in your hand or pocket. So we can have universal push to talk services across that boundary so think of the best application I can use to describe this- so plant manager in a manufacturing environment uses a land mobile radio when he's in his manufacturing environment all day. When he goes home at night he's no longer in the LMR coverage area of the factory but he wants to stay in touch with his employee base. So he would use push to talk on a carrier device, consumer grade device in his hand to do non-mission critical communications with his staff who are in the factory in the second and third shift.

That's what Wave does. Not true mission critical for all the reasons that we talked about that rides on and depends on a carrier network but it does an excellent job of extending the reach of LMR networks or possibly brings push to talk non-mission critical services to somebody who doesn't carry an LMR device.

This has been a really powerful acquisition for us. For example you've heard us talk about Norway nationwide deployment- very, very big contract for us that we're in the tail-end of the deployment phase. We just empowered the country of Norway with Wave as well as an extension to that TETRA network. So Wave is a very, very great complementary technology that extends the life and usability of LMR in a broader way.

**Pierre Ferragu, Bernstein**

OK that's very clear. So I think we're very well addressed and thank you for that, the case for LTE being an overlay technology on LMR. Now a question I get a lot from investors is – where is the risk that why your clients spend on LTE, they actually don't spend on LMR?

And while answering that if you could help us understand what drives the ongoing spending on LMR that makes most of your revenues today and what makes you confident that as LTE starts rolling out (because it is still very very small today, you mentioned it is only three rollouts), it's not going to hurt LMR

spending and maybe if you can add to that also a perspective of what's happening today in the field. So these three projects you mentioned- do you have an ability to see how the LTE rollout is impacting spending on the LMR infrastructure and old LMR equipments. That would be very helpful.

**Bruce Brda, EVP, Systems and Products, Motorola Solutions**

Yes, so let me try to hit the number of questions that you had there.

The first with respect to LMR spend in the presence of LTE. So there is and has been a lot of confusion on this point and I think FirstNet kind of did us a favor because they helped clarify. They released a statement that was very clear that the network they're building is being built for data services only, not voice services and that for the foreseeable future, agencies who needs voice services for mission critical application need to continue to invest and refresh their LMR networks. So that's a very clear message from FirstNet, but if you look at in practice- LA RICS is deploying or refreshing their LMR network in parallel with the LTE deployment. One of our Middle Eastern customers that we've talked about often is also doing the same thing- replacing and refreshing their LMR network at the same time concurrent with the LTE deployment.

So the customers are voting. Number one- FirstNet helped this as I said with clarity of the purpose of the network but number two those that are deploying clearly recognize that there are two jobs to be done, one is voice and one is data and that LMR is going to be the workhorse for voice for the foreseeable future.

What I believe- this is a deviation slightly from the question you asked. It's really not – does LTE replace LMR, most officers carry a second device on their hip and that is a carrier grade device. What public safety LTE will do is not replace the LMR radio, it will replace that second device that is a consumer grade device that rides on a carrier network. Now, that's what public safety LTE will threaten or replace if it will.

With respect to our three major deployments, I'll say this- all three are progressing well. LA RICS as you know has a short fuse. The system must be complete in September at the termination of the Grant window. So we expect to have 82 sites available and on the air in September of this year (just a few months from now), available for service for the LA RICS agencies that will benefit from that network. As I said the other two are not as mature, the deployment had started in both cases and is going well. We see no issues whatsoever but LA RICS will be the one that will be on the air first.

**Pierre Ferragu, Bernstein**

OK, thank you very much. So you touched on the device, so the LMR device is going to stand alone as a mission critical voice centric device and you see LTE as being more like a secondary device which exists today. What about system integration applications using both networks in parallel and what's the role of Motorola in that part of the opportunity for public safety LTE?

**Bruce Brda, EVP, Systems and Products, Motorola Solutions**

OK let me answer the question two ways.

One, the three networks that I just spoke about two Middle East and LA RICS are all highly customized and this is one of the things that I think clearly differentiates us from the rest of the pack in public safety LTE. When I say highly customized, so obviously they're around the world so they operate on different

bands but maybe more importantly each and everyone has a highly specific, highly customized security solution so encryption and security solution that spans hardware and software through the devices and infrastructure. These are assets that we're leveraging from our LMR technology.

Secondly you hear the term in cellular networks- OSS and BSS, operational support system and business support system. All three of those networks have highly customized OSS and BSS implementations, meaning that we've tailored them for the way those agencies use their communications networks. This plays right into our hand where it gives us an opportunity to leverage the many decades of public safety domain expertise that we have.

And third and finally you touched on Wave but our ability to integrate or bridge between LMR and LTE is what really sets us apart.

So in all of these networks we have infrastructure devices and applications. I think you're aware, we've communicated the sum of those three contracts is about \$500 million in contract value and it really is predominantly infrastructure and system integration work. We would expect on top of that a lot of network expansion and then a lot of device sales that will grow those contracts to much, much greater than the stated value of \$500 million. If you look at the history of our typical customers that we have for a long period of time I would expect the half a billion to double over the life of those deals.

### **Pierre Ferragu, Bernstein**

OK that's very useful. Thank you very much. And maybe now I'll move on to get back a bit more specifically to the situation in the U.S. I think you gave a very good background about public safety LTE in the U.S., role of FirstNet. Maybe if you could just recap that with maybe a historic perspective- so how did public safety LTE come on to the agenda at the federal level, why was FirstNet created? And then you mentioned like a first draft RFP that has been published by FirstNet- how we came till here and give us like stages of date on when we are and where we could see things moving on from here in the U.S.

### **Bruce Brda, EVP, Systems and Products, Motorola Solutions**

Sure, so the good news is that as I said the U.S. Government recognized the need for public safety, mission critical broadband and allocated 10 MHz by 2 and \$7 billion to make that a reality. In 2012 after the spectrum and funding was allocated, the government defined FirstNet with the charter of designing, deploying and operating that network on a nationwide basis. FirstNet was part of the Middle Class Jobs Act in 2012. So they've realized that building out the network as you and I discussed a few minutes ago is an enormous task and finding a financial model that makes it viable is going to be a challenge even with \$7 billion. So they released a draft RFP in April of this year, responses due in July of this year. Final RFP is expected to be released in early 2016 and then the initial launch of the system and award sometime in 2017 with a buildout between 2017 and 2022 and then renewals to 2027 and 2032 respectively. So they mapped out a timeline which would be vendor selection and putting equipment in the ground in 2017.

We're excited about the RFP. We are working closely with FirstNet to help them find a way that we can make this an economically viable offer but whether this goes- FirstNet nationwide as contemplated or whether we see more cities and agencies like LA RICS deploy on their own, we're really comfortable with the investments we've made till date (we have started investing in public safety unique LTE in 2010 in a big way), we think those investments have put us at the front of the pack and if and when they roll out whether it's local or national we think we will play a significant role there.



**Pierre Ferragu, Bernstein**

OK, this is a very good clarification as well for the situation in the U.S. and how your role is going to play at the federal level and/or at a more local level. Maybe one quick follow up on that- I think you mentioned public safety LTE opportunity is rolling out an infrastructure and then it's of course operating an infrastructure but it's also doing a lot of system integration in particular with legacy in place around the LMR network and then it's a lot of network follow on cells of densification and expansion of the network and devices. If I were to think that all this major buckets and think about what is likely to end up being for Motorola Solutions' federal level opportunities and what is likely to actually end up being still very local type of business- how would you rank this?

**Bruce Brda, EVP, Systems and Products, Motorola Solutions**

Yes, I apologize but I just don't know how it will play out but let me try to answer it slightly differently. Project by project we've got a different mix of infrastructure and SI. One of our Middle East projects is actually a very large SI project with about 60% of the initial contract value being system integration and very, very low percentage being devices and applications. In those cases we would expect very large add-ons from a device perspective going forward because the initial contract essentially has no devices or near zero.

If you look at our business over the life, we're roughly a third infrastructure and two-thirds devices. My guess is LTE would probably settle out in a similar way over time. The infrastructure spend tends to lead, you got to build it before you can use it and then the device spend tends to lag and done highly customized work on the infrastructure from a prioritization and quality of service and push to talk perspective and similarly we've done the same thing on devices.

We don't build consumer grade. All of the attributes you know in our LMR devices- extreme durability, ability to operate in extreme environments, high audio, noise cancellation, all of those things are what we're building into our LTE devices. So they're purpose built. They're not the equivalent of a Galaxy or an iPhone, very, very, very different.

The other thing that I highlight on the device's side is that our users can't afford to swipe through multiple levels of menus to find the information they're looking at. So we've built on top of android what we refer to as PSX, public safety experience and this is knowing the job of the officer, knowing the context- so are they responding to an incident, are they in a life threatening situation and pushing to them only the right information for their job in their context at the right time, not more because it will distract and not less because it won't allow them to be as efficient and effective as possible. So as the devices begin to roll out we feel really good about our position to leverage the domain expertise we have from multiple decades in LMR and really bring a unique and differentiated product to the LTE device space as well.

**Pierre Ferragu, Bernstein**

Thank you, that's a clear and actually much, much clearer than my question, thank you for that and I'll probably close with one last question before opening it to Q and A from the audience. Whether that's your competitive landscape- so if I look at the LMR space, public safety LTE today you are like several times larger than any of your competitors both in the U.S. and on the international market so that's one of the strengths of your companion today. Public safety LTE getting into the game, does that bring in new competitors, do you think your competitive position is changing and what's going to be like the

competitive strength of Motorola in public safety and I think you probably answered most of the last one just now so we're good with that one.

**Bruce Brda, EVP, Systems and Products, Motorola Solutions**

Yes so indefinitely we'll introduce a different set of competitors. I think I spent a lot of my career 20 years in the space where our new competitors will come from- so carrier infrastructure providers and commercial or consumer device providers and what we do is different. And what I mean by that is- in LMR you measure in low millions of units, in carrier cellular devices you measure in billions of units and we're built around a model that allows for highly customized infrastructure devices and applications we do, that's how we win in LMR and that will be how we'll win in LTE.

As a device manufacturer in Motorola Mobility for many, many years we had people all the time ask us to do unique one-off devices. The model simply doesn't hold up for the big consumer players. So you know what we do is different. I believe the investments we've made and the domain expertise we've had will allow us to compete effectively against this new set of competitors just like we have against our historic LMR competitors.

**Pierre Ferragu, Bernstein**

OK that's clear. Thanks Bruce for answering all these questions and now operator you can open the Q and A session and everybody on the line if you feel more comfortable sending to me questions by E-mail in front of my desk I am very happy to take them that way as well.

**Investor Q&A**

**Pierre Ferragu, Bernstein**

I have actually one question that I got by E-mail during our discussion. Bruce it's about the impact of public safety LTE on your economic model so you have a partnership with Ericsson for the infrastructure. Probably the cost structure of LTE devices is going to be different from the cost structure of LMR devices, how should we think about the impact of public safety LTE on your PNL as it turns up?

**Bruce Brda, EVP, Systems and Products, Motorola Solutions**

Yes that's a great question. So I'll answer it this way. I referenced to one of the Middle East customers and said it was a very large system integration deal. In that particular deal, the Ericsson content was about 17% of the deal. So it is really a pretty small portion of the total deal. The majority of that deal from an initial perspective was SI. As we go forward we'll sell a lot of applications and devices on top of that. That profile should be very similar to the profile that we have in LMR today. Again, if I look at the life of a customer and where the money is spent between SI infrastructure devices and applications and we play that forward we're pretty comfortable that the margin profile will look very similar to our current business today.

Now we're in the very early stages so we have to let that play out but we feel good about that given the breakdown of the content in our solutions in the business.

**Pierre Ferragu, Bernstein**

OK, so I'll take this again the second question by E-mail. That's really about federal versus local in the U.S., if public safety LTE is a lot more about doing business at the federal level versus local level, does that change your competitive advantage that you have today in LMR and does that change also potentially your pricing power and margin profile as well?

**Bruce Brda, EVP, Systems and Products, Motorola Solutions**

We don't think so. Obviously today if you look at our LMR business in the U.S. we do have a lot of local contracts meaning city or county. We also have a lot of state-wide contracts and often those state-wide contracts are used across multiple states to buy from. We sell to the federal government but we don't really have national deals today in the U.S. In many countries outside of the U.S. we however do have nationwide deals. So we compete on a nationwide level all the way down to very local city county level. We believe in the U.S., nobody has the go-to-market strength that we do from a local level, city, county, state wide but we have been engaged with FirstNet from the beginning and the relationship now is probably stronger than it ever has been. That doesn't mean they won't put incredible pressure on us as a supplier, they will and they should, but we feel good about our position whether this goes off at a local level or a nationwide level. We think we've got the right investments to allow us to compete effectively again across all those dimensions which are really infrastructure device applications in SI.

**Pierre Ferragu, Bernstein**

Thank you, that's a clear and I have a one more pop up as you were speaking. It's a very good question so you mentioned that FirstNet has cleared up a lot of the situation in terms of with LTEs would be a replacement to LMR and the fact that LTE capabilities today are for data only and not for voice. Do you think that prior to this clarification some of your clients were actually confused and maybe pushed off LMR purchases waiting for clarification? Does that mean that as FirstNet clarifies the situation we could expect the pickup in LMR sales on the back of that?

**Bruce Brda, EVP, System and Products, Motorola Solutions**

The short answer is no. I think what they did in terms of helping us was they took away the need for us to educate customers one by one which we had done. So there was confusion but I haven't seen any overhang in the LMR space as a result of the ongoing FirstNet activities over the last few years. So I wish there was a bunch of pent-up demand but I don't think that's the case. I think our LMR customers continue to buy at a consistent rate throughout the last three years.

**Pierre Ferragu, Bernstein**

OK, that's very clear. I don't have any more questions. So Bruce, thank you very much, and thank you (Shep Dunlap and Chris Kustor IR team) for helping us organize this call.

I think it was extremely useful and it was a lot of very good clarification on the topic and everybody in the audience thank you for making the time to participate to this call. You will have it as always available on our Web site, a replay, transcripts and of course you can count on us for continuing to research this fascinating topic.

**Bruce Brda, EVP, Systems and Products, Motorola Solutions**

Thank you, Pierre.