Thank you, Glenn, and good afternoon everyone.

As Glenn said, today we’re here to talk about the road to LTE in public safety networks, so let’s get down to it.

Raytheon’s vision of the migration to LTE is defined by our experience, our world view, and most of all by the people we’re working with – the first responder community.

As a leading technology company, and as a pioneer in this field, Raytheon is intensely aware of the needs of first responders.

That principle is the core driver of Raytheon’s LTE vision – technology supporting people in a wide variety of mission-critical roles.

If we’re approaching this new world quickly, credit is due – at least in part – to the contribution of current public safety networks.

As that old saying goes: “You can see a lot farther when you stand on the shoulders of a giant.” In this case, the giant would be Land Mobile Radio or LMR.

I see looks of surprise on a few faces.

After all, aren’t we here to figure out how to ditch LMR and move toward LTE as quickly as possible?

Actually, no, that is not the objective.

Nothing in the communications arena, or for that matter in evolution itself, is ever quite so simple.

Evolution is a complex process that occurs in steps, and always ends in a type of balance.

When we leave here today, I hope it is with a balanced approach to the future of first responder communications.
There are three steps – or takeaways – I would ask you to consider:

First: **LTE will unleash “the power of the network.”** Make no mistake that LTE is the future. There is no debate over whether access to mission-critical data via broadband networks will benefit first responders. LTE will help first responders save lives, and will introduce improvements that streamline operational processes.

Second: **The migration to LTE will occur in increments.** There is no “big bang” theory for the creation of LTE public safety networks. They will not occur in a flash cut. LMR has done a good job for years, and will continue to play a role as we evolve toward LTE for mission-critical communications.

Third: **Choosing the right model for LTE will be critical to its success.** Building the first nationwide broadband mobile network for public safety is a huge undertaking. Because we will all live with the results for years – look at the longevity of LMR as proof – it is essential that we get the technical and business models for LTE right.

To meet the needs of the public safety community, the right model is one that will ensure interoperability, embrace open architecture, and be both standards-based and non-proprietary.

Let’s talk about those needs for a moment.

What exactly is driving the move toward LTE?

The obvious answer is “user need,” by which I mean the diverse set of requirements by all types of first responders.

Because LTE is a game-changer, we’ll see some dramatic improvements in how those needs are served.

With LTE, for example, a law officer might share a video of an escaping criminal, then use predictive solutions to determine where the “bad guy” is headed, and send squad cars to that site to intercept him.

On another front, firefighters would benefit from broadband networks that pump mission-critical data to tablet PCs – such as floor plans of burning buildings – in order to rescue trapped victims more quickly.

But nowhere will the benefits of LTE be more self-evident than in disaster situations.
In recent years we’ve seen a rapid increase in both natural and man-made disasters that place enormous strains on first responder networks.

These events, which always seem to come “out of nowhere,” have earned a new nickname – *black swans* – from the title of a best-selling book by mathematician and investor, Nassim Taleb.

A “black swan,” in this instance, is a rare event thought to be highly improbable or even impossible -- until it happens.

The story behind the name comes from a joke that Mother Nature once played on a group of 19th century British scientists.

At the time, no one had ever seen a swan that was any color other than white. Therefore, men of science deduced that all swans must be white.

Then came the discovery of black swans in Australia -- turning conventional scientific thinking on its head.

As Taleb points out, people are often fooled by broad general assumptions about probabilities. We tend to dismiss the possibility of rare events that almost inevitably come up from behind and bite us.

Sometimes, unfortunately, it takes a “black swan” event to spur action for improvement.

As the Public Safety Spectrum Trust notes in its history of public safety communications:

> “The first major federal legislation concerning wireless communications, the Radio Act of 1912, became law in response to a public safety issue -- the sinking of the Titanic.”

Thankfully, public policy is now catching up with public safety.

As you all know, last week Congress took important steps to move LTE off the drawing boards and into the hands of first responders.

That is excellent news.

However, in the real-time world of supporting first responders, events can outpace policy decisions.

For example, Raytheon last year won the first competitive bid for an LTE network – a 15-site system in Adams County, Colorado.
That program is on time and on budget, and one day may be expanded to serve the entire state.

But nationwide, the change to LTE won’t take place all at once or in all places – and it won’t abandon other technologies that have proven their worth.

At present, for example, LMR remains the standard for mission-critical voice communications.

Even though it is decades old, LMR has not stood still. Far from it! LMR and P-25 have grown significantly through a number of important advancements, and will be around for a long time.

However, with today’s “bandwidth boom,” the market is rapidly changing, and has raised expectations of what a public safety communications network should do.

Broadband data has become extremely important, hence the need for new capabilities made possible by LTE.

For the moment, as we all know, one slight “downside” of LTE is that it doesn’t support voice.

In the commercial arena, you can buy a 4G Thunderbolt mobile phone, but it’s a “bolt” without “volt” – that is, without Voice over LTE.

Most believe that it is only a matter of time before LTE will accommodate mission-critical voice. Meanwhile, VoIP is a reliable alternative.

The obvious data benefits of LTE have made many people eager to push forward – and we should do so.

But let’s get the model right, first.

I mean “model” in both the business and technical senses of the term.

The business model is laid out clearly in the language of the FCC Order for a national broadband network.

On the technical side we have choices when it comes to models. Some are in keeping with the times, others less so.
For example, the fallback position of using legacy, closed, proprietary systems is still favored by a few.

Since this is an election year, I'll share a story that puts the proprietary approach in perspective.

Many years ago, a Senator who had quietly held office for decades decided to run for President.

He entered the Iowa caucus, but because his views were out of touch with the electorate, he won only 2% of the vote.

Not discouraged, he plodded on and entered the New Hampshire primary. There, only 1% of the voters favored him.

This trend continued for weeks – from primary to caucus – with dwindling support for the Senator’s cause.

Finally a reporter asked: “Senator, why do you stay in the race when fewer people seem to want you as President?”

“The Senator looked him in the eye and replied, “I intend to demonstrate my leadership even if nobody is following me.”

Alright, I confess that perhaps this story is a little mythical.

But as a parable, it illustrates the attitude of those who still tout proprietary systems for mission-critical communications.

And it's an attitude that's all wrong!

The right technical model must be one that is in sync with the current and future direction of technology development.

It must be consistent with the following principles:

- Non-proprietary
- Open architecture
- Standards-based, in compliance with the national model
- Customer-owned, with customer input, and above all --
- Interoperable

Let’s focus on this last principle – interoperability – which is a key issue.

As the PSST notes on its website – “The need for interoperability within and between jurisdictions has never been greater.”
However, it is also generally agreed that interoperability will be among the greatest challenges in the evolution toward LTE.

As I just said, the migration to LTE won’t happen overnight. We will see LMR, P-25, LTE, and perhaps different flavors of each.

Such diversity will continue because there is no single technology that fits everybody’s needs.

This doesn’t mean that we won’t have a public safety network that is truly national in scope.

It does mean that we will need a layered architecture that accommodates everyone, is built to mission-critical specs, and is interoperable from one location and technology to the next.

As a forerunner, Raytheon just announced Rapid Alliance™ -- a collaborative, open architecture approach to mission critical communications that is fully interoperable for both LMR and LTE, and built to meet the diverse and growing needs of first responders.

This last point is an important one that none of us should ever lose sight of:

The evolving LTE infrastructure is the public safety community’s and first responders’ network.

It must be based on what they see as their most important needs, from day-to-day applications to the highest level of disaster recovery demands.

Many of us here today are joined in the effort to build this new network.

As long as we work to the “specs” set down by the customer, I believe we’ll unleash the full power of the network and a new generation of mission critical communications “apps” not yet dreamed of.

Thank you.